

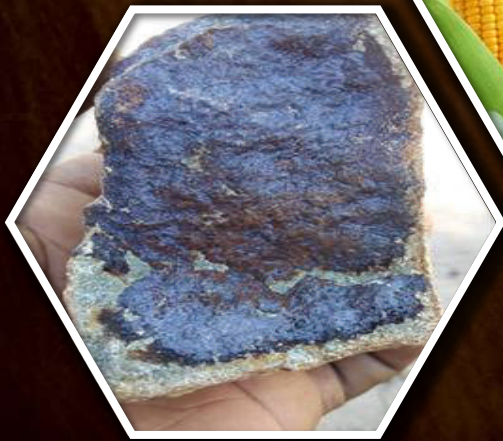


REPUBLIC OF ZAMBIA

MINISTRY OF LOCAL GOVERNMENT AND RURAL DEVELOPMENT

LUWINGU DISTRICT

INTEGRATED DEVELOPMENT PLAN (2023 - 2033)



"A District with a diversified economy and improved livelihoods by 2033".



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LUWINGU INTEGRATED DEVELOPMENT PLAN

APPROVAL OF THE LUWINGU INTEGRATED DEVELOPMENT PLAN

The Luwingu Integrated Development Plan is submitted to the Minister responsible for Local Government and Rural Development by the following office bearers:

Benson Chama Malama
Council Secretary

REPUBLIC OF ZAMBIA
MINISTRY OF LOCAL
GOVERNMENT AND HOUSING
22 APR 2024
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LUWINGU DISTRICT COUNCIL
P.O. BOX 460001, LUWINGU.

Chileshe Chomba
District Commissioner

Signature

Rodricks Mulenga
Council Chairperson

REPUBLIC OF ZAMBIA
MINISTRY OF LOCAL
GOVERNMENT
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COUNCIL CHAIRPERSON
LUWINGU DISTRICT COUNCIL
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Executive Secretary
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Bernard Mpundu
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25 APR 2024

Signature

APPROVED BY:

Hon. Gary Nkombo, MP
Minister of Local Government and Rural Development

REPUBLIC OF ZAMBIA
MINISTRY OF LOCAL GOVERNMENT
AND RURAL DEVELOPMENT
06 MAY 2024
Signature
MINISTER
P.O. BOX 50027 15101
RIDGWAY LUSAKA

FOREWORD



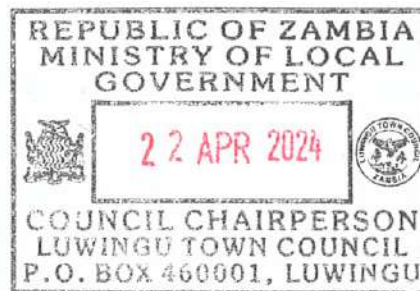
Luwingu District is devoted to implementing the Eighth National Development Plan and Vision 2030 through a comprehensive and integrated approach towards development. This method ensures that all Line Ministries and Government Departments collaborate in addressing the social and economic needs of every individual within the District.

The Integrated Development Plan aims to establish a diverse and resilient economy, anchored on Agriculture, Tourism, and Trade. The District will execute programs aligned with the Four Pillars of the Eighth National Development Plan which encompasses Economic Transformation and Job Creation, Human and Social Development, Environmental Sustainability as well as Good Governance Environment.

The District acknowledges that an integrated approach is indispensable for achieving these objectives. Ultimately, we extend our gratitude towards the District Planning Unit, technical personnel together with other crucial stakeholders for their valuable contribution to this significant document.

A handwritten signature in black ink, appearing to be 'R. Mulenga', written over a light blue horizontal line.

**RODRICKS MULENGA
COUNCIL CHAIRPERSON**



ACKNOWLEDGEMENT



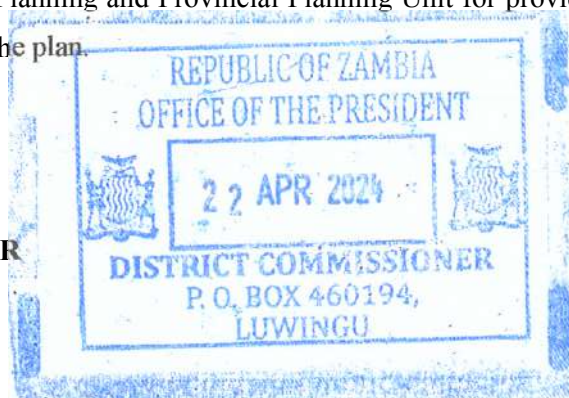
The Luwingu Integrated Development Plan (IDP) has been developed in line with the Eighth National Development Plan (8NDP) and aims to accelerate development efforts towards the vision 2030. The formulation of the IDP involved the contributions of various individuals and stakeholders. Special thanks are given to Mr. Patrick Chanda, the former District Commissioner, and key pioneers such as Mr. Verenasiyo Tembo, Mr. Ducan Chipulu, Mr. Joseph Zulu, Engineer Maxon Nketani, Mr. Garry Chipungu, and Mrs. Victoria Saina Bwanali.

Gratitude is also expressed to Luwingu Town Council, led by Mr. Rodricks Mulenga and Mr. Benson C. Malama, for providing valuable critique and checks and balances during the preparation of the IDP. The efforts of Ms. Mwamba Mukupa, the immediate past District Planning Officer, in reviving the preparation of the IDP are also acknowledged. The IDP Team, led by Mr. Joseph Mumba, is recognized for their tireless work in shaping the process of preparing the IDP.

Additionally, special recognition and commendation are given to Mr. Alick Kampamba, Engineer Kabwe Chileshe, Mr. Ngao Sinkala, Ms. Lizzie Musonda, Mr. Teddy Chilangisha, Engineer Goodson Nkaka, Engineer Percy Kazimbo, Mrs. Annette M. Nyamkandeka, Mr. James Mhango, Mr. Gilbert Musonda, Mrs. Chitalu Chela, and Mrs. Rahabu Musyani for their significant contributions.

The Royal Highnesses, Civic Leaders, Council Management, and Heads of Government Departments are also acknowledged for their role in preparing the IDP. Lastly, sincere appreciation is conveyed to the Department of Physical Planning and Provincial Planning Unit for providing technical support to the development process of the plan.


CHOMBA C. CHILESHE
DISTRICT COMMISSIONER



EXECUTIVE SUMMARY



The District appreciates the vision Government has in the development of the Nation to raise it to a ‘prosperous middle-income nation by 2030’. Our role as District leaders is to translate this National Vision to district terms and to ensure that as a district we are contributing effectively towards the attainment of this vision. In order to foster development across the thirteen (13) wards of Luwingu, this Integrated Development Plan has been developed in line with the Eighth National Development Plan premised on an integrated and multi-faceted approach to development.

In order to accelerate development efforts towards realizing the Vision 2030, the District has developed this plan that spans from 2023 to 2033. It is the hope of the District that the development activities in Luwingu will be sustainable and relationships will be fostered between development agents and the local people they are expected to serve. The District will endeavour to facilitate and coordinate multi-sectoral development as expressed in the IDP in a decentralized and democratic manner, to the extent possible, while awaiting full implementation of the National Decentralization Policy.

It is my sincere pleasure to convey my gratitude to the Luwingu Town Council, District Administration and all line Ministries for their contribution in the formulation of this plan. My hope is that all stakeholders buy into this plan and ensure that the District accelerates development efforts towards attaining the Vision 2030.

A handwritten signature in black ink, appearing to read 'B. Malama', written over a light blue grid background.

BENSON C. MALAMA
COUNCIL SECRETARY



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LIST OF ACRONYMS

APMs	Area Pump Minders
CBD	Central Business District
CIP	Capital Investment Programme
COMDEV	Community Development
CSA	Climate Smart Agriculture
CWAC	Community Welfare Assistant Committee
CWSC	Chambishi Water & Sewerage Company
DDCC	District Development Coordinating Committee
DEBS	District Education Board Secretary
DHO	District Health Office
ECE	Early Childhood Education
ESLIP	Enhanced Smallholder Livestock Investment Programme
FTC	Farmers Training Centre
GEWEL	Girl’s Education, Women’s Empowerment and Livelihoods
GHG	Green House Gases
H/H	Household
IDP	Integrated Development Plan
ILUA	Integrated Land-Use Assessment
IPT	Isoniazid Preventive Therapy
IRS	Indoor Residual Spraying
ISWMS	Integrated Sustainable Waste Management System
ITN	Insecticide-Treated bed Net
KGS	Keeping Girls in School
LAP	Local Area Plan
LED	Local Economic Development
MLGRD	Ministry of Local Government and Rural Development
MoA	Ministry of Agriculture
MoH	Ministry of Health
OVCs	Orphans and Vulnerable Children
PSIR	Planning Survey & Issues Report
REA	Rural Electrification Authority
SCT	Social Cash Transfer
SDF	Spatial Development Framework
SUN-TA	Scaling Up Nutrition Technical Assistance
SWL	Supporting Women’s Livelihoods
WDC	Ward Development Committee

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CHAPTER ONE: DISTRICT INTRODUCTION AND BACKGROUND

1.0 Introduction

Integrated Development Plans (IDPs), are an important tool for guiding growth, development, and management of towns and cities in any country. In Zambia, the Government has recognized the significance of IDPs in facilitating multi-sectoral development and has undertaken the formulation and implementation of IDPs in all towns in the ten (10) provinces of the country, including Luwingu in the Northern Province.

Luwingu is rich in natural resources such as water, land, forestry, wildlife, and tourism sites. However, the District currently experiences low economic development due to limited investment and poor capital formation. Obsolete technology, underdeveloped infrastructure, and a lack of skilled manpower further hinder economic growth in the District. To address these challenges and stimulate development, an integrated approach through the IDP is necessary. The IDP is expected to identify potential areas for investment and infrastructural development, thereby fostering economic growth in Luwingu.

The formulation of IDPs in Zambia is facilitated by the Urban and Regional Planning Act No. 3 of 2015. This act establishes the framework for the development plans and addresses subsequent developmental challenges. The IDP serves as the principal planning instrument to guide and inform all planning and development decisions in the area of the local authority. Although Luwingu District has not had an approved Development Plan since its inception in 1906, sector plans have been in place to guide developmental projects. The preparation and implementation of the Luwingu IDP will play a significant role in fostering development in the district and making it a major contributor to the development of Northern Province and Zambia as a whole.

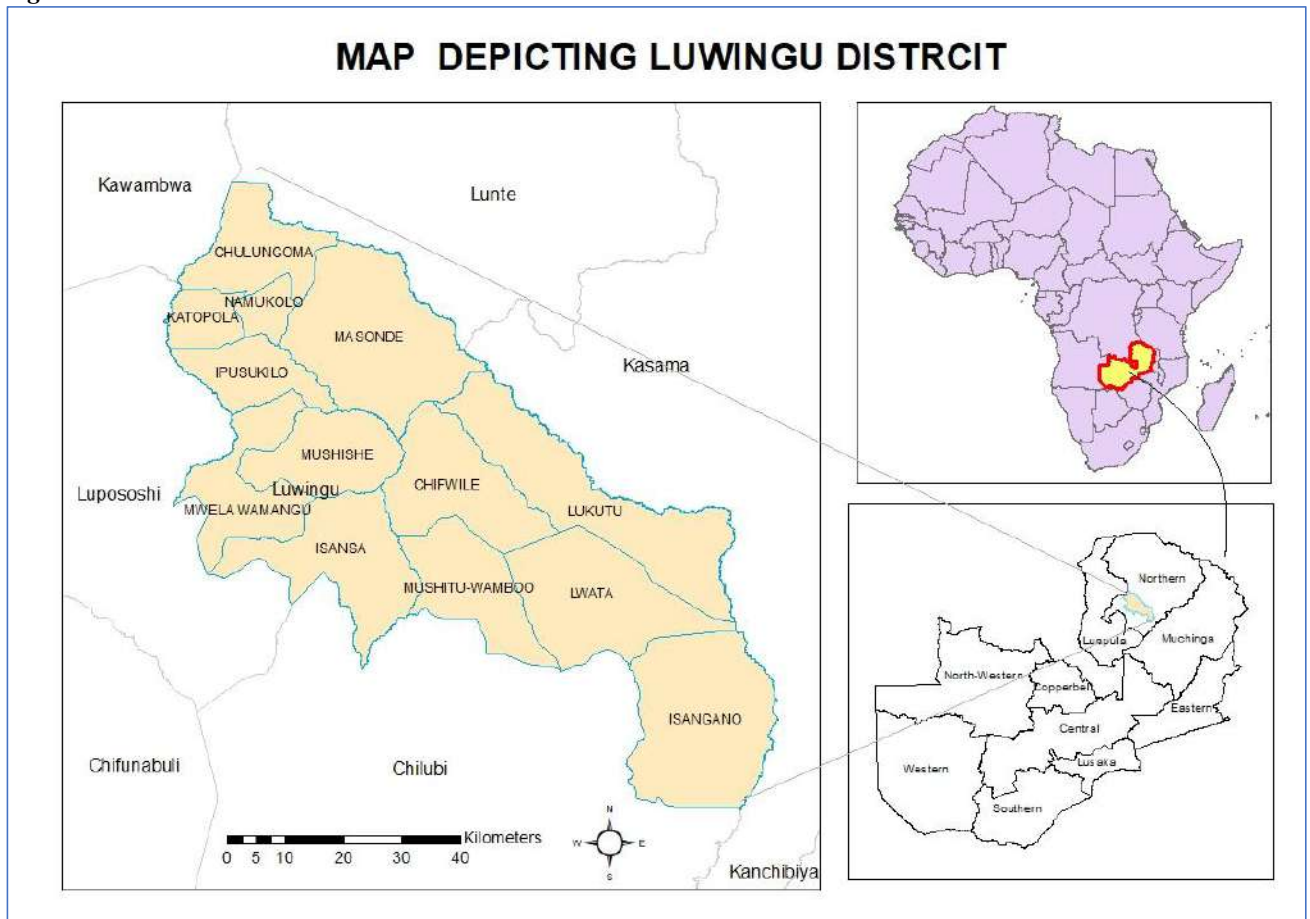
The Luwingu IDP consists of three major components: The Planning Survey & Issues Report (PSIR), the Spatial Development Framework (SDF), and the Implementation Plan. The PSIR, which is the first phase, identifies the core problems faced by each sector in the district. The SDF, the second phase, outlines the spatial development of Luwingu in the future and includes plans for physical and socio-economic development. It also addresses the vision, strategies, and objectives based on internal and external factors affecting development in the district. The Implementation Plan, the third phase, details the Cost Investment Plan (CIP) and

outlines how the programs and activities will be implemented over the ten-year planning period of the IDP.

The preparation of the Luwingu IDP involved extensive consultations with the community, stakeholders, and marginalized groups such as the youth, physically challenged, elderly, and women. Consultations were conducted at various levels, from the community up to the zone level, and included engagements with urban stakeholders such as the business community. Key stakeholders like village headmen, Ward Development Committees (WDCs), and civic leaders were also consulted during ward and zonal meetings.

1.1 District Profile

Figure 1: District Location



Source: GIS Unit – Luwingu Town Council, 2023

Luwingu is one of the 12 Districts in Northern Province located on the M3 Road, about 845 km from Lusaka, 165 km West of Kasama District. The district is 202 km and 118 km South and North of Mporokoso and Chilubi Districts respectively. It lies between Longitudes 29°06'

and 30°48' East of the Greenwich Meridian and between Latitudes 10°15' and 11°06' South of the Equator and between altitudes 0m and 900m above sea level.

The District has a surface area of approximately 6,892 km² of which only close to 5 percent is under leasehold tenure while the remaining 95 percent is under customary (Traditional). Just like many rural Districts, Luwingu has 3 chiefdoms, which are overseen by their Royal Highnesses Senior Chief Shimumbi of Shimumbi Chiefdom, Chief Tungati of Tungati Chiefdom and Chief Chipalo of Chipalo Chiefdom (where the CBD is located). Administratively, Luwingu only has one Constituency – Lubansenshi Constituency, which is further segmented into thirteen (13) wards as shown in figure 1.

1.2 Vegetation and Soils Characteristics

The majority of the District's vegetation is savannah woodland, which covers 90% of the high land and some parts of the flat land. This type of vegetation is characterized by scattered trees, shrubs, and grass mingled or undergrowth. Additionally, there are patches of thick Miombo Forest with shrubs and grass scattered throughout the area. In the southern part of the District, approximately 10% of the vegetation consists of swamps and dambos. These areas are characterized by wet and marshy conditions, making them suitable for rice cultivation. The presence of scattered trees in these swamps and dambos provides some shade and additional ecological benefits. Overall, the District's vegetation is predominantly savannah woodland, with patches of Miombo Forest and swamps/dambos suitable for rice cultivation.

The District has different types of soils; these vary from place to place. Generally, most of the soils found in the District are acidic in nature and require liming for optimum crop yield. The upland soils range from strongly acidic red brown clay to loam soil with clay to fine loamy top soils derived from acidic parent rocks. Lake basin soils are found in the lower Chambishi-Bangweulu Basin. They are sandy, pale yellow brown, very acidic in humus content, but able to retain moisture for a long time. Around the lagoons and along most rivers are the dambos with the soils ranging from alluvial to sands. Most of these areas are good for sugarcane and rice growing. Luwingu District is also good for maize and groundnuts growing because of the belt of red soils from Chifwile Farm Block and runs through Chibofwe Area¹.

¹ (W.J Veldkamp —Soils of Zambia, Ministry of Agriculture and Water Development 1987)

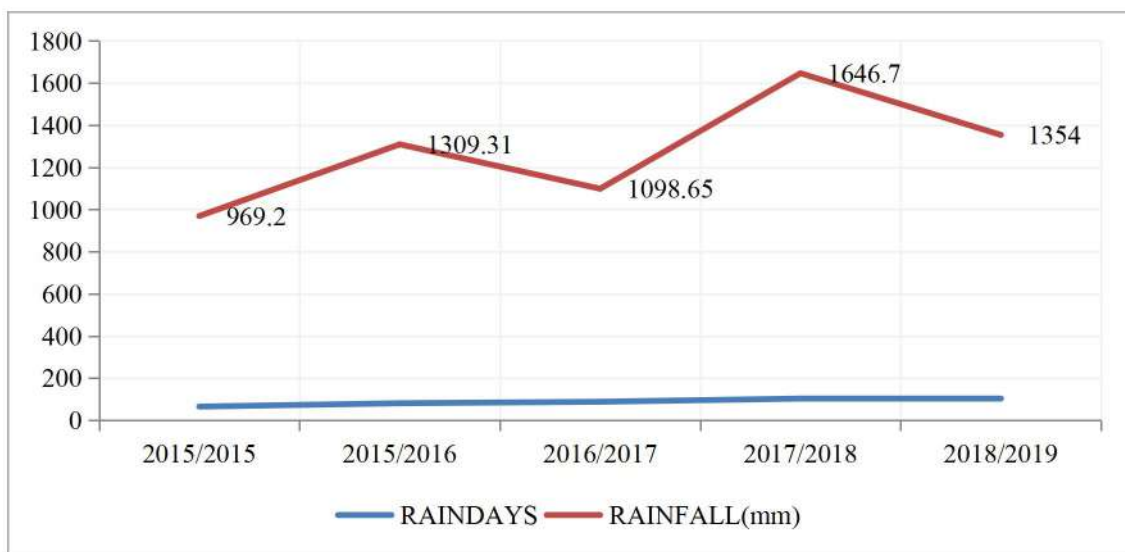
1.3 Climate

Luwingu District experiences a warm tropical climate with adequate rainfall above 1058.3mm from November to April. Generally, during the month of May to July, it is fairly cold with temperature ranging from 8° - 22 ° Celsius. From August to October, it is usually cool-warm, humid with partial rainfall at times with average temperatures ranging from 21° Celsius to 24° Celsius. The low or modified low temperatures are mainly due to high altitude and the area being a watershed. Streams, lagoons, swamps and the lake modify temperature in the low land. The climate is very ideal for crop growth, livestock and fish farming.

1.4 Rainfall Trends

Luwingu’s rainy season runs from November to April. As shown below, the rainfall the District has received over the years has been increasing with the highest amount being recorded in the 2017/2018 season. However, the District continues to see a drop in the amount of rain and also a short window for the rainy season.

Figure 2: District Rainfall Trends



Source: Department of Agriculture

1.5 Topography

The northern part of the District is situated on the highland with altitude of 1200m and 1500m above sea level, while the southern part slopes towards the flat land, which ranges from 1200m to 900m above sea level especially towards the Bangweulu in the southern part

of the region. The District's Central Business District (CBD) is generally on the watershed from which most rivers in the District have their sources.

CHAPTER TWO: PLANNING SURVEY AND ISSUES REPORT

2.0 Introduction

The Planning Survey and Issues Report (PSIR) is a crucial step in the integrated development planning process. It aims to identify and establish the important issues that define the current situation in the district. The PSIR is designed to identify core issues that affect all sectors within the District. The purpose of this report is to provide a comprehensive understanding of the challenges faced by each sector in the District. By identifying these core issues, the report helps in formulating strategies and action plans to address and counter against these challenges.

The PSIR involves conducting surveys, research, and data collection to gather information on various aspects such as infrastructure, social services, economic conditions, environmental factors, and other relevant areas. The report analyses the data collected to identify the key issues and challenges faced by each sector. Once the core issues are identified, they serve as a basis for developing strategies and action plans to address these challenges. These strategies can include infrastructure development, policy changes, resource allocation, capacity building, and other interventions aimed at improving the overall development of the District.

By establishing the important issues that define the current situation through the PSIR, the Integrated Development Planning process can effectively prioritize and allocate resources to address the challenges faced by each sector. This ensures a more coordinated and targeted approach towards sustainable development in the District.

2.1 Demographic Analysis

This section focuses on measuring the population dimensions, parameters, and dynamics of Luwingu District (IDP area) from 2021 to 2035, in comparison with the base year of 2022. The population of Luwingu District is projected to grow at a rate of 5.6% from 2019 to 2035, according to the 2022 Census Preliminary Report, 2019 Projection Report, and 2010 Census Report. This section also analyzes the primary trends, changes, distribution, and compositions of the population in the IDP area during the implementation period. It examines the impact of these changes on land use and spatial development patterns, as well as the possible outcomes of the population forecast.

2.1.1 Population and Population Growth

The national population has continued to grow over the past decades. The population grew at an average annual rate of 3.4 percent between 2010 and 2022, an increase from 2.8 percent in the 2000 - 2010 intercensal period. Luwingu District is the fastest growing population in Northern Province (with the growth rate of 5.6) accounting for 9.1% of the total Provincial Population. According to the 2010 Census report, Northern Province's population stood at **522,860** in 2010 and the 2022 Census preliminary report, estimates show Luwingu District's total population at **101,142**. The district's sex distribution is relatively balanced with about 50.51 Per cent of the population being Female while 49.49 percent are Males (census, 2022).

2.1.2 Population Characteristics

The population of Luwingu District will be defined by the five most important aspects of the population characteristics which are; population size and density, mortality rate, birth rate, spatial distribution and age structures.

2.1.2.1 Population Size and Population Density

According to Census Report, the 2022 population density in Zambia is **26 people per Km Sqr** (67 people per mi²), calculated on a total land area of 752,612 Km² (287,024 sq. miles). The population density for Northern province is estimated to 20.8 people per Km Sqr and Luwingu District as of 2022 was approximated to have **21 people per Km²** (56 people per sq. miles), calculated on a total land area of 4899.5 Km² (sq. miles). This meant that approximately 21 people in Luwingu District occupied a space of one square kilometers of land.

2.1.2.2 Population Spatial Distribution of the IDP area

Approximately 10% of Zambia's population is concentrated in Lusaka Province. The provincial distributions rank Northern Province among the least populated areas with the provincial capital (Kasama) having more people compared to other districts in the province. The population of Luwingu District is mostly concentrated around the central business area within Chipapalo Chiefdom (where the CBD is located). The Chiefdom (Chipalo) has the highest number of people compared to the other two chiefdoms. The district population distributions follow a linear pattern (with more settlements along the road) and some population groups gathered around the agricultural/farming/fishing camps; this is evident in

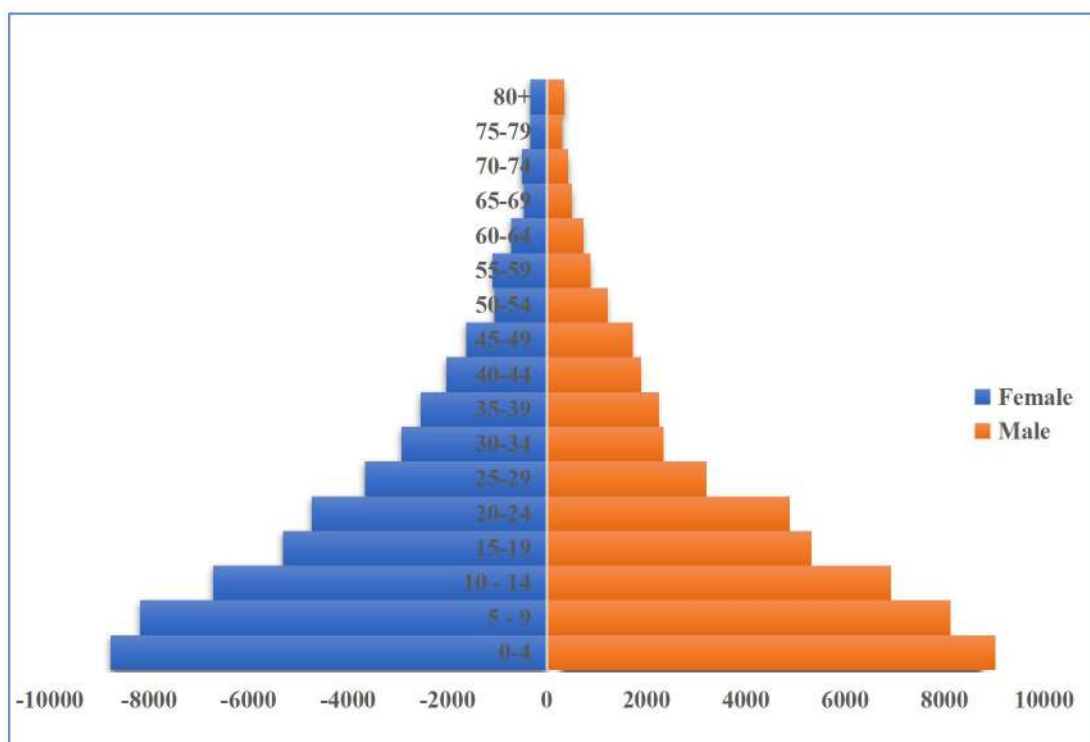
Mwelawamango (along luwingu – Nsombo- Chaba road), Katopola (along M3) and Isangano ward (within Isangano National Park).

2.1.2.3 Population Age structure of Luwingu District

According to the 2022 World Population Clock, the total world population is estimated to be at 7,975,105,156 and as per central statistics reports approximately 19,610,769 in 2022, 17,351,708 in 2018, compared to only 2,340,000 in 1950. The proportion of children below the age of 15 in 2010 were 46.4 percent, 50.6 percent was between 15 and 65 years of age, while 3.1 percent was 65 years or older. As it is evident in the population pyramid below, Luwingu District’s population can be characterized as being youthful with up to 44.3 per cent aged below 15 years and 83.06 percent aged below 35 years. It forms a typical Zambian population pyramid with more female compared to males. Evident with the pyramid below more males are born compared to females and through the years the number of males reduces compared to Females.

The young and old dependence ratio in the base year 2022 is estimated to be 95% and 6% respectively. A high dependency ratio like this one means that those of working age, and the overall economy, face a greater burden in supporting the young than supporting the aging population.

Figure 3: Population Distribution for the projected year 2022



The above *figure* depicts the population of Luwingu District for the base year 2022. The pyramid has a wider base translating to a young population (more than half of the population is below 39) and a narrow top showing that few numbers in the aged population category. See Table 1 for details

Table 1: 2022 (base year) Population Distribution in Luwingu District

YEAR	2022		
Age group	Female	Male	Total
0-4	8,777	9,014	17,791
5-9	8,196	8,117	16,313
10-14	6,723	6,917	13,639
15-19	5,317	5,321	10,638
20-24	4,742	4,883	9,625
25-29	3,669	3,206	6,875
30-34	2,930	2,339	5,270
35-39	2,544	2,247	4,791
40-44	2,026	1,893	3,919
45-49	1,626	1,721	3,347
50-54	1,062	1,214	2,276
55-59	1,104	877	1,981
60-64	726	723	1,450
65-69	464	500	964
70-74	502	426	928
75-79	343	310	653
80+	335	347	682
Total	51,087	50,055	101,142

2.1.2.4 District Natality (Birth) Rate

Natality, also known as birth rate, is one of the ways in which a population can increase. Natality refers to the production of new individuals through birth, hatching, or fission. The population natality rate is equivalent to the birth rate, which is the total number of live births to a woman in a given period of time and defined space.

A live birth is defined as the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached. Each product of such a birth is considered live born, and all live-born infants should be registered and counted as such, irrespective of gestational age or

whether alive or dead at the time of registration. If they die at any time following birth, they should also be registered and counted as deaths.

According to the 2010 Census Report, the birth rate for Zambia was 45 live births per 1,000 women. The Child Woman Ratio (CWR) for Zambia in 2010 was 738 children (ages 0-4 years) per 1,000 women. The rural CWR was 879 compared to 563 in urban areas. The Integrated Development Plan Area (Luwingu), according to the report by the District Health Office (DHO), recorded 4,726 live births in 2022. Therefore, it can be said that Luwingu District had approximately 208 live births per 1,000 women in 2022.

2.1.2.5 District Mortality (Death) Rate

Death is the permanent cessation of all signs of life following live birth, specifically the postnatal halt of essential functions without the potential for revival. This definition does not encompass fetal deaths.

Maternal Mortality refers to the number of female deaths related to or exacerbated by pregnancy or its management (excluding accidents or incidental causes) during pregnancy and childbirth within 42 days of pregnancy termination, regardless of the pregnancy's duration and location. As per the Luwingu DHO, the maternal mortality ratio at health facilities was 48.5 per 100,000 deliveries in 2021 and 169.3 in 2022.

The under-5 mortality rate is a crucial indicator of child health and the overall well-being of a population. It represents the likelihood of a child born in a given year dying before the age of five and encompasses infant mortality, neonatal mortality, and deaths below age 5. In Zambia, infant mortality is slightly higher in urban areas (44 deaths per 1,000 live births) than in rural areas (41 deaths per 1,000 live births). In Luwingu District, located in Northern Province, infant mortality was recorded at 64 deaths per 1000 live births in 2021 and decreased to 63 deaths per 1000 live births in 2022. A similar trend is observed for under-5 mortality (64 deaths per 1,000 live births in urban areas and 58 deaths per 1,000 live births in rural areas). The under-5 mortality rate in Northern Province was 56 per 1000 live births, which is lower than the rates in North Western, Eastern, and Western Provinces where under-five mortality rates are high in Zambia.

2.1.3 Projected Population and Likely Characteristics

In this section, we will project the population and analyze the population distribution patterns and other variables. This will begin with examining the current population trends and forecasting future population growth. We will also look at factors such as age distribution, gender ratio, and population density to gain a comprehensive understanding of the population dynamics. Additionally, we will explore how various social, economic, and environmental factors impact population distribution. By conducting this analysis, we aim to identify potential challenges and opportunities related to population changes and develop strategies to address them effectively.

2.1.3.1 Projected Population

In the highlighted section, the focus will be on providing an overview of population projections for a ten-year period commencing from the base year of 2022. The importance of population projections lies in their ability to provide valuable insights into future population growth, enabling proactive planning. This section will delve into the methodology used for population projections, encompassing district and sub-district (ward level) projections, as well as the assumptions, limitations, and anticipated population characteristics. By addressing these aspects, the section aims to offer a comprehensive understanding of the projected population landscape, facilitating informed decision-making and strategic planning.

2.1.3.2 Population Projection Methodology

The projection period (2021-2035) for Luwingu District lacks the necessary information for the cohort component method, which requires inputs of fertility, mortality, and migration. Assembling multiple models at lower administrative levels can be challenging and demographic estimates and projections may be less reliable at these levels. As a result, mathematical models (with ranking) provide a reasonable alternative for projecting populations below the first administrative level.

This projection utilizes mathematical models and ranking to ensure that the projected populations at lower administrative units match that of the larger administrative units to which they belong. Further, the age and sex distributions of lower administrative units can be effectively ranked according to the household and sex distribution of the district. However, projected characteristics of the sub-units in each year may reproduce features of those units in the base year (e.g. their initial age and sex structure).

2.1.3.3 District projections and Sub-District (Ward level) projections

To project district population and ward population, the approach begins by determining the growth of each ward in the district from 2010 with comparisons to the 2022 preliminary Census report through to 2035. A logistic function was then applied to the district proportions to estimate the proportion of males and females, respectively to the district growth rates provided in the 2022 preliminary report by the central statistics population, age structures from the ECZ 2019 projections and Demographic Projections of the Province.

Once those proportions were determined for each year of the projection, the total male and female population for the district in that year (from the cohort component model) was used to estimate the total district population by sex and year of projection. The next step was to estimate age distributions by sex for the district for each year of the projection. The 2021 projections gotten from world Population projections data on age and sex distributions for the districts and constituencies within province Northern Province were used by subjecting them to the 4.7 growth rate given by CSO 2022 preliminary census report.

The initial 2021 distributions (2022 ranking was not available at present) for the district were then raked to the corresponding controls for each projected year. What resulted was an age-sex distribution for each district for each projection year (in some cases, the age and sex distributions may not sum exactly to the listed totals due to rounding issues).

2.1.3.4 Assumptions

The following assumptions were made and maintained throughout the projection period 2021 to 2035.

- The annual growth rate for Luwingu District has been estimated at **5.6 per cent** (extracted from the Census Preliminary Report) and remains the same between different sexes and throughout the projected years.
- The three agents of change; Mortality, Migration and Fertility remain constant throughout the projection period (it was hard to determine real time Migration as the variant changes almost every day).
- Mathematical method was used for all the projection, using the projection equation (**$P = \text{Current Population} \times \text{Growth rate} + \text{Current Population}$**) where P is the Projected Population for the following year.

- The Projections Uses the 2019 projected data and graduates it with the set 2022 population data according to the sex distributions and therefore, setting the base year to be 2022 and all references are extracted from the census report.
- The total land size for Luwingu was estimated at **4899.5 Km²** (as determined by the Census report) and this was used to calculate the population density² of the district throughout the projected period.

2.1.3.5 Limitations

The accuracy of demographic and population forecasts can only be verified by future data that confirm how well the original assumptions hold. In forecasts of the future, some level of uncertainty is unavoidable such as the distributions in Ages affected by Migrations and any unforeseen occurrences. The district in 2010 had two constituencies and now has one, by the time this document was created the data was not adequately segmented according to the new delimitation especially for wards, hence the use of Constituency projected age-sex data for 2019. The preliminary census report did not contain cluster information with respect to age sex distributions.

2.1.3.6 Likely Characteristics

The population projection will look at three likely population characteristics for the projected period 2022 to 2035 for Luwingu District which are; population size and density, spatial distribution and age sex structures.

2.1.3.6.1 District Population Density Projection

Population Density is the number of people per km² of land-area. By analyzing current population trends and development patterns, we can project a steady increase in population density in the district over the next decade. This projection considers factors such as migration, birth rates, and economic growth, and is crucial for informing future urban planning and infrastructure development.

