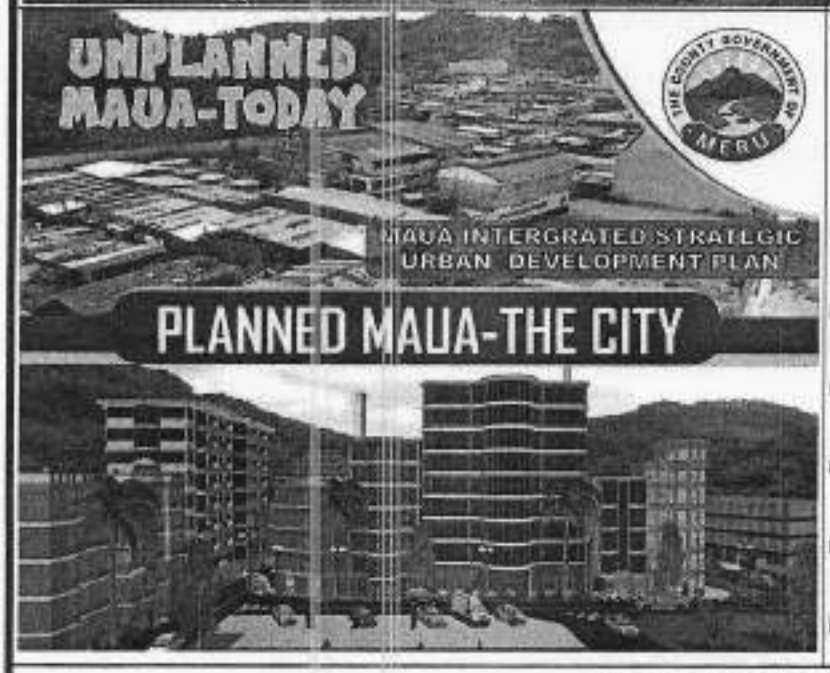
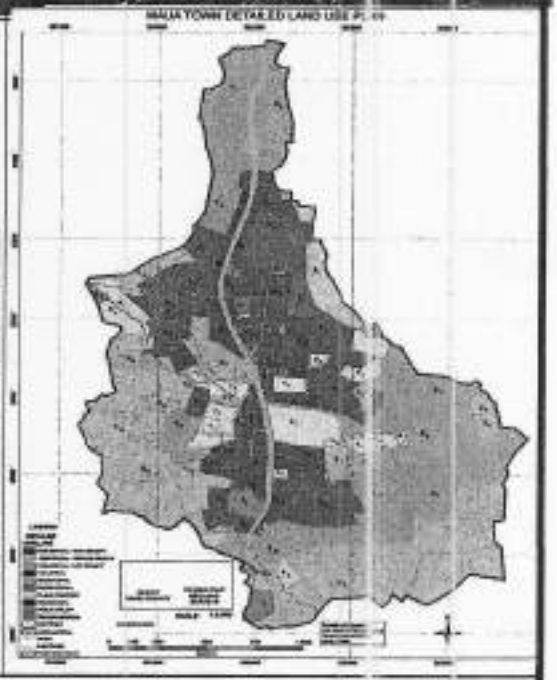
COUNTY GOVERNMENT OF

MERU

DIGITAL TOPOGRAPHICAL MAPPING AND PREPARATION OF AN INTEGRATED STRATEGIC URBAN DEVELOPMENT PLAN FOR MAUA AND ITS ENVIRONS (2015-2035





ISUDP PLAN REPORT

FORWARD

Preparation of Local Physical and Land Use Development Plan is a statutory requirement by the Physical and Land Use Development Plan and Urban Areas and Cities Act of 2011(Amended 2019). The objective of the plan is to guide and coordinate development in Maua town and its environs.

Inadequate planning is today one of the major constraints facing urban development in Kenya. This is partly manifested by the numerous unplanned and uncontrolled developments in many of our cities, towns and urban centres. It is regrettable that planning has not been able to keep pace with the development and expansion of our urban centres.

Indeed, lack of effective planning has resulted in urban centres that are overcrowded, have narrow roads, incessant traffic jams, lack of public amenities, have conflicting land uses and are generally in a state of disorder. To a great extent, mushrooming of various developments and the challenge of informal settlements is attributable to ineffective planning and poor management of urban development. Such scenarios have serious unsustainable social and economic implications and, therefore, appropriate measures must be put in place to avert negative impacts of urbanization so as to retain urban centres as the prime movers of socio-economic development in our country.

The Kenya Vision 2030 development blueprint recognizes that there cannot be sustainable development without well planned urban centres. It is anticipated that by 2030, over half of our population will be resident in urban areas. The migration of rural population to towns is expected to increase. The department of Lands, Physical Planning, Urban Development, Housing and Public Works has therefore prioritized the planning of all urban centres as a basis for achieving effective urbanization.

The Meru Vision 2040, comprising of the Economic, Social, Political and Enablers pillars, is a medium and long-term county development blueprint geared towards achieving holistic well-being for all Meru residents by the year 2040. It is motivated by a desire and urgent need for collective contribution towards Making Meru Great characterized by a *Prosperous, United and Happy Society!*

Within this scenario, my Department facilitated a participatory process of planning urban centres using the private sector and other stakeholders. The Department identified Maua Township as one of the urban centres in the first tier of major for planning.

It is gratifying to note that the Local Physical and Land Use Development Plan for Maua Township has now been completed. The plan is to provide a development blue print to guide the spatial growth and transform Maua into a modern urbanized area. Considering that the preparation of the Plan was participatory, it is hoped that its implementation will greatly contribute to social-economic growth of Maua and beyond. The Plan will also enhance the competitiveness of Maua as a centre of choice for investment.

In this regard, I invite all of you to assist in ensuring that the plan is implemented to make a positive difference in the town.

Eng.

County Executive Committee for Lands, Physical Planning Urban Development, Housing and Public Works

ACKNOWLEDGEMENT

The preparation of Maua Integrated strategic development plan was a vigorous exercise and I wish to acknowledge the contribution of all those who made the process such a success. The successful completion of the Integrated Strategic Urban Development Plan for Maua Town and its environs is a result of efforts from various actors.

Deserving special mention goes to the Governor, His Excellency Honorable Kiraitu Murungi for his effort in ensuring resources for planning are availed as well as giving planning a priority in his development agenda. The County Executive Committee Member in charge of Lands, Physical Planning Urban Development, Housing and Public Works, Mr. Jeremiah Lenya M'Eringoh and the Chief Officer for Physical Planning and Urban Development Denson Mbuai who have given the team strategic direction during the planning process

The completion of this plan would not also have been possible without the input of the supervisory team of the County Government of Meru lead by the AG. County Director of Physical Planning and Urban Development Planner Jefferson Musyoka and Director Elizabeth Mburu. The team provided the necessary professional guidance and critique which significantly improved the quality of the plan

Special mention also goes to the Consultants Geoland Surveys lead by Planner David Rukunga and Robert Mithika for their effort in collecting, collating analyzing and consolidating the completion the Maua Integrated Strategic Urban Development Plan.

The department would also like to recognize the outstanding commitment and contribution of all stakeholders particularly members of the County Assembly of Meru who tirelessly worked with the planning team, agencies of the national government and County government, community and faith based organization. Maua residents and all stakeholders who were involved in the process of the plan preparation

Thank you all

Mburu E.W.

County Director of Physical Planning and Urban Development

EXECUTIVE SUMMARY

This report presents the Local Physical and Land Use Development Plan (LPLUDP) (2015 - 2035) for Maua, a product of a process undertaken by County Government of Meru and other stakeholders. This is the final report of the exercise. Other earlier submitted reports include Inception Report, Situational Analysis Report and Draft Proposal Report. The process was executed by Geoland Surveys Limited in consultation with the stakeholders.

This plan strived to contribute towards achieving the national and local development aspirations as enshrined in the Millennium Development Goals and also elaborated in the Kenya Vision 2030. The preparation of the plans also played a role in achieving the Vision of the County Government of Meru to make Meru County 'A United Prosperous Green Model County'. Maua town is the second largest town in Meru and growing at a very fast rate. It has been able to attract tremendous investments in housing, commerce and education. One of the main obstacles to the development of Maua is the lack of a Physical and Land Use Development Plan. This is manifested by the increasing land use conflicts, urban Sprawl, poor or inadequate basic infrastructure, inadequate public amenities, overcrowding, depreciation of investments, environmental degradation, loss of aesthetics and the general lack of spatial order. It is on the background of these challenges that the planning of Maua and its environs was given priority.

