ENGINEER MUNICIPALITY ISUDP 2024-2034

DEPARTMENT OF LANDS PHYSICAL PLANNING AND URBAN DEVELOPMENT

FOREWARD

The Integrated Development Plan (IDeP 2024-2029) for Engineer Municipality represents a significant milestone in our journey towards a more sustainable and prosperous community. Guided by our core values of transparency, integrity, social inclusion, equity, sustainability, and accountability, this plan sets out a comprehensive framework for the growth and development of our municipality over the coming years. It is closely aligned with the County Integrated Development Plan (CIDP) 2023-2027, Kenya's Fourth Medium Term Plan, and the Bottom-Up Economic Transformation Agenda among other national and international policy documents.

This plan is the result of a collaborative and inclusive process involving extensive consultation and engagement with stakeholders across the community. It reflects the diverse perspectives, concerns, and aspirations of residents, businesses, and local leaders, ensuring that the development of Engineer Municipality is responsive to the needs of all its citizens. Through careful research, analysis, and planning, we have identified priority areas for investment and development, including infrastructure, services, and social programs, all aimed at enhancing the quality of life for our community.

At its heart, this IDeP is about creating a future where Engineer Municipality is not only functional but also a place where all residents can thrive. We are committed to improving infrastructure, enhancing public services, and fostering economic opportunities, while also safeguarding the natural environment and promoting sustainability. Our vision is to build a resilient, inclusive, and vibrant community that offers equal opportunities for all, regardless of background or circumstances.

Innovation and creativity are central to this plan. By embracing new ideas and technologies, we aim to transform Engineer Municipality into a hub of progress and opportunity, where entrepreneurship flourishes and residents can enjoy a higher standard of living. We also recognize the importance of preserving our environment and natural resources, ensuring that future generations will inherit a municipality that is healthy, sustainable, and filled with opportunity.

As we embark on this journey, we invite all residents, businesses, and stakeholders to join us in realizing the vision outlined in this plan. Together, we will create a brighter, more prosperous, and sustainable future for Engineer Municipality.

TABITHA WAMBUI

CHAIRPERSON –ENGINEER MUNICIPALITY BOARD

ACKNOWLEDGEMENT

I would like to extend my deepest appreciation to all those who contributed to the preparation of the Integrated Development Plan (IDeP) for Engineer Municipality, 2024-2029. This comprehensive plan, which outlines a clear roadmap for the development and sustainability of our municipality, is a testament to the dedication, collaboration, and shared vision of many individuals and organizations.

First and foremost, I express my sincere gratitude to His Excellency, the Governor of Nyandarua County, Moses Kiarie Badilisha. His visionary leadership and unwavering support were crucial in guiding this process from inception to completion. The Governor's steadfast commitment to the advancement and development of Engineer Municipality provided the foundation upon which this plan was built. His leadership continues to inspire our collective efforts towards a better future.

I also extend my profound thanks to the Engineer Municipal Board, whose invaluable insights, counsel, and direction helped shape the IDeP into a responsive and future-oriented document. Special mention to Engineer Municpal Board Members led by the Chairperson; Tabitha Wambui, Vice Chairperson; Samuel Kimani, Julie Gachiku, Martin Mwangi, and David Kinyanjui. Their dedication to ensuring that the plan aligns with the needs and aspirations of the residents of Engineer Municipality is greatly appreciated.

Special mention goes to County Directors Physical Planning and Survey & Mapping Directorates Rachel Mugo and Samuel Kamau who collaboratively spearheaded the team from the Department of Lands, Physical Planning, and Urban Development in preparation of this particular document. I would like to specifically appreciate the unrelentless efforts by the County Physical Planning Officers inclusive of Job Mang'ara, Benson Thuku, Eunice Kamau, Philip Wachira, Catherine Maina, Samson Mwaura, Solomon Githinji, Ann Gatere, Donatus Karuiru, and Jesse Ngatia. I also recognize the efforts of Surveyors; Henry Ngaruiya, Oscar Muiruri, Peter Ndirangu, Joe Wanyoike and Francis Manene for their invaluable input. It's also noteworthy the efforts of the Economist; Daniel Waweru and Engineer Municipality Accountant; Ruth Wangui for their contribution and guidance throughout the development of the plan. Special appreciation to the drivers; Joseph Mucira, Josiah Kimotho, Dedan Kimathi, and Paul Chege who offered dedicated services in ferrying officers during data collection among other key activities.

Finally, I would like to express my gratitude to all the stakeholders and residents whose input, knowledge, feedback and active engagement significantly enriched the IDeP. Your active participation ensured that this plan truly reflects the diverse perspectives of our community. Together, we will build a resilient, inclusive, and prosperous future for our beloved municipality.

NJOKI GATUHI
MANAGER –ENGINEER MUNICIPALITY

ACRONYMS AND ABBREVIATIONS

AP - Administration Police
CBD - Central Business District
CBD - Central Business District
CBD – Central Business District
CIMES: County Integrated Monitoring and Evaluation System
EAC – East Africa Community
ECDE - Early Childhood Development Education
GIS - Geographic Information System
ICT - Information and Communication Technology
IDeP: Integrated Development Plan
KM – Kilometer
Ksh - Kenyan Shillings
M&E: Monitoring and Evaluation
MSME – Micro, Small, and Medium Enterprise
MTEF: Medium-Term Expenditure Framework
NIMES: National Integrated Monitoring and Evaluation System
NMT - Non-Motorized Transport
PPP - Public-Private Partnership
PSV - Public Service Vehicle
SACCOs – Savings and Credit Cooperative Organizations
SDGs – Sustainable Development Goals
TV: Television
UN – United Nations
VTC - Vocational Training Centre

EXECUTIVE SUMMARY

The plan is divided into seven chapters as outlined below:

Chapter one gives a contextual background of Engineer Municipality highlighting its location and topographic conditions among others.

Chapter two provides the linkages to other policy documents and legal provisions. It explores linkages with international and local policy framework, as well as legal provisions of various aspects of socio-economic development to ensure sustainability and coherence.

Chapter three delves into the situational analysis of the Municipality. It provides an environmental scan of the Municipality in various aspects inclusive of health, economic stability, and social infrastructure accessibility by municipal residents

Chapter four explains the municipal administration and institutional framework while chapter five outlines the Municipal Strategic Direction, mission, vision, and goals.

Chapter six identifies sector programmes and their accompanying projects to address the municipal needs and gaps. Chapter seven gives details on the implementation framework appropriating costs to individual projects aggregating to specific programmes. The chapter also explores resource mobilization strategies necessary to fund the projects and resource management practices.

Chapter eight covers monitoring, evaluation, and reporting framework for tracking the implementation progress of the IDeP. It gives strategies for quarterly, annual, midterm and end-term reviews for programmes implementation. Together let's make Engineer Municipality a sustainably livable place.

Contents

CHAPTER ONE: INTRODUCTION AND PLANNING CONTEXT

1.0 Urbanization in Kenya

Developing countries are among the least urbanized in the world but are currently experiencing the highest rate of urbanization. Rapid urbanization in developing countries is provoking profound socio-economic change and posing serious environmental challenges. This is particularly true in Eastern Africa generally and Kenya in particular. Kenya has witnessed rapid urbanization over the last six decades, a phenomenon that has led to the proportion of Kenyans living in the urban areas rising from 5.1 % in 1948 to an estimated 39 % in 2009. By 2009, there were about 15.2 million Kenyans residing in urban areas. This high rate of urbanization is projected to continue at a rapid pace. Kenya's five largest cities (Nairobi, Mombasa, Kisumu, Eldoret, and Nakuru) are home to about 34 % of the urban population.

It is important to observe that these cities are home to the highest population of slum dwellers. A case in point is Nairobi City where 60 % of the residents dwell in slums and only occupy about 5% of the city's total land mass. The inability of local authorities and governmental agencies to cope with unprecedented housing needs of the urban dwellers has resulted into development and proliferation of urban slums and informal settlements with appalling living conditions and lacking even the most basic social infrastructure and public facilities required for human health and survival for instance potable water, sanitation, education and transport. It is estimated that urban areas will account for 54% of population or 23.6 million people by 2030.

1.1 Urbanization in Engineer Municipality.

The level of urbanization in Engineer Municipality is low. However, the municipality is rapidly urbanizing due to migration of people from rural to urban areas, physical expansion of urban areas and arrival of more people posted or transferred to the municipality to offer services in both public and private sector. The level of urbanization is currently placed at 32%. The major urban areas in the county include: Engineer, Murungaru, Ndunyu Njeru, Weru and Munyaka.

1.2 Plan Rationale

Government (GoK, 2008) revealed that only 30% of towns in Kenya are planned. This implies that physical development in 70% of the towns takes place without any framework for coordinated development. This explains why most towns in Kenya are in chaotic situation (proliferation of informal settlements, environmental degradation, inefficient transport systems, scarce employment opportunities, land use conflicts, spiraling urban poverty and insecurity, energy poverty, food insecurity; among others).

Preparation of Integrated Strategic Urban Development Plans (ISUDPs) for Engineer Municipality is consistent with Kenya Vision 2030. This is a deliberate effort by Nyandarua County Government to achieve sustainable development through well-planned and coordinated urban development. Urban areas are focal points for socio-economic development.

Currently, there is no urban center within the municipality with an existing spatial plan hence preparation of these plans is long overdue. These urban centers have no basis for approving development applications. The desire to have the centres planned was

expressed way back by the former local authorities this could not be done due to lack of resources.

In addition, the areas covered in the ISUDP are more vibrant as far as economic pursuits are concerned. This is observable through high rates of sub-divisions, intensive building developments for both commercial and residential uses and their close proximity to major roads.

The plan endeavors to provide opportunities for wealth creation and employment by allocating space for socio-economic activities such as housing, and small and medium-scale enterprises (SMEs), among others. To attract investors to the municipal, the county government has to urgently plan the urban centers and provide to investors with serviced land. These plots are crucial for development as they can be used to construct stalls for small-scale jua-kali entrepreneurs as part of their poverty reduction strategies.

Preparation of ISUDPs for all urban areas benefited from new planning principles including: promotion of sustainability; participatory; multi-disciplinary approach; pro-poor and inclusivity; integrative; market responsiveness; and cultural diversity. Further, the interactive and iterative planning process was informed by a triple helix philosophy of *Green, Dense and Fair.* Densification is promoted in order to leave adequate space for agriculture and green infrastructure. Fairness is also promoted to ensure that the ranges of services provided are enjoyed by all including the marginalized and vulnerable groups.

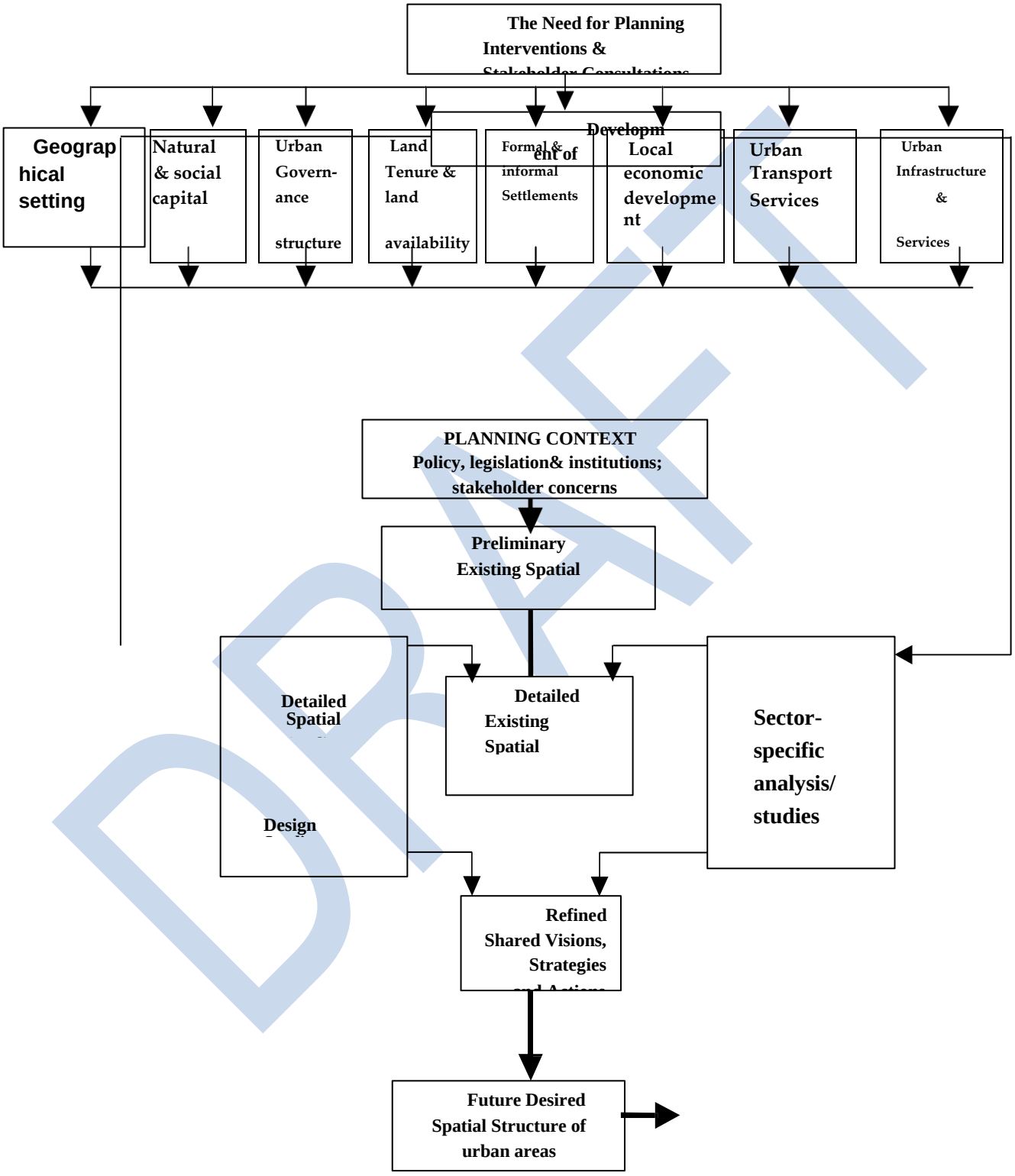
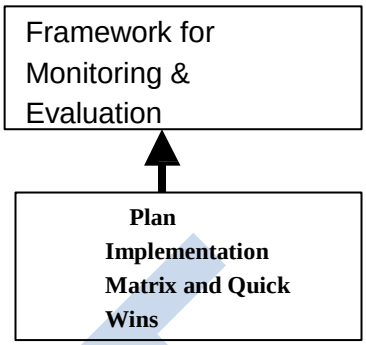


Figure 1. Conceptual framework


Framework for Monitoring & Evaluation
Plan Implementation Matrix and Quick Wins

1.3 Vision statement

"A well-governed, economically vibrant, socially inclusive, and a livable municipality"

1.4 Objectives of the Plan

Towns of the future should build infrastructure and urban spaces where life thrives, and the most common problems are addressed. The purpose and objective of the ISUDP are to:

i). Provide a basis for physical and social infrastructure provision for present and projected population during the 10 years of the plan period and beyond.

ii). Examine demographic changes in the last ten years and those projected over the life of the plan, and analyze how they relate to economic changes, welfare, and administrative shifts.

iii). Identify environmental issues and concerns affecting the planning area and propose strategies to address them.

iv). Identify development potentials of the planning area.

v). Provide a basis for development control and investment decisions.

vi). Allocate sufficient spaces for various land uses and ensure efficient function, user convenience and flexibility to accommodate future growth.

vii). Promote and enhance safety and security.

viii). Uphold innovative civic and urban design that enhances the character and form of the planning area.

ix). Preserve cultural and heritage sites.

x). Develop implementation plans and monitoring framework.

1.5 Justification of the Plan

The preparation of Engineer Municipality ISUDP is happening at a time when the Municipality is experiencing rapid growth due to transformation into a county headquarters and municipality status. This new prominence has also witnessed population increase and hence the need come up with planning framework which will provide planning and development guidance in meeting the current and future needs of the people, and the functions of the Municipality.

The Municipality's planning and management functions are being carried without a current Plan to guide sustainable development. The Municipality still relies on the

outdated approved Development Plan of 2000. Lack of an updated framework to guide development has led to inadequate infrastructure provision with regard to water supply sanitation, solid waste management and storm water drainage; inadequate housing and social amenities; urban poverty and unemployment; presence of unplanned residential neighbourhoods and mushrooming of slums and informal settlements, uncontrolled subdivision and land use conversion, land tenure insecurity and double allocation and grabbing of public land. Other challenges facing

Engineer Municipality include low economic growth in trade, commerce and industry, low revenue collection leading to inadequate service delivery.

The legal provision for the preparation of Engineer Municipality spatial plan is provided by the Constitution of Kenya 2010, Physical and Land Use Planning Act 2019, the County Governments Act 2012, Urban Ares and Cities Act 2011. In addition to these legal provisions this plan will identify priority programmes that will drive Engineer Municipality into a well-planned municipality that will take advantage of being a county administrative headquarters, a commercial, transportation and manufacturing hub, taking into account its rich agricultural hinterland hence strengthening rural- urban linkages. The plan will also provide strategies on how to improve municipal revenue generation, enhance governance and administrative systems, leading to better delivery of services and citizenry engagement.

The proposed plan will take in cognizance the existing development trends, structuring elements, and the aspiration of the stakeholders to define the next path of growth of the Municipality. The plan will come up with a legal and policy institutionalization framework that will guide the plan implementation, optimal utilization of land, equitable provision of physical and social infrastructure and amenities to meet the current and future needs of the town within the planning horizon. To enhance the form and character of the town, the plan will incorporate innovative urban design concepts that will give the town unique identity. This plan is therefore seeking to make Engineer Municipality a Municipality whose development is based on balanced social, economic, and environmental considerations.

1.6 Guiding principles

Preparation of the integrated strategic urban development plans for Engineer Municipality benefited from the following principles:

- Promote sustainable development
- Achieve integrated planning
- Integration between plans and budgets
- Planning with partners and stakeholders
- Promote market responsiveness
- Equity and inclusivity
- Ensure access to land
- Be pro-poor and inclusive
- Recognize cultural diversity
- Climate change responsive planning

1.7 Methodology

The methodology for preparing the plan entailed several key stages, ensuring a comprehensive and participatory process. The stages are as outlined below.

Phase I: Inception

- Meeting with the client and county officials
- Reconnaissance of the planning area
- Advertisement for the notice of intention to plan
- Preparation of Inception Report
- 1st public participation (Visioning and Objective Setting Workshop)
- Stakeholder analysis

Phase II: Situational Analysis

- Literature review
- Field data collection
- Data analysis
- Preparation of a Situational Analysis Report
- 2nd Public participation

Phase III: Preparation of Development Proposals and final Integrated Strategic Urban Development Plans

- Preparation of Structure plans for Engineer Municipality
- Preparation of area action plans for other urban centers
- Preparation of land use guidelines and planning standards
- Validation workshop with Engineer Municipality Board
- Preparation of Final Urban Plans
- Publication of the notice of completion

Phase V: Circulation, Approval and Publication

- Circulate to Director General for comments
- Submission to Engineer Municipality Board for adoption
- Submit to County executive for adoption
- Forwarded to the county assembly for approval
- Publication of the notice of approval
- Public launch

Phase VI: Implementation, Monitoring and evaluation

2.0 Planning Context

2.1.A Overview

This chapter reviews the planning framework for Engineer Municipality. It highlights its geographical context, the history of its planning and development, and the methodology used to prepare the plan. The process is detailed from initiation to the approval stage.

2.1.B National Context

Engineer Municipality is situated in Nyandarua County, which spans an area of 3,246 km² in central Kenya. The county lies between latitude 0°8′ North and 0°50′ South and longitude 35°13′ East and 36°42′ West.

As outlined in the National Spatial Plan 2015-2045, Nyandarua County is classified as a high-potential agricultural zone, with opportunities in agriculture, tourism, irrigation, dairy production, and urbanization. It is bordered by Nakuru County to the west, Kiambu County to the south, Nyeri and Murang'a counties to the east, and Laikipia County to the north. Strategically located near the Lamu-Lodwar and Mombasa-Malaba national corridors and approximately two hours from Nairobi, the county holds significant prospects for development.

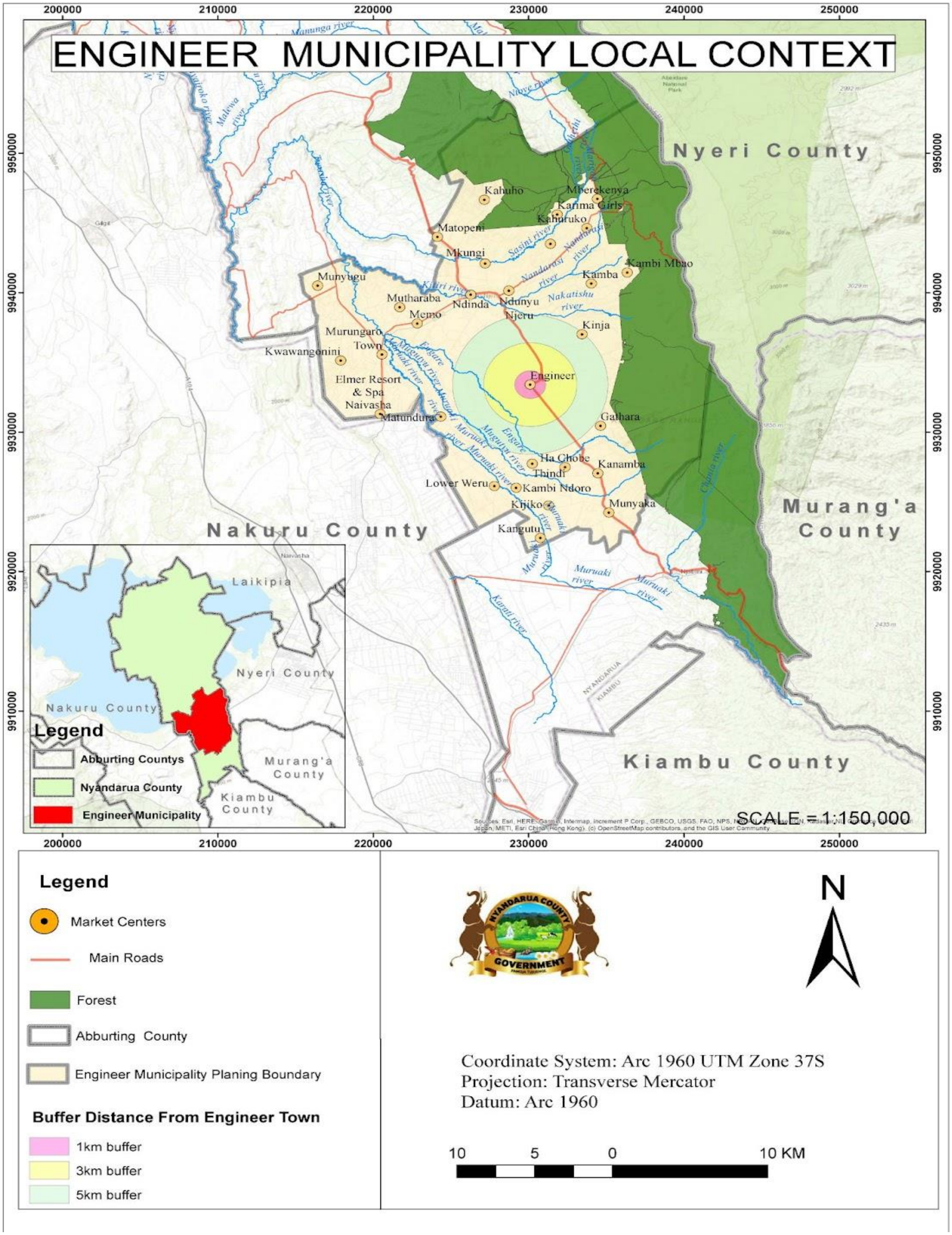
2.1.C Regional Context

Regionally, Nyandarua County is part of the Central Region Economic Bloc (CEREB), which includes nine other counties: Nakuru, Kiambu, Murang'a, Kirinyaga, Embu, Tharaka Nithi, Meru, Nyeri, and Laikipia. CEREB was established to harness economies of scale and ensure coordinated implementation of projects and programs. For Engineer Municipality and Nyandarua County, this integration facilitates efficient transportation of people, goods, and services while also providing a ready market for agricultural and other products, as most of these counties are within a 100-kilometer radius.

2.1.D Local Context

Locally, Engineer Municipality is situated within Kinangop constituency/sub-county, one of the five

constituencies/sub-counties in Nyandarua County. It encompasses key areas such as Ndunyu Njeru, Magumu, Njabini, and other nearby centers. The municipality covers an approximate area of 364.66 km², with natural features such as the Sasumua River defining its boundaries.


ENGINEER MUNICIPALITY LOCAL CONTEXT
200000
210000
220000
230000
240000
250000
9950000
9940000
9930000
9920000
9910000
Nyeri County
Nakuru County
Murang'a County
Kiambu County
Kahuho
Mberekenya
Karima Girls
Kahuruko
Matopeni
Mkungi
Kambi Mbao
Kamba
Munyugu
Mutharaba
Ndinda
Ndunyu Njeru
Memo
Kinja
Murungaru Town
Kwawangonini
Engineer
Elmer Resort & Spa Naivasha
Matundura
Gathara
Ha Chobe
Thindi
Kanamba
Lower Weru
Kambi Ndoro
Kijiko
Munyaka
Kangutu
Sasini river
Nandarasi river
Nakatishu river
Kitiri river
Engare river
Muruaki river
Karati river
Chania river
Malewa river
Laikipia
Nyeri County
Nakuru County
Murang'a County
Kiambu County
Legend
Abburting Countys
Nyandarua County
Engineer Municipality
SCALE = 1:150,000
Legend
Market Centers
Main Roads
Forest
Abburting County
Engineer Municipality Planing Boundary
Buffer Distance From Engineer Town
1km buffer
3km buffer
5km buffer
NYANDARUA COUNTY
GOVERNMENT
N
Coordinate System: Arc 1960 UTM Zone 37S
Projection: Transverse Mercator
Datum: Arc 1960
10
5
0
10 KM

Strategically located about 10 km west of the Aberdare Ranges, approximately 40 km east of Nakuru City, and around 160 km from Nairobi, the capital city, Engineer serves as a vital hub for the region. It is home to key facilities such as the Kinangop Level IV Hospital, Sasumua Dam, and several hospitality establishments, including Kinangop Lodge, Engineer Resort, and Aberdare Gardens. As an emerging urban center, it also hosts various county and national government offices, making it a critical administrative and economic node within Nyandarua County.

2.1.E History and Previous Planning Interventions

The history of Engineer Municipality is deeply rooted in its strategic location, agricultural significance, and colonial-era developments. Initially home to the Maasai community, the area's name is attributed to British engineers who developed critical infrastructure during the colonial period. Its fertile soils and favorable climate attracted settlers, and in 1903, Sir Charles Elliot, then commissioner for white settlers, identified it as ideal for European settlement. By 1911, the Maasai were relocated, and European settlers acquired the land, transforming it into a hub for mixed commercial farming. This success drove the establishment of infrastructure such as roads, water systems, and the Sasumua Dam, which supported agriculture and trade.

After independence, the land was subdivided and redistributed through government settlement schemes, enabling African families to take ownership. Over time, Engineer Municipality evolved into a center for agriculture, trade, and governance. Between 2001 and 2021, its urban footprint expanded nearly ninefold, driven by a robust national economy in the early 2000s, increased land development, and population growth. The 2010 Constitution further accelerated this transformation by introducing devolution, which allocated more resources to counties. These funds boosted infrastructure, public services, and private investments, enhancing the municipality's development.

Today, Engineer Municipality combines its rich historical legacy with modern advancements. Strategically located near the Aberdare Ranges and connected to key urban centers like Nakuru and Nairobi, it serves as a vibrant hub for agriculture, commerce, and administration. Key landmarks include the Kinangop Level IV Hospital, Sasumua Dam, and various hospitality establishments. The

municipality continues to drive progress within Nyandarua County, balancing its historical roots with its role as a dynamic urban center.

The 1964 Engineer Approved Development Plan

The currently approved development plan for Engineer Municipality was formulated in 1964. Since then, planning has been carried out in a fragmented manner, involving amendments to Market Centers' Part Development Plans (PDPs), subdivisions, and changes or extensions of land use. These ad hoc processes have led to land use conflicts, hindering effective planning and development management. The outdated plan now falls short of addressing current needs and only covers a small area of 7.36 km², compared to the municipality's total area of 364.7 km², highlighting the urgent need for a comprehensive and updated planning framework.

Other planning efforts initiated include (proposed plan----------???? Covering an approximated area of 25.24km² -

2.5.3 County Intitiated Plans

Several planning initiatives led by the county include the Nyandarua County Spatial Plan 2020–2030 and the County Integrated Development Plans (CIDPs) for 2014–2018 and 2018–2022.These plans aim to guide and coordinate sustainable development efforts across various regions within the county.

2.5.3.1 Nyandarua County Spatial Plan (CSP) 2020 – 2030

This 10-year plan aspires to create a competitive, prosperous, and well-governed nation with a transformative economy driven by tourism, agro-processing, services, and robust infrastructure. The County Spatial Plan (CSP) proposed establishing municipalities such as Ol'Kalou, Engineer, and Mairo Inya to better distribute activities and populations within Nyandarua County's jurisdiction. It aims to achieve this by fostering sectoral coordination and enabling more detailed, localized planning efforts.

2.5.3.2 Nyandarua CIDP 2023-2028,

These are four-year capital investment plans designed to promote sustainable development that is fair, transparent, and inclusive of all regions and residents of Nyandarua County. They outline the county's priority projects and specify the allocation of funds to ensure these initiatives are effectively implemented

CHAPTER TWO: POLICY AND LEGAL FRAMEWORK LINKAGES

2. Overview

Planning is a versatile undertaking interweaved in application of different policies; institutions and stakeholder involvement; legislation and citizen participation in the entire process. Therefore, this plan has been primed within the context of: The Constitution of Kenya; Physical and Land Use Planning Act, No. 13 of 2019; Urban Areas and Cities Act, No. 3 of 2019; Kenya Vision 2030; SDGs, and other relevant legal and policy frameworks as discussed within this chapter.

2.1. Legal Framework

2.1.1. Constitution of Kenya, 2010

The Constitution of Kenya, 2010 provides the overarching legislation that guided the preparation of this Plan. Through the objects of a devolved system of government, the Constitution places planning functions both at the national and county levels. Pursuant to the Fourth Schedule of the Constitution, the national government is mandated to formulate the general principles of land use planning and co-ordinate planning by the counties. In turn, counties are in charge of preparing county and urban area physical an d land use plans and carry out development control within their areas of jurisdiction.

Pursuant to Article 10 of the Kenya Constitution (2010), the preparation of this Plan has been guided by the spirit of participation of the people, human dignity, equity, social justice, inclusiveness, equality, human rights, non-discrimination, and protection of the marginalized with the overall goal of attainment of sustainable development.

With regards to achieving the objectives of Article 60 of the Constitution, this Plan has observed and achieved various principles achieved such as (a) security of land rights; (b) sustainable and productive management of land resources; and (c) sound conservation and protection of ecologically sensitive areas such as forests, swamps, and wetlands.

Subject to Article 66 of the Constitution of Kenya, this Plan is being prepared under the supervision of the Engineer municipal board and the Department of Lands Physical Planning and Urban Development in a bid to support the overall state mandate of regulating the use of any land, or any interest in or right over any land, in the interest of defence, public safety, public order, public morality, public health, or land use planning.

Lastly, the overall implementation of this Plan will be overseen and monitored by the National Land Commission (NLC) established under Article 67. Other functions to be performed by NLC with regards to the implementation of this Plan include amongst others: to manage public land on behalf of the County Government of Nyandarua; to conduct research related to land and the use of natural resources, and make recommendations to appropriate authorities.

2.1.1. County Governments Act No. 17 of 2012

The County Governments Act 2012 mandates the County Governments to prepare county plans which include "cities and urban areas plans," amongst others. The said Act provides that the "county planning framework shall integrate economic, physical, social, environmental and spatial planning" (Article 104(2)). The key principles of planning and development facilitation require the integration of national policies and plans in all processes and concepts, and further serve as a basis for engagement between county government and its citizens, other stakeholders, and interest groups. Other relevant sections of this Act to the preparation of this ISUDP include:

- Section 102 (c) and 103 (f) that provide for the protection and integration of the rights and interest of minorities and marginalized groups and communities and the integration of under-developed and marginalized areas to bring them to the level generally enjoyed by the rest of the Country; and
- Section 103 (i) that provides for the achievement and maintenance of a tree cover of at least ten per cent of the land area of Kenya as provided in Article 69 of the Constitution.

2.1.2. Physical and Land use Planning Act No. 13 of 2019

This Act regulates physical planning activities in Kenya. It empowers County Governments to regulate development within their areas of jurisdiction. Further, it empowers the Director of Physical Planning to prepare various types of physical and land use development plans. In addition, the Director formulates National, Regional and Local Physical development policies, guidelines, and strategies. Under Article 20 of this Act, the County Director of Physical and Land Use Planning's responsibilities include: advising the County Government on physical and land use planning matters that impact the County; formulating County physical and land use planning policies, guidelines and standards; preparation of County physical and land use development plans; and preparation of local physical and land use development plans. The Director also participates in the preparation of inter-county physical and land use development plans and carries out research on matters relating to physical, and land use development planning at the County level. In addition, the Director makes recommendations to the County Government on the establishment of planning units

as may be necessary. The Act also stipulates the responsibility of the Director's office in maintaining the County land information system to guide physical and use planning; communicate decisions of the County Government on development applications, and issue development permissions and other development control instruments with the approval of the County Executive Committee Member.

Article 36 of the Act mandates each County to develop a 10-year physical and land use development plan. The plan should be in conformity with the National Physical and Land Use Development Plan and any relevant Inter-County Physical and Land Use Development Plan. According to Article 37 of the Act, the plan should provide an overall physical and land use development framework for the County; guide rural development and settlement; provide a basis for infrastructure and services delivery and direct the use and management of natural resources. In addition, the plan should enhance environmental protection and conservation; identify the proper zones for industrial, commercial, residential and social developments; improve transport and communication networks and linkages, and promote the safeguarding of national security amongst other purposes that may be determined by the planning authority. This Act lends guidance to the development of the contents of structure plans, development plans, advisory plans, zoning plans, and subdivision plans amongst other plans. The Act also stipulates the plan preparation and approval processes. Article 56 of the Act empowers the Nyandarua County Government to prohibit or to control the use and development of land and buildings in the interests of proper and orderly development of its area and to review development applications and grant development Permissions.

2.1.1. Urban Areas and Cities Act 2019

This Act establishes a legislative framework for the classification of areas as urban areas or cities, their manner of governance and management including the participation of residents. It also provides that Town Committees should "formulate and implement an integrated development plan" (Article 20(2-c)) as well as "control land use, land sub-division, land development and zoning within the framework of the spatial and master plans for the (town) as may be delegated by the County Government (Article 20(2-d))." The integrated development plan "shall bind, guide and inform all planning development and decisions and ensure comprehensive inclusion of all functions" (Article 36(2).

2.1.2. Environment Management and Co-ordination Act (EMCA) (Amendment) of 2015.

This ISUDP seeks to ensure that every person has a clean and healthy environment and has the duty to safeguard and enhance the environment pursuant to Section 3 of Environment Management and Co-ordination Act (EMCA) (Amendment) of 2015.

The entitlement to a clean and healthy environment in this ISUDP has included access by any person to various public elements or segments of the environment for recreational, educational, health, spiritual and cultural purposes. Other regulations that stem from EMCA (Amendment) Act of 2015 which have been considered during the preparation of this ISUDP include Environmental (Impact Assessment and Audit) Regulations, 2003 Waste Management Regulations, 2006 Water Quality Regulations, Wetlands, Riverbanks, Lake Shore and Sea Shore Management Regulations, 2009 (Legal Notice No. 19).

Table 2-1: Other related Planning legislative frameworks

Law	Purpose
The Kenya Roads Act, 2017	• To provide for the classification, management, construction, and maintenance of public roads;
The National Land Commission Act, 2012	• To make further provision as per the functions and powers of the National Land Commission, qualifications and procedures for appointments to the Commission; to give effect to the objects and principles of devolved government in land management and administration and for connected purposes.
The Dairy Industry Act, Cap 336	• To provide for the improvement and control of the dairy industry and its products.
The Special Economic Zones Act, 2015	• To provide for the establishment of special economic zones; the promotion and facilitation of global and local investors; the development and management of enabling environment for such investments, and for connected purposes.
Water Act (2002)	• Provide guidelines on plan proposals touching on management, conservation, use and control of water resources, water supply, and sewerage services.
Agriculture, Fisheries and Food Authority (2013)	• Provides the confines within which to make proposals on agriculture promotion and conservation of soils and fertility for sustainable agriculture and optimization of land use.

Source: Planning team, 2024

2. Policy Framework

2.1. Kenya Vision 2030

As the country's development blueprint covering the period 2008-2030, Kenya Vision 2030 aims to achieve a "globally competitive and prosperous country with a high quality of life by 2030." In support

of this vision (economic pillar), Engineer ISUDP seeks to increase the level of value addition of local agriculture products such as Potatoes, cereals, seedlings, milk, feeds, and horticulture. Value addition of agricultural produce shall increase the farmers' earnings and therefore enhance their livelihoods. In addition, manufacturing for the East and Central African regional market shall be made possible through export production approach thus increasing the country's foreign exchange earnings. Moreover, Vision 2030 puts forward proposals in with promotion of information and communications technology (ICT), gender balance and catering for persons with disabilities. All these aspects have been observed in the ISUDP through provisions for all socio-economic groups and the people with disabilities both through access to economic activities and social rights.

2.2. Sustainable Development Goals

SDGs is a global framework consisting of 17 goals drawn from a shared common universal vision of progress towards a safe, just and sustainable space for all human beings to thrive on the planet. Further goal 11, Sustainable cities and communities, advocates making cities and human settlements inclusive, safe, resilient and Sustainable by creating jobs and business opportunities, safe and affordable housing, and building resilient societies and economies. Moreover, urban areas can be made sustainable by investing in public transport, creating green public spaces, and improving urban planning and management in participatory and inclusive ways.

2.3. National Environment Policy, 2013

With regards to the provisions of the National Environment Policy, 2013, the ISUDP recognizes the importance of the link between development and sustainable environment by:

2.1.1 Addressing environmental degradation issues and challenges facing the Municipality. Notable drivers of environmental degradation are high population growth rate, inappropriate technology, unsustainable consumption and production patterns, and increased incidences of poverty and climate change.