Table 2: Projected Total Population Density

District Population Density Projection				
Year	2022	2025	2030	2035

² Number of people per square meter (PD=Projected Population/total surface area)

Population	101,142	119,103	156,402	205,382
Pop Density	21	24	32	42

The table above shows the population densities (Number of people living on a square kilometre of Luwingu District) from 2022 to 2035 together with the changes that come with the increase in population. It can be seen that from 21 people to 24 people in 2025 to 32 people in 2030 and finally 42 people in 2035)

YEAR	2021			2022			2025			2030			2035		
	Age group	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male
0-4	8,383	8,609	16,992	8,777	9,014	17,791	10,336	10,615	20,950	13,572	13,939	27,511	17,823	18,304	36,127
5-9	7,828	7,752	15,580	8,196	8,117	16,313	9,651	9,558	19,209	12,674	12,552	25,225	16,643	16,482	33,125
10-14	6,421	6,606	13,027	6,723	6,917	13,639	7,916	8,145	16,062	10,395	10,696	21,092	13,651	14,046	27,697
15-19	5,078	5,082	10,161	5,317	5,321	10,638	6,261	6,266	12,527	8,222	8,228	16,451	10,797	10,805	21,602
20-24	4,529	4,664	9,193	4,742	4,883	9,625	5,584	5,750	11,334	7,333	7,551	14,884	9,630	9,915	19,545
25-29	3,504	3,062	6,566	3,669	3,206	6,875	4,320	3,775	8,096	5,673	4,958	10,631	7,450	6,510	13,960
30-34	2,799	2,234	5,033	2,930	2,339	5,270	3,451	2,755	6,205	4,531	3,618	8,149	5,950	4,750	10,701
35-39	2,430	2,146	4,576	2,544	2,247	4,791	2,996	2,646	5,642	3,935	3,474	7,409	5,167	4,562	9,729
40-44	1,935	1,808	3,743	2,026	1,893	3,919	2,386	2,229	4,614	3,133	2,927	6,059	4,114	3,843	7,957
45-49	1,553	1,644	3,197	1,626	1,721	3,347	1,915	2,027	3,942	2,514	2,662	5,176	3,302	3,495	6,797
50-54	1,015	1,159	2,174	1,062	1,214	2,276	1,251	1,429	2,680	1,643	1,877	3,519	2,157	2,464	4,621
55-59	1,055	837	1,892	1,104	877	1,981	1,301	1,032	2,333	1,708	1,355	3,063	2,243	1,780	4,023
60-64	694	691	1,385	726	723	1,450	856	852	1,707	1,123	1,119	2,242	1,475	1,469	2,944
65-69	443	477	921	464	500	964	546	589	1,135	717	773	1,490	942	1,015	1,957
70-74	480	407	887	502	426	928	592	502	1,093	777	659	1,436	1,020	865	1,885
75-79	327	296	624	343	310	653	403	365	769	530	480	1,010	696	630	1,326
80+	320	332	652	335	347	682	395	409	804	518	537	1,055	681	705	1,386
Total	48,794	47,808	96,602	51,087	47,808	101,142	60,159	58,944	119,103	78,999	77,403	156,402	103,739	101,643	205,382

Table 3: Population Distribution by sex and age groups

The table above shows the distribution of the populations according to sex and age groups for the projection period 2021 to 2035. The tables show more Females than Males for all the projected years and that the population continued to grow from 96,602 in the year 2021 to 101,142 in the base year 2022 and grow to 156,402 in 2030 and 205,382 in the final year 2035, which is double the base year population (101,142).

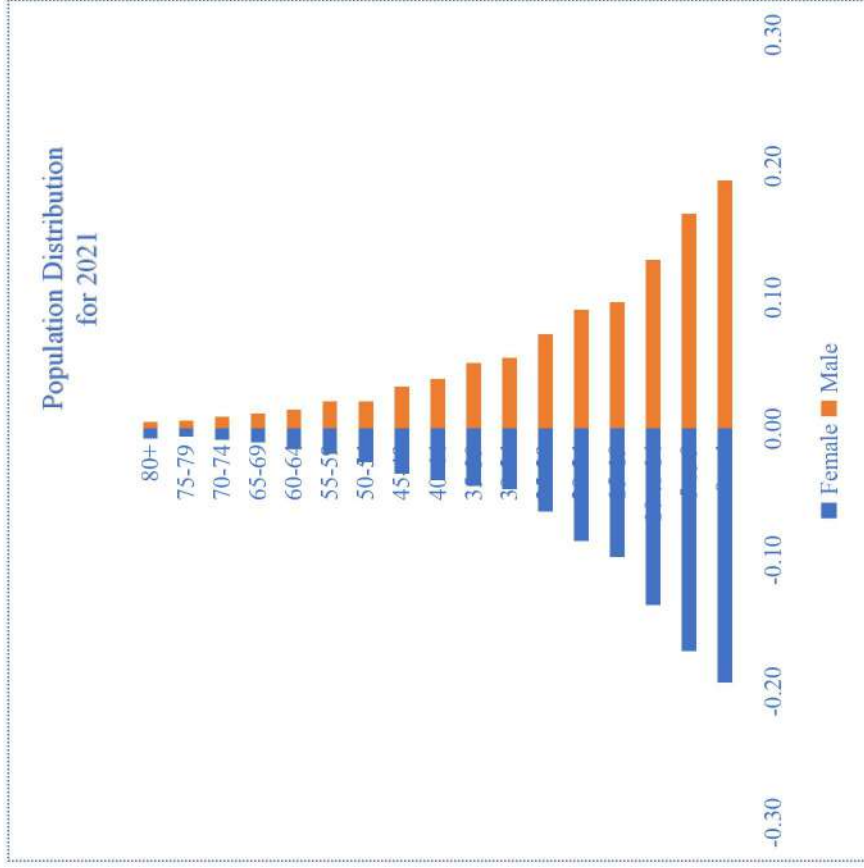


Figure 4: 2022 Population Projection Pyramid for The IDP area (Luwingu District)

The population pyramid for the projected year 2021 above is similar to the base year pyramid with more Males compared to Females. It can also be seen that the population continues being youthful as more people are concentrated in the ages 0 to 34 years.

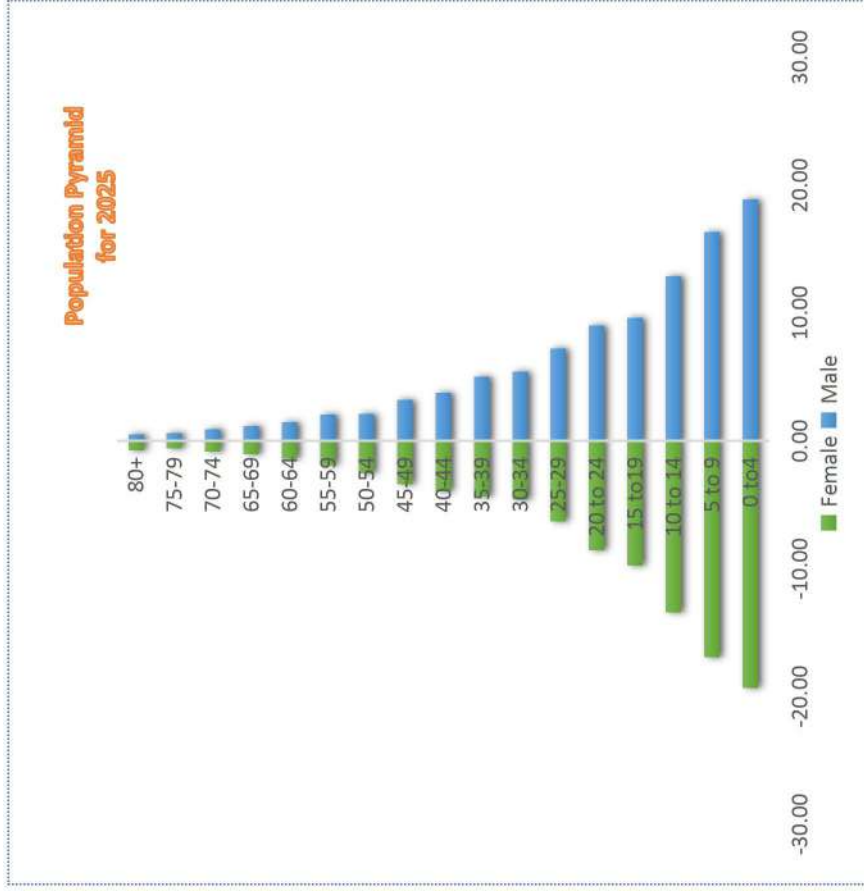


Figure 5: 2025 Population Projection Pyramid for The IDP area (Luwingu District)

The population pyramid for the projected year 2025 above is similar to the base year and 2021 population. It can also be seen that the population continues being youthful as more people are concentrated in the ages 0 to 34 years. The above pyramid also shows a wider base with a narrow top showing more births and less very old people.

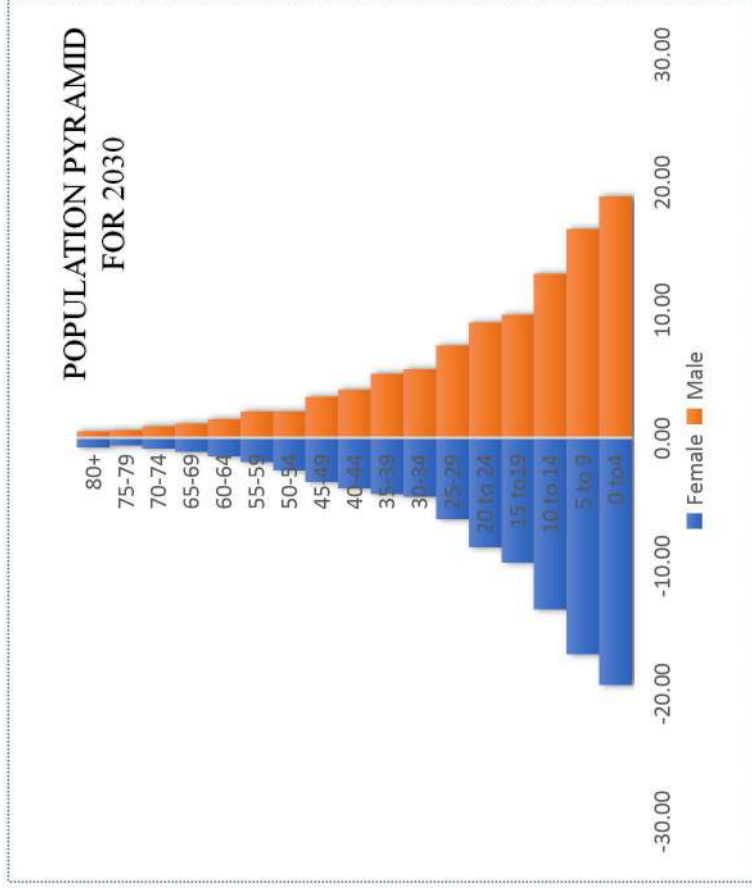


Figure 6: 2025 Population Projection Pyramid for The IDP area (Luwingu District)

The population pyramid for the projected year 2030 above is similar to the base year, 2020 and 2025 population projected pyramid with more females compared to males. It can also be seen that the population continues being youthful as more people are concentrated in the ages 0 to 34 years. The above pyramid also shows a wider base with a narrow top showing more births and less very old people.

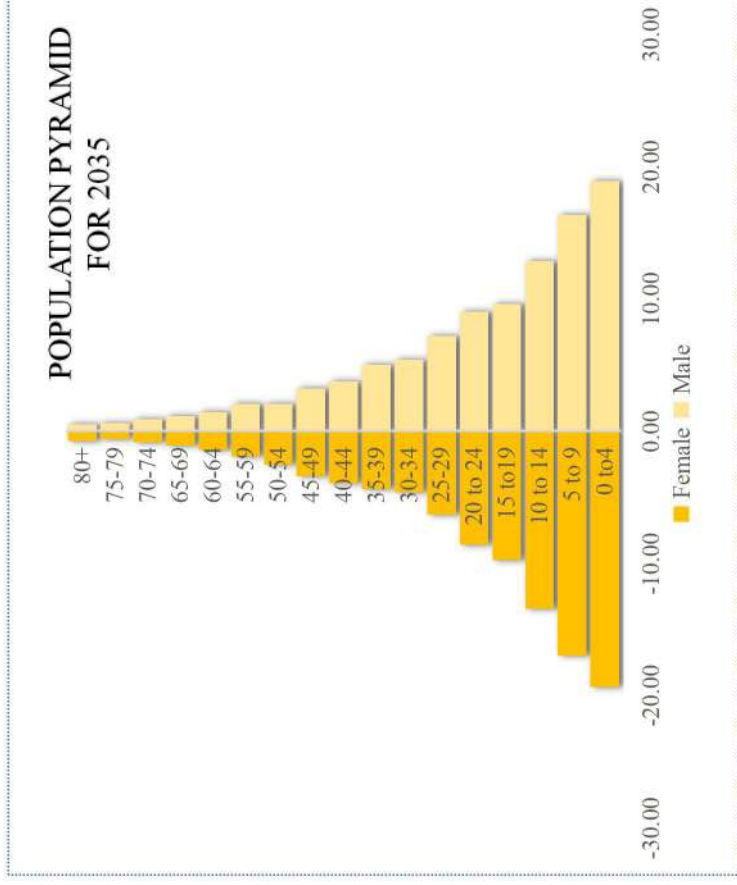


Figure 7: 2025 Population Projection Pyramid for The IDP area (Luwingu District)

The population pyramid for the projected year 2035 above is similar to the base year and 2020 population projected pyramid with more females compared to males. It can also be seen that the population continues being youthful as more people are concentrated in the ages 0 to 34 years. The above pyramid also shows a wider base with a narrow top showing more births and less very old people.

Table 4: Population Projection summary sex structures

YEAR	FEMALE	MALE
2022	51,087	50,055
2025	60,159	58,944
2030	78,999	77,403
2035	103,739	101,643

The table above represents the population structure of Luwingu District from the year 2022 to 2035. The composition of Males is expected to grow from 50,055 in 2022 to 58,944 in 2025 and 101,643 by 2035. In contrast, the female population is expected to grow from 51,087 in 2022 to 60,159 in 2025 and 103,739 by 2035. The Males were more than Females throughout the projected population period the IDP area (Luwingu District).

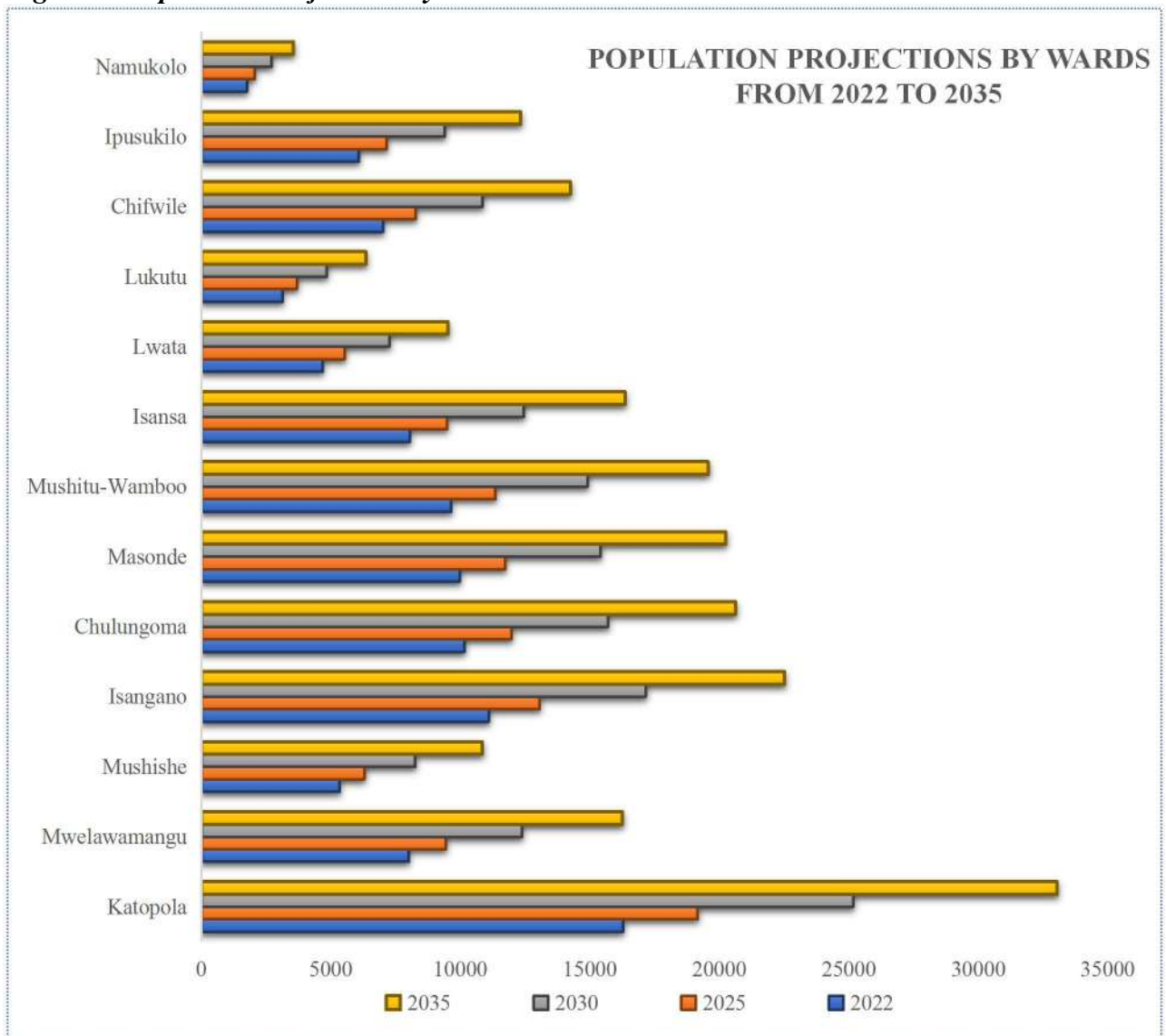
Name of Ward	POPULATION DISTRIBUTION BY WARDS DURING THE PROJECTED PERIOD (2022 to 2035)													
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Katopola	16267	17178	18139	19155	20228	21361	22557	23820	25154	26563	28051	29622	31281	33032
Mwelawamangu	8004	8452	8926	9426	9953	10511	11099	11721	12377	13070	13802	14575	15392	16253
Mushishe	5336	5634	5950	6283	6635	7007	7399	7813	8251	8713	9201	9716	10260	10835
Isangano	11087	11708	12363	13056	13787	14559	15374	16235	17144	18104	19118	20189	21319	22513
Chulungoma	10154	10723	11324	11958	12627	13334	14081	14870	15702	16582	17510	18491	19526	20620
Masonde	9964	10522	11111	11733	12390	13084	13817	14591	15408	16271	17182	18144	19160	20233
Mushitu-Wambo	9636	10176	10746	11347	11983	12654	13362	14111	14901	15735	16617	17547	18530	19567
Isansa	8051	8502	8978	9481	10012	10572	11164	11790	12450	13147	13883	14661	15482	16349

Lwata	4687	4950	5227	5520	5829	6155	6500	6864	7248	7654	8083	8536	9013	9518
Lukutu	3125	3300	3485	3680	3886	4103	4333	4576	4832	5103	5389	5690	6009	6345
Chifwile	7014	7407	7822	8260	8723	9211	9727	10272	10847	11454	12096	12773	13488	14244
Ipusukilo	6067	6407	6765	7144	7544	7967	8413	8884	9382	9907	10462	11048	11666	12320
Namukolo	1750	1848	1951	2061	2176	2298	2426	2562	2706	2857	3017	3186	3365	3553
Total	101,142	106,806	112,787	119,103	125,772	132,816	140,254	148,108	156,402	165,161	174,410	184,177	194,491	205,382

Table 5: Shows the ward population distributions from the base year (2022) to 2035

Luwingu District is administratively divided into only one constituency, Lubansenshi Constituency, which is further divided into thirteen wards. When analyzing the distribution of population by wards, it is worth noting that the Central Business District (CBD) has two wards, namely Katopola and Chulungoma, which are the most populated areas compared to others. As of 2022, Katopola had the highest population, followed by Isangano Ward, located within the Isangano National Park. The population in the district is growing rapidly and is expected to almost double over time, particularly in the highly populated wards.

Figure 8: Population Projections by Wards 2022-2035



The chart above illustrates the population of each ward in Luwingu District, specifically in the Integrated Development Planning Area, at five-year intervals. The population is expected to almost double by the year 2035, with the highest population being in Katopola Ward, with over 30,000 people, and the lowest being in Namukolo Ward, with slightly over 3,000 people.

The population is projected to grow rapidly in Katopola Ward due to an anticipated increase in economic activities such as commerce, trade, agriculture, and mining within the Central Business District and other small markets that are expanding.

2.1.3.7 Population projections for age Categories and their Impact of The Continuation of Existing Population Trends on Land Use and Spatial Development Patterns

The different age groups in a district are crucial due to their potential impact on its socio-economic development. By analyzing the data for each age group, we can identify their specific needs, determine the sectors that are beneficial to them, and plan for the future. Moreover, the population of each age group is used to forecast future population trends.

Table 6: Population Projections for Special Ages

Age-Group	2022			2025			2030			2035		
	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total
0-4 (Under 5)	8777	9014	17791	10,336	10,615	20,950	13,572	13,939	27,511	17,823	18,304	36,127
5-14 Primary School Age	14918	15034	29952	17,568	17,704	35,271	23,069	23,248	46,317	30,294	30,528	60,822
15-19 Secondary School Age	5317	5321	10638	6,261	6,266	12,527	8,222	8,228	16,451	10,797	10,805	21,602
15-49 Reproductive Females	22855		22855	19,617		19,617	25,760		25,760	33,827		33,827
15-35 Youth Population	16658	15749	32408	19,617	18,546	38,163	25,760	24,354	50,114	33,827	31,981	65,808
65+ Aged population	1644	1583	3228	2,792	2,716	5,508	3,666	3,567	7,233	4,814	4,684	9,498

2.1.3.7.1 Under Five (0-4 years) pre-school going age

It is projected that the population belonging to the under 5 age group will increase to 36,127 by the year 2035, with 18,304 being male and 17,823 being female. According to the preliminary report of the 2022 census, the population under the age of 5 stood at 17,791, indicating an increase in this category's population. This age group is particularly vulnerable to diseases such as malaria and respiratory illnesses, which are major causes of infant mortality. Therefore, special attention needs to be devoted to this population segment. Measures to control diseases that cause under 5 mortality rates should be put in place, and sanitation and hygiene, good nutrition, and up-scaling of immunization facilities should be considered while planning to address their needs. The growing number of children in this age cohort will require investment in early childhood development to manage the increased demand as they prepare to join pre-school in the Education Sector. The increased demand for services in this cohort means that more health and educational personnel will need to be employed to manage the facilities where services for this cohort will be introduced.

2.1.3.7.2 Primary School (6-14) and Secondary School going age (15-19)

According to projections, the population of primary school children is expected to increase from 29,952 (comprising of 15,034 boys and 14,918 girls) in 2022 to 35,271 (comprising of 17,568 boys and 17,704 girls) in 2025. By 2035, it is estimated to reach 60,822, with 30,294 girls and 30,528 primary school boys. Similarly, the population of secondary school students is expected to increase from 10,638 (comprising of 5,321 boys and 5,317 girls) in 2022 to 21,602 (comprising of 10,805 boys and 10,797 girls) in 2035.

As a result of this projected increase, there is a need to invest in educational facilities, such as increasing the number of classrooms, equipment, and recruitment of teachers to meet the required teacher-pupil ratio standards. This will also help to reduce the dropout rates in the district. In addition, there is a need for more desks and other education supporting equipment.

The Government of Zambia has declared free education, which is expected to help in meeting the educational needs of the increasing population. The government also conducts massive recruitment of teachers every year to cater to the growing demand for education in the district.

2.1.3.7.3 Youth Population (15-35 years)

This particular group of people makes up 38% of the district's population. As of 2022, there were 32,408 people in this group, and this number is expected to increase to 65,808 by 2035. The concerns of this population are diverse, with some still pursuing education, while others are seeking employment opportunities or already employed. Due to the high rate of unemployment, many people in this age bracket are at risk of engaging in vices such as drug and alcohol abuse, prostitution, illegal mining, and other petty crimes.

To tackle this issue, it is necessary to establish programs that support youths in engaging in income-generating activities such as agriculture and small agribusiness. Additionally, Technical and Vocational Education and Training (TEVET) and Skills Centres should be set up within the district to empower young people with technical skills and create a competitive labour force for the province and the nation at large. More youth cooperatives should be created in the district to help establish small businesses, thereby improving the economically active population segment and reducing the young age dependence ratio.

2.1.3.7.4 Female Reproductive Age (15-49 years)

The reproductive age group in Luwingu is the female population aged between 15-49. This group is projected to increase from 22,855 in 2022 to 33,827 by 2035. To cater to this growth, the District's Health Office will need to invest heavily in improving reproductive and maternal health facilities. The office will use Community Units (CUs) and SMAG Programs to raise awareness about the benefits of free maternity programs. The objective is to ensure that all expectant mothers receive care from skilled healthcare professionals to reduce maternal mortality rates. Consequently, this will spur the construction of more health facilities and the hiring of skilled personnel to run them.

Luwingu has a population growth rate of 5.6%. The number of facility deliveries has also increased from 3,513 births in 2019 to 4,726 births in 2022 (as reported by the Luwingu District Health Office). As a result, the District's Health Office will need to expand ambulance services and reproductive sensitization programs, as well as offer other family planning services.

2.1.3.7.5 65+ Old age Population

The Government has been addressing the needs of the elderly population for a long time through community development and social welfare programs. There is a need for increased care for this age group, which can be achieved through planning for social protection programs, social cash support, and the establishment of old people's homes. Additionally, there is a need for more health programs to increase the life expectancy of both males and females in the district.

2.1.3.8 Demographic Dividend

The demographic dividend is a term used to describe the accelerated economic development that a district or region can experience by slowing down the pace of population growth while making strategic investments in areas such as health, education, economic growth, and governance. This results in an increase in economic growth that a district can experience as a result of declining fertility levels, which leads to a reduction in dependency levels and an increase in the working-age population (15-64 years).

With fewer dependents to support, those in the working ages will be able to save more money that can be invested in the district's economic growth, thereby improving the well-being of its residents. However, achieving a demographic dividend is not automatic and occurs gradually over time, especially for a population like Luwingu District.

To achieve a demographic dividend, the district must make strategic investments in the health, education, economic, and governance sectors simultaneously as the fertility levels decline. The goal is to ensure that as the children and youth of the district grow older, they remain healthy, have access to education and training opportunities, gain skills, earn income and employment opportunities, invest for their future, and participate fully in governance matters affecting the district.

2.2 Thematic Analysis

In Luwingu District, the Integrated Development Planning process considers the current state of various sectors that play a crucial role in the overall development of the District. These sectors include water and sanitation, health, energy, road network, environment, and communication.

The Water and Sanitation Sector focuses on providing safe and reliable water supply and sanitation services to the residents of Luwingu District. This includes the construction and maintenance of water infrastructure such as boreholes, water treatment plants, and distribution networks. Additionally, efforts are made to improve sanitation facilities and promote hygiene practices in the District.

The Health Sector aims to ensure the well-being of the residents by providing quality healthcare services. This includes the provision of healthcare facilities such as hospitals, clinics, and health centres. Efforts are made to improve access to healthcare services, enhance the capacity of healthcare professionals, and promote preventive healthcare practices in the District.

The Energy Sector focuses on providing reliable and affordable energy services to meet the needs of the residents and support economic activities. This includes the development and maintenance of energy infrastructure such as power generation plants, transmission lines, and distribution networks. Efforts are made to promote the use of renewable energy sources and improve energy efficiency in the District.

The Road Network Sector aims to develop and maintain a well-connected and efficient road network in Luwingu District. This includes the construction and maintenance of roads, bridges, and other transportation infrastructure. Efforts are made to improve road connectivity, enhance road safety, and facilitate the movement of goods and people within the District.

The Environment Sector (Forestry) focuses on the conservation and sustainable use of natural resources in Luwingu District. Efforts are made to promote environmental protection, biodiversity conservation, and sustainable land management practices. Additionally, initiatives are undertaken to address climate change impacts and promote environmental awareness among the residents.

The Communication Sector plays a crucial role in facilitating the flow of information and promoting connectivity in Luwingu District. Efforts are made to improve communication infrastructure such as telecommunication networks and internet connectivity. This enables the

residents to access information, communicate effectively, and participate in the digital economy.

By considering the current situation of these cardinal sectors, the Integrated Development Planning process in Luwingu District aims to develop comprehensive strategies for development that address the specific needs and challenges of each sector. This ensures a holistic and coordinated approach to development, leading to sustainable and inclusive growth in the District.

2.2.1 Energy

The energy sector plays a crucial role in coordinating the supply of electricity and petroleum products in a country. Its main objective is to ensure the availability and accessibility of energy resources to support social and economic development. One of the key responsibilities of the Energy Sector is to manage the production, transmission, and distribution of electricity. This involves coordinating with power generation companies, transmission grid operators, and distribution companies to ensure a reliable and efficient supply of electricity to consumers. The sector also works towards expanding the electricity infrastructure, improving grid connectivity, and promoting the use of renewable energy sources to enhance sustainability.

In addition to electricity, the energy sector also oversees the supply of petroleum products, such as gasoline, diesel, and natural gas. It collaborates with oil and gas exploration companies, refineries, and distribution networks to ensure a steady supply of these products. This involves monitoring and managing the import, export, storage, and distribution of petroleum products to meet the demands of industries, transportation, and households.

By coordinating the supply of electricity and petroleum products, the energy sector contributes to social and economic development in several ways. Reliable and affordable electricity is essential for various sectors, including manufacturing, commerce, healthcare, education, and entertainment. It powers industries, supports technological advancements, and enables the growth of businesses, thereby creating employment opportunities and driving economic growth.

Access to petroleum products is equally vital for transportation, agriculture, and other sectors that heavily rely on fossil fuels. By ensuring a consistent supply of these products, the energy sector facilitates the smooth functioning of transportation systems, enables agricultural activities, and supports the overall functioning of the economy.

Moreover, the energy sector's focus on sustainable and renewable energy sources promotes environmental conservation and reduces the country's carbon footprint. This not only addresses climate change concerns but also fosters the development of green industries, such as renewable energy generation and energy-efficient technologies.

2.2.1.1 Key Government priorities being and to be implemented at a Local Level

Below is a review of existing Policies and Plans that govern the performance of the sector in the District.

National Energy Policy

The policy ensures the availability of adequate supply of energy from various sources, which are dependable, at the lowest economic, financial, social and environmental cost and consistent with national development goals (National Energy Policy, 2008).

Eighth National Development Plan (8NDP)

The planning document has planned to achieve the following between 2022 and 2026:

- ✧ *Enhance Generation, Transmission and Distribution of Electricity;*
- ✧ *Promote Renewable and Alternative Energy; and*
- ✧ *Improve Electricity Access to Rural and Peri-Urban Areas.*

2.2.1.2 Description of the existing state of development

Understanding the existing state of development of a sector is crucial in identifying the gaps and challenges it faces. Understanding these gaps is crucial as it helps in formulating remedial measures to address the challenges and foster the sector's growth. For example, if the analysis reveals that the sector lacks skilled professionals, remedial measures can focus on enhancing educational programs, providing training and skill development initiatives, or attracting talent from other sectors or countries. This section provides a comprehensive overview of the sector's strengths, weaknesses, opportunities, and threats, allowing for the formulation of effective remedial measures.

2.2.1.2.1 Availability of service

The most prominent energy source particularly in the rural parts of the District is firewood and charcoal, which is used for cooking and heating while kerosene is used for lighting. High dependence on charcoal and firewood has exacerbated the rate of deforestation in the District to satisfy the increasing demand. There are also few households that are slowly embracing alternative use of energy sources such as solar, which is likely to enhance IDP implementation as communities are gradually adopting the use of cheaper energy sources.

2.2.1.2.2 Quality of service including Key Indicators of Performance

Luwingu is connected to the national grid with the main source of hydroelectric power supplying a total of 221 customers, which include residential, commercial, hospitality, private and government institutions against a total of 1,149 properties (according to the Valuation Roll). The capacity of the main substation for Luwingu area is 5MVA contrasted by the actual consumption of 1.08MVA. Hence, the District has power surplus. The ZESCO grid has the capacity to accommodate its customer base by up to 450 percent from the current supply without expanding the capacity of the substation, hence a demonstration of the huge potential the District has in supporting the local economic activities that would depend on power.

2.2.1.3 Issues arising from the Public Participation Process

Overall, the public participation sessions shed light on the various challenges and concerns related to the energy sector in the district. The issues raised by the participants provide valuable insights for policymakers and stakeholders to address and improve the energy situation in the District.

2.2.1.3.1 Availability of service

- ✧ **Lack of Access to Electricity:** One of the primary concerns raised by the participants was the lack of access to electricity in certain areas of the district. Many residents highlighted the difficulties they face in their daily lives due to the absence of reliable electricity supply. This issue affects not only households but also businesses, some healthcare facilities, and educational institutions.

- ✧ **High Electricity Tariffs:** Participants expressed their concerns about the high electricity tariffs in the District. They highlighted the burden it places on their household budgets and the negative impact it has on local businesses.
- ✧ **Environmental Impact:** The environmental implications of the Energy Sector were also discussed during the public participation sessions. Participants expressed their concerns about the use of fossil fuels and its contribution to air pollution and climate change. They emphasized the need for the District to transition towards cleaner and renewable energy sources to mitigate these environmental issues.
- ✧ **Energy Efficiency and Conservation:** Participants stressed the importance of promoting energy efficiency and conservation practices in the District. They suggested implementing energy-saving measures such as energy audits, awareness campaigns, and incentives for adopting energy-efficient technologies. These measures were seen as a way to reduce energy consumption and lower costs for both consumers and the District.
- ✧ **Renewable Energy Development:** Many participants advocated for the development of renewable energy sources in the District. They highlighted the potential of solar, wind, and hydroelectric power as viable alternatives to traditional energy sources. Participants called for increased investment and support for renewable energy projects to diversify the energy mix and reduce dependency on fossil fuels.
- ✧ **Infrastructure Development:** The lack of adequate energy infrastructure was a recurring issue raised during the public participation sessions. Participants highlighted the need for upgrading and expanding the existing energy infrastructure to meet the growing demands of the District. This included improving transmission and distribution networks, as well as investing in new power generation facilities.

2.2.1.3.2 Quality of service including Key Indicators of Performance

The quality of service provision in the District is at 60 percent. This is because the district still relies exclusively on hydro energy from the Zambia main utility company, ZESCO. This has disadvantaged mostly the poor people who depend primarily on the power supply from the main utility company for connection.

2.2.1.4 Impact of changes anticipated over the next ten years

The increase in population in the District over the next ten years will require significant adjustments in the Energy Sector to meet the growing demand while addressing environmental concerns. It presents an opportunity for the District to transition towards a more sustainable and resilient energy system.

2.2.1.4.1 Population Change – Future demand for services and facilities

The increase in population in the District over the next ten years is likely to have a significant impact on the Energy Sector. Here are some anticipated changes:

- ✧ **Increased energy demand:** With a growing population, there will be a higher demand for energy to power homes, businesses, and infrastructure. This means that the Energy Sector will need to expand its capacity to meet the increased demand.

- ✧ **Infrastructure development:** As the population grows, there will be a need for new infrastructure, such as housing, schools, hospitals, and transportation systems. These developments will require additional energy resources to power and maintain them.

- ✧ **Renewable energy adoption:** With the increasing concern for climate change and sustainability, there will likely be a greater emphasis on renewable energy sources. The district may invest in solar, wind, or hydroelectric power to meet the growing energy demand while reducing carbon emissions.

- ✧ **Energy efficiency measures:** As the energy demand rises, there will be a need to improve energy efficiency to minimize waste and reduce costs. This could involve implementing energy-efficient technologies, promoting energy conservation practices, and upgrading existing infrastructure to be more energy-efficient.

- ✧ **Grid modernization:** The existing energy grid may need to be upgraded and modernized to accommodate the increased demand and integrate renewable energy sources. This could involve investments in smart grid technologies, energy storage systems, and advanced metering infrastructure.

- ✧ **Job creation:** The anticipated changes in the energy sector will likely lead to job creation. The district may see an increase in employment opportunities in renewable energy installation and maintenance, energy efficiency consulting, grid management, and other related fields.
- ✧ **Policy and regulatory changes:** The Government may need to introduce new policies and regulations to support the anticipated changes in the Energy Sector. This could include incentives for renewable energy adoption, energy efficiency standards, and grid integration requirements.

2.2.1.4.2 Existing and proposed investment and development programmes

The stretch of about 120 km of *Luwingu – Shimumbi* and 100 km of *Luwingu – Chaba* Roads are undergoing rural connectivity under the Rural Electrification Authority (REA), which will enhance electricity coverage in the District.

2.2.1.5 The impact of the continuation of existing trends on land use and population distribution patterns

The increased demand for land resulting from a steady population growth is expected to give rise to more infrastructures being constructed. As a consequence, the capacity to provide electricity services by ZESCO may be reduced. This entails that there is a need to expand on the current capacity of power generation to serve the general populous in the district. Further, the number of people settling in areas where there is power will continue to rise.