- ✓ Preparation of the plan started on 1st July 2015.
- ✓ Inception Technical Meeting – 2nd October 2015
- ✓ Date of 1st stakeholders meeting -(launch & visioning)-15th Dec 2015
- ✓ Situational Analysis Technical Meeting – 4th October, 2016
- ✓ Date of 2nd stakeholders meeting- (situational analysis-13th October,2016
- ✓ Draft Plan Technical Meeting- 12th January, 2017
- ✓ Date of 3rd stakeholders meeting-(draft plan)-17th January,2017

The plan was presented to the general stakeholders' forum for consideration and approval. The Plan was also presented to the County Government in 2020, through the Physical Planning and Lands Committee and was approved by the County Assembly of Meru on 13th May, 2020.

The outputs of the strategic urban planning process included a Structure Plan, Area Action Plans, Comprehensive Environmental Strategy, Comprehensive Transportation Strategy, and Comprehensive Settlement Upgrading Strategy. Other project outputs were the formulation of various Planning Policies and Digitized maps the latter which constitutes outputs of the survey process.

The plan covers the entire former Municipal council of Maua part of Igembe Central and Igembe South Sub Counties an approximation area of 37 kilometres square. The structure plan provides a monitoring mechanism that will ensure that the plan remains constantly under review. The reviews must however be participatory and based on consensus of the relevant stakeholders. Within the plan area certain market centres were identified for the Action Area Plans. These were Maua Town, Kimongoro, Kithetu, Kiegoi, Maili Tatu The Action Area Plans provide detailed land use plans and a basis for regulation of planning and development. Notwithstanding the above, it is expected that the plan will be due for a comprehensive review at the end of the planning period.

The preparation of the plan also required formulation of a number of planning policies intended to guide the development of various sectors. Other components of the planning are the preparation of various planning strategies focusing on transportation, informal settlements, environment, and economic investment

It is believed that the plan proposals address most of the major planning and development challenges of Maua town. Its implementation is expected to provide solutions to most of the concerns that have become critical to development in Maua. It is therefore hoped that the plan will be given appropriate support by the various actors.

CPA Denson Mbuui

Chief Officer-Physical Planning and Urban Development

CERTIFICATE

I certify that the plan has been prepared and published as per the County Government Act 2012, Urban Areas and Cities Act 2011, Physical and Land Use Planning Act 2019, Meru Spatial Planning Act 2016, Planning Standards and Guidelines.

Signature: ..... Date: *19th June, 2020*

NAME: *Mburu Elizabeth Wanjiru*

Municipal Director Physical Planning and Urban Development

CERTIFIED

Signature: ..... Date: 22/06/2020

NAME: Jeremiah Lenyo M.

CECM in charge of Lands, Physical Planning, Urban Development, Housing and Public Works

Hansard No: 06/10/2015 Date: .....

APPROVED

Signed: ..... Date: 22/6/20

HIS EXCELLENCY, KIRAITU MURUNGI, EGH, GOVERNOR, MERU COUNTY

LIST OF ABBREVIATIONS AND ACRONYMS

^0C	Degrees Celsius
ACK	Anglican Church of Kenya
BRT	Bus Rapid Transport
CBD	Central Business District
CBOs	Community Based Organization
CG	County Government
CGM	County Government of Meru
CIP	Capital Investment Plan
EMCA	Environmental Management and Coordination Act
FY	Financial Year
G4S	Group 4 Securicor
GHG	Green House Gases
GIS	Geographical Information System
Govt	Government
GPS	Global Positioning System
Ha	Hectares
ICT	Information and Communication Technology
IEBC	Independent Electoral and Boundaries Commission
IMETHA	Imenti Tharaka
ISUDP	Integrated Strategic Urban Development Plan
KAG	Kenya Assemblies of God
KCB	Kenya Commercial Bank
KENHA	Kenya National Highways Authority
KERRA	Kenya Rural Roads Authority
KFS	Kenya Forest Service
Kgs	Kilograms
KLGRP	Kenya Local Government Reform Programme
Km^2	square kilometer
KNBS	Kenya National Bureau of Statistics
KPLC	Kenya Power and Lighting Company

KTB	Kenya Tourism Board
KURA	Kenya Urban Roads Authority
KWS	Kenya Wildlife Service
LPG	Liquefied Petroleum Gas
M & E	Monitoring and Evaluation
M & R	Maintenance and Repair
M	Meter
M^2	Square meter
Min	Ministry
MISUDP	Maua Integrated Strategic Urban Development Plan
mm	millimeters
N/A	Not Applicable
NEMA	National Environmental Management Authority
NGOs	Non-Governmental Organizations
NMT	Non-Motorized Transport
NTSA	National Transport and Safety Authority
ORV	Outstanding Resource Values
R & M	Restoration and Modernization
SACCOS	Saving and Credit Cooperative Organizations
SDGs	Sustainable Development Goals
SID	Society for International Development
SME	Small and Medium Enterprises
SMEP	Small and Micro Enterprise Programme
SPSS	Statistical Package for Social Science
TOR	Terms of Reference
WRMA	Water Resources Management Authority

Table of Contents

LIST OF FIGURES

LIST OF MAPS

LIST OF TABLES

CHAPTER 1
INTRODUCTION

1.0 Background information

This document presents the Integrated Strategic Urban Development Plan 2015- 2035 for Maua town and its environs ISUDP including Mailitatu, Kiegoi, Kithetu and Kimongoro markets. The area is under the jurisdiction of Meru County Government. The planning area straddles Igembe Central and Igembe South constituencies. It covers an area of approximately 37 Km^2. The Plan has been prepared with the support of Geoland Surveys Ltd. under a contract with the County Government of Meru. The main purpose is to guide integrated planning, infrastructure and all future development within the planning area. In undertaking this assignment Geoland Surveys worked very closely with the CGM, stakeholders and the project team designated by the Directorate of Physical Planning in CGM within the overall framework of the TORs for the assignment.

1.1 Terms of Reference

The firm was tasked by the County Government of Meru through the department of Lands and Pysical Planning to develop a Digital Mapping and the Preparation of Integrated Strategic Urban Development Plan for Maua and its Environs under the following terms:

i. Delineating the boundary of the planning area.
ii. Through a consultative process and application of an appropriate tool of analysis, ensure active citizen participation in the planning process
iii. Reconnaissance survey to familiarize with ground situation.
iv. Undertake stakeholder mapping and analysis
v. Preparation of a GIS based ISUDP
vi. Analysis of urbanization trends, infrastructure facilities and services, land uses.

vii. Zoning of land uses
viii. Provide a viable system of green and open spaces
ix. Ensure productive use of scarce land, water and other resources
x. Ensure harmony between the national, county and sub county planning requirements
xi. Formulation of guidelines and policies to regulate land use in various zones
xii. Develop a geo-referenced GIS database for all parcels of land within the planning area
xiii. Prepare a three-year based strategic plan including resource and resource framework
xiv. Acquisition and investigation of data.
xv. Base map preparation and digitization.
xvi. Review the relevant planning legal documents and policies that apply to the assignment.
xvii. Socio-economic economic surveys physical mapping and analysis
xviii. Preparation of ISUDP for Maua Township and its environs.

1.2 Goals, Objectives and Vision of the Plan

The main project goal was to undertake Digital Topographical Mapping and Preparation of an Integrated Strategic Urban Development Plan for Maua and Its' Environs. The preparation of the strategic urban development plan will form for development and it is projected to cover a 20 year planning period up to the year 2035.

1.2. 1 Vision of the plan

The main vision of the plan is to make Maua the most preferred centre for investment and living in the northern part of Kenya offering;

- Adequate, efficient and high quality physical infrastructure
- High quality services to its inhabitants.
- Clean and healthy environment
- Opportunities for business and innovativeness
- Accessible and adequate housing

1.2.2 Objectives of the plan

The main planning objective is to prepare an integrated strategic urban development plan for Maua and its environs for a period of 20 years (2015-2035) but not limited to the following;

✓ **ISUDP**

i. To conduct participatory planning to identify citizens' priorities in Maua and its environs.

ii. To enhance & promote integrated socioeconomic development of Maua and its environs.

iii. To promote a quality environment for urban & rural development/living

iv. To propose a framework to guide sustainable development in Maua town and its surrounding.

✓ **Digital Topographical Mapping**

v. To provide an up to date Digital Topographical Map of Maua and its environs which will be used for; planning purposes, Infrastructure design and maintenance programs, Utilities and service provision.

vi. To create a GIS database system for the planning area to be used for development purposes

1.3 Scope of the plan

The planning area covers an area of approximately 37Km^2. This includes the entire area of Maua Township and its environs, including Kimongoro, Maili Tatu, Kithetu, and Kiegoi markets. The plan is to cover twenty years (2015-2035). The preparation of the Integrated Urban Development Plan will focus on transportation, economy, land use and housing, physical and social infrastructure, recreation and open spaces, environment and governance. It discusses the current situation in Maua town and its environs, highlighting the sectoral constraints in the town that inhibit the development of a burgeoning and environmentally sustainable town. It also covers the key planning and development challenges in the Town as well as proposing sectoral strategies and investments to address the identified constraints.