2.1.2 Providing a framework for an integrated approach to planning and sustainable

management of Kenya's environment and natural resources.

2.1.3 Ensuring sustainable management of the environment and natural resources, such as unique terrestrial and aquatic ecosystems, for both county and national economic growth and improved livelihoods.

2.1.4 Promoting and enhancing cooperation, collaboration, synergy, partnerships

2.1.5 Participation in the protection, conservation, sustainable management of the environment and natural resources.

2.4. Sessional Paper No. 3 of 2009 on National Land Policy

Sessional Paper No. 3 of 2009 on National Land Policy provides an overall framework and defines the key measures required to address, amongst others, the critical issues on land, land use planning, environmental degradation, conflicts and unplanned proliferation of informal urban settlements, outdated legal framework, institutional
framework and information management. In tandem with the provisions of this policy, the Engineer ISUDP has promoted and encouraged multi-sectoral approach to land use, provision of social, economic and other incentives and put in place an enabling environment for investment, agriculture, livestock development and the exploitation of natural resources.

2.5. Sessional Paper No. 1 of 2017 on National Land Use Policy

This policy emphasizes the importance of land as a resource for the economic life of a majority of people in Kenya. The way people handle and use land resource is decisive for their social and economic well-being as well as for the sustained quality of land resources. In tandem with this policy, the Engineer ISUDP seeks to strike a balance between satisfying the human livelihood needs and sustainable use of resources for posterity. This has been taken into consideration in the ISUDP through:

- Anchoring the Engineer Municipality's land development initiatives that will
  respond positively to market demands;
- Environmental management and sustainable production initiatives in the utilization of land resources;
- Coordination and integration of institutional linkages in planning at sectoral and cross-sectoral levels to foster collaboration and decision making amongst different land users; and
- Optimum utilization of land resources to meet governance, socio-economic, political, and cultural obligations of the people of the County and Kenya at large.

CITE ORIGINAL POLICY DOCUMENTS

Table 3-2: Relevant Policies

Policy	Purpose
National Information & Communications Technology (ICT) Policy, 2016	Seeks to improve the livelihoods of Kenyans by ensuring the availability of accessible, efficient, reliable, and affordable ICT services.
National Climate Change Response Strategy, 2010	Seeks to strengthen and focus nationwide actions towards climate change adaptation and greenhouse gas emission mitigation.

Energy Policy, 2012	Seeks to ensure adequate, quality, cost-effective, and affordable supply of energy to meet development needs while protecting and conserving the environment.
National Urban Development Policy (outline in chapter)	Creates a framework for sustainable urban development in the country and addresses the following thematic areas: urban national and county urban planning; land, environment and climate change; social infrastructure and services; physical infrastructure and services; urban housing; urban safety and disaster risk management; and marginalized and vulnerable groups

National Land Use Policy	The policy provides a framework for regulating the use, development and management of land and land related resources in Kenya for, productivity, sustainability and efficiency.
National Spatial Plan	The policy provides a national framework for utilization of land in the country. It clusters various parts of the country based on their potentiality, which can be exploited to spur equitable development. It also provides a functional strategy for human settlement by among others identifying the diverse roles the human settlements play. It identifies programs and projects to be implemented through the County Spatial Plans.
The National Water Services Strategy (2007-2015)	The objective is to provide an effective and efficient response to the challenges facing water service provision in the country. To ensure sustainable access to safe water and basic sanitation to all Kenyans.
Flood Mitigation Strategy, 2009	It aims at stipulating national goals, objectives and actions to reduce the vulnerability of this country to effects of floods. The strategy, not only deals directly with the flood hazard, but also has strong links with national social, economic and other development policies since the disasters caused by floods result into a complex-interactions between social, economic, political and environmental processes.
National Agribusiness Strategy, 2012	The strategy's vision is to bring about a highly productive and efficient agribusiness sector, competitive both locally and internationally. It will help the agricultural sector move from a focus on subsistence to a focus on meeting market and commercial demand
National Agriculture Sector Strategy 2012 - 2016	This seeks to reduce food insecurity, mostly using a twin-track approach. Key elements are: to expand production in non-irrigated agriculture, finding the better varieties for rain-fed agriculture that are both drought and salinity resistant; to establish and support private sector industry for seeds and nursery material quality, providing farmers with improved varieties of seeds;

Source: Urban Lines Consultants Ltd, 2022

CHAPTER THREE: BASEMAP, PHYSIOGRAPHY, ENVIRONMENT AND NATURAL RESOURCES.

3. Overview.

This chapter describes the municipality's physiographic characteristics such as topography, soil and rock types, climate and their implication on the planning area. The chapter further analyses the environment and natural resources including threats posed to these resources. At the end, the chapter analyses the potentials that may be harnessed for the good of the municipality and county at large.

3.1. BASEMAP.

The base map is an important component during any planning process as it is the basis upon which planning decisions are made. The base map was prepared in a GIS environment and its analysis spread out within the geographic extents of the defined structuring elements.

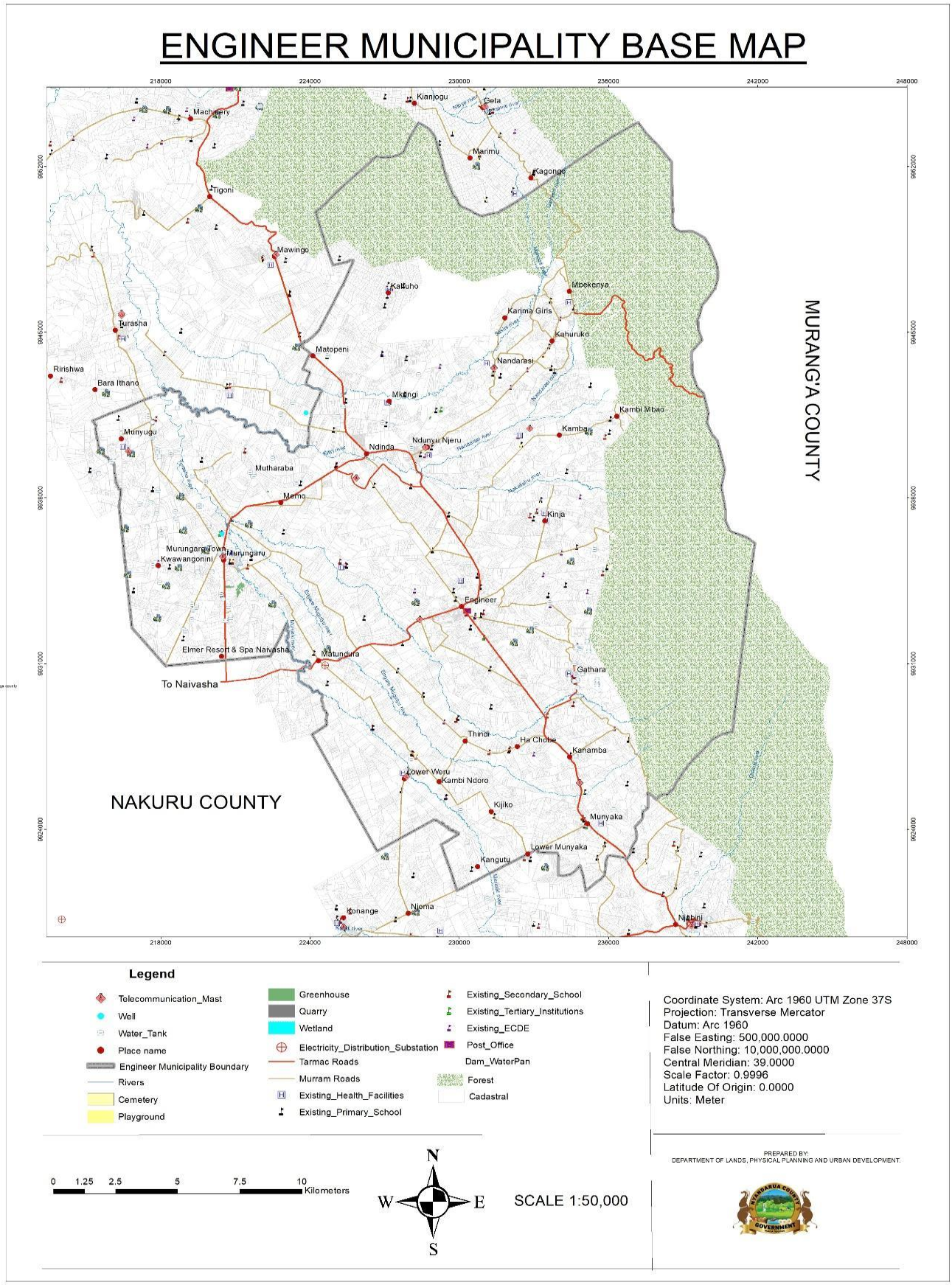
These key structuring elements include but not limited to topographic features, transportation networks, water bodies, key physical and social facilities, major landmarks, and political and administrative boundaries.

The base map contains the following spatial data:

· Resource mapping: rivers & waterways, dams

· Land use & economic activities: Tree cover and commercial centres

· Infrastructure and utilities: road network, water reticulation, power station, boreholes, and other stations.



Map 1. Base Map. Source: Planning team, 2024

3.2. Physiography, Environment and Natural Resources

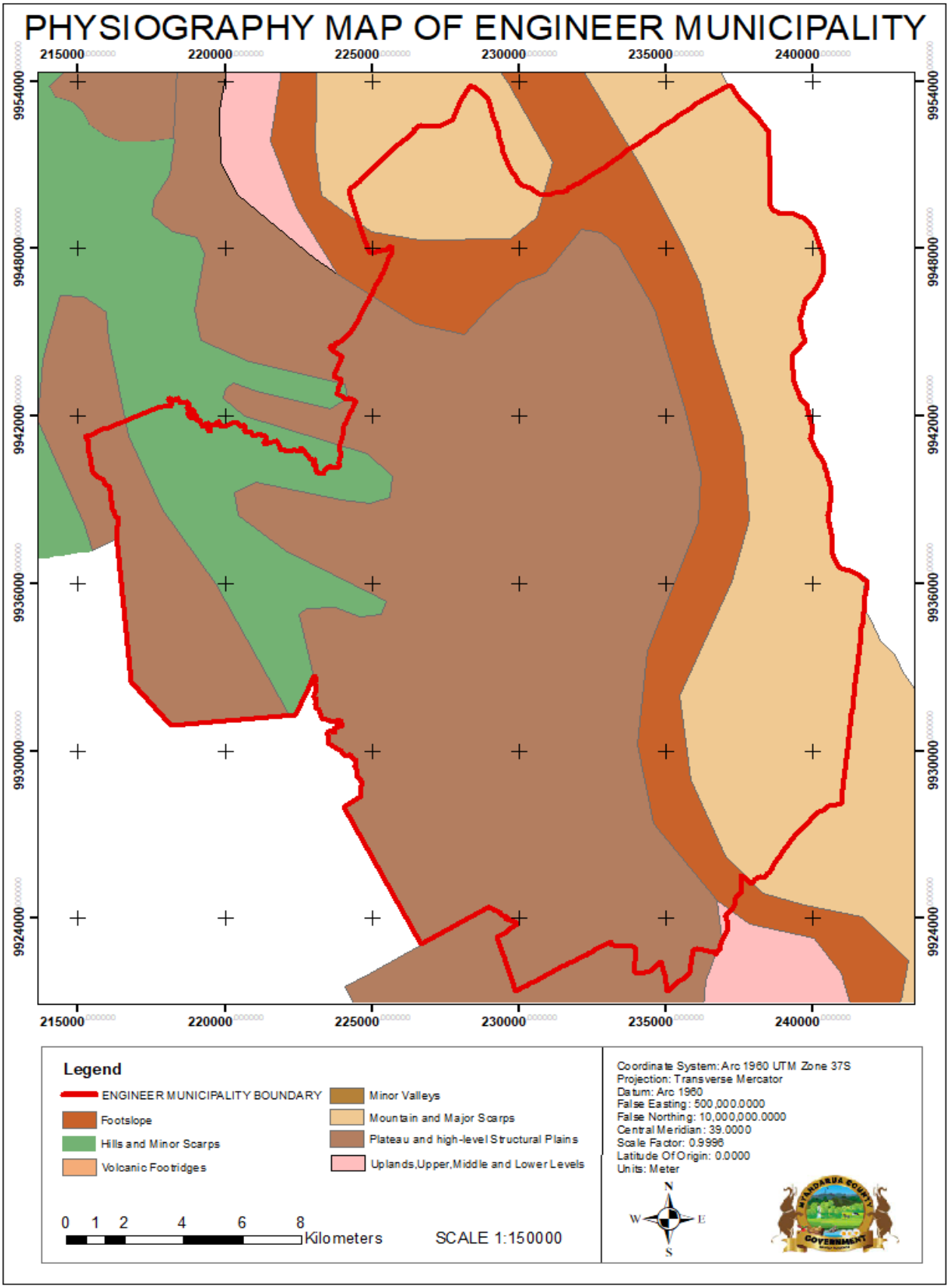
3.2.1. Topography, Geology, Soils, and Climate:

The topography of Engineer municipality is both flat and undulating in different areas with altitude ranging between 1931m and 2872m above sea level. This an undulating topography is favourable for undertaking physical development, agriculture, and tourism activities. It is also endowed with deep and fertile soils coupled with a favourable climate which is an advantage to the agriculture sector of the municipality and county.

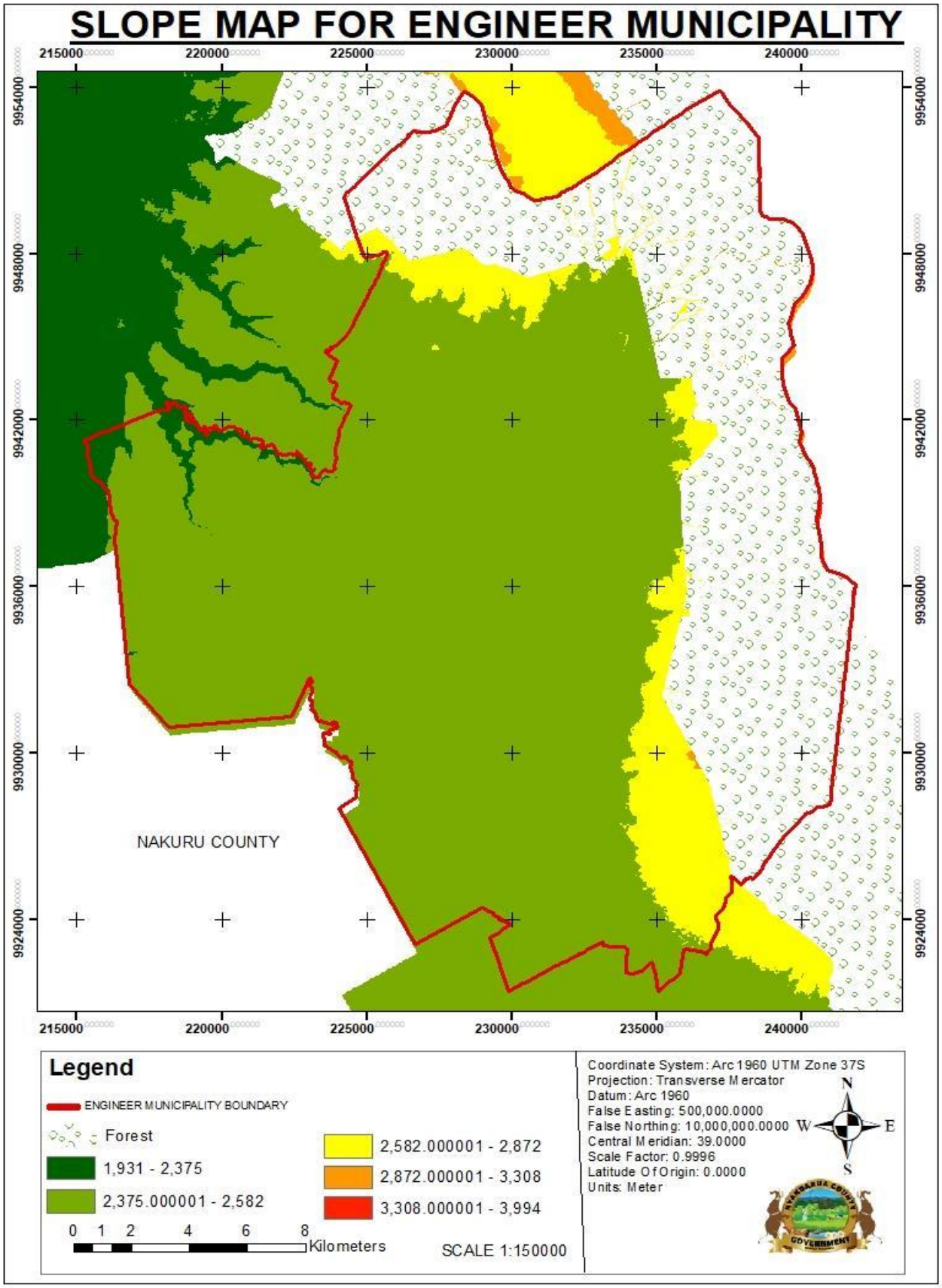
Land form of Engineer Municipality.

A map to show the profile below

Figure 2. Cross sectional Model, Source: Google Earth



Map 2. Physiography Map. Source; Planning Team 2024



Map 3. Slope Map. Source: Planning Team 2024

3.2.2. Environment and Natural Resources

The Municipality is well endowed with a network of rivers from the Aberdare ranges which increases the potential of water reliant activities like agriculture and ecotourism. The Municipality also has a significant coverage of forests, which aid in creating a favourable climate of the area. With the increasing urbanization within the planning area, these resources are facing the threat of over-exploitation, degradation and extinction thus prompt conservation measures need to be put in place.

Edit the map b Environmentally sensitive area

Environmentally sensitive areas are important sources of food, energy, services, and they also offer life support systems such as water and air purification, soil erosion regulation and pest control. In addition, they also serve as habitats for the County`s flora and Fauna, offers scenic features for tourism and recreational areas.

Therefore, this feature should be protected and conserved as much as possible depending on the type, characteristics and level of importance. Examples of environmentally features in the County include forests (both gazetted and non-gazetted), swamps, parks, lakes, rivers and quarrying sites. This feature accounts for 764.88 km2 or 23.39 % of the total land area in Nyandarua County.

Environmentally Sensitive Areas

· The environmental assets in Nyandarua provide significant ecosystem services such as habitat, food supply, nutrient cycling and oxygen production, recreation service. They have been categorized into:

· ▪ Critical Ecologically Sensitive Areas (CESAs)

· ▪ Ecologically Sensitive Areas (ESAs)

Criteria	Size (km2)	Percentage	Existing use	Anticipated use/Economic activities
Environmentally sensitive areas	764.88	23.39	Forests, Lake, Dam, Rivers, Aberdares Range	Tourism, Recreation. Research

Source: Satellite Imagery, 2020

Critical Ecologically Sensitive Areas (CESAs)

These refer to environmental assets which have crucial ecosystem services and should in essence be protected by law. However, their use is regulated by planning policy. CESAs in Nyandarua include, swampy areas and wetlands as well as public dams

Physical development must be 20 metres minimum from the waterline

Moreover, all public dams shall be protected as critical county water sources and a reserve of 100 metres on all sides shall be observed. All developmental activities shall be accompanied by an Environmental Impact Assessment (EIA). Additionally, resource harvesting from wetlands shall be controlled according to EMCA & NEMA provisions and the due buffer zones shall be observed.

Ecologically Sensitive Areas (ESAs)

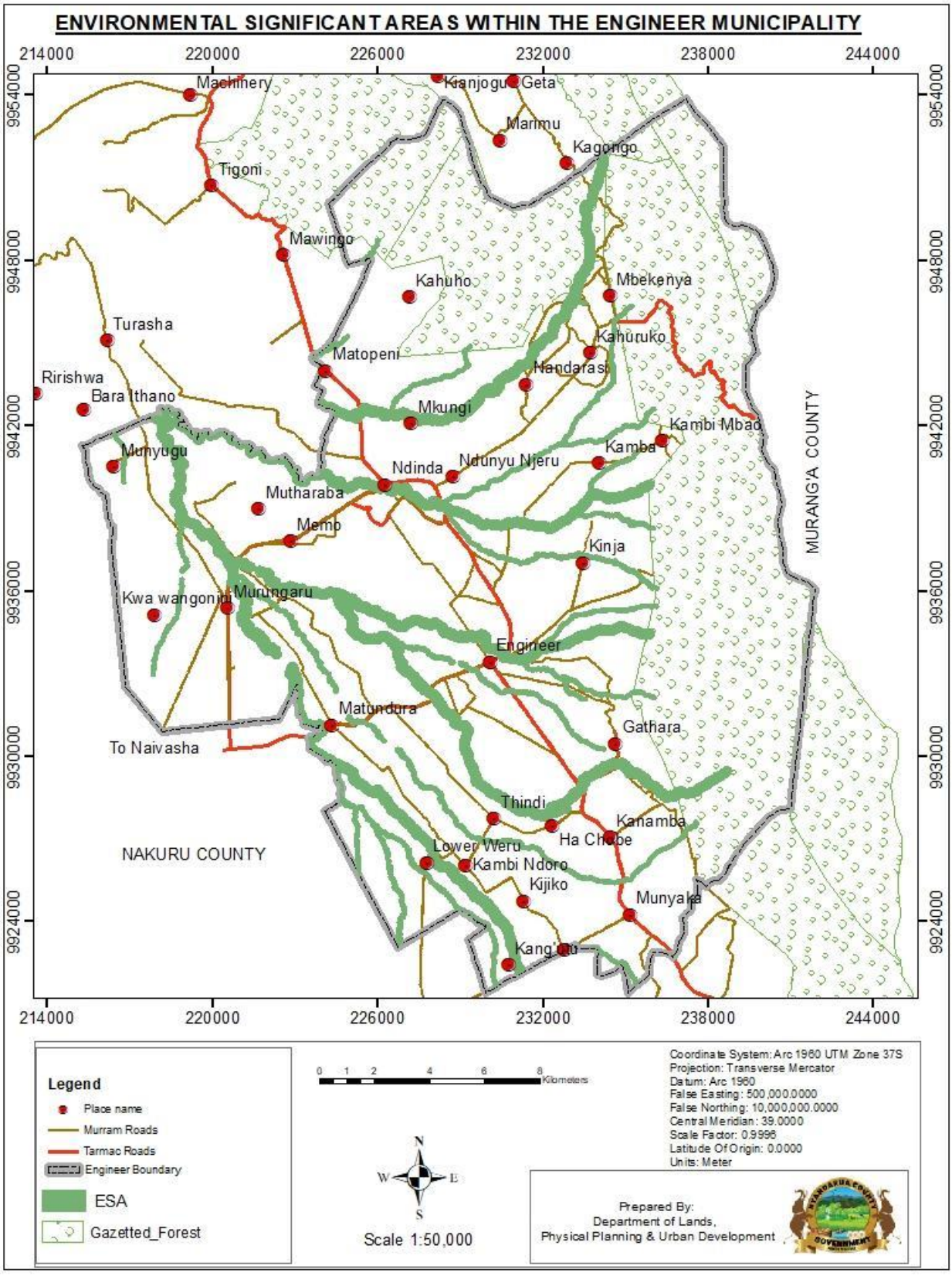
These are environmental assets which are available for use by people with minimal regulations. Rivers and springs fall into this category. They play a big role with functions and services such as,

- Freshwater
- Food supply
- Flood control
- Cooling
- Irrigation
- Soil formation
- Habitat
- Primary production

These resources (rivers and springs) will therefore be protected as county water resources.

· ▪ A riparian reserve of 60 metres will be observed for major/permanent rivers and a 30 metre
· riparian reserve shall be observed for minor/seasonal rivers.
· ▪ All developmental activities shall be accompanied by an Environmental Impact Assessment
· (EIA).
· ▪ Eco-tourism/environmentally friendly tourism may be promoted.
· ▪ Rivers shall be managed to protect the aquatic biodiversity and promote sustainability.

elow, rivers are breaking



Map 4. Environmental Significant Areas. Source; Planning Team

KEY PLANNING ISSUE

Sub-Sector	Planning Issue	Opportunity
Topography	Low lying areas are prone to flooding during heavy rain.	• The gentle sloping areas favor human settlement, infrastructural development and utility provision. · Areas with undulating topographies can be used for outdoor activities like ziplining.
Climate	· The low temperatures within the planning area leads to night frost that affects crops. • There is inadequate amount of rainfall in some parts of Engineer municipality such as Weru and Matundura to support agriculture	· New hybrid crops which are drought and frost resistant. · Heavy rainfall during the rainy season during the month of April, May & November. The existing water pan can be expanded to store more water which can be used for irrigation during dry seasons.
Geology and soil	· Uncontrolled mining · Soil erosion	· Stable geology for urban development · Fertile soil that is good for agriculture
Vegetation	· Most of the natural vegetation has been cleared leading to environmental hazards such as environmental degradation	· The vegetation cover plays a role in maintaining the ecological and social value of the planning area. It presents a potential for eco-tourism and recreation.

CHAPTER FOUR: POPULATION AND DEMOGRAPHY

4. Overview

Population is a key parameter that informs and guides allocation, distribution and sharing of resources to ensure equity. Besides broadly discussing population and demographic characteristics, this chapter will also query, inform, and justify allocation of resources within the municipality. This is apprised by critical analysis of population and demographic characteristics such as size, density, structure, distribution, marital status, migration rates, causative factors, and trends among others.

From the population projections based on previous census reports and trend analysis, Engineer Municipality's population is anticipated to grow from 93,870 persons to 131,418, by the year 2034. This population will require additional allocation of resources such as schools, health facilities, and other support amenities. The details of the analysis are outlined below.

4.1. Population Size and Distribution

According to the 2019 Kenya Population and Housing Census, Engineer Municipality which covers the Locations of North Kinangop, Murungaru, Engineer and Kitiri had an estimated population of 93,870 people with 46,157 and 47,713 males and females respectively.
The table below shows the population per location, gender, and sub-location.

Location	Location Polulation	Sub-location	Total	Male	Female	Household	Density (Persons / SqKm)
ENGINEER	34,671	ENGINEER	8,304	3,927	4,376	2,685	795
		GATHARA	7,856	3,899	3,957	1,978	334
		KAHURU	8,094	4,028	4,066	2,083	202
		WERU	10,417	5,121	5,296	2,824	215
MURUNGARU	16,536	HIANYU	7,013	3,427	3,586	2,047	326
		KAMBATA	3,343	1,627	1,716	892	174
		OLMAGOGO	6,180	3,133	3,047	1,558	193
KITIRI	17,363	KINJA	4,916	2,417	2,499	1,349	313
		KITIRI	5,375	2,747	2,628	1,312	227
		RAITHA	7,072	3,358	3,717	2,215	505
NORTH KINANGOP	25,300	KIAMBARIKI	6,294	3,156	3,138	1,609	367
		MEKARO	2,830	1,392	1,438	694	515

		MKUNGI	8,888	4,339	4,548	2,298	290
		NANDARASI	7,288	3,586	3,701	2,278	627
	93,870		93,870	46,157	47,713	25,822	363.07

4.2. Population Structure

Engineer Municipality has an expansive population structure, with a broad base of young and growing people and a narrow top of old and ageing people, indicating higher fertility rates, low life expectancy, or emigration to other towns and counties in search of employment once people reached the age of majority. Kinangop population structure is shown in the pyramid below.

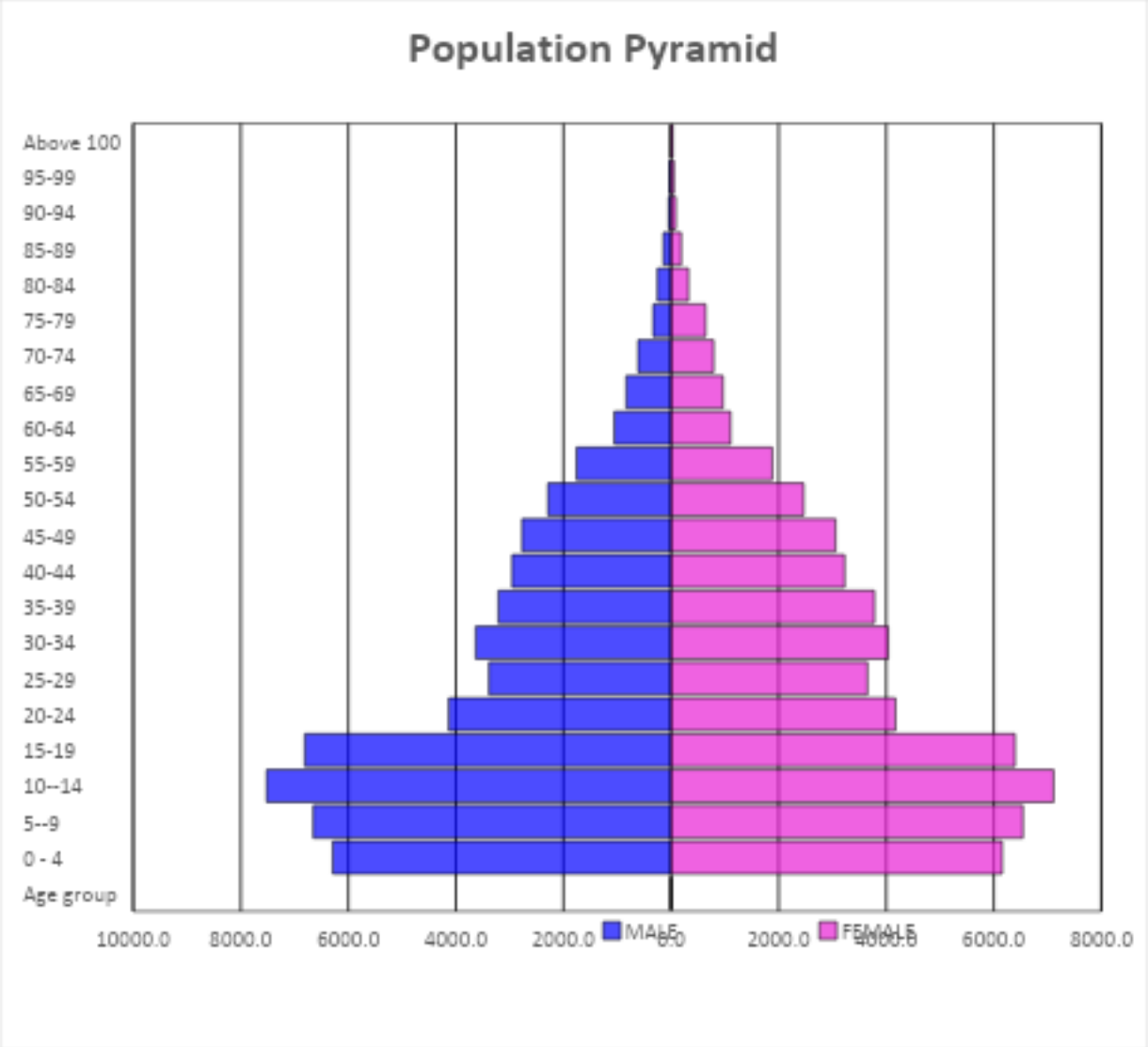


Chart 1. Base Map. Source: KNPHC, 2019

From the pyramid above, the age cohort of 0–24 years accounts for 55.46% of the population, showing high fertility rates in the municipality. To meet the needs of this

population, adequate education, health and recreational facilities, food security for this young population, housing, and adequate job opportunities as this population transitions into the working population are required.

The working population, mainly 25–69 years old, accounts for 41.36% of the population. As a working population, this group requires stable employment opportunities, well-developed transportation systems, affordable health care, affordable housing options, access to financial services, and social interaction spaces as they raise their families and prepare for retirement.

On the other hand, despite being a minority, the elderly (70+) requires quality healthcare, age-friendly infrastructure and housing options, safety, home care services, and social support and protection.

Therefore, this plan will propose programmes and projects that will cater to all the age cohorts in the municipality to not only ensure specific needs are met but also ensure socio-economic inclusion for all.

4.3. Population Density and Distribution

Using the 2019 census as shown in the table below, the municipality has a low population density, with an average of 363 people per square kilometer. The chart below indicates the population density in the sublocations