2.2.1.6 Environment and Climate Change Analysis

The impact of the Energy Sector on the environment and Climate Change and vice versa will be explored under this section.

2.2.1.6.1 The impact of existing trends on the Environment and Climate Change

The Energy Sector plays a significant role in contributing to environmental degradation and climate change. The extraction, production, and consumption of fossil fuels, such as coal, oil, and natural gas, release greenhouse gases (GHGs) into the atmosphere, primarily carbon dioxide (CO₂), which is the main driver of global warming. The burning of fossil fuels for electricity generation, transportation, and industrial processes is the largest source of global

CO₂ emissions. These emissions trap heat in the Earth's atmosphere, leading to a rise in global temperatures and subsequent climate change. The increased frequency and intensity of extreme weather events, rising sea levels, and disruptions to ecosystems are some of the consequences of climate change caused by the energy sector.

Furthermore, the Energy Sector also contributes to other forms of environmental pollution. Fossil fuel combustion releases pollutants like sulfur dioxide (SO₂), nitrogen oxides (NO_x), and particulate matter, which have detrimental effects on air quality and human health. The extraction of fossil fuels can also lead to habitat destruction, water pollution, and land degradation.

2.2.1.6.2 The impact of Environmental and Climate Change issues on the Sector

Climate change has a reciprocal relationship with the Energy Sector. As the impacts of climate change become more evident, there is a growing need to transition to cleaner and more sustainable energy sources. This has led to the rapid expansion of renewable energy technologies such as solar, wind, hydro, and geothermal power.

The development and deployment of renewable energy technologies have the potential to reduce greenhouse gas emissions and mitigate climate change. Renewable energy sources produce little to no CO₂ emissions during operation and have a much lower environmental footprint compared to fossil fuels. Additionally, investing in energy efficiency measures can also reduce energy consumption and decrease the overall environmental impact of the energy sector.

However, the transition to a low-carbon energy system is not without challenges. The integration of renewable energy into existing infrastructure, the intermittency of some renewable sources, and the high upfront costs of renewable energy technologies are some of the barriers that need to be overcome. Furthermore, the energy sector is deeply interconnected with the global economy, and transitioning to cleaner energy sources requires significant policy changes, investment, and international cooperation.

2.2.1.7 Issues arising relating to Gender Groups and Vulnerable Groups

Even though the current status quo is that there is higher electricity coverage in the urban areas compared to the rural parts of Luwingu, most women and vulnerable groups have access to electricity supply from the main utility company, ZESCO. The coming in of the Rural Electrification Authority (REA) is also helping to bridge the gap between the urban elites and the poor mainly found in the remote areas of the district. Further, the Local Authority through the Ward Development Committees (WDCs) and some cooperating partners has been playing an increasingly important role in sensitizing women, the vulnerable and other socially excluded groups on the use of alternative energy such as solar and cook stoves to reduce over-dependence on charcoal.

2.2.1.8 Summary

In summary, the Energy Sector's coordination of the supply of electricity and petroleum products plays a crucial role in enhancing social and economic development. By ensuring reliable energy resources, it supports various sectors, creates employment opportunities, drives economic growth, and contributes to environmental sustainability. The issues that came out so prominently under the energy sector were as follows: Low electricity coverage in the District; Over-dependency on charcoal as a source of energy leading to deforestation; and Low uptake of alternative sources of energy.

2.2.1.9 Consideration of the underlying factors contributing to the issues identified

One of the the major underlying factors contributing to the issues identified can be attributed to the general reluctance by communities in exploring alternative sources of energy. This ultimately will continue to contribute to deforestation as people consider cutting down of trees as an energy source to be the cheapest and easiest to access.

2.2.2 Transport and Communication

The Transport and Communication Sector in the Luwingu District consist of roads, storm water drainage and telecommunication. A well-functioning transport system has the potential to reduce the overall cost of doing business, enable efficiency in the movement of goods, and people within the District.

2.2.2.1 Key Government priorities being and to be implemented at a Local Level

The outlined policies and plans below provide the developmental direction for the Transport and Communication Sector development in Luwingu District.

National Water Policy of 2010

The policy is focused on enabling all urban residents, commerce, institutions and industry to have a sustainable drainage system for improved health, well-being and convenience³.

National Transport Policy of 2019

The policy's primary objective is to promote development of road transport services, facilities and infrastructure that meet the global safety standards through construction, maintenance, upgrading, and rehabilitation, thereby promoting sustainable mobility of both goods and passengers to achieve economic and social needs, and develop systems to facilitate Non-Motorized Transport⁴.

Eighth National Development Plan

The national development plan's strategic focus under the Transport and Communication Sector is to undertake the construction and rehabilitation of road network and improve ICT infrastructure for service delivery.

2.2.2.2 Description of the existing state of development

Below is a description of the current status quo regarding the Transport and communication Sector in the District.

2.2.2.2.1 Availability of service

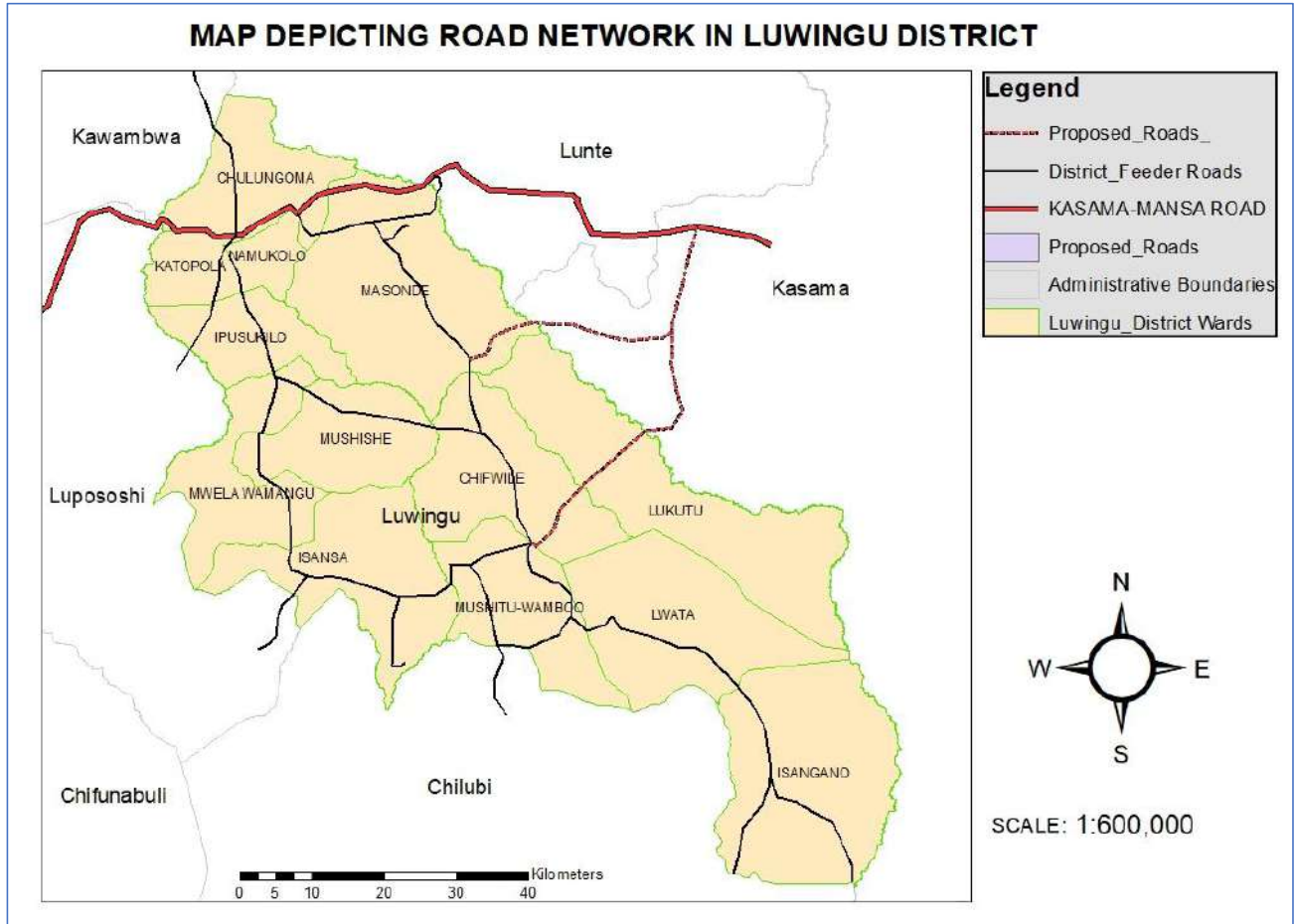
The District has one trunk road - M3 road connecting it to Kasama, Kawambwa and Mansa Districts. The approximate road network length of the District stands at 421km out of which 15km is paved to bituminous standards while the remaining 96 percent of the roads is either gravelled or unpaved. The 15 km paved roads are in the CBD and surrounding neighbourhoods. Approximately, 10km of these roads have lined drainage although they do

³ National Water Policy, 2010

⁴ National Transport Policy, 2019

not provide for the walking and cycling lanes. Public transportation services, including buses and taxis, are readily available in the District. The number of buses and routes has increased, ensuring better connectivity between different areas.

Figure 9: Road Network



Source: Luwingu Town Council (2020)

The District has also witnessed advancements in the field of communication. Telecommunication services, including mobile networks and internet connectivity, have been expanded and improved. This has facilitated better communication among individuals and businesses, as well as enabled access to online services and information. The mobile and internet service providers in the District are ZAMTEL, Airtel and MTN. However, most of the rural areas have poor network coverage. Below is the status of the communication services in the District.

Table 7: Availability of Mobile Networks by Ward

SN _o .	NAME	OF	AVAILABILITY	OF	MOBILE	RADIO/TV RECEPTION
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		ZAMTEL			AIRTEL			MTN			OTHERS	ZNBC R			ZNBC TV			OTHERS		
		0	1	2	0	1	2	0	1	2		0	1	2	0	1	2	0	1	2
1	Chulungoma	0	1	2	0	1	2	0	1	2		0	1	2	0	1	2	0	1	2
2	Namukolo	0	1	2	0	1	2	0	1	2		0	1	2	0	1	2	0	1	2
3	Katopola	0	1	2	0	1	2	0	1	2		0	1	2	0	1	2	0	1	2
4	Ipusukilo	0	1	2	0	1	2	0	1	2		0	1	2	0	1	2	0	1	2
5	Luata	0	1	2	0	1	2	0	1	2		0	1	2	0	1	2	0	1	2
6	Chifwile	0	1	2	0	1	2	0	1	2		0	1	2	0	1	2	0	1	2
7	Masonde	0	1	2	0	1	2	0	1	2		0	1	2	0	1	2	0	1	2
8	Isangano	0	1	2	0	1	2	0	1	2		0	1	2	0	1	2	0	1	2
9	Mushituwambo	0	1	2	0	1	2	0	1	2		0	1	2	0	1	2	0	1	2
10	Mwelawamango	0	1	2	0	1	2	0	1	2		0	1	2	0	1	2	0	1	2
11	Isansa	0	1	2	0	1	2	0	1	2		0	1	2	0	1	2	0	1	2

Source: Field Survey, December 2019 (Key: 0 = None, 1 = Poor, 2 = Good)

From Table 7, it is clear that the District has mobile network connectivity from Zamtel and Airtel in all wards despite the difference in signal strength. However, there is no signal for MTN in 7 wards namely; Luata, Masonde, Isangano, Mushitu Wambo, Mwela Wamango, and Isansa Wards. The urban wards comprising of Namukolo, Chulungoma, and Katopola have the strongest network signals.

Additionally, all wards have Radio Lwansase signal at 88.9 FM. This is a local radio station, which was built with support from the Local Authority and other cooperating partners. However, only 3 (urban) of the 13 wards in the District have reliable national TV signal although others can afford cable/dish installation access TV signal through such connections. The availability of radio signal coverage in all the wards, and telecommunication network especially for ZAMTEL has enhanced information dissemination in the District even in difficult to access areas.

2.2.2.2.2 Quality of service including Key Indicators of Performance

The quality of service under transport is characterized by poor road signs, which makes it difficult to give directions and enforce traffic regulations. All the wards in the District are connected by gravel roads except for Namukolo, Katopola, and Chulungoma, which have networks of bituminous roads. In its current state, the road network would hamper the achievement of the IDP strategic objectives as the transport system is a lifeline to ease movement of goods and services within and outside the District. The District mainly uses taxis for local routes, except for the Luwingu Chaba Route, which is serviced by relatively

larger vehicles from local transporters. Luwingu has one main station and many other undesignated bus stops and taxi stops. Regarding the quality of service for communication, it can be rated at 40% since most of the roads in the rural areas are in the deplorable state.

2.2.2.3 Issues arising from the Public Participation Process

This section highlights the issues that came out prominently under the sector during the Public Participation Process.

2.2.2.3.1 Availability of service

During public participation, most of the issues raised were centred on improving the roads, which are in a deplorable state, making them impassable especially during the rainy season. This has had a negative ripple effect on the community's access to social services such as health and education, among others. Under communication, the stakeholders expressed the need to improve network coverage in the rural set up of the District through installation of more telecommunication towers. The other one was on the lack of access to the TV signal mostly in the rural areas, which requires to be addressed.

2.2.2.3.2 Quality of service including Key Indicators of Performance

The quality of service under the sector can be described as poor. As a result of the poor road network in the District, goods are not delivered within an ideal time. The telecommunication towers within the district are concentrated mostly in the areas surrounding the CBD leading to most rural communities experiencing poor or no network transmission.

2.2.2.4 Impact of changes anticipated over the next ten years

The anticipated changes in the sector over the next ten years will have a significant impact on the demand for services and facilities. Understanding these changes is crucial for organizations to effectively plan for the future and meet the evolving needs of their customers.

2.2.2.4.1 Population Change – Future demand for services and facilities

In the next ten years, the transport and communication sector is expected to undergo significant changes that will have a profound impact on the demand for services and facilities. These changes include advancements in technology, shifts in consumer behaviour, and the emergence of new modes of transportation and communication.

One of the key factors driving change in this sector is the rapid advancement of technology. This includes the development of autonomous vehicles, electric vehicles, and the integration of artificial intelligence into transportation systems. These advancements are expected to result in more efficient and sustainable modes of transportation, reducing the demand for traditional vehicles and infrastructure.

Furthermore, the communication sector is also expected to undergo significant changes. The widespread adoption of high-speed internet and advancements in wireless technology will result in increased connectivity and accessibility. This will lead to a greater demand for digital communication services, such as video conferencing and online collaboration tools, reducing the need for physical travel. Additionally, the increased connectivity and reliance on digital communication services may lead to a shift in the demand for physical office spaces. With the ability to work remotely and collaborate online, there may be a decrease in the demand for traditional office buildings, resulting in a need for flexible work-spaces and shared office facilities.

2.2.2.4.2 Existing and proposed investment and development programmes

The Road Development Agency (RDA) through the National Road Fund Agency (NRFA) is implementing the Output and Performance-Based Road Project (OPRC) and in the Northern Province Luwingu is a beneficiary. The project is being funded by the World Bank at the total cost of Ninety-Two Million, Six Hundred and Sixty-Six Thousand, Seven Hundred and Thirteen Kwacha, Forty-Two Ngwee (ZMW 91, 666, 713.42). The contractual period is 5 years and the project is expected to be completed on 5th July, 2025. The project is about rehabilitation/improvement, routine and periodic maintenance works of selected roads in Luwingu District as shown in Table 8.

In terms of future plans, the District aims to further enhance its transport and communication sector. This includes the construction of new roads and bridges, the introduction of modern transportation technologies, and the expansion of internet connectivity to rural areas. These efforts are expected to boost economic growth, improve quality of life, and foster greater connectivity within the district and beyond.

Table 8: Roads under the OPRC in Luwingu District

S/N	Road No.	District	Road Name	Distance (Km)
1.	R340	Luwingu	Chifwile R337 - Zakaria D43	37.124

2.	R5	Luwingu	M3 - Chimpampa School	49.449
3.	R337	Luwingu	Jct. R5/RD340 - Musali (U18)	14.543
4.	U18	Luwingu/Kasama	R337 (Musali) - Lubansenshi River - Mumana (M3)	32.114
5.	RD429	Luwingu/Lupososhi		22.657

The Local Authority also plans to upgrade most of the impassable roads to engineered gravel and some to bituminous standard, which will enhance the opportunities for the development of the District. Further, Government intends to erect more communication towers in the District to enhance communication coverage.

2.2.2.5 The impact of the continuation of existing trends on land use and population distribution patterns

In the next ten (10) years it is expected that current status quo will have a negative impact on the district; linear mushrooming of settlements along the M3 road will increase. This will increase the spreading of communicable diseases resulting from the high population density as a consequence. Poor telecommunication, in particular inadequate network coverage and lack of TV signal, may lead to the mass movement of people from the rural to the urban areas of Luwingu. This will consequently lead to unnecessary congestion in the Central Business District (CBD). It will also lead to the huge demand for social services such as education and health facilities. Further, most of the rural dwellers depend on agriculture for their livelihood and poor telecommunication makes it difficult for them to have accurate information pertaining to markets where they could sell their produce.

2.2.2.6 Environment and Climate Change Analysis

The Transport and Communication Sector has a significant impact on the environment and climate change through greenhouse gas emissions, air and noise pollution, and habitat destruction. Conversely, climate change and environmental issues also affect the sector through extreme weather events, rising sea levels, and the need for energy transition and sustainable practices. It is crucial to address these inter dependencies to mitigate the sector's impact on the environment and adapt to the changing climate.

2.2.2.6.1 The impact of existing trends on the Environment and Climate Change

The Transport and Communication Sector has a significant impact on the environment and climate change, and in turn, these issues also affect the sector.

- ✧ **Greenhouse Gas Emissions:** The Transport Sector is a major contributor to GHG emissions, primarily through the burning of fossil fuels. Vehicles, especially those running on gasoline or diesel, release carbon dioxide (CO₂), a greenhouse gas that contributes to global warming. The sector is responsible for a significant portion of global CO₂ emissions.
- ✧ **Air Pollution:** Transport activities also contribute to air pollution, particularly in urban areas. Vehicles emit pollutants such as nitrogen oxides (NO_x), particulate matter (PM), and volatile organic compounds (VOCs), which have detrimental effects on air quality and human health.
- ✧ **Deforestation and Habitat Destruction:** The construction and expansion of transport infrastructure, such as roads and railways, often lead to deforestation and habitat destruction. This can result in the loss of biodiversity and disrupt ecosystems.
- ✧ **Noise Pollution:** Transport and communication activities, especially in densely populated areas, generate noise pollution. This can have adverse effects on human health, including stress, sleep disturbances, and hearing impairment.

2.2.2.6.2 The impact of Environmental and Climate Change issues on the Sector

Climate change and environmental issues also impact the Transport and Communication Sector as demonstrated below:

- ✧ **Extreme Weather Events:** Climate change can lead to more frequent and severe extreme weather events, such as hurricanes, floods, and heatwaves. These events can damage transport infrastructure, disrupt communication networks, and hinder the functioning of the sector.

- ✧ **Rising Sea Levels:** As sea levels rise due to climate change, coastal transport infrastructure and communication networks are at risk of being inundated or damaged. This can affect coastal communities' access to transportation and communication services.

- ✧ **Energy Transition:** The global shift towards cleaner and more sustainable energy sources, such as renewable energy, is influencing the Transport and Communication Sector. Electric vehicles and hybrid vehicles are becoming more popular, and renewable energy is increasingly being used to power communication networks.

- ✧ **Sustainable Practices:** Environmental concerns and climate change mitigation efforts are driving the adoption of sustainable practices in the Transport and Communication Sector. This includes promoting public transportation, encouraging telecommuting and remote work, and implementing energy-efficient technologies.

2.2.2.7 Issues arising relating to Gender Groups and Vulnerable Groups

An improved transport and communication system could help in creating a gender balanced society through enhancing access to markets and social facilities to both men and women. However, while good telecommunication in the CBD has made it easier for both male and female to access information leading to a well-informed society, the same cannot be said of those in the rural areas. It is therefore, imperative to improve telecommunication coverage in the rural areas as an intervention. At times, it is difficult to handle emergency issues that may be related to health or disasters emanating from the rural areas due to poor telecommunication.

2.2.2.8 Summary

Inadequate infrastructure in the Transport and Communication Sector has significant implications for economic development, social connectivity, and access to basic services in rural areas. In terms of transportation, poor road networks make it difficult for people in rural areas to access markets, healthcare facilities, and educational institutions. This hampers economic activities and limits opportunities for rural communities. It also affects the transportation of goods and services, leading to increased costs and inefficiencies.

Additionally, inadequate communication coverage in rural areas hinders access to information and communication technologies (ICTs). This limits the ability of rural

communities to connect with the outside world, access online services, and participate in the digital economy. It also affects communication between individuals, businesses, and government institutions, making it difficult to coordinate activities and provide timely services.

2.2.2.9 Consideration of the underlying factors contributing to the issues identified





The roads in the District are in a deplorable state. The Local Authority tasked with the responsibility of rehabilitating and/or maintaining the feeder roads has inadequate financial capacity to carry out this mandate as it depends exclusively on the disbursement of the Local Government Equalization Fund (LGEF). Most of the roads lack storm water drainage, a situation that has contributed to their deplorable state culminating from soil erosion especially during the rainy season. Further, communication in the rural areas is poor due to inadequate communication infrastructure.

2.2.3 Agriculture Sector

Agriculture in Zambia, including in Luwingu District, plays a significant role in the country's economy, contributing 13 percent to the Gross Domestic Product (GDP). The rural population heavily relies on agriculture-related activities for their livelihood, with over 80 percent depending on it. In Luwingu District specifically, agriculture though done at a subsistence level is the mainstay of the local economy, with major productions including maize, groundnuts, sunflower, bananas, and livestock. Despite the importance of agriculture in the area, many farmers still face challenges such as limited access to markets, inadequate infrastructure, and unpredictable weather patterns.

2.2.3.1 Key Government priorities being and to be implemented at a Local Level

The under-listed are the key Government priorities being and to be implemented at a local level in the District to respond to some challenges faced by the Sector:

-  Promotion of Climate Smart Agriculture;
-  Operationalization of Farmers Training Centre (FTC);
-  **Sustainable Land Management Programme** - *facilitation of equitable access to land for agricultural purposes;*
-  **Agricultural Productivity Improvement Programme** - *Government will develop and implement policies and programmes that support crop diversification, increased*

productivity in crops, sustainable land and water management, agroforestry, climate change adaptation and mitigation and other environmentally friendly agricultural systems;

- ✚ **Agricultural Marketing Development Programme** - *Government and the private sector will implement and adhere to predictable, rule-based market and trade policies and strengthen public-private coordination and dialogue;*
- ✚ **Agricultural Investment Promotion Programme** - *Government in consultation with stakeholders will identify investment priorities in infrastructure development that support the sector;*
- ✚ Government will encourage the private sector to scale-up investments in production, input and output markets, processing and value addition in crops, livestock and fisheries;
- ✚ **Food and Nutrition Security Programme** - *Government will explore social protection instruments in partnership with private sector and civil society;*
- ✚ **Institutional Strengthening** - *promote and strengthen cooperatives and other farmer organizations as a vehicle for agricultural development; and*
- ✚ **Construction of storage sheds** - Availability of storage sheds to support promoted group marketing technology. The District so far has a total 7 storage sheds, more is needed.

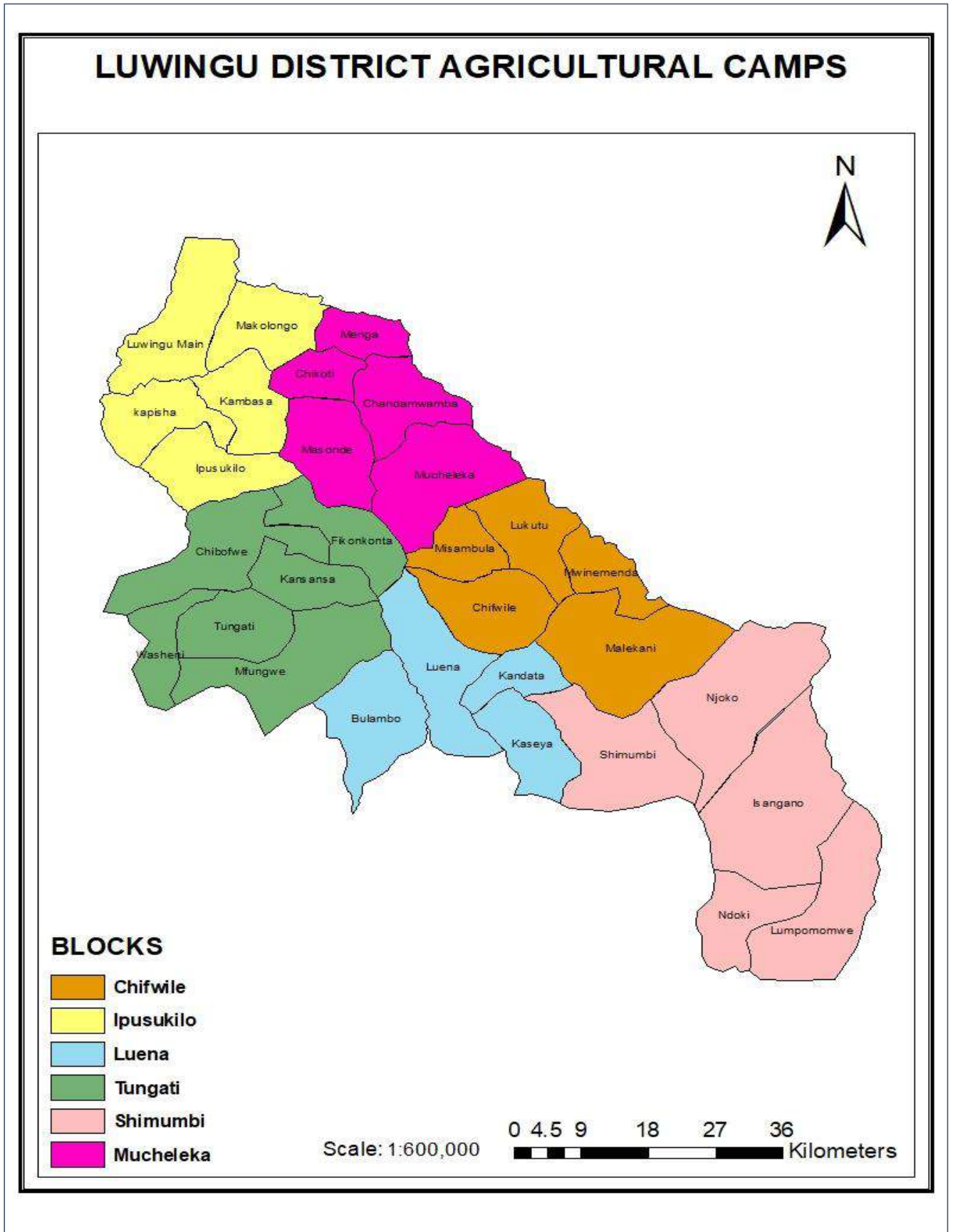
2.2.3.2 Description of the existing state of development

By understanding the existing state of development in the Agriculture Sector and monitoring key performance indicators, policymakers, researchers, and stakeholders can identify areas for improvement, prioritize investments, and develop strategies to enhance the sector's performance. This information is crucial for sustainable agricultural development, food security, and the overall economic growth of a country.

2.2.3.2.1 Availability of service

As shown in the figure below, the District has six (6) Agricultural Blocks which are further segmented into thirty (30) agricultural camps; of which only thirteen (13) are manned by Camp Officers.

Figure 10: Agricultural Camps



Luwingu has a total number of thirty-two thousand eight hundred thirty-five (32,835) registered farmers of which 40% are female and 60% male. The majority of farmers in the District are categorised as small-scale farmers and represent 90% whereas the remaining percentage are medium-scale farmers. Generally, farmers still rely on hoes for land preparation and weeding hence having average productivity of 3.8t/ha for maize being the staple and widely grown crop.

Table 9: Production trend for some selected crops 2018-2022

Crop	Area planted (Ha)	Expected Production in MT					
		2018/2019	2019/2020	2020/202	Yield	2021/2022	Yield
		Season	Season	1 Season	(MT/ha)	Season	(MT/ha)
Maize	9,304	510.213	524.499	576.949	3.21	565.4	3.14
Sorghum	192	4.416	4.637	4.753	1.15	4.657	1.12
Rice	140	7.82	7.976	7.996	1.39	7.836	1.36
Finger millet	1,540	24.416	22.952	24.1	0.78	23.618	0.76
Ground nuts	3,886	46.28	47.206	50.983	0.6	499.963	0.58
Cassava	2,757,400	2,876.36	287.636	287.636	11.7	2,818.83	11.46

2.2.3.2.2 Quality of service including Key Indicators of Performance

Despite few gains achieved in the sector, the overall performance has not been sufficient to make a significant dent on poverty reduction. Poverty levels, which are supposed to be reduced by agriculture in the rural areas are still very high in comparison to urban poverty where reductions in poverty have been higher. More progress in poverty reduction has been recorded in urban areas due to the relative better performance of other sectors such as construction, trade, and other services, which thrive in the urban parts of the District.

Growth and gains made within the Agriculture Sector have not been inclusive, but rather limited to large scale and medium scale or emergent farmers with little impact on the bulk of small-scale farmers who constitute the majority of the total population of farmers. This is evident by the results of the annual surveys, which show that the majority of small-scale farmers have stagnated at less than two hectares of cropped land and obtain limited value from their production associated with low seasonal annual incomes. This category of farmers also rarely own large livestock such as cattle, pigs or sheep, but only limited to having a few village chickens.





The Agriculture Sector continues to face several challenges such as:

1. Low agricultural production and productivity;
2. Erosion of indigenous plant genetic resources;
3. Low private sector participation especially in agricultural marketing, food insecurity particularly at household level;
4. High dependence on rain-fed agriculture compounded by low levels of irrigation;
5. Inefficient agricultural extension service delivery due to lack of motorized transport. High officer to farmer ratio (1:1,500) and poor accommodation;
6. Low levels of agricultural mechanization among smallholder farmers;
7. Inefficient agricultural markets for inputs and outputs;
8. High post-harvest losses;
9. Limited access and availability to agricultural finance and credit facilities;
10. Unsustainable use of natural resources;
11. Low resilience to Climate Change effects; and
12. Inadequate mainstreaming of Gender and Governance issues, HIV and AIDS.

2.2.3.3 Issues arising from the Public Participation Process





Issues that emanated from the Public Participation Process with a focus on agricultural service availability and quality including Key Indicators of Performance are discussed hereunder.

2.2.3.3.1 Availability of service

-  Farmer: Officer ratio is high;
-  Lack of locally available formal buyers of produce;
-  Lack of input suppliers; and
-  Inadequate knowledge on land ownership.

2.2.3.3.2 Quality of service including Key Indicators of Performance

The quality of service is not optimal and the existence of the following factors has not helped the situation:

-  Pests and diseases outbreak;
-  Inadequate transport;
-  Limited funding;
-  Inadequate office space; and

- ✚ Poor state of camp houses.

2.2.3.4 Impact of changes anticipated over the next ten years

The anticipated increase in the District population over the next ten years will have several impacts on the Agriculture Sector. Some of these impacts are discussed in this section.

2.2.3.4.1 Population Change – Future demand for services and facilities

It is anticipated that over the next 10 years the population is expected to grow to 205, 382, which will lead to the increased demand for services and facilities. Some other changes that will come with time are:

- ✚ **Increased demand for food:** With a growing population, the demand for food will also increase. This will put pressure on farmers to produce more food to meet the rising demand. As a result, there will be a need for increased agricultural production and improved farming techniques;
- ✚ **Shift in crop preferences:** As the population grows, there may be a shift in crop preferences to meet the changing dietary patterns and demands of the population. Farmers might need to diversify their crops and focus on producing a wider variety of fruits, vegetables, and protein sources to cater to the evolving consumer preferences;
- ✚ **Expansion of agricultural land:** To meet the increased demand for food, there may be a need to expand agricultural land. This could involve converting forests or other natural areas into farmland. However, this expansion needs to be done sustainably to minimize the negative impact on the environment;
- ✚ **Technological advancements:** The anticipated population growth may drive the adoption of new technologies in agriculture. Farmers may increasingly use advanced machinery, drones, and sensors to monitor crops, optimize irrigation, and enhance overall farm management. Additionally, the use of data analytics and artificial intelligence can help farmers make informed decisions and improve productivity;
- ✚ **Water management challenges:** With more people relying on agriculture for food, water resources will be under increased pressure. Farmers will need to implement efficient irrigation systems and water conservation measures to ensure sustainable water usage. Additionally, there may be a need for improved water infrastructure and policies to support agricultural water management;
- ✚ **Labour availability:** As the population grows, there may be a larger labour force available for agricultural activities. This can provide opportunities for increased

mechanization and automation in farming operations. However, it is crucial to ensure that the workforce is adequately trained and skilled to adapt to the changing agricultural practices; and

- ✧ **Environmental sustainability:** With a larger population, there will be a greater need to address environmental sustainability in agriculture. Farmers may need to adopt more sustainable practices, such as organic farming, agroforestry, and integrated pest management, to reduce the environmental impact of agriculture and preserve natural resources.

Overall, the anticipated increase in the District population will require the agriculture sector to adapt and innovate to meet the growing demand for food while ensuring sustainability and environmental stewardship. Collaboration between farmers, policymakers, researchers, and other stakeholders will be crucial in navigating these changes and ensuring a resilient and productive Agriculture Sector.

2.2.3.4.2 Existing and proposed investment and development programmes

1. Operationalization of Farmer Training Centre;
2. Promotion of Climate Smart Agriculture (CSA);
3. Development of Masonde Farm Block;
4. Promotion of Community Irrigation Scheme; and
5. Promotion on investment in marketing infrastructure.

2.2.3.5 The impact of the continuation of existing trends on land use and population distribution patterns

It is anticipated that should the existing trends continue, there will be more demand for agricultural land due to population growth. This will have an impact on the land as more forests are expected to be cleared for agricultural purposes. The bad agricultural practices will result in deforestation and soil degradation.

2.2.3.6 Environment and Climate Change Analysis

This section is about appreciating the impact the Agriculture sector poses on the environment and climate change and vice-versa. The agriculture sector has a significant impact on the environment and climate change, and at the same time, environmental changes also affect

agriculture. This interdependence highlights the need to appreciate and understand the relationship between the two.

2.2.3.6.1 The impact of existing trends on the Environment and Climate Change

Agriculture is a major contributor to Greenhouse Gas Emissions, which are the primary cause of climate change. The sector is responsible for around 14% of global Greenhouse Gas Emissions, mainly from the production and use of synthetic fertilizers, livestock emissions, and deforestation for agricultural purposes. These emissions contribute to the warming of the planet and the subsequent climate-related challenges such as extreme weather events, rising sea levels, and changing precipitation patterns.

The bad agricultural practices such as shifting cultivation taking place in the District has a negative impact on the environment mostly through deforestation. The burning of the trees during preparation for the farming season is a major contributor to the emission of Green House Gases (GHGs), which is a proponent for Climate Change. There is a need to promote conservation agriculture techniques that can lead to higher yields and in the long run reduce input costs, in addition to contributing to mitigating the effects of climate change. Conservation Agriculture embraces three principles and these are; *minimum tillage, residual retention and crop rotation*. In mitigating the impacts of shorter rainy seasons in the Agriculture Sector, there is a need to promote the utilization of dambos and wetlands.

2.2.3.6.2 The impact of Environmental and Climate Change issues on the Sector

Climate change poses significant challenges to the Agriculture Sector. Rising temperatures, changing rainfall patterns, and increased frequency of extreme weather events like droughts and floods can have detrimental effects on crop yields, livestock production, and overall food security. These changes in climate can disrupt agricultural systems, leading to reduced productivity, increased pests and diseases, and loss of biodiversity.

Moreover, agriculture is closely linked to other environmental issues such as water scarcity, soil degradation, and pollution. Unsustainable agricultural practices, including excessive use of water for irrigation, improper use of agrochemicals, and poor soil management, can



deplete water resources, degrade soil quality, and pollute water bodies. These environmental problems, in turn, affect the long-term sustainability and resilience of agricultural systems.