1.5 Expected outputs

The main output of the plan is an Integrated Strategic Urban Development Plan that provides both long term and short term framework for guiding development of the town and its environs. The long term framework offers the desirable spatial structure and indicates broad land use proposals. The short term framework specifies the appropriate actions and their location within the planning area. These include the following:

1. Digital maps
2. Structure plans

3. Land use plans
4. Action area plans
5. Sector strategies
6. Implementation strategies
7. Capital investment plans
8. Monitoring and evaluation framework

1.6 Deliverables

The expected deliverables of the planning exercise include:

i. An inception report outlining the approach and execution
ii. Data collection tools
iii. Situational analysis report
iv. Quarterly progress reports
v. Report on the process, including stakeholder consultations and workshops
vi. Final plan comprising of planning brief, maps, physical guideline, development strategies and actions.

1.7 Planning Context

Planning is guided by specific laws and policy directions. Its multidisciplinary nature further dictates that an elaborate framework of various developments oriented legal tools and policy guidelines are reviewed during any planning exercise. This is to ensure that the plan is in line with all relevant institutional provisions. Digital mapping and preparation of Integrated Strategic Urban Development Plan will be prepared with adequate consideration of existing legal, policy and institutional framework. This section reviews relevant policy and legal instruments that guide the preparation of integrated strategic urban development plans in Kenya. Only relevant sections are reviewed as they relate to planning and this is carried out in the sections that follow.

1.7.1 Legal Framework

This section discusses some of the laws that are relevant to the formulation of this urban strategic plan.

The Constitution of Kenya, 2010

The preparation of the plan recognizes the provisions of the Constitution and all relevant statutes that may be prepared and enacted. Chapter 5 of the Constitution deals with land and environment matters. It classifies land as public land, private land and community land. In Maua town and its environs, private and public land is prominent whereas community land does not exist within the planning area.

Section 15 of the Sixth Schedule of the Constitution of Kenya provides a mechanism for devolution of functions from national government to county governments. The Constitution protects within the right to clean and healthy environment. It also promotes sound conservation and protection of ecologically fragile areas such as Mporoko swamp. The Constitution classifies land as public, community and private land. Further, promotes all forms of national, cultural expression and other cultural heritage.

The Physical and Land Use Planning Act No.13 of 2019

The Physical and Land Use Planning Act, 2019 is one of the major statutes giving provisions for planning in Kenya. It gives power to county governments to regulate development within their areas of jurisdiction.

The provisions of this Act apply to all parts of the country and in all land tenure systems except such areas that the minister may by notice in the gazette specify. The planning law outlines the planning process which greatly informed the methods adopted in preparation of the plan. Of special significance is the need to undertake the plan through a participatory process that requires the involvement of stakeholders in the planning process.

Part III, Section 46 of this Act states that a county government shall prepare a local physical and land use development plan for:

- ✓ Zoning, urban renewal, or redevelopment;
- ✓ Guiding and coordinating the development of infrastructure;
- ✓ Regulating the land use and land development;
- ✓ Providing a framework for coordinating various sectoral agencies; and
- ✓ Providing a framework and guidelines on building and works development in the city, municipality, urban area, or other smaller urban centers including local centers, and market centers.

In this Act, this IUDP falls under a Local Physical and Land Use Development Plan.

County Government Act, 2012

This Act makes it mandatory for County Governments to plan their areas of jurisdiction if they are to be allocated any public funds. Part XI of the Act advocates for citizen participation or involvement which is an integral part in the development of Maua Integrated Urban Development Plan. Part XI of the act provides a whole section on county planning under which there are types of county plans. Among the county plans, there is County Integrated Development Plan, which will serve as a guideline for the preparation of Maua Integrated Urban Development Plan.

In Part XI under County Planning, a County planning unit is charged with the responsibility of ensuring integrated planning and for implementation of the same. The principles and objectives of planning are also laid out in that section. Principles such as effective resource mobilization for sustainable development guide the preparation of this plan.

Urban Areas and Cities (Amendment) Act, 2019

Section 37 of the Principal Act (The Urban Areas and Cities Act, 2011) states that all cities and urban areas shall have integrated development plans aligned to development plans and strategies of county governments whose jurisdiction they fore under.

According to Section 36 (3), a county government shall initiate an urban planning process for every settlement with a population of at least two thousand residents. Section 38 further states that a city or urban area shall prepare an integrated city or urban area development plan in accordance with the Third Schedule to this Act.

Section 36 (1) provides that every city and urban area shall operate within the framework of integrated development planning which shall give effect to the development of urban areas and be a basis of development control. Muthara-Muriri IUDP is thus timely as the County Government will use it for the aforementioned purposes.

This Act further describes the criteria for classifying urban areas as market centers, townships, municipalities or cities. This will guide in the preparation and subsequent implementation of this plan.

Land Act 2012

The Land Act, 2012 has the functions of giving effect to Article 68 of the Constitution, to revise, consolidate and rationalize land laws; to provide for the sustainable administration and

management of land and land based resources, and for connected purposes. This Act has provisions for the administration and management of public land in parts II and III. It also outlines the provisions regarding community land (Part IV), administration and management of private land (Part V), lease (VI), compulsory acquisition of interests in land (Part VIII) and finally on the easement in Part X.

This Act provides for the conversion of land from one category to another for the various listed purposes which include land use planning. It also prohibits the allocation of public land that has not been planned and that does not have development guidelines.

Public Finance Management Act, 2012

This act provides for effective and efficient management of public resources. Article 125 of the Act requires the budget process for County Governments in any financial year to consist of integrated development planning process which includes long term and medium term planning as well as financial and economic priorities for the county over the medium term. Articles 126 of the Act further obligates each county government to prepare an integrated development plan that includes strategic priorities for the medium term that reflect the county government's priorities and plans, a description of how the County Government is responding to changes in the financial and economic environment; and, programmes to be delivered.

The Water Act, 2016

This is an Act of Parliament to provide for the management, conservation, use and control of water resources and for the acquisition and regulation of rights to use water. Further it provides for the regulation and management of water supply and sewerage services. It also provides guidelines for the establishment and running of institutions involved in the management and provision of water services.

Environment Management and Co-ordination Act (EMCA), 1999

The Environmental Management and Co-ordination Act is the legislation that governs the management of natural resources in the country. It is a legislation that upholds the importance of environmental protection.

It creates an overhead agency and provides for public participation in environmental law. The act (Part III) also establishes the National Environmental Council (NEC) and NEMA. Part IV of this act outlines provisions for environmental planning. Part V outlines the provisions of environmental restoration and conservation. The Act provides for the involvement of the

public in any major development decisions, which have an environmental bearing. The public shall have recourse to law and shall be involved. The Act also has provisions for addressing environmental offences and a tribunal has been established to deal with such offences.

National Land Commission Act, 2012

Section 5 (2) of this Act gives the National Land Commission the responsibility of managing and administering all unregistered trust land and unregistered community land on behalf of the County government. The commission thus has to ensure that all unregistered land is registered within ten years from the commencement of the Act. The Commission will also have County Land Management Boards to manage public land within the Counties. This means that the National Land Commission will have an active presence in every County and is thus an important stakeholder in all land related matters in Maua and its environs.

Public Health Act, Cap 242

This is an Act of Parliament that makes provision for securing, maintaining the health of the public. Relevant to Maua Township, the Act can be used by Igembe South Sub-County to prohibit informal traders from transacting business in unsanitary and largely informal approach. It sets standards to be observed by people who wish to carry out trade in foodstuffs and the conditions under which trading should be done.

Agriculture Act, Cap 318

An Act of Parliament to promote and maintain a stable agriculture, to provide for the conservation of the soil and its fertility and stimulate the development of agricultural land in accordance with the accepted practices of good land management and good husbandry. Its provisions are important given that the immediate hinterland of Maua town is an area of high agricultural potential with Miraa farming.

This statute contains provisions for promoting agricultural development. Its long-term objective is to ensure the development of arable land in accordance with the sound practice of good land use. It therefore stresses the need for conservation of soil and its fertility and has provisions for soil erosion control. It gives provision for the means to control one of the most important pollutants of the Kenyan marine and coastal environment namely, sediments eroded from agricultural lands. It thus strives towards the sustainable utilization of land resources, including coastal lands.

The Mining Act, Cap 306

This is an Act of Parliament geared towards the consolidation of all the laws and other matters relating to Mining. This statute provides for matters relating to the extraction of precious and non-precious minerals. The Maua and its environs have significant mining materials, particularly for extraction of local building materials i.e. stones and ballast.