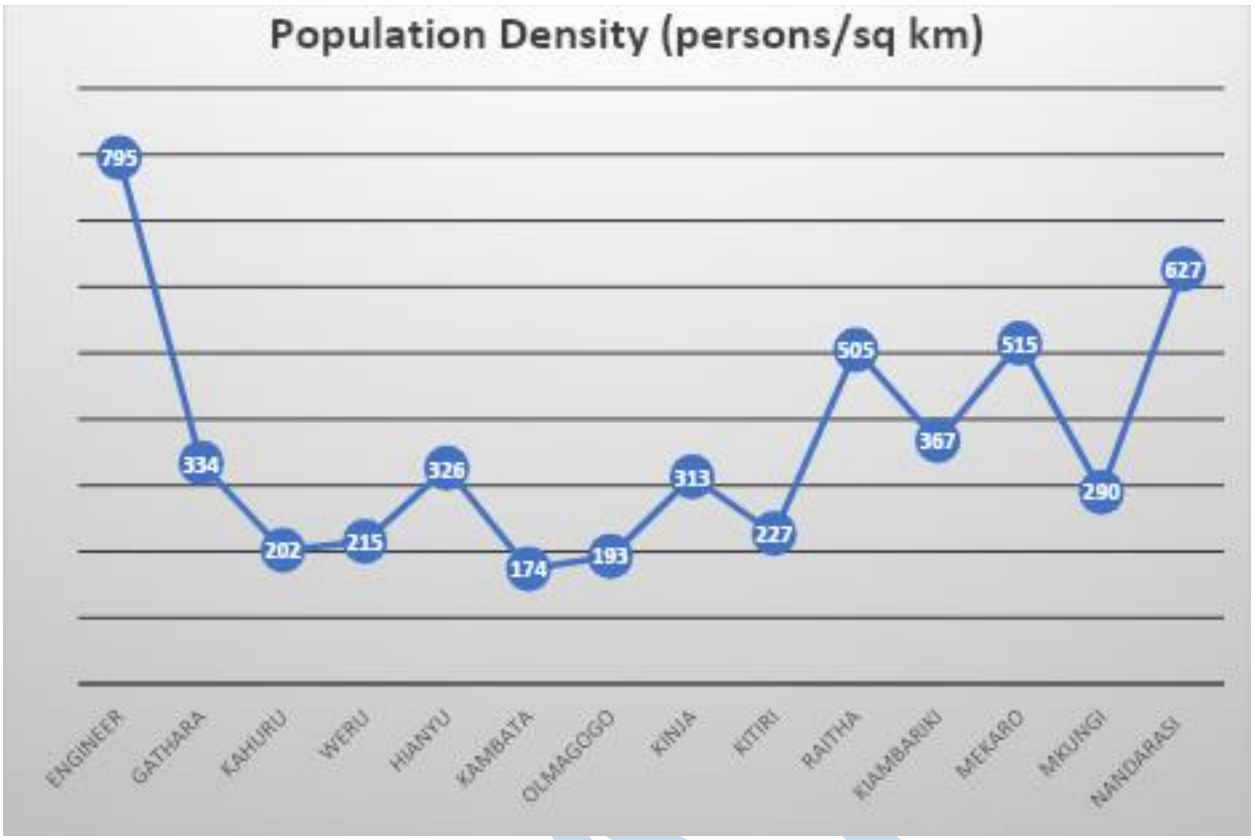


Chart 3. Population Density in Sub-Locations

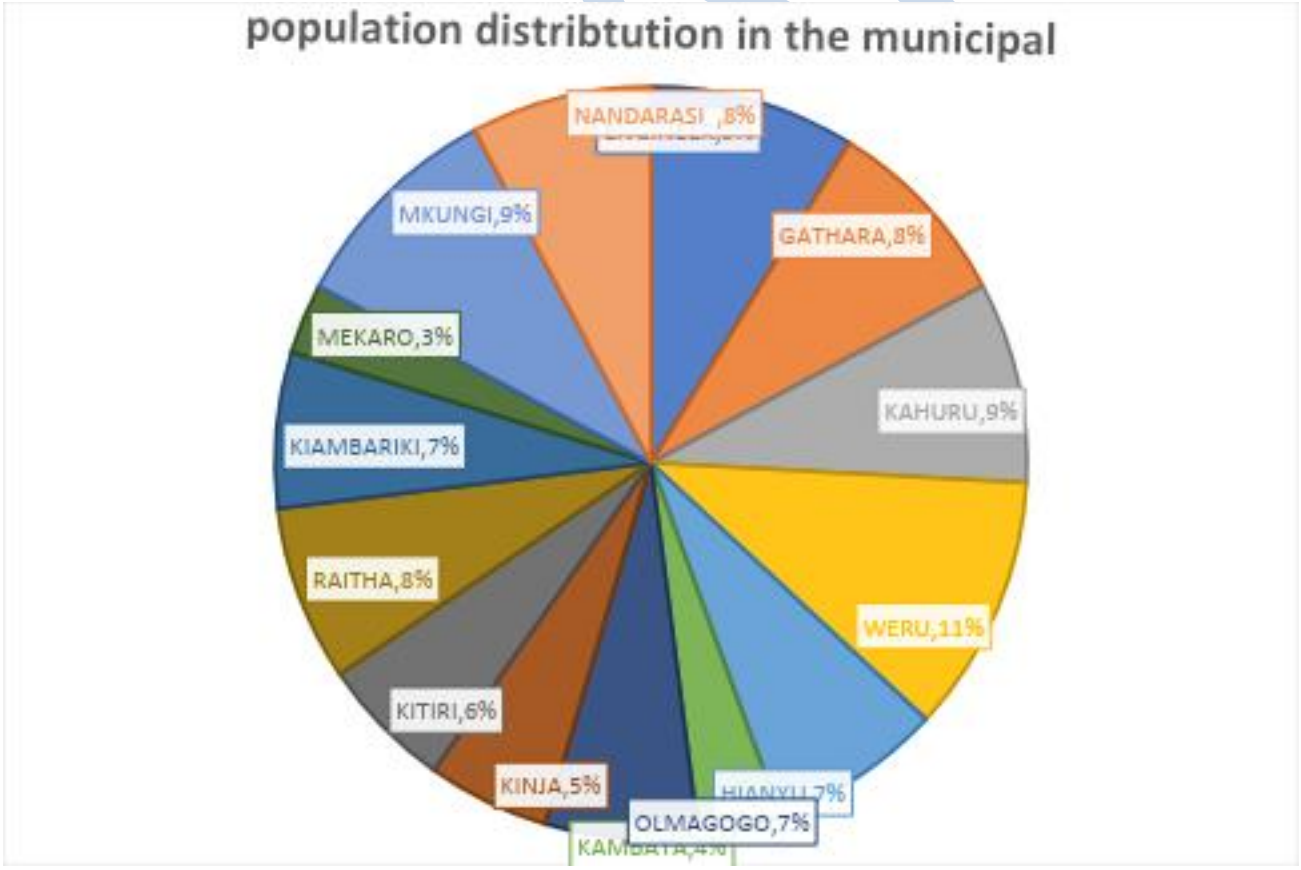
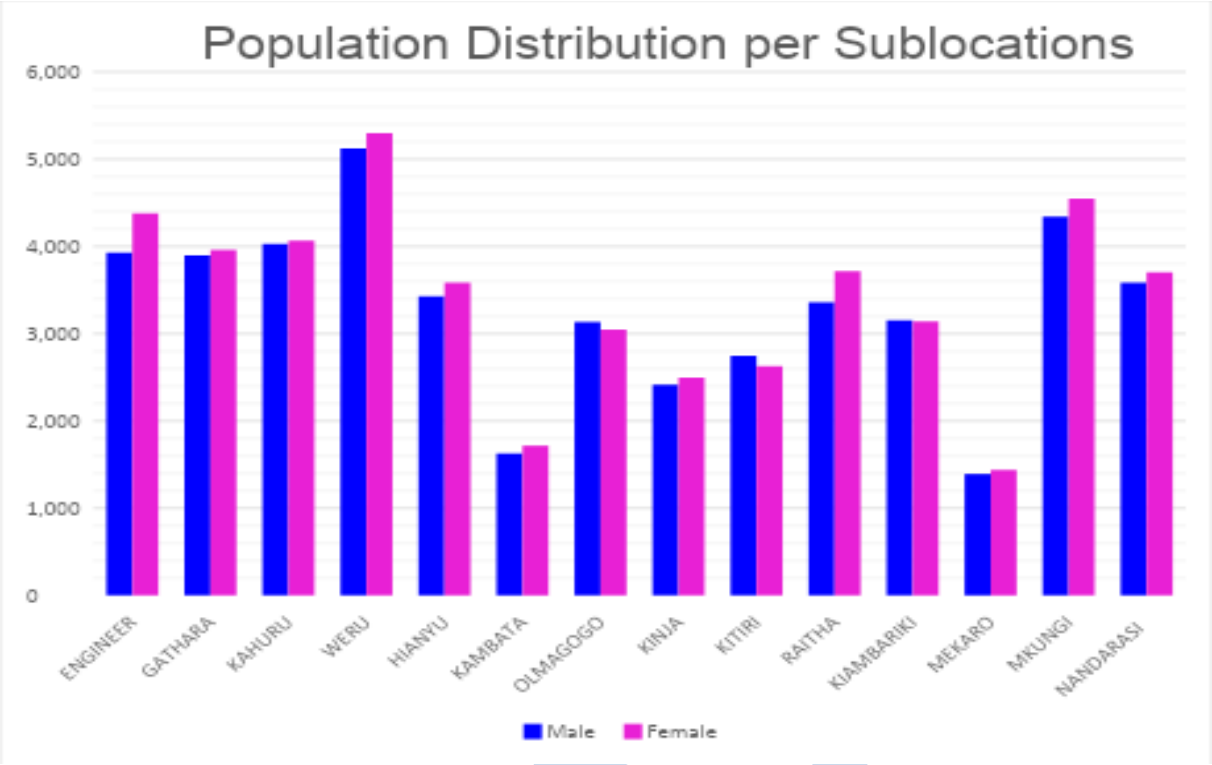
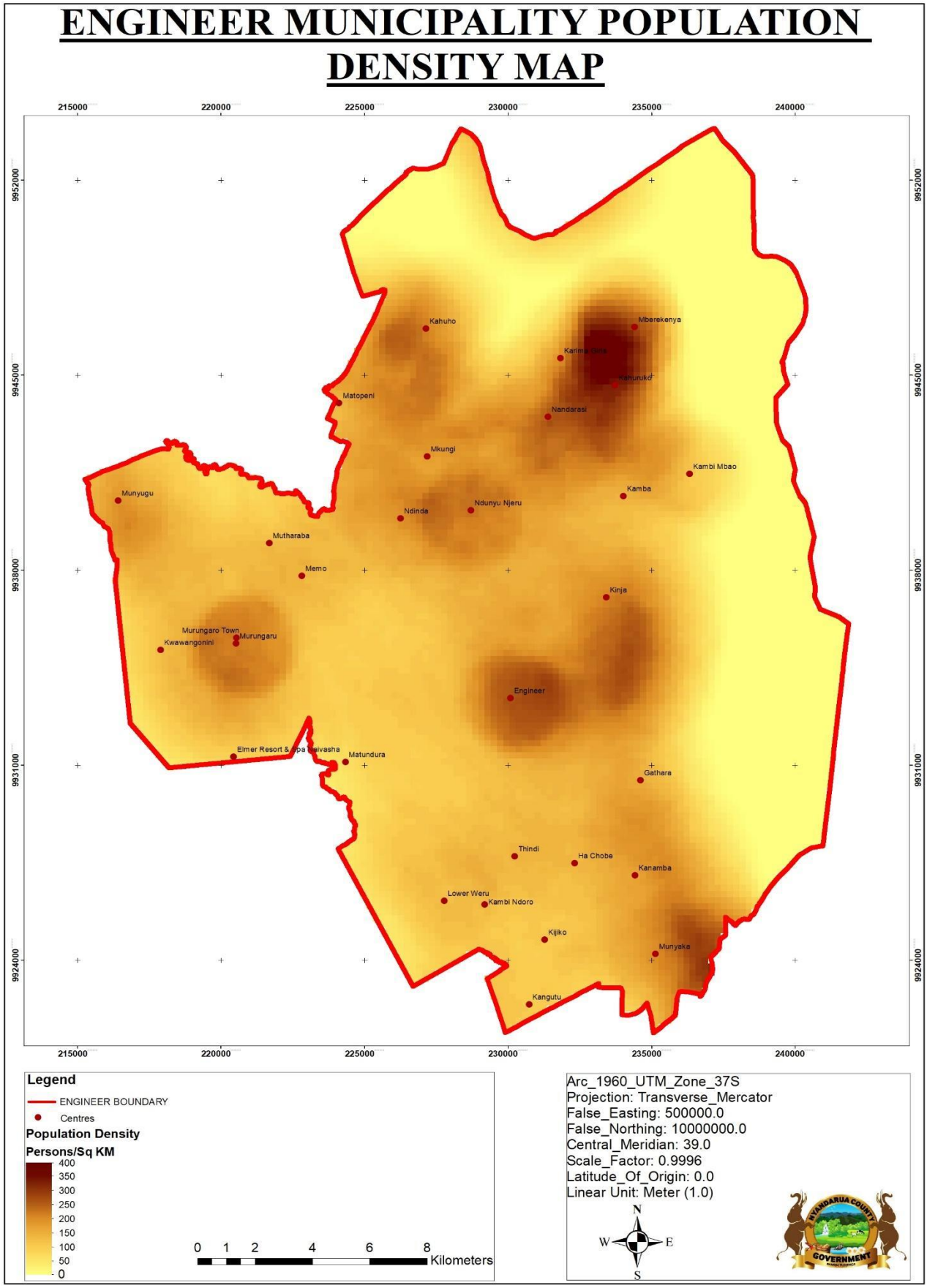


Chart 2. Population Distribution



The population distribution of the municipality is primarily determined by land suitability in terms of topography, fertility, and intended use. For example, in Mekaro and Kambata, where the terrain is rugged and water is scarce, the population is dispersed. Such sparse settlements result in poor land utilization, limited social interactions, reduced economic opportunities, and increased costs of servicing and maintaining infrastructure such as water lines, sewer networks, and other essential services, resulting in a lack of vibrancy in these areas. On the other hand, established urban and market centers have dense and clustered settlements with reasonable social facilities and improved infrastructure located nearby. Therefore, there's need for compact development is required for a sustainable municipality to reduce infrastructure costs and extend related support.

Households looking for commercial and residential premises prefer centers. In contrast, households looking for farming land prefer to settle outside the urban fringes where the land has yet to be fragmented into smaller lots. All these factors are evident in Engineer as settlements is dispersed and land sizes increase as you move further away from the established urban and market centers. Map 5-1 gives a mapping of population Density within the municipality.



Map 5. Population Density Map. Source: Planning team, 2024

4.4. Population Projection

The growth rate of Nyandarua County is 2% per annum against a national rate of 2.2% per annum. For the planning area, the population growth rate is 4.1% per annum reflective of an urban area. Therefore, based on the analysis, the population of the municipality is projected to 131,418 by the end of the plan period as illustrated in the table 5-3 below.

In light of this, there is need to properly plan for this rapidly growing population, not only through provision of water, housing, educational, health facilities and roads among others, but also creating of job opportunities for the betterment of every resident.

Census Location	2019	2024	2029	2034
	Census Figure	Projected Figures		
Engineer	34,671	38138.1	45072.3	48539.4
Murungaru	16,536	18189.6	21496.8	23150.4
Kitiri/Gathaara	17,363	19099.3	22571.9	24308.2
North Kinangop	25,300	27830	32890	35420
Total	93,870	103,257	122,031	131,418

Table 5-3: Population Projections for Engineer Municipality
Source: projected based on Kenya Population Housing Census 1999, 2009 and 2019

*Formula:(Population projected annually *Current population* No of years)/100) +Current population*

*(2*93870*10)/100) +103257*

4.5. Demographic Characteristics

4.5.1. Average Household Size

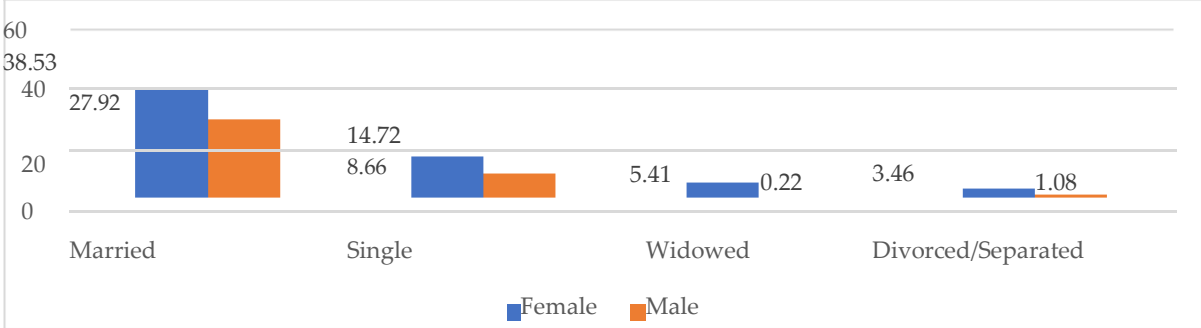
As per the 2019 census, there were a total of 25,822 households in the municipality with an average household size of 5 members.

4.5.2. Marital Status

As per the data collected from the field survey, it was observed that 66% of respondents were married with only 34% being either single, widowed or separated. Therefore, it can be deduced that the family unit is still upheld and cherished within this area. Families play a major role in the continuation of generations, socialization in societies and the economic benefits of pooling assets, living in the same household, and sharing of household labor.

While it observed that Engineer is a patriarchal society with men being the household heads, the growth of single families and female-led households cannot be overlooked. This can be attributed to hard economic times, divorce, and separation and, personal choice, with which the society seems to have become more accommodative. The chart below shows the distribution of marital status via gender.

Figure 5-2: Percentages of the Marital Status of the Respondents



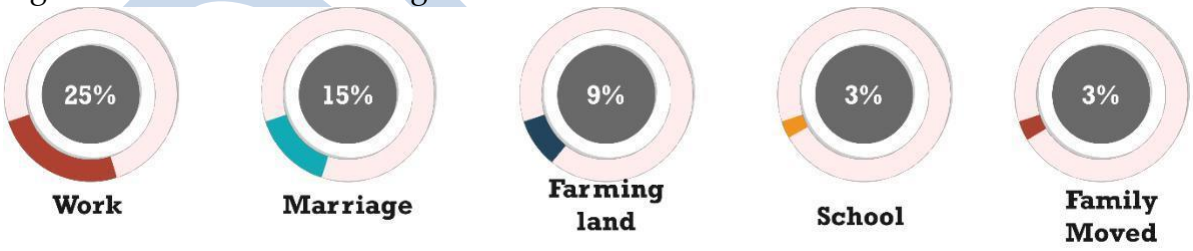
Source: Field Survey, 2024

4.6. Migration and Immigration

4.6.1. Immigration questionnaire

People move from one place to another for various reasons. From the field data, out of a sample of 500, 51% of respondents reported moving into Engineer from other areas. Twenty five percent (25%) in search of work, 15.3% for marriage and 8.84% due to availability of agricultural land. Another 6.25% were brought on by other reasons, such as school and the lower cost of living, as shown in the figure below.

Figure 5-3: Reasons for Immigration

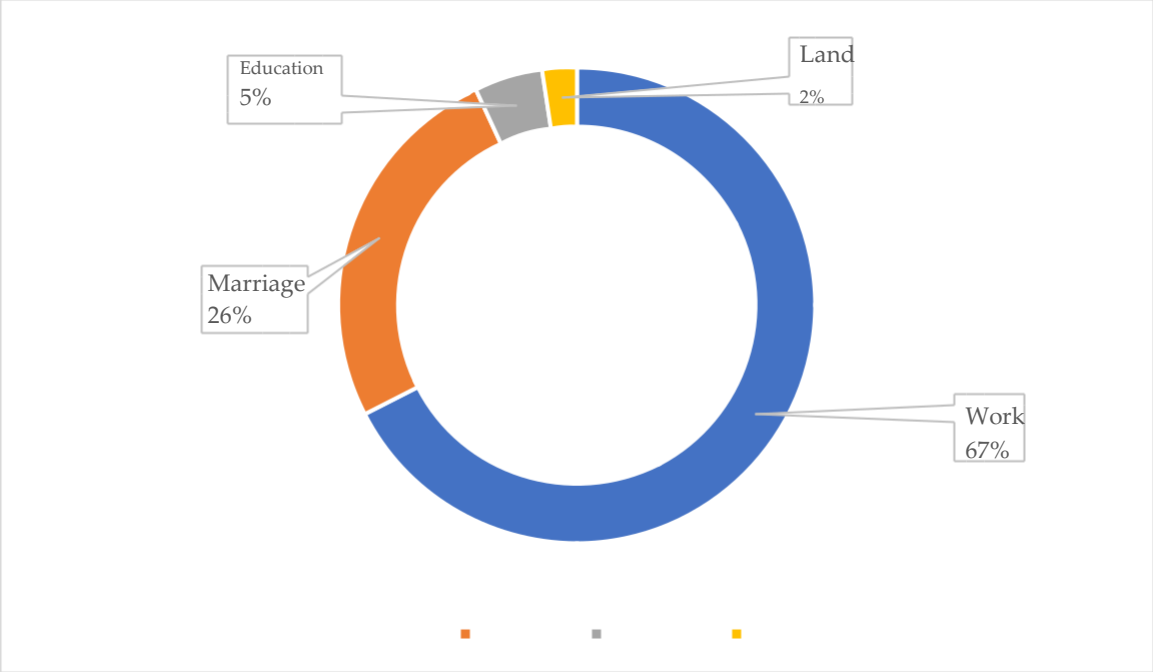


Source: Field Survey, 2024

4.6.2. Emigration

On the other hand, only 36% of the respondents reported some of their family members had moved out of the municipality. Of the 36%, 67% moved in search of work, 26% marriage, 5% education and 2% in search of land elsewhere.

Figure 5-4: Reasons for Migration from the planning area



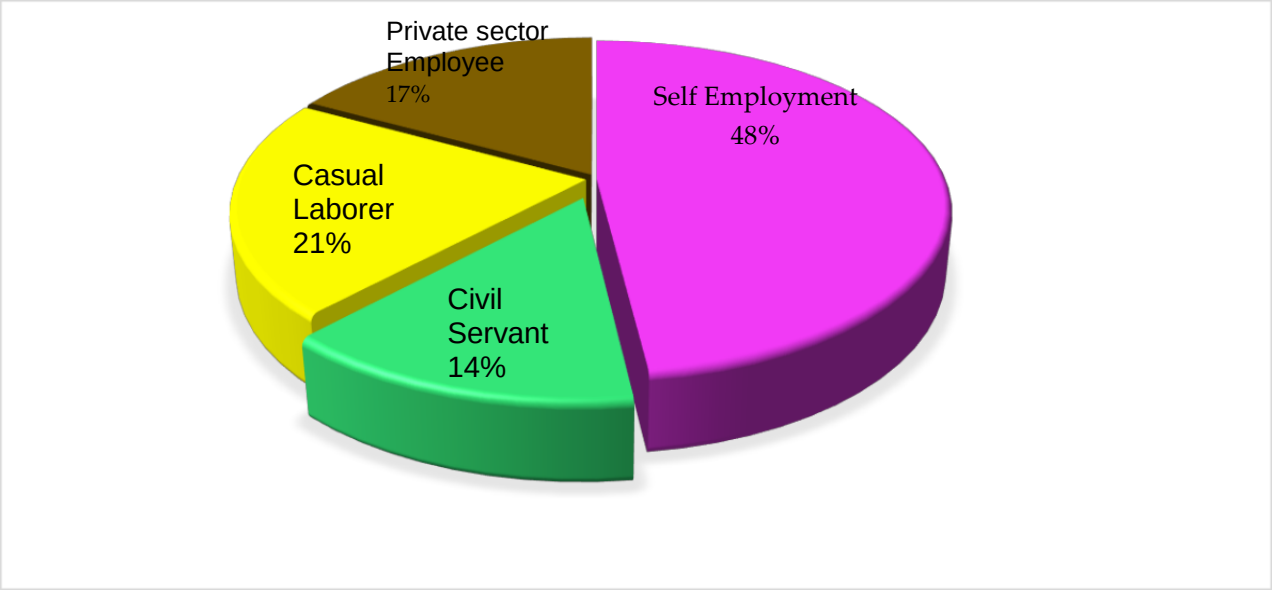
Source: Field Survey, 2024

4.7. Socio-Economic Analysis

Within the planning area, only 39% are employed and earn an average monthly salary of 10,000 Kenyan shillings. From the chart below most are self-employed while the rest are in the civil service, casual labor, and in the private sector.

The self-employed are mainly in the agricultural sector and other small business within the market centers near where they reside.

Figure 5-5: Employment sector



Source: Field Survey, 2024

However, on a negative note the number of unemployed persons per household is very high within the municipality. This was attributed to mainly lack of jobs within and outside the municipality. The 61% who are not employed engage in subsistence agriculture within their piece of land.

From the survey, 51% of the respondents save a portion of their monthly earnings with most of the people interviewed saving less than ksh.10,000 per month. A sizable sample of the residents save through cooperatives/Saccos (35%) and Personal bank savings account (35%). 16% of the respondents mentioned that they save through community savings groups while 12% utilise mobile phone saving services. Only a small percentage (3%) save using informal means. The survey also noted that those who save using financial institutions are likely the same people who can access loan facilities. The main lending facilities in Engineer are the Cooperatives/Saccos.

Figure 5-6: Means of Savings by residents within the planning area

Source: Field survey, 2024

4.8.Key Planning Issues

Sub sector	Planning issue	Opportunity
Population	• The municipality has an expansive population structure pointing to a more youthful population. This calls for an increase in facilities that attend to this population such as schools, hospitals and recreational areas. This is also necessitated by the anticipated population growth. Population is projected to grow to 131,418	• The municipality has a youthful population which translates into the availability of quality manpower to support economic growth. • Increase population provides ready markets for local business and investments •
Demography	• High unemployment rates among the youths leading to high dependency ratios • It was noted that 51% of the sampled population reported moving into the municipality in search of jobs, marriage, and land. • Growth of single and female-led households pointing to a dip in marriages rates. • 49% of the respondents do not have a savings culture.	• Promotes increased investment, market for produce, labour force • Gender empowerment programmes • Investment to support women and vulnerable groups. • Mainstreaming gender issues in municipal development programmes. • Availability of banks, SACCOs and community saving groups provide options for saving culture.

CHAPTER FIVE: ECONOMIC ANALYSIS

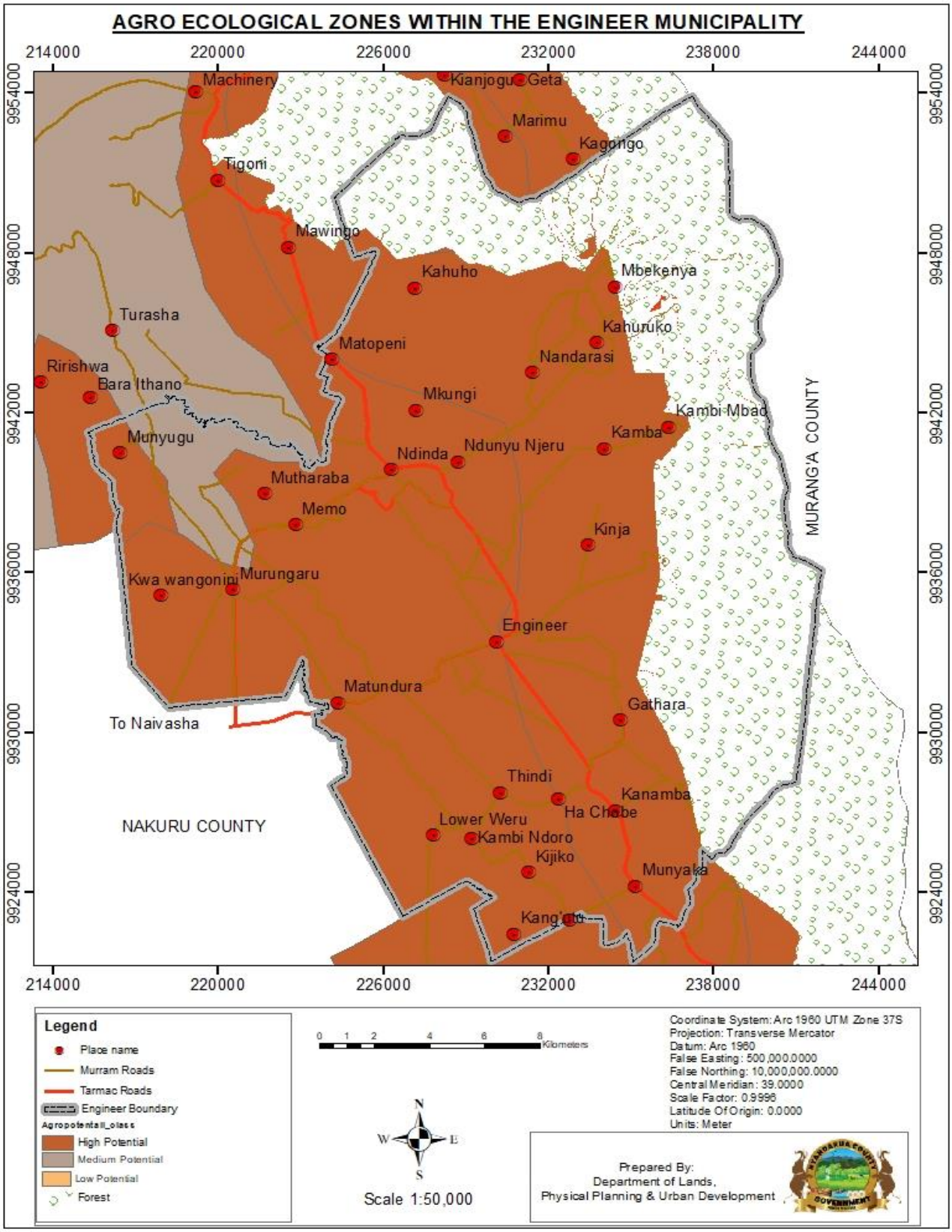
5. Overview

This chapter outlines the economic activities in the municipality, highlighting agriculture as the primary sector with crop farming and livestock rearing being the main activities. It discusses value addition through industries, slaughterhouses, and cooperatives that enhance agricultural products. The chapter also describes the importance of local markets in fostering trade and commerce, as well as the role of quarrying in the economy despite its environmental impacts. Additionally, it covers the hospitality and tourism sector, emphasizing the various facilities and attractions that draw visitors and contribute to economic growth.

Economic analysis is important for development planning as it provides important indicators upon which the rate and level of growth and development of a region can be assessed. Economic performance influences living standards of people and indicates how well people are able to utilize their natural and human resources. For spatial planning to be sustainable, it must respond to the existing economic realities and other economic activities in a sustainable manner. The main economic drivers for Engineer include trade and commerce, transport, industrial activities, agriculture and tourism.

5.1. Crop Farming

Engineer municipality has extensive land which is mostly rural whereby agriculture is the most predominant economic activity. Farmers engage in the cultivation of Irish potatoes, cabbages, French beans, spinach, kales, peas, due to the fertile soils and favorable climate in the municipality.


AGRO ECOLOGICAL ZONES WITHIN THE ENGINEER MUNICIPALITY
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9924000
Machinery
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Kagongo
Tigoni
Mawingo
Kahuho
Mbekenya
Turasha
Kahuruko
Matopeni
Nandarasi
Ririshwa
Bara Ithano
Mkungi
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Kamba
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Latitude Of Origin: 0.0000
Units: Meter
Prepared By:
Department of Lands,
Physical Planning & Urban Development

5.2. Livestock Farming

Livestock farming is also a major economic activity within Engineer Municipality. The main livestock being reared include cattle, sheep, goats and poultry. Dairy farming is the dominant activity in the livestock subsector.

Year	Pig Population	Pork Output (Kgs)	Pork Value (Kshs)
2022	160	Negligible	
2023	165	Negligible	

Table 1

Year	Population	Mutton Output (Kgs)	Mutton Value (Kshs)
2022	61,310	12,900	7,740,000
2023	64,150	9,876	6,913,200

Table Poultry Production

Table 2

Year	Poultry Population	Poultry Meat Output (Kgs)	Value (Kshs)
2022	45,500	Home consumption	
2023	52,325		

Table Fish Production

Year	Fish population	Fish meat output	Value (ksh)
2022	5000	579	202,650
2023	4750	352	123,200

Source: County Department of Agriculture, Livestock & Fisheries

Map 6. Agricultural Potential Zones. Source: Planning Team

5.2.1. Engineer Municipality Abattoirs/Slaughterhouse

Name	Location	Status	Approx. number of cattle slaughtered per month
Engineer	Engineer town	Operational	45
Ng'othi	Kwa Ng'othi	Operational	15
Ndunyu	Ndunyu Njeru	Operational	35
Murungaru	Murungaru town	Operational	15
Matundura	Matundura Centre	Operational	3
Weru	Weru town	Operational	3
Njoga	Chobe	Operational	4
Gathara	Gathara centre	Operational	4

Source: County Department of Agriculture, Livestock & Fisheries

5.3. Trade and Commerce

Trade and Commerce is a major player to the economic growth of an urban area through creation of formal and informal employment and generation of revenue to the government.

It involves existing markets, wholesale and retail traders, financial institutions like banks, SACCOs and mobile money agents and other small-scale enterprises like hardware, agro vets, pharmaceuticals and liquor stores.

The distribution pattern of commercial activities within the municipality follows nucleated and linear growth patterns. There is a high concentration of commercial activities within the urban core, while the town takes a linear growth pattern along the major transport corridors such as Olkalou-Engineer-Naivasha Road and Olkalou-Engineer- Njabini Road.

5.3.1. Markets

There are three formal markets in Engineer Municipality which include; the existing Engineer market, within the CBD. The market has scheduled market days on Wednesdays and Saturday where buyers and sellers congregate for trading on retail basis. The other markets are Murungaru open air market and Ndunyu Njeru market. Major goods traded in these markets include potatoes, cabbages and tomatoes among other agricultural produce, second-hand clothes and household items. There also exists Engineer Livestock market which is yet to be operationalized.

Further, there are informal markets that lie along the transportation corridors (roads) in all urban areas within the municipality. The traders sell household items such as clothing, kitchen ware, beddings and agricultural produce.


Engineer Market

Informal traders along Engineer- Njabini road

Source: County Planning team 2024

5.3.2. Banks and Financial Institutions

Engineer Municipality hosts 28 financial institutions the main being Equity Bank, Kenya Commercial Bank and Cooperative Bank. There are various microfinance institutions including Faulu Kenya, Kenya Women Finance Trust (KWFT), Small and Micro Enterprise Programs (SMEP) and Savings and Credit Co- Operative Societies (SACCOs) like Tower SACCO which provide credits and financial literacy to the residents. Further, there are various banking agents and mobile money agents across the town.

Source: County Planning team 2024

Challenges facing Cooperatives Societies

- Competition from already established companies e.g: Kenya Co-operative Creameries, Brookside Dairy
- Poor records and book keeping
- Disputes in the management committees
- Lack of personnel in quite a number of societies resulting in poor/inadequate book keeping.
- High rate of land disputes

- High default rate in SACCO societies.
- High rate of land disputes
- Inconsistence funding of activities.

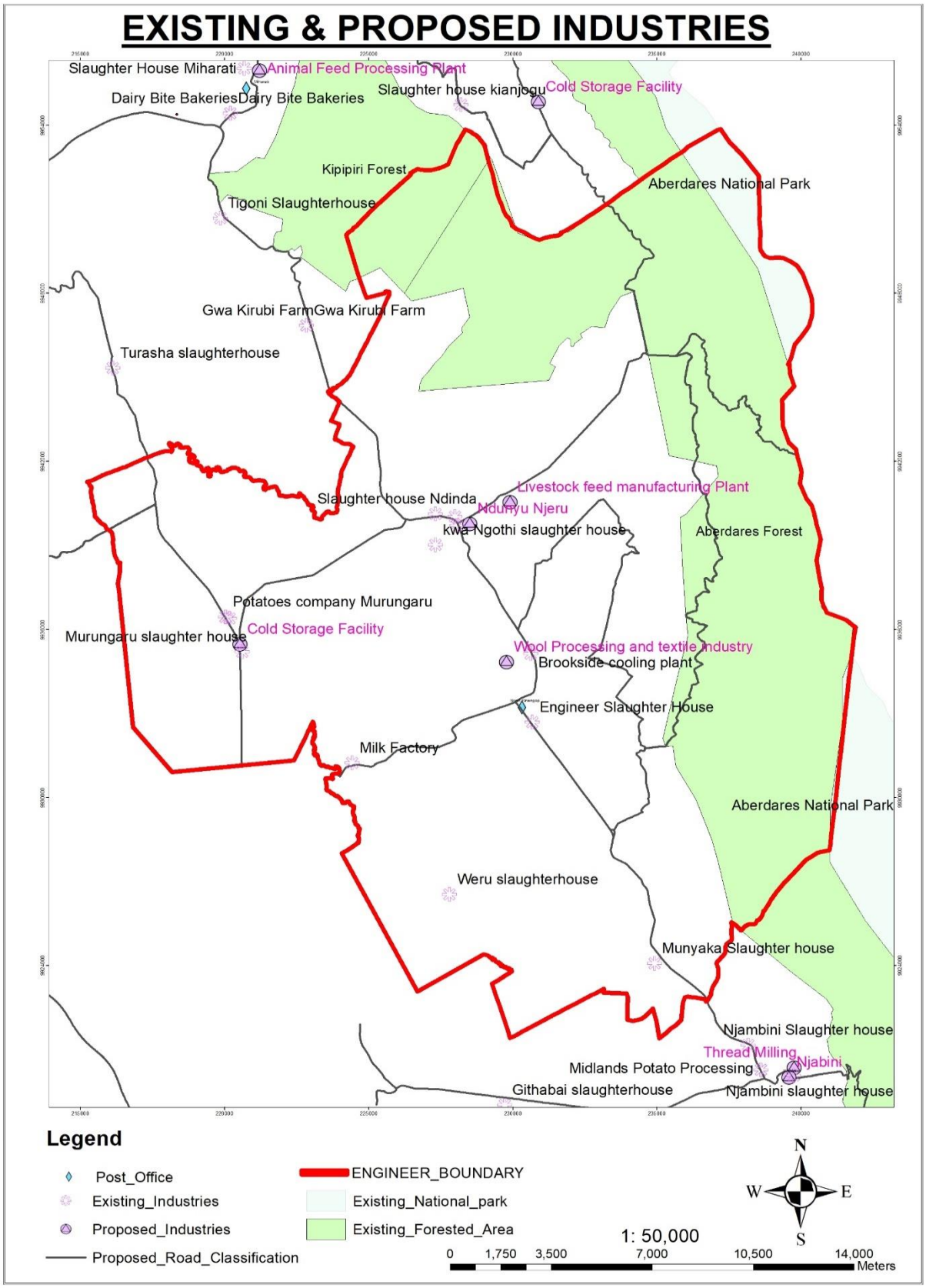
5.3.3. Industries

Industries significantly contribute to the economic growth of a town by offering job opportunities, enhancing the value of agricultural products, and generating government revenue through licensing fees and taxes. The primary industrial activities in Engineer consist of agro-processing, quarrying, and informal Jua Kali sectors. Engineer Municipality has not fully harnessed the potential of value-addition industries, despite its high levels of productivity. There are more than 30 cooperative societies, most of which are poorly managed, resulting in their closures.

S/No	**Name of Industry**	**Location**
1.	CIDC	Ndunyu Njeru
2.	Crips Industry	Engineer
3.	Wool Industry	Engineer

Tulaga Farmers Cooperative at Kanyenyaini

Source: County Planning team 2024



Map 7. Industry Distribution Map. Source; Planning Team, 2024

5.3.4. JuaKali Industry

JuaKali industries in the municipality deal mostly in **design and fabrication of** metal, wood, and apparel, **value addition of** animal products such as wool, hides and skins and cottage industry (beads, artefacts, interior decorations). The residents also engage in other industrial activities that include saw-milling, blacksmithing, car-washing and garages.

5.3.5. Tourism and Hospitality

Tourism in Engineer is defined by the hotels, restaurants and the recreational areas. The notable hotels within the Municipality include Golden ark hotel located at kwa-shofe area, Provers eco camp, The bubble lodge, Musan garden, Urban hotel, Dive in hotel located in ndunyu njeru, Elmer resort and spa located along Murungaru-Kirima highway There are several tourist attraction sites including Abardere National park and Forest Range (Elephant hill, Rumeria hills,12 apostles,7 ponds, Kinangop plateau, Mt Kinangop, maumau caves and Plovers Eco camp and museum. State lodge gurunga,

Eco-Camp at Geta

Muti wa Kenyatta

SECTOR	CHALLENGES	OPPORTUNITIES	PROPOSALS
Crop Farming	Climate change Pests and diseases Water scarcity Unpredictable crop prices Rising costs of farm inputs such as certified seeds, fertilizers and pesticides Lack of access to modern farming technologies Lack of access to storage facilities like cold storage and national cereal board Inaccessible roads during rainy seasons	Fertile soils Availability of technology and research Labor availability Access to financial services	Adopt high-yield crop varieties Invest in agricultural research Provide farmers with knowledge about modern techniques Construction of storage facilities in Engineer town Provide subsidized farm inputs Employment of more extension officers Construction of modern markets at Engineer, Ndunyu Njeru & Murungaru
Livestock	Competition with food crops for land Low productivity Little technical know-how on production systems Minimal value addition of livestock products Diminishing land sizes Vagaries of weather Decrease in purchasing power resulting in less demand for beef Mainly beef is imported from other neighboring counties and a few culls from the dairy herd	Extensive land in the peri urban areas suitable for livestock rearing	Explore agritourism and educational opportunities such as workshops or educational programs Provision of incentives to investors to establish industries that process primary products
	-Low availability of slaughter stock		-Open a local

	locally -Low beef uptake -Very few beef butcheries		livestock market at Ndunyu Njeru -Sensitize masses on beef as an alternative to mutton -Proper facilitation for the veterinary officer to carry out effective disease surveillance and control to minimize use of antibiotics and other drugs on cattle -Construct modern slaughter houses at Murungaru and Engineer town
Tourist attraction sites	Underdeveloped infrastructure hindering access to the sites Proper marketing not done Lack of support infrastructure Reluctance by hotels to join the Nyandarua county tourism association. Lack of proper training to the workers. Harsh weather conditions Slow uptake to technology.	Attraction sites such as Kinyahwe, Muti wa Kenyatta, Aberdare ranges	Creating awareness on local tourism Proper marketing Improve access roads linking the attraction sites Explore zip lining activities
Juakali	Lack of policy guidelines Segregation of jua kali industries Industrialization is not fully devolved	Youthful population Affordable housing Programme Consumption of	Certification of jua kali artisans Construction of jua kali shed in market centers

	Lack of trainings to the cooperatives	locally produced goods	

CHAPTER SIX: PHYSICAL INFRASTRUCTURE, ENERGY & ICT

6. TRANSPORTATION

3.1 Regional Connectivity

Engineer municipality is well connected to other major Urban centers within and beyond the County boundaries by the Njabini-Ol'kalou (C69) road, Engineer-Naivasha (D393) Road Ndinda-Murungaru-Naivasha (D392) Road and the Upcoming Ndunyu Njeru –Ihithe(D89J1) Road which runs across the Municipality Boundary. The aforementioned roads links with major trunks roads that networks the municipality with counties of Nairobi, Nakuru, Kiambu, Nyeri and Laikipia. This connectivity bestows the municipality with a great potential to grow with these roads being a key driver to economic development. These roads are listed in table below.