Recognizing the impact of agriculture on the environment and climate change, and vice-versa, is crucial for developing sustainable and climate-resilient agricultural practices. Efforts should be made to promote Climate-Smart Agriculture, which aims to reduce Green House Gas emissions, enhance carbon sequestration, and improve the adaptive capacity of agricultural systems to climate change. This can be achieved through the adoption of practices such as agroforestry, conservation agriculture, precision farming, and efficient water management.

Furthermore, integrating climate change considerations into agricultural policies and practices can help mitigate the negative impacts of climate change on agriculture. This includes promoting climate-resilient crop varieties, diversifying farming systems, improving water-use efficiency, and implementing sustainable land management practices.

In conclusion, appreciating the impact of the agriculture sector on the environment and climate change, as well as understanding the reciprocal relationship between the two, is essential for addressing the challenges posed by climate change and ensuring the sustainability of agricultural systems. By adopting sustainable and climate-smart practices, the agriculture sector can contribute to mitigating climate change while also adapting to its impacts.

2.2.3.7 Issues arising relating to Gender Groups and Vulnerable Groups

-  Female participation in leadership is limited due to high illiteracy levels and cultural norms; and
-  No deliberate policy for the physically challenged and other vulnerable groups as far as mechanization is concerned.

2.2.3.8 Summary

The Agriculture Sector continues to face several challenges such as:

- 1. Low agricultural production and productivity, which can be attributed to high dependence on rain-fed agriculture compounded by low levels of irrigation and low levels of agricultural mechanization among smallholder farmers;*
- 2. Erosion of indigenous plant genetic resources;*

3. *Inefficient agricultural markets for inputs and outputs, which is as a result of low private sector participation especially in agricultural marketing that attributes to food insecurity particularly at household level;*
4. *Inefficient agricultural extension service delivery due to lack of motorized transport, high officer to farmer ratio and poor accommodation for extension officers;*
5. *High post-harvest losses;*
6. *Limited access and availability to agricultural finance and credit facilities;*
7. *Unsustainable use of natural resources;*
8. *Low resilience to Climate Change effects; and*
9. *Inadequate mainstreaming of Gender and Governance issues, HIV and AIDS.*

2.2.3.9 Consideration of the underlying factors contributing to the issues identified

Low adoption of technology practices; Inadequate extension services; Lack of formal buyers for promoted value chains in the District (Beans and Groundnuts); and Limited funding.

2.2.4 Fisheries and Livestock

The services are provided by the Ministry of Fisheries and Livestock. The Ministry is divided into three departments namely; Fisheries, Livestock and Veterinary Services. The Fisheries Department is charged with overseeing the implementation of fisheries programs in capture fisheries and aquatic development. It conducts enforcement of relevant national laws and policies (Market Inspections as well as land and water patrols and also enforces the fish ban season). The department also promotes sustainable utilization of fisheries resource through pieces of training such as site selection, pond construction, harvesting, marketing, preservation, etc. The department is also mandated to conduct extension services and research.

The Livestock Department is responsible for the development and promotion of livestock production in the country. It provides technical assistance and training to livestock farmers on various aspects such as animal husbandry, breed improvement, disease control, and nutrition. The Department also conducts research to improve livestock production and promotes the use of modern technologies and practices in the sector.

The Veterinary Service Department is responsible for ensuring the health and well-being of livestock and aquatic animals. It provides veterinary care and treatment services to prevent and control diseases in animals. The department also conducts disease surveillance and

monitoring programs to prevent the spread of diseases. It also regulates the import and export of animals and animal products to ensure bio-security.

Overall, the Ministry of Fisheries and Livestock is instrumental in promoting sustainable practices, enhancing productivity, and ensuring the efficient management of fisheries and livestock resources in the country. Its efforts contribute to food security, economic growth, and the overall development of the agriculture sector.

2.2.4.1 Key Government priorities being and to be implemented at a Local Level

Below are the key Government priorities being implemented at a local level in this sector:

- ✧ Fisheries and aquaculture development;
- ✧ Livestock development;
- ✧ Extension services support;
- ✧ Early warning and surveillance systems; and
- ✧ Enhanced farmer support.

2.2.4.2 Description of the existing state of development

The primary focus of this section is about highlighting the current state of development in the sector, specifically the availability and quality of services, to determine gaps that require attention for sustained production.

2.2.4.2.1 Availability of service

The services currently being offered in the Fisheries and Livestock Sector are shown in Table 10 below.

Table 10: Services for the Fisheries and Livestock Sector

Programme	Planned Activity	Expected Outcome	
		Indicator Description	Annual Target
Early warning and surveillance systems	Deworming of livestock	Number of cattle dewormed	1,747
		Number of goats dewormed	8,000
		Number of pigs dewormed	1,490
		Number of Sheep dewormed	100
		Number of birds dewormed	18,000
	Spraying of livestock	Number of cattle sprayed	1,747
		Number of goats sprayed	8,000
	Livestock Disease outbreak	Number of Livestock disease	All

	investigation	investigations conducted	
	Livestock brands registration and renewal	Number of animal brand marks registered and/or renewed	All
	Passive Animal disease surveillance	No of reports and rumours of Animal diseases responded to	All
	Active Animal disease surveillance	No of Animal disease case findings conducted	All
	Meat inspection	Number of carcasses inspected	All slaughters
	Butchery inspection	Number of butchery inspections	24
	Enhance the control of livestock movement in and out of the District	Number of permits issued.	All
Fisheries and aquaculture development	Law enforcement during fish ban season	Increased fish production in fishing seasons	
	Sensitization meetings with fish farmers	Increased fish production among fish farmers	12
Extension services support	Raising awareness on the construction of crush-pens	No of awareness programs conducted	1,200 farmers
	Demonstration of dipping/spraying	No of dipping/spraying demonstrations conducted	24
	Deworming demonstrations	No of deworming demonstrations conducted	24
	Raising awareness on the construction of housing for livestock	No of farmers sensitized on the construction of crush-pens	1,000
Enhanced Farmer Support	Extension visits to fish farmers	Number of fish farmer visits conducted annually	30
	Training of fish farmers in good management of pond	Number of fish Farmer trainings conducted annually	24
	Undertaking timely Livestock sensitization meetings with Farmers	Number of meetings conducted	Demand driven
	Implementation of Market-driven domestic Livestock Interventions	Help livestock farmers take livestock farming as a business and link them to markets	Change of mind-set of farmers in the approach to the sector
Livestock Development	Training Community Livestock Facilitators in	Number of trainings conducted.	12

	livestock technical skills		
	Training Livestock Farmers in improved livestock technologies	Number of trainings conducted.	100
	Demonstration of standard Livestock housing units in the District	Number of housing units demonstrated	Poultry and Goat housing units

Source: Department of Fisheries and Livestock Sector

Small-scale farmers have been facing challenges that have hampered their productive capacity. Poor farming practices and limited access to agro-inputs are some of the factors contributing to this. Additionally, the number of households owning cattle in the area is very low. Most farmers rely on human labour as their sole source of energy for agricultural activities. Bush clearing, digging and compacting are done manually, with rare cases of animal draft power. Furthermore, most of the livestock infrastructure is not constructed to standard and is usually made out of wood, grass, and bamboo.

2.2.4.2.2 Quality of service including Key Indicators of Performance

The quality of services provided by the Fisheries, Veterinary and Livestock Departments in the District is currently below the optimum standard. This is primarily due to the insufficient number of human resources available at the camp level in comparison to the number of farmers, livestock, and fish in the District. The table below provides a detailed elaboration of this issue.

Table 11: Quality of services for the Fisheries and Livestock Sector

<i>Extension Officers: Veterinary Assistants</i>		
Standard	Coverage – Veterinary Assistants farming household nation	1 Veterinary Assistants per 800 farming H/H
Targets (e.g. population households etc)	Farming House hold in the District	4,000 Households
Current situation	Coverage – Veterinary Assistants to farming Household ratio	1 Veterinary Assistants per 5000+ training H/H
Optimum Level	Veterinary Assistants	8 camp officers
Existing Service providers	Veterinary Assistant	3
<i>Extension Officers: Livestock Assistants</i>		
Standard	Coverage –Livestock Assistants farming household nation	1 Livestock Assistants per 800 farming H/H
Targets (e.g. population households etc)	Farming House hold in the District	4,000 Households

Current situation	Coverage – Livestock Assistants to farming Household ratio	0 Livestock Assistants per 5000+ training H/H
Optimum Level	Livestock Assistants	8 camp officers
Existing Service providers	Livestock Assistant	0
<i>Extension Officers: Fisheries Assistants</i>		
Standard	coverage – Aquaculture Assistant farming household nation	1 Aquaculture Assistant per 800 farming H/H
Targets (e.g. population households etc)	Farming House hold in the District	4000 Households
Current situation	Coverage – Aquaculture Assistant to farming Household ratio	0 camp officer per 224 training H/H
Optimum Level for the District	Camp Officer	4 camp officers
Existing Service providers	Aquaculture Assistant/ Fisheries Technician	1

Source: Department of Fisheries and Livestock Sector

2.2.4.3 Issues arising from the Public Participation Process

This part outlines issues identified during the Public Participation Process in the sector, specifically focusing on service availability, quality, and key performance indicators.

2.2.4.3.1 Availability of service

Smallholder farmers living in remote areas face a lack of seasonal credit facilities and liquidity, which seriously hinders their productivity. Poor feeder roads in rural areas, as well as limited knowledge and capacity to extend the shelf life of their produce, leads to post-harvest losses, further reducing the productivity of small-scale farmers. As a result, farmers have adopted various coping mechanisms, including diversification and integrated farming, such as using livestock waste as a source of pond manure. Despite these efforts, poverty remains widespread due to low productivity, exacerbated by the high prevalence of diseases, which has taken a toll on the productive labour force.

2.2.4.3.2 Quality of service including Key Indicators of Performance

The current quality of service provided is unsatisfactory. For example, the District only has five Extension Officers, whereas the required number is 24 according to the establishment. This has resulted in a high ratio of officers to farmers, which is below the standard of 1:400. Additionally, despite the District's potential for fish farming, most farmers have been discouraged from venturing into this opportunity due to the lack of a local hatchery.

2.2.4.4 Impact of changes anticipated over the next ten years

This section discusses the impact of anticipated changes in the Fisheries and Livestock Sector over the next decade. It aims to understand the future demand for facilities and services that will result from the projected increase in district population.

2.2.4.4.1 Population Change – Future demand for services and facilities

The table below shows the current estimated livestock populations in Luwingu District and the projected livestock population in the next 10 years i.e., 2033:

Table 12: Quality of services for the Fisheries and Livestock Sector

Type of Livestock	Est'd Pop. (2023)	Proj. Pop. (2033)	Main Locations (Chief's Areas)	Use of Livestock
Cattle	1603	2100	Chulungoma, Chifwile, Luena, Mucheleka, Shimumbi and Tungati	Meat, milk, income, very few farmers use their livestock for drought power and milk
Sheep	1170	2,150	The whole District	Meat and income
Goats	11785	21,500	The whole District	Meat, income and the hide are used for drums.
Pigs	1751	4500	The whole District	Meat and income
Ducks	1821	4100	The whole District	Meat and income
Rabbits	97	200**	The whole District	Meat and income
Chickens*	48513	117,000	The whole District	Meat, eggs and income

Source: Department of Fisheries and Livestock Sector

Based on the table presented above, it can be inferred that the District will require more grazing land to counteract environmental degradation and ensure the sustainability of the expected livestock production growth. On a positive note, the anticipated increase in Livestock production will yield net benefits, leading to higher household income and reduced poverty.

2.2.4.4.2 Existing and proposed investment and development programmes

The current existing development programme under the Ministry of Fisheries and Livestock Sector is the Enhanced Smallholder Livestock Investment Programme (ESLIP). ESLIP is designed to sustainably improve the production and productivity of smallholder producers' livestock systems. It has two components; *Sustainable animal disease control and Sustainable livestock production*. Activities mostly target poor smallholder livestock households, particularly those headed by women or young people.

2.2.4.5 The impact of the continuation of existing trends on land use and population distribution patterns

By the year 2033, the increasing number of livestock and fish farming activities in the District will require more land to sustain them. The natural forest-clearing in the Fisheries and Livestock Sector is mostly utilized for the establishment of kraals, livestock houses, fish pond constructions, pasture land creation, and forage and pasture crop farming. Consequently, the population distribution for most of the smallholder livestock and fish farmers is expected to continue growing along river banks, plains, peri-urban and rural areas of the District. These areas are anticipated to provide the most sufficient space for the mentioned land use activities.

Furthermore, the current livestock and fish products for the District are insufficient to meet the current human population's needs. Therefore, most of the livestock/fish products are imported from neighbouring Districts to fulfil the demand for these protein sources. Under the current trend, it is expected that the demand for livestock and fish produce/products will increase exponentially in the next ten years.

2.2.4.6 Environment and Climate Change Analysis

Livestock production systems are expected to become more vulnerable due to the impact of climate change, which will intensify existing factors that are already affecting them. These factors include rapid population and economic growth and increasing demand for food, including livestock. In this section, we will provide a brief analysis of the impact of the Fisheries and Livestock Sector on climate change and how climate change, in turn, affects the industry.

2.2.4.6.1 The impact of existing trends on the Environment and Climate Change

Livestock and fish farming are not prevalent in the District, so their impact on climate change is expected to be minor or indirect. However, these land use activities can contribute to high carbon emissions from deforestation and land degradation over time, which can have a global collective impact. It is important to note that the livestock sector alone contributes to 14.5% of Greenhouse Gas Emissions globally, which further drives climate change. Therefore, it is crucial to assess and implement location-specific adaptation and mitigation measures and policies to promote sustainable livestock production.

2.2.4.6.2 The impact of Environmental and Climate Change issues on the Sector

It is expected that the demand for livestock products will double by 2050, due to an increasing global standard of living. However, climate change poses a significant threat to livestock production, as it affects the quality of feed, water supply, and animal and milk production, among other factors. Climate variability, increased water consumption, and the need for more agricultural land will limit livestock production. The long-term effects of global environmental and climate change on the fisheries and livestock sector in the district will include lower capture fish population due to lower water levels, re-emerging, emerging and irregularly sporadic incidences of fish and livestock diseases, inadequate pasture land due to droughts and deforestation, and livestock and fish depopulation from natural disasters such as floods, cyclones, and hurricanes.

2.2.4.7 Issues arising relating to Gender Groups and Vulnerable Groups

In the just recently ended 2022 fiscal year, there was overwhelming response and interest from women to take part in livestock and fisheries activities in the District. This was evidenced by the 2022 CDF funded cooperative projects statistics. Out of the 22 funded fish and livestock projects, 45% were for women clubs/cooperative projects, 32% for youths and 23% for men-led cooperatives. Under the current trajectory, the District is likely to experience an increased number of women agribusiness entrepreneurs in the next 10 years. However, there are still a lot of gaps to be bridged before the District has an increased number of disabled or differently-abled smallholder livestock and fish farmers. This is because there is little to no participation from this particular group of people in the District.

2.2.4.8 Summary

In summary, the District would greatly benefit from the implementation of various measures such as the construction of dip tanks and crush pens, establishment of Livestock Service Centres and a Fish Hatchery, and enhanced disease control. These initiatives will contribute to sustainable livestock production, improved animal health, increased fish production, and the overall development of the Agricultural Sector in the District.

2.2.4.9 Consideration of the underlying factors contributing to the issues identified

- ✧ Most farmers are still practicing subsistence farming where disease control is not practised;

- ✧ Most disease control infrastructure are not functional such as dip tanks;
- ✧ High prevalence of tick - borne diseases especially in the rainy season;
- ✧ Number of extension staff is very low (5 Extension Staff for the entire district);
- ✧ Low levels of women participation in Fisheries and Livestock projects; and
- ✧ Lack of local hatchery for fish farmers.

2.2.5 Social Protection

This sector encompasses policies and programs that aim to mitigate the lifelong effects of poverty and exclusion.

2.2.5.1 Key Government priorities being and to be implemented at a Local Level

Here are the key government priorities being implemented at a local level in the District.

National Policy on Disability, 2012: The Policy ensures the development and promotion of programmes that prevent and reduce incidences of disability. It facilitates for the provision of rehabilitation of facilities for persons with disabilities and ensure their full participation into the mainstream of society;

National Gender Policy, 2014: The Policy seeks to mainstream gender in all national policies, programmes and legislation in order to achieve gender equality programming. The policy aims at increasing the participation of women in decision making as well as promoting equitable allocation of productive resources to women and men; and

National Social Protection Policy, 2014; The Policy seeks to alleviate poverty and increase incomes, improve education and health outcomes of poor families and other vulnerable groups in society. It promotes gender equality, social solidarity, enhance food and nutrition security for vulnerable populations and contribute to the empowerment of poor people in communities.

2.2.5.2 Description of the existing state of development

The quality and availability of a service, including Key Performance Indicators, depend on accurately describing the current state of development.

2.2.5.2.1 Availability of service

It is important to note that Luwingu’s state of development is relatively low due to few economic, industrial and entrepreneurship activities taking place in the District other than farming, which is on the small scale and predominantly by indigenous residents. Most socio-economic development matters are led by Government institutions like the Department of Community Development, which focuses mainly on empowerment programmes and skills development. Current services being offered, which are aimed at improving the standards of living for the vulnerable members of society are as in shown Table 13 below.

Table 13: Services offered by Community Development Department

Program	Description	Target	Actual	Gender			Coverage	Source of Funding
				F	M	Total		
Food Security Pack	Inputs (D. Com, Urea, Beans and Maize Seeds)	500	300	164	136	300	3 Sub centres	GRZ
Supporting Women’s Livelihoods	Productive Grant (K2700.00)	2863	2863	2863	-	2863	52 CWACs	World Bank GRZ
Non-Formal Education	Functional Literacy	200		78	75	153	3 sub-centres	GRZ
Gender and Development (Livelihood and Empowerment Support Scheme)	Clubs Registered	600	300	300	-	300	Lubansenshi Constituency	GRZ
	Women of Reproductive Age (Soya Beans)	1205	1205	1205	-	1205	Lubansenshi Constituency	SUN-TA
	Clubs-Chickens, Goats and Cow)	300	75	1000	200	1200	Lubansenshi Constituency	ESLIP
	Registered Groups (Chickens)	100	69	1000	300	1300	Lubansenshi Constituency	ALEJO
Self – Help Initiative		-	-	-	-	-		Community members
HIV/ AIDS	-	-	-	-	-	-		GRZ
TOTAL		5468	2812	5610	711	7321		

Source: Community Development Department

Owing to its rural nature, Luwingu has inadequate infrastructure such as education and health facilities, poor road network and high levels of illiteracy, which considerably affect the services offered to the general public.

2.2.5.2.2 Quality of service including Key Indicators of Performance

The sector has a decentralized system for implementing programs, with community structures in place to identify beneficiaries and oversee program implementation. However, the lack of funding for these structures results in inadequate incentives, which negatively impacts their commitment and participation at the community level.

2.2.5.3 Issues arising from the Public Participation Process

This section aims to highlight issues identified through the Public Participation Process, which was conducted to determine service delivery levels and address gaps within the Social Protection Sector.

2.2.5.3.1 Availability of service

The District has 2 gazetted sub-centres (Luena and Tungati), 4 Community Development Assistants (CDA) and 56 Community Welfare Assistant Committees (CWACs). The current status quo in terms of extension services is that the 4 CDAs are manning community members in Tungati, Luena, Shimumbi and Mucheleka.

2.2.5.3.2 Quality of service including Key Indicators of Performance

The quality of service is below optimum as most of the activities and/or programmes are inadequately funded for them to have a positive impact on the community. Further, the sub-centres are inadequate to support the growing population and hence the Department of Community Development has proposed to add Luwingu Central, Shimumbi, Mucheleka and Kasunga as sub-centres.

2.2.5.4 Impact of changes anticipated over the next ten years

Our goal is to develop a proactive approach to addressing anticipated vulnerabilities in Luwingu District's Social Protection over the next decade.

2.2.5.4.1 Population Change – Future demand for services and facilities

The expected rise in the population will likely result in an increase in the number of vulnerable individuals in the community. As a result, there will be a need to expand the beneficiary base for most of the programs currently in place within the District. See Table 14

Table 14: Population Change and Future Demand for Services

S/N	Programme	Present Situation	Deficit	Future Demand
1.	Food Security Pack (FSP)	2124 beneficiaries	2000	10,000
2.	Supporting women ' s livelihood (SWL)	4182	3000	7000
3.	Functional literacy	10 classes	39	117
4.	Office Block	1	2	2
5.	Construction of houses in Sub-centres for the CDAs	6	13	26
6.	Increase on sub-centres	2	13	26

The table above shows the population and future demands of the beneficiaries. The programmes highlighted will have a positive impact on the well-being of the beneficiaries, reducing their poverty and vulnerability levels and thus in turn contribute to the development of the District.

2.2.5.4.2 Existing and proposed investment and development programmes

The District like most rural areas has high levels of poverty and vulnerability and this provides a strong justification for the promotion of social protection programmes. This is to enable poor people to cope with present needs. The District is implementing Social Protection programmes such as Food Security Pack, Social Cash Transfer, Supporting Women's Livelihood, Public Welfare Assistance Scheme, and Gender and Development (Livelihood and Empowerment Support Scheme), among others.

2.2.5.5 The impact of the continuation of existing trends on land use and population distribution patterns

Population distribution will continue to concentrate in areas where social protection services are provided and around farm blocks to support the community's livelihood.

2.2.5.6 Environment and Climate Change Analysis

Effective social protection measures can play a pivotal role in managing climate-related risks. They can help in addressing persistent poverty, providing temporary support during periods of acute economic and livelihood disruption, and ultimately, building resilience and enhancing adaptive capacity to better prepare people for unexpected shocks.

2.2.5.6.1 The impact of existing trends on the Environment and Climate Change

The sector advocates for programmes that are environmentally friendly and climate resilient. However, most of the vulnerable communities tend to engage in charcoal business, which has a negative effect on the preservation of forests and ultimately impacts negatively on the environment.

2.2.5.6.2 The impact of Environmental and Climate Change issues on the Sector

Sustainable Development implies economic growth together with the protection of environmental quality, each reinforcing the other. The essence of this form of development is a stable relationship between human activities and the natural world, which does not diminish the prospects for future generations to enjoy a quality of life at least as good as the present. Issues of climate change cannot be overlooked as the current status quo of Luwingu District reveals that the effects of climate change are being experienced especially by the farmers who depend on rain-fed agriculture. The District is faced with prolonged droughts, drying up of streams and changes in the rainfall patterns. In other words, these effects of Climate Change have the potential to increase the levels of vulnerability in the District resulting from food insecurity.

2.2.5.7 Issues arising relating to Gender Groups and Vulnerable Groups

There was a general concern regarding the low inclusion of men in programs, which are meant at promoting livelihood enhancement. Men tend to feel left out as many of these initiatives are primarily focused on female empowerment and development. To address these concerns, it is important to promote gender equality and inclusivity in all livelihood enhancement programs. While it is crucial to empower and support women, it is equally important to ensure that men are not left behind. This can be done by incorporating specific components or activities that cater to the needs and interests of men in these programs.

Furthermore, adopting the Local Economic Development (LED) approach can help in ensuring community ownership and participation. This approach involves engaging local residents in the decision-making process, identifying their needs and priorities, and involving them in the implementation and monitoring of development projects. By involving community members, especially those in rural areas, in the planning and implementation of programs, it will help create a sense of ownership and ensure that projects are more relevant and sustainable.

In order to address the perception of imposed projects/programs, it is crucial to conduct thorough consultations and engage with the community from the very beginning. This includes conducting needs assessments, holding community meetings, and seeking input and feedback from local residents. By involving the community in the decision-making process, they will feel a sense of ownership and be more likely to support and actively participate in the project/program.

Overall, promoting gender equality, adopting the LED approach, and ensuring community participation are key strategies to address the concerns of low inclusion of men and the lack of ownership in livelihood enhancement programs. By taking these steps, it is possible to create more inclusive and sustainable development initiatives.

2.2.5.8 Summary

The anticipated increase in the District population is likely to lead to a corresponding increase in the levels of vulnerability and hence more beneficiaries on social protection programmes. The limited sources of income and inadequate access to such programmes pushes most households into poverty. Further, most communities in far-flung areas have no access to markets for their produce due to bad road networks. This predicament denies these households income for the improvement of their welfare.

2.2.5.9 Consideration of the underlying factors contributing to the issues identified

The factors contributing to the identified issues include, but not limited to the following: High levels of poverty; Low income at household level; High illiteracy levels among women; Limited empowerment programs; and High numbers of Orphans and Vulnerable Children (OVCs).

2.2.6 Water and Sanitation

Safe drinking water, sanitation, and hygiene are essential to human health and well-being, contributing to livelihoods, school attendance, and dignity. WASH is a prerequisite for health, and it helps to create resilient communities living in healthy environments.

2.2.6.1 Key Government priorities being and to be implemented at a Local Level

Exploration of the key government priorities that are being implemented at the local level will be undertaken.

National Water Policy, 2010

The policy ensures that within the District there is a development of a comprehensive framework for water resources management and protection with the consultation and involvement of all key stakeholders.

Integrated Water Resources Management and Water Efficiency Plan (2007-2030)

The plan's vision is to achieve equitable and sustainable use, development and management of water resources for wealthy creation, socio development and environmental sustainability.

The Water Resources Management ACT 2011

An act to establish the Water Resources Management Authority (WARMA) and define its functions and powers, provide for the management, development, conservation, protection and preservation of the water resources and its ecosystems: provide for the equitable, reasonable and sustainable utilization of the water resource; ensure the right to draw or take water for domestic and non-commercial purposes; creating an enabling environment and sustainable utilization of water.

Eighth National Development Plan (SNDP)

The plan advocates for the enhancement of rainwater harvesting and catchment protection, and supply of adequate safe water and sanitation in the District.

2.2.6.2 Description of the existing state of development

Below, we explore the current situation with the water supply system in the District:

2.2.6.2.1 Availability of service

Urban Water Supply

Urban water in Luwingu is provided by Chambeshi Water Supply and Sanitation Company. However, the water utility company is only providing piped water in wards of Katopola and Namukolo, which make up the CBD. The Company has a total number of 653 connections serving an average population of about 3,556. This is about 30 per cent of the total expected District coverage.

The main water source for the District supply of urban water comes from Lufubu River – a perennial river - about 10 kms from the treatment plant an indication that water supply is constant throughout the year. The intake has one pump set and a booster station at 5 km. The water utility company has a reserve capacity of 1,000 cubic meters. This includes the elevated tanks metal (327 cubic meters) and two underground tanks concrete (673) cubic meters (CWSC, 2020). The table below is a breakdown of the areas with access to piped water.

Table 15: Areas Serviced with Urban Water Supply

SN	Townships	Hours of Supply	Number of Connections	No. Per household	Population	Weighted Average hours
1	Kamba	8	39	6	234	0.53
2	Angel	9	17	6	102	0.32
3	Cooks	11	6	5	25	0.08
4	High School	11	2	350	700	2.17
5	Market	8	11	7	77	0.17
6	Kapisha	18	9	6	108	0.55
7	Katopola	7	6	6	36	0.07
8	Location	8	8	6	576	1.30
9	Lupili	6	217	5	535	0.90
10	Maiteneke	18	70	6	372	1.88
11	Roads	6	17	6	102	0.17
12	Police Camp	7	32	6	192	0.38
13	Coop A	8	48	6	288	0.65
14	Airstrip	6	38	5	125	0.21
15	Chelstone	18	33	6	84	0.43
			653	432	3,556	9.79

Source: [Chambishi Water & Sewerage Company](#)

Rural Water

Luwingu District has a total number of 467 water sources. However, only 87% of the rural population have access to safe water supply. Statistically, the District has a total number of 223 Indian Mark II pumps, 4 protected springs, 28 water schemes and 4 protected wells spread across the 13 wards. Mwelawamangu, Isansa, Isangano, Lwata and Chulungoma Wards have relatively a greater number of boreholes commensurate with population density and location since they have no access to the urban water supply. It is, however, important to note that there are only 254 functional hand pumps while 25 out of these are defunct. The District has 103 Area Pump Minders (APMs) that are expected to ensure that water pumps are functional. See Table 16 showing the functionality status of the Rural Water Supply in the District.

Table 16: Rural Water Supply Functionality

Sn	Description	Functional	Non-Functional	Total	% Functionality
1.	Hand-pump Boreholes	254	25	269	94%
2.	Piped Water Scheme	25	3	28	89%
3.	Protected Springs	4	4	4	100%
	Totals	283	22	301	94%

Despite this good picture portrayed in the above table, the status quo in terms of rural water supply is that there is a need to have more water points in the District as most communities are compelled to cover the distance of more than 500 m to access the next water point.

2.2.6.2.2 Quality of service including Key Indicators of Performance

The quality of service provision in relation to water supply and sanitation is above average. Statistically, for urban water supply only 30% of the community is currently being serviced with piped water by the water utility company whereas the rural communities have at least 87% coverage of water provision.

2.2.6.3 Issues arising from the Public Participation Process

This section outlines concerns raised in the Public Participation Process about water supply in the District.

2.2.6.3.1 Availability of service

The major issue that arose from the public participation process was that despite the water supply coverage being at 87% in the rural areas, some communities were still covering more

than 500 m to access the nearest water point. There was also a concern expressed on discouraging on-site sanitation in the urban areas as it had a negative impact on the underground water.

2.2.6.3.2 Quality of service including Key Indicators of Performance

The District has a total of 254 completed boreholes and 31 water schemes. These water facilities are in Lubansenshi Constituency. The construction and rehabilitation of water points have mainly been funded by GRZ directly and through cooperating partners like Irish Aid, African Development Bank, JICA, DAPP, World Vision and SUN TA. V-WASHE Committees were formed and oriented on their roles and responsibilities in operation and maintenance of the above water facilities as well as the principles of Community-Based Management and ownership of the water facilities. Table 17 shows the water supply coverage in the District.

Table 17: Water Supply Coverage

Sn	Description	Population	Population with access to safe water supply	Population with access to adequate sanitation	Water supply (%) coverage	Sanitation (%) coverage
1	Rural	82,768	71,110	69,595	71%	87%
2	Urban	18,374	6,090	1,204	33%	0.07%
3	District	101,142	77,200	97,799	76%	96%

Source: Department of Works, Luwingu Town Council, 2023

From the information displayed in the table, it can be deduced that the quality of service requires an improvement; the water access coverage in the township should increase to 85% by 2026. Similarly, there is a need to reduce the distance covered by the rural communities to access water.

2.2.6.4 Impact of changes anticipated over the next ten years

The future demand for services and facilities depends on anticipated changes in the next decade.

2.2.6.4.1 Population Change – Future demand for services and facilities

The District's population in the next ten (10) is expected to increase by 50% and this will increase the demand for more water points to serve the consumers.

2.2.6.4.2 Existing and proposed investment and development programmes

Water Supply: The Local Authority, taking advantage of the increased CDF allocation, has embarked on the drilling of mechanized water system with the first four earmarked at the Police Station, Chikoyi Village, Kuuta Primary School and Robati Primary School.

Sanitation and Hygiene Promotion: The District receives support in sanitation software activities from partners, which include World Vision and SUN TA. CLTS has been the main approach that is being used to sensitize rural communities to have proper sanitation facilities and practise good hygiene. The number of trained Community Champions in the District is 138 and received bicycles. The District equally trained EHTs/ CLTS Technocrats who are tasked with the responsibility of supervising sanitation activities at ward level. The technocrats supervise the Community Champions who are assigned about ten villages of operation each.

The District equally conducted a training of 22 Masons from all 13 wards with the technical and financial support from SNV Netherlands Development Organisation. These training also attracted traders or businessmen one from each of the wards who only attended the first two days of the workshop. This training had the business perspective for the first two days whereas the remaining days focused on the construction of durable and cost-effective latrine options suitable for different localities. However, the main option that was tackled in detail is the Safi Latrine. The major achievement in the sanitation sector is the attainment of the ODF status of Shimumbi, Tungati and Chipalo Chiefdoms. See the table below:

Table 18: ODF Status of Chiefdoms under Luwingu District

SN	Chiefdom	Population	Total # of Villages	# of Households	ODF Status
1.	Shimumbi	29,022	187	5516	100%
2.	Tungati	21,782	166	5598	100%
3.	Chipalo	31964	105	6298	100%

Sustainable Operation and Maintenance (O&M): A number of the boreholes have undergone rehabilitation that were funded by GRZ directly and through cooperating partners like Irish Aid, African Development Bank, World Vision and SUN-TA. The functionality of the boreholes is currently ranging between 75% and 85%. A few numbers of boreholes have

also undergone minor repairs facilitated by the community members and V-WASHES through the user fee contributions for **O** and **M**.

2.2.6.5 The impact of the continuation of existing trends on land use and population distribution patterns

The population distribution will be concentrated around settlements with water points due to growth in agricultural and livestock activities along established water sources.

2.2.6.6 Environment and Climate Change Analysis

The analysis will determine the impact of water sources on the environment and climate change, as well as their reciprocal relationship.

2.2.6.6.1 The impact of existing trends on the Environment and Climate Change

Continuation of the existing poor sanitation trend in both urban and rural areas will lead to high levels of environmental pollution. This will in turn contaminate the soil, ground water and ultimately compromise the human and animal life.

2.2.6.6.2 The impact of Environmental and Climate Change issues on the Sector

Environmental and climate change issues can have a significant impact on the availability, quality, and distribution of water resources. These issues can lead to changes in precipitation patterns, increased frequency and intensity of extreme weather events, rising sea levels, and changes in temperature, all of which can affect water availability and quality.

Some potential impacts on the water sector include changes in water availability for agriculture and urban use, increased stress on water supplies, changes in water quality due to pollution and saltwater intrusion, and impacts on ecosystems and biodiversity.

2.2.6.7 Issues arising relating to Gender Groups and Vulnerable Groups

The increased water supply infrastructure in the District has helped to reduce the burden of women and the girls moving long distances to access clean and safe water for domestic use. The provision of clean water has also enhanced hygiene practices in both men and women leading to a healthy community.

2.2.6.8 Summary

There is no sewer reticulation in the District and as a result most developers are compelled to rely on septic tanks and soakaways, which have a negative impact on the underground water in the long run. Water provision in the urban areas of the District is still predominantly low at 30%. This has led to some communities depending on shallow wells for water. In the rural areas, albeit the water coverage being at 85%, there are still communities that cover long distances to access water.

2.2.6.9 Consideration of the underlying factors contributing to the issues identified

Some of the areas in the rural parts of the District have broken aquifers making it difficult for the erection of boreholes. Further, on-site sanitation in the urban areas is on the rise due to the huge costs associated with sewer reticulation.

2.2.7 Solid Waste Management

The process of managing solid waste involves collecting, treating, and disposing of it properly. This process includes gathering waste from various sources, transporting it, treating it, analyzing it, and ultimately disposing of it in a safe and appropriate manner.

2.2.7.1 Key Government priorities being and to be implemented at a Local Level

Here are the key Government priorities being implemented at the local level to address solid waste management challenges in the District.

The Keep Zambia Clean, Green and Healthy Campaign

This policy is a Behaviour Change Programme whose emphasis is on keeping surroundings in Zambia Clean, Healthy and Green to improve health standards throughout the country.

The Solid Waste Regulation and Management Act, 2018

The Act provides for the sustainable regulation and management of solid waste; highlighting on the general and self-service solid waste services, the incorporation of solid waste management companies, the licensing and functions of solid waste service providers, operators and self-service waste services.

2.2.7.2 Description of the existing state of development

In setting the state of development under the sector, two parameters were established: service availability and quality, including Key Performance Indicators.

2.2.7.2.1 Availability of service

Solid waste management in Luwingu District is under the responsibility of Local Authority. The Council currently collects garbage twice a week from commercial and market areas. The waste is collected from three main designated dumping bays, namely Burma, Town Centre, and Kamumango, which cover both urban and peri-urban areas. Around 18 cubic meters of waste is collected per week from these areas.

The Local Authority also provides a paid waste collection service to individual households in three urban residential areas, namely Chelston, Lupili, and Old-Airstrip. However, it has been noted that the community's acceptance rate for this service is very low as residents are used to dumping waste in open refuse pits in their backyards.

The Council has an open dump site located within 3 km from the CBD. When they have access to a front-end loader, they periodically bury the waste there. Unfortunately, the low coverage level of solid waste management in the District will hinder IDP implementation. It is crucial for households and institutions to subscribe to solid waste collection and develop a sanitary landfill where waste can be segregated and recycled.