The Forests Act, 2005

An Act of Parliament that provides for the establishment, development and sustainable management, including conservation and rational utilization of forest resources for the socioeconomic development of the country. It recognizes that forests play a vital role in the stabilization of soils and ground water, thereby supporting the conduct of reliable agricultural activity, and that they play a crucial role in protecting water catchments in Kenya and moderating climate by absorbing greenhouse gases. It further recognizes that forests provide the main locus of Kenya's biological diversity and a major habitat for wildlife. The planning area has a small forest cover, which is mainly part of Nyambene forest largely covered next to Kiegoi market. The provisions of this Act will guide its conservation and utilization by the local community.

Survey Act, Cap 299

The Survey Act is an Act of Parliament that makes provision in relation to surveys and geographical names and the licensing of land surveyors, and for connected purposes. The Department of Surveys, under the Director, provides and maintains plans for property boundaries in support of the Land Registration throughout the country. In preparation of this plan, existing survey data have been used to prepare the plans. The surveying and mapping work done under this project does not override the role of the Director of Surveys. The maps produced during the preparation of the urban strategic plan are not an authority on boundaries.

Land Control Act, Cap 302

This Act gives the process of land registration for the different land categories. It gives the process for the establishment of land registration units and for the establishment of land registries. Though the survey output of this project will not be regarded as an authority on boundaries, it will yield important data for the land register.

Land Registration Act (No. 3 of 2012)

This Act gives the process of land registration for the different land categories. It gives the process for the establishment of land registration units and for the establishment of land registries. Though the survey output of this project will not be regarded as an authority on boundaries, it will yield important data for the community land register.

1.7.2 Policy Framework

Sustainable Development Goals

Adopted by world leaders in the year 2015, the SDGs are both global and local, tailored by each country to suit specific development needs. They provide a framework for the entire international community to work together towards a common end – making sure that human development reaches everyone and everywhere. If these goals are achieved, world poverty will be cut by half, tens of millions of lives will be saved, and billions more people will have the opportunity to benefit from the global economy. The preparation of the plan therefore will take cognizance of the need to achieve the SDGs to which the Kenya government has made a commitment to achieve.

Vision 2030

Vision 2030 has three key pillars; economic, social and political which are aimed at making Kenya a globally competitive and prosperous nation with high quality of life. Vision 2030 is a product of highly participatory, consultative and inclusive stakeholder process conducted throughout the country and in all sectors of the economy. The preparation of this Strategic Urban Development Plan shall also emphasize these aspects.

The Vision recognizes that there can be no development without urbanization. Further, urbanization cannot take place without effective planning hence Planning is given priority in the vision 2030.

Finally, the Vision 2030 emphasizes the need for planning urban areas in order to achieve orderly development. This plan will target Maua Township for detailed planning. It will give direction for the development of urban areas that will apply to all areas within the town. It is also expected that the data generated from this plan will complement the government's effort in developing a comprehensive County Integrated Development Plan for Meru County.

National Land Policy, 2009

Sustainable land use is one of the guiding principles of the National Land policy. Sustainability is one of the goals that this plan seeks to achieve through the prudent allocation

and distribution of land uses in Maua Township and its environs. Maua and its environs has a high potential for agriculture, hence there is a challenge of balancing the rapid urban development with preservation of agricultural land.

The land policy, therefore, proposes development control as a tool in ensuring equitable and sustainable use of land. To this end, this plan will give guidelines which the relevant agencies can use. The policy recognizes land use planning as an important tool in land use management, which can address the current challenges and create new opportunities for sustainable human settlements.

National Housing Policy

This policy recognizes land use planning and management as a critical input in housing provision. It recognizes that land related matters have deep socioeconomic and political impacts. It also recognizes that the lack of comprehensive land use planning and management is what has led to substandard settlements with inadequate infrastructure, services and open spaces. The policy aims at promoting the planning of human settlements which will include re-planning of those that have inadequate infrastructure and services. The Maua town and its environs plan also take into account those aspirations, especially in the re-planning of the decayed neighborhoods and informal settlements by ensuring provision of basic services.

Integrated National Transport Policy

The theme of this policy paper on Integrated National Transport Policy for Kenya is 'Moving a Working Nation'. The policy paper identifies challenges facing the transport sector in Kenya all of which can be seen in Maua Town and also its environs. Since the vision of the policy is to achieve a world class integrated transport system, the plan seeks to urbanize Maua transport sector in order to meet this goal.

New Urban Agenda

Kenya was involved in the developing and adoption of the New Urban Agenda. The agenda recognizes the need for cities and human settlements to be sustainable for all. Cities should be inclusive and safe for people to work and live in. This plan will be anchored on the principle of

National Spatial Plan 2015-2045

The NSP seeks to mainstream and create a national framework for spatial planning in the country. The IUDP for Muthara-Muriri and its environs is being prepared within this national spatial planning framework.

National Urban Development Policy

This draft policy recognizes that a major challenge with Kenya's urban centers is their spontaneous and haphazard growth, which has taken place outside of the purview of conscious urban planning intervention. With Africa being the fastest urbanizing continent, it is imperative that local authorities and other concerned government agencies put in place measures to ensure sustainable growth of their towns. Towns in Kenya, Maua being one of them, continue to absorb the bigger number of rural-urban migrants. This means that the Maua Township and its environs strategic urban development plan should cater for a population greater than what is expected from natural growth. Most rural-urban migrants are low income earners and this means that the provision of low income housing should be a key priority of this plan. The goal of the National Urban Development Policy is to ensure orderly, competitive and sustainable urban development that enhances physical, social and local economic development of the urban areas. This will further foster urban-urban-and urban- rural linkages and improves the lives and livelihoods of millions of the poor and marginalized in the country.

CHAPTER TWO
METHODOLOGY

2.0 Overview

This section elaborates the actual steps that were adopted for digital topographical and preparation of ISUDP for Maua town and its environs. The process was designed to ensure proper delivery of all project outputs and fit the situations unique to the planning area which require special treatment. It also offered adequate room for scrutiny and validation of all the outputs by all the relevant stakeholders at different stages of the project. The detailed methodology was described in the Inception Report but a brief methodology is presented below in phases.

2.1 Project Commencement

The commencement of the project was marked by the award of the contract which was issued on 30th June 2015.

The profiling -This entailed compiling detailed background information on Maua town and its environs. Secondary data was collected and used to analyze the challenges and opportunities of the town.

Transect survey/reconnaissance of the planning region -A reconnaissance survey and subsequent transect surveys of the Maua town and its environs were undertaken was undertaken between the month of July and August to aid in:

- Identification and appreciation of planning area major planning issues, challenges and opportunities
- Delineation of planning area and consolidation of the base maps
- Preparation of Inception Report

The team was engaged in the confirmation of the planning area boundary on 2th September 2015.

2.2 Inception phase

Preparation of Draft Inception Report - Having successfully completed the reconnaissance and preliminary field surveys, the consultants was engaged in preparation of an inception

report. The report was done by critically analyzing and evaluating the terms of reference, preliminary data collected during

Project design - This stage involved fine tuning of scope and time frame and Production of a detailed work plan. We identified the sources of primary and secondary data. We developed the household questionnaires and checklists for key informants. It is at this stage that we also identified the key informants depending on their roles and developed sample sizes for household questionnaires considering different demographic characteristics such as size and locality will involve fine tuning of scope and time frame and production of a detailed work plan.

Draft Inception Report Validation - A joint evaluation of the inception report was done on 2nd October 2015 at the offices of the Director Planning. The findings of the inception report were found acceptable and therefore formed a reliable basis for the commencement of the project activities.

Submission of Final Inception Report - The consultants incorporated the comments made during the validation meeting and submitted an inception report to the department of lands, ICT and Planning in line with the contract requirements on 13th October, 2015. This was the first deliverable for the planning assignment. The purpose of the inception report was to outline the consultant's preliminary perspective of the project. It was aimed at developing a common understanding regarding the aim and expected deliverables of the project at an early stage. Simply put, the report was a representation of the Consultant's interpretation of the project brief and approach to the assignment in line with the project terms of reference.

2.3 Awareness and Mobilization phase

The consultant in conjunction with the County officials was involved in the awareness and mobilization programmes. Major highlights of each activity are outlined below:

Notice of intention to plan - A public notice of intention to plan was published 17th September, 2015 in the Daily Nation and the same notice was circulated to local administrators and public notice boards.

Stakeholder identification and analysis - The role and participation of the residents of Maua was identified as critical in the planning of the town. The stakeholder analysis was undertaken by the consultants in collaboration with the County officials and the client team.