S/No	Road Name	Road Class	Road Number	Length (KM)	Standard
1	Njabini - Ol'Kalou	C	C69	115	Bitumen
2	Murungaru - Ndinda	D	D392	8	Bitumen
3	Naivasha-Kirima-Engineer	D	D393	22	Bitumen
4	Ndunyu Njeru – Geta - Captain	D	D389	36	Bitumen
5	Langalanga - Murungaru	D	D391	27	Bitumen

3.2 Inter-connectivity and Intra-connectivity

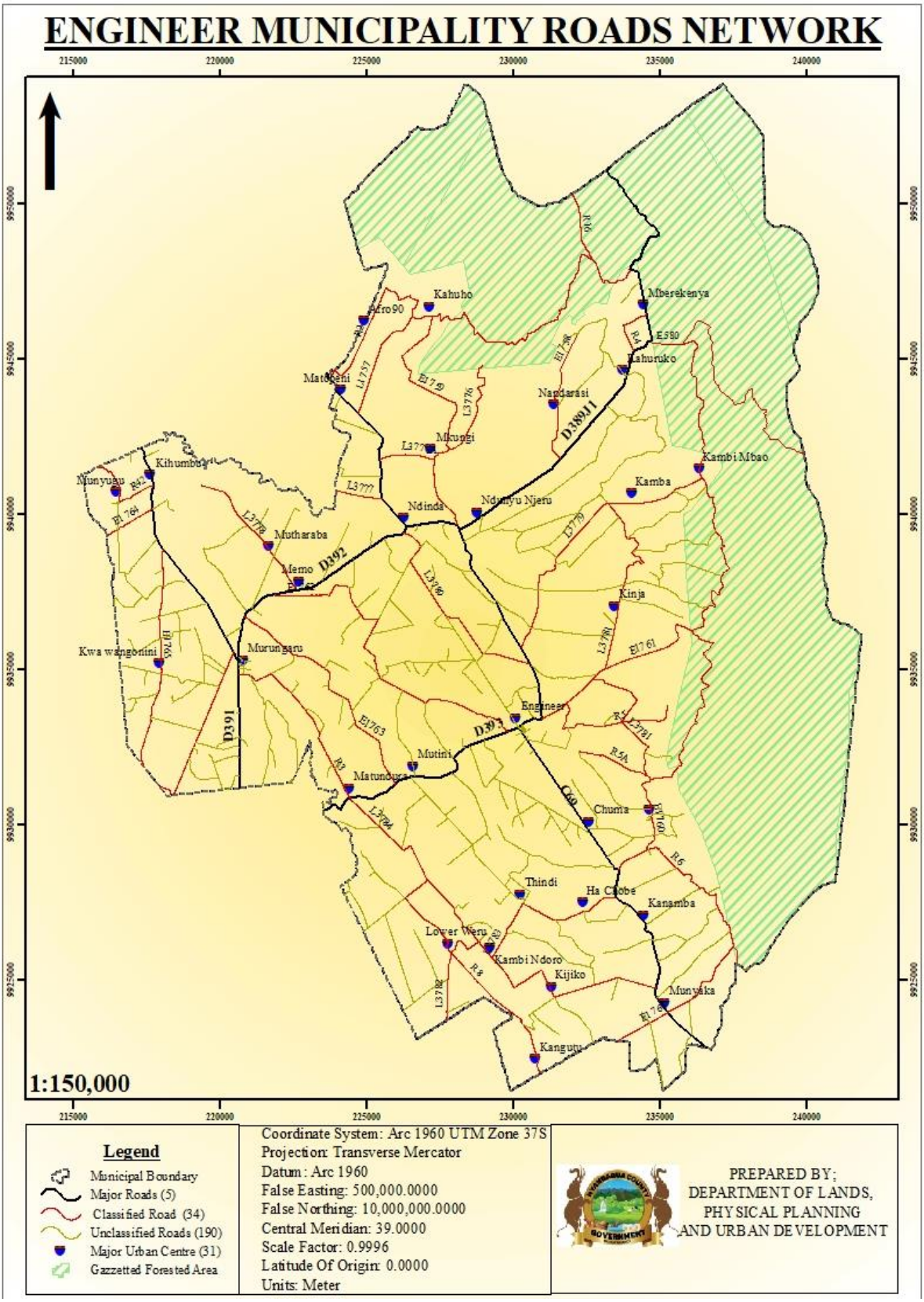
Within the municipality there are other lower hierarchy roads which have recently been improved to bitumen standard while others are graveled to motor able standards. There are about 30 classified roads belonging to road classes E, L and R as tabulated below.

Also, there are about 190 unclassified roads commonly referred to as county roads under that crisscross the municipal boundaries which are crucial in serving the people living in the hinterland of the municipality as shown in the map below.

S/No.	Road_Name	Road Class	Road Number	Length (KM)	Surface_Condition
1	Nandarasi - Kahuruko	E	E1758	4	Gravel
2	Kanamba Gathara-Kambi Mbao	E	E1760	24	Gravel
3	Engineer - Kinja - Urumwe	E	E1761	7	Gravel
4	Mutharaba - Engineer	E	E1762	12	Gravel
5	Langalanga- Muyungu	E	E1764	18	Gravel
6	Koinange - Kagoya ECD	E	E1766	10	Gravel
7	Koinange - Kagoya ECD	E	E1766	3	Gravel
8	Kahuruko - Ihithe	E	E580	54	Gravel
9	Matopeni -Mberekenya	L	L1757	16	Gravel
10	Mkungi - Kahuho Road	L	L3776	4	Gravel
11	Matopeni - Ndunyu Njeru	L	L3776A	2	Gravel
12	Turasha - Ndinda	L	L3777	12	Gravel
13	Raitha - Kambi Mbao	L	L3779	9	Gravel
14	Ndinda - Engineer	L	L3780	7	Gravel
15	Githabai - Kambi Ndoro	L	L3782	7	Tarmacked
16	Kambi Ndoro - Ha Chobe	L	L3783	6	Tarmacked
17	Murungaru -Munyaka	L	L3784	14	Gravel
18	Matopeni - Kahuho	R	R2	6	Gravel
19	Kahuruko - Mberekenya	R	R4	2	Gravel
20	Munyungu -Kihumbu	R	R42	10	Gravel
21	Engineer - Mutamaiyu ECD	R	R5	3	Gravel
22	Gathara - Engineer	R	R5A	3	Gravel
23	Engineer - Mutamaiyu ECD	R	R5	2	Gravel

24	Kahuho _Mkugi	E	E1759	9	Gravel
25	Murungaru - Matundura	E	E1763	8	Gravel
26	Gatamaiyu - Murungaru	E	E1765	14	Gravel
27	Kihumbu - Mutharaba	L	L3778	5	Gravel
28	Geta - Mekaro	R	R16	5	Gravel
29	Murungaru -Munyaka	R	R3	6	Gravel
30	Kanamba - Hopewell	R	R6	11	Gravel

ENGINEER MUNICIPALITY ROADS NETWORK



Legend

- Municipal Boundary
- Major Roads (5)
- Classified Road (34)
- Unclassified Roads (190)
- Major Urban Centre (31)
- Gazzetted Forested Area

Coordinate System: Arc 1960 UTM Zone 37S
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 10,000,000.0000
Central Meridian: 39.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter

PREPARED BY;
DEPARTMENT OF LANDS,
PHYSICAL PLANNING
AND URBAN DEVELOPMENT

Most of this roads are of earthen standard and thus tend to be impassable during wet weather conditions posing a major transport challenges for the residents. However continuous efforts are always carried out to facilitate easement of persons and goods through regular maintenance activities carried out by the County Government through its machinery program.

a). Improved Access Roads within Engineer Town

b). Status of Access road connecting major town to the hinterland.

3.3 MODAL SPLIT

Mobility is a vital function within an area as it facilitates the movement of people and goods within a reasonable amount of time and with ease The main mode of transport is via road, with the main means being Pedestrian, vehicles, and Motor Cycles commonly referred to as the *bodaboda*. It is of importance to note that the municipality has neither railway network coverage nor air transport infrastructure thus eliminating rail and air as modes of transport. As per the field survey, walking (52.9%) and the use of bodaboda (36.8%) make up the most common modes of transport, mainly because of their flexibility and last-mile connectivity within hard- to-reach areas. Other modes used in the municipality include PSV *matatus* and private vehicles for trips to other centers and out-of-town trips. Notably, there is low use of bicycles, 4%, which is most likely explained by the undulating terrain in some areas and the rugged road surfaces of the feeder and internal roads. For Commuting purposes, most of the residents prefer to use public 14 & 7 seater *matatus* or private vehicles mainly the *sientas'* ad *Proboxes'*. For last-mile connectivity in hard-to-reach areas, commuters use paratransit means like *bodabodas*, bicycles, or walking.

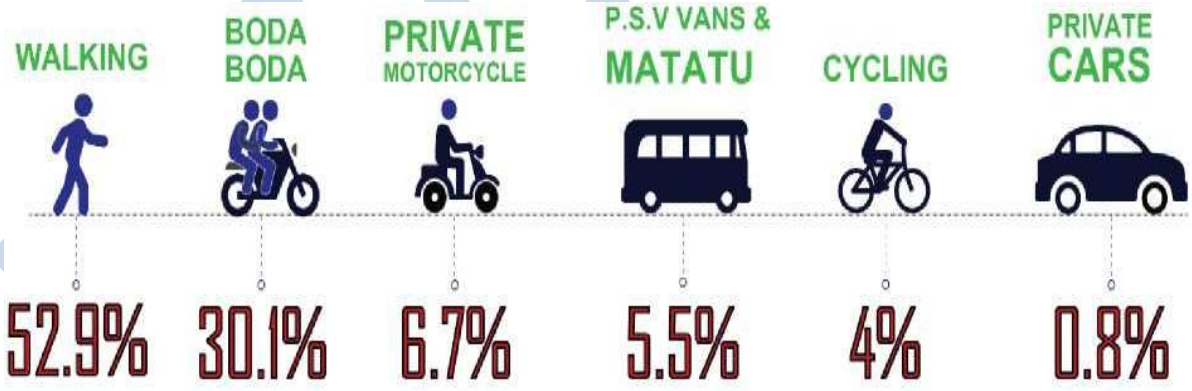


Figure 3. Modal split distribution within the Municipality: Source Field Survey.

3.4 Transportation Facilities

3.4.A Non-Motorized Transport (NMT)

NMT facilities within the planning area are inadequate since they have only been provided in Engineer town as shown in the image below. Where walkways exist they tend to be Encroached or otherwise Misused as either Parking Passenger drop Off Point or Otherwise used as Roadside Selling Points. On positive note, the municipality has put effort and there is on-going works of providing more sidewalks within the town.

The town also lacks defined crossing points which puts pedestrians at risk when crossing some of the busy roads for instance the Njabini Olkalou Road and Engineeer-Naivasha road Junction

The Limited Walkways Being Used as Parking and Drop Off Points and Roadside selling Stations

where a zebra Crossing Should Be Marked out as shown on Image Below.

A Junction within Engineer town with no Designated crossing point

3.4.B Public Transport

There is one main bus terminus in Engineer town while another one exist in Murungaru and Ndunyu-Njeru townships. This is the main origin or transit destination for journeys along the major routes. Due to lack of termini in other centers, public vehicles load and offload passengers on the road shoulders as shown in the Photo below.

A Junction within Engineer town with no Designated crossing point

From the information obtained from the Matatu Sacco's coordinator, there are 5 main Matatu Sacco's namely; TKN, Tulaga, Satima, GMT2 Mataara NNUS. The matatus belonging to these Sacco's have spaces designated for each Sacco. At any given moment, there are approximately

20 Matatus at the stage. This implies that there are always approximately 90 matatus packed somewhere within the town but not in the town vicinity impending on NMts and Parking Lots

3.4.C Motor Cycles (Bodaboda)

Bodaboda riders provide transport services mostly within the municipality. They act as major mode of transport mainly in transportation of Farm produces from the interior farmlands to the towns due to the poor conditions of the feeder roads within the Municipality. The numbers have increased but without a designated picking and dropping points as they are about 10 registered Bodaboda Sacco's. The *Bodaboda* riders park haphazardly; along the streets, pavements, next to the shops and inside the terminus. This brings disorder within the various town which ends up risking the lives of other road users and those who work in the municipality. Plans have been made to have designate parking and picking spaces for the *Bodaboda* riders inform of construction of Bodaboda shades in each and every town centers within the Municipality in order to create orderliness. In addition, mandatory and enforced training for the riders would curb the disorder caused by the *Bodaboda* riders.

3.4.D Lorry Transport

The Trucks predominantly provide essential services of transporting farm produce mainly Potatoes Cabbages and *Sukumawiki* while others transport construction materials such as sand, metals, iron sheets, stones among others to the town. There are approximately 100 vehicles that offer the service of transport. By transporting these materials, the track drivers not only earn a living but also generate income for the municipality through payment of cess. The payment of cess per trip varies by type of vehicle as follows;

Table 9-1: Cess Payments on Transport of Building Material

Vehicle Type	**Amount of cess paid per trip**
Lorry - 2-3 axles	Ksh. 600-1,200
Canter - 2 axles	Ksh. 450
Pickup	Ksh. 300

Despite offering a critical service, the over 100 trucks do not have a designated parking space. The tracks are packed along the road. Specifically, the tracks are packed along Engineer-Naivasha Road, Njabini- Olkalou Road while others use designated Parking areas as their Loading zones

Summary of emerging issues in transport sector

3.5 WATER SUPPLY

3.5.A Overview

Water availability is essential for economic growth as different economic sectors such as industries, agriculture, commerce, and households largely depend on it. The Constitution also provides for the provision of adequate, clean, and safe water for all. Moreover, the recently adopted Sustainable Development Goals (SDGs) under goal number six, aim to ensure water and sanitation access. This section looks into issues of water accessibility and supply within Engineer municipality.

3.5.B Sources of water

Engineer municipality has a substantial water resource due to its proximity to the Aberdare Water Tower (103,315 Ha).It is endowed with both surface and underground water sources, which include;

- 4 Permanent rivers, Mkungi, Kitiri, Githima and karoroha
- Dams/water pans such as Kanyugi and kahoro which supply water to Engineer town and its environs.
- Rainfall, which is experienced in two seasons. Long rains start in March and end in May with a maximum rainfall of 1500 mm. The short rains are received between September and December and have a minimum rainfall of 700 mm.
- 15 boreholes with an annual production capacity of 209M^3.

Water supply resources in the County

3.5.C Water Service Providers

The main water service providers are the Community Based Organizations (Self-Help Groups)

The various water projects in the municipality are championed by Self-Help Groups (SHGs). These projects mainly source water from existing dams/pans, boreholes and springs. The SGHs are managed by committees, who are members of the community elected by the members to

spearhead the projects and oversee the implementation of the same. Some SHGs have employed some staff who run the day-to-day affairs of the projects in terms of management and operation. These staff facilitate the collection of water tariffs, repairs and installation and advise the community accordingly through the committee.

The management of these groups faces a leadership crisis. Some of these wrangles are political where individual projects are politicized. This has led to the stalling of some projects like Kamrembo water project at Munyaka. The projects also face challenges of acquiring adequate funds to regularly maintain and maximize operations. To ensure smooth operations of these water providers the county government can partner with the groups by providing funding and capacity building. The county government can also encourage self-groups to work under the management of the existing water companies to enhance efficiency of operations and management. However, there are also numerous small-scale rural water service providers'-self-help groups. Some of the active service providers are;

i. Muhonia – Turasha Water Project
ii. Engineer Town
iii. 3M
iv. Mwihoko
v. Raitha Kahuru
vi. Muruaki
vii. Kikanamuku
viii. Gatamaiyu
ix. Kinja serving
x. Githai serving
xi. Umoja-Githae

3.5.D Water Accessibility

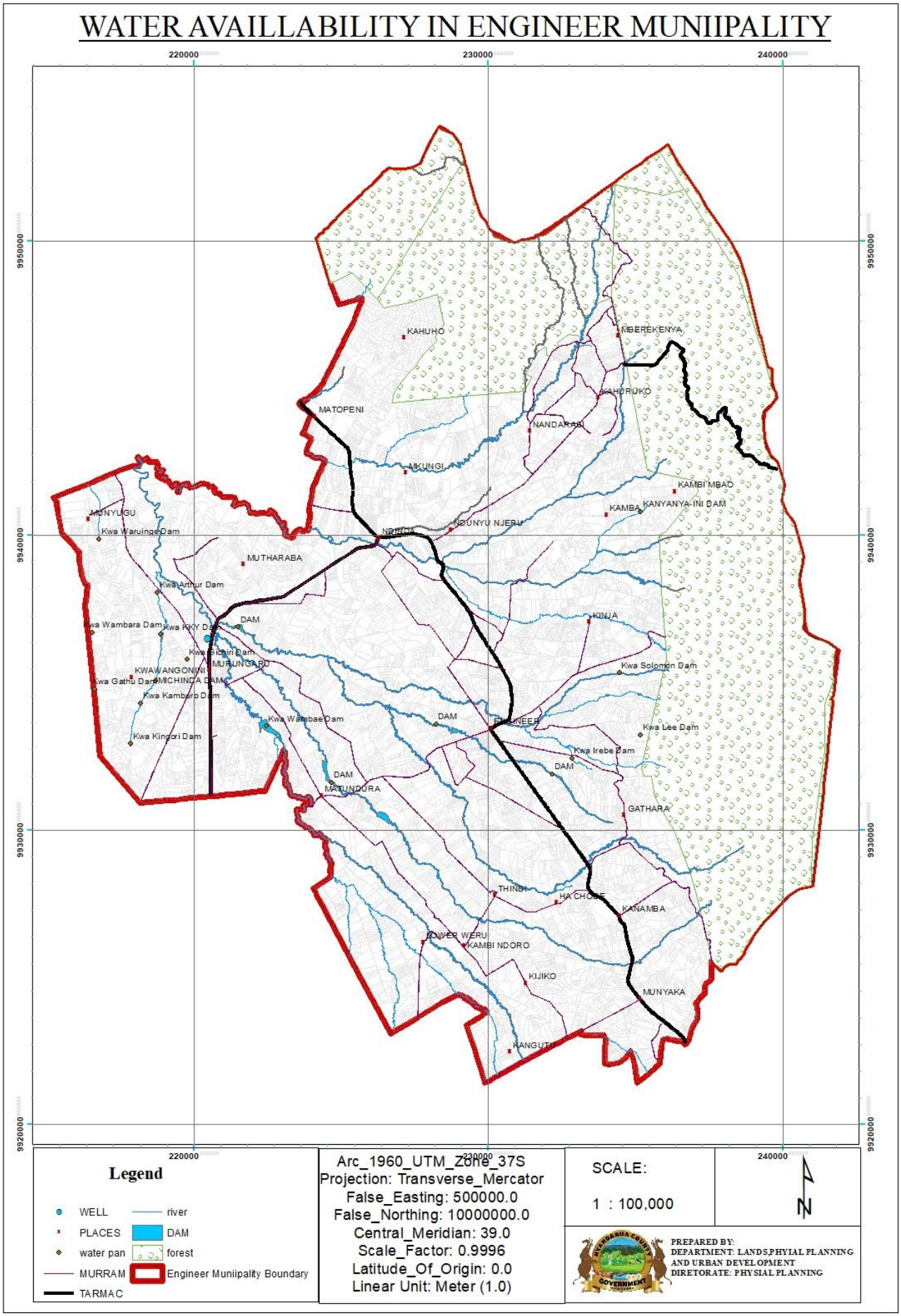
Residents in Engineer municipality have access to piped water, boreholes, shallow wells, rivers, dams and rainwater. However, access to clean and safe drinking water is a persistent

problem. The problem cuts across the municipality.

Majority of the residents rely on piped water serviced by the community-based programmes. In some parts of the municipality, they rely on rivers, boreholes and rainwater. Rainwater harvesting remains low. This is especially due to inadequate harvesting facilities and poor structure designs that do not have provisions for rain water harvesting.

Accessibility of water was also established based on the average distance to the nearest water source/point. It was established that the average distance to the nearest water source is approximately 460 metres, which is average as compared with the recommended 500 metres. However, access to piped water remains insufficient within the sub county with only about 29.0% of households having access to piped water. Some residents have to travel to a distance of up to 1.5KMs, during the dry season.

WATER AVAILLABILITY IN ENGINEER MUNIIPALITY



3.5.E Rural Water Demand

Meeting the growing water demand and providing maintenance on the already aging infrastructure remains a challenge to the County government. Nevertheless, the county in conjunction with the National government, is working to expand water access, particularly in rural areas where only a small percent of the population is connected to piped water.

3.5.F Urban water demand

The identified urban areas in Nyandarua County need an adequate supply of water. According to WHO, the average water demand per capita is 100 litres per day. The projected urban water demand for the major urban areas is presented in table below. The demand was arrived at based on the urban areas current and projected population.

6.Emerging issues

Opportunities	**Constraints**	**Recommendations**
1. The permanent rivers provide opportunities for adequate supply of piped water 2. The Aberdares ranges acts as a water catchment area 3. The dams and water pans are important for stormwater collection and storage 4. High ground water	1. Lack of an integrated water-supply plan for the municipality. 2.Dilapidated infrastructure. 3. Lack of water treatment facilities in water supply systems. 4. Inadequate funding for upgrading, rehabilitation and expansion of water services.	1. Investment in the County-Integrated water reticulation system 2. Repair and maintenance of dilapidated water infrastructure 3. Awareness trainings need to be carried out in the communities on the need for the water projects, community-based organizations to consider working under the

potential	5. Siltation in the dams	management of the water companies to solve the challenge of management problems 4. Installations of water meters at strategic positions to help deal with the issue of non-revenue water. 5. The need for water treatment plants to treat the water making it fit for the domestic use. 6. Adoption of the various community-based water projects by the county government for funding and maintenance.

Restatement of Issues

Inadequate water supply was identified as the main challenge in Engineer municipality, particularly in the urban areas. The inadequacy of water supply is attributed to the lack of an integrated water supply plan, siltation of dam, degradation of water towers, Aberdares in particular, and dilapidated infrastructure. The main source of water in the municipality is rainwater which ends up in rivers and dams. Other sources include boreholes, community and individual water projects which also provide water to residents. Compromised water quality

was also a constraint and was ascribed to the lack of treatment facilities in supply schemes and pollution of groundwater.

Encroachment has been observed in the catchment areas, forests and river riparian reserves. Effects of encroachment on these environmental assets include pollution, diminishing forest cover, siltation of wetlands and loss of biodiversity. The root cause of encroachment on these assets is weak enforcement of environmental laws.

The following strategies are proposed to counteract the constraints identified.

3.6 Solid Waste Management

Engineer municipality being largely rural, 70% of the respondents' resort to burning to manage solid waste at home. Another 20% dump within the neighbourhood. Only 30% of the respondents rely on waste collection services by the county mainly within the urban centres.

According the CIDP 2021, the solid waste management function in the Engineer town and the market centres was managed by the County Public Health Department. This includes collection and street sweeping, the collected waste used to be transported to Ol'kalou dumping site.

Currently, the township waste is being disposed at a temporary open collection point at Engineer town. Due to poor management, the site which fronts the market and along the access road from engineer law court to administration offices poses environmental risks to the residents and business people in the area and also the environment. Some instances the garbage heaps spill blocking the drainage channel, access road, nearby business premises etc.

To enhance waste management services, plans are in place to purchase suitable land for a dumping site. However, for effective solid waste management, the municipality needs an integrated solid waste management system which promote waste reduction, recycling and reuses to reduce the amount of waste collected whilst protecting the environment and promoting resource recovery.

Waste Management Status in the Municipality

picture 1 – blocked access road and a drainage channel

Garbage being dump haphazardly in the open and undeveloped plots

Purchased garbage skippers to be placed at various market centres

3.7 Storm Water Drainage

Proper storm water drainage channels are concentrated mainly along the main roads. Beyond the main roads, storm water drainage channels are almost non-existent. In many residential areas where the channels are not defined, storm water is forced to create natural channels during heavy rains, and also in some parts the water stagnates along the drains.

These become gullies contributing to soil erosion overtime and creaing swamps on the water logged areas. This is evident in Engineer, Murungaru and Ndunyu Njeru among others. Where provided for, the facilities are not well managed. In Engineer and Ndunyu Njeru town, the storm water channels are clogged with litter leading to blockages during heavy rains.

Plate -9-11: Status of Storm Water Drainage

Source: Author 2024

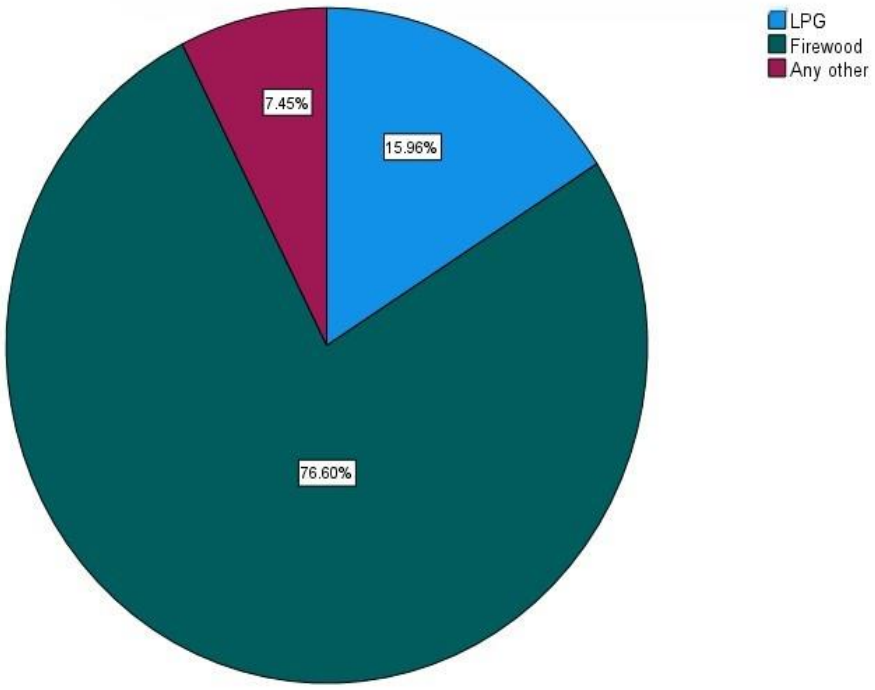
Key Planning Issues

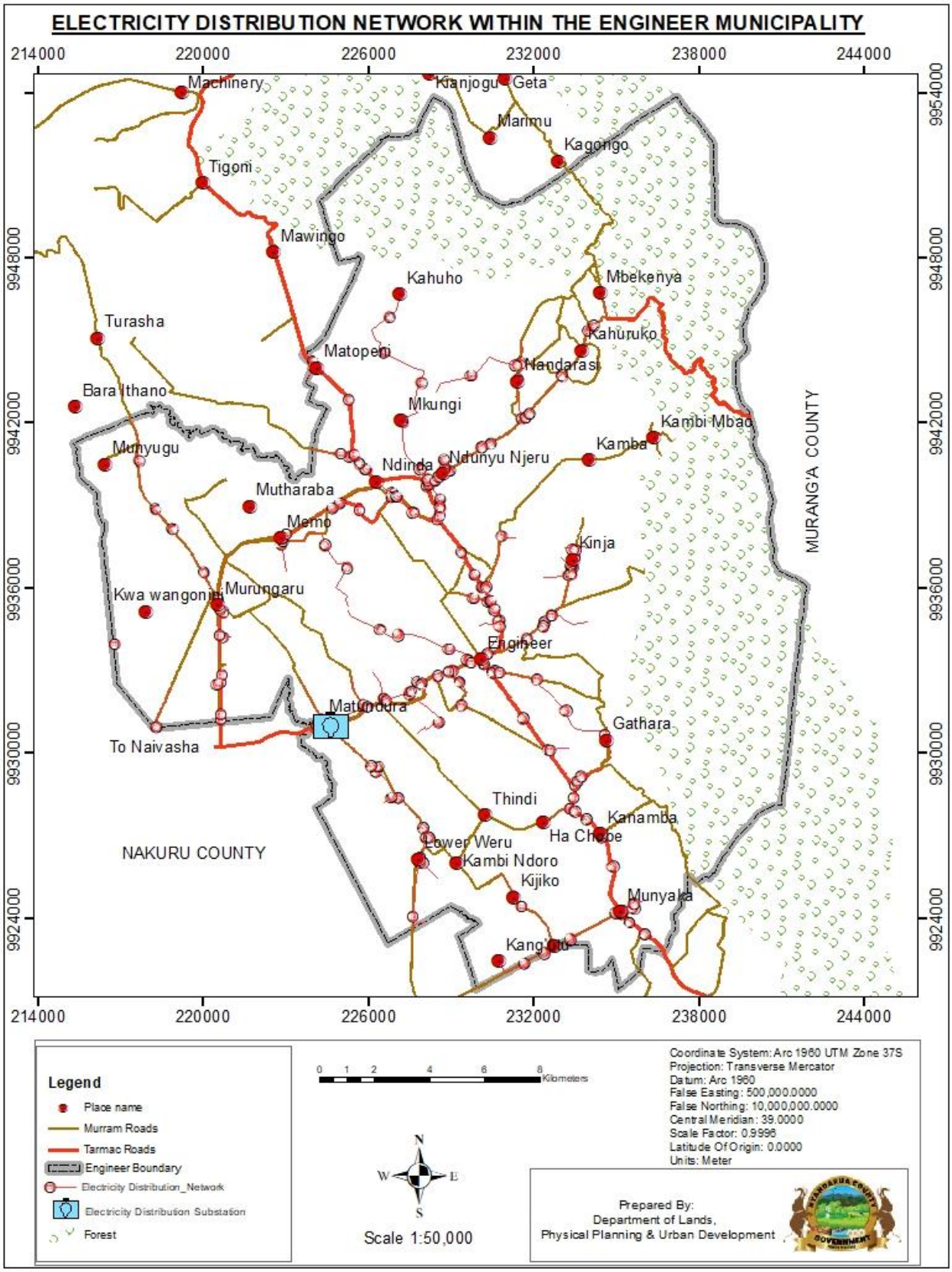
Sector	Planning Issues	Opportunities
Solid waste management	• Waste dumping in open spaces and road reserves due to behaviour and lack of designated collection sites • Lack of modern solid waste disposal sites	• Adoption of 3Rs; (Reduce, Reuse and Recycle) • Adoption of best practices on waste to energy, wealth creation, fertilizer among other uses

3.8 ENERGY AND ICT

3.8.A Energy

According to the field survey, the source of energy for cooking within the planning area is firewood accounting for (76.6%), LPG (15.96%) and any other including charcoal and kerosene (7.44%). The planning area largely characterized by rural traits, energy from biomass mainly wood fuel is the most dominant as shown in the figure below represented by firewood and charcoal. A large sample size of the residents (77%) use electricity for lighting. This can be attributed to implementation of Kenyan government last mile connection project in the past 5-8 years. The municipality has benefited greatly from the project with 77% of respondents having access to electricity. The remaining 23% of households that area not connected to electricity. The aforementioned statistics do not have a significant difference from what was established through spatial analysis where it was identified that 24.25% of the structures were more than 500m from the power lines. Additionally, from the household survey, 79% and 21% rely on solar and paraffin respectively for lighting.




ELECTRICITY DISTRIBUTION NETWORK WITHIN THE ENGINEER MUNICIPALITY
214000
220000
226000
232000
238000
244000
9954000
9948000
9942000
9936000
9930000
9924000
Machinery
Kianjogu
Geta
Marimu
Kagongo
Tigoni
Mawingo
Kahuho
Mbekenya
Turasha
Kahuruko
Matopeni
Nandarasi
Bara Ithano
Mkungi
Kambi Mbao
Munyugu
Kamba
Ndinda
Ndunyu Njeru
Mutharaba
Memo
Kinja
Kwa wangonim
Murungaru
Engineer
Matundura
Gathara
To Naivasha
Thindi
Kanamba
Ha Chebe
Lower Weru
Kambi Ndoro
Kijiko
Munyaka
Kang'ari
NAKURU COUNTY
MURANG'A COUNTY
Legend
Place name
Murram Roads
Tarmac Roads
Engineer Boundary
Electricity Distribution_Network
Electricity Distribution Substation
Forest
0 1 2 4 6 8
Kilometers
N
W
E
S
Scale 1:50,000
Coordinate System: Arc 1960 UTM Zone 37S
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 10,000,000.0000
Central Meridian: 39.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
Prepared By:
Department of Lands,
Physical Planning & Urban Development

3.8.B Information, Communication and Technology

Engineer Municipality is well served by ICT infrastructures such as mobile phone service providers including, Safaricom, Airtel and Telkom. This has increased access to services like mobile money transfer, e-commerce, e banking and internet services. This has created business and employment opportunities in cybercafés, Mpesa shops and other related services. Other ICT infrastructure in the Municipality is Postal service**.** Kenya Postal Service has a functioning Post Office in Engineer Town. However, the facility is facing stiff competition from other means of communication such as mobile phones, internet, and courier services. There exists fiber-optic cable network is available leading to improvement of business activities, communication and information sharing.

EMERGING ISSUES-ENERGY

3.8.B.1 Solar energy

Nyandarua received an average yearly irradiation of 1,600 to 1,800 kWh/m2 from 1994 to 2010. Only areas of the Aberdare ranges received less than 1000 kWh/m2 in yearly irradiation. This demonstrates the county's and municipality's significant potential for solar power generation.

3.8.B.2 Wind energy

Aberdare Ranges provides a good source of wind, which can be tapped and harnessed to provide energy. Wind speeds of 1m/s can produce at least 4825.486 Watts of power. The current use of wind turbines is for irrigation by pumping of water from rivers to farms. This shows the great potential of power generation and a boost for agricultural production in Engineer municipality.

- **Biomass-Biomass(animal and plant products)**has become a dominant source of energy for many households within municipality
- **Increase in energy prices-**Growing demand for energy due to population and economic growth has led to high cost of energy i.e. electricity, gas & kerosine
- **Growing demand-**The has current experience increased population and economy growth leading to frequent power blackout.

3.8.B.3 Cyber security

Cybersecurity is becoming more critical. Business and institutions need to have strong security measures to protect their data and systems

3.8.B.4 5G Network Connection

5G Network has been key to increased network speed and promised significant faster data download, upload speed, wider coverage and more reliable

- **Data management-**The large amount of data collected by emerging technology raises privacy concerns. It is therefore recommended that the municipality should procure secure devices and implement vigorous standards for data management.
- **AI-**Commercialized AI is poised to revolutionized the emerging IT industry, offering more avenues for business growth and market absorption.

Key Planning Issues

SECTOR	PLANNING ISSUES	OPPORTUNITY	PROPOSAL
Energy	• Lack of wayleaves for power lines • Power lines traversing private properties • High cost of LPG • Insufficient funding • Stealing of transformers	• Availability of a power sub-station • Availability of KPLC regional office	• MOU Between KPLC, National government, County government and Road agencies to relocate power lines to road reserves • Survey all spaces meant for wayleaves • Adequate Utilization of the available offices to enhance electricity distribution • Install tracking gadgets and sensors
Information Communication Technology	• Poor network coverage and penetration	• Availability of land to establish ICT hubs	• Increase number of network boosters and location in high vantage points

	• Low distribution of fibre optic cables • Low exploitation of the internet due to lack of awareness • Lack adequate ICT Centres/facilities • Low distribution of electricity • Lack of adequate fund to purchase ICT equipments	• Availabity of ICT centre to train ICT skills	• Increase distribution of fibre optic cable to cover larger part of municipality • Create awareness on the need to embrace ICT • Designate land for Innovation hubs and incubation centres • Increase electricity connection to cover large part of municipality

CHAPTER SEVEN: SOCIAL INFRASTRUCTURE

7. 1 Education Facilities

Current Provision

Access to affordable, accessible, and high-quality education can play a significant role in the development of children and positively influence school-readiness, future educational attainment, economic participation, and health. Universal, high-quality education and care not only benefit the whole population but can also particularly benefit children from the most disadvantaged backgrounds.

Engineer Municipality is served with all categories of educational facilities from Early Childhood Development Education (ECDE) facilities to tertiary institutions. The table below shows different level of education in the Municipality.

Table-7.1: Number of Educational Institutions

	Pre-School **(ECDE)**	Primary Schools	Junior Secondary	Secondary Schools	Tertiary Institutions	Adult Education	Universities
Number of Facilities	55	47	46	28	2	0	0

There are 55 ECDEs in Engineer Municipality. The ECDEs are fairly distributed across the municipality. Most ECDEs are hosted in primary schools, however, there are also standalone facilities. There are 47 public primary schools and 46 Junior Secondary Schools which are attached to the Primary Schools.

In addition, there are 28 number of secondary schools in Engineer Municipality but are not evenly distributed.

There are two Tertiary Institutions in Engineer Municipality; Kenya Medical Training College (KMTC and Kinangop Polytechnic.

Capacity of Existing learning Institutions

7.1.1. Early Childhood Development Education. (ECDEs)

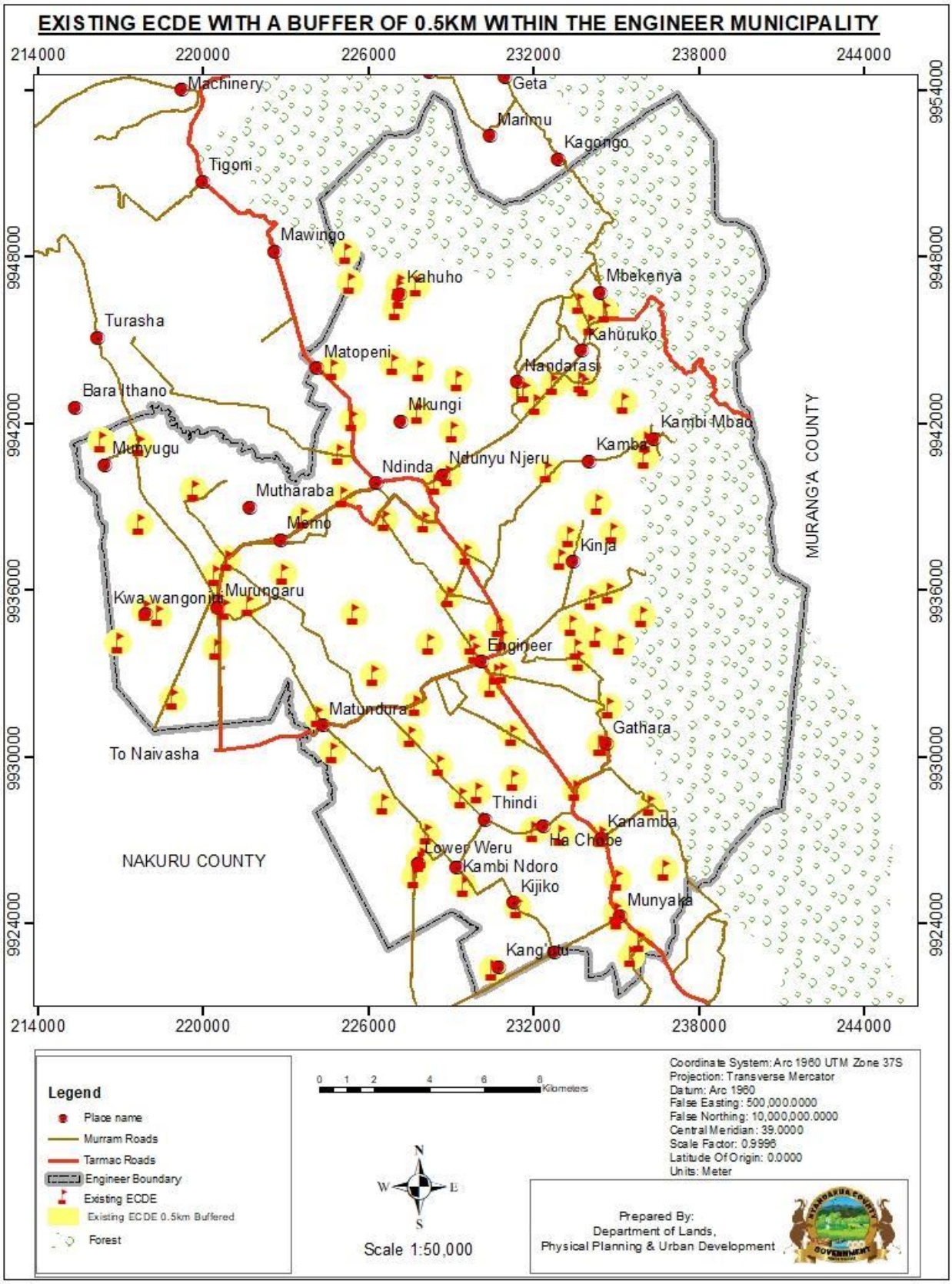
The table below only shows the number of teachers who are permanently employed. It's notable that there are teachers employed on contracts and also BOM teachers in some of the ECDEs.