2.2.7.2.2 Quality of service including Key Indicators of Performance

Based on the above, the quality of service provided is unsatisfactory, as can be seen from the large amount of garbage littering the streets and drains. The current waste collection system is ineffective in handling the amount of refuse generated in the Central Business District.

2.2.7.3 Issues arising from the Public Participation Process

During the Public-Participation Process on waste management in the District, various issues were highlighted.

2.2.7.3.1 Availability of service

The waste collection service is available, but it is inadequate to handle the waste effectively. As a result, communities have resorted to digging rubbish pits in their backyards and burning

refuse. This not only creates a public nuisance but also contaminates the air, causing health hazards.

2.2.7.3.2 Quality of service including Key Indicators of Performance

The quality of service regarding waste management in the Central Business District (CBD) is very poor. Unfortunately, most of the waste generated in the area remains uncollected, which greatly compromises the aesthetic beauty of the District. Moreover, the uncollected waste often ends up clogging the drainage, which can cause flooding during heavy rains. Additionally, some of the waste is burnt indiscriminately, leading to air pollution and health hazards for the residents and visitors of the area.

2.2.7.4 Impact of changes anticipated over the next ten years

The section below explores the impact of solid waste on the future service and facility demand.

2.2.7.4.1 Population Change – Future demand for services and facilities

The District's population is projected to increase to 205, 382 by the year 2035. This means that the rate of waste generation will also increase, requiring the waste management service being provided to improve. Calls to construct an engineered landfill, albeit expensive, will lead to the proper final disposal of waste, thereby reducing the danger of exposing the public to health-related problems.

It is also anticipated that more waste collection vehicles will be procured to improve on the service delivery. Further, it is expected that the implementation of the concept of Integrated Sustainable Waste Management System (ISWMS) in the District with emphasis on recycling, re-using and recovering of waste materials will drastically reduce the amount of refuse requiring disposal. This will in turn reduce on the huge costs associated with handling waste such as transportation.

2.2.7.4.2 Existing and proposed investment and development programmes

Construction of the incinerator, Refuse Bays (with the provision for waste separation and/or sorting at source) and Engineered Landfill.

2.2.7.5 The impact of the continuation of existing trends on land use and population distribution patterns

If the existing trends continue, it is anticipated that it may have an impact on the implementation of the IDP. However, with enhanced sensitization of the community, the District can greatly benefit from the successful implementation of the ISWMS as many people could become responsible in the handling of waste. This could see the District having a clean and safe environment, but if mismanaged the opposite may transpire, a situation that could contribute to the spread of diseases.

2.2.7.6 Environment and Climate Change Analysis

An attempt was made to explore the relationship between the sector and the environment, specifically in regards to climate change.

2.2.7.6.1 The impact of existing trends on the Environment and Climate Change

Indiscriminate dumping and burning of waste could lead to the emission of Green House Gases such as methane to the atmosphere if left unchecked. This could consequently contribute to Climate Change in the long run. Further, improper disposal methods of waste where the emphasis is mostly on collecting, transportation and disposal of refuse without any efforts aimed at recycling, waste separation and/or sorting, and re-using could lead to an unpleasant environment.

2.2.7.6.2 The impact of Environmental and Climate Change issues on the Sector

Climate Change effects such as excessive heat can lead to GHG emissions through generation of methane from the anaerobic decay of waste in dumpsites, and emission of nitrous oxide from burning solid waste. Both of these GHGs have high global warming potential: methane has 21 times the warming potential of carbon dioxide and nitrous oxide has 310 times the warming potential⁵. Further, heavy rains can easily wash the waste into the nearby water bodies thereby contaminating it, which could lead to disease outbreaks.

⁵ Climate change and waste-CT.gov

2.2.7.7 Issues arising relating to Gender Groups and Vulnerable Groups

- ✧ **Employment opportunities:** It has been observed that in the waste disposal services sector, there are more men employed than women. This has led to a situation where due to the high levels of poverty in the District, youth and women have been forced to engage in scavenging activities at the current dumpsite being used for waste disposal. Unfortunately, this has resulted in them being exposed to various health-related complications such as tuberculosis, cholera, and other diseases; and
- ✧ **Participation in community decision making about waste disposal:** Gender inequalities are often overlooked in community consultations, leading to a neglect of women's preferences.

2.2.7.8 Summary

- ✧ Inadequate service coverage due to inadequate funding towards solid waste management;
- ✧ Non-availability of an Engineered Landfill;
- ✧ Lack of Public/Private Partnerships (PPP) in providing solid waste management services focusing on the reduction, reusing and recycling of refuse; and
- ✧ Inadequate waste management vehicles.

2.2.7.9 Consideration of the underlying factors contributing to the issues identified

- ✧ Scarce resources for the implementation of the Integrated Solid Waste Management Plan (Landfills, waste bins, waste transportation vehicles); and
- ✧ Inadequate knowledge of the public on proper solid waste management.

2.2.8 Health Services

The sector has the responsibility of providing affordable, high-quality healthcare that is easily accessible to families. It also ensures that families live and conduct their activities in a healthy environment. This section presents the sector's policies, plans, and performance in the District.

2.2.8.1 Key Government priorities being and to be implemented at a Local Level

The key Government priorities being implemented in the District are guided by the following policy instruments:

- ✦ **National Health Policy** - *To create awareness through family health promotion that the responsibility for one's health rests in the individuals as an integral part of the family, community, and nation;*

- ✦ **National Health Strategic Plan** - *To improve the health status of people in Zambia to contribute to increased productivity and socio-economic development; and*

- ✦ **Vision 2030** - *To improve health service delivery and equitable access to quality health care; reduce the under-five mortality rate, doctor/nurse to population ratio and reduce the distance of the nearest health facility to within 5km of the catchment area.*

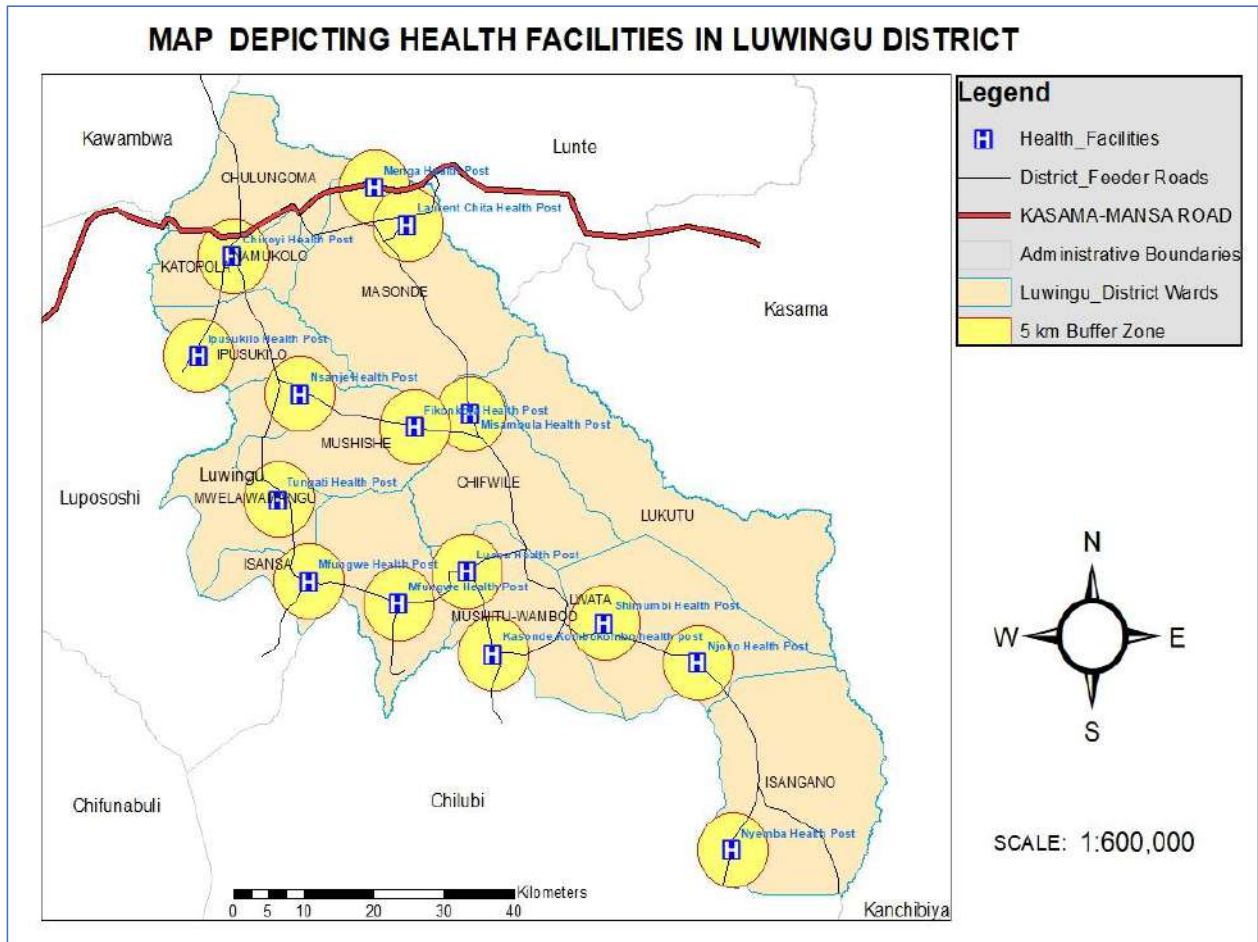
2.2.8.2 Description of the existing state of development

The Health Sector is crucial in extending life expectancy. This section aims to assess the current state of the sector in the District.

2.2.8.2.1 Availability of service

With reference to the Figure 11 below, Luwingu has one District Hospital (Level 1) located in Namukolo Ward with a bed capacity of 79, ***2 Mini Hospitals with a combined bed capacity of 45, 2 Urban Clinics***, 5 Health Centres and 14 Health Posts spread across the 13 wards.

Figure 11: Health facilities in Luwingu



Source: GIS Unit – Luwingu Town Council

The spatial analysis of the health facilities in the District shows that a number of these facilities are located within the radius of 5Km with the exception of a few.

2.2.8.2.2 Quality of service including Key Indicators of Performance

The quality of service is above average despite most of the health infrastructure being in a deplorable state. Fortunately, in the recent past, World Vision Zambia has embarked on the renovation of some facilities and constructed staff houses, clinics and maternity annexes. In terms of electrification of facilities, nearly all facilities are not connected to the national grid with the exception of Chipalo Mini Hospital, the District Hospital, Namukolo Clinic and Chikoyi Health Centre. The District is generally free of epidemic diseases although the control of malaria, which is currently the leading cause of morbidity and mortality remains the main challenge. Between 2017 and 2019, reported malaria cases across all age groups in the District were averaging above 400 cases per 1,000 population, which is higher than the reported national average of 350 cases per 1000 population. The rural parts of the District

record higher number of deaths from malaria due to delayed seeking of medical attention exacerbated by long distances and poor conditions of roads leading to health facilities.

However, the overall health service provision performance of the District has shown some improvements based on some key indicators:

- ✚ *Percentage of fully immunised coverage under 1 year stood at 110% as at December, 2021;*
- ✚ *The percentage of Antenatal 1st visits coverage before 14 weeks of gestation stood at 55% as at December, 2021;*
- ✚ *The percentage of deliveries done by skilled health personnel stands at 96% as of 2021; and*
- ✚ *The percentage of HIV/AIDS exposed infants receiving prophylaxis at birth stood at 96% as of December, 2021.*

2.2.8.3 Issues arising from the Public Participation Process

In this piece, we will examine the challenges that arose during the public participation process in the Health Sector. The aim is to assess the current state of service delivery by analyzing two critical aspects: the availability of services and the quality of services, including the key indicators of performance.

2.2.8.3.1 Availability of service

Health services are readily available, but there is still need for improvement. In terms of drugs supply, the District does experience some shortages. However, the District supplements Government efforts by procuring extra drugs and medical supplies from the monthly grants received from the treasury. Luwingu District Hospital caters for extra populations from Kawambwa, Chilubi and Lupososhi and Lunte Districts, which are relatively new Districts currently without first level hospitals. The extra populations and the general growth in population over time have caused the strain in the little hospital space available, which has not seen corresponding expansion in infrastructure.

The access to quality and safe water supply at many health facilities in the District has drastically improved following the installation of mechanised water systems through support

by World Vision Zambia. Luwingu District Hospital, in particular, has received significant boost in terms of water and sanitation system, which has been overhauled following the installation of the new system. Infrastructure in the District is relatively old requiring urgent repair and expansion almost in all facilities. The District Health Office's position is to have a new Level One Hospital constructed to cater for the increased population. This is in addition to Chipalo and Tungati Mini Hospitals constructed by Government.

2.2.8.3.2 Quality of service including Key Indicators of Performance

Part one of this report revealed that a sizable portion of the district's population lives in rural areas. However, numerous health facilities are situated beyond the recommended 5km radius, necessitating longer journeys for medical care. Moreover, the poor state of the roads leading to these facilities complicates handling emergencies. Despite the government's recruitment of health personnel, the doctor-to-patient and nurse-to-patient ratios remain high in Luwingu District, at 1:25 and 1:30 respectively, whereas the World Health Organization (WHO) recommends ratios of 1:5 and 1:3 for doctors and nurses, respectively. Nonetheless, this recruitment has posed a significant challenge in terms of accommodating facility staff, as the district lacks sufficient housing to support the increased staffing. On a positive note, all health facilities in the district are presently staffed by skilled workers, thanks to the government's employment efforts.

2.2.8.4 Impact of changes anticipated over the next ten years

To project future demand for health services, it is important to consider the impact of population changes and existing development programs.

2.2.8.4.1 Population Change – Future demand for services and facilities

The anticipated population growth in the District is likely to exacerbate the already insufficient public healthcare services. The quantity of medical staff will be surpassed by the quantity of patients, leading to overcrowded health facilities and worsening accommodation challenges. This will result in longer waiting times, reduced quality of care, and increased strain on the healthcare system as a whole. The District urgently needs to address this issue by investing in more healthcare infrastructure, recruiting and training additional medical staff, and implementing policies to better manage the growing population's healthcare needs. Failure to do so will only lead to further deterioration of public healthcare services and put the health and well-being of the District's residents at risk.

2.2.8.4.2 Existing and proposed investment and development programmes

The District Health Office's position is to have a new Level One Hospital constructed to cater for the increased population. This is in addition to Chipalo and Tungati Mini Hospitals constructed by Government. Further, the District lacks adequate housing stocks to cater for the increased staffing levels and as such staff accommodation is needed.

2.2.8.5 The impact of the continuation of existing trends on land use and population distribution patterns

The continuation of existing trends in the health sector is anticipated to bring about the development of settlements closer to the health facilities to access services. This could be in response to the generally poor road network and distance it takes people to access the health facilities especially in the rural parts of the District.

2.2.8.6 Environment and Climate Change Analysis

The impact of the health sector on the Environment and Climate Change will be discussed to understand their relationship.

2.2.8.6.1 The impact of existing trends on the Environment and Climate Change

The global healthcare industry has a significant negative impact on the environment, especially in developed countries. According to the 2022 Lancet Countdown Report, healthcare emissions have increased to 2.7 Gt CO₂ equivalent (CO₂eq), which accounts for 5.2% of global emissions. In addition to Greenhouse Gas Emissions, healthcare activities also contribute to the pollution of water, air, and soil, generate waste, and use scarce resources such as freshwater, all of which have negative effects on human health. These impacts on the environment have further effects that damage the earth's ecosystem, such as global warming and climate change.

2.2.8.6.2 The impact of Environmental and Climate Change issues on the Sector

Climate change is already impacting the Health Sector in numerous ways, leading to death and illness from increasingly frequent extreme weather events, disruption of food systems, increases in water and vector-borne diseases, and mental health issues. Furthermore, climate change is undermining many social determinants for good health, such as livelihoods,

equality, access to health care, and social support structures. These health risks are disproportionately felt by vulnerable and disadvantaged groups, including women, children, ethnic minorities, poor communities, older populations, and those with underlying health conditions. In essence, Climate Change affects the social and environmental determinants of health, such as clean air, safe drinking water, and food security. According to the World Health Organisation, between 2030 and 2050, climate change is expected to cause approximately 250,000 additional deaths per year from malnutrition, malaria, diarrhoea, and heat stress⁶.

In recent years, Luwingu District has witnessed an increase in diseases related to changes in climate and weather patterns. Refer to Table 19 to see the most noted diseases in the District, which include temperature-related death and illness, air quality impacts, vector-borne diseases, and water-related illness. The outbreak of COVID-19 in late 2019 has significantly affected the health of Zambia and Luwingu District, particularly through the disruption of productive systems, rendering many people redundant, and leading to an increased number of people suffering from the disease and ultimately death.

Table 19: Top Causes of Morbidity (2019 - 2021)

2019			2020		2021	
No	Disease	Incidence / 1000 Total	Disease	Incidence / 1000 Total	Disease	Incidence / 1000 Total
1	Malaria Confirmed Cases	589.1	Malaria Confirmed Cases	454.2	Malaria Confirmed Cases	532.6
2	RI: non-pneumonia	339.7	RI: non-pneumonia	310.0	Respiratory Infection: non-pneumonia	272.0
3	Muscular skeletal and connective tissue (not trauma)	58.3	Muscular skeletal and connective tissue (not trauma)	49.2	Diarrhoea (non-bloody)	38.4
4	Diarrhoea (non-bloody)	54.8	Diarrhoea (non-bloody)	47.9	Digestive system: (not	31.5

⁶ World Health Organisation

					infectious)	
5	Digestive system: (not infectious)	41.5	Digestive system: (not infectious)	36.6	Muscular skeletal and connective tissue	16.5
6	Trauma: Other Injuries, wounds	31.8	Trauma: Other Injuries, wounds	25.1	Trauma: Other Injuries, wounds	16.5
7	Skin Diseases (not infectious)	20.8	Skin Diseases (not infectious)	18.2	Skin Diseases (not infectious)	10.5
8	Throat Diseases	16.0	Malaria in Pregnancy Confirmed Cases	12.2	Dental Carries	9.5
9	Dental Carries	13.3	Pulmonary Diseases Non-Infectious (HIA1)	9.1	Throat Diseases	9.0
10	Allergic Conjunctivitis	8.9	Skin Diseases (Infectious)	4.4	Respiratory Infection: pneumonia	8.1



Source: District Health Office, Luwingu

Malaria remains the highest cause of sickness for all age groups in the District followed by respiratory infection: pneumonia and then muscular skeletal and connective tissue (not trauma; and diarrhoea non-bloody). There is a need to invest in new technologies in the health care system to reduce the vulnerability and risk and if the communities are to be resilient in the wake of climate change effects. Additionally, adequate interventions to address the problem such as ITN utilization, combined preventive, promotive and curative interventions, IRS, IPT and Mass Drug Administration should be enhanced.

2.2.8.7 Issues arising relating to Gender Groups and Vulnerable Groups

In terms of healthcare, women, children, and the elderly are the most vulnerable groups. Women, for instance, face maternal death due to the long distances they have to cover to access healthcare services.

2.2.8.8 Summary

-  Under staffing of health personnel in most rural health centres. For instance, the current doctor to patient and nurse to patient ratios is standing at 1:30 and 1:25 respectively;
-  Inadequate number of health facilities;

- ✦ There is only one District Hospital;
- ✦ Inadequate staff accommodation especially in the rural areas;
- ✦ Poor telecommunication and road network leading to frequent breakdown of vehicles;
- ✦ Long distances to facilities; and
- ✦ Shortage of drugs leading to the high levels of mortality rate.

2.2.8.9 Consideration of the underlying factors contributing to the issues identified

The Health Sector in the District faces multiple challenges that require urgent attention. One of the most significant concerns is the high mortality and morbidity rates caused by malaria. Furthermore, there is a shortage of staff accommodation, and the poor road conditions leading to health facilities make the situation worse. To cater for the increasing needs of the growing population, more health facilities need to be established.

2.2.9 Education

The education sector has a critical role in providing Comprehensive Sexuality Education (CSE) through both formal and informal programs. Schools offer existing resources, including skilled teachers and formal curricula for long-term programming opportunities.

2.2.9.1 Key Government priorities being and to be implemented at a Local Level

Below is a synopsis of the key Government priorities being implemented in the District under the Education Sector:

- ✦ **Education Act No 23 of 2013:** *To Regulate the Provision of Accessible, Equitable and Qualitative Education; Stipulates How best education could be provided at all levels from ECE to tertiary; Adheres to education development principles of liberalisation, decentralisation, equality, equity partnership and accountability;*
- ✦ **Vision 2030:** *Innovative and lifelong education and training for all by 2030;*
- ✦ **The National Policy on Education:** *To put up effective education systems at district, national and institutional levels guiding provision of education for all;*

- ✧ **8th National Development Plan:** *Improved education and skills development are instrumental in creating societies that are better able to respond to social and economic development challenges they face; and*
- ✧ **The Disability Act - 1996:** *To provide for the needs of people living with disabilities.*

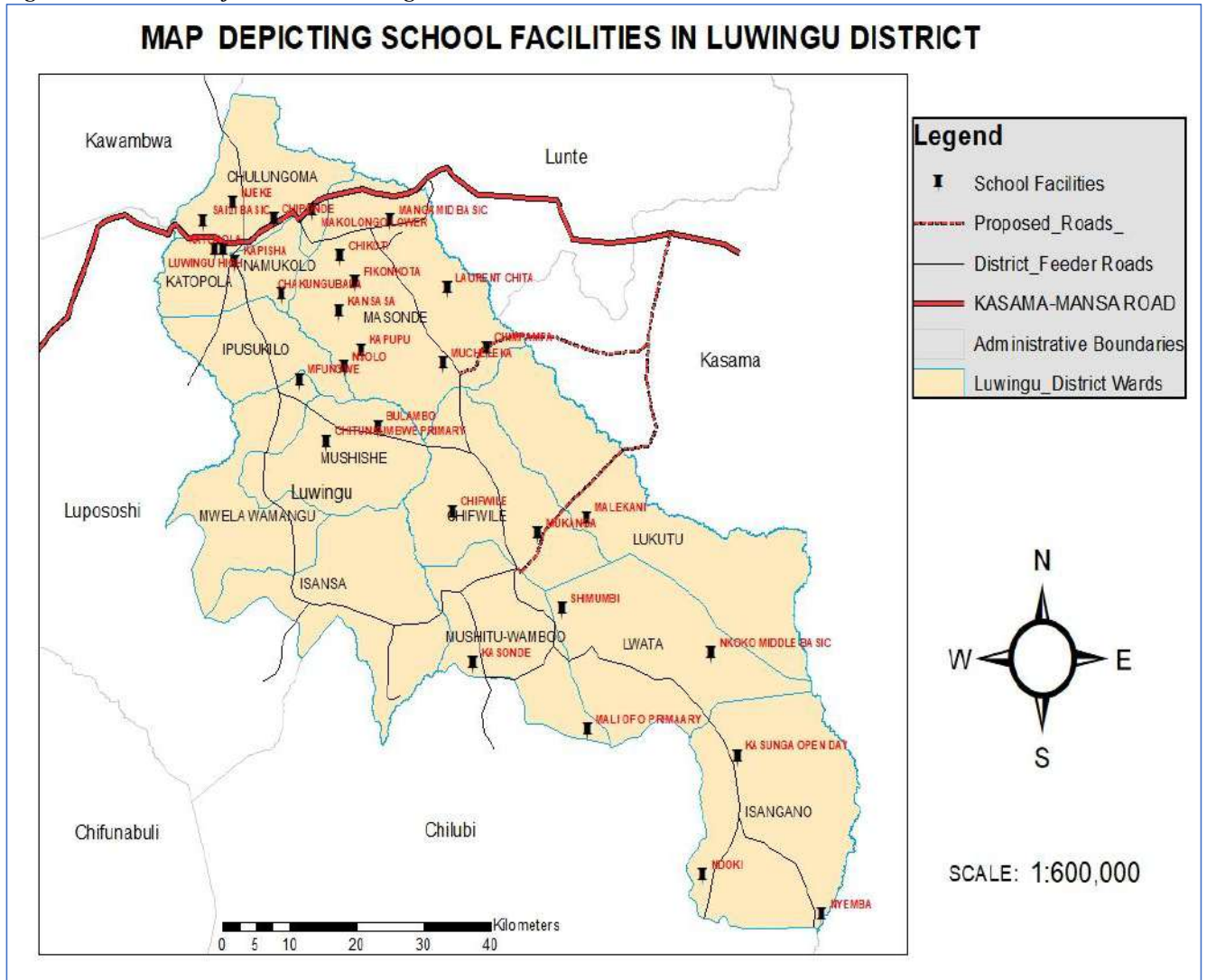
2.2.9.2 Description of the existing state of development

The current state of the sector is explained in detail to assess its performance.

2.2.9.2.1 Availability of service

Luwingu has a total number of 13 secondary schools, and 57 primary schools, 46 Early Childhood Centres, 16 Community Schools and 1 Skills Training Centre. Originally built secondary schools are just two, namely Luwingu Boarding and Luwingu Day Secondary Schools. The remaining eleven were just upgraded, but the infrastructure still remains limited because only the function was upgraded and not the infrastructure. As can be noticed from the map in Figure 12, schools are evenly distributed across all wards. However, the map represents a higher concentration of schools in the northern wards as they are more densely populated.

Figure 12: Education facilities in Luwingu District



Source: GIS Unit - Luwingu Town Council

2.2.9.2.2 Quality of service including Key Indicators of Performance

The District has a total primary enrolment of 24,106 learners out of which 50.1% are female and 49.9% male. At Early Childhood Education, out of a total enrolment of 2,096 learners, 1,068 representing 51% are female and 49% (1,028) male. At secondary school level, out of the total District enrolment of 4,760 learners; 2,208 representing 46.4% are female and the other 53.6% male while Open Learning Centres (Grade 8 and 9) in Primary Schools has a total enrolment of 1,666 of which 815 are female representing 49.9% and 851 were male. Generally, the District has an almost equal participation of gender in schools with slightly more male than female.

However, figures suggest that the District has a low progress rate of learners from primary to secondary with an indication of high chance of drop outs as figures drastically drop when

comparing enrollments between primary and secondary school learners. This could be attributed to early marriages, inadequate secondary schools subjecting learners to covering long distances to access the nearest education facility, among other factors. As shown in the graphs below, the District has seen an increase in enrolment in 2022 compared to 2021 by 8%. The major contributing factor has been the free education that was introduced early in 2022.

Figure 13 Enrolment by Level (ECE, Primary, Open Learning and Secondary School)

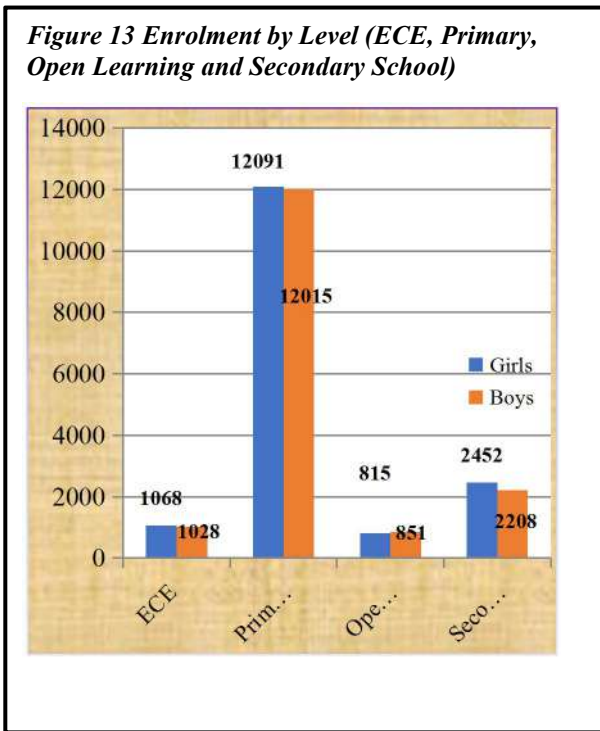
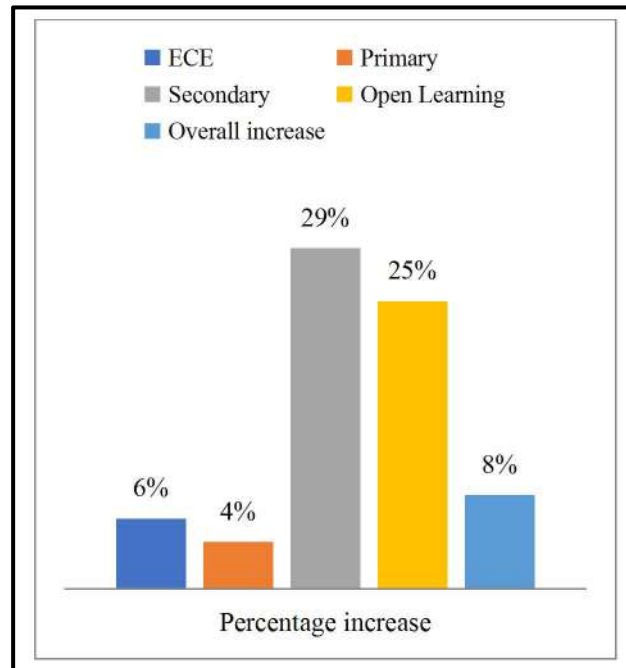


Figure 14: Percentage increase enrolment from 2021 to 2022



2.2.9.3 Issues arising from the Public Participation Process

Issues arising from the Public Participation Process in the Education Sector are briefly discussed, focusing on the availability and quality of services, as well as key performance indicators.

2.2.9.3.1 Availability of service

The services are available save for the distance covered by learners to access the nearest education facility.

2.2.9.3.2 Quality of service including Key Indicators of Performance

Improving the quality of service in the Education Sector, particularly in early childhood education, is crucial. There is a shortage of education facilities for this group, forcing learners to travel longer distances to access the service. Additionally, most of the school facilities in the District need rehabilitation, and there is a shortage of staff accommodation. Addressing

these challenges requires a comprehensive approach that involves investment in infrastructure, training and hiring of qualified staff, and improving access to education for all children in the District. By prioritizing early childhood education and ensuring that facilities are up to standard, we can lay a strong foundation for the future success of our learners. Additionally, providing staff accommodation will help attract and retain qualified educators, ultimately improving the overall quality of education in the District.

2.2.9.4 Impact of changes anticipated over the next ten years

The impact of changes anticipated over the next ten years in the sector is paramount in projecting the future demand for services and facilities in light of the envisaged population increase in the District.

2.2.9.4.1 Population Change – Future demand for services and facilities

The schools are not adequate for the projected population in the IDP area. Currently about 50% of the learners cover more than 5 km distance, which is the allowable reasonable distance to the next education facility. Further, there is a higher concentration of schools in the urban wards compared to the sparsely populated rural parts of Luwingu.

2.2.9.4.2 Existing and proposed investment and development programmes

One of the existing programmes under the sector is the Keeping Girls in School Initiative – a component of the GEWEL Project that was introduced in Luwingu in 2021. The Project has also contributed to the increase in the enrolment rate in the District. The main objective of the GEWEL Project is to increase access to women empowerment and livelihoods and access to Secondary Education for girls in poor households under the Social Cash Transfer Scheme. The Ministry of General Education has been mandated to implement the Keeping Girls in School Initiative component of the GEWEL Project. The specific objective of KGS is to provide school fees to girls in boarding schools and weekly boarders from Social Cash Transfer households accessing secondary education (Grade 8 to 12). Education Grants amounting to K600 per year is given out to the households having KGS beneficiaries by Social Cash Transfer at the time of disbursing SCT transfers. As of September 2022, KGS has been sponsoring 1, 278 girls from the secondary schools.

2.2.9.5 The impact of the continuation of existing trends on land use and population distribution patterns

The continuation of existing trends in the IDP Planning area is envisioned to have a negative impact on the District as more school going children would be subjected to covering a distance of more than 5 km to access the nearest education facility. There is, therefore, an urgent need to ensure that more education facilities are constructed to correspond with the projected increase in the population. It is also anticipated that with the introduction of free education, the existing education facilities in the District would become over-crowded, which could lead to the spread of communicable diseases as a result.

On a rather positive stride, the District continues to benefit from the involvement of the private sector, Non-Government Organizations and other cooperating partners who have continued to collaborate with the Government by supplementing the latter's efforts through construction of education facilities and staff accommodation mainly in rural areas. This is expected to reduce the deficits currently being faced in staff accommodation and education facilities.

2.2.9.6 Environment and Climate Change Analysis

The impact of the Education Sector on the Environment and Climate Change, and vice-versa shall be delved into in this part.

2.2.9.6.1 The impact of existing trends on the Environment and Climate Change

As more education facilities are required to be constructed to respond to the challenges of reducing the distance covered by the learners, it is envisaged that more trees would be cleared leading to environmental degradation. Notwithstanding the preceding, the Education Sector plays a significant role in community sensitization pertaining to land conservation. Authorities at most education facilities in the District have been involved in tree plantation. This exercise goes a long way in ensuring that the emission of Green House Gases (GHG) is reduced.

2.2.9.6.2 The impact of Environmental and Climate Change issues on the Sector

The following trends are emerging in all regions across the globe shedding light on the real barriers to the Education Sector posed by Climate Change:

- ✧ Using schools as emergency shelters prevents the continuation of education; and
- ✧ Climate disasters lead to more poverty, this leads to even more barriers to education.

2.2.9.7 Issues arising relating to Gender Groups and Vulnerable Groups

There has been a shift in the approach of the Education Sector towards meeting the needs of physically challenged individuals. This has been achieved by incorporating their concerns in the design of new infrastructure. Similarly, with support from NGOs, learners especially those coming from poor households are provided with meals at schools. Further, implementation of the GEWEL Project through the Department of Social Welfare has increased access to women empowerment. This project has also increased access to secondary education for girls in poor households under the Social Cash Transfer Scheme. Gender inclusiveness in knowledge acquisition is yet another milestone scored by the sector. This has seen an increase in the number of women accessing education and participating in the decision-making domain both at the local and national levels.

2.2.9.8 Summary

- ✧ Inadequate classrooms for learners;
- ✧ Inadequate accommodation in constructed schools;
- ✧ Inadequate staffing levels in schools;
- ✧ Early marriages leading to school dropout; and
- ✧ Lack of tertiary institutions.

2.2.9.9 Consideration of the underlying factors contributing to the issues identified

The major underlying factor contributing to the identified issues include the shortage of staff in some schools especially in rural areas, inadequate and/or lack of decent accommodation, lack of access to clean drinking water and other necessities. Further, due to inadequate secondary schools in the District, learners are compelled to cover longer distances to access the nearest education facility. Furthermore, learners who cannot afford to access boarding schools, tend to rent rooms in nearby secondary schools to live by themselves. This has

contributed to the high number of dropouts resulting from pregnancies among the girl child as there is little monitoring from their teachers and parents/guardians.

2.2.10 Forestry

The management, protection and conservation of forests for the purpose of their sustainable utilization and management for socio-economic development is the responsibility of the Department of Forestry. Its core function is to spearhead sustainable management of the forest resources across the District. The District has two (2) trained Forestry Officers and one (1) Office Assistant against an establishment of nine (9) Trained Forestry Officers and three (3) Assistant Workers.

2.2.10.1 Key Government priorities being and to be implemented at a Local Level

Encouraging the involvement of key stakeholders like communities, Local Authorities, and traditional institutions is crucial for the effectiveness of sector policies in promoting sustainable management of forest resources. Below are some of the important policies in this sector:

Forestry Act No. 4 of 2015; The Act provides for the establishment and declaration of National Forests, Local Forests, joint forest management areas, botanical reserves, private forests and community forests; provide for the participation of local communities, Local Authorities, traditional institutions, Non-Governmental Organisations and other stakeholders in sustainable forest management; provide for the conservation and use of forests and trees for the sustainable management of forests ecosystems and biological diversity, etc.

National Forest Policy, 2014; The Policy ensures sustainable management of forest resources for wood fuel production, recognize and support the development of non-wood forest products, regulates exploitation and ensure efficient use of forest resources and products with the district.

Eighth National Development Plan; The planning document plans to achieve an increase in hectareage of forest under management.

2.2.10.2 *Description of the existing state of development*

It is crucial to understand the gaps that require urgent attention in this sector by describing its current state of development.