The stakeholders were drawn from various groups that included; Business community, informal settlements, jua kali sector, neighborhood associations, religious associations, civil society, service providers (Kenya power, Kenya Rural Roads Authority, Kenya Railway, Water and sewerage companies), Industrial sector, education and health institutions, County government officials, relevant government departments (Lands, survey, planning, public health, public works, water, environment, agriculture), SACCOs, local administrators, residents, NGOs, Investors, CBOs.

Stakeholder visioning Workshop - The Visioning Workshop was the first in a series of consultative workshops that were part of the process for the preparation of the Plan and was a key milestone in the team's activities. The Visioning Workshop was held at former Nyambene council Hall on 15th December, 2015. Reports for the Workshops were produced and shared with key stakeholders. The Visioning Workshop was anchored on the following key objectives:

- To create awareness on the importance of an Integrated Urban Strategic Plan for Maua town and the initiation of the planning process;
- To promote County/ town-wide ownership of the planning process;
- To direct the strategic growth and direction of the town to 2035 (or: to obtain pointers to the strategic growth and direction of the town to 2035);
- To identify Maua's strength and strategic importance to the region and to Kenya in general.

A public sensitization workshop was also held on 17th January 2016 at Jesus Revival Church within Kimongoro market. This workshop was organized in order to inform the residents of Kimongoro, Kanuni and Amung'enti that the maps of the area were to be used by the planning team in digital mapping and understanding the general layout of land parcels, roads and natural resources such as rivers among others. This registration section is undergoing a land adjudication process and there was a need to sensitize the locals on the use of the maps. This is a restrictive process which minimizes the publishing of land records until the completion of the process.

2.4 Data Collection Phase

The data collected in this phase was used for the preparation of the base map and ISUDP.
This phase will entail the following:

Digital mapping - Data collection for the preparation of digital maps was undertaken by the consultant. The maps formed the base used by the planning team for the preparation of land use plans. The digital maps were prepared through a combination of various methods namely satellite imagery, aerial photographs and ground truthing.

Data presented in the maps illustrated all existing developments such as buildings, Roads, river, drains, fences, trees (bushes, forests, shrubs and mangroves), cultivated areas, water tanks, wells, tent shades, quarries, boundaries among others. The detailed survey outputs were presented separately.

Key informants consultations - The planning consultants held in depth consultations with various key government heads of departments and institutions located at Meru and Maua and its environs. The purpose of undertaking sectoral consultations was to obtain secondary data to inform situation analysis and need assessment. The consulted officers are listed hereunder.

Baseline Survey/Feasibility Studies - The rapid assessment of the Socio Economic situation of the planning area focused on the assessment of the economic activities, housing, community facilities, social infrastructure, people's needs and solutions. This took place between the month of May and June, 2016. The assessment focused on both the ordinary citizen through observations, household questionnaires and focus group discussions and the key informants who were mainly the business community representatives and professionals. The objectives of the rapid social, economic survey were to:

- Gather people's opinions and views in regard to the future planning of their area.
- Contribute towards a better appreciation of the socioeconomic issues and hence to influence the overall strategic planning for Maua town and its environs.

Data Analysis and Interpretation - Data collected through the structured interview schedules was coded and analyzed using SPSS. Frequency tables were generated to analyze means and variances of the variables. Further analysis was conducted to obtain various additional insights into the socio-economic attributes of the respondents. The results were compared to both published socio-economic data on Maua Town and its environs as well as information obtained from key informants and the field visits. This took place in the month of July 2016.

2.5 Situational Analysis Phase

This phase involved compiling and analyzing the collected data in various categories. This provided a detailed understanding of the existing situation. Spatial and non-spatial data was analyzed using SPSS, Excel and ARC GIS. A system analysis was undertaken with the aim of identifying the different characteristics within the planning area. Different areas had different challenges and opportunities. This helped in appreciating the competitive advantages of different parts of the planning area.

Preparation of the Draft Situational Analysis Report - Data collected and analyzed was used to prepare a situational analysis report based on the following thematic areas; Physical and natural resources, Economic base, Social, Cultural and Demographic profile, Infrastructure sector, Land use analysis, Transport sector analysis, Environmental protection, heritage conservation, Economic (investment). The draft situational analysis report was presented to the client (county government of Meru) for validation and various technical representatives from different departments on 4th October, 2016.

Situational analysis Validation Workshop - The Feasibility Study Validation Workshop was the second in the series of consultative workshops that were organized to inform the strategic planning process. The Workshop was held at was done of 13th October, 2016 at former County Council of Nyambene Headquarters Hall. The objectives of the workshop in accordance with the terms of reference for the assignment and as a follow-up to the Visioning Workshop were:

- To update the stakeholders on the current status of the mapping and planning exercise for the planning area;
- To present and validate the findings of the feasibility study (Focusing on the key issues, emerging strategies, tentative proposals and strategic interventions); and
- To jointly chart the Way Forward.

The final situational analysis report was prepared after incorporated issues raised by the stakeholders and submitted to the Office of the Department of Lands, ICT and Planning on 4th November, 2016. The primary objective of the report was to present an understanding of the project background which formed a basis for further data collection and analysis in preparation for the formulation of planning proposals. Preparation of the report also met expected deliverables as contained in the contract document.

2.6 Draft and Final Plan Preparation phase

Formulation and evaluation of alternative development proposals - This is where we evaluated the different development scenarios for spatial development framework to inform land management and investment decisions. This evaluation was used to pick the best for each of the markets in the planning area considering their similar and distinct yet interconnected functions.

Preparation of draft plan proposals - After picking the best development scenarios and growth models, we developed spatial scenarios showing desired outcomes, alternatives, strategies and programmes and then came up with Development of implementation plans for the planning area with concentration on Maua town and the key market centers. The draft plan report was submitted to the client on 23th November, 2016.

Presentation of Draft plan Proposals/Strategies to technical team - Draft proposals and strategies were presented and discussed in details at this meeting held on 12th January, 2017. Different strategies presented and discussed acted as guide in implementation of programmes and activities within the different spatial, economic, social, infrastructural and environmental sectors for the planning area, and also aim to significantly influence the final ISUDP for Maua and its environs.

Incorporation of stakeholders' inputs into the draft plan proposals.

The concerns, comments, suggestions and all other inputs made at the technical meeting were reviewed and incorporated in the plan.

Draft Plan Stakeholders Workshop

The draft plan was presented to the stakeholders on 20th April, 2017 for them to validate that their inputs have been incorporated and also ensure consensus. The objectives of the workshop in accordance with the terms of reference for the assignment and as a follow-up to the Feasibility Study Validation Workshop was:

- To update the stakeholders on the current status of the mapping and planning exercise for the planning area;
- To share the draft strategies and seek stakeholder reactions and obtain concrete feedback (around key issues, emerging strategies and proposals) and jointly map the way forward.

Presentation of Second Draft plan Proposals/Strategies for validation

The amended draft plan was presented to the client to ensure that the inputs of the stakeholders had been incorporated.

Final Plan Preparation

The draft plan was refined after holding above stakeholder workshops to validate the aspirations and concerns of the stakeholders. They assisted in refining the proposals, promoting and popularizing implementation strategies and findings.

Presentation of the final plan to the client

The final plan was then presented to the client for validation.

Plan circulation and publication

The final plan will then be circulated to key stakeholders for their inputs. It is then published in the Kenyan gazette.

Plan approval

At this stage the final plan was presented to the county government for approval and adoption by the county assembly of Meru and thereafter, implementation will begin.

CHAPTER 3
SITUATION ANALYSIS

3.1 Planning Area

The planning area is located within Igembe south Sub County and it also covers some parts of Igembe central sub-county. The Igembe south sub-county is located on the South Eastern part of Meru County. It borders Kitui and Tharaka Nithi counties to the South, Igembe Central to the East and Tigania East to the West. The planning area covers five wards including; Maua ward, Parts of Igembe East, Kiegoi/Antubochiu, Kanuni and Njia wards. The core planning town is Maua which is located in Igembe South sub-county.

Maua Town is the second largest town in the Meru County after Meru town. Maua is a located in Meru County 60 km North of Meru town. It is popular for production of Miraa which supports most of the people and subsidiary businesses in the area. The town has an altitude of 5,429 feet (1654m) above the sea level above the sea level with geographical coordinates of 0° 14' 0" North, 37° 56' 0" 37°39'East. It serves as one of the major routes to Meru National park and is surrounded by a number of expansive tea and Miraa farms. Its proximity to Meru National park and Nyambene hills has also contributed to its popularity since the Nyambene hills and Meru National Park increase its tourism potential.