Table-7.2: Capacity for existing ECD schools in Engineer Municipality

S/ No.	Name	Location / Ward	No. of Pupils	No. of teachers	Teacher Pupil Ratio	Parent School	Ownership
1.	Kihumbu	Murungaru	56	1	56	Attached	Public
2.	Kamabata		112	2	56	Attached	Public
3.	Kiambaa		70	2	35	Attached	Public
4.	Mekaro		96	2	48	Attached	Public
5.	Kahuria		148	2	74	Attached	Public
6.	Kirarua		124	2	62	Attached	Public
7.	Gacharage		86	2	43	Attached	Public
8.	Kahuho		47	1	47	Attached	Public

9.	Mwiruti Pry		78	2	39	Attached	Public
10.	Mugumoini		70	2	35	Attached	Public
11.	Kimuri		136	2	68	Attached	Public
12.	Ndaracaini		90	2	45	Attached	Public
13.	Kiria	North Kinangop	96	2	48	Attached	Public
14.	Kirima		76	1	76	Attached	Private
15.	Kambaa		116	2	58	Attached	Public
16.	Kawamaitha		128	3	64	Attached	Private
17.	Muhuti pry		104	2	52	Attached	Public
18.	Kiandege		90	2	45	Standalone	Private
19.	Aderdare		104	2	52	Attached	Public
20.	Kitogo		128	2	64	Attached	Public
21.	Ndunyu Njeru		270	4	68	Attached	Public
22.	Gitite ECDE		60	1	60	Standalone	Public
23.	Kanyugi	Engineer	186	3	61	Attached	Private
24.	Kang'utu		41	2	21	Attached	Public
25.	Kamunyaka		64	2	32	Attached	Public
26.	Kahuru		46	2	23	Attached	Public
27.	Manyatta ECD		76	2	38	Standalone	Public
28.	Kijiko		94	2	47	Attached	Public
29.	Munyaka		148	2	74	Attached	Public
30.	Muthomi		150	2	75	Attached	Public
31.	Matundura		72	1	72	Attached	Public
32.	Rugongo		124	2	62	Attached	Public
33.	Centre		139	2	70	Attached	Public
34.	Faru		40	1	41	Attached	Public
35.	Kitiri	Gathaara	90	2	45	Attached	Public
36.	Kinja		86	1	86	Attached	Public
37.	Mwihoko		140	2	70	Attached	Public
38.	Mutamaiyu ECDE		28	1	28	Standalone	Public
39.	Mweteithia		124	2	62	Attached	Public
40.	Kianguyo ECDE		42	1	42		Public
41.	Gathara ECDE		100	2	50	Standalone	Public
42.	Githunguri ECDE		90	2	45	Standalone	Public
43.	Kinamba		221	2	111	Attached	Public
44.	Kariahu		86	2	43	Attached	Public
45.	Kiahuho		46	1	46	Attached	Public
46.	Mutamaiyu B		70	1	70	Attached	Public
47.	Mutamaiyu C		78	1	78	Attached	Public
48.	Raitha		90	2	45	Attached	Public
49.	Urumwe		80	1	80	Attached	Public

50.	Grace A		110	2	55	Attached	Public
51.	Grace B		56	1	56	Attached	Public
52.	Kambaa		76	1	76	Attached	Public
53.	Karoroha		114	2	57	Attached	Public
54.	Nyakiambi		62	2	31	Attached	Public
55.	Nyandarua School for the Deaf		60	2	30	Attached	Public



7.1.2. PRIMARY SCHOOLS

The table below shows the pupil-teacher ratio for various schools within the planning area. According to the Ministry of Education in Kenya, the recommended pupil-teacher ratio stands at 50:1 for public primary schools. From the table below, most schools are within the recommended ratios. It is notable that the enrolment rates in most of the primary schools is low

due to preference for private schools and the sparse populations within some of the settlements where these schools are located.

The table below shows the existing capacity in the primary schools as at 2024 within the municipality.

Table-3: Primary Schools in Engineer Municipality

S/ No.	Name	Zone	No. of Pupils	No. of teachers	Teacher Pupil Ratio	Ownership
1.	Centre	Engineer	173	8	22	Public
2.	Faru		118	9	13	Public
3.	Gathaara		203	9	23	Public
4.	Gitite		80	6	13	Public
5.	Grace		204	9	23	Public
6.	Jomo Kenyatta		130	10	13	Public
7.	Kahuru		433	12	36	Public
8.	Kanyugi		353	14	25	Public
9.	Karoroha		171	9	19	Public
10.	Kinja P.C. E. A		147	8	18	Public
11.	Matundura		230	10	23	Public
12.	Mbirithi		165	9	18	Public
13.	Muruaki		153	9	17	Public
14.	Mutamaiyu		246	11	22	Public
15.	Mwihoko		311	11	28	Public
16.	Mwiteithia		670	27	25	Public
17.	Nyandarua School for the Blind		269	9	30	Public
18.	Rugongo		269	8	34	Public
19.	Hianyu	Murungaru	148	9	16	Public
20.	Kambata		165	9	18	Public
21.	Kihumbu		152	11	14	Public
22.	Kimuri		219	10	22	Public
23.	Kirathimo		120	8	15	Public
24.	Mugumoini		105	8	13	Public
25.	Murungaru		444	24	19	Public
26.	Mwihoti		166	10	17	Public
27.	Mwiruti		181	9	20	Public
28.	Ndaracaini		245	10	25	Public
29.	Aberdare	Nndunyu Njeru	234	9	26	Public
30.	Gacharage		136	9	15	Public
31.	Kahuho		169	8	21	Public
32.	Kahuria		143	9	16	Public
33.	Kamirangi		97	9	11	Public

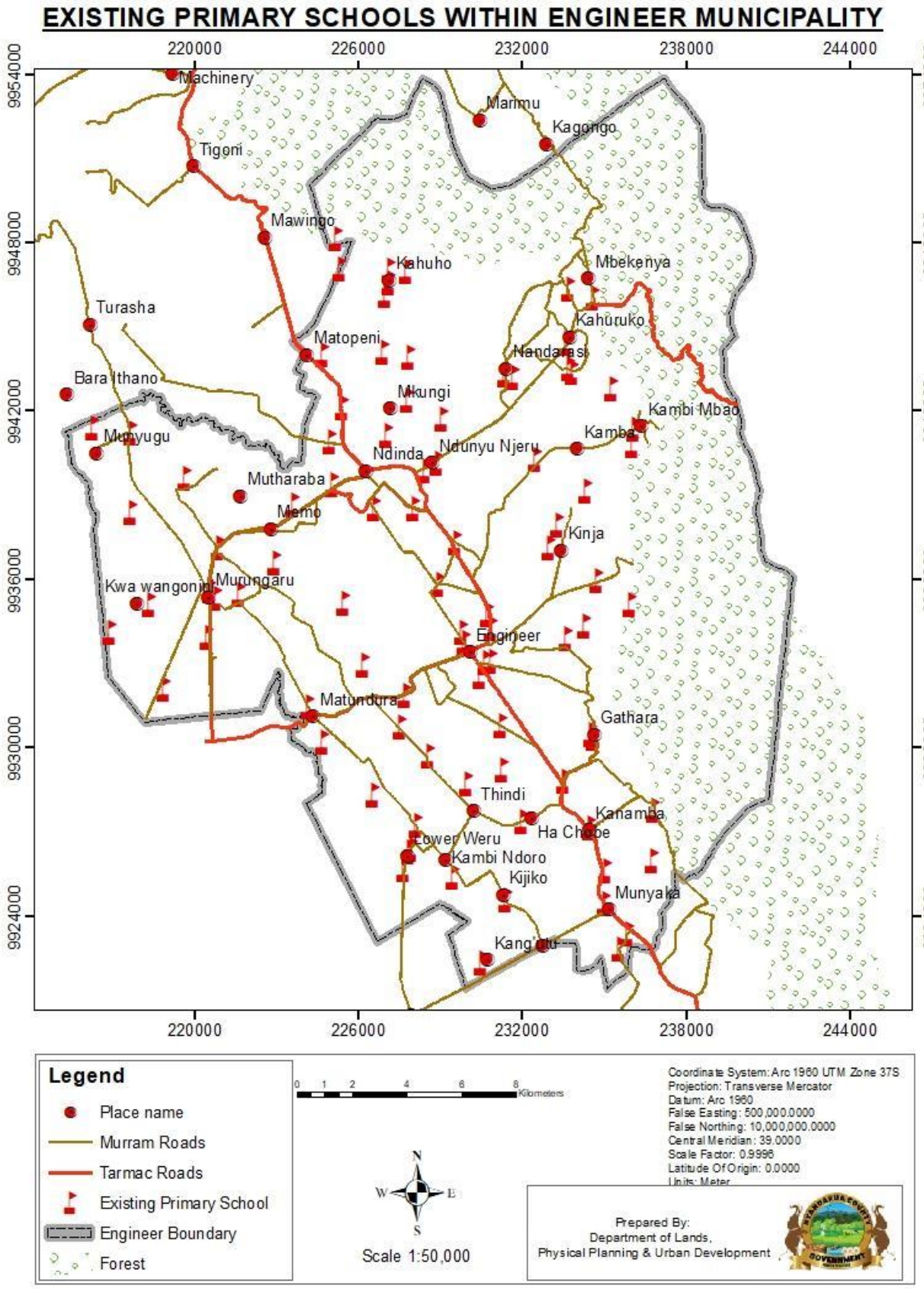
34.	Kawamaitha		242	11	22	Public
35.	Kiambaa		222	11	20	Public
36.	Kiambariki		363	15	24	Public
37.	Kiandege		90	8	11	Public
38.	Kirarua		274	8	31	Public
39.	Kiria		121	10	12	Public
40.	Kitiri		199	8	25	Public
41.	Kitogo		207	7	30	Public
42.	Mekaro		153	7	22	Public
43.	Mkungi		313	10	31	Public
44.	Muhuti		193	10	19	Public
45.	Nandarasi		26	3	9	Public
46.	Ndunyu Njeru		630	21	30	Public
47.	Raitha		231	9	26	Public

7.1.3. JUNIOR SECONDARY SCHOOLS

Table-4: Junior Secondary Schools in Engineer Municipality

S/ No.	Name	Zone	No. of Pupils	No. of teachers	Teacher Pupil Ratio	Ownership
1.	Centre	Engineer	63	5	13	Public
2.	Faru		48	4	12	Public
3.	Gathaara		91	5	18	Public
4.	Gitite		28	3	9	Public
5.	Grace		97	5	19	Public
6.	Jomo Kenyatta		65	5	13	Public
7.	Kahuru		165	6	28	Public
8.	Kanyugi		148	8	19	Public
9.	Karoroha		101	5	20	Public
10.	Kinja P.C. E. A		47	5	9	Public
11.	Matundura		87	5	17	Public
12.	Mbirithi		82	5	16	Public
13.	Muruaki		71	5	14	Public
14.	Mutamaiyu		81	5	16	Public
15.	Mwihoko		119	6	20	Public
16.	Mwiteithia		229	7	33	Public
17.	Nyandarua School for the Blind		34	5	7	Public
18.	Rugongo		96	3	32	Public
19.	Hianyu	Murungaru	61	5	12	Public
20.	Kambata		63	5	13	Public
21.	Kihumbu		70	5	14	Public

22.	Kimuri		96	5	19	Public
23.	Kirathimo		65	5	13	Public
24.	Mugumoini		49	5	10	Public
25.	Murungaru		184	11	17	Public
26.	Mwihoti		77	5	15	Public
27.	Mwiruti		75	5	15	Public
28.	Ndaracaini		88	5	18	Public
29.	Aberdare	Ndunyu Njeru	75	9	8	Public
30.	Gacharage		25	3	8	Public
31.	Kahuho		95	8	12	Public
32.	Kahuria		48	6	8	Public
33.	Kamirangi		32	5	6	Public
34.	Kawamaitha		130	6	22	Public
35.	Kiambaa		80	4	20	Public
36.	Kiambariki		126	6	21	Public
37.	Kiandege		48	4	12	Public
38.	Kirarua		119	5	24	Public
39.	Kiria		58	4	15	Public
40.	Kitiri		69	3	23	Public
41.	Kitogo		62	6	10	Public
42.	Mekaro		72	4	18	Public
43.	Mkungi		108	6	18	Public
44.	Muhuti		90	3	30	Public
45.	Ndunyu Njeru		229	6	38	Public
46.	Raitha		105	5	21	Public



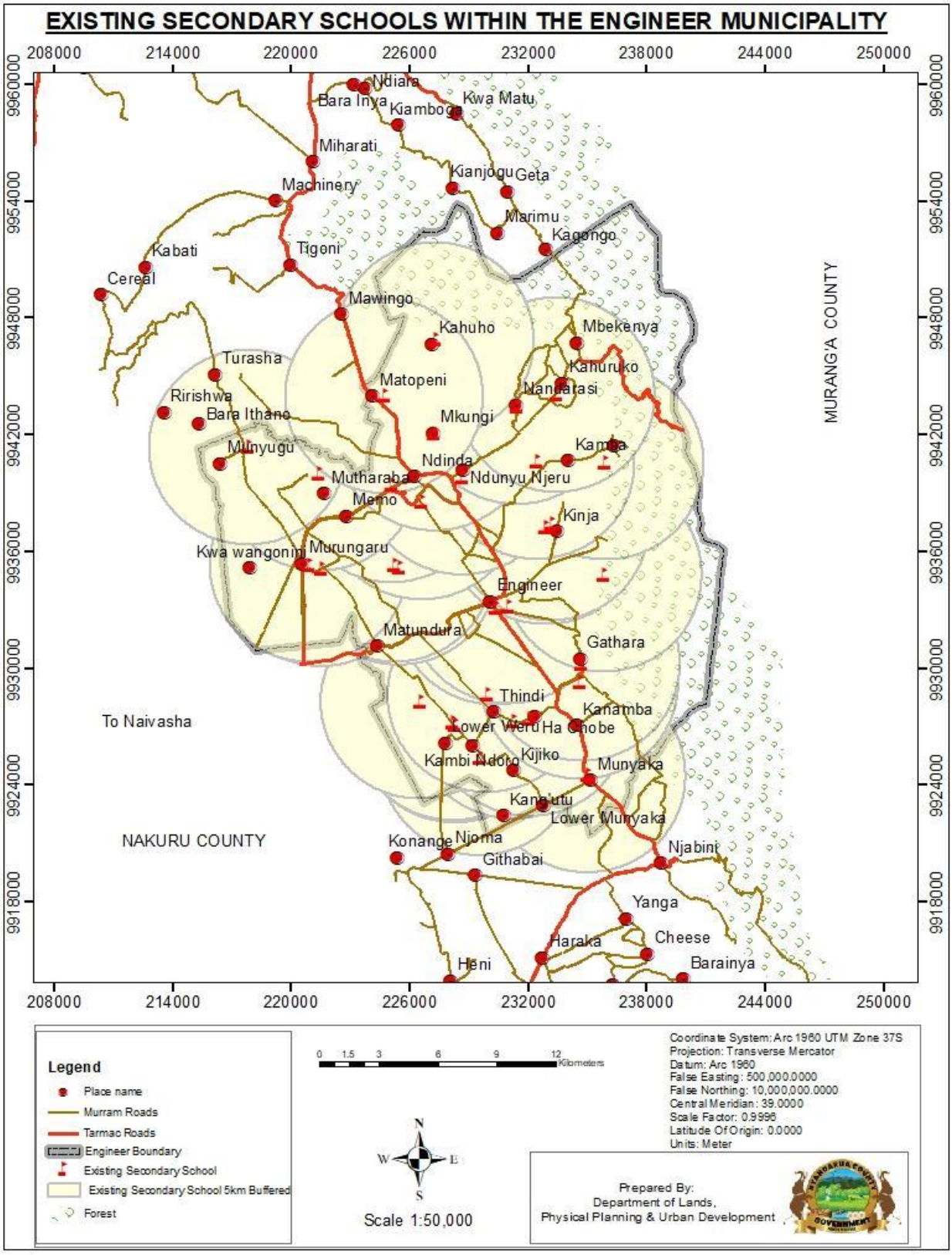
7.1.4. SECONDARY SCHOOLS

On the other hand, the Ministry of Education recommends 45:1 student-teacher ratio for public secondary schools. From the table below, all the schools have achieved this due to low enrolment of students in the schools.

Table-5: Capacity for existing Secondary schools in Engineer Municipality

S/ No.	Name	Zone	No. of Students	No. of teachers	Teacher Student Ratio	Ownership
1.	Gathaara	Engineer	421	19	22	Public
2.	Kahuru		95	9	11	Public
3.	Magomano		1197	55	22	Public
4.	Muruaki		336	19	18	Public
5.	Mutamaiyu		258	15	17	Public
6.	Mutiini		170	9	19	Public
7.	Mwiteithia		580	28	21	Public
8.	Rugongo		346	18	19	Public
9.	St. Michael Faru		34	9	4	Public
10.	Thindi Highstar		78	9	9	Public
11.	Kambata	Murungaru	133	9	15	Public
12.	Kihumbu		233	19	12	Public
13.	Kimuri		474	27	18	Public
14.	Murungaru		540	28	19	Public
15.	Mwihoti		154	9	17	Public
16.	Aberdare Ranges	Ndunyu Njeru	291	19	15	Public
17.	Karima Girls		1917	82	23	Public
18.	Kiambariki		511	29	18	Public
19.	Kinja		210	9	23	Public
20.	Kirarwa		408	17	24	Public
21.	Kiria		45	9	5	Public
22.	Kitogo		162	19	9	Public
23.	Mekaro		201	15	13	Public
24.	Mwendandu		720	30	24	Public
25.	Nandarasi		347	19	18	Public
26.	Ndunyu Njeru		722	32	23	Public
27.	Raitha		202	15	14	Public
28.	St. Joseph Mukungi		337	19	18	Public

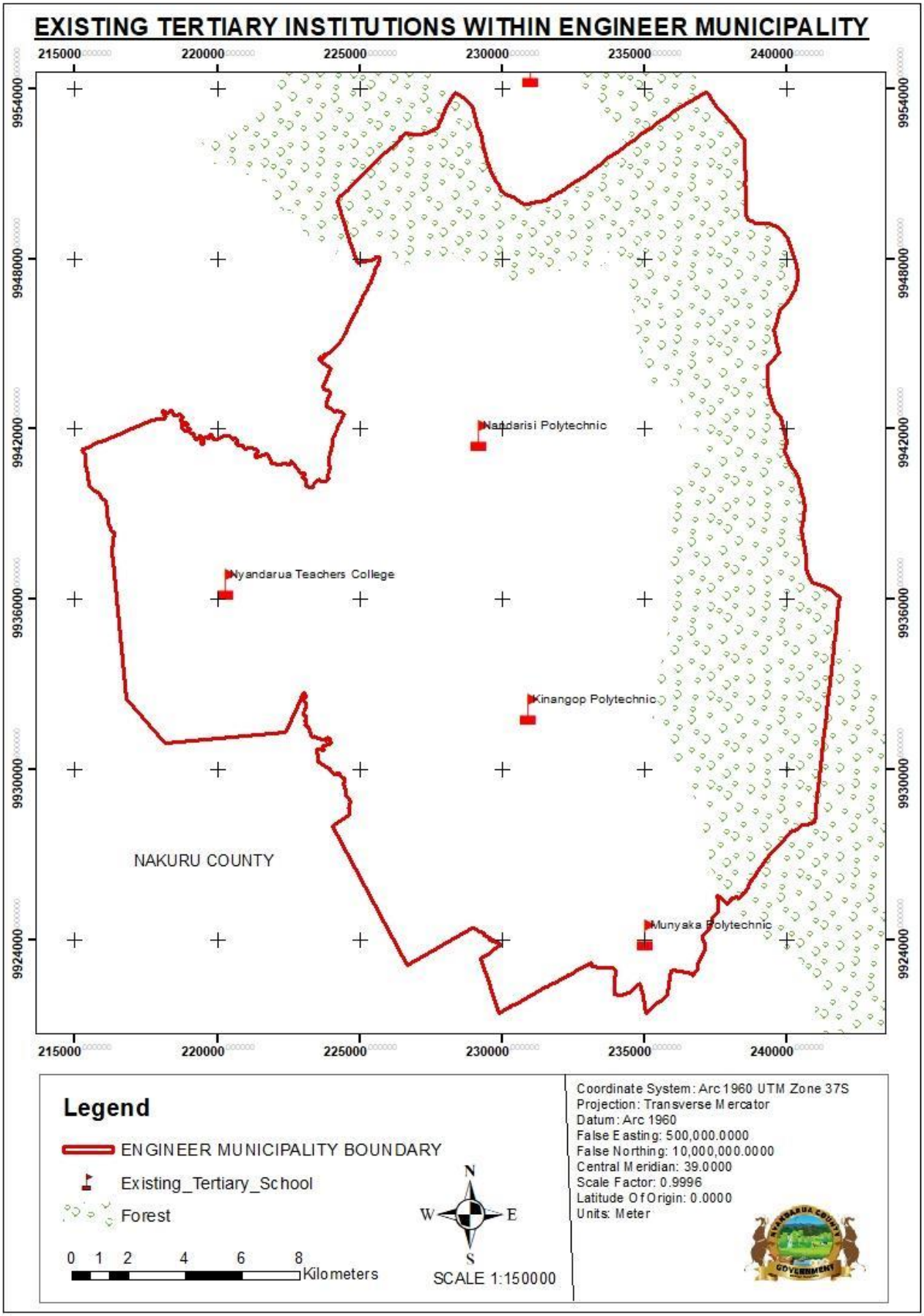
Source: Nyandarua South Sub-County Director of Education, 2024


EXISTING SECONDARY SCHOOLS WITHIN THE ENGINEER MUNICIPALITY
208000
214000
220000
226000
232000
238000
244000
250000
9960000
9954000
9948000
9942000
9936000
9930000
9924000
9918000
Ndiara
Bara Inya
Kwa Matu
Kiamboga
Miharati
Machinery
Kianjogu
Geta
Marimu
Kagongo
Tigoni
Kabati
Cereal
Mawingo
Kahuho
Mbekenya
Kahuruko
Turasha
Matopeni
Nandarasi
Ririshwa
Bara Ithano
Mkungi
Kamba
Mwinyugu
Ndinda
Mutharaba
Ndunyu Njeru
Memo
Kinja
Kwa wangonim
Murungaru
Engineer
Matundura
Gathara
Thindi
Kanamba
To Naivasha
Lower Weru
Ha Chobe
Kambi Ndoto
Kijiko
Munyaka
Kana'utu
Lower Munyaka
NAKURU COUNTY
Konange
Njoma
Njabini
Githabai
Yanga
Haraka
Cheese
Heni
Barainya
MURANG'A COUNTY
Legend
Place name
Murram Roads
Tarmac Roads
Engineer Boundary
Existing Secondary School
Existing Secondary School 5km Buffered
Forest
0 1.5 3 6 9 12
Kilometers
N
W
E
S
Scale 1:50,000
Coordinate System: Arc 1960 UTM Zone 37S
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 10,000,000.0000
Central Meridian: 39.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
Prepared By:
Department of Lands,
Physical Planning & Urban Development

7.1.5. TERTIARY INSTITUTIONS

Table-6: Tertiary Institutions in Engineer Municipality

S/ No.	Name	Location		No. of Pupils	No. of teachers	Teacher Pupil Ratio	Ownership	Land Size (Acres
		Ward	Village					
1.	Kinangop Polytechnic	Gathara	Ndunyu Njeru	210	7	30	Public	2.5
2.	Kenya Medical Training College (KMTC)	Gathara						


EXISTING TERTIARY INSTITUTIONS WITHIN ENGINEER MUNICIPALITY
215000
220000
225000
230000
235000
240000
9954000
9948000
9942000
9936000
9930000
9924000
Nandarisi Polytechnic
Nyandarua Teachers College
Kinangop Polytechnic
Munyaka Polytechnic
NAKURU COUNTY
Legend
ENGINEER MUNICIPALITY BOUNDARY
Existing_Tertiary_School
Forest
0 1 2 4 6 8
Kilometers
N
W
E
S
SCALE 1:150000
Coordinate System: Arc 1960 UTM Zone 37S
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 10,000,000.0000
Central Meridian: 39.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter

Projected Demand of Education Facilities

As the population is projected to increase, so is the demand for provision of educational services. The Physical Planning Handbook 2007 prescribes the population standards for provision of the education facilities.

ECDEs: The municipality currently has a deficit of ECDEs. The deficit is projected to increase with 20 facilities by the end of the plan period. The handbook recommends an ECDE facility with a maximum capacity of 120 children for a catchment population of 1:1250. With some ECDE facilities in the planning area covering greater distances than the ideal distance of 500m, there is a demonstrated need for more equitable distribution to serve underserved areas while seeking to meet the demand.

Primary Schools: Currently, there are 10,313 pupils in primary school facilities for 486 teachers, resulting in a student-to-teacher ratio of 21:1 versus the Ministry of Education's recommended 50:1 ratio. While this may indicate adequate provision, it may also indicate under-enrolment by potential pupils. There is a current deficit of 10 facilities based on the handbook recommendation of a single-stream facility with a capacity of 320 pupils for a catchment population of 1:1200. If no new facilities are built during the plan period, the deficit is expected to total 57 facilities. The recommended walking distance is 500 metres.

Junior secondary schools: Currently, there are 4,051 pupils in Junior Secondary school facilities for 250 teachers, resulting in a a student-to-teacher ratio of 16:1 versus the Ministry of Education's recommended 50:1 ratio. This indicates under-enrolment by potential pupils

Secondary schools: Currently, there are 11,122 students and 596 teachers in 28 secondary schools, translating to a 19:1 student-teacher ratio, which albeit within the Ministry of Education's recommended 45:1 student-teacher ratio, could point to under-enrolment by the students. The handbook recommends a secondary school with a capacity of 160 students for a catchment population of 2700. Currently, there is a deficit of 12 schools. This is projected to increase to 40 facilities by the end of the plan period.

Tertiary: There is a need for equitable distribution of Tertiary facilities hence need for more facilities to achieve this. Furthermore, there is a demand and need for the operationalization of non-operational facilities in the Municipality which include; Nandarasi Polytechnic, Munyaka Polytechnic and Nyandarua Teachers College.

To improve access to the educational institutions, other interventions include construction of more classrooms, offering bus services to the children, improving the road conditions and opening up of some new roads to ease accessibility and providing transport. The table below shows the projected future demand for educational facilities.

Educational Facility Class	**Current provision** 2024	**Projected Demand** 2029	**Projected Demand** 2033
ECDE	55	60.5	66
Primary	47	51.7	56.4

Junior Secondary	46	50.6	55.2
Secondary	28	30.8	33.6
Tertiary	2	2.2	3

Source: Projected using the Physical Planning Handbook, 2007

Key Planning Issues

Sub- Sector	Key Planning Issues	Opportunity
Education Facilities	• Low enrolment numbers in primary and secondary schools. • Poor access roads to educational facilities that are located away from the main roads. • Inadequate educational facilities in Engineer Ward • Inadequate ECDE Teachers	• Availability of land to build more schools in underserved areas • Employment of more ECDE teachers

7.2. Health Facilities

Health infrastructure is fundamental to the attainment of a healthy population. A reliable healthcare system is built on the principle of affordability and accessibility. Within the municipality, health services are offered in three tiers namely: community, primary health care facilities i.e., dispensaries and health centres and hospitals. In total, Engineer Municipality has 1 District Hospital, 6 Health centre,14 dispensaries, and 41 community units (level 1) Apart from these government health facilities, there are several private and faith-based health facilities that also offer health services such as north Kinangop catholic mission hospital.

Health being a devolved function, the County Government is in charge of the public facilities. It is mainly involved in provision of land and construction of health facilities, provision of utility services such as water, electricity and waste collection services.

Below is the list of dispensaries, hospitals and health centres in the municipality

ENGINEER MUNICIPALITY HEALTH FACILITIES & THEIR CLASSIFICATION														
	WARD NAME		NAME OF THE FACILITY	CATEGORY	NO. DOCTORS	NO. NURSES	NO. CLINICAL OFFICERS	NO. PHARMACISTS	BED CAPACITY	OWNERSHIP DOCUMENTS	PUBLIC / PRIVATE	PLANNED /SURVEYED	ACREAGE (HA)	MARTENITY	OTHER COMMENTS
1	MURUNGARU WARD	1	MIKARO DISPENSARY	2	0	1	0	0	0	GOK	PUBLIC.	MIKARO DP	1.02	N/A	
		2	MURUNGARU HEALTH CENTRE	3	0	9	1	0	4	GOK	PUBLIC.	NYA/C1146/99/01	0.61	Available	New maternity block need renovation/ equipments
		3	MKUNGI DISPENSARY	2	0	2	0	0	0	GOK	PUBLIC.	NYA/MKUNGI/1727 (SHEET 2)	0.63	N/A	
2	NYAKIO WARD	1	RWANYAMBO DISPENSARY	2	0	2	0	0	0	GOK	PUBLIC	NYA/SOUTH KINANGOP/6971 (SHEET 5)	0.13	N/A	
		2	HARAKA DISPENSARY	2	0	2	0	0	0	GOK	PUBLIC			N/A	
		3	KARANGATHA HEALTH CENTRE	3	0	6	0	1	4	GOK	PUBLIC	NYA/NJABINI/1160 (SHEET 5)	2.74	Available	
3	ENGINEER WARD	1	KAHURU DISPENSARY	2	0	1	0	0	0	GOK	PUBLIC			N/A	
		2	WERU HEALTH CENTRE	3	0	7	1	0	1	GOK	PUBLIC	WERU SHEET 134/1/17/5	0.88	Available	requires a maternity block
		1	MUNYAKA DISPENSARY	2	0	2	0	0	0	GOK	PUBLIC	NYA/TULAGA/466 (SHEET 5)	0.63	N/A	
		2	GATHARA DISPENSARY	2	0	2	0	0	0	GOK	PUBLIC	TULAGA DP	0.3	N/A	
		3	ENGINEER HOSPITAL	4	13	47	14	5	85	GOK	PUBLIC	NYA/KITIRI/507 (SHEET 5)	3.44	Available	
4	GATHARA WARD	4	MUTARAKWA DISPENSARY	2	0	2	0	0	0	GOK	PUBLIC	NYA/KITIRI / 402 (SHEET 6)		Available	maternity block available which require upgrading of the facility to be a health centre.
5	NORTH KINANGOP WARD	1	NDUNYU NJERU DISPENSARY	2	0	1	0	0	0	GOK	PUBLIC	NYA/C930/2005/01	0.18	N/A	
		2	KITOGO DISPENSARY	2	0	2	0	0	0	GOK	PUBLIC	NYA/KITIRI /3612 (SHEET 2)	0.45	N/A	
		3	NANDARASI DISPENSARY	2	0	2	0	0	0	GOK	PUBLIC	NYA/NANDARASI/241	0.55	N/A	

		4	*KWA MBEKENYA DISPENSARY*	2	0	1	0	0	0	GOK	PUBLIC	(SHEET3)		N/A	
6	GITHABAI WARD	1	*HENI HEALTH CENTRE*	3	0	6	0	0	10	GOK	PUBLIC	NYA/C1132/15/01	1.45	Available	only 2 available beds Requires renovation
		2	*KOINANGE DISPENSARY*	2	0	2	0	0	0	GOK	PUBLIC	NYA/C929/2009/01	0.25	N/A	
		3	*GITHABAI DISPENSARY*	2	0	1	0	0	0	GOK	PUBLIC	NYA/C50/90/05	0.3	N/A	

7.2.1. Morbidity

The five most common diseases in order of prevalence are as follows;

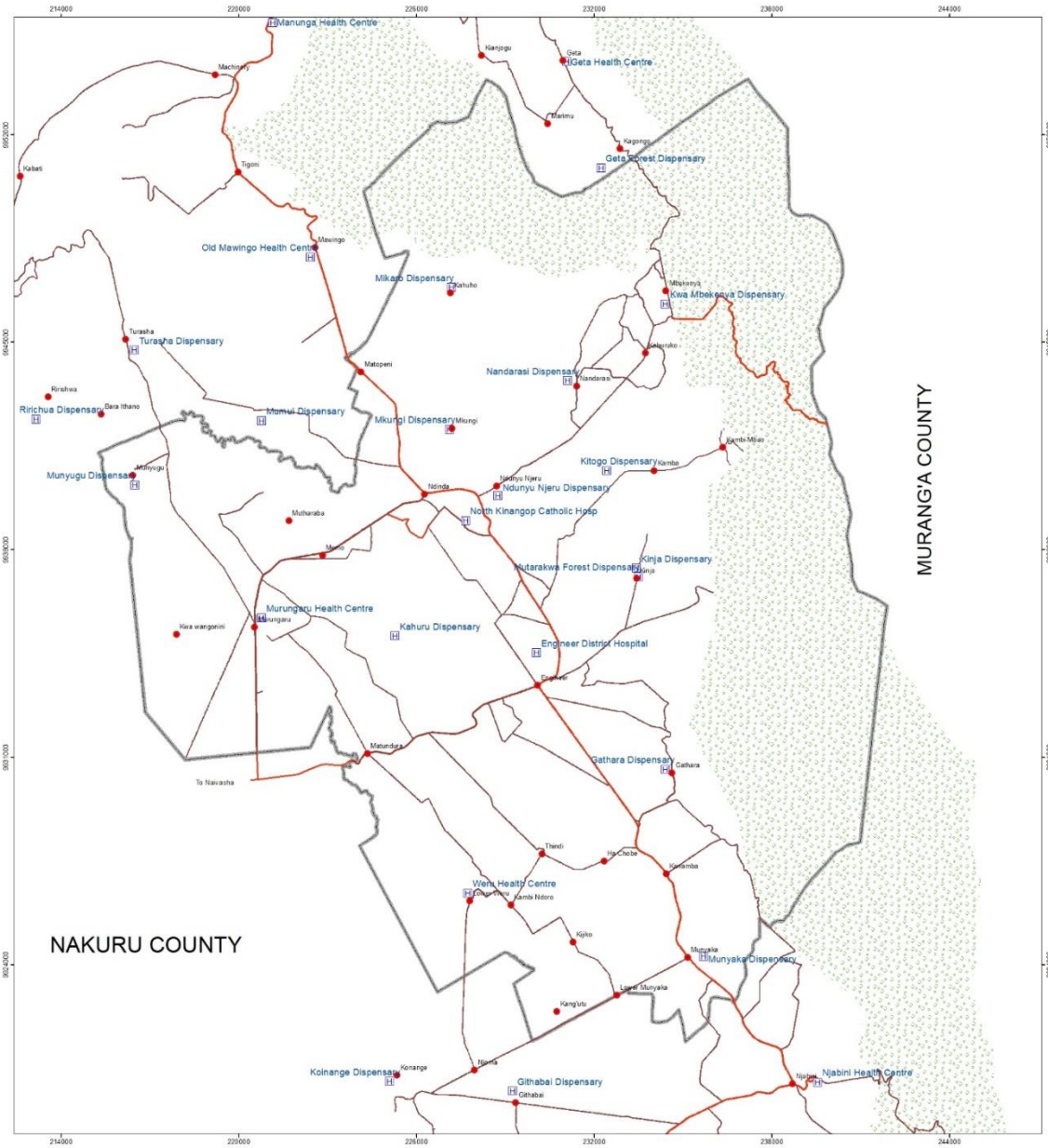
S/ No	Under 5yrs	S/ No	Over 5yrs
1	Diseases of Respiratory System	1	Diseases of Respiratory System
2	Diseases of the skin	2	Hypertension
3	Diarrhea & vomiting	3	Arthritis , Joint pains
4	Tonsillitis	4	other injuries
5	Pneumonia	5	UTI (Urinary Tract Infection)
6	Amoebiasis	6	Diabetes

The health seeking behaviour within the municipality is commendable. This is however limited by distance seeing that most of the people travel more than 5km to access a health facility.

7.2.2. Distribution of health facilities

The map below depicts the location of health-care facilities within the municipality. It only takes 15 minutes to walk to the health facility where there are good roads. It takes 30 minutes when the roads are partially good, and 1 hour when the roads are poor, posing a challenge when there is a medical emergency.