2.2.10.2.1 *Availability of service*

The District's forest cover consists of 90% of savannah woodland on the high land and part of the flat land with scattered thick Miombo Forest with shrubs and grass mingled or undergrowth of which 10% in the southern part are swamps and dambos with scattered trees. The District has a total number of four (4) protected forest reserves namely; Chief Tungati, Chief Chipalo, Chief Shimumbi and Lwelangwa with a total hectareage of 25,136.85. However, most of these protected forest reserves are encroached in one form or another resulting into varying degrees of deforestation. The District is undergoing high and increasing rates of forest loss, but still has forest resources.

2.2.10.2.2 *Quality of service including Key Indicators of Performance*

The quality of service can be described as below optimum as the Department charged with the responsibility of managing the sector is understaffed coupled with inadequate transport challenges. This situation has led to inconsistent patrols of forests in the District. However, major and minor wood is consumed or sold in local markets. Forest foods are particularly important to the poor during the most intense food deficit periods. They include fruits, mushrooms, insects, caterpillars, small animals and birds. The Forest also provides fuel and fodder supplements to the farm enterprises, and raw materials (timber and fuel) for small-scale rural enterprises. Fuel wood and charcoal from both the customary and reserve forests are the principal energy source. Traditional bark hive for bee keeping are also obtained at small scale from these forests. See table 20 for details on the protected forests in the District.

Table 20: Protected forests in Luwingu District

S/N	Name of Forest Reserve	Category	Forest No	Area (Ha)	Gazette No	Status
1	Chief Tungati	Local Forest	P97	3,248.12	66 of 1975	Encroached
2	Chief Chipalo	Local Forest	P98	4,411.23	66 of 1975	Encroached
3	Chief Shimumbi	Local Forest	P99	10,117.5	66 of 1975	Encroached
4	Lwelwanga	Local Forest	P415	7,360	165 of 1978	Encroached

Source: Department of Forestry

2.2.10.3 *Issues arising from the Public Participation Process*

The following issues were raised during the Public Participation Process with regards to the performance of the sector:

2.2.10.3.1 *Availability of service*

The lack of alternative sources of income especially in rural areas was cited as a major concern by the stakeholders. This state of affairs has culminated into massive cutting down of trees mainly for charcoal production and agricultural expansions. The inadequate electricity coverage in the rural parts of the District has also not helped the situation as communities rely heavily on charcoal for energy.

2.2.10.3.2 *Quality of service including Key Indicators of Performance*

The quality of service in its present form requires improvement; most of the forests in the District due to agricultural expansion and opening up of settlements have been encroached on resulting in the loss of main tree species. Further, the community's lack of participation in joint forest management initiatives has not helped the situation.

2.2.10.4 *Impact of changes anticipated over the next ten years*

One of the main challenges the sector is facing is that of deforestation, which is expected to increase with the growth in population. To appreciate the impact of changes anticipated in the sector over the next ten years, it is imperative to understand the main drivers of deforestation, which have laid down below:

- ✚ **Smallholder farming:** *The main driver, linked to rural population growth and the demand for land for subsistence agriculture, expansion of cash crops and poor farming practices such as “chitemene system”, which exhausts soils and encourages additional land clearance;*
- ✚ **Charcoal production:** *Rural and urban use of charcoal as a source of energy. Charcoal use persists even if electricity is available due to the prevailing high cost of electricity;*
- ✚ **Timber Extraction:** *Significant for domestic use and commercial purposes. This has opened up the forests to disturbance including fire. Illegal felling is rampant in the District;*
- ✚ **Fire:** *It is estimated that 5% of the forests burn each year in the District. Often through accidental spread during burning of crop residues;*

- ✚ **Livestock grazing:** *This is significant in some places where overgrazing is reported; and*
- ✚ **Mushrooming of human settlements:** *Illegal clearing of large areas for opening up of human settlements.*

Among the underlying causes, population growth has direct impacts on forest cover through pressure for land. All the drivers highlighted above are expected to be on the rise in the next 10 years and if left unchecked, there will be a significant loss of forests in the District.

2.2.10.4.1 Population Change – Future demand for services and facilities

As highlighted above, the major direct drivers of forest degradation in the planning area are agricultural expansion, settlements and charcoal burning. This situation if it remains unabated may pose a serious threat on the environment 10 years from now, i.e., drying of streams, loss of aquatic life and droughts, among others.

2.2.10.4.2 Existing and proposed investment and development programmes

A program that aims to address the challenges faced by the forestry sector is the establishment of Community Forestry Management Groups (CFMGs) in accordance with the Forestry Act No. 4 of 2015. The primary goal of this initiative is to enhance forest management and conservation through Community Forest Management.

2.2.10.5 The impact of the continuation of existing trends on land use and population distribution patterns

The current status quo has a significant impact on how land is used for forest conservation and management. It is anticipated that due to the surge in population, a lot of forests in the district will be cleared to make way for agricultural activities and settlements. The high demand for housing accommodation and farming in the district is the main reason behind this. This will inevitably lead to a reduction in the overall forest cover, thereby affecting the biodiversity and ecological balance of the region. The Local Authority is facing a daunting challenge in balancing the need for development with the imperative to conserve the existing forested areas. Without proper intervention and sustainable land management practices, the district risks losing its natural heritage and the invaluable ecosystem services provided by its forests.

2.2.10.6 *Environment and Climate Change Analysis*

An analysis was conducted to assess the environmental impact of the sector and vice versa in relation to climate change.

2.2.10.6.1 The impact of existing trends on the Environment and Climate Change


It is undeniable that human activities are at the centre of environmental degradation. The major causes of this degradation can be categorized into social and economic factors. Some of the social factors include overpopulation, urbanization, and unsustainable consumption patterns. On the other hand, economic factors such as industrialization, deforestation, and pollution from manufacturing processes also play a significant role in environmental degradation. Addressing these issues will require a concerted effort from individuals, communities, and governments to implement sustainable practices and policies.

2.2.10.6.2 The impact of Environmental and Climate Change issues on the Sector

The effects of Climate Change such as droughts, wildfires and rising temperatures have the potential to limit a watershed's ability to provide these services. For example, more frequent or severe droughts could reduce stream-flow in some forests. Less stream-flow means less water may be available for people to use.

2.2.10.7 *Issues arising relating to Gender Groups and Vulnerable Groups*

According to the findings of the Charcoal Trading and Consumption Survey of 2014⁷, 70% of commercial charcoal traders are women. Similarly, a survey conducted under ILUA 2016⁸ revealed that 90% of the beekeepers are men. The following are the measures that have been put in place to respond to these inequalities:

-  *Ensuring equity for women, the youths and persons with special needs in forest resource tenure, definition of roles and responsibilities, costs and benefit sharing from forest management and development; and*

⁷ Charcoal Trading and Consumption 2014 Survey.

⁸ ILUA 2016.

- ✦ *Support development of forest programmes that respond to segregated gender needs, the youth and persons with special needs through targeted support systems for capacity building, seed capital and technology development.*

2.2.10.8 Summary

- ✦ *Increased deforestation levels attributed to Agriculture expansion, charcoal production and timber exploitation;*
- ✦ *Lack of coordination among stakeholders on matters pertaining to forest resource conservation, management and utilization;*
- ✦ *Challenges on forest programmes that respond to segregated gender needs, the youth and people with special needs; and*
- ✦ *High poverty levels especially in rural communities of the district.*

2.2.10.9 Consideration of the underlying factors contributing to the issues identified

- ✦ High poverty and unemployment levels especially in the District;
- ✦ Inadequate alternative sources of livelihood;
- ✦ Unaffordable ZESCO tariffs; and
- ✦ Agricultural expansions and opening up of settlements in forest reserves.

2.2.11 Good Governance

This refers to the way public institutions conduct their affairs and manage public resources, while ensuring the protection of human rights without any form of abuse or corruption, and adhering to the rule of law.

2.2.11.1 Key Government priorities being and to be implemented at a Local Level

Under the umbrella of Good Governance, here are some of the key priorities being implemented at the local level by the Government.

The Zambia Correctional Service Act, 2021: An Act to continue the existence of the Zambia Prisons Service and rename it as the Zambia Correctional Service and redefine its functions; provide for the establishment, management and control of prisons and correctional centres; provide for the correction and reformation of inmates; provide for extension services; provide for aftercare orders, etc.

The Zambia Police Act Chapter 107 of the Laws of Zambia: An Act to provide for the organisation, functions and discipline of the Zambia Police Force and of special constables and for matters incidental thereto.



The Chiefs Act Chapter 287 of the Laws of Zambia: An Act to make provision for the recognition, appointment and functions of Chiefs and Deputy Chiefs; for the exclusion of former Chiefs and Deputy Chiefs from specified areas in the interests of public order; for the appointment and functions of Kapasus; and for matters incidental to or connected with the foregoing.

2.2.11.2 Description of the existing state of development

This section examines the current state of the sector, assessing service availability, quality, and Key Performance Indicators (KPIs).

2.2.11.2.1 Availability of service

Correctional Services: Correctional Services formally referred to as ‘Prison Service’ currently has one Correctional Facility, which has the capacity to serve approximately four hundred (400) inmates. The main objectives of the Zambia Correctional Services are to:

-  *Ensure a healthy inmate community through construction of a health centre for quick medical services; and*
-  *Ensure the provision of quality correctional services to the inmates through infrastructure development.*

Zambia Police Service

Luwingu District is vast and borders with many other Districts (Chilubi, Chipili, Lunte, Kasama, Lupososhi and Mporokoso). The lonely Luwingu Police Station without a single supportive Police Post is overwhelmed with service delivery. Lupososhi District is also yet to have static Police presence and therefore, is dependent on the same existing facility. The manpower strength of the Formation is far below the requirement of the existing establishment and disadvantages effective police service delivery of the command’s jurisdiction. The Formation has limitations, which need long term planning. The status quo in the number of personnel is far below half of 100. This is against the 100,000 approximated

human population of Luwingu District. The officers are really stretched in meeting the general public's expectation in the fight against all forms of crime.

Ward Development Committees (WDCs)

Luwingu District has WDCs, which are fully operational in all the 13 wards. These sub-district structures have enhanced the local community participation in the decision-making process. This is despite the operational challenges such as the lack of incentives WDCs are grappling with even in light of the increased Constituency Development Funds (CDFs). The latter has increased the scope of work for WDCs and therefore, it is only ideal that these structures are given incentives to motivate them as the case is with members of the Constituency Development Fund Committee (CDFC).

The Judiciary

Luwingu District has one (1) Subordinate Court and 5 Local Courts namely; Luwingu Subordinate Court; Luwingu Local Court; Chipalo Local Court; Tungati Local Court; and Shimumbi Local Court. In terms of staff for all the courts in the District, there is 1 Magistrate, 7 Local Court Magistrates and 18 support staff broken down as follows: *Luwingu Subordinate Court has 1 Magistrate and 4 support staff; Luwingu Local Court has 2 Local Court Magistrates and 6 Support staff; Tungati Local Court has 1 Local Court Magistrate and 3 Support staff; Chipalo Local Court has 2 Local Court Magistrates and 4 Support staff; and Shimumbi Local Court has 2 Local Court Magistrates and 1 Support staff.*

The state of court structures

- ✧ Luwingu Subordinate Court does not have a court building of its own, but uses the offices for the District Administration;
- ✧ Luwingu District - Shimumbi Local Court does not have a court building and are just renting a community hall;
- ✧ Luwingu Local Court does not have electricity despite the wiring having been done and the ceiling of the roof is almost falling off;
- ✧ Chipalo Local Court needs to be electrified and a few minor works to be done; and
- ✧ Tungati Local Court has an old court building which needs a facelift. The one which is currently there has developed cracks and posing a danger to the staff and the general public.

Challenges

The following are the challenges being faced by the respective courts in the District:

Luwingu Subordinate Court

- i. Lack of exhibit room; The station does not have an exhibit room making it difficult to keep the exhibits.
- ii. Lack of a vehicle; the station has no vehicle, which makes it difficult to execute most administrative and adjudicative duties;
- iii. Lack of office equipment; the station lacks equipment such as Filing Cabinets, Photocopier, Scanner and computers. This has posed a serious challenge with regard to the timely processing of reports and cases committed to the High Court; and
- iv. Lack holding cells for the remandees.

Local Courts

The following are the challenges the Local Courts are currently facing:

- i. *Save for Luwingu, Chipalo and Tungati Local Courts, the rest of the remaining Local Courts have old dilapidated infrastructure, which needs to be worked on; and*
- ii. *Lack of furniture in all the Local Courts.*

Traditional Governance

The district comprises three chiefdoms: Shimumbi, Tungati, and Chipalo. All three chiefdoms are inhabited by the Bemba-speaking people. Despite their equal number, there are development discrepancies among the three chiefdoms. Chipalo Chiefdom stands out with a significant developmental advantage, housing the planned township and the District Administration. In terms of traditional governance, the Chief holds the highest position in the Palace Administration and is supported by the Royal Council. This council includes the Chairperson/Chief Representative/Spokesperson, Vice Chairperson, Secretary and Vice, Treasurer, 2 Sub-Chiefs, and Village Headmen. The Royal Council is responsible for overseeing the daily operations of the palace and administrative matters, ensuring the smooth running of the chiefdom's affairs. The government, in collaboration with partners, is currently implementing various programs in the district, including palace construction, village registration, and socio-economic activities within the chiefdoms.

Palace construction; The construction of palaces for chiefs is meant to enhance provision of decent accommodation for their Royal Highnesses in the District.

Village Registration; The Local Authority has been working hand in hand with the traditional authority in updating the number of villages in each chiefdom across the District. Despite the challenges faced, i.e., lack of village registers and funding, the Local Authority has managed to collect the total number of villages in each chiefdom as shown below:

Table 21: Chiefdoms and Number of Villages

S/N	Chiefdoms	Number of Villages
1.	Tungati	140
2.	Chipalo	105
3.	Shimumbi	200
Total		445

Socio-Economic Activities; The Chiefs have been actively involved in the promotion of socio-economic activities meant at improving the well-fare of their subjects. NGOs such as World Vision Zambia have proved to be very instrumental also in implementing activities aimed at poverty reduction such as the promotion of irrigation farming through the construction of the dam and bulking centre for the storage of agricultural produce in Shimumbi Chiefdom.

2.2.11.2.2 Quality of service including Key Indicators of Performance

The level of service provision in this sector is below average. For example, Zambia Correctional Facility's current capacity only caters for approximately 400 male inmates, with female offenders usually taken to Kasama. The facility lacks a health centre, meaning that ailing inmates must be taken to public health facilities for medical attention.

Furthermore, Luwingu District's Zambia Police Service has only one gazetted police formation and is in urgent need of a second police station and several police posts. Crime and incident statistics patterns show a pressing need for both static and physical police presence at the following proposed sites: (1) Kamumango Police Post, a crime hot spot and hive of activity; (2) Proposed Shi-Mumbi Police Post, an area far from the CBD where citizens face challenges accessing services; (3) Tungati Police Post, where the vast Tungati Chiefdom

requires services to be taken closer to beneficiaries; (4) Proposed Luena Police Post, located close to the demarcation between Luwingu and Chilubi Districts, with facilities such as places of worship, health, and education attracting a lot of activity; and (5) Proposed New Luwingu Police Station, located in an area with many newly allocated residential, official, and commercial plots. This green field planning area of the Local Authority is envisioned to be the future built residential neighbourhood, and the District must move with the times and rise to the situation. Police presence is necessary in the area across the Luwingu/Kasama tarmac road.

2.2.11.3 Issues arising from the Public Participation Process

During the Public Participation Process, the sector identified several issues, which are listed below:

2.2.11.3.1 Availability of service

In as much as the Ministry of Health conducts regular visits to provide specific services, it is of great concern to the general public that they have to periodically share health facilities with inmates. With the growing population, it is anticipated that the rate of crime may increase. In this vein, the public would like to see infrastructure development and/or expansion of the existing correctional facility. This expansion should incorporate the female dormitories to cut on transport costs of transferring female inmates to Kasama. Further, the residents of Luwingu are of the view that Luwingu Correctional Facility should consider constructing learning facilities such as a workshop and a 1x3 Classroom Block to allow inmates to develop skills and enhance their literacy levels. This could lead to prevention of further crimes in the future, making the District safe for everyone.

Furthermore, Zambia Police Service as mentioned earlier needs more police posts to respond to the growing increase in crime resulting from the growth in the District population. The construction of another police station in the District would help in responding to the congestion challenge faced by the current facility. Additionally, there is a need to consider introducing incentives for the WDCs to motivate them.

2.2.11.3.2 Quality of service including Key Indicators of Performance

The current service being provided is inadequate. To improve the quality of service in this sector, it is crucial to act towards reducing overcrowding in police cells by establishing an

extra Police Station. This step would effectively limit the spread of communicable diseases among inmates. Moreover, incorporating female dormitories into the Zambia Correctional Facility would help reduce expenses incurred from transporting female prisoners to Kasama. Additionally, prioritizing the construction of a modern subordinate court with provisions for remandees' cells and rehabilitating local courts in the District must be considered as well.

2.2.11.4 Impact of changes anticipated over the next ten years

This section acknowledges the anticipated transformations in good governance over the next decade.

2.2.11.4.1 Population Change – Future demand for services and facilities

An upsurge in population has the potential to culminate in a surge in criminal activity, thereby exacerbating overcrowding within detention centres and accelerating the transmission of diseases. The current capacity of these facilities is insufficient to accommodate an expanding populace. Moreover, in the absence of a healthcare facility on Correctional Facility premises, it is expected that there will be frequent visits to public health centres, which could potentially endanger the lives of residents in the District.

2.2.11.4.2 Existing and proposed investment and development programmes

The investment and development plans encompass a range of initiatives, including the creation of four (4) police posts, one Police Station, One Health Centre, and Female Dormitories at the Zambia Correctional Facility. Furthermore, there are proposals for erecting the Subordinate Court and Chiefs' Palaces while also rehabilitating courts throughout the District.

2.2.11.5 The impact of the continuation of existing trends on land use and population distribution patterns

Luwingu's populace is burgeoning, and with a growth rate of 5.6%, an even larger population is predicted in the coming years. This necessitates a growing demand for land development within the District to combat its prevailing challenges. For instance, since the Zambia Correctional Facility is situated in close proximity to one of the District's high-cost residential areas, its expansion could adversely impact settlement patterns and compromise residents' safety. In terms of population distribution patterns, it is anticipated that more settlements will concentrate around facilities such as police stations and correctional centres due to their perceived security guarantees.

2.2.11.6 *Environment and Climate Change Analysis*

This section explores the mutual relationship between the sector and the environment, examining their impact on climate change.

2.2.11.6.1 *The impact of existing trends on the Environment and Climate Change*

Good governance establishes mechanisms or frameworks for information dissemination, decision-making, monitoring, follow-up and reporting. It facilitates improved cooperation among stakeholders at various levels through the establishment of clear-cut roles, relationships and obligations. Positive consequences on environmental outcomes can be attributed to good governance while negative effects are observed with increased susceptibility to climate change. Thus, promoting effective governance and mitigating vulnerability to climate change can significantly contribute towards a more pristine environment.

2.2.11.6.2 *The impact of Environmental and Climate Change issues on the Sector*

Climate change is no longer a mere environmental concern. The extensively documented physical repercussions of climate change, such as the elevation of global average temperatures, sea level rise, and altered weather patterns, will inevitably lead to socio-economic consequences like infrastructure loss, disease prevalence, resource scarcity and massive displacement of populations. These factors could culminate in severe security implications or criminal activities (e.g., civil unrest, inter-communal violence and international instability) that would pose novel challenges for governments attempting to maintain internal stability.

2.2.11.7 *Issues arising relating to Gender Groups and Vulnerable Groups*

The most vulnerable groups in Luwingu District are comprised of individuals under the age of 18, including those with disabilities. Women are also susceptible to Gender Based Violence due to their economic status and societal standing. Additionally, individuals without formal education often fall victim to sexual harassment and exploitation. The prevalence of underage marriage and alcohol consumption can be attributed to a lack of education on human rights, liberties, and cultural beliefs as well as limited economic opportunities for women in the District.

2.2.11.8 *Summary*

The Correctional Service, as opposed to the former 'prison service', necessitates infrastructural advancement such as a workshop designed to aid correctional programs in their implementation. Additionally, it is crucial that health services are made readily accessible to this unique community. The present correctional facility must be extended to accommodate female dormitories. Finally, the District requires another Police Station and no less than four Police Posts erected for crime prevention purposes alongside construction of the Subordinate Court.

2.2.11.9 *Consideration of the underlying factors contributing to the issues identified*

- ✧ *Inadequate financial capacity to develop infrastructure;*
- ✧ *Inadequate land for expansion of existing infrastructure;*
- ✧ *Gender inequalities; and*
- ✧ *High rate of crime as a result of unemployment and poverty.*

2.2.11.10 *Summary - Core Problems*

Energy Sector: The industry is contending with inadequate electricity coverage, excessive reliance on charcoal as an energy source (resulting in deforestation), and a lack of enthusiasm for alternative energy sources.

Transport and Communication: The sector is characterized by poor road network and inadequate communication coverage especially in the rural areas.

Agriculture: The agricultural sector faces the challenge of low productivity and production, which is primarily caused by a heavy reliance on rain-fed agriculture. Further exacerbating this issue are insufficient levels of irrigation and inadequate agricultural mechanization among smallholder farmers. Additionally, sub-optimal farming practices such as shifting cultivation have contributed to reduced yields in the industry. Furthermore, there exist other obstacles such as inefficient delivery of extension services due to limited motorized transportation options, an unfavorable officer to farmer ratio, and substandard accommodations for extension officers.

Fisheries and Livestock: The region suffers from deficient immersion tanks and holding pens, as well as a dearth of Livestock Service Centers, Local Fish Hatcheries for fingerlings, and advanced disease control measures to ensure the continuity of livestock production.

Social Protection: The District is contending with elevated levels of impoverishment and joblessness, which leaves numerous communities susceptible. Moreover, the majority of communities situated in remote areas lack access to markets for their agricultural yield due to inadequate road infrastructure. This predicament deprives these households of earnings necessary for enhancing their well-being.

Water and Sanitation: The District lacks a sewer reticulation system, which forces developers to rely on septic tanks and soakaways. Moreover, the water provision in urban areas remains predominantly low, standing at 33%. Furthermore, despite a water coverage rate of 87%, rural communities still have to travel more than 500m to access water.

Solid Waste Management: Inadequate service coverage due to inadequate funding towards solid waste management; Lack of an Engineered Landfill; Lack of Public/Private Partnerships (PPP) in providing solid waste management services focusing on the reduction, reusing and recycling of refuse; and Inadequate waste management vehicles.

Health: The District is home to a solitary District Hospital and a handful of healthcare facilities. Moreover, there exists an inadequacy of staff accommodations in the rural regions, as well as substandard telecommunication and road infrastructure that result in recurrent vehicular malfunctions. The extensive distances separating these establishments also augment the mortality rate attributable to malaria.

Education: The sector is confronted with a plethora of challenges, including insufficient learning facilities for students, inadequate lodging provisions in newly-erected schools, understaffed academic institutions, high incidence rates of premature nuptials resulting in pupils leaving school prematurely and an absence of higher education establishments.

Forestry: Indiscriminate cutting down of trees for charcoal production, encroachment of forestry reserves due to settlements and high poverty levels especially in rural communities of the District.

Good Governance: The Correctional Facility necessitates the establishment of a workshop and health center, alongside an expansion to accommodate female dormitories. Additionally, the District requires the construction of one more Police Station and four Police Posts to counteract criminal activities.

CHAPTER THREE: DEVELOPMENT FRAMEWORK

3.0 Introduction

The Development Framework is a plan that sets out goals and priorities for development. It also includes strategies to help solve problems in different areas, such as education or healthcare. The plan is based on information gathered from the Planning Survey and Issues Report (PSIR), which identifies the most important issues that need to be addressed. By using this framework, organizations can focus their efforts on achieving specific objectives and making progress towards improving people's lives.

3.1 Vision for the Long-Term Development of the District

In formulating the Vision for the Integrated Development Plan (IDP), key considerations were drawn from the Planning Survey and Issues Report, as well as the Vision 2030 and 8NDP. The identified issues have had far-reaching detrimental effects on development in the District. Primarily, core issues that informed the vision formulation process include, but are not limited to: ***Informal settlements; Insufficient water and energy supply; Deforestation; Poor agricultural practices; Shortage of staff accommodation; Inadequate health and education facilities; High levels of unemployment & poverty; Poor network coverage in rural areas; and Substandard road networks within the District.***

As a result, Luwingu District has established its long-term vision as ***"A District with a diversified economy and improved livelihoods by 2033"***. To achieve this objective, there are two primary goals: Becoming an economically viable District by 2033 while simultaneously enhancing social services' quality by that same year. Among other interventions aimed at attaining this vision include:

- ✧ *Creation of jobs through opening up of industries in the District;*
- ✧ *Construction of skills training centres;*
- ✧ *Rehabilitation of roads to improve connectivity in the District;*
- ✧ *Promotion of sustainable agricultural practices, i.e., Climate Smart Agriculture (CSA);*
- ✧ *Encouraging the private sector in infrastructure development;*
- ✧ *Promotion of alternative sources of energy such as solar & wind energy;*
- ✧ *Encouraging the formation of Community Forestry Management Groups; and*
- ✧ *Construction of an engineered landfill and improving the management of waste.*

3.2 Policies to Direct Development

- ✧ To manage and protect the natural resources;
- ✧ Upgrading of informal settlements;
- ✧ Improve water supply;
- ✧ Promotion of alternative sources of energy;
- ✧ Promotion of sustainable agriculture practices;
- ✧ Construction of more health and education facilities;
- ✧ Construction of an engineered landfill;
- ✧ Construction of staff houses;
- ✧ Improve the road network in the District; and
- ✧ Improve telecommunication in the District.

3.3 Development Objectives, Priorities and Development Strategies

After conducting sector analyses and community consultations, the District's unique requirements were aligned with the pillars of the Eighth National Development Plan (8NDP), which include economic diversification and job creation, poverty and vulnerability reduction, developmental inequality reduction, human development enhancement, and a conducive governance environment for an inclusive economy. The goal was to achieve the District's vision and long-term goals while addressing 8NDP objectives. In accordance with the listed objectives and programs below, the District will strive to implement this plan.

- ✧ *To increase formal mining activities from 9% to 37% by 2033;*
- ✧ *To increase agricultural productivity from 25% to 60% by 2033;*
- ✧ *To increase access to quality health care by 2033;*
- ✧ *To increase access to education services by 2033;*
- ✧ *To increase access to clean water from 38% to 70% by 2033;*
- ✧ *To improve transport and communication infrastructure by 2033; and*
- ✧ *To reduce poverty and vulnerability.*

Pillar 1: Economic Diversification & Job Creation

As a rural district, the people rely mainly on agriculture for their economic sustenance, albeit at a subsistence level. Additionally, mining is conducted on a small-scale basis. To tackle the challenges faced in these industries, Table 22 outlines several objectives that will aid in addressing the identified issues.

Table 22: Development Goals, Objectives and Strategies - Economic Diversification & Job Creation

Development Goal 1: To be economically viable by 2033. To increase and diversify agriculture production and productivity to raise the share of its contribution to 20 percent of the GDP.

Development Objective 1: To increase agricultural productivity from 25% to 60% by 2033. To facilitate and support the development of a sustainable and competitive agricultural sector that assures food security at household and national level and maximizes the sector’s contribution to Gross Domestic Product (GDP).

S/N	Strategy	Programme/Activity
1.	<i>The local authority in partnership with the department of agriculture will ensure that sustainable agricultural practices are enhanced. The main strategy of the sector is to develop irrigation, farm blocks, extension services, promote utilization of improved seed varieties and place emphasis on the promotion of post-harvest technologies, agro processing and access to markets for agro products.</i>	<i>Improving Agricultural Production and Productivity</i>
2.	<i>To achieve poverty reduction and economic growth through productive Fisheries and Livestock sub sectors.</i>	<i>Fisheries and Livestock Development</i>
3.	<i>To promote rural development</i>	<i>Transport and communication infrastructure development</i>
4.	<i>Enhance district revenue and income opportunities for the poor.</i>	<i>Infrastructure Development</i>

Pillar 2: Human and Social Development

One of the primary objectives outlined in the Sustainable Development Goals (SDGs) is prioritizing human-centric development. In Luwingu, many wards face significant challenges accessing education and healthcare facilities due to their remote locations. The situation has been exacerbated by a surge in population growth that has left most social infrastructure overburdened and struggling to keep pace with demand. Consequently, various strategies have been identified with a view towards mitigating these obstacles and improving outcomes for the local residents. See Table 23 below

Table 23: Development Goals, Objectives and Strategies - Human & Social Development

Development Goal 2: To enhance the quality of social services by 2030.

Development Objective 2: To increase access to education services by 2033.

Development Objective 3: To increase access to quality health care services by 2033.

Development Objective 4: To increase access to clean water from 38% to 70% by 2033

S/N	Strategy	Programme/Activity
1.	Ensure access to quality education services.	Infrastructure Development.
2.	The Local authority in partnership with the District Health Office will ensure access to quality health care services by construction of quality health infrastructure and provision of qualified health staff.	Improved livelihoods through provision of quality health care.
3.	Enhance provision of adequate and safe water and sanitation.	Water supply and sanitation infrastructure development.
<i>Development Goal 3: To create a pool of productive entrepreneurs and enhance a pace at which new enterprises are created by 2033.</i>		
<i>Development Objective 5: To increase access to skills by 2033.</i>		
4.	Ensure access to quality sustainable and entrepreneurship skills for the never been and out of school youth and enhance their wellbeing.	Skills development.

Pillar 3: Environmental Sustainability

Preserving and safeguarding the environment is crucial in upholding a harmonious ecosystem. Nevertheless, various social and economic influences have contributed to the gradual depletion of the District's natural resource reservoirs, which are being exploited for commercial and household purposes. Given the significance that these resources hold for economic growth, it is imperative to formulate methodologies that promote sustainable development. See Table 24

Table 24: Development Goals, Objectives and Strategies – Environmental Sustainability

Development Goal 4: To enhance the management and protection of natural resources for a Friendly

Development Objective 6: To reduce poverty and vulnerability.

S/N	Strategy	Programme/Activity
1.	Climate Change & Disaster Risk Reduction.	Climate Change Mitigation
2.	Encourage the formation of Community Forestry Management Groups.	Establishing Community Forestry Management Groups.

Pillar 4: Good Governance

This facet concerns the bureaucratic structures of governance. It encompasses the evaluation of how governmental entities conduct their operations and oversee public assets. The crux of

this foundation lies in securing and implementing human rights while minimizing instances of malfeasance, impropriety, and upholding legal principles. Given the critical role that effective governance plays in the sphere of decision-making, it is vital to devise tactics aimed at achieving its primary objective. See Table 25

Table 25: Development Goals, Objectives and Strategies – Good Governance

<i>Development Goal 4: To enhance the prevention of crime by 2033.</i>		
<i>Development Objective 6: To reduce poverty and unemployment levels.</i>		
S/N	Strategy	Programme/Activity
1.	<i>To construct one more correctional facility; and Construction of more police posts.</i>	<i>Crime prevention and job creation.</i>

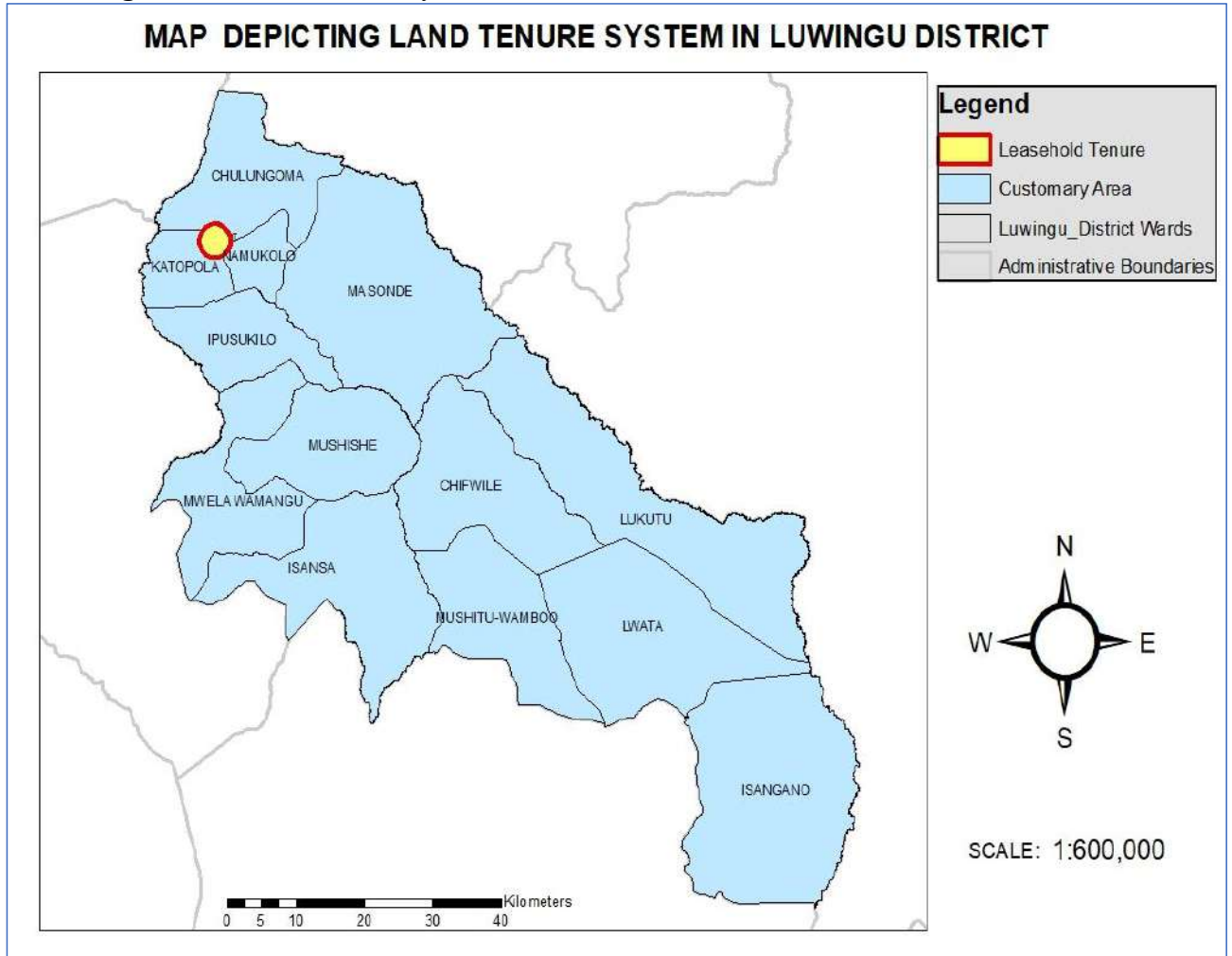
3.4 Spatial Development Framework

Urban planning is a multifaceted process that involves technical and political considerations for the development and design of land use and built environments. This includes air, water, as well as infrastructure networks such as transportation, communications, and distribution systems in urban areas. The primary objective of urban planning is to ensure public welfare through efficient layouts that promote sanitation, environmental protection, social activities, and economic growth. It encompasses an interdisciplinary approach that combines social science with engineering and design sciences. Furthermore, it closely relates to urban design since some planners provide designs for streets, parks, buildings or other urban spaces. In pursuit of sustainable development in the Luwingu IDP's Implementation Plan; various concepts have been explored to devise an ideal strategy for optimal results.