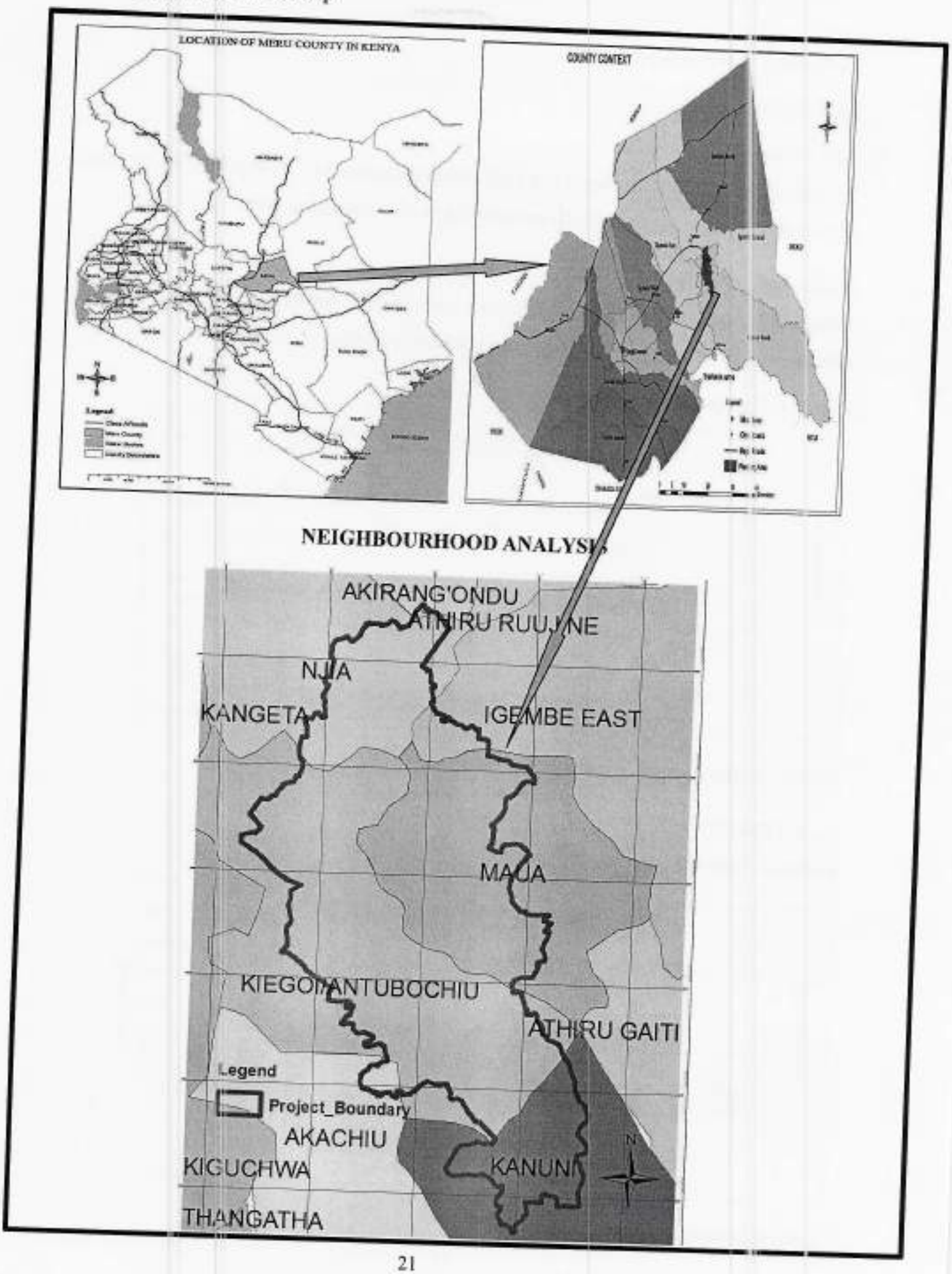
The planning area is located area within Igembe south Sub County and it also includes some parts of Igembe central sub-county covering an area of 37.5 sq. Km. This consists of the entire area of Maua Township and its environs, as well as Kimongoro, Maili Tatu, Kithetu, and Kiegoi markets, which are set as action plans as shown in the map below

Table 1: Planning Area Coverage across the Sub counties

SUB-COUNTY	AREA IN KM²	PERCENTAGE (%)
Igembe South	838.5	6.5
Igembe Central	801.6	1.14

Source: IEBC 2012

MAP 1: Maua Context Map



3.2 Physical Environment

3.2.1 Physiographic

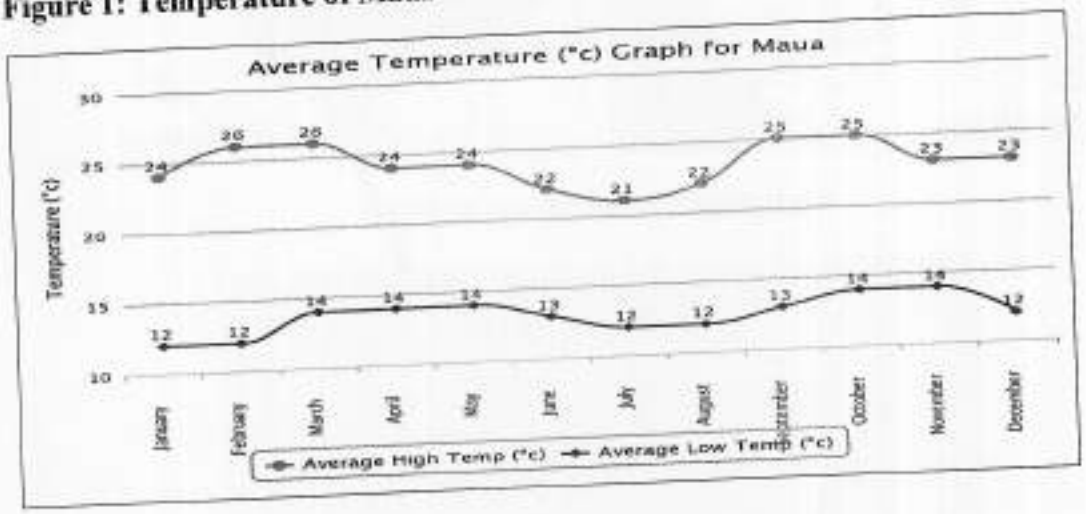
3.2.1.1 Climate

The climate of the planning area is to a large extent determined by its location. The presence of Nyambene ranges also affects the overall climate of the planning area.

3.2.1.2 Temperature

Temperatures range from a low of 12^0C to a high of 26^0C during the cold and hot seasons respectively. Below is a graph showing the annual distribution of temperatures.

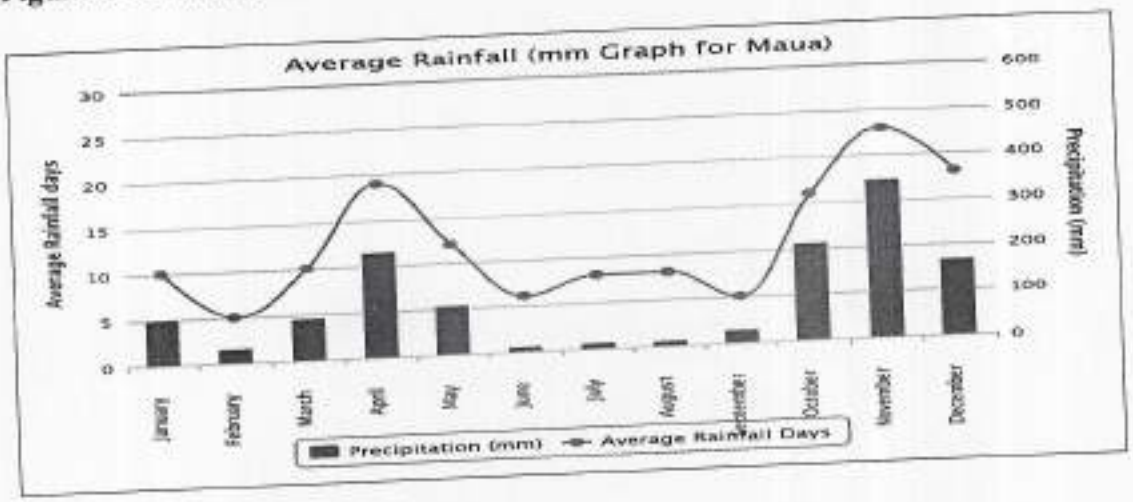
Figure 1: Temperature of Maua



Source: Worldweatheronline.com

3.2.1.3 Rainfall

Figure 2: Rainfall pattern of Maua



Source: Worldweatheronline.com

The planning area experiences bimodal pattern of rainfall with the long rains occurring from mid-March to May and short rains from October to December. The planning area rainfall ranges between 1250mm and 2515mm annually.