EXISTING HEALTH FACILITIES WITHIN THE ENGINEER MUNICIPALITY



Legend

- Place name
- Existing_Health_Facilities
- Murram Roads
- Tarmac Roads
- Engineer Boundary
- Forest

0 1.25 2.5 5 7.5 10 Kilometers

N
W E
S

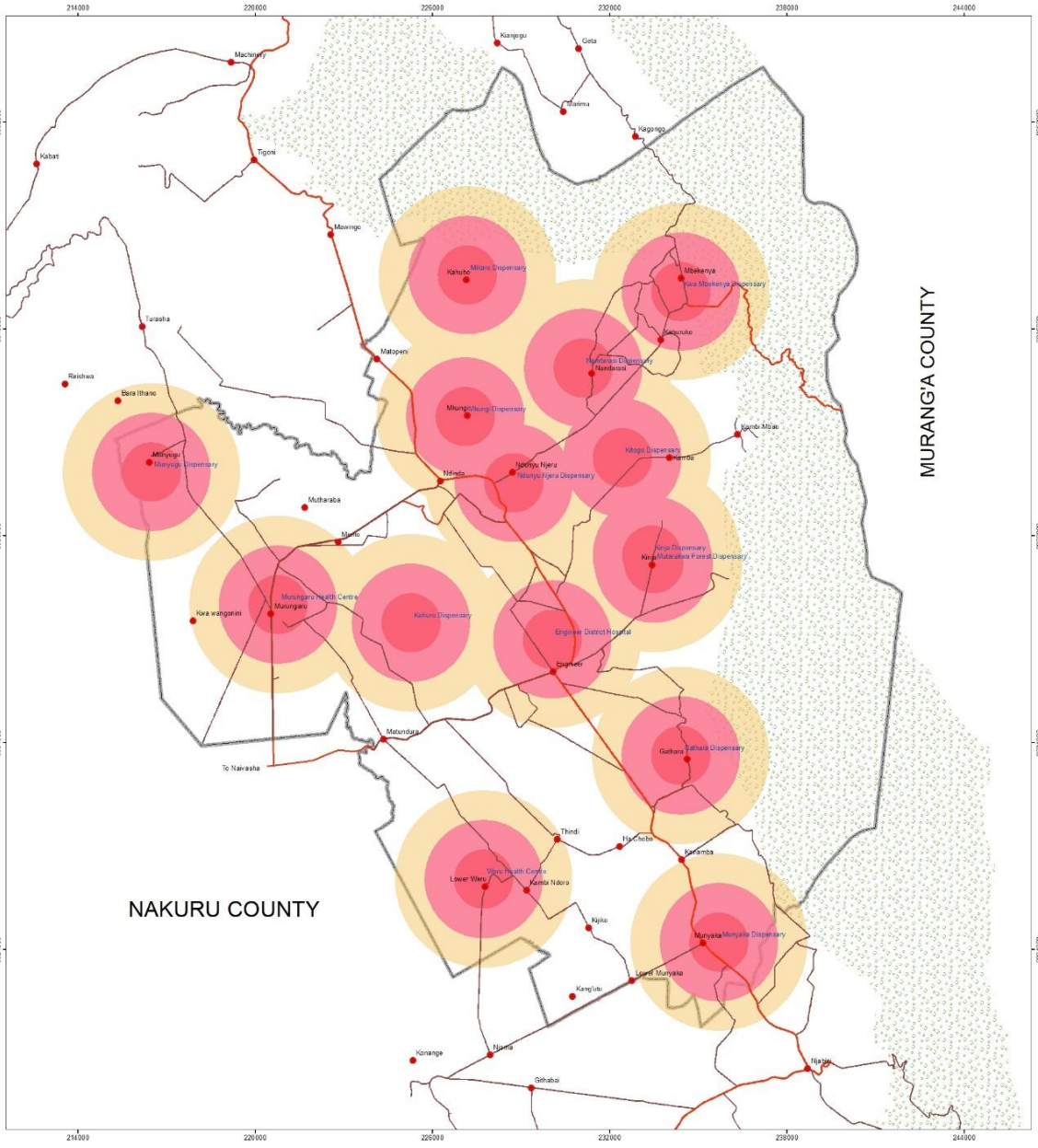
Scale 1:500000

Coordinate System: Arc 1960 UTM Zone 37S
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 10,000,000.0000
Central Meridian: 39.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter

Prepared By:
Department of Lands ,
Physical Planning and Urban Development.

NYANDARUA COUNTY GOVERNMENT

BUFFERED HEALTH FACILITIES WITHIN ENGINEER MUNICIPALITY



Legend

- Place name
- Murram Roads
- Tarmac Roads
- Engineer Boundary
- Health_Facilities_3km_Buffered
- Health_Facilities_2km_Buffered
- Health_Facilities_1km_Buffered
- Existing Health Facilities
- Forest

0 1.25 2.5 5 7.5 10 Kilometers

N
W E
S

Scale 1:500000

Coordinate System: Arc 1960 UTM Zone 37S
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 10,000,000.0000
Central Meridian: 39.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter

Prepared By:
Department of Lands ,
Physical Planning and Urban Development.

Projected Demand of Health Facilities

Engineer ward with a projected population of 38,941 by the end of plan period will require level 3 facility within proximity. On the other hand,North Kinangop ward has a population of 26,070 people and currently has 6 dispensaries that should each serve a catchment population of 5000 people. Since the projected population for 2033 is 37,428 people, an upgrade to level 3 with a catchment population of 10,000 people is required.

Facilities	No. of Facilities	Required Facilities	Projection 2034
Hospitals	1	2	3
Health Centre	6	10	15
Dispensaries	14	20	25

Key Planning Issues

Sub-sector	Planning Issues	Opportunities
Health facilities	• Inadequate drugs • Poor accessibility • Inadequate health facilities • Long queue at health facilities • Land Tenure • Inadequate specialized service providers e.g., ENT, ophthalmology, psychiatry, dental, oncology, surgical etc. • Insufficient funding for procurement of health products. • Inefficiencies in the procurement logistics occasioning stock outs. • Lack of cold storage	• Curb

7.3. Sector: Other Social Infrastructure

Engineer Municipality is committed to improving the quality of life for its residents by providing essential social infrastructure. This report focuses on key services that directly impact the well-being of the community: cemeteries, playgrounds, and police stations. Each of these sectors plays a vital role in supporting the daily lives of the people, ensuring that the municipality remains a place where families can thrive in a safe and respectful environment

7.3.1. Cemeteries

Cemeteries are sacred spaces that serve as a final resting place for community members. The Engineer Municipality oversees several cemeteries, including those in Ndunyu Njeru, Murungaro, Weru, and Gathara/Tulaga. These cemeteries are managed to ensure that residents have dignified and accessible burial spaces. However, the Ndunyu Njeru Cemetery is facing significant challenges that need urgent attention.

Ndunyu Njeru Cemetery is currently situated on a plot that has become problematic for several reasons. This land, which was originally designated as a dumpsite, is no longer suitable for use as a cemetery due to contamination and environmental concerns. The situation is further complicated by bee rearing activities taking place nearby, which pose additional risks to visitors who come to mourn their loved ones. The combination of environmental hazards—such as waste from the dumpsite—and the potential danger posed by the bee colonies creates an unsafe and undignified atmosphere for families who wish to visit the cemetery.

It is recommended that the municipality acquire **appropriate land** for the relocation of the **Ndunyu Njeru Cemetery**. The new location should be carefully selected to ensure it is far from areas of environmental risk, such as dumpsites and bee-rearing activities, and is large enough to accommodate future burials. Furthermore, the municipality should ensure that the land is **easily accessible** to residents, with adequate infrastructure such as roads, signage, and safety measures to ensure a dignified experience for visitors.

The municipality should also **remediate** the current site to mitigate environmental hazards and restore the land for potential future use. This might involve engaging environmental experts to assess and clean up the area, removing the contamination from the former dumpsite, and ensuring that any activities like bee rearing are moved to a safer distance

7.3.2. recreational spaces

The municipality also prioritizes the creation of **recreational spaces**, and this is clearly reflected in its provision of **20 well-maintained playgrounds** across different

neighborhoods. These playgrounds serve as essential spaces for children to play, learn, and socialize, while also offering families areas to gather and interact

Each playground is equipped with modern, safe play equipment designed to suit children of all ages. The municipality ensures these spaces are regularly maintained and upgraded to meet safety standards, with soft ground coverings, secure fencing, and proper lighting for safety during evening visits. The strategic location of these playgrounds ensures that no matter where a family lives, there is a nearby park for children to enjoy outdoor activities, promoting physical health and well-being.

Beyond play, these spaces foster a sense of community. They act as social hubs where children make friends, parents meet and interact, and neighbors build relationships. The municipality's continued investment in these playgrounds demonstrates a long-term commitment to providing quality spaces for families to thrive.

7.3.3. Police Stations

Public safety is an essential service that the municipality takes seriously, and **police stations** play a crucial role in ensuring the security of the residents. The municipality operates several police stations and posts throughout the region, including in **Kinangop**, **Ndunyu Njeru**, **Weru**, **Murungaro**, and several patrol bases. These stations work tirelessly to maintain order and enforce the law, helping to reduce crime and provide a sense of security for the community.

The **Kinangop Police Station** is the largest in terms of staffing, with **33 officers**. This reflects the higher population density and the increased need for law enforcement in the area. In contrast, smaller posts like **Weru** and **Kamba Patrol Base** have fewer officers (3 to 4 officers), which can sometimes limit their ability to respond effectively to emergencies.

S/No	Name	No of Police Officers
1.	Kinangop Police Station	33
2.	Weru Police Post	3
3.	Kamba Patrol base	4
4.	Ndunyu Njeru police station	15
5.	Mikaro Police post	4
6.	Matopeni Patrol base	4
7.	Murungaro police post	15
8.	North Kinangop sub-county HQ	6

Given the varying staffing levels across the stations, it is recommended that the municipality undertake a **redistribution of officers** to ensure that all areas, especially those with fewer officers, are adequately staffed. This could involve transferring

additional officers to **smaller posts** such as **Weru** and **Kamba Patrol Base**, which would help improve the overall law enforcement presence and response times in these areas. Furthermore, the **North Kinangop Sub-County HQ** would benefit from additional administrative and logistical support to better coordinate the efforts of law enforcement across the municipality.

community policing initiatives should be expanded to strengthen relationships between the police and the community. This approach builds trust and encourages residents to work with law enforcement to prevent crime and address safety concerns

Cemetery, upgrading police staffing, and maintaining playgrounds—the municipality will ensure that Engineer remains a safe, vibrant, and sustainable place for its residents to live, work, and thrive

7.3.4. RELIGIOUS INSTITUTIONS

Over 90% of the municipal population are Christians. Churches of various denominations and mainstream churches are spread over the municipality. they are mainly distributed in urban areas and play a key role in assembling people for a common purpose of worship. other than Christianity, there is a Mosque at Engineer Town. this is used by a negligible population of the Muslim community.

7.6.5. Challenges and Planning for the Future

The **Engineer Municipality** faces some pressing challenges, particularly regarding the **Ndunyu Njeru Cemetery**, which is situated on a problematic dumpsite plot and surrounded by bee rearing activities. These issues compromise the safety and dignity of the space, and immediate action is required to secure land for a new cemetery site that is free from environmental hazards.

The municipality's commitment to providing **safe recreational spaces** and ensuring **public safety** through its police stations remains a top priority. By redistributing police resources, investing in community policing, and continuously improving recreational facilities, the municipality is building a strong foundation for the future well-being of its residents.

Strategic planning, community involvement, and continued investment in infrastructure are key to addressing the current challenges. By taking proactive steps—such as relocating the Ndunyu Njeru

(maps entailing police station, playgrounds cemeteries)

Key Planning Issues

Sub- Sector	Key Planning Issues	Opportunity
Other Social Infrastructure	• Cemeteries, bee keeping and dumpsite are on the same piece of land.	• Clearly designate separate zones for each use to minimize conflict. • Consider moving one or more of this activities to suitable location to prevent conflicts.
	• Understaffing in police stations • Need for establishing community and police good relation ship	• Implement shift based or temporary redeployment plan for high demand periods and religion • .establish task force for specific issues. • Host town hall meeting ,open houses or community forums to listen to public demand

CHAPTER EIGHT: HOUSING AND HUMAN SETTLEMENT

8.1. Overview

Housing is considered a crucial pillar in realizing Kenya's long-term development goals. The goal to achieving adequate and affordable housing has been so elusive. The Kenyan landscape is characterized by tremendous growth over the last few years, buoyed by the burgeoning population, expanding middle class, rapid urbanization, and heavy investment in infrastructure. The rate of urbanization is accelerating nationally and regionally, despite slow economic growth and a shortage of available land. Only a small percentage of individuals can afford to own a home, so rental housing is commonplace. According to the 2019 population census, 21% of those living in the urban areas in Kenya own their homes, while 78% rent their housing units (KNBS, 2019).

The low-income households form the bulk majority of the Kenyan population, about 53% by the end of 2020, and the situation is no different in Engineer Municipality. Despite the annual demand for housing units in Kenya accumulating to excess of a quarter million annually, the government has only been able to supply just about 40,000 units annually which has contributed to the growing housing problem in the country. This has led to the government designating affordable housing as a key government policy geared towards addressing the problem through Bottom-Up Agenda- Affordable Housing Programme.

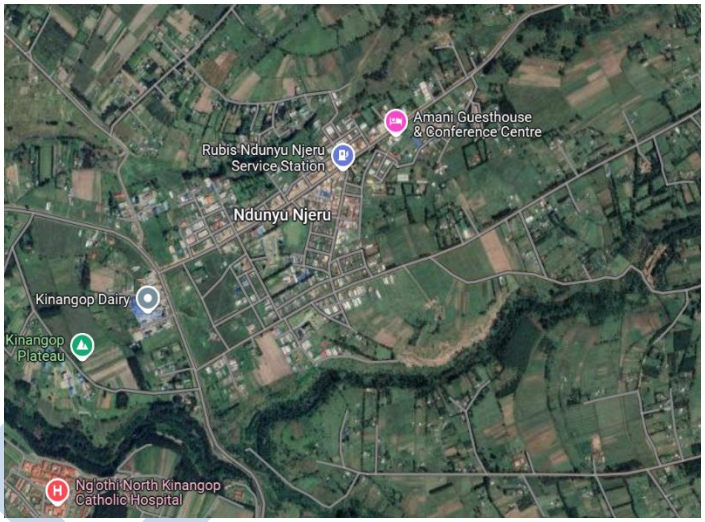
This chapter therefore discusses in detail the housing situation in the Municipality particularly the housing typologies, condition of the shelters, amenities within the shelter and access to such shelters in terms of affordability, so as to inform housing delivery interventions.

8.2. Patterns and Trends of Human Settlements

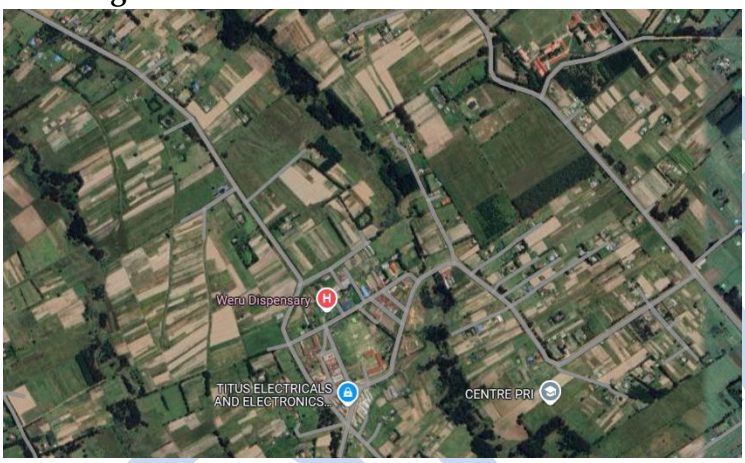
The municipality is characterized by a dense CBD/urban core, immediate Sub-urban zone with both planned and ad-hoc sprawling development as well as an immediate rural hinterland where most of the agricultural and quarrying activities are practised. This type of patterns is seen to be replicated across all the commercial nodes within the Municipality.

INSERT MAP

Engineer CBD



Ndunyu Njeru CBD



Peri urban area in Weru

Rural character in Kijiko

8.3. Housing Typologies

Housing typologies in the municipality vary depending on a number of factor key among them location and ownership. Flats and apartments represent just 7.4% of the housing stock and are primarily located in the main centers such as Engineer, Ndunyu Njeru, and Murungaru, mainly as rental options. Semi-permanent homes make up the majority, comprising 55.3% of the housing in the municipality. Bungalows and row houses account for 18.1% and 16.1%, respectively, and are distributed throughout the municipality. In contrast, mansionettes only represent 3.1%. Additional housing typologies include mud structures, houses made from corrugated iron, and wooden houses, which are predominantly found in the peri-urban and rural sections of the municipality.

Figure: Housing Typologies(Photos)

8.4. Building Materials

Based on the 2019 Kenya Population and Housing Census, it was found that in the Nyandarua South sub-county, from which the municipality originates, 50.3% of households have earthen floors, whereas 37.4% utilize concrete. Regarding wall construction, 24.5% of structures are made with stone and cement, while 16.8% are built with timber.

This observation was also supported by the findings from the field survey. The primary materials for flooring consist of 43.6% concrete, 23.6% earth, and 2.2% timber. For wall materials, 23.5% of constructions use stone and cement, 19.3% rely on corrugated iron sheets, 24.4% use wood, and 7.5% employ mud. 99% homes used corrugated iron sheets for roofing.

Its notable that Engineer Municipality has a mix of both urban and rural character since most houses being constructed continue to utilize semipermanent materials with the majority of stone houses being located in urban areas of the municipality.

To insert charts

8.5. Housing Demand and Supply

As at 2019, Engineer municipality had a total of 25,822 households from the then estimated population of 93,870 with an average household size of 5 for Nyandarua County. The demand for housing in the municipality is influenced by increased population as a result of devolution and immigration and its new attained status of being a municipality. As is the norm in Kenya, private individuals are the main providers of housing due to minimal investment in the sector by government agencies. Engineer Municipality is however a beneficiary of affordable housing programme under the Bottom- Up Agenda.

8.6. Housing Stock and Projections

The population projections undertaken reveal that Engineer Municipality is a fast-growing urban area. With a mean household size of 5, the projected housing stock would be a total of approximately 33,468. This translates to about 7,000 additional households by the end of the plan period. These expected dynamics catalysed by the expected population rise would significantly impact on the spatial framework of the Municipality.

Table : Current Supply and Projected Demand for Housing

Item	**2019**	**2034**
Projected population	93,870	130,703
No. of households	25,822	xxxxxxxx

In line with this reality, the County Government has set aside 2.8 hectare of land in which it is seeking partnership with National Housing Corporation to develop. Also, it has invited mortgage and financial institutions to facilitate realization of affordable housing especially in the municipality.

However, the County should also embark on carrying out regular Housing Surveys to assess the housing needs according to the social and low-income housing cadres. This will entail an assessment of socio-economic household characteristics that relate to effective demand such as household income, disposable income, interest rates on mortgages, tenure security status, etc. The information will help determine the demand for housing of various types, prices, rents and affordability, and the data will feed into the economic model for the Affordable Housing Programme and assist in decision-making. This strategy will involve expanding the housing stock within the Municipality, by improving the quality of existing housing as well as providing options for both rental and home ownership.

8.7. Semi-formal Settlements

The general settlement of Engineer is characterized by a strong node of activity. Engineer town which is Located East of Aberdare ranges, is connected by road to Njabini, Naivasha and Ol'kalou. Most of the settlements in the Municipality, depict informality characteristics such as inadequate basic physical and social infrastructure services.

Insecurity of tenure especially in urban towns (Gathara, Matopeni, Memo, Weru), inhibits proper planned development, and utility service provision such as water, sewerage, roads and storm water drainage.

The minor urban growth centres (Ndinda, Murungaru and Ndunyu Njeru) define the secondary settlement in Engineer. These mainly have linear growth pattern that capitalized on existing infrastructure especially roads. Most of these centres are expanding laterally forming a high-density residential neighbourhood in the area. The residential settlement in Ndinda, Murungaru and Ndunyu Njeru observes a grid pattern of development. Note the dukawallas serves as residential houses with single rooms built behind the shops. Most of these provide housing to the workers in the nearby large farms, flower/horticulture farms and quarry workers.

Key Planning Issues

Sub-sector	Planning issue	Opportunity
Informal settlements	• Mushrooming of informal settlements without basic social and physical infrastructural services. • Lack of security of tenure especially within the urban and trading centres • High level of unemployment hence high rate of crime and violence within the • settlements.	• Existence of slum upgrading programmes that can be used to upgrade the settlements
Affordable Housing	• Social dynamics such as accessibility and equity, social amenities, security,	• Participatory affordable and sustainable housing

	health and comfort, housing quality • Economic dynamics such as rate of unemployment, housing prices, rental costs, interest rates on mortgages, construction costs, maintenance costs • Environmental dynamics such as energy-efficient buildings, proper waste management and disposal systems	delivery programmes • Objective(supply-side) and subjective(demand-side) housing subsidy programs • Public infrastructure such as roads, water supply and treatment, sewerage, public green spaces improvement to bolster access and spur investment in housing.

CHAPTER NINE: LAND USE ANALYSIS

9. Overview

This Chapter outlines the current state of land, covering tenure systems, land use and cover, and factors driving changes in land matters within the Municipality. The aim is to realize the land's potential as a resource and a production factor. Additionally, it emphasizes the necessity of developing supportive policies and regulation ns for key economic sectors like agriculture, tourism, industrialization, and infrastructure development.

9.1. Land Tenure

According to Article 61 of the Constitution of Kenya (2010) and the National Land Policy (2009), there are three categories of land tenure in Kenya: private land held by individuals either under a freehold tenure system o leasehold system, public land managed by the Government or State agencies, and community land owned by a community based on ethnicity, culture, or similar interests. Leasehold land has specific ownership conditions based on the lease period, while freehold and community lands offer exclusive ownership rights.

Most of the freehold land is located in the peri-urban and rural areas of the municipality, while leasehold land is primarily found in Engineer Township and market centres.

9.2. Land Use

Currently, majority of the land within the municipality is used for agriculture, primarily because the area is largely rural. However, as the town expands, there is a need for effective land use planning to accommodate other urban functions and supporting infrastructure, while ensuring that the agricultural sector is not adversely affected.

9.3. Land Administration and Management

Accessibility to land and related services is crucial for economic productivity. Effective land administration and management involve accurately documenting land users to ensure land rights, promoting tenure security, guiding land transactions, resolving land disputes, and managing land-related finances.

Significant reforms have transformed the land administration process in the past decade, following the promulgation of the 2010 Constitution of Kenya, the adoption of the National Land Policy in 2009, and the Land Act of 2012. These reforms aim to repair and coordinate the previously fractured system. Land administration is a multidisciplinary

process involving professionals from various fields, including physical planners, surveyors, land valuers, land administrators, lawyers, architects, and engineers. Therefore, coordination and continued reforms are necessary to streamline land use and management operations.

At the national level, Article 67 of the Constitution and Section 231 of the National Land Policy provide for the establishment of the National Land Commission. This commission is responsible for managing public land on behalf of the national and county governments, ensuring equitable and sustainable land administration and management.

9.3.1. County-Level Land Administration

At the county level, land administration is carried out by agencies and institutions from both the national and county governments. The National Land Commission (NLC) has decentralized its services by establishing County Coordination Offices in Nyandarua County, as stipulated in Sections 4(2) and 16(5) of the NLC Act, 2012 (amended 2016). These offices represent the Commission at the county level, especially following the dissolution of the County Land Management Boards (CLMB) due to the repeal of section 18 of the NLC Act in 2016. The NLC County Coordination Office is responsible for:

- Enhancing the secure storage, access, and retrieval of land records.
- Ensuring access to and use of land for socio-economic development.
- Building capacity to improve efficiency and transparency in county service delivery.
- Participating in development control activities.
- Developing and implementing revenue generation mechanisms.

The County's Department of Lands, Housing, and Physical Planning is responsible for processing and approving development applications, delineating land for development to public institutions and individuals, processing ownership documents such as titles and grants for both public and community land, setting aside land for public use, generating and collating revenue, documenting public land, and maintaining and updating land records.

Below is a list of the actors at both national and county levels mandated to manage land issues in the country.

National Government	National Land Commission	Among the various functions of the National Land Commission, its primary roles are: - Management of public land on behalf of the national and county governments - Oversight and monitoring of land use planning across the country - Alienation of public land
	Director-General of Physical Planning	According to the Physical and Land Use Planning Act 2019, the Director has the following functions: - Advising the government on strategic physical and land use planning matters - Formulating policies, guidelines, and standards - Providing capacity building and technical support to county planning staff
	Director of Survey	The Director also has the following responsibilities: - Establishing and maintaining a national geodetic control network to support other surveys and research - Producing and maintaining plans of property boundaries to aid land registration - Producing and continuously updating national

		topographical basic maps - Maintaining national and international boundaries - Preparing and publishing the National Atlas of Kenya as documentation of national heritage and to promote the nation's identity
	Director of Land Administration	The office's responsibilities encompass the following: -Establishing and overseeing land control boards. -Processing and endorsing development applications, including granting consents for charges, leases, or transfers. -Processing ownership documents like titles or grants for public and community properties. -Allocating land for public use and maintaining custody of land records. -Documenting public land and preserving delicate ecosystems such as wetlands and water catchment areas to support conservation efforts.
	Principal Land Registrar/Chief Land Registrar	• Registers land titles, and leases
	Land Control Board	• Issue approvals for transactions such as the sale, subdivision, or transfer of agricultural land (freehold land) based on ownership and family-related considerations.

		• Authorize transactions such as the sale, transfer, or mortgage of shares in private companies or cooperative societies that possess agricultural land.
County Government	County Executive Committee Member of Lands and Physical Planning	• Facilitating the integration of county physical and land use planning functions with sectoral planning processes across various levels. • Developing and implementing policies and strategies for effective land use management.
	County Director of Land Use and Physical Planning	-Providing advice to the county government on matters of physical and land use planning that affect the county. -Developing policies, guidelines, and standards for county physical and land use planning. -Preparing comprehensive physical and land use development plans for the county and local areas. -Contributing to the creation of inter-county physical and land use development plans. -Conducting research on county-level physical and land use planning issues. -Recommending the establishment of planning units as necessary to enhance planning efforts. -Maintaining a land information system to support informed physical and land use planning decisions. -Communicating the county government's

		decisions regarding development applications. - Granting development permissions and issuing development control instruments as stipulated by this Act, subject to the approval of the county executive committee member.
	County Director of Survey	- Conduct surveys to identify and document public land. - Establish a Geographic Information System (GIS) and Land Information System (LIS) database for efficient spatial data management. - Ensure effective land and property management to support accurate land documentation and optimize land taxation processes.
	Registered Physical Planners	- Review and process development applications submitted to the county. - Provide the county with recommendations on innovations and advancements in the land and planning sector.
	Land Surveyors	- Confirming land boundaries for accuracy and compliance. - Placing beacons for approved subdivision and amalgamation schemes. - Amending the Registry Index Map (RIM) to reflect updated land subdivisions or amalgamations. - Preparing deed plans for land documentation and registration.

9.4. Land Challenges in Engineer Municipality

In Engineer Municipality, irregular allocation of public land and inconsistent development planning are significant challenges. These issues hinder effective surveying and titling, leading to land use conflicts, weak development controls, and limited availability of public land for essential facilities. A recent land audit revealed disputes over ownership and widespread encroachment on land reserved for public utilities, with questionable documents such as allotment letters and forged title deeds being common. Contributing factors include the proliferation of multiple Part Development Plans (PDPs), double land allocations, misuse of authority by officials, and the absence of an updated master plan.

These challenges have slowed municipal development and complicated the approval of development applications due to ownership uncertainties. Additionally, they have resulted in revenue losses and insufficient provision of public amenities.

9.5. Land Availability and Suitability

A significant portion of the municipality is suitable for development, primarily especially the eastern side where the terrain is relatively gentle. This makes it more feasible for urban development and infrastructure projects. Conversely, the remaining of the area is unsuitable for development due to its hilly terrain in the western part, which poses challenges and higher costs for constructing infrastructure.

9.6. Land Subdivision Patterns

The municipality has instances of both fixed and general surveyed boundaries. Fixed boundaries are common within the town centres where plots have been subdivided to smaller portions of 1/8 acre plots. These lots are mainly for residential and commercial uses.

On the other hand, general boundaries are common in rural areas of the municipality where people still own large tracts of land and are mostly used for agricultural use. During the survey, it was noted that these general boundary parcels are prone to boundary disputes since the boundaries are not accurate.

9.7. Land Value and Markets

The rapid urbanization of Engineer Municipality, driven by improved infrastructure and increasing migration, has significantly raised land values, now ranging from 2.5 million to 10 million per acre. This growth, while boosting economic opportunities, has created challenges such as unplanned land subdivisions, the conversion of agricultural land into residential and commercial zones, and mounting pressure on existing amenities. The influx of people has also led to rising unemployment and social issues, underscoring the need for better urban planning. To ensure sustainable growth, the municipality must implement comprehensive zoning regulations, expand infrastructure to meet rising demands, and engage stakeholders in preserving agricultural spaces while promoting affordable housing.

9.8. LAND REQUIREMENT PROJECTIONS

9.8.1. Land use Standards

Allocation of land for different uses must be accomplished with foresight and anticipation of future requirements of a city. Space allocations for various facilities such as housing and health centers, schools and social halls should be made, bearing in mind that one generation may contribute for substantial benefit of a subsequent one.

To work out the future spatial requirement for the various facilities and utilities, the prediction of the magnitude and numbers of these facilities must be based upon the planning norms and standards. The Draft Physical Development Plan for Engineer town that was prepared in 2010 spelt out few key planning guidelines (standards) but was never been in force. Therefore, the standards given in Physical Planning Handbook 2008 have been reviewed and some have been modified based on prevailing standards in cities of similar nature across globe, while some of them have been adopted as it is to use in this Integrated Strategic Urban Development Plan for Engineer. The planning standards used in this document are indicated in the following paragraphs.

9.8.2. Specific Standards for Public and Other Facilities

The ISUDP maintains the most of the spatial standards for public facilities and institutional establishments as outlined in the Physical Planning Handbook 2008. These spatial standards are given in below table 2.3.

Table 2-3: Pubic Facilities Norms

	Norms

Public Purpose Facilities	1 per catchment population	Area Per Unit in Ha
Religious Institutions (churches, mosques, temples and shrines)	15,000	0.1

Public Purpose Facilities	Norms	
Cemetery/ Burial Ground	150,000	5.0
Electric Crematorium/ Cremation Ground	1,000,000	2.5
Community Room	15,000	0.075
Library	100,000	0.015
County Library	City Level	0.1
Community Centre	100,000	1.0
Amphitheatre	500,000	1.0
Cultural Centre	500,000	1.0
Night Shelter	1,000,000	0.1

Old age home	500,000	0.1
Working men's/women's hostel	500,000	0.1
Orphanage/children centre/destitute home	1,000,000	0.1
Care centre for physically & mentally challenged	1,000,000	0.1
Integrated Office Complex	500,000	10

9.8.3. Postal and Tele-Communication

Post offices must be accessible to the general population. Each community of 250,000 people should have one sub-post office. Table 2.4 presents recommended norms for postal and telecommunication facilities. It may be noted that these standards were prepared some time ago, and certain functions have changed. For example, postal services have declined in importance due to the power of mobile phone technology, on the one hand, and the competition from courier services. However, in general, the recommendations are valid and will be adhered to in the land use planning.

Table 2-4: Postal and Telecommunication Facilities Norms

Postal and Tele-Communication	(1 per catchment population)	Area Per Unit in Ha
Sub-Post office	250,000	0.01
Post office	500,000	0.075
Head Post Office	City Level	0.25

Telephone exchange of 40,000 lines	400,000	4.0
Telegraph booking and delivery office	500,000	0.17

9.8.4. Fire Stations

For a population of 150,000 people, one sub-fire station is required. This would include space for the station storage and parking. An area of 0.5 hectare would be sufficient for this purpose. Table 2.5 presents recommended norms for fire stations and disaster management cum rescue centre.

Table 2-5: Fire Station Norms

Fire Stations	(1 per catchment population)	Land required/ Facility Ha
Sub-Fire Station	150,000	0.5
Disaster Management cum Rescue Centre	500,000	1.0

9.8.5. Security Facilities

The police stations would cater for approximately 50,000 people. To accommodate a station and auxiliary facilities about 2 hectares of land is required. Table 2.6 presents recommended norms for health facilities.

Table 2-6: Security Facilities Norms

Security	(1 per catchment population)	Area Per Unit in Ha

Police Post	50000	0.2
Police Station	50,000	2.0
Juvenile Home	500,000	2.0

9.8.6. Health Facilities

Health centres should be available for primary health care. One Health facility is needed for every 30,000 people. A dispensary or small clinic with a chemist shop is recommended for every 5000 people. Each neighborhood should be provided with at least three dispensaries or small first aid clinics. An area of 0.5 hectares would be sufficient. Table 2.7 presents recommended norms for health facilities.

Table 2-7: Health Facilities Norms

Health Facilities	(1 per catchment population)	Area Per Unit in Ha
Level 5 City Level – Referral Hospital (Public & Private)	1,000,000	8
Level 4 District Hospital (Public & Private)	100,000	4
Level 3 Health Centre	30,000	2
Level 2 - Basic Health Sub Centre Nursing Homes	10,000	1
Level 1 - Dispensary/ Small Clinic with Chemist Shop	5,000	0.5

Women Hospital	500,000	5.0
Drug Rehabilitation center	500,000	5
Establishment of care center for blinds	500,000	5
Hospital for mentally & physically challenged	1000,000	5
Veterinary clinics	50,000	0.1
Veterinary Hospital	1,000,000	5.0
Communicable disease hospital	1,000,000	4

9.8.7. Educational Facilities

Pre Schools should be established in residential areas or within existing primary schools and within walking distances for all pre-school pupils. It is desirable that a pre-primary school is attached to every primary school. These schools will, therefore, follow the same distribution pattern as primary school at 3,500 catchment population. In addition, a kindergarten independent of primary school should be provided for 2,500 catchment population. The primary school should have all basic facilities. A minimum area of 1.2 hectares is required for each primary school and a catchment radius of 300 meters walking distance. The land required for secondary school and higher-level education facilities are given in Table 2.8.

Table 2-8: Educational Facilities Norms

Facilities	(1 per catchment population)	Area Per Unit in Ha.

Primary School (Class I to VIII)	3,500	1.2
Senior Secondary(Class IX to XII)	8,000	3.4
Youth polytechnic	60,000	3.5
Special Schools	100,000	3.5
General College	150,000	10
Engineering college	500,000	10
Medical College	5,00,000	10
Teachers Training Institute (TTI)	500,000	0.5
Fire Training Institute/College	1,000,000	5.0
National Polytechnic	1,000,000	10
University	1,000,000	50

9.8.8. Recreational Facilities

Provision of greens/parks, playgrounds and recreational facilities are vital because most of the population of Engineer Municipal is generally deprived of open and recreational spaces. One to two hectares of open space is required for 5,000 people. Thus, each neighbourhood is provided with a park and a playground for benefit of environment and a healthy society. The way side plantation, green belt and area for social forestry have also been incorporated in the plan. Table 2.9 presents recommended norms for recreational facilities

Table 2-9: Recreational Facilities Norms

Facilities	(1 per catchment population)	Area Per Unit in Ha.
Greens/Parks		
Cluster park	5,000	0.5
Neighborhood Park	15,000	1
Sub Sector Park	150,000	2
Sector Park	500,000	5
City Park	1,000,000	10
Multi-Purpose Play Grounds		
Cluster playground	5,000	0.5
Neighborhood Playground	15,000	1
Sub Sector Playground	150,000	2
Sector Playground	500,000	5
City Level Multi-purpose Play Ground	City Level	10

Sports Facilities		
Stadium	500,000	5
Sports Facility - Sector Level	500,000	10
Sports Facility - City Level	1,000,000	30
Other Recreational Facilities		
Recreation Club	500,000	0.5
Social Halls/ and Community Centres	25,000	0.25

9.8.9. Commercial Facilities

A corner shop is needed at estate level to fulfil basic requirement including bread and milk. Convenience shopping centre consisting of a few shops catering for everyday needs of the population has been provided at cluster level. A site of 0.5 hectare is sufficient for neighbourhood shopping centre. The neighbourhood shopping centre would cater for all retail needs of the population, including shops such as pharmacies, butcheries, grocery, hardware, clothing and others and service centre. Table 2.10 presents recommended norms for commercial facilities.

Table 2-10: Commercial Facilities Norms

Facilities	(1 per catchment population)	Area Per Unit in Ha.

Corner Shop (Estate Level)	350	0.01
Convenience Shopping - Cluster Level	5,000	0.25
Neighbourhood shopping including service centre	15,000	0.5
Sub Sector Commercial Center	150,000	10
Sub- CBD	500,000	50
City Centre/ CBD	City Level	100
Wholesale Market	500,000	10
Organised Informal market	150,000	0.5
Slaughter house	1,000,000	2

9.9. FUTURE LAND REQUIREMENTS

Population growth is not directly related to growth in demand for land. There are several factors in land demand, of which the most important are:

- How much land within the existing built-up area is unused?
- Will densities increase or reduce in future?
- Are any corrections required to the existing land use pattern which will affect land requirements?

One of the failures of past planning has been not to provide formal housing or serviced land in advance of population growth. This has resulted in unplanned and haphazard growth in the municipal, which not only presents difficulties in subsequent servicing, but

also prevents orderly planning of the urban area. It is, therefore, important to plan in advance for projected urban growth and thereby enable provision for essential housing and infrastructure in an orderly fashion.

Although the ISUDP's Terms of Reference requires planning for a 10-20 years period, it is nevertheless of great value to look further into the future and thereby protect essential communications routes and, therefore, for transportation planning a period of 30 years has been considered.

9.9.1. Existing Land Use

The total area of Engineeer accounts for 561.1.94 sqkm.. Currently, it accommodates approximately 93,170 people (KNBS population Census 2019) with an average gross density of 363 persons per sq km. The existing land use of Engineer shows that within 84.1 square kilometers, there is considerable land available for development which is currently mainly lying vacant.

9.9.2. Density projections

Density allocation is affected by: demographic patterns; market forces; user preferences; and less of technical limitations. The following principles shall guide densification process:

- Population growth and limited brownfield land supply in the right places means densities of new development needs to be relatively high.
- In line with sustainability principles, the re-use of previously developed land presents an opportunity for the most efficient use of land, thereby, enabling the preservation of greenfield land, as well as preserving scarce land resources and creating conditions for choice of sustainable transport modes (including walking).
- Well-located high density development can enable people to live and work in the same location and reduce the need to travel, particularly by private cars. It can also support a range of local services and create more energy efficient developments and, hence, contributing towards more sustainable settlements.
- High density development is a way of making best use of scarce land resources in the most sustainable locations and enabling the development of more self-contained settlements. High density development can also produce visually and

exciting sustainable settlements.