3.5 Settlements and Land Tenure

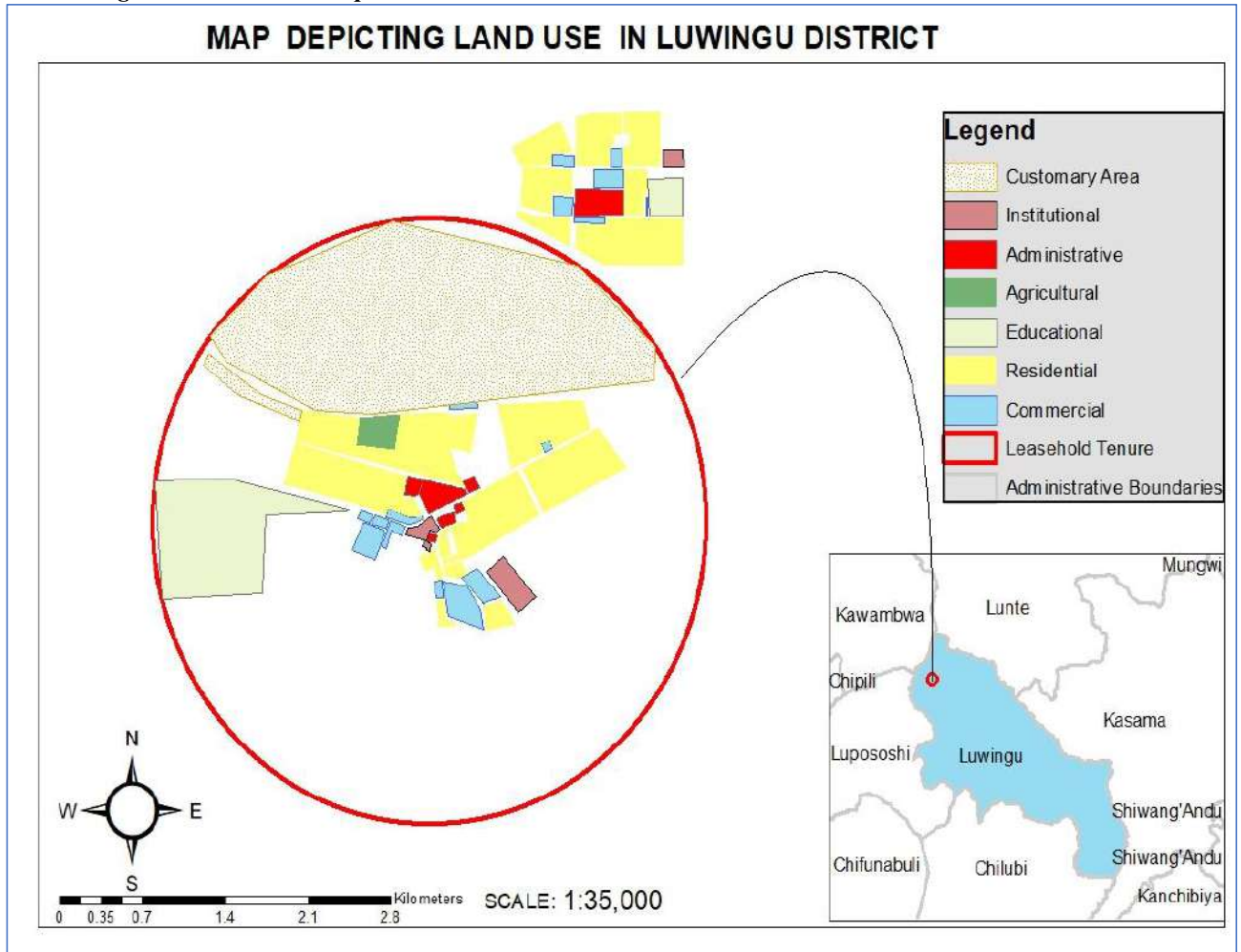
The majority of the District's territory is subject to customary ownership, with only a modest 5% falling under leasehold. The Traditional Authorities bear the responsibility for managing land administration in areas governed by customary law, while state-owned land falls under the Local Authority's jurisdiction. Urban centres primarily serve as sites for residential housing, administrative government activities, commercial enterprises, and some hinterland agriculture. Notably absent are designated zones for light or heavy industrial use; however, there is presently limited-scale manganese mining occurring within the region.

Figure 15: Land Tenure System



Source: GIS Unit - Luwingu Town Council (2020)

Figure 16: Land Use Map



Source: GIS Unit - Luwingu Town (2020)

3.5.1 Alternative Spatial Development Scenarios

In order to determine an appropriate development strategy for Luwingu District, it was crucial to explore alternative options that would effectively address the identified challenges and achieve the District's goals.

3.5.2 Densification Concept for Luwingu: Scenario One

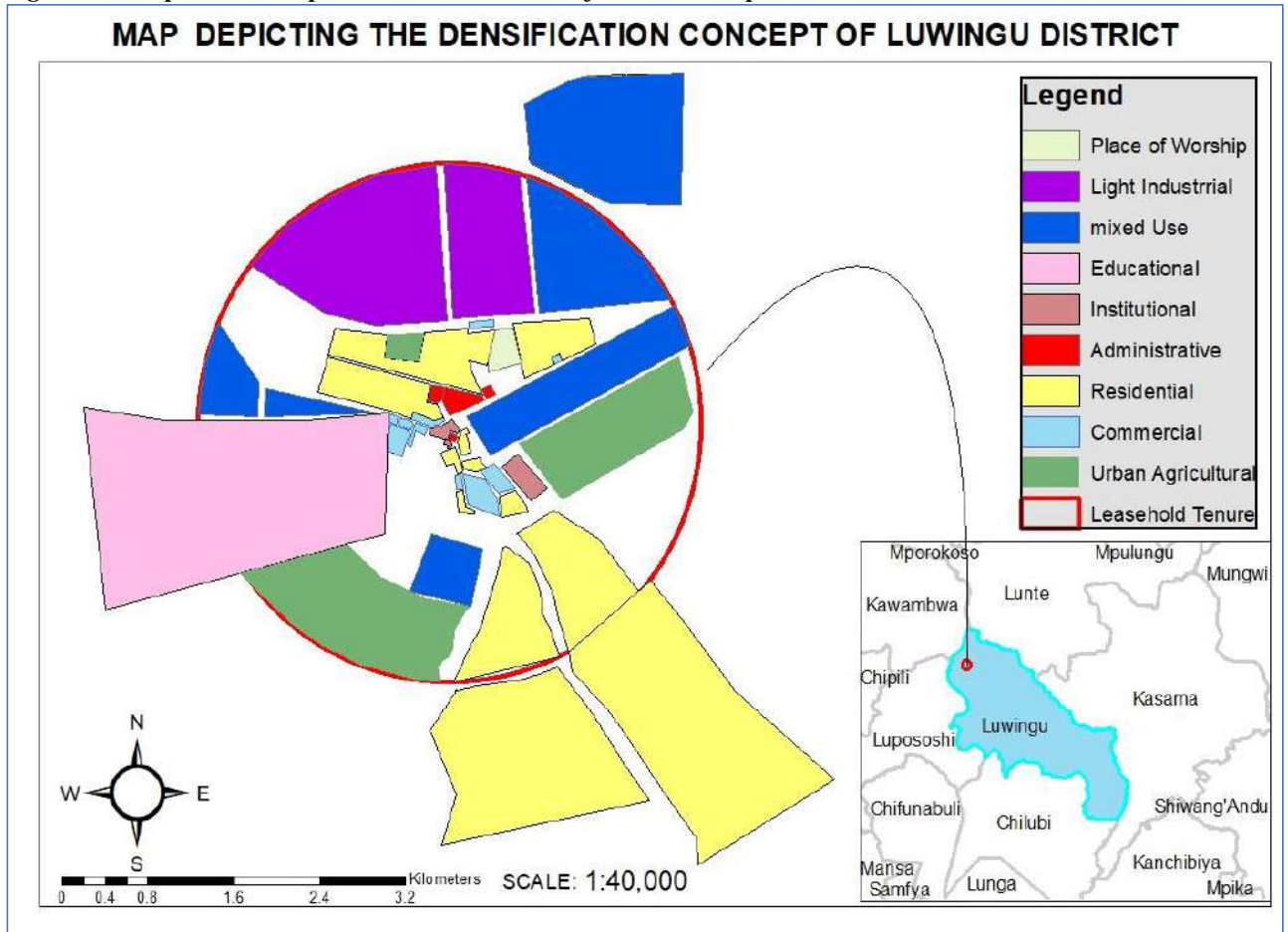
Planned Densification refers to a method of gradually implementing appropriate levels of density in strategic locations, while allowing market forces to coevolve with the process. While municipalities and urban improvement programs increasingly prioritize denser living conditions, achieving this goal has become more challenging over time. The term 'Densification' is commonly used by planners, designers, developers, and theorists alike to

describe the growing concentration of individuals residing in urban areas - a phenomenon that can be quantified through various metrics:

- ✦ *Using residential density (no. of dwelling units in a given area);*
- ✦ *Population density (number of people in given area);*
- ✦ *Employment density (number of jobs in given area); and*
- ✦ *Floor area ratio: total building floor area divided by area of land buildings are built on.*

The argument in favor of densification is based on the premise that it is more feasible to provide quality services to a densely populated area as compared to sparsely populated regions. Infrastructure services are also easier to maintain in areas with high population density, since they do not have to be accessed over long distances, thereby increasing efficiency. In Luwingu, for instance, it can be observed that service delivery is limited in areas where the population is sparse such as Isangano, Lwata and Masonde. The solution lies in promoting densification by encouraging most of the rural community to move towards urban centers through sustainable job opportunities like agro-processing industries and construction of flat or apartment buildings capable of accommodating an increased urban population. This would improve the efficiency of essential services such as electricity which currently has only 35% access, but could increase up to 80%. Similarly, according to PSIR reports, densification would lead towards better health facilities along with enhanced communication and education systems.

Figure 17: Proposed Development Scenario 1 - Densification Concept



Source: Luwingu Town Council, 2023

In terms of the impact of densification on Luwingu's urban area, it is anticipated that the Local Authority will need to pre-qualify a 1 km² perimeter in the city center for effective conversion to special users and commercial properties. However, attention must be given to the creation of light industrial zones, which should ideally be situated at the outskirts of the urban center due to potential environmental pollution resulting from their operations and development. *The primary challenge with this mode of development lies in its perpetuation of existing inequalities between rural and urban areas, thereby stunting progress in the district's wide development efforts.*

3.5.3 Linear Development Planning Concept: Scenario Two

The linear city was an urban plan for an elongated urban formation. The city would consist of a series of functionally specialized parallel sectors. Research also shows that the Linear Planning Concept of urban development laid out on either side of a central transport spine

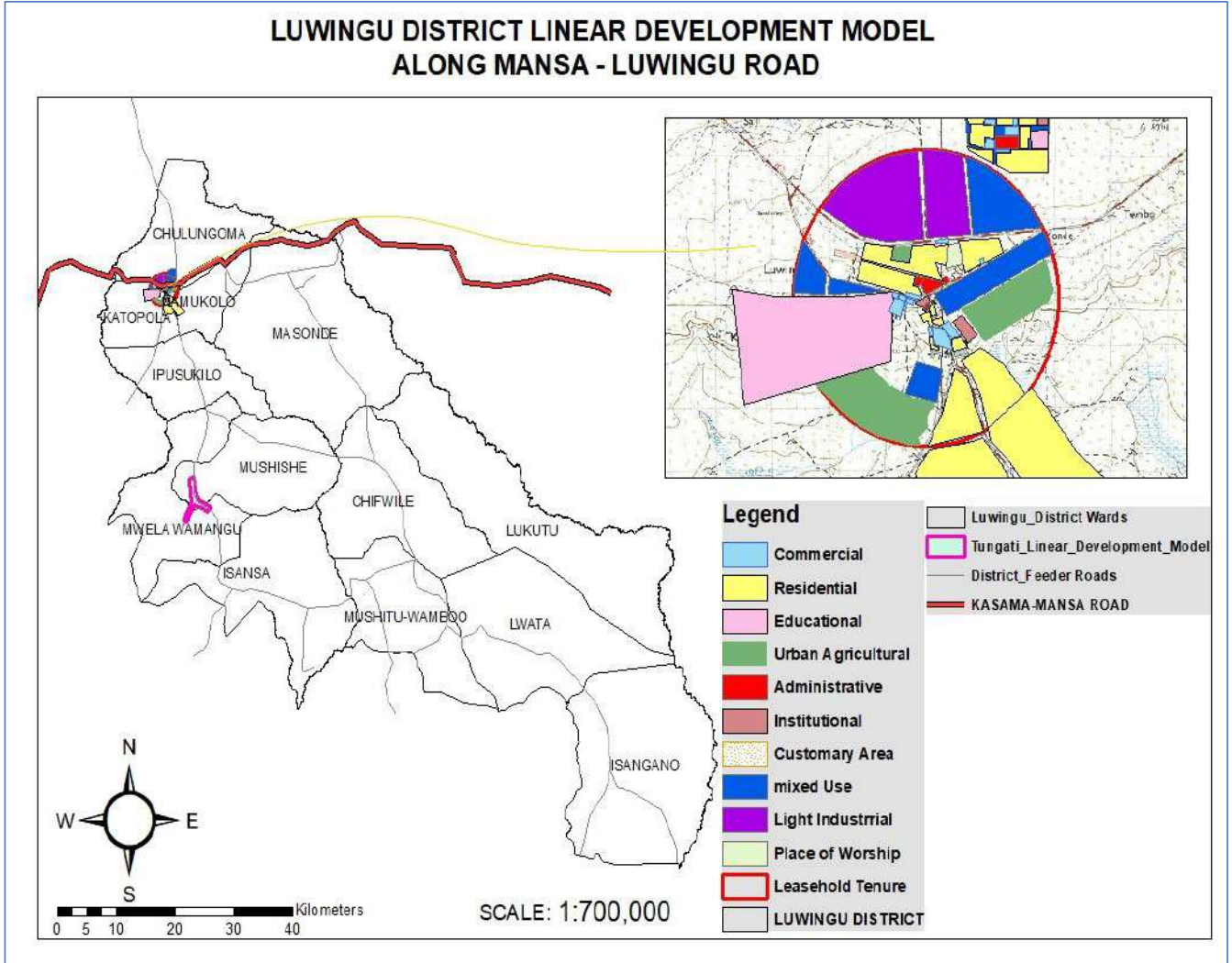
consisting of roads, railways, and services⁹. Although formalized by Soria y Mata as the Ciudad Lineal (1894), variants were in operation along main roads out of the C1⁹ cities where tramlines and railways facilitated development¹⁰.

The Linear Development Concept has been widely implemented by various countries, both in the creation of new neighborhoods and the revitalization of existing ones. In Luwingu, there are three natural focal points for linear development: the Mansa-Luwingu-Kasama Road serves as the primary growth artery; followed by the Luwingu-Chaba Road and the Luwingu-Shimumbi Roads. Consequently, linear expansion would involve developing urban infrastructure along these main arteries to meet community needs. These roads would serve as primary transportation routes while also accommodating power supply, communication networks, social amenities and residential construction projects.

⁹ Soria y Mata, Arturo (1844-1920). *In a Dictionary of Architecture and Landscape Architecture* (2).

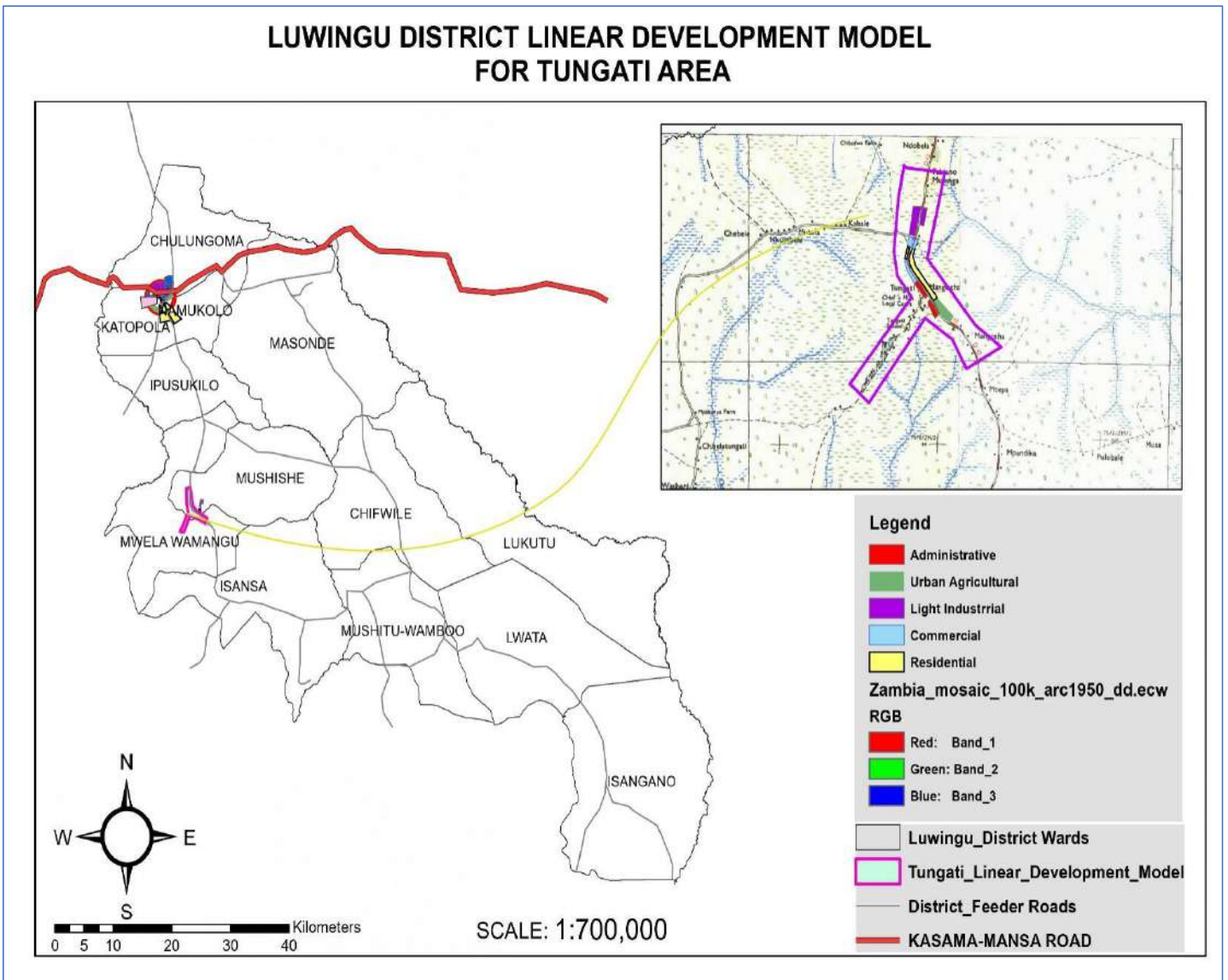
¹⁰ Doxiadis, C.A. (1967). *On Linear Cities*. *Town Planning Review*, 38(1), 35.

Figure 18: Proposed Development 2 - Linear Development Model



Source: GIS Unit - Luwingu Town Council, 2023

Figure 19: Linear Development Model for Tungati Area



Source: GIS Unit - Luwingu Town Council, 2023

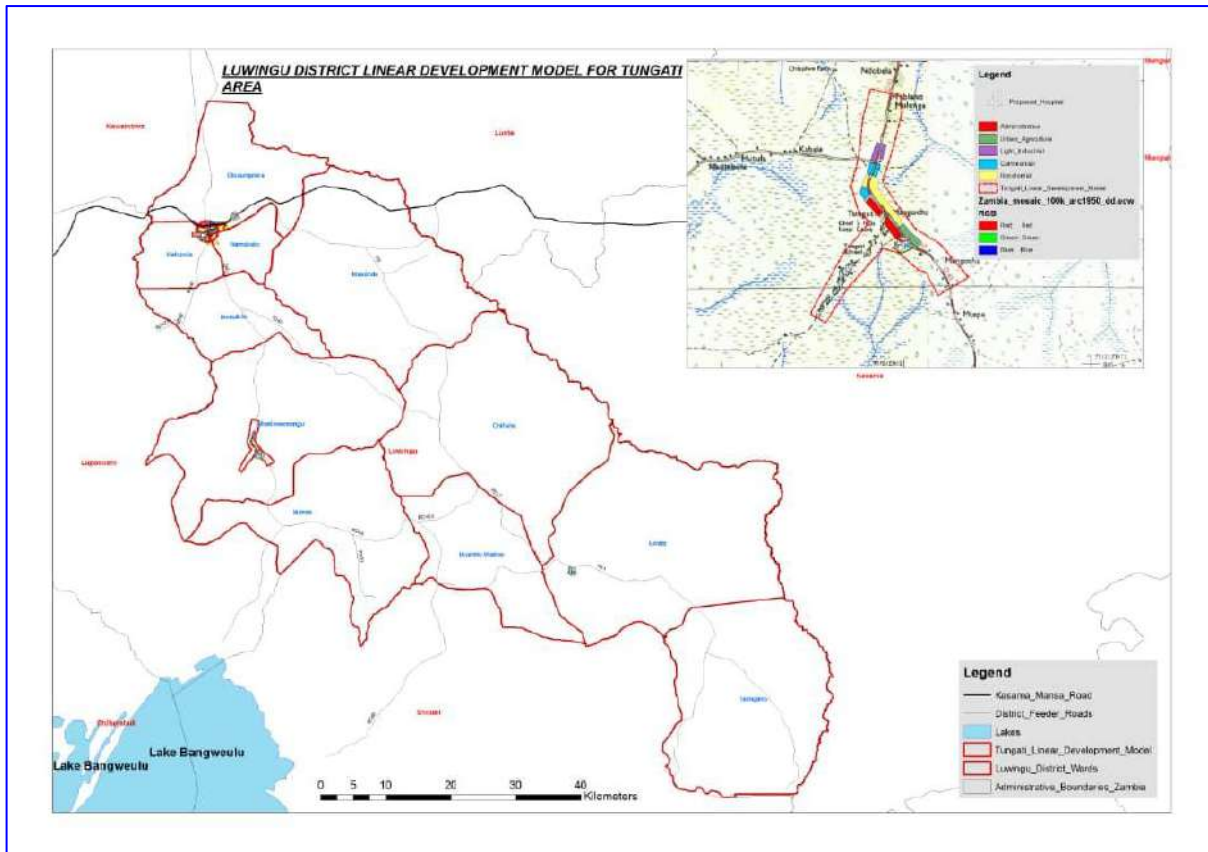
The advantages of this concept are that it;

- ✦ Follows a natural development pull;
- ✦ Simple economic form of traffic segregation;
- ✦ Movement and location comprehensive to the average citizen;
- ✦ The town grows in proportion to the demands of both residential and industrial expansion;
- and
- ✦ Subsequent possibility of growth to absorb the potential population growth.

The main challenge with this mode of concept; however, is that it may not cater for people off the line of transport system and hence entails making pull effects towards the main arteries.

3.5.4 Multi Nodal Development: Scenario Three

Figure 20: Multi Nodal Development

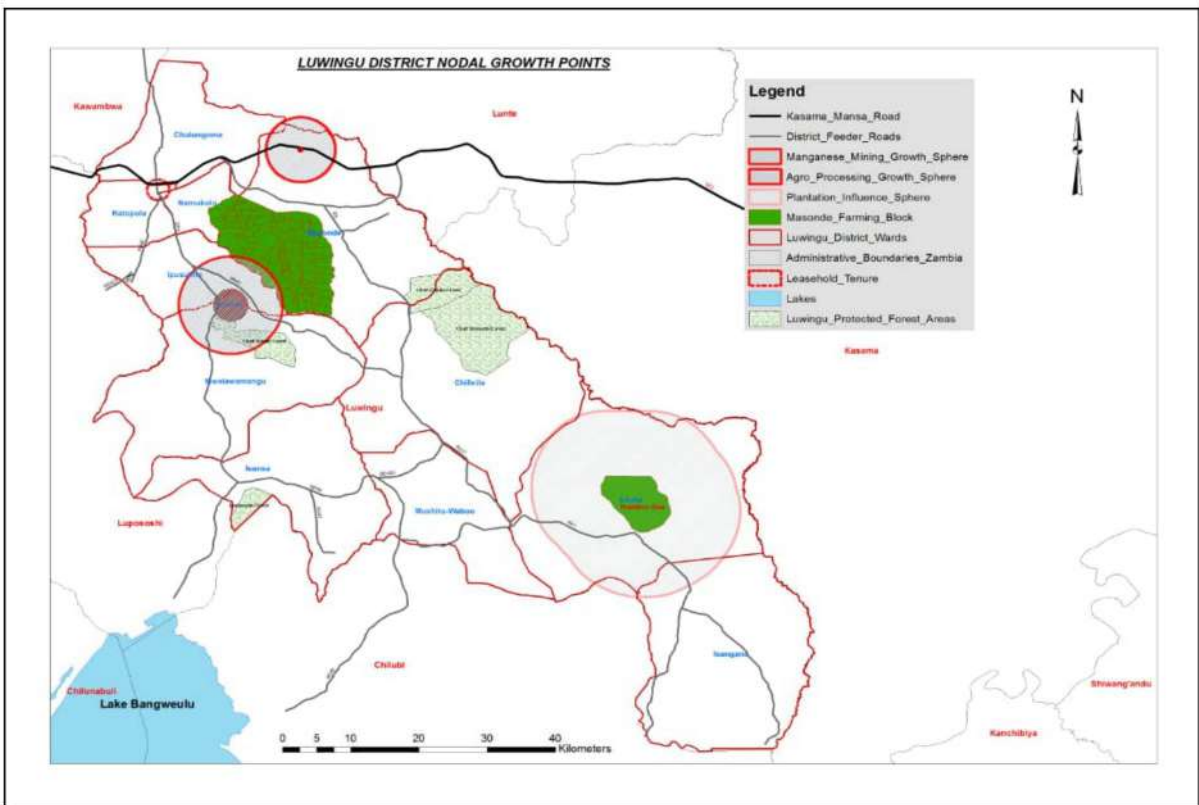


Source: GIS Unit - Luwingu Town Council, 2023

Multi-Nodal Urban Form re-directs development away from the urban core or city centre towards identified urban growth areas or nodes, which is characterized by clusters of development with each cluster having its own specialization. Planning agencies have long placed considerable faith in the capacity of nodes to turn around sprawling development. The historical narrative helps explain why the nodal concept has received so much attention, often at the expense of other approaches to metropolitan planning, such as transit- and pedestrian-oriented, high-density corridors. A nodal strategy is less likely to raise opposition than other approaches to metropolitan-level planning, because it minimizes reliance on coercion.

The history of nodes also brings to light problems with this type of development. There are difficulties in establishing new nodes. The intense interest in nodes manifested by planning agencies and expressed in planning documents has rarely resulted in the actual development of nodes. The development of nodal points can work well in Luwingu looking at the different morphology found in the three chiefdoms. Instead of using wards as nodal points, the use of chiefdoms will be more realistic because the current planning issues raised seem to indicate different needs in nature due to the particular peculiarity of the chiefdoms.

Figure 21: Nodal Growth Points



Source: GIS Unit - Luwingu Town Council, 2023

Further, it can be deduced that the resource endowment of each chiefdom; is different. In this planning scenario, it is anticipated that growth is developed around the following three themes: *Manganese Mining for Chipalo Chiefdom; Agro processing for Tungati Chiefdom; and Plantations and fish farming for Shimumbi Chiefdom.*

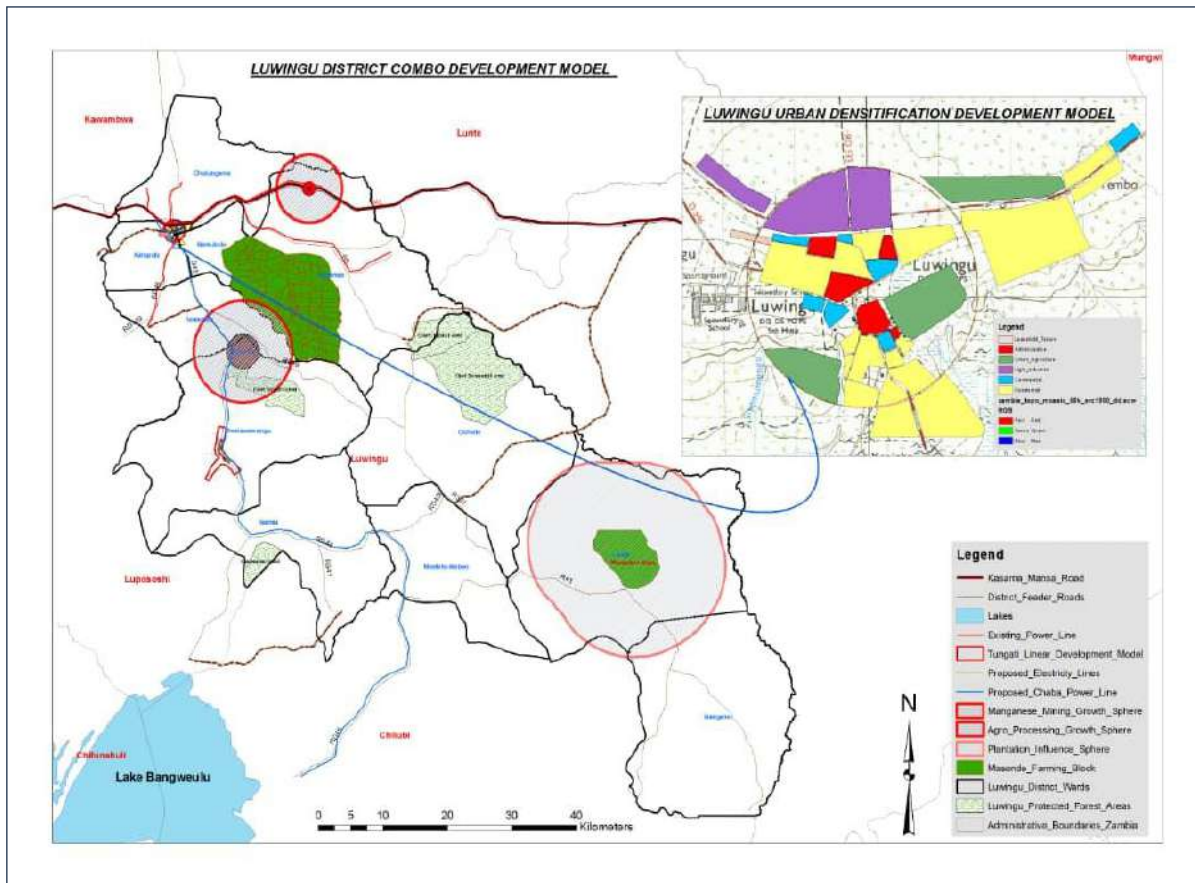
This multi nodal development would ensure that the entire District develops at the same pace and has several standardized services built around the nodes of development. Each node would have communication, health, education, social amenities required to the

desired level. It would also improve the accommodation access to basic but quality accommodation.

3.5.5 Chosen Spatial Development Scenario - Multi-Nodal Development

As Shown in Figure 22, Luwingu District Integrated Development Plan would thus follow the Multi-Nodal Development Framework, which maximizes the development of the District through the use of growth points and can be implemented immediately. The development framework fits easily with Luwingu because it addresses all that is expressed in the vision, goals, and strategic objectives. It also speaks well with the Luwingu LED Strategy for the development of the local economy.

Figure 22: Chosen Spatial Development Model



Source: GIS Unit - Luwingu Town Council, 2023

3.5.6 Land-Use Planning Policies and Proposals

In order to bolster the ecological and socio-economic facets of our community, the IDP Team intends to implement the following policies as we are confident they will enable us to accomplish a multitude of established developmental goals.

3.5.6.1 Land-Use Planning Policies and Proposals for Specific Protection Zones, Areas of Environmental Sensitivity or Cultural and Historical Importance

Luwingu District of boasts two Protected Forest Areas, namely the Isangano Game Management Area (GMAs), as well as numerous wetlands that serve as water recharge zones for the greater Bangweulu Wetlands. It is worth noting that there are no protected areas within the planning boundary of Luwingu Town Council, with the nearest one being approximately 50 kilometres away from its township boundary. However, it is expected that most of the proposed and envisaged developments will be taking place outside this planning boundary, some even in close proximity to these protected areas.

To mitigate any potential risks associated with such developments, the Local Authority has established a strong working relationship with the devolved Department of Forest under the Ministry of Green Economy. This department is mandated to safeguard forest protected areas. To this end, several policies shall be implemented for land use planning in protection zones and environmentally sensitive areas. The said policies are highlighted below:

3.5.6.1.1 The Forestry Act of 2015

Luwingu Town Council has mapped all the gazetted forest protected areas in the District in accordance with the provisions of the Forestry Act. This is for the purpose of preventing administering of land in these areas.

3.5.6.1.2 The National Policy on Wetlands of 2018

The Wetlands of Luwingu District contribute immensely to the greater Bangweulu wetlands; hence the Local Authority has done an analysis and mapping of the wetlands in the District. This has been done to prevent land alienation and subsequently making and forwarding recommendations for titling of land in such areas.

3.5.6.2 Land-Use Planning Policies and Proposals for the Protection of National and Regional Interests, Policies and Guidelines

The following land use policies shall be developed to protect areas of national and regional interests:

- ✧ Ensure that all the roads connecting to other neighboring Districts are well maintained for easy connectivity; and
- ✧ Protection of all the river banks adjoining other Districts not only to safeguard aquatic life, but most importantly to ensure that the water is not contaminated.

3.5.6.3 Land-Use Planning Policies and Proposals for Informal Settlements

The Luwingu District is confronted with a formidable obstacle of insufficient adequate housing and the expansion of informal settlements. The land encircling the planned township, including Kapisha Compound, Chikoyi, Masala and Chelston Extension, Coop and Tolopa are witnessing unregulated growth. These settlements are devoid of fundamental amenities like water supply systems, road networks and other vital services; thus, necessitating their improvement. Here is an excerpt highlighting the main policies governing informal settlements:

National Housing Policy 2020 - 2024

One of the pivotal measures that require implementation under this section is the National Housing Policy 2020 - 2024, which was launched in 2020. The Ministry of Housing and Infrastructure Development, the Ministry of Lands and Local Authorities, responsible for spatial planning or land use planning, are among the key public institutions mandated to implement this policy. The policy entrusts Local Authorities with promoting formal human settlement development while prioritizing upgrading existing informal settlements. As a result, Luwingu Town Council will employ this policy as an intervention mechanism to foster partnerships between traditional leaders, public sector agencies, and private developers. Furthermore, participatory informal settlement upgrading receives priority financing under this policy's auspices. Additionally, it strongly advocates for regularizing informal settlements as Improvement Areas for upgrading purposes.

3.5.6.4 Land-Use Planning Policies and Proposals for areas under the jurisdiction of Traditional Authorities

This part is aimed at discussing land-use planning policies and proposals that are under the control of Traditional Authorities. These policies determine how land can be used in a particular area, such as for residential or commercial purposes. Some of the land-use planning policies and proposals under the jurisdiction of the Traditional Authorities include the following:

Planning Agreements

Most of the unplanned development in Luwingu District is occurring within peri-urban areas, situated at the interface between leasehold and customary land. To mitigate this trend, the Luwingu Town Council intends to utilize section 25 of the Urban and Regional Planning Act No. 3 of 2015 by establishing planning agreements with Traditional Authorities. Such an agreement represents a mutual understanding between the Local Authority and Traditional Authorities aimed at facilitating implementation of an Integrated Development Plan (IDP) or Local Area Plan (LAP). In light of this IDP, expansion of Luwingu Town Council's planning boundary is anticipated; thus necessitating comprehensive planning for all nearby regions proximate to township limits.

Declaration of Improvement Areas

The population of Luwingu District has been steadily increasing at a growth rate of 5.6 percent. Despite the fact that the planning boundary has not been expanded, there has been an exponential increase in demand for land for housing development. This surge in development has put immense pressure on the limited planned land which is gradually being depleted. As a result, the majority of residents have resorted to developing unplanned areas on the urban fringe.

However, Luwingu Town Council is now empowered by the Urban and Regional Planning Act No. 3 of 2015 to declare some of these compounds as improvement areas with a view to augmenting the stock of decent housing accommodation available in the District and also help control this rampant development.

CHAPTER FOUR: IMPLEMENTATION FRAMEWORK

4.0 Introduction

A Monitoring and Evaluation Team, consisting of all Government Heads of Departments (HODs), will be established under the leadership of the District Commissioner and Council Secretary to oversee the timely implementation of planned programmes. Additionally, each office must provide regular updates to the District Development Coordinating Committee (DDCC) on their progress with implementation. The Integrated Development Plan spans a period of 10 years during which every department is expected to integrate planned activities and programs into their daily work schedule according to specific developmental strategies.

4.1 Capital Investment Programme

A capital investment strategy is a plan that helps institutions make smart decisions about how to spend their money on long-term projects. This plan considers the institution's overall goals and objectives, as well as financial considerations. It includes information about how to invest in and manage projects like building or renovating facilities, and it helps the institution decide where to put its money.