3.2.1.4 Topography

The topography of the planning area is generally hilly with Maua town (1640 m) lying as a strip at the bottom of the hills and gentle sloping towards the southern part. Kiegoi market lies at altitude of 1920m, Maili Tatu 1710m and Kimongoro lies 1300m above the sea level.

The general landscape slopes south eastwards as this is the direction the rivers flow. However the area has hills and valleys punctuating the landscape. The undulating landscape affects the climate and vegetation of the area.

The topography has affected the growth of the Maua Township. The terrain also affects the provision of infrastructure and services. The terrain also limits areas available for development.

3.2.1.5 Soils Structure

The project area is underlain by Precambrian basement rock system and mostly by volcanic and sediments from the eruption of Nyambene hills and associated parasitic cones. The soils of Maua town, Kiegoi and Maili Tatu are deep volcanic red soils. These soils are well drained and fairly fertile. The soils of the volcanic plateau are moderately deep to shallow with various textures.

3.2.1.6 Vegetation

Figure 3: vegetation in the planning area

Source: Geoland surveys field surveys 2016

The planning area has both exotic and natural vegetation. The natural vegetation is mostly found on the forest near Kiegoi market. Some of the common indigenous trees in the area include the Meru Oak, Cordia, Camphor and Cedar. Some parts of the area also have exotic tree species. The types of trees vary with eucalyptus being the most common in the inhabited areas. Cash crops and food crops grown in the area also forms part of the vegetation. The main crops being bananas, coffee, tea, Miraa, maize, fodder crops and other food crops.

3.2.2 Natural Resources

3.2.2.1 Forests

There are no gazzeted forests in the planning area. However, a small portion of Nyambene forest lies adjacent to Kiegoi market.

3.2.2.2 Minerals

The planning area and the entire Igembe South sub-county are not known to have any mineral deposits of precious stone, ores or mineral oils. There is, however the mining of building materials such as building stones within and in other places near the planning area.

3.2.2.3 Wildlife

In the greater part of the planning area covered by farmland, the wildlife consists of birds, insects and rodents.

3.2.2.4 Areas of Scenic Value

The landscape of the planning area is attractive. It has river, valleys, vegetation, swamps and hills such Nyambene all of which combine to create an interesting landscape. Also, some rivers have waterfalls which are a great sight to behold for any nature lover.

3.2.2.5 Energy Resources

The energy sources commonly used include firewood, charcoal and kerosene in the rural areas. Firewood is majorly obtained from the both natural and planted forest.

3.2.3 Environment

Maua and its environs have a favorable environment for human settlement. It is characterized by gentle and rough topography that gives way to flatter terrain in some areas. The overall slope of the land is towards the south; consequently, drainage is in that direction. The main river in the planning area is river Urra which has its tributaries flowing from Nyambene ranges, and proceeds southwards through Meru National Park. Maua town and its

environs face major environmental challenges such as poor solid and liquid waste management, loss of biodiversity, water pollution, land degradation, soil erosion, and poor quarrying practices.

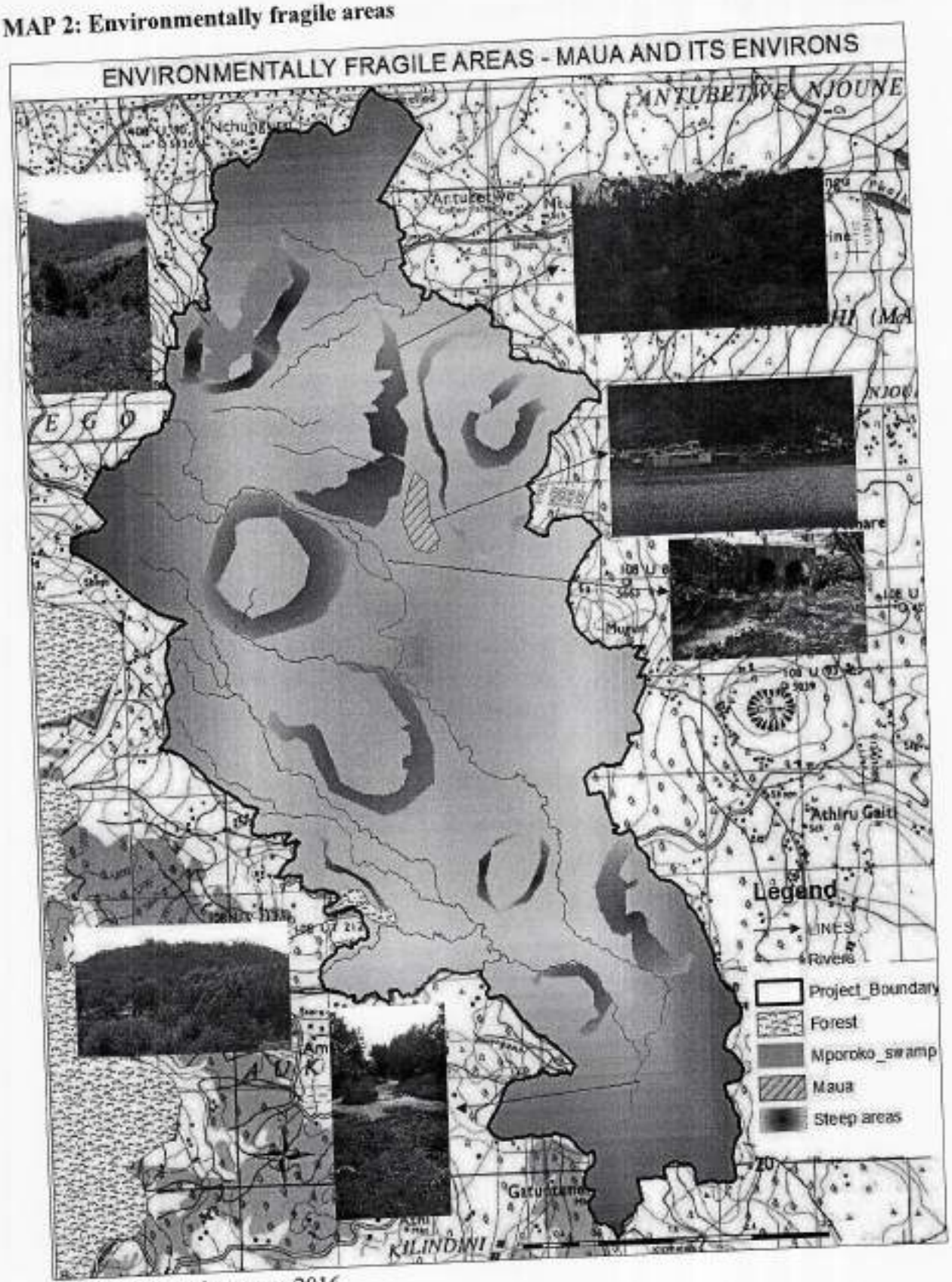
The high demand for construction materials and fuel wood has led to high rate of deforestation. The quarrying for both building stones and sand in unsustainable way and without any rehabilitation plan for the sites is impacting negatively to the environment. Pollution from urban centers to nearby rivers is also a major challenge.

Environmentally fragile areas in the planning area include rivers and the marshland around them, swampy areas, the forest and steep hills. The rivers are threatened by pollution and encroachment. Due to poor farming methods, a lot of silt is washed up to the rivers. This has led to many of them becoming shallow, hence holding less water. As this occurs, the rivers become smaller and may eventually disappear. Mporoko swamp is also a feature in this category and it is currently threatened by human activities such as settlement and cultivation. The Maua basin is one area in the town that is environmentally fragile and poses environmental risks.

3.2.4 Disaster management

There are various types of disasters that occur in Maua and its environs; these are road accidents, flooding, accidental fires and arson. The county response to disasters was considered inadequate by the respondents due to the time they take to reach the point of occurrence. Preparedness for disaster is low in the area; therefore all efforts should be made to make the county more responsive. Challenges that affect distaster responsivenes include lack of supervison of building construction, poor lighting, lack of fire extingushers in buildings and poor accessibility in some areas.