Within the developed area of 11,032 Ha, there is a considerable amount of under-used and low density development. In view of limited available land and foreseen development of the economy, will strengthen and land values will increase and therefore, the land-owners will have the incentive to redevelop (or sell to someone else who will redevelop) their land. It is already happening in Engineer, Murungarua and Ndunyu Njeru towns. Thus, densification is likely to take place within the near future, in present low-density areas. Densification through redevelopment is likely to happen in areas relatively close to CBD. However, this will not take place with higher pace unless and until the area is provided with better infrastructure services especially sewer, water supply, drainage etc. ISUDP proposes that about 65 percent of the county's new housing will be located at greenfield 'urban extension' areas. Whilst these new development areas will need to incorporate a mix of dwelling types, these should be developed as more 'urban' than sub-urban in character and consequently should be developed at relatively high densities, aiming to achieve around 138 dwelling unit per hectare across the extension.

9.9.3. Enhancing Population Holding Capacity in Existing Built-up Areas

There is potential for enhancing the holding capacity of excising built up areas through re-densification. The high value land resources shall be upgraded using development norms, which will be related to:

- types of residential development and its potential for higher absorption.
- re-densification of housing areas having lower densities.
- increasing density to the optimum level along the primary distributors and district distributors roads and the mass transportation networks.
- employment generating areas/places or centers, which are creating demand for more housing units.
- augmentation of physical infrastructure like water supply, sewerage, drainage, solid waste management and improvement of transportation network capacity.
- augmentation of social facilities like education, health services, recreational facilities and markets, etc.

Considering the existing spatial distribution of population vis-à-vis services/facilities, a broad urban development strategy has been proposed to harness the available land resources to the fullest. It is recommended to enhance the population holding capacity of already developed areas, by providing improved services and infrastructure, to its optimum capacity.

9.9.4. Land requirements

The land requirement depends on projected population and proposed density. The proposed population density has been worked out based on the projected population, land available for future development, potential for densification in already developed area and trend and past experience in cities of similar nature and also keeping sufficient room within the current planning boundary for future urban expansion i.e. beyond year 2034. Table 2.12 shows projected land demands, using proposed gross density of 104 persons per hectare at the county level.

Table 2-12: Projected Land Requirement

Estimated Population 2019	93,870
Current developed area (hectares)	**8,400**
Current gross population density (persons/ha)	3.63
Land available in county, which can be made available for development, excluding environmentally sensitive, agriculture, forest etc. (ha)	16,000
Projected population for 2034	**131,418**
Proposed Gross population density (persons/ha)	8.76
Proposed Net Population density (within proposed developable area excluding area under agriculture, forest, ponds, quarry and future development) (p/ha)	4.46

Additional Land required to accommodate future population (based on net density) in ha	**9,014**
Population to be accommodated in existing developed area	15%
Population to be accommodated in new development	35%
Total Land required including existing developed land (hectares)	**17,414**
Total land mass area (ha)	56,110

6.9 Key Planning Issues

Sector	Planning Issues	Opportunities
Physical planning	Uncoordinated Planning Activities	Establish a centralized land use coordination office within the municipality to oversee and integrate all subdivisions and land allocations, ensuring they align with municipal plans and zoning regulations.
	Absence of an Up-to-Date Physical and Land Use Development Plan	Develop and adopt a new physical and land use development plan using digital tools like GIS for accurate mapping and long-term sustainability, with provisions for regular updates.
	Land Use Conflicts	Enforce zoning laws that designate specific areas for agriculture and real estate development, ensuring that farming zones are preserved to support food security.
	Predominance of freehold land ownership in Engineer Municipality poses planning challenges	Freehold ownership grants landowners' significant autonomy over land use, which can lead to fragmented and uncoordinated development. This makes it challenging to enforce consistent zoning regulations and

		integrated planning, as individual landowners may prioritize personal interests over broader municipal goals.
Land Administration and Management	• Analogue land processing systems causing delays and loss of documents, revenue. • Lack of an integrated Land Information Management System (LIMS) leading to duplication and uncoordinated land management. • Outdated and low coverage of the existing valuation roll leading to loss of revenue and malpractices. • Inadequate human resource capacity to effectively handle land management and administration. • Weak link between land control board and development control. • Double allocation and grabbing of public land; 400	• Digitization of land administration and management processes. • Adoption of electronic systems for development application, land registration, and valuation. • Utilization of planning as a tool to guide and promote development.

	plots with disputed ownership and 1,526 encroaching on public land. • Uncoordinated planning activities within the municipality caused by informal subdivisions and land allocations. • Absence of an up-to-date physical and land use development plan. • Non-implementation of the existing development plan. • Land use conflict between farming/food security and real estate development.	

CHAPTER TEN:MUNICIPAL ADMINISTRATION AND INSTITUTIONAL FRAMEWORK

10.1. GOVERNANCE

10.1.1. Institutional Framework

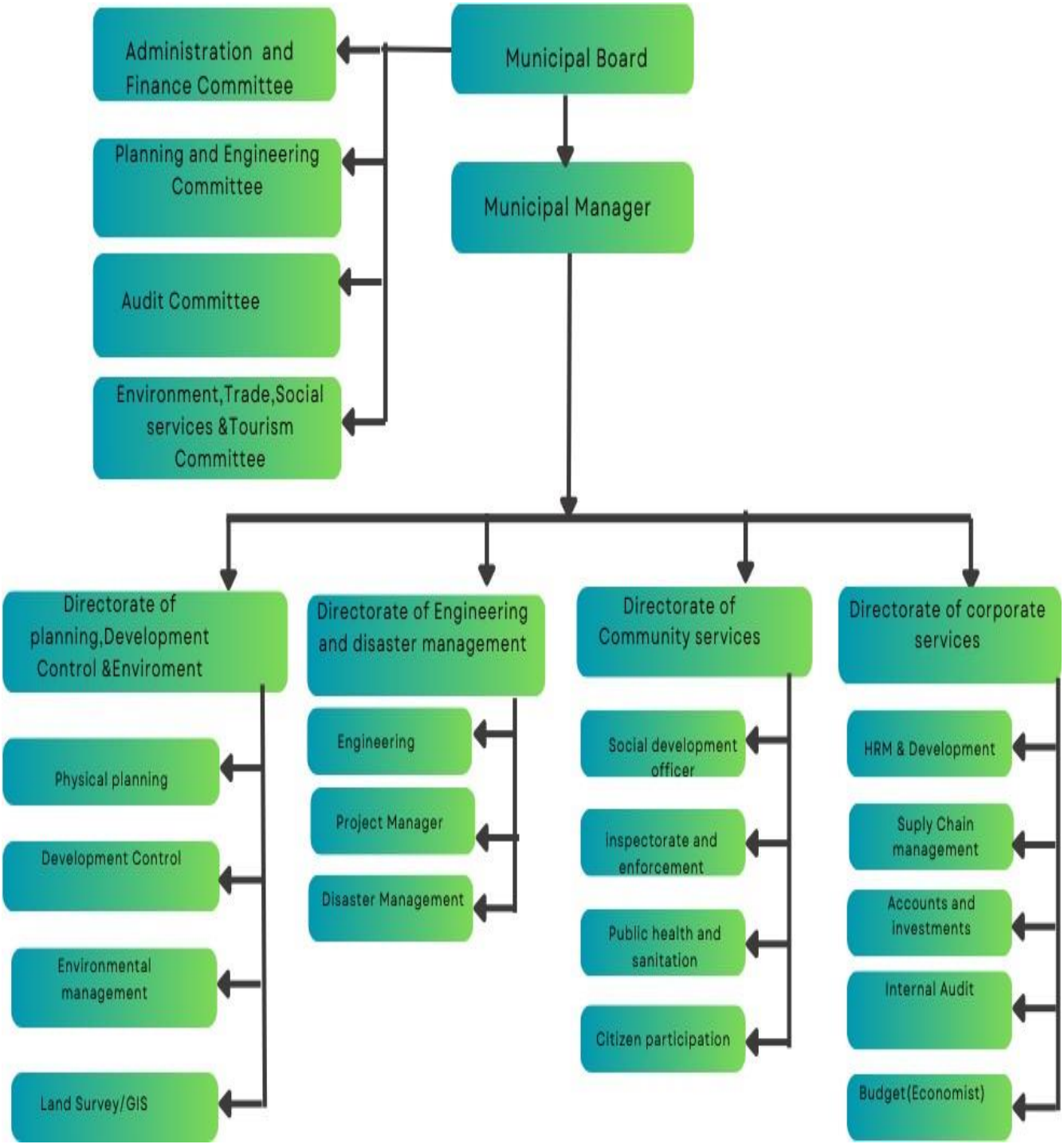
Engineer Municipal Board is the top most in the institution framework. The municipality has established committees to support the board within existing guidelines (rban areas and cities Act 2011) as shown below.

Figure 0-1: Municipal Governance Structure

Source: Engineer Municipality Integrated Strategic Urban development Plan Preparation Team

The executive arm is led by a Municipal Manager who supervises the administrative and technical staff and is tasked with implementing the decisions of the board through the various directorates as shown below:

Figure 0-2: Municipal management structure



Source: Engineer Municipality ISUD Plan Preparation Team

10.2. Staff Establishment, Skills Set and Competence Development

To ensure the successful implementation of Engineer Municipality's ISUDP, it's imperative to have optimal staffing equipped with the right skills and competencies. The municipality's staff establishment, as outlined in Table 6.1, provides a framework for this endeavor. Achieving optimal staffing involves aligning staff positions with the plan's requirements, assessing existing skill sets, addressing skill gaps, and ensuring staff possess the necessary competencies. By focusing on these aspects, Engineer Municipality can enhance its capacity to execute the ISUD Plan effectively.

Table 0-1: Staff Establishment

S/NO	Position	Proposed	Optimal Staffing levels	In-post	Variance	Job group
1.	Municipal Manager	1	1	1	0	Q
2.	Municipal Accountant	2	2	2	0	P
3.	Municipal Economist	1	1	1	0	N
4.	Physical planner	2	1	1	1	K
5.	Land Surveyor	1	1	1	0	K
6.	Clerk of Works	2	2	0	2	K
7.	Municipal Environment Manager	1	1	1	0	N
8.	Enforcement Officer in Charge	1	1	0	1	K
9.	Enforcement Officers	10	10	0	10	H
10.	Administrative officer	1	1	0	1	K
11.	Procurement Officer	1	1	1	0	K
13.	Street Sweepers	15	15	0	15	D

15.	Secretaries	1	1	0	2	J
16.	Drivers	2	2	0	2	E
18.	Community Development officer	1	1	0	1	M
19	Social officer	1	1	1	0	K
19.	Internal auditor	1	1	1	1	K
20.	Clerical Officers	1	1	0	3	H
21.	Project Manager	1	1	0	1	K
22.	Revenue Officer	1	1	0	1	K
23.	Revenue clerks	5	5	0	5	H
24.	Architecture	1	1	0	1	K
25.	Civil Engineer	1	1	0	1	K
26.	Quantity Surveyor	1	1	0	1	K
27.	Public health officer	1	1	0	2	K
28	Human Resource Officer	1	1	1	0	K
	Total	57	56	11	51	

Source: Engineer Municipality Strategic Plan Preparation Team

Engineer Municipality has recognized significant staffing shortfalls by comparing the required staff establishment with the current staff in post. To address this and ensure optimal service delivery, a detailed analysis of staff skills and competencies was conducted, as outlined in Table 6.3. This analysis identifies existing skills and any gaps, informing targeted human resource development efforts. By addressing these gaps through training or recruitment, the municipality aims to enhance its workforce's capabilities and improve overall service delivery effectiveness.

Table 0-2: Skills Set and Competence Development

Cadre	Skills set	Skills Gap	Competence Development
S-T	-Public policy research and implementation -Finance management and resource mobilization -Conflict resolution -Strategic planning -Leadership, teamwork and supervisory knowledge -Capacity development -Analytical and reporting skills	-Leadership, teamwork and supervisory skills -Financial management -Strategic management	-Strategic leadership and development -Finance management and resource mobilization
P-R	-Public policy research and implementation -Conflict resolution -Strategic planning -Leadership, teamwork and supervisory knowledge -Capacity development -Analytical and reporting skills	-Leadership, teamwork and supervisory skills -Strategic planning -Negotiation	-Strategic leadership and development -Conflict resolution and alternative dispute resolution
K-N	-Data collection, compilation, and documentation	-Relevant computational skills	-Senior management course

	-Computational, Analytical and report preparation skills -Teamwork coordination and interpersonal skills -Project planning and organizational skills -Supervisory skills -Relevant technical ICT skills	-Project planning and management -Leadership -Relevant technical ICT skills	-Relevant computational course/training -Technical based ICT course/training -Project planning and management
H-J	-Data collection, compilation, and documentation -Computational, Analytical and reporting skills -Relevant technical ICT skills -Organizational skills -Teamwork and interpersonal skills	-Relevant computational skills -Relevant technical ICT skills	-Relevant computational course/training -Relevant technical based ICT course/training
A-G	-Strategic management skills -Problem-solving skills -Interpersonal skills -Organizational skills -Analytical skills -Presentation skills -Computing skills -Negotiation skills	-Technical skills -Public relation -Office administration skills -Interpersonal skills	-Public relation and communication -Innovation and creativity in public service -Office administration management

Source: Scheme of Work and Engineer Municipality integrated Strategic urban Plan Preparation Team

10.2.1. Leadership

The implementation of the strategic plan will be spearheaded by the Engineer Municipal Board, which will oversee decision-making and policy directions within the municipality

to ensure alignment with broader development agendas. The municipal manager will be tasked with executing these decisions across various directorates, ensuring efficient resource allocation, continuous progress monitoring, and timely resolution of any issues that arise. Collaboration with departments and stakeholders will continue to foster transparency, accountability, and innovation throughout the process. Clear communication, detailed work plans, and performance metrics will remain integral to ensuring that individual roles align effectively with strategic objectives.

10.2.2. Systems and Procedures

Engineer Municipality will align its operations with various laws and policies including the UACA 2011 (Urban Areas and Cities Act), County Integrated Development Plan CIDP 3, Municipal Charter, Constitution of Kenya, Public Procurement and Disposal Act 2019, Public Finance Management Act, County Government Act, and various other pertinent policies and circulars. These frameworks will serve as the cornerstone for the municipality's commitment to adopting and exceeding quality standards while embracing digitalization.

The municipality will spearhead initiatives to demonstrate its unwavering dedication to quality standards by implementing cutting-edge quality management systems, such as ISO 9001. Through these systems, Engineer Municipality will ensure that its services consistently meet and surpass established benchmarks, fostering a culture of continuous improvement and excellence.

Simultaneously, Engineer Municipality will embark on a comprehensive digitalization journey, leveraging innovative technologies to streamline processes, enhance service delivery, and promote transparency and accountability. E-governance platforms will empower citizens by providing convenient access to information and services, while administrative processes will be digitized to optimize efficiency and resource utilization.

By embracing digital innovation and upholding stringent quality standards, Engineer Municipality will not only meet the evolving needs of its constituents but also position itself as a trailblazer in modern governance practices. Through regular monitoring, evaluation, and stakeholder engagement, the municipality will remain agile and

responsive to emerging challenges and opportunities, ensuring sustained progress and prosperity for its community in the future.

Risk Management Framework

In the pursuit of realizing strategic plans, various risks can emerge, potentially impeding progress and threatening organizational objectives. Table 6.3 outlines various risks, suggested actions for mitigation, monitoring and reporting.

Table 0-3: Risk Management Framework

S/No.	Risks	Risk Likelihood (L/M/H)	Severity (L/M/H)	Overall Risk Level (L/M/H)	Mitigation Measure(s)	Monitoring Actions	Reporting Actions
1	Budget Constraints	Financial	High	High	Implement cost-saving measures Seek alternative funding sources Prioritize strategic initiatives	Regular review of budget allocations and expenditures Monitor revenue streams and expense Adjust budget as needed	Include financial updates in regular reports Alert management of any significant budget deviations
2	Regulatory Changes	Legal/Regulatory	Medium	Medium	Stay informed of	Regularly monitor legislative developme	Provide summaries of regulatory

					legislative updates - Engage with regulatory bodies - Conduct impact assessments of proposed changes	nts- Assess potential impact on strategic plan objectives- Update relevant policies and procedures	changes and potential impacts- Recommend adjustments to strategic plan as needed
3	Political Instability	Political	Low	High	Foster positive relationships with stakeholders Stay neutral and apolitical in operations Develop contingency plans for political unrest	Monitor political developments locally and nationally- Assess potential impact on operations and objectives - Activate contingency plans if necessary	Provide updates on political landscape and potential risks- Report on contingency plan implementation and effectiveness
4	Technological Disruption	Operational/Technological	Medium	High	Invest in technology upgrades	Monitor emerging technologies and trends-	Highlight technological advancements and

					- Enhance cybersecurity measures - Provide staff training on new technologies	Conduct regular cybersecurity assessments- Evaluate staff proficiency in new technologies	potential risks- Report on cybersecurity posture and training outcomes
5	Talent Attrition	Human Resources	Medium	Medium	Implement employee retention strategies Provide career development opportunities Enhance workplace culture and engagement	Track employee turnover rates and reasons- Conduct exit interviews to gather feedback- Assess workforce skills and needs	Report on employee turnover trends and retention efforts- Recommend adjustments to HR strategies as needed

CHAPTER ELEVEN: MUNICIPAL REVENUE AND HUMAN RESOURCE

11. Overview

This chapter explores the various current municipal revenue streams and their projection in the next 10 years. It also delves into the human resource requirements vis a vis the current deployment status.

11.1. Municipal Revenue

Currently, the major municipal revenue sources include Engineer Hospital, business permits/licences, land and plot rates, county funding, and capital financing. Other sources of revenue include parking charges, and agricultural among other cess fees. It is noteworthy that the municipality is yet to be delegated the role of collecting revenues within its jurisdiction by the Nyandarua County Government. Consequently, the daily running's of the municipality are therefore funded by the county while the devolvement process continues. The table below captures the revenue projection by source for Engineer Municipality in the next 10years.

Revenue Streams	**2024/25 (Ksh)**	**2025/26 (Ksh)**	**2026/27 (Ksh)**	**2027/28 (Ksh)**	**2028/29 (Ksh)**	**2029/30 (Ksh)**	**2030/31 (Ksh)**	**2031/32 (Ksh)**
Engineer Hospital	44,167,839	48,584,623	53,443,085	58,787,394	64,666,133	71,132,746	78,246,021	86,070,623
Business Permits	11,000,000	12,100,000	13,310,000	14,641,000	16,105,100	17,715,610	19,487,171	21,435,888
Land/Plot Rates	5,854,305	6,439,736	7,083,709	7,792,080	8,571,288	9,428,417	10,371,258	11,408,384
Agricultural Cess	6,980,202	7,678,222	8,446,044	9,290,649	10,219,714	11,241,685	12,365,854	13,602,439
Others Streams	14,552,299	16,007,529	17,608,282	19,369,110	21,306,021	23,436,623	25,780,285	28,358,314
County Funding	30,000,000	40,000,000	45,000,000	50,000,000	50,000,000	50,000,000	50,000,000	50,000,000
Capital Financing	939,233,433	934,356,471	860,944,231	77,749,801	16,003,047	20,000,000	25,000,000	25,000,000
Total	**1,051,788,078**	**1,065,166,581**	**1,005,835,351**	**237,630,034**	**186,871,303**	**202,955,081**	**221,250,589**	**235,875,64**

11.2. Human Resource Requirement

To ensure the adequate provision of services within the municipality, it's imperative to have optimal staffing equipped with the right skills and competencies. The municipality's staff establishment, as outlined in the table below provides a framework for this endeavor. Achieving optimal staffing involves aligning staff positions with the plan's requirements, assessing existing skill sets, addressing skill gaps, and ensuring staff possess the necessary competencies. By focusing on these aspects, Engineer Municipality can enhance its capacity to execute the ISUID effectively.

Engineer Municipality Staff Establishment

S/NO	Position	Proposed	In-post	Variance	Job group
1.	Municipal Manager	1	1	0	Q
2.	Municipal Accountant	2	2	0	P
3.	Municipal Economist	1	0	1	N
4.	Physical planner	1	1	1	K
5.	G.I.S Officer	1	0	1	K
6.	Clerk of Works	1	0	1	K
7.	Municipal Environment Manager	1	1	0	N
8.	Enforcement Officer in Charge	1	0	1	K
9.	Enforcement Officers	10	0	10	H
10.	Administrative officer	1	0	1	K
11.	Procurement Officer	1	1	1	K
13.	Street Sweepers	15	0	15	D
15.	Secretaries	1	0	1	J
16.	Drivers	2	0	2	E
18.	Community/Social Development officer	1	1	0	M
19.	Internal auditor	1	1	1	K
20.	Clerical Officers	1	0	1	H
21.	Project Manager	1	0	1	K
22.	Revenue Officer	1	0	1	K
23.	Revenue clerks	5	0	5	H
24.	Architecture	1	0	1	K
25.	Civil Engineer	1	0	1	K
26.	Quantity Surveyor	1	0	1	K
27.	Public health officer	2	1	1	K
	Total	**54**	**11 (20.37%)**	**43 (79.63%)**	

13 Source: Engineer Municipality ISUD preparation team

Engineer Municipality has recognized significant staffing shortfalls by comparing the

required staff establishment with the current staff in post. To address this and ensure optimal service delivery, a detailed staffing analysis was conducted, as outlined in table above. This analysis identifies existing staff and any gaps thus informing targeted human resource development efforts. By addressing these gaps through training or recruitment, the municipality aims to enhance its workforce's capabilities and improve overall service delivery effectiveness.

CHAPTER TWELVE: SYNTHESIS OF EMERGING ISSUES

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
PHYSIOGRAPHY, ENVIRONMENT AND NATURAL RESOURCES.	**Topography**	Low-lying areas are prone to flooding during heavy rain.	• The gentle sloping areas favor human settlement, infrastructural development, and utility provision. • Areas with undulating topographies can support various outdoor activities.	• Encourage compact development through densification of the zoned urban area • Exploit the touristic potential of the municipal landscape e.g. ziplining in the sloppy areas

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
	Climate	• The low temperatures within the planning area leads to night frost that affects crops. • • There is inadequate amount of rainfall in some parts of Engineer municipality such as Weru and Matundura to support agriculture	• New hybrid crops which are drought and frost resistant. • Heavy rainfall during the rainy season during the month of April, May & November. The existing water pan can be expanded to store more water which can be used for irrigation during dry seasons.	• Establishment of a research facility for the hybrid crops. • Increase agricultural extension services within the municipality • Construction of water pans to reduce overreliance on rainfed agriculture

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
	Geology and soil	• Uncontrolled mining • Incidences of Soil erosion	• Stable geology for urban development • · Fertile soil that is good for agriculture	• High plot ratios to be adopted for maximization of plot use.

	Vegetation	• Most of the natural vegetation has been cleared leading to environmental hazards such as environmental degradation	• The vegetation cover plays a role in maintaining the ecological and social value of the planning area. It presents a potential for eco-tourism and recreation. • Existence of Gazzetted Forest cover within the municipal. Covers 40% of the municipal area. • Apicultural activities in areas near the forest e.g. Mbekenya, Kahuruko, Kwa-Lee	• -Develop ecotourism facilities and amenities and explore options such as adopt a block. • -Increase apicultural activities in areas neighboring the forest. • -Creating awareness for forest conservation.

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
Population and Demography	**Population** **Demography**	• -The municipality has an expansive population • structure pointing to a more youthful population. This calls for an increase in facilities that attend to this • population such as schools, hospitals and recreational areas. This is also necessitated by the anticipated population growth. Population is projected to grow to 131,418	• The municipality has a youthful population which translates into the availability of quality manpower to support economic growth. • The steadily increasing population provides ready markets for local business and investments •	• - Establishment of agro-based industries to provide market for agricultural produce and labor for the youth • -Development of markets • - Infrastructural development to support and boost local economy. E.g. streetlights to increase trading time

	Demography		• High unemployment rates among the youths leading to high dependency ratios • It was noted that 51% of the sampled population reported moving into the municipality in search of jobs, marriage, and land. • Growth	• Promotes increased investment, market for • produce, labor force • -Gender empowerment • programmes • -Increase access to finances and facilities to support women and vulnerable groups and promote investment • -Mainstreaming gender issues in municipal development programmes. • Availability of banks, • SACCOs and community	• -Increase civic education on financial literacy to encourage a saving culture

		of single and female-led households pointing to a dip in marriages rates. • • 49% of the respondents do not have a savings culture.	• saving groups provide options for saving culture.	

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
Land use Analysis	**Land tenure and Availability**	• -Land tenure in Engineer Municipal is 95% freehold. This limits the planning interventions to mainly land use and development control • -Increased Fragmentation of agricultural land that could lead to food insecurity	• -Availability of public land in some urban centres. • -There exists a stock of Purchased County Land that can be used for planning intervention	• -Maximize use on available public land • -Acquire land for identified uses • -Preparation of detailed zoning plans and guidelines to guide development

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
URBAN ANALYSIS				

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
Housing and Human Settlement		• -Low Plot Ratios leading to suboptimal use of Land • -Uncontrolled urban growth leading to urban sprawl - Mushrooming of semi formal settlements without basic social and physical infrastructural services • -Building materials that are not sustainable some lack provision for water harvesting • -Most housing lack PWDs provisions • -Insecurity of tenure • especially within the • urban and trading centres • -High level of unemployment hence • high rate of crime and • violence within the • settlements • -The structures within the • settlements are prone to	- Ongoing construction of the affordable housing stock to boost housing stock • Land tenure in the Municipality is mainly freehold	• -Enhance compact development by increasing Plot Ratios and Ground Coverage without comprising on quality of living spaces • -Define urban limits to contain urban sprawl. • -By -laws to be enacted to enforce construction of housing that is PWD compliant • -Water harvesting to be enforced in

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
		• disasters such as fire • outbreaks • -Lack of affordable housing stock as housing is provided mainly by the public sector		the building design to reduce storm water runoffs • -Enforcement of by laws to standardise the housing typologies and colour for uniformity

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
Physical infrastructure	**Roads** **Liquid waste** **Solid waste**	• Encroachment of road reserves • Majority of the roads are earthen hence not passable during rainy season • Narrow roads within the urban core • Lack of adequate parking facilities • Lack of and substandard bus terminus in major towns like Engineer. • Lack of NMT facilities within the municipality • Lack of sewerage system • Inadequate and lack of public sanitation facilities e.g in Ndinda, Murungaru • Lack of drainage channels along the road reserves • Lack of maintenance leading clogging • Waste dumping in open spaces and road reserves due	• Existence of tarmacked roads • Public private partnership for road construction • Allocation of funds for road construction	• • Widening of town roads • Upgrading of the access roads within the municipality • Construction of standard bus terminus across the towns especially at Engineer • Construction of drainage channels in both existing and new roads

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
		to behaviour and lack of designated collection sites • Lack of modern solid waste disposal sites •	Adoption of 3Rs; (Reduce, Reuse and Recycle) Adoption of best practices on waste to energy, wealth creation, fertilizer among other uses	

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
	Water	• -Lack of an integrated water-supply plan for the municipality. • -Dilapidated infrastructure. • -Lack of water treatment facilities in water supply systems. • -Inadequate funding for upgrading, rehabilitation and expansion of water services - Siltation in the dams	• -The permanent rivers provide opportunities for adequate supply of piped water • -The Aberdares ranges acts as a water catchment area • -The dams and water pans are important for stormwater collection and storage • -High ground water potential	• -Investment in the County-Integrated water reticulation system • -Repair and maintenance of dilapidated water infrastructure • -Awareness trainings need to be carried out in the communities on the need for the water projects, community-based organizations to consider working under the management

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
				of the water companies to solve the challenge of management problems • -Installations of water meters at strategic positions to help deal with the issue of non-revenue water. • -The need for water treatment plants to treat the water making it fit for the domestic use. • -Adoption of the various community-

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
				based water projects by the county government for funding and maintenance.

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
	ICT and Energy	• Poor network coverage • Slow internet speeds • Lack of exploitation of the internet for employment opportunities	• 5G Network has been key to increased network speed and promised significant faster data download, upload speed, wider coverage and more reliable. • Commercialized AI is poised to revolutionized the emerging IT industry, offering more avenues for business growth and market absorption.	• Laying of fibre optic cables • Designate land for tech hubs and innovation centers • Create awareness on the need to embrace ICT in businesses

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
Social Infrastructure	**Education Facilities**	• -Low enrolment numbers in primary and secondary schools. • -Poor access roads to educational facilities that are located away from the main roads • -Inadequate educational facilities in Engineer Ward • -Inadequate ECDE Teachers	• -Availability of land to build more schools in underserved areas • -Employment of more ECDE teachers	• -Civic education to encourage the enrolment numbers • -Improvement of support infrastructure e.g. access roads • -Build capacity in the existing facilities to accommodate more learners • -Recruitment of more ECDE teachers

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
	Health	• -Inadequate drugs in the health centres • -Poor accessibility (Road standards) - Inadequate coverage of the health facilities • -High patient to doctor ratios hence very long queue at health facilities • -Land Tenure /most health facilities lack ownership documents • -Inadequate specialized service providers e.g., ENT, ophthalmology, psychiatry, dental, oncology, surgical etc. • -Insufficient budgetary allocation for procurement of health products. • -Inefficiencies in the procurement logistics occasioning stock outs. • -Lack of cold storage • -lack of casual workers in the health facilities resulting in the facilities being in unhygienic	• -Existence of the level IV hospital within the Municipality • -Availability of land for construction of health centres • -A large youthful population who can be recruited as casual workers in the health facilities	- Increasing the funding of the level IV hospital to continue supporting the growing population • -Allocation of more funds for the construction of the health centers especially in the nodes of Murungaru, Ndunyu Njeru and

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
		conditions		Gathara • -Recruitment of more casual workers in the health facilities
	Other social infrastructures (Cemeteries, Stadium, police stations, social hall, youth centres)	• Lack of a public library • The cemetery at Ndunyu Njeru is exhausted • Inadequate open spaces within residential neighbourhoods and within the urban core • Encroachment of the playfield in Engineer town	•	• Acquisition of more public land for the construction of a cemetery, social hall and tech hubs • Decommission the cemetery at Ndunyu Njeru • Reclaim all public land and fence

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
				• Provision of basic infrastructure within playgrounds • Adopt beautification within the towns
Economy	**Crop Farming**	• -Climate change • -Overreliance on rainfed agriculture • -prevalence of Pests and diseases • -Water scarcity • -Unpredictable market for produce • -Rising costs of farm inputs such as certified seeds, fertilizers and pesticides • -Lack of access to modern farming technologies • -Lack of access to storage	• Fertile soils • -conducive climate • -Availability of technology and research • -Labor availability • -Access to financial services	• -Adopt high-yield crop varieties • -Invest in agricultural research and increasing agricultural extension services • -Provide farmers with knowledge about modern

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
		facilities like cold storage and national cereal boar • -Inaccessible roads during rainy seasons		farming techniques • -Construction of storage facilities in Engineer town • -Provide subsidized farm input in rural centers • -Employment of more extension officers • -Construction of modern markets at Engineer, Ndunyu Njeru & Murungaru

	Livestock production	• -Competition with food crops for land
		  - Low productivity
		• -Little technical know-how on production systems
		• -Minimal value addition of livestock products
		  - Diminishing land sizes
		• -Vagaries of weather occasioned by climate change
		• -Decrease in purchasing power resulting in less demand for beef
		• -Mainly beef is imported from other neighboring counties and a few culls from the dairy herd
		• -Low availability of slaughter stock locally
		• -Low beef uptake
		• -Very few beef butcheries and outlets
			• -Extensive land in the peri-urban areas suitable for livestock rearing	• -Open a local livestock market at Ndunyu Njeru
				• -Sensitize masses on beef as an alternative to mutton
				• -Proper facilitation for the veterinary officer to carry out effective disease surveillance and control to minimize use of antibiotics and other drugs on cattle
				• -Construct modern slaughterhouses at Murungaru

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
				and Engineer town

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
	Tourist attraction sites	• -Underdeveloped infrastructure hindering access to the sites • -Proper marketing not done • -Lack of support infrastructure • -Reluctance by hotels to join the Nyandarua county tourism association. • -Lack of proper training to the workers. • -Harsh weather conditions • -Slow uptake to technology.	• -Attraction sites such as Kinyahwe, Muti wa Kenyatta, Aberdare ranges • -The municipal landscape e.g. ziplining in the sloppy areas • The gazetted forest is a touristic site and the location of the gate ..... • -The availability of hospitality facilities to host tourism related activities	• -Rehabilitate the attraction sites • -Creating awareness on local tourism • -Proper marketing of the municipality as a tourist destination • -Improve access roads linking the attraction sites • -Explore zip lining, hiking and other touristic activities • -

THEMATIC AREAS	Sub-Sector	Planning Issue	Opportunity	PROPOSAL
	Jua-kali and cottage factories	• -Lack of policy guidelines • -Segregation of Jua Kali industries • -Industrialization has not fully devolved • -Lack of training to the cooperatives	• -Youthful population • -Affordable housing Programme • -Consumption of locally produced goods • -Wool factory at Kamrembo /Munyaka	• -Certification of jua kali artisans • -Construction of jua kali shed in market centers • -Upscaling the wool production at Kamrembo
Governance and Institutional Framework		• Inadequate municipal staff to implement projects and programs •	• Availability of skilled and semi-skilled labor	• - Build capacity for municipal through employment of critical staff and training

CHAPTER THIRTEEN: SCENARIO BUILDING

13.0 Structuring elements

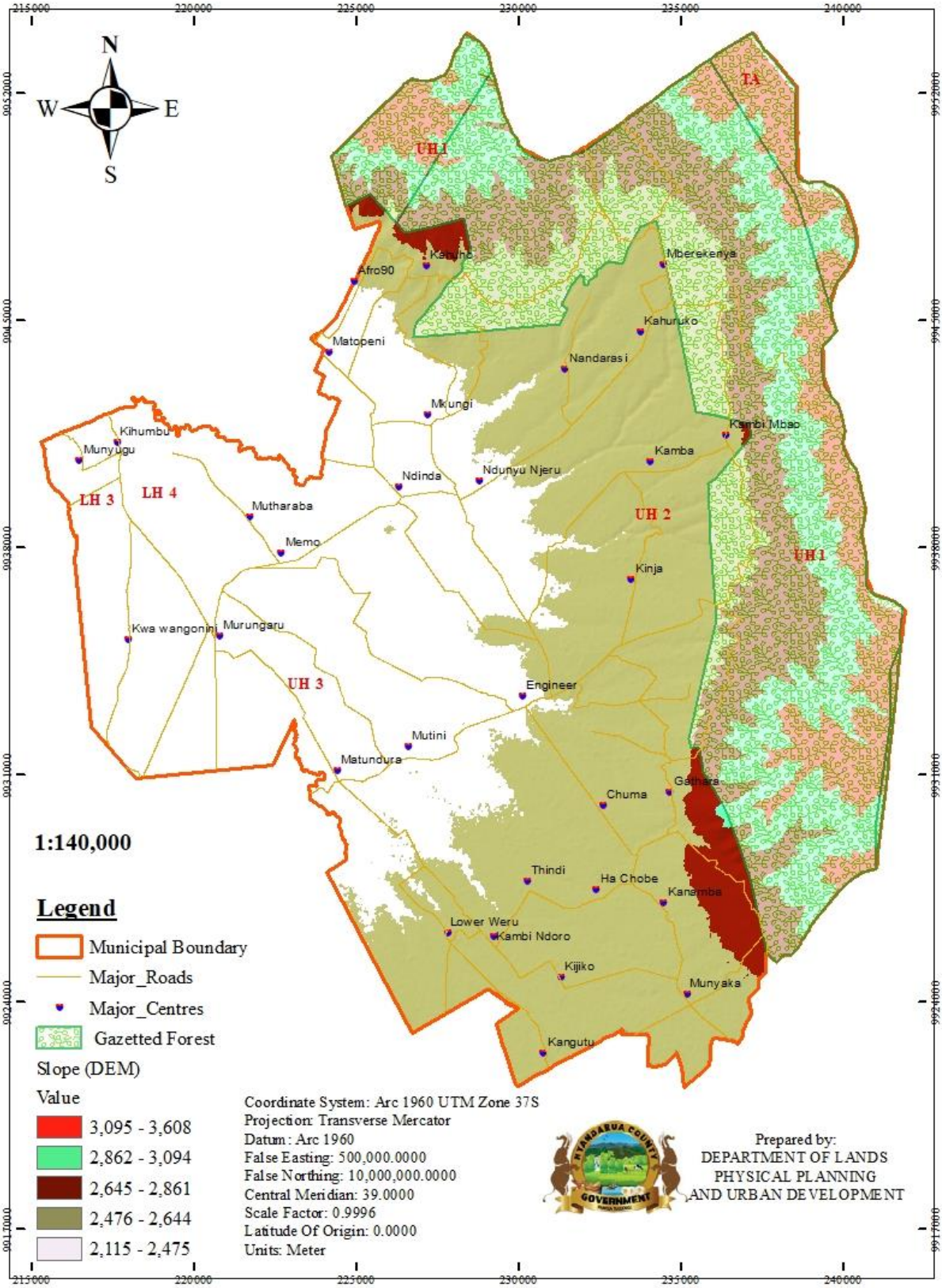
Development trends and patterns of Engineer Municipality are influenced by both man-made and natural features. Engineer municipality is well connected to other major Urban centers within and beyond the County boundaries by the Njabini-Ol'kalou (C69) road, Engineer- Naivasha (D393) Road Ndinda-Murungaru-Naivasha (D392) Road and the Upcoming Ndunyu Njeru –Ihithe(D89J1) Road which runs across the Municipality Boundary. The aforementioned roads links with major trunks roads that networks the municipality with counties of Nairobi, Nakuru, Kiambu, Nyeri and Laikipia. This connectivity bestows the municipality with a great potential to grow with these roads being a key driver to economic development

Other landmark features include the Aberdare Forests and a part of Kipipiri Forest ecosystems which are linked by rivers.

Topographically Engineer municipality is both flat and undulating in different areas with altitude ranging between 1931m and 2872m above sea level. The forests which are also located the highest Altitude in the County are the source of rivers.

Despite playing a big role of ecosystem service provision, the forested areas have recorded numerous challenges including management capacity, ownership, encroachment and lack of awareness on their importance. Co-management and adopt a forest policy are measures that should be put in place.

ENGINEER MUNICIPALITY SRUCTURAL ELEMENTS



13.1 Modeling Urban Development in Engineer Municipal

Preparation of Integrated Strategic Urban Development Plans for urban areas in Engineer Municipal is informed by both planning philosophy and modern planning principles as follows:

i) **Planning Philosophy-** *Green, dense and fair* urban human settlements

Sustainability is at the heart of any planning intervention. Urban human settlements in Engineer Municipality are relatively young and small in size. This provides opportunity to planning intervention that is aimed at promoting *dense, green,* and *fair* urban areas.