The Capital Investment Programme (CIP) is a specific example of this kind of plan. It focuses on investing in infrastructure projects that will help meet important needs for services like transportation or utilities. The CIP was created with guidance from the 8th National Development Plan (8NDP), which has four main pillars guiding development efforts. Overall, these plans are designed to help institutions make wise investments over time so they can achieve their larger goals while also being financially responsible. See Table 18 for details.

Table 26: Capital Investment Programme (CIP)
PILLAR ONE: ECONOMIC TRANSFORMATION & JOB CREATION

Development Goal 1: To increase and diversify agriculture production and productivity.		Cost Per year					Total		
Development Objective 1: To increase agricultural productivity from 25% to 60% by 2033.		1	2	3	4	5			
Programmes	Programmes Outputs	Implementing Agency	Location						
Capacity building in crop diversification	Trained farmers in horticultural crops production	Ministry of Agriculture	In all the 13 wards	180, 000	180, 000	180, 000	180, 000	180, 000	900, 000
Agricultural mechanization promotion	Increased mechanized methods of agriculture.	Ministry of Agriculture	In all the 13 wards	180, 000	180, 000	180, 000	180, 000	180, 000	900, 000
Agribusiness development promotion	Farmer organizations trained in entrepreneurship	Ministry of Agriculture	In all the 13 wards	120, 000	120, 000	120, 000	120, 000	120, 000	600, 000
Infrastructure Development	Functional storage and bulking facilities	Ministry of Agriculture	In all the 13 wards	700, 000	700, 000	700, 000	700, 000	700, 000	3, 500, 000
Value addition promotion	Food processing industries	Ministry of Agriculture	In Katopola, Chifwile & Msonde Wards	1, 300, 000	1, 300, 000	1, 300, 000	1, 300, 000	1, 300, 000	6, 500, 000
Irrigation Farming promotion	Farmers trained in gravity farming	Ministry of Agriculture	In all the 13 wards	400, 000	400, 000	400, 000	400, 000	400, 000	2, 000, 000
Construction of staff houses at FTC	20 staff houses constructed	Ministry of Agriculture	Kaatopola Ward	1, 000, 000	1, 000, 000	1, 000, 000	1, 000, 000	1, 000, 000	5, 000, 000

Construct and rehabilitate Block and Camp Houses	Houses constructed and rehabilitated	Masonde, Insansa, Chifwile & Lukutu Wards	Ministry of Agriculture	1, 600, 000	1, 600, 000	1, 600, 000	1, 600, 000	1, 600, 000	1, 600, 000	8, 000, 000
Development Objective 2: To increase fisheries and livestock production and productivity by 2033.										
Strategy 2: To achieve poverty reduction and economic growth through productive fisheries and livestock sub-sector.										
Programme	Programme Outputs	Location	Implementing Agency	Cost Per Year						Total
Establishment of breeding centres: Masonde (cattle) & Mwelawamangu (goats)	Improved access to quality breeding stock	Masonde & Mwelawamangu Wards	Ministry of Fisheries & Livestock	1, 200, 000	1, 200, 000	1, 200, 000	1, 200, 000	1, 200, 000	1, 200, 000	6, 000, 000
District Veterinary Laboratory	Improved diagnosis of animal diseases for effective care	In Katopola Ward	Ministry of Fisheries & Livestock	540, 000	540, 000	540, 000	540, 000	540, 000	540, 000	2, 700, 000
Kansokoshi Aquaculture	Improved access to affordable fresh & processed fish	Masonde Ward	Ministry of Fisheries & Livestock	180, 000	180, 000	180, 000	180, 000	180, 000	180, 000	900, 000
Construction of the Luwingu Fish Hatchery	Improved supply of sex-reversed fingerlings to farmers	In Katopola Ward	Ministry of Fisheries & Livestock	240, 000	240, 000	240, 000	240, 000	240, 000	240, 000	1, 200, 000
Capacity	Improved Aquaculture	Masonde, Chifwile &	Ministry of Fisheries &	180, 000	180, 000	180, 000	180, 000	180, 000	180, 000	900, 000

Building in Aquaculture Management	Management practices	Lukutu Ward	Livestock										
Livestock Development	Improved animal husbandry practices	In all the 13 wards	Ministry of Fisheries & Livestock	200, 000	200, 000	200, 000	200, 000	200, 000	200, 000	200, 000	200, 000	200, 000	1, 000, 000
Development Objective 3: To improve transport and communication infrastructure by 2033													
Strategy 3: To promote rural development													
Construction of 28km of Mwaba Njeke Road	Mwaba - Njeke Road constructed	Chulungoma Ward	Local Authority in partnership with RDA	4, 480, 000	4, 480, 000	4, 480, 000	4, 480, 000	4, 480, 000	4, 480, 000	4, 480, 000	4, 480, 000	4, 480, 000	22, 400, 000
To construct Mumpombwe-Nsemba embankment and bridge	Bridge and embankment constructed	Mushituwambo Ward	Local Authority in partnership with RDA	700, 000	500, 000	500, 000	500, 000	500, 000	500, 000	500, 000	-	2, 200, 000	
To construct 25km Chewele-Nsemba road and embankment in Mushituwambo Ward	Chewele- Nsemba Road constructed	Mushituwambo Ward	Local Authority in partnership with RDA	4, 000, 000	4, 000, 000	4, 000, 000	4, 000, 000	4, 000, 000	4, 000, 000	4, 000, 000	4, 000, 000	20, 000, 000	
Installation of one AIRTEL,	Towers installed and operational	Chifwile Ward	ZAMTEL	120, 000	120, 000	120, 000	120, 000	120, 000	120, 000	120, 000	120, 000	600, 000	

PILLAR TWO: HUMAN AND SOCIAL DEVELOPMENT									
Development Objective 4: To increase access to education services by 2033.									
Strategy 4: Ensure access to quality education services.									
Ward									
To construct a Secondary School in Ipusukilo, Isansa and Chifwile Wards	Secondary school constructed	Ipusukilo, Isansa and Chifwile Wards	Ministry of Education	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000
To construct staff houses in Mushituwambo , Isangano, Isansa, Mwelawamangu and Maseonde Wards	25 Staff houses constructed	Mushituwambo, Isangano, Isansa, Mwelawamangu and Maseonde Wards	Ministry of Education	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Upgrading primary schools to secondary schools	10 primary schools upgraded	Isangano Ward (Kasunga), Mushituwambo Ward (Kasonde Kombo Kombo), Lukutu Ward (Malekani), Chifwile	Ministry of Education	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	15,000,000

Development Goal 2: To create a pool of productive entrepreneurs and enhance a pace at which new enterprises are created by 2033.									
Development Objective 7: To increase access to skills by 2033.									
Strategy 7: Ensure access to quality sustainable and entrepreneurship skills for the never been and out of school youth and enhance their well-being.									
To conduct training in sustainable and entrepreneurship skills.	Students trained in various skills	In all the 13 wards	Ministry of Education in partnership with Ministry of Youth & Sports	400, 000	400, 000	400, 000	400, 000	400, 000	2, 000, 000
Construction of staff houses at the Youth Centre	3 Staff houses constructed	Katopola Youth Centre (Kotopola Ward)	Ministry of Youth & Sports	240, 000	240, 000	240, 000	240, 000	240, 000	1, 200, 000
PILLAR THREE: ENVIRONMENTAL SUSTAINABILITY									
Development Goal 3: To enhance the management and protection of natural resources for a Friendly Ecosystem by 2033.									
Development Objective 8: To reduce poverty and vulnerability.									
Strategy 8: Climate Change and Disaster Risk Reduction.									
To manage solid waste in Katopola and Namukolo Wards	Improved solid waste treatment and disposal	Katopola and Namukolo Wards	Local Authority	2, 000, 000	2, 000, 000	2, 000, 000	2, 000, 000	2, 000, 000	10, 000, 000
Management of forest reserves	Sustainable forest management strengthened	In all the 13 wards especially those in Shimumbi & Tungati	Ministry of Green Economy	500, 000	500, 000	500, 000	500, 000	500, 000	2,500, 000

Promotion of renewable energy	Renewable energy adopted	Chiefdoms In all the 13 wards	Ministry of Economy	Green	380,000	380,000	380,000	380,000	380,000	380,000	380,000	1,900,000
Develop multi hazard early warning systems	Early warning system developed	In all the 13 wards	Ministry of Economy	Green	200,000	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000
PILLAR FOUR: GOOD GOVERNANCE												
Development Goal 4: To enhance the prevention of crime by 2033.												
Development Objective 9: To reduce poverty and unemployment levels.												
Strategy 9: To construct one more correctional facility; and Construction of more police posts.												
Skills development for the vulnerable groups	10,000 vulnerable groups trained with various skills	In all the 13 wards	Dept. of Development & Social Welfare	Community	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	20,000,000
Construction of Police Posts.	4 Police Posts constructed	Kamumango, Shimbumba, Tungati and Luena	Ministry of Home Affairs	Home	320,000	320,000	320,000	320,000	320,000	320,000	320,000	1,600,000
Expand of the existing correctional facility	Existing correctional facility expanded	Katopola Ward	Zambia Services	Correctional	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	5,000,000
Construction of the Subordinate Court	Subordinate court constructed	Katopola Ward	Ministry of Justice	Justice	700,000	700,000	700,000	700,000	700,000	700,000	700,000	3,500,000

Rehabilitation of Local Courts	3 Local Courts rehabilitated	Shimumbi, Tungati & Chiponde	Ministry of Justice	200, 000	200, 000	200, 000	200, 000	200, 000	200, 000	1, 000, 000
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4.2 Local Authority’s Financial Plan

Drafting a Financial Plan guarantees the allocation of funds for recurring expenses necessary to execute the IDP. It encompasses typical operational budgets that the Local Authority expects to incur while providing services in the District.

4.2.1 Revenue Collection Efficiency of the Luwingu Town Council

This part intends to provide a succinct overview of the revenue collection efficiency and effectiveness of Luwingu Town Council for the years 2022 and 2023. See Table 27 and the analysis that follows below:

Table 27: Luwingu Town Council's Revenue Collection Efficiency

S/N	YEARS	DETAILS	2022			2023		
			APPROVED BUDGET	ACTUAL	%	APPROVED BUDGET	ACTUAL	%
		LOCALLY GENERATED REVENUE						
1		LOCAL TAXES	451,456.00	142,179.00	31%	455,956.00	83,891.00	18%
2		FEES AND CHARGES	4,532,700.00	872,636.00	19%	4,642,266.00	1,718,347.00	37%
3		LICENCES	29,320.00	30,186.00	103%	39,785.00	29,462.00	74%
4		LEVIES	450,836.00	230,254.00	51%	67,910.00	12,828.00	19%
5		PERMITS	72,360.00	24,233.00	33%	142,794.00	297,078.00	208%
6		OTHER RECEIPTS	751,200.00	631,902.00	84%	169,200.00	269,558.00	159%
7		COMMERCIAL VENTURE	934,000.00	22,270.00	2%	2,900,000.00	75,874.00	3%
		TOTAL LOCAL REVENUE	7,221,872.00	1,953,660.00	27%	8,417,911.00	2,487,038.00	30%
		NATIONAL SUPPORT						
8		NATIONAL SUPPORT	10,208,000.00	10,351,007.00	101%	10,208,000.00	11,804,353.00	116%
9		CDF	25,739,911.00	23,739,911.00	92%	28,300,000.00	21,400,000.00	76%
		TOTAL NATIONAL SUPPORT	35,947,911.00	34,090,918.00	95%	38,508,000.00	33,204,353.00	86%
		GRAND TOTAL	43,169,783.00	36,044,578.00	83%	46,925,911.00	35,691,391.00	76%

Performance Analysis with 2023 as a base year:

- ✧ **Local Taxes;** The Local Authority aimed to collect **K1, 956** but only managed to gather **K83, 891** in **2023**. This resulted in collection efficiency of **18%** due to ratepayers' reluctance to fulfil their obligations.
- ✧ **Fees and Charges;** The council budgeted to collect **K4, 642, 266** but only gathered **K1, 718, 347**, leading to a **37%** collection efficiency. The variance was caused by delays in issuing plots in the newly developed area (New Luwingu). Plot premiums constituted the highest revenue stream in this category.

- ✧ **Licences;** The budgeted amount was **K39, 785** and **K29, 462** was collected, representing a **74%** collection efficiency. The Licensing exercise continued in **2024**.
- ✧ **Levies;** The council had budgeted to collect a total of **K67, 910** from levies, but they were only able to collect **K12, 828**, resulting in a collection efficiency variance of **19%**. This variance was caused by under-performance on the fish levy and sand levy. The sand levy was particularly difficult to collect because of the poor state of the road leading to the sites where sand comes from. The situation was made worse by the council grader breaking down, which made it difficult to maintain the road in its usual condition.
- ✧ **Permits;** During the year under review, the council had budgeted to collect **K142, 794** but ended up collecting **K297, 078**, an over-performance of **208%**. This exceptional result was credited to the introduction of business permits for bidders participating in CDF Projects.
- ✧ **Other Receipts;** The council budgeted to collect **K169, 200** and successfully gathered **K269, 558**, representing **159%** of the collection efficiency. This positive result was credited to effective management interventions such as the establishment of the Revenue Collection Task Force.
- ✧ **Commercial Venture;** The council had planned to have a surplus of **K2, 900, 000**, but only achieved a net surplus of **K75, 874**, which shows a very low collection efficiency of just **3%**. This shortfall was mainly due to the failure to execute the block-making income-generating project, which was supposed to begin in **2023**. Additionally, the ongoing renovations at the Chulungoma Guest House, which is the council's primary commercial enterprise, have hindered its ability to generate revenue in **2023**.

4.2.2 Assessment of Current and Potential Revenue Streams

Despite being one of the country's oldest Local Authorities, Luwingu Town Council suffers from a limited revenue base. The low levels of compliance among business owners in the District regarding payments of rates and levies have exacerbated the financial difficulties faced by this Local Authority. Nonetheless, Management has taken steps to improve its current revenue base through capital projects such as constructing a truck parking bay, rehabilitating the Council Guest House and running a piggery, among other initiatives.

4.2.3 Own Sources of Revenue (OSR)

A major component of Luwingu Town Council's revenue streams includes the following:

a. Local Taxes

Article 161 of the Constitution of Zambia (Amendment) Act No. 2 of 2016 authorises Luwingu Town Council as a Local Authority to levy, impose, recover and retain local taxes. Further, the Local Government Act No. 2 of 2019 section 25(1) prescribes, subject to the Constitution and the Business Regulatory Act of 2014, a system of local taxes which Local Authorities can raise by passing by-laws imposing levies on:

- leviable persons owning or occupying property or premises situated within the area of the District;
- leviable persons carrying on a business, trade or occupation within the area of the District; or
- the purchase or sale of a commodity within the jurisdiction of the District.

b. Fees and Charges

Section 27(1) of the Local Government Act No. 2 of 2019 empowers Local Authorities, subject to the Business Regulatory Act, 2014, to impose fees or charges payable to the Council:

- For any license or permit issued under any regulation or by-law made under the Act. These may include health permits, fire certificate licences, burial permits and extension of business hours permits;

- For any service or facility provided or goods or documents supplied by the local authority in pursuance of or in connection with the performance of any function of the local authority. These may include survey fees, consent fees, building inspection fees, waste collection fees and parking fees.

4.2.4 External Sources of Revenues for Implementation

The successful execution of the Luwingu IDP will predominantly hinge on financial support from the government, donor agencies, and private investors. The Local Authority is granted Constituency Development Funds (CDF) for community-based initiatives, as well as the Local Government Equalization Fund (LGEF), and Grants-in-lieu of rates to facilitate the implementation of capital projects and other developmental programs.

4.2.5 Assessment of the Revenue Base 2023 - 2028

As previously mentioned, an evaluation of the Local Authority's revenue foundation indicates that it is severely constrained and may impede the execution of identified IDP priorities, strategies, and programs. Consequently, to realize the proposed activities/programs outlined in the IDP, funding will primarily originate from Central Government sources, donors and private sector entities. The tables below show the projection of the revenue sources from 2023 to 2033. Note that the projections are covering both Own Source Revenue and National Support

Table 28: Own Source Revenue (OSR) (2023 - 2027)

YEARS	2023	2024	2025	2026	2027
LOCALLY GENERATED REVENUE					
LOCAL TAXES	455,956.00	455,956.00	911,912.00	911,912.00	911,912.00
FEES AND CHARGES	4,642,266.00	2,946,576.00	3,005,507.52	3,065,617.67	3,126,930.02
LICENCES	39,785.00	81,210.00	82,834.20	84,490.88	86,180.70
LEVIES	67,910.00	546,210.00	557,134.20	568,276.88	579,642.42
PERMITS	142,794.00	97,910.00	99,868.20	101,865.56	103,902.88
OTHER RECEIPTS	169,200.00	1,115,600.00	1,137,912.00	1,160,670.24	1,183,883.64
COMMERCIAL VENTURE	2,900,000.00	2,283,080.00	2,328,741.60	2,375,316.43	2,422,822.76
TOTAL LOCAL REVENUE	8,417,911.00	7,526,542.00	8,123,909.72	8,268,149.67	8,415,274.43

Table 29: Own Source Revenue (OSR) (2028 - 2032)

YEARS	2028	2029	2030	2031	2032
LOCALLY GENERATED REVENUE					
LOCAL TAXES	911,912.00	1,823,824.00	3,647,648.00	7,295,296.00	14,590,592.00
FEES AND CHARGES	3,189,468.62	3,253,258.00	3,318,323.16	3,384,689.62	3,452,383.41
LICENCES	87,904.32	89,662.40	91,455.65	93,284.76	95,150.46
LEVIES	591,235.27	603,059.98	615,121.18	627,423.60	639,972.07
PERMITS	105,980.93	108,100.55	110,262.56	112,467.81	114,717.17
OTHER RECEIPTS	1,207,561.32	1,231,712.54	1,256,346.79	1,281,473.73	1,307,103.21
COMMERCIAL VENTURE	2,471,279.22	2,520,704.80	2,571,118.90	2,622,541.27	2,674,992.10
TOTAL LOCAL REVENUE	8,565,341.68	9,630,322.27	11,610,276.24	15,417,176.80	22,874,910.42

Table 30: National Support Financing (2023 - 2027)

YEARS	2023	2024	2025	2026	2027
NATIONAL SUPPORT					
CONSTITUENCY DEVELOPMENT FUND	28,313,207.00	30,635,642.00	32,167,424.10	33,775,795.31	35,464,585.07
ROADS GRANT		3,742,847.00	3,929,989.35	4,126,488.82	4,332,813.26
GRANT FOR DEVOLVED MINISTRIES		3,857,094.00	4,049,948.70	4,252,446.14	4,465,068.44
LGEF	10,512,000.00	10,512,000.00	11,037,600.00	11,589,480.00	12,168,954.00
GRANT IN LIEU OF RATES	200,000.00	200,000.00	210,000.00	220,500.00	231,525.00
LAND DEVELOPMENT FUND		3,720,000.00	3,906,000.00	4,101,300.00	4,306,365.00
OTHER GRANTS FOR PUBLIC INFRASTRUCTURE					
TOTAL LOCAL REVENUE	39,025,207.00	52,667,583.00	55,300,962.15	58,066,010.26	60,969,310.77

Table 31: National Support Financing (2028 - 2032)

YEARS	2028	2029	2030	2031	2032
NATIONAL SUPPORT					
CONSTITUENCY DEVELOPMENT FUND	35,464,585.07	36,173,876.77	36,897,354.31	37,635,301.39	38,388,007.42
ROADS GRANT	4,332,813.26	4,419,469.52	4,507,858.91	4,598,016.09	4,689,976.41
GRANT FOR DEVOLVED MINISTRIES	4,465,068.44	4,554,369.81	4,645,457.21	4,738,366.35	4,833,133.68
LGEF	12,168,954.00	12,412,333.08	12,660,579.74	12,913,791.34	13,172,067.16
GRANT IN LIEU OF RATES	231,525.00	236,155.50	240,878.61	245,696.18	250,610.11
LAND DEVELOPMENT FUND	4,306,365.00	4,392,492.30	4,480,342.15	4,569,948.99	4,661,347.97
OTHER GRANTS FOR PUBLIC INFRASTRUCTURE					
TOTAL LOCAL REVENUE	60,969,310.77	62,188,696.99	63,432,470.93	64,701,120.34	65,995,142.75

4.2.6 Main Factors affecting Revenue Collection and Management




There are multiple factors that affect revenue collection, such as administrative issues like inadequate transportation and staff, as well as low compliance from residents and business owners in paying taxes. Pilferage can also hinder revenue collection efficiency without proper

mechanisms in place to ensure all funds are accounted for properly. However, the management has set up a task force to enhance revenue collection efforts and prevent potential pilferage cases. Furthermore, the management plans to improve revenue collection by implementing the following strategies:

- *Regularly reviewing the efficiency of tax administration;*
- *Keeping the taxpayers register updated;*
- *Focusing on collecting from clients with the largest outstanding debts;*
- *Maintaining effective communication and reminders with debtors;*
- *Using a segmented collection strategy; and*
- *Establishing more revenue collection points, among other initiatives.*

4.3 Programme for the preparation of Local Area Plans (LAPs) and other detailed planning activities

Luwingu Town Council shall develop Local Area Plans for the IDP from 2024 onward as outlined below:

-  *Phase 1: Urban Renewal (2024 - 2026);*
-  *Phase 2: Entering into Planning Agreements with their Royal Highnesses (2024 - 2028; and*
-  *Phase 2: Identification and opening up of new areas for development (2024 - 2033).*

4.4 Monitoring and Evaluation Plan, Including Key Performance Indicators

This section delineates the Monitoring and Evaluation Plan that will steer the execution of diverse proposed initiatives in the District throughout the decadal planning span of the IDP. Additionally, crucial Performance Indicators have been incorporated to gauge triumph achieved within each programme.

Table 32: Monitoring and Evaluation Plan, including Key Performance Indicators (KPIs)

Development Goal: To increase and diversify agriculture production and productivity.										
Development Objective: To increase agricultural productivity from 25% to 60% by 2033.										
Strategies	Programmes	Programme Output	Target Year 1	Target Year 2	Target Year 3	Target Year 4	Target Year 5	Indicator	Source of Information	Frequency
To develop irrigation, farm blocks, extension services, promote utilization of improved seed varieties and place emphasis on the promotion of post-harvest technologies, agro-processing and access to markets for agro products.	Capacity building in crop diversification	Trained farmers in horticultural crops production	500 farmers trained	500 farmers trained	500 farmers trained	500 farmers trained	500 farmers trained	Number of trained farmers in horticultural crops production	MoA	Annually
	Agricultural mechanization promotion	Increased mechanized methods of agriculture.	5 commercial farmers	5 commercial farmers	5 commercial farmers	5 commercial farmers	5 commercial farmers	Number of commercial farmers engaged in mechanized agriculture	MoA	Annually
	Agribusiness development promotion	Farmer organizations trained in entrepreneurship	100 farmers	100 farmers	100 farmers	100 farmers	100 farmers	Number of farmer organizations trained in	MoA	Annually

camp houses	rehabilitated	houses construct & rehabilitate ted	houses construct & rehabilitate ted	houses construct & rehabilitate ted	houses construct & rehabilitate ted	houses construct & rehabilitate ted	constructed and rehabilitate d			
Development Objective 2: To increase fisheries and livestock production and productivity by 2033.										
To achieve poverty reduction and economic growth through productive fisheries and livestock sub-sector.	Establishment of breeding centres: Masonde (cattle) & Mwelawamangu (goats)	Improved access to quality breeding stock	1 cattle breeding centre constructed	1 goat breeding centre constructed	-	-	-	Number of quality breeding stocks established	Min. of Fisheries & Livestock	Annually
	Construction of the District Veterinary Laboratory	Improved diagnosis of animal diseases for effective care	1 District Laboratory constructed	-	-	-	District Veterinary Laboratory constructed & functional	Min. of Fisheries & Livestock	Quarterly	
	Kansokoshi Aquaculture Development	Improved access to affordable fresh & processed fish	1 Aquaculture Developed	-	-	-	Aquaculture Developed & operational	Min. of Fisheries & Livestock	Quarterly	
	Construction of the Luwingu Fish	Improved supply of sex-reversed	1 Fish Hatchery	-	-	-	Fish Hatchery	Min. of Fisheries	Quarterly	

embankment and bridge	To construct 25km Chewele-Nsemba road and embankment in Mushituwambo Ward	Chewele-Nsemba road embankment constructed	25km Chewele-Nsemba road and embankment constructed	-	-	-	-	-	Improved status of Chewele-Nsemba Road	LA	Quarterly
Installation of one AIRTEL, one ZAMTEL and one MTN Tower in Chifwile Ward	Towers installed and operational	1 Telecom communication Tower installed	1 Telecom communication Tower installed	1 Telecom communication Tower installed	1 Telecom communication Tower installed	1 Telecom communication Tower installed	1 Telecom communication Tower installed	1 Telecom communication Tower installed	Improved network coverage in Chifwile Ward	ZAMTEL	Annually
Installation of one network tower at Chikoti in Maseonde Ward & another one at Miluba in	Tower installed and operational	1 Telecom communication Tower installed	1 Telecom communication Tower installed	1 Telecom communication Tower installed	1 Telecom communication Tower installed	1 Telecom communication Tower installed	1 Telecom communication Tower installed	1 Telecom communication Tower installed	Improved network coverage in Maseonde and Chulungom	ZAMTEL	Annually

	Chulungoma Ward	Mfungwe and Chibofe markets shelters constructed	Mfungwe Market Shelter constructed	Chibofe Market Shelter constructed						Wards		
Development Objective: To improve on infrastructure development.												
Enhance district revenue and income opportunities for the poor.	To construct market shelters at Mfungwe and Chibofe	Chibofe markets shelters constructed	Market Shelter constructed	Market Shelter constructed	-	-	-	-	-	Number of market shelters constructed	LA	Annually
	To construct a storage shed at Mwinemenda	Storage shed constructed	One storage shed constructed	-	-	-	-	-	-	One storage shed constructed	MoA	Annually
	To construct an urban trucking bay in Katopola Ward	Trucking bay constructed	Trucking Bay Constructed	-	-	-	-	-	-	Trucking bay constructed & operational	LA	Annually
Development Objective: To increase access to education services by 2033.												
Ensure access to quality education services.	To construct a secondary school in Ipusukilo, Isansa and Chifwile Wards	Secondary school constructed	secondary school constructed	-	-	-	-	-	-	Number of secondary schools constructed	MoE	Quarterly
	To construct 25 staff houses	25 staff houses	5 staff houses	5 staff houses	5 staff houses	5 staff houses	5 staff houses	5 staff houses	5 staff houses	Number of	MoE	Annually

staff houses in Mushituwambo, Isansa, Mwelawamangu and Masonde Wards	constructed	constructed	constructed	constructed	constructed	constructed	constructed	constructed	constructed	staff houses constructed		
Upgrading primary schools to secondary schools	10 primary schools upgraded	2 primary schools upgraded	2 primary schools upgraded	2 primary schools upgraded	2 primary schools upgraded	2 primary schools upgraded	2 primary schools upgraded	2 primary schools upgraded	2 primary schools upgraded	Number of primary schools upgraded to secondary school status	MoE	Annually
Upgrading of community schools to primary schools	5 Community schools upgraded	1 Community School upgraded	1 Community School upgraded	1 Community School upgraded	1 Community School upgraded	1 Community School upgraded	1 Community School upgraded	1 Community School upgraded	1 Community School upgraded	Number of community schools upgraded	MoE	Annually
Development Objective: To increase access to quality health care services by 2033.												
The Local Authority in partnership with the	To construct 1 clinic and staff house in Isangano Ward	Clinic & staff house constructed	1 Clinic & Staff House	-	-	-	-	-	-	-	MoH	Annually
	To construct One	One maternity	1	-	-	-	-	-	-	Number of clinics & staff houses constructed	MoH	Quarterly

District Health Office will ensure access to quality health care services by construction of quality health infrastructure and provision of qualified health staff.	Maternity Annex at Njoko in Lwata Ward To construct 1 clinic and staff house in Mushituwambo Ward	annex constructed Clinic & staff house constructed	Maternity Annex 1 Clinic & staff house	-	-	-	-	-	-	maternity annexes constructed Clinic & staff house constructed	MoH MoH	Annually Annually
	Community awareness on availability of health care services in all health facilities	A well-informed community health care services	12 awareness campaigns meetings 12 awareness campaigns meetings 12 awareness campaigns meetings 12 awareness campaigns meetings	12 awareness campaigns meetings 12 awareness campaigns meetings 12 awareness campaigns meetings 12 awareness campaigns meetings	12	12	12	12	12	12	Number of community awareness campaigns conducted awareness campaigns meetings awareness campaigns meetings awareness campaigns meetings	MoH MoH
Development Objective: To increase access to clean water from 33% to 70% by 2033.												
Enhance provision of adequate and safe water	Rehabilitation & drilling of water points	25 Drilled and installed boreholes & 25 rehabilitated water points	5 drilled & rehabilitated water points 5 drilled & rehabilitated water points 5 drilled & rehabilitated water points 5 drilled & rehabilitated water points	5 drilled & rehabilitated water points 5 drilled & rehabilitated water points 5 drilled & rehabilitated water points 5 drilled & rehabilitated water points	5	5	5	5	5	5 drilled & rehabilitated water points 5 drilled & rehabilitated water points 5 drilled & rehabilitated water points 5 drilled & rehabilitated water points	LA LA LA LA	Annually Annually Annually Annually
	Rehabilitation of Kansokoshi Dam in Masonde	Kansokoshi Dam rehabilitated	1 dam rehabilitated	-	-	-	-	-	-	-	Akansokoshi Dam rehabilitated	Water Affairs Water Affairs

and sanitation.	Ward									d & functional		
	To construct a dam at Mfuba Stream in Chulungoma Ward	Dam constructed	1 dam constructed	-	-	-	-	-	-	Dam constructed & operational	Water Affairs	Quarterly
	Construction of VIP toilets at Chikoti, Saili, Mumba and Menga Day Secondary Schools	VIP toilets constructed & operationalized	2 VIP toilets constructed	2 VIP toilets constructed	-	-	-	-	-	Number of VIP toilets constructed & operationalized	MoE	Annually
Development Goal: To create a pool of productive entrepreneurs and enhance a pace at which new enterprises are created by 2033.												
Development Objective 7: To increase access to skills by 2033.												
	To conduct training in sustainable and entrepreneurship skills.	Students trained in various skills	300 Students trained in various skills	300 Students trained in various skills	300 Students trained in various skills	300 Students trained in various skills	300 Students trained in various skills	300 Students trained in various skills	300 Students trained in various skills	Number of students trained in various skills	Luwingu Youth Resource Centre	Annually

<p>Ensure access to quality and sustainable entrepreneurship skills for the never been and out of school youth and enhance their well-being.</p>	<p>Infrastructure Development</p>	<p>Developed infrastructure</p>	<p>Construction of one youth skills training centre</p>	<p>Construction of one youth skills training centre</p>	<p>Construction of one youth skills training centre</p>	<p>Construction of one youth skills training centre</p>	<p>Improved status of infrastructure</p>	<p>LA</p>	<p>Quarterly</p>	
	<p>Introduction of new sustainable entrepreneurship Programs /Courses/skills</p>	<p>Additional entrepreneurship programs introduced</p>	<p>2 entrepreneurship Programs introduced</p>	<p>2 entrepreneurship Programs introduced</p>	<p>2 entrepreneurship Programs introduced</p>	<p>2 entrepreneurship Programs introduced</p>	<p>2 entrepreneurship Programs introduced</p>	<p>Number of additional entrepreneurship Programs introduced</p>	<p>Luwingu Youth Resource Centre</p>	<p>Quarterly</p>
<p>Development Goal: To enhance the management and protection of natural resources for a Friendly Ecosystem by 2033.</p>	<p>Construction of staff houses at the Youth Centre</p>	<p>3 Staff house constructed</p>	<p>2 staff houses constructed</p>	<p>2 staff houses constructed</p>	<p>2 staff houses constructed</p>	<p>2 staff houses constructed</p>	<p>Number of staff houses constructed</p>	<p>Luwingu Youth Resource Centre</p>	<p>Quarterly</p>	
	<p>Construction of staff houses at the Youth Centre</p>	<p>3 Staff house constructed</p>	<p>2 staff houses constructed</p>	<p>2 staff houses constructed</p>	<p>2 staff houses constructed</p>	<p>2 staff houses constructed</p>	<p>2 staff houses constructed</p>	<p>Number of staff houses constructed</p>	<p>Luwingu Youth Resource Centre</p>	<p>Quarterly</p>
<p>Development Objective: To reduce poverty and vulnerability.</p>										
<p>Climate Change and Disaster Risk Reduction.</p>	<p>To manage solid waste in Katopola and Namukolo Wards</p>	<p>Improved solid waste treatment and disposal</p>	<p>Procurement of one waste collection vehicle</p>	<p>Construction of 3 waste collection bays</p>	<p>-</p>	<p>-</p>	<p>-</p>	<p>Increase in the tonnage of waste collected</p>	<p>LA</p>	<p>Quarterly</p>
	<p>Management of</p>	<p>Sustainable forest</p>	<p>40 forest</p>	<p>40 forest</p>	<p>40 forest</p>	<p>40 forest</p>	<p>40 forest</p>	<p>Reduction</p>	<p>DoF</p>	<p>Quarterly</p>

Development Goal: <i>To enhance the prevention of crime by 2033.</i>											
Development Objective: <i>To reduce poverty and unemployment levels.</i>											
	Skills development for the vulnerable groups	10,000 vulnerable groups trained with various skills	2000 vulnerable groups trained with various skills	2000 vulnerable groups trained with various skills	2000 vulnerable groups trained with various skills	2000 vulnerable groups trained with various skills	2000 vulnerable groups trained with various skills	2000 vulnerable groups trained with various skills	Number of vulnerable groups trained with various skills	Social Welfare/Community Development	Quarterly
To construct one more correctional facility; and Construction of more Police Posts.	Construction of Police Posts.	4 Police Posts constructed	2 Police Posts constructed	2 Police Posts constructed	2 Police Posts constructed	2 Police Posts constructed	2 Police Posts constructed	2 Police Posts constructed	Number of Police Posts constructed	Zambia Police Service	Quarterly
	Expand of the existing correctional facility	Existing correctional facility expanded	Construction of the female dormitories	Construction of the skills training centre	Construction of a health facility	-	-	-	Correctional facility expanded & operational	ZCF	Annually
	Construction of the Subordinate Court	4.5 Subordinate Court <i>constructed</i>	1 Subordinate Court constructed	-	-	-	-	-	Subordinate Court constructed & operational	LA	Quarterly

CHAPTER FIVE: CONCLUSION & RECOMMENDATIONS

5.0 Conclusion

The challenges faced by Luwingu District are indeed significant, but it is encouraging to see that efforts are being made to address these issues. The plans to improve road connectivity, expand waste management efforts, coming on board of the Rural Electrification Authority (REA), and implement the Climate Smart Agriculture program are all steps in the right direction.

Given the potential economic growth opportunities in tourism, agriculture, and mining, it is crucial for these sectors to be managed sustainably and regulated effectively to ensure that they contribute positively to the District's development. Additionally, the focus on skills training and job creation through these economic sectors could play a vital role in reducing poverty and vulnerability levels within the District.

It is clear that strong political will and continued collaboration between the Local Authority, stakeholders, and Government bodies will be essential for the successful implementation of these initiatives. With concerted efforts and effective governance, Luwingu District has the potential to overcome its challenges and pave the way for sustainable development and improved living standards for its residents.

5.1 Recommendations

Below are some of the recommendations meant to respond to a number of issues the District is faced with:

- ✧ *Continued investment in infrastructure development, particularly in road connectivity and waste management, to improve access and quality of life for residents;*
- ✧ *Strengthening of regulations and monitoring mechanisms in key economic sectors such as tourism, agriculture, and mining to ensure sustainable and responsible practices;*
- ✧ *Focus on skills training and job creation within these economic sectors to reduce poverty and vulnerability levels in the District;*
- ✧ *Continued collaboration and coordination between the Local Authority, stakeholders, and Government bodies to ensure effective implementation of development initiatives; and*
- ✧ *Continued support and funding from the Government and development partners to sustain the momentum of development efforts in Luwingu District.*

By following these recommendations and building on the progress already made, Luwingu District can continue on its path towards sustainable development and improved living standards for its residents.

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