MAP 2: Environmentally fragile areas



Source: Geoland surveys 2016

3.2.4 Emerging Issues

Challenges

- Encroachment into environmentally fragile areas is threatening the biodiversity and sustainability of Maua town and its environs.
- The County government and NEMA have been reluctant in enforcing environmental laws, thus leading to environmental degradation. The county and NEMA should work hand-in-hand to ensure better environmental management if a sustainable town is to be achieved.
- Minimal material recovery and recycling of waste products
- Air and water pollution
- Inadequate drainage channels in Maua town
- Inadequate consideration and awareness on the environment
- Decreasing stocks of natural resources
- Land use conflicts
- Lack of proper enforcement of the environmental act
- Degradation of catchment areas
- Lack of interest to activities of common good
- Accumulation of solid waste

Potentials

- The local residents need to be more vigilant in reporting and better managing their environment.
- Presence of natural resources i.e. building materials, vegetation
- Serene environment for investment in hotels and conference facilities
- Availability of water
- Existing policies and laws i.e. EMCA
- Appropriate weather for a range of activities
- The hilly topography are favorable for hill climbing, cable cars, zip lines and surveillance

3.3 Population

3.3.1 Population size

The planning area covers Igembe South Sub-county and also some parts of Igembe Central Sub-county. The current population of the planning area is almost 70,000 which is about

3.8% of the total population of Meru County, whose total population is 1,568,000. According to KNBS 2009, 30,220 of the population are within Maua Township while 29,780 are within the rest of the planning area. The growth in population will strain the available resources such as land. This calls for prior planning of available resources and expansion of social and economic facilities to accommodate the expanding population.

There is higher density in Igembe south as compared to Igembe central which may be attributed to high fertile land in Igembe south, which is good for farming whereas in Igembe central there are some areas which are sparsely populated.

3.3.2 Age and sex characteristics

Age distribution of Maua and its environs is majorly dominated by young people according to population projection census. The age distribution can be categorized into youth population, adult population and aged population.

Table 2: Age and sex characteristics at different age categories

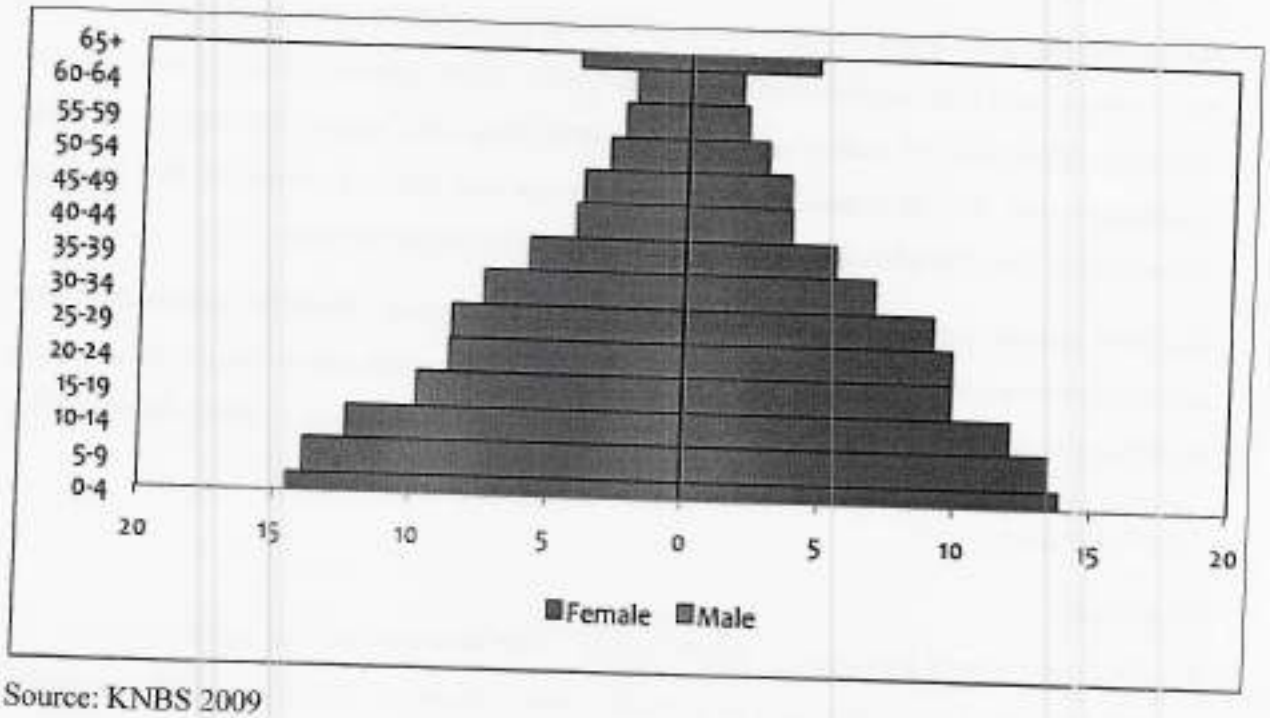
Years	2016			2019			2035		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
0-4	5556	5427	**10983**	5920	5783	**11703**	9675	9451	**19126**
5-9	5247	5162	**10409**	5591	5501	**11092**	9137	8989	**18126**
10-14	4600	4684	**9284**	4902	4991	**9893**	8010	8157	**16167**
15-19	3534	3844	**7378**	3766	4096	**7862**	6154	6694	**12848**
20-24	2974	3622	**6596**	3169	3860	**7029**	5179	6307	**11486**
25-29	2870	3112	**5982**	3058	3316	**6374**	4998	5419	**10417**
30-34	2387	2218	**4605**	2544	2363	**4907**	4157	3862	**8019**
35-39	1762	1642	**3404**	1878	1750	**3628**	3068	2859	**5927**
40-44	1162	1071	**2233**	1238	1141	**2379**	2024	1865	**3889**
45-49	1045	994	**2039**	1114	1059	**2173**	1820	1731	**3551**
50-54	803	804	**1607**	856	857	**1713**	1398	1400	**2798**
55-59	621	503	**1124**	662	536	**1198**	1081	876	**1957**
60-64	532	517	**1049**	567	551	**1118**	926	900	**1826**
65-69	292	282	**574**	311	300	**611**	508	491	**999**
70-74	292	323	**615**	311	344	**655**	508	562	**1070**
75-79	169	177	**346**	180	187	**367**	294	308	**602**
80+	293	455	**748**	312	485	**797**	510	792	**1302**
Ns	33	25	**58**	35	27	**62**	57	44	**101**
Total	**33880**	**34539**	**68419**	**36414**	**37147**	**73561**	**59504**	**60707**	**120211**

Source KNBS 2009

3.3.3 Population structure

From the population pyramid below, the age group of 0-4 years is more than any other age group. This shows that there is an improvement in child survival that has resulted in a youthful population. The pyramid is decreasing as more people are getting older-steady upwards narrowing shows that more people die at each higher age band. This pyramid indicates that there is a high birth rate, a high death rate and a short life expectancy. Also the structure shows that there is a lot of pressure exerted to the working population because when comparing the ratio of the working population to the sum of the aged population (65+) and the population of 0-14 years will be less. Below is the population pyramid for Maua and its environs also showing the distribution of population at different age brackets.

Figure 4: Age pyramid



Source: KNBS 2009

3.3.4 Culture and heritage

Maua is a home for Ameru people. Currently it is regarded as a cosmopolitan region because people from different backgrounds and locations have come and settled there. There was deep reverence for the spirit of the living dead. Ameru believed in offering sacrifices to their dead ancestors. The divine leader of the Ameru was called the Mugwe. These were respected persons who made sacrifices and performed healing on behalf of the tribe. However, with the arrival of Christianity, the cultural rites and functions have become obsolete.

3.3.5 Migration

Data on migration has not yet been released since the last population and housing census in 2009. However, general trends on migration can be observed. Daily migration is evident from the fact that the day population in Maua town is approximately double the night time population. This means that some of the people who work or run businesses within the town may well live outside Maua Township.

Also Maua experiences seasonal migration. Considering the institutions of higher learning based in Maua, it is expected that many students and staff are in Maua during the semesters/terms and go back home when the institutions close. The same case could apply to boarding schools within the planning area. Such institutions include Maua Girls High School, Igembe Boys High School, Kenya Methodist among others.

Long-term migration is also brought about by Maua town's position as an administrative center and a commercial hub has attracted many immigrants. Some come to Maua to work as civil servants, employees of major commercial institutions and others for business. These immigrants may stay in Maua for a couple of years and others continue to live in Maua permanently. This has contributed to the cosmopolitan nature of the town.

The other type of migration experienced is rural-urban migration seeing that secondary towns now absorb most of the rural-urban migrants. Perhaps also urban-urban migration as people move to or from other towns. The statistics that define these patterns are however not available.

3.3.6 Emerging Issues

Challenges

- The population of the planning area is largely youthful with more than half being under 15 years of age. The challenge is to provide quality education, health care and meaningful employment opportunities.
- The consistent increase in population continues to exert pressure on the existing infrastructure and services. This has created a deficit in the provision of some services such as water and sanitation, solid waste management, health and education.
- The large population has also led to an increase in the built-up area, thus extending urban development beyond the municipal boundary into the agricultural hinterland and into

environmentally fragile lands (adverse environmental effects). This affects food