Dense Urban Areas: A compact urban form is preferred since this form reduces dependence on motorized transport. Motorized transport is associated with urban environmental pollution and climate change. Widespread use of fossil fuels (transport sector) especially those rich in Sulphur and lead contributes to non-point ecological pollution. The dense urban form also ensures that the Promotion of compact urban form calls for linkages and partnerships among stakeholders in public and private sector.

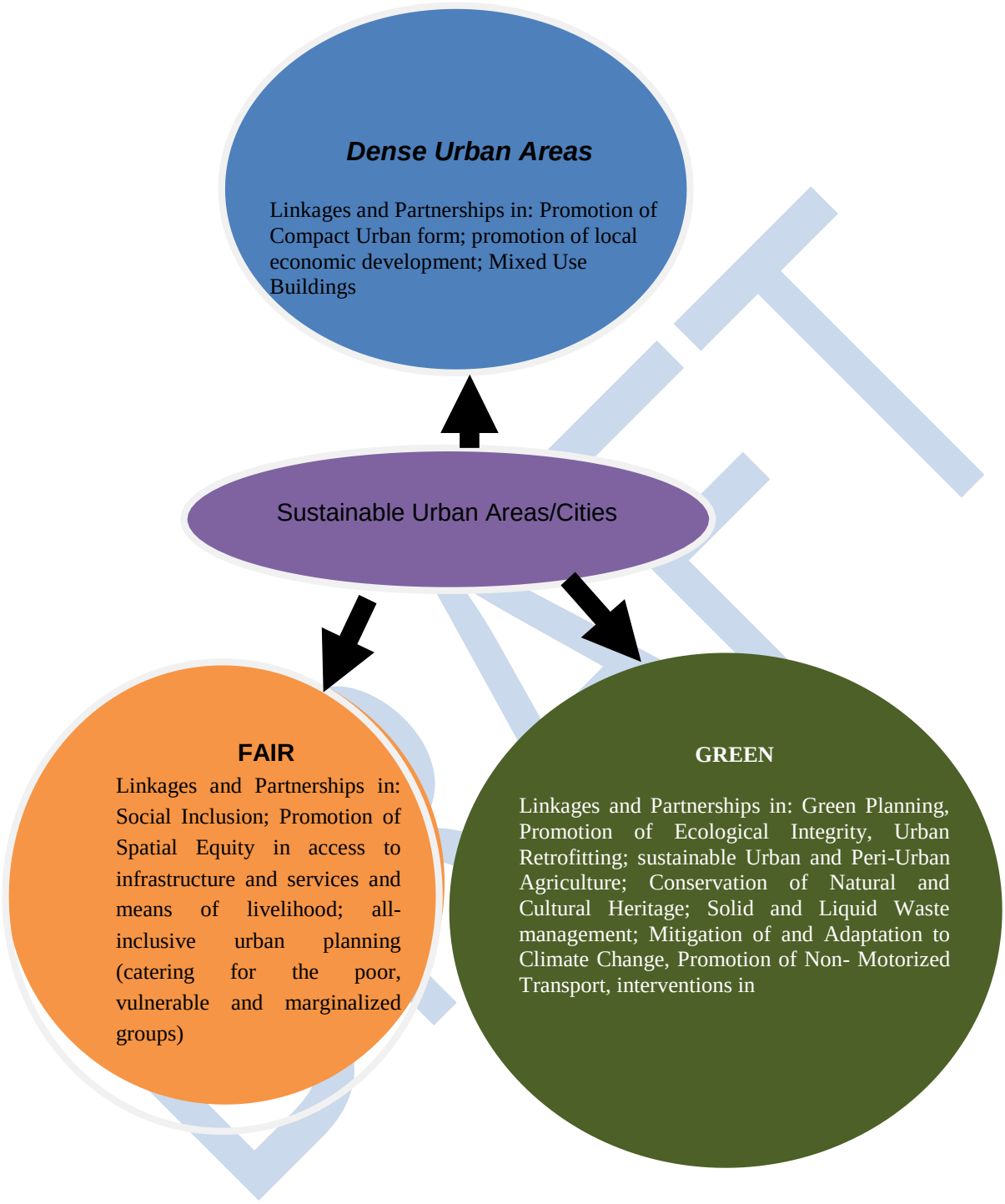
Green Urban Areas- the concept of green cities or eco-cities is the in-thing in modern day planning. Planning intervention in Engineer Municipal aims to transform urban areas into green urban areas through promotion of green infrastructure, promotion of green energy use and solar-powered urban and peri-urban agriculture, promotion of rain water harvesting technology, conservation of ecologically fragile sections of urban settlements, urban retrofitting, and conservation of both natural and cultural heritage, among others.

Fair Urban Areas- Promotion of fair urban areas is consistent with modern day planning principles. This involves integrating needs of both the rich and the vulnerable and marginalized groups in urban areas. Both the vulnerable and marginalized groups are normally socially and economically excluded through insensitive planning. Fairness in this case also involves promotion of spatial equity in access to urban infrastructure and services. It is the poor and marginalized groups that are mostly disadvantaged when it comes to access to infrastructure and services but this plan correct such anomaly through proactive interventions.

13.2 Modern Planning Principles

Preparation of the Integrated Strategic Urban Development Plans (ISUDP) for Engineer Municipal was informed by the following planning principles:

- Promote sustainable urban development
- Achieve integrated planning
- Integration between plans and budgets
- Planning with partners and stakeholders
- Promote market responsiveness
- Equity and Inclusivity
- Ensure access to land
- Be pro-poor and inclusive
- Recognize cultural diversity
- Climate change responsive planning

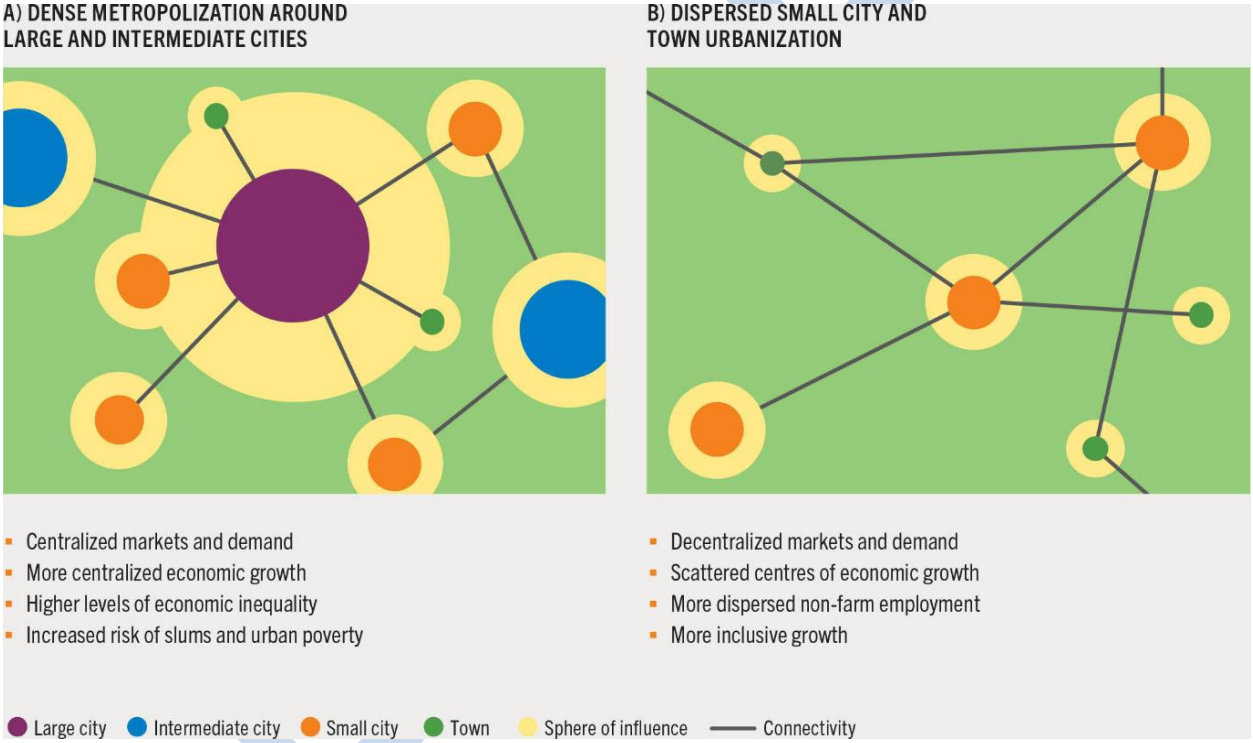

Dense Urban Areas
Linkages and Partnerships in: Promotion of Compact Urban form; promotion of local economic development; Mixed Use Buildings
Sustainable Urban Areas/Cities
FAIR
Linkages and Partnerships in: Social Inclusion; Promotion of Spatial Equity in access to infrastructure and services and means of livelihood; all-inclusive urban planning (catering for the poor, vulnerable and marginalized groups)
GREEN
Linkages and Partnerships in: Green Planning, Promotion of Ecological Integrity, Urban Retrofitting; sustainable Urban and Peri-Urban Agriculture; Conservation of Natural and Cultural Heritage; Solid and Liquid Waste management; Mitigation of and Adaptation to Climate Change, Promotion of Non- Motorized Transport, interventions in

13.3 Development Scenario 1: Urban centers as growth poles/ Urbanization scenario

The concept of growth poles developed by Perroux, Boudeville and Lasuén in the 1950s. The concept is based on the hypothetical expectation that urban growth poles will polarise a larger region, through the growth diffusion generated by single large firms or an important economic sector localised in the urban growth pole. In engineer Municipality this model would apply whereby investments would be directed and focused in these urban nodes. The expectation is the growth will diffuse to the adjacent hinterland.

There exist three tiers of urban centres in Engineer Municipality. These tiers are based on the level of services currently being offered within these urban centres against the provisions in the Urban areas and Cities Act, 2011. This scenario proposes that these investments will be directed to these urban centres so that they can adequately serve the larger municipality hinterland.

The centres are interlinked functionally with each centre assigned certain functions to support each other along their hierarchy. The higher-level urban centres support higher level services and hence the hinterland can access these services there. The lower-level urban centres are many and distributed within the hinterland supports the basic services as espoused in the diagram below

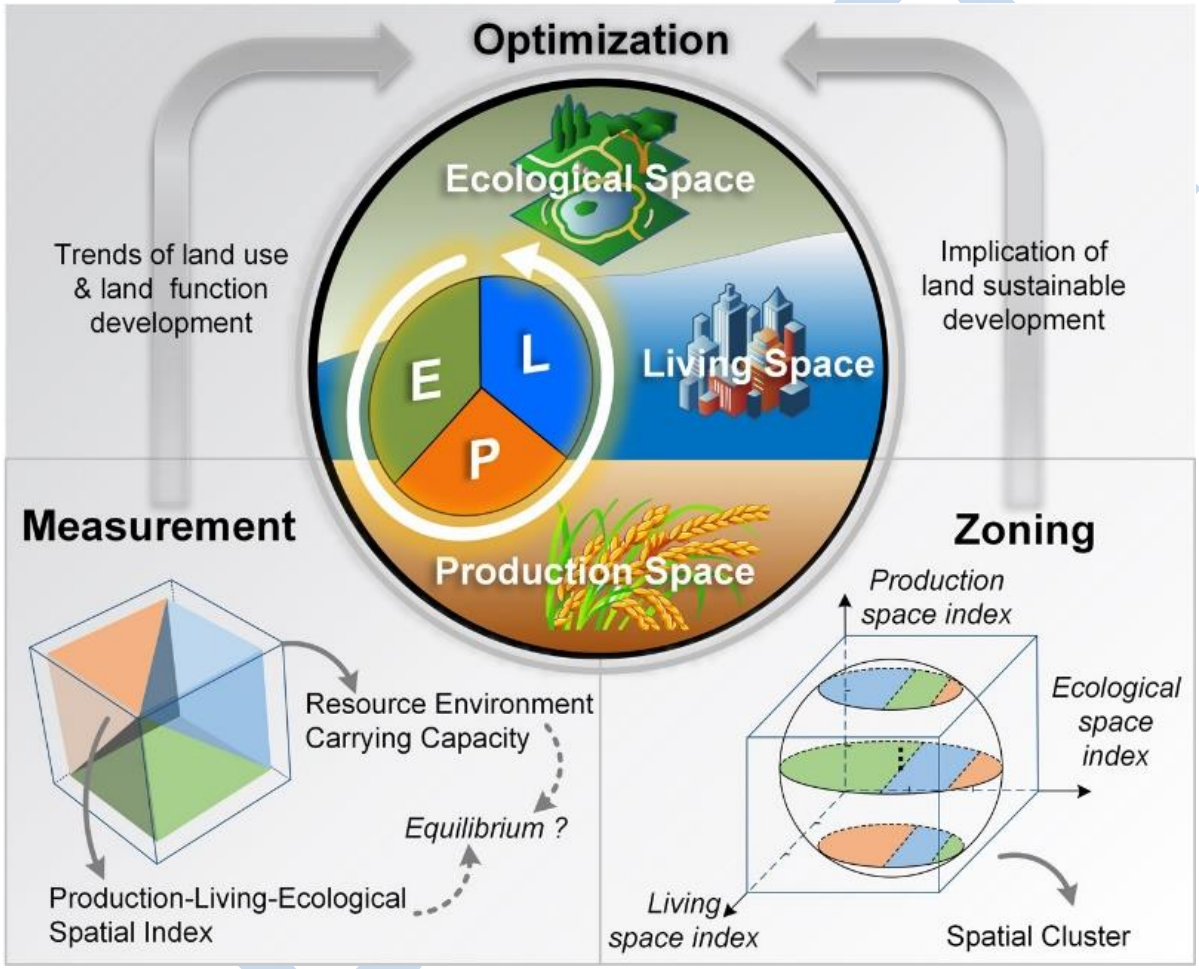


This model also provides that where a catchment population reaches a certain threshold a new urban pole will be established.

13.4 Scenario 2: Land optimisation model

Land optimization, or land use optimization scenario is will involve adjusting the composition and distribution of land use types to improve land use efficiency and promote sustainable land uses. These

approach aims at achieving optimal ecological, economical and social benefits.
This scenario is based on the theory of comparative advantage, which involves balancing multiple land use objectives, such as economic growth, ecological protection, and social benefits. The goal is to maximize net benefits across all outcomes. This scenario is informed by the existing land use activities. The diagram below espouses what land optimisation entails
In Engineer municipality this scenario involves balancing the existing land uses activity with the sole objective of generating the optimum outcomes from the scarce land resources. The structuring elements of the municipality are the slopes, ecologically sensitive areas, gazetted forest existing land uses in the municipality involves agricultural, tourism.



To achieve these outcomes some of the strategies that the municipality could adopt include: -

- Mixed use development
- Transit oriented development
- Urban agriculture /vertical /rooftop farming
- Crop diversification
- Water management
- Soil conservation
- Agro forestry

- Targeted densification
- Adoption of new technologies
- Smart zoning and Enforcement of laws
- Tourism development
- Land banking and strategic acquisition

13.5 Scenario 3: No intervention model

This scenario envisages a situation where the development is allowed to follow its current use trajectories. A zero-intervention scenario in a land use model is a model that assumes no policy intervention and instead extrapolates from historical trends to predict the probable trajectory of land use. In Engineer Municipality development is currently occurring along the main transportation corridors.

This model is not sustainable in the long run. If this model is sustained urban activities will shift from their designated areas to taking place along the transport corridors. Clearing of vegetation cover will continue occurring paving way for human settlements.

13.6 Scenario 4: Integrated model / preferred model

The preferred development model for urban areas in Engineer Municipality is one which leads to realization of sustainable development not only at the level of urban areas but at regional (county) level too. A model that stimulates socio-economic development while contributing to environmental sustainability is preferred. It is widely believed that with good policies in place, urban areas can serve as engines for rural/regional development.

CHAPTER FOURTEEN: DEVELOPMENT STRATEGIES & LAND USE POLICIES

14.0 Overview

After analysis of the resources within the municipality, after taking stock of the challenges within the municipality and incorporating the stakeholders concerns the following broad strategies were developed

14.1 Spurring economic growth of the Municipality.

The economy of Engineer Municipality is heavily reliant on agriculture. The following will help in promoting the economic returns;

14.1.A Modernising agriculture

- Adopt high-yield crop varieties
- Invest in agricultural research and increasing agricultural extension services
- Provide farmers with knowledge about modern farming techniques
- Construction of storage facilities in Engineer town
- Provide subsidized farm input in rural centers
- Employment of more extension officers
- Construction of modern markets at Engineer, Ndunyu Njeru & Murungaru
- Open a local livestock market at Ndunyu Njeru
- Sensitize masses on beef as an alternative to mutton
- Proper facilitation for the veterinary officer to carry out effective disease surveillance and control to minimize use of antibiotics and other drugs on cattle
- Construct modern slaughterhouses at Murungaru and Engineer town

14.1.B Promoting industrialization

- Certification of jua kali artisans
- Construction of jua kali shed in market centers
- Upscaling the wool production at Kamrembo

14.1.C Developing tourism potential

- Rehabilitate the attraction sites
- Creating awareness on local tourism
- Proper marketing of the municipality as a tourist destination
- Improve access roads linking the attraction sites
- Explore zip lining, hiking and other touristic activities

14.2 Optimising use of land and natural resources

14.2.A Securing environmental quality

- Encourage compact development through densification of the zoned urban area
- Exploit the touristic potential of the municipal landscape e.g. ziplining in the sloppy areas

- Establishment of a research facility for the hybrid crops.
- Increase agricultural extension services within the municipality
- Construction of water pans to reduce overreliance on rainfed agriculture
- High plot ratios to be adopted for maximization of plot use.
- Develop ecotourism facilities and amenities and explore options such as adopt a block
- Increase apicultural activities in areas neighboring the forest.
- Creating awareness for forest conservation.

14.2.B Integrating transport network

- Widening of town roads
- Upgrading of the access roads within the municipality
- Construction of standard bus terminus across the towns especially at Engineer
- Construction of drainage channels in both existing and new roads

14.2.C Managing human settlements

- Enhance compact development by increasing Plot Ratios and Ground Coverage without comprising on quality of living spaces
- Define urban limits to contain urban sprawl.
- By -laws to be enacted to enforce construction of housing that is PWD compliant
- Water harvesting to be enforced in the building design to reduce storm water runoffs
- Enforcement of by laws to standardise the housing typologies and colour for uniformity

14.2.D Providing appropriate infrastructure

- Civic education to encourage the enrolment numbers
- Improvement of support infrastructure e.g. access roads
- Build capacity in the existing facilities to accommodate more learners
- Recruitment of more ECDE teachers
- Increasing the funding of the level IV hospital to continue supporting the growing population
- Allocation of more funds for the construction of the health centers especially in the nodes of Murungaru, Ndunyu Njeru and Gathara
- Recruitment of more casual workers in the health facilities
- Acquisition of more public land for the construction of a cemetery, social hall and tech hubs
- Decommission the cemetery at Ndunyu Njeru
- Reclaim all public land and fence
- Provision of basic infrastructure within playgrounds

14.2.E Enhancing good governance and strengthening institutional capacity

- Build capacity for municipal through employment of critical staff and training.

14.3 LAND USE & LAND MANAGEMENT POLICIES

- Formulation of municipal by-laws
- Protecting agricultural land and food security through zoning guidelines
- Increasing density and encouraging transit-oriented development
- Containing sprawl through smart strategies such as compact development. (setting growth limits).
- Encouraging PPP in provision of affordable housing lots.
- Re-establish and enabling environment for agriculture and livestock development especially with regards to research, extension services.
- Encourage the application of smart and cost-effective irrigation methods in areas of low agricultural potential.
- Encourage sustainable urban agriculture.
- Modernize use of land information systems to allow for collection and updating data.
- Develop a framework for incentives to encourage maintenance of forest cover and ecosystem protection.
- Develop disaster awareness programs that sensitize the communities on best land practices and incorporate climate change adaptation and preparedness
- Rehabilitate and restore degrade water catchment areas.
- Promote land use practices that increase climate resilience and reduce effects on climate change.
- Identify and acquire sites for solid waste disposal (Formulation of the solid waste management Policy).
- Valuation role to enhance own source revenue
- Strategic acquisition of land for public purpose (Bus park, lorry park, solid waste, stadium and sewer treatment, cemeteries recreational parks)
- Implementation of Adopt a block as outlined in KFS guidelines to promote ecotourism
- Initiate urban renewal initiatives in urban areas such as Kirathimo
- Establishment of a system of green spaces (greening)

14.4 Action area Plans

Proposed action area Plans
(MAPS & ZONING GUIDELINES)

CHAPTER FIFTEEN: CAPITAL INVESTMENT PLAN

Strategies	Projects	Actors	Cost	Timeline		
				1-3Yrs	4-7Yrs	8-10Yrs
Securing environment quality	Solid waste management in Engineer town, Murungaru & Ndunyu Njeru	Engineer municipality Private Collectors	20,000,000			
	Train & support youth groups to establish small scale waste management enterprises	Engineer municipality County Government	3,000,000			
	Carry out safety assessment & certification of buildings	Engineer municipality	5,000,000			
	Provide 7 solid waste receptacles [2 Engineer and 5 in other market centres]	Engineer municipality	5,600,000			
	Purchase 2 refuse trucks	Engineer municipality	30,000,000			
	Acquisition and Construct of solid waste disposal site	Engineer municipality	30,000,000			
	Tree planting & beautification	Engineer municipality Communities	1,500,000			
Spurring economic growth	Construction of Modern Markets at Engineer, Ndunyu Njeru, Murungaru,	Engineer Municipality County Government	300,000,000			
	Establishment of a livestock market at Ndunyu Njeru	Department of Agricultuere, Livestock & Fisheries Engineer municipality	10,000,000			
	Provision of standard kiosks	Department of Trade & Industrialization Engineer municipality	44,792,849			
	Redesign, improve access and construct market sheds in Weru, Moset, Mikaro	Engineer municipality	4,000,000			
Promoting industrialization	Renovation of Kienjero Wool industry at Murungaru	Department of Trade & Industrialization	10,000,000			

		Engineer municipality				
	Construct potato & perishables warehouse for direct storage receipting system	Department of Trade & Industrialization Engineer municipality	25,000,000			
	Improve roads & drainage to make the markets accessible during rainy season	Department of roads Engineer municipality	2,000,000			
	Construct modern slaughter house in Murungaru, Engineer Town	Department of Trade & Industrialization Engineer municipality	50,000,000			
Developing tourism potential	Kinyahwe Cultural centre & 3-star hotel thru' PPP model	Department of Tourism Department of Trade & Industrialization Engineer municipality	35,000,000			
	Acquisition of land and Construction of standard stadium in Ndinda town	Department of Youth & Sports Engineer municipality	1,500,000			
Optimizing use of land and natural resources	Preparation of zoning plans for urban areas within the municipality (10 centres)	Engineer municipality	10,000,000			
	Establishment of GIS Lab & training	Engineer municipality	10,000,000			
	Enforcement of development control		10,000,000			
Providing appropriate infrastructure	Construction of 24,000m Sq. parking lots in Engineer town, Murungaru, Ndunyu Njeru & Munyaka	Engineer municipality	40,485,200			
	Solar Street lights in Engineer town, Murungaru, Ndunyu Njeru & Munyaka & floodlights in 13 market centres	Engineer municipality	30,000,000			
	Construction of a municipal administrative block	Engineer municipality	30,000,000			
	Acquisition & Construction of bus park (Engineer town, Murungaru) & Improvement of Ndunyu Njeru bus park	Engineer municipality	110,000,000			
	Local & Long-distance lorry park at Engineer town	Engineer municipality	11,000,000			

	Construction of boda-boda sheds in 8 market centres	Engineer municipality	4,000,000			
	Construction of 5km storm water drainage in Engineer Town, Murungaru, Ndunyu Njeru, Matopeni, Munyaka	Engineer municipality	160,000,000			
	Construction of modern public toilets in Engineer Town, Ndinda, Ndunyu Njeru, Munyaka, Matopeni, Murungaru	Engineer municipality	25,000,000			
	Construct NMT in Engineer Town, Murungaru, Ndunyu Njeru (signature street)	Engineer municipality	18,000,000			
	Completion of Moset, Mbekenya, munyugu(murungaru) Dispensaries	Engineer municipality	20,000,000			
	Expand water reticulation in unserved areas of Engineeer town & Ndunyu Njeru town targeting 2,500 households annually @ Ksh 5,000 each (Desilt kinja dam and tap Kenya pencil, Ngurunga)	Department of water Engineer municipality	37,500,000			
	Drill 5 boreholes in peri urban areas at Ksh 2.5m each (weru, olmagogo and murungaru)		12,500,000			
	Acquisition and Construction of sewer treatment plant & network expansion		55,000,000			
	Acquisition and Development of a modern municipal cemetery in Engineer town, Murungaru & Ndunyu njeru (In all wards)	Engineer municipality	10,348,943			
	Construct 3 social halls/library with ICT services (Tech Hubs)	Engineer municipality	75,000,000			
	Purchase and equip one (1) mobile clinic.		10,000,000			
	Construct fire station, fire-fighting truck & fire hydrants)		75,000,000			
	Purchase of an ambulance		15,000,000			
	Carry out safety assessment & certification of buildings		5,000,000			
Integrating transport network	Upgrading of 5km roads to bitumen standards in Engineer town	Engineer municipality Department of roads Department of Lands	250,000,000			
	Construction of appr. 1.8 km walkway & provide street furniture from town to Kanyugi primary and		16,779,600			
	Construction of appr 1.7 km walkway & provide street furniture from town to Karoroha primary					
	Construction of appr 1.8 Km walkway & provide street furniture from town to proposed municipal offices and affordable housing					

	Acquisition of an access road serving the Engineer Hospital Morgue					
	Construction of 2km road and walkway & provide street furniture from Engineer town to Nyayo Ward Hospital to Karoroha Primary		40,000,000			
	To construct 2 km road each to gravel standards in Murungaru, Ndunyu Njeru, Gathara, Munyaka & their environs at Ksh 5m/km		60,000,00			
	Upgrade to gravel standards, 10km of existing road network in peri-urban areas to gravel standards at Ksh 2m/km		20,000,000			
	Upgrading of 5km roads to bitumen standards in Engineer town		52,000,00			
	Expansion of Kahuru-Kirathimo Road					
Enhancing good governance and strengthening institutional capacity	Job analysis and skills assessment	Engineer municipality	1,500,000			
	Capacity building training for board members and staff		4,000,000			
	Formulation of municipality by-laws		10,000,000			

CHAPTER SIXTEEN: MONITORING, EVALUATION AND REPORTING FRAMEWORK

15.0 overview

This chapter outlines the rationale for a robust municipality monitoring and evaluation system, as well as highlighting the key outcomes for the various programs and the desired targets for the planned period.

The Engineer municipal board will ensure that there is clear linkage between this ISUDP and other plans for effective tracking of progress towards achievement of projects and programmes. The targets set in this plan will be aligned to the relevant county departmental level and further to individual workplans annually. Therefore, the focus of county departments' indicators and targets will be alignment to the municipality's long-term direction.

Monitoring and evaluation forms part of the performance management framework, which encompasses setting performance indicators, measuring them over time, evaluating them periodically and finally, making course corrections as needed.

15.1 Rationale for County Monitoring and Evaluation Framework

The municipality monitoring and evaluation framework will assist the Engineer Municipal board to evaluate, if the policies, programs and projects are implemented according to the planed timelines and targets. The M&E results will be helpful in providing feedback to citizens and resource allocation.

Through the monitoring and evaluation system, the municipal board aims to establish:

- An understanding of monitoring and evaluation issues;
- create harmony in understanding expectations on results from various actors
- enhance culture of directing on results;
- clarify roles and responsibilities and also advance the institutionalization of monitoring and evaluation in service delivery.

The municipal board will ensure that this framework will be translated into M&E practices that support public participation, planning, budgeting, service delivery, policy development, oversight, reporting and other governance related processes. Further, the transparency and accountability agenda will be advanced through the generation of sound information – to be used in reporting, communication and the improvement of service delivery.

15.2 Data Collection, Analysis and Reporting

The municipality will establish a monitoring and evaluation unit that will be responsible for data collection, analysis and reporting on projects and programmes implementation. The unit will be

strengthened through staffing and continuous training to execute its mandate. There will be a designated officer in every key result area in the municipal projects and programmes. The data collected will be submitted to the municipal monitoring and evaluation unit for analysis, compilation and presentation.

The Engineer Municipal Monitoring and Evaluation unit will conduct regular surveys to ensure the available data is accurate, authentic and up to date. The data will then be analyzed to inform decision making in planning and budgeting.

The Engineer Municipal Board Technical Committee shall spearhead monitoring and evaluation activities in the municipality. At the county level, the County Monitoring and Evaluation committee will continue to build the capacity of departments and agencies. This will ensure that monitoring and evaluation activities are carried out on a continuous basis and the reports are accurate and reliable.

15.3 Legal basis for the County Monitoring and Evaluation framework

The Constitution of Kenya, 2010 requires that governments use monitoring and evaluation mechanisms as an integral part of developing and executing government policies, programmes and projects and in resource allocation and management at the two levels of governments.

The County Government Act, 2012 requires the CECM to design performance management plan (with objective, measurable and time bound performance indicators) to evaluate performance of the county public service and the implementation of county policies.

The urban Areas and Cities Act 2011, requires that a Engineer Municipality ISUDP should have key performance indicators and that the annual county budget be informed by the performance targets of the municipality. The ISUDP should provide clear input, output and outcome performance indicators. These requirements are in line with those of the Public Financial Management Act 2012 that requires the municipalities to prepare annual development plans that detail programs to be delivered including measurable indicators of performance where feasible; and the Public Service (values and principles) Act 2015 that requires every public institution develop mechanisms for monitoring and evaluating the effectiveness of public service delivery

15.4 Project Monitoring and Evaluation Framework

The implementers of the projects basically include the National and County governments and the private sector, with the help of development partners. The national government is represented by various institutions including but not limited to ministries, departments, authorities, Semi-autonomous Government Agencies, and parastatals. The private sector is on the other hand made up of institutions and individuals. NGOs, CBOs and Faith Based Organizations are also potential implementers and financiers of the projects.

Programme	Projects	Outcome	Outcome Indicator	Baseline		Target	
				Value	Year	Mid-Term Period	End-Term Period
Urban Planning and Development	Review of Engineer Municipality Integrated Strategic Urban Development Plan	Reviews Done	No. of ISUD plans reviewed	0	2024	1	2
	Review of Engineer Municipality Integrated Development Plan	Reviews Done	No. of plans reviewed	0	2024	2	4
	Preparation of zoning plans for urban areas within the municipality (10 centres)	Zoned Urban Areas	No. Zoned Urban Areas	0	2024	5	10
	Establishment of GIS Lab & training	Advanced; 1. Spatial data Management 2. Urban Planning	Level of advancement in 1&2 in a scale of 1 to 5	2	2024	3	4
	Enforcement of development control	Controlled and sustainable development	1. Well planned urban centers with requisite services within the municipality	-	2024	3	5
			3. Own source revenue % increment from building plans approvals	-	2024	20%	40%
Urban Infrastructure Improvement Program	Solar Street lights in Engineer town, Murungaru, Ndunyu Njeru & Munyaka & floodlights in 13 market centres	1. Improved Security	% decrease in crime rates	-	2024	10%	20%
		2. Growth of business	No. of new businesses opened	-	2024	30	20
			Increase in B/S working hours	-	2024	2	4
		3. Revenue enhancement	% Increase in revenue (license fees) in the designated urban centers	-	2024	10%	15%
	Municipal administrative block	Access to municipal services	%Increase in No. of clients served	-	2024	10%	25%
	Construction of bus park (Engineer town, Murungaru) & Improvement of Ndunyu Njeru bus park	Revenue enhancement	% Increase in revenue (license fees) collected businesses within bus parks	-	2024	10%	40%
	Construction of 24,000m Sq. parking lots in Engineer town, Murungaru, Ndunyu Njeru & Munyaka	Revenue enhancement	% Increase in revenue from parking fees	- -	2024	10%	30%
	Local lorry park at Engineer town						
	Long distance lorry park at Engineer						

	Town						
	Construction of boda-boda sheds in 8 market centres	Boda boda sheds constructed	No. of boda boda sheds constructed	4	2024	12	16
	Construction of 5km storm water drainage in Engineer Town, Murungaru, Ndunyu Njeru, Matopeni, Munyaka	Flooding cases	% of decrease in cases of flooding	-	2024	15%	40%
	Construction of modern public toilets in Engineer Town, Ndinda, Ndunyu Njeru, Munyaka, Matopeni, Murungaru	Improved hygiene and sanitation within the municipality	% increase in Revenue collected from toilet use charges	-	2024	20%	35%
	Construct NMT in Engineer Town, Murungaru, Ndunyu Njeru	Road safety	% decrease in cyclers and pedestrian accidents	-	2024	10%	20%
	Completion of Moset, Mbekenya Dispensaries	Access to health services	% increase in number of outpatient visits	-	2024	15%	25%
	Construction of health facilities at Kwa Chobe, Matopeni,						
Local Economy Promotion	Construction of Modern Markets at Engineer, Ndunyu Njeru, Murungaru	Revenue enhancement	% Increase in revenue collected from the designated markets	-	2024	20%	30%
	Establishment of a livestock market at Ndunyu Njeru						
	Improve roads & drainage to make the market accessible during rainy season						
	Redesign, improve access and construct market sheds in weru, moset, mikaro				2024	20%	30%
	Provision of standard kiosks	Self-employment	% Increase in revenue (license fees)	-	2024	15%	25%
	Renovation of Kienjero Wool industry at Murungaru	Improved living standards	-No. of people employed	-	2024	20	30
			-Increase in volumes of wools sold in kgs	-	2024	15%	30%
	Construct potato & perishables warehouse for direct storage receipting system	Levels of produce returns	% increase in average potato prices	-	2024	15%	25%
	Construct modern slaughter house in Murungaru, Engineer Town	Levels of produce returns	% Increase in meat market prices	-	2024	10%	20%
		Revenue Enhancement	% Increase in revenue collected from the slaughter house	-	2024	15%	25%

Improvement of Roads and Transport System	Upgrading of 5km roads to bitumen standards in Engineer town	Improved levels of access to the Municipality headquarters	% of roads upgraded to bitumen	-	2024	50%	100%
	Construction of 2km walkway & provide street furniture from town to Kanyugi primary	Improved road safety	% decrease in the No. of pedestrian accidents	-	2024	10%	15%
	Construction of 2km road and walkway & provide street furniture from Engineer town to Nyayo Ward Hospital to Karoroha Primary	Improved accessibility to services	% of walkways done	-	2024	40%	100%
	To construct 2 km road each to gravel standards in Murungaru, Ndunyu Njeru, Gathara, Munyaka & their environs at Ksh 5m/km	Improved accessibility to services in the designated centers	% of roads done	-	2024	50%	100%
	Upgrade to gravel standards, 10km of existing road network in peri-urban areas to gravel standards at Ksh 2m/km	Improved accessibility in the designated zones	% of roads done	-	2024	50%	100%
Water, Sanitation, Waste Management & Environmental Management	Solid waste management in Engineer town, Murungaru & Ndunyu Njeru	Improved hygiene and sanitation	No. of cleaners municipal employed	-	2024	10	20
	Train & support youth groups to establish small scale waste management enterprises	Improved hygiene and sanitation	No. of waste management enterprises established	-	2024	5	10
		Self-employment					
	Improvements & construction of modern public toilets in 5 market centres	Improved hygiene and sanitation	Number of centers with modern toilets	-	2024	2	5
		Revenue enhancement	% increase in revenues in the market centers	-	2024	5%	10%
	Expand water reticulation in unserved areas of Engineeer town & Ndunyu Njeru town targeting 2,500 households annually @ Ksh 5,000 each	Improved access to clean water	%increase in homesteads connected to clean water supply	50%	2024	75%	95%
	Drill 5 boreholes in peri urban areas at Ksh		%decrease in water borne diseases in the designated centers	-	2024	15%	30%

	2.5m each						
	Construction of sewer treatment plant & network expansion	Improved hygiene and sanitation	%increase in households accessing sewer services	-	2024	20%	40%
	Provide 7 solid waste receptacles [2 Engineer and 5 in other market centres]	Improved hygiene and sanitation	No. of solid waste receptacles provided	-	2024	3	7
	Purchase 2 refuse trucks	Improved hygiene and sanitation	No. of refuse trucks purchased	-	2024	1	2
	Construct of solid waste disposal site	Improved hygiene and sanitation	No. of solid waste disposal sites constructed	-	2024	1	1
	Tree planting & beautification	Environmental conservation	No of trees planted and managed for beautification	-	2024	2500	5000
Recreational & Social Facilities Program	*Kinyahwe Cultural centre & 3-star hotel thru' PPP model*	Cultural Preservation	No. of cultural events held	-	2024	10	20
		Revenue enhancements	%Increase in revenue generated by the center and hotel	-	2024	-	20% of mid-term
	Contruction of standard stadium in Engineer town	Talents nurtured	% increase in the No. local talents	-	2024	-	20% of mid-term
		Revenue enhancement	%increase of revenue generated from tickets and entry fees	-	2024	-	20% of mid-term
	Development of a modern municipal cemetery in Engineer town, Murugaru & Ndunyu njeru	Enhanced urban plan and land use	No. of modern cemeteries established	-	2024	2	3
	Construct 3 social halls with ICT services (Tech Hubs)	Revenue enhancement	%increase in revenue generated from leasing halls	-	2024	-	20% of mid-term
		ICT/Tech skilled youths	No. of youths equipped with TECH skills	-	2024	1000	2000
	Purchase and equip one (1) mobile clinic.	Improved access to health services	Increase in No. of patients served	-	2024	-	40%
Disaster Risk Management	*Construct fire station, fire-fighting truck & fire hydrants)*	Reduced level of loses from fires	% increase in No. of successful interventions	-	2024	-	20% of mid-term
	Purchase of an ambulance	Improved access to healthcare services	%decrease in mortality rates from emergency cases	-	2024	-	20% of mid-term
	Carry out safety assessment & certification of buildings	Safe housing	%decrease in collapsing of buildings	-	2024	-	20% of mid-term
		Revenue Enhancement	%increase in revenues generated from certification fees	-	2024	-	20% of mid-term
Administration	*Job analysis*	Identification of critical	Job analysis reports	-	2024	2	4

and Human Resource Management		gaps in staffing					
	Capacity building and staff training	Efficiency of staff in implementing the IDeP	Weekly reports analyses	-	2024	12	24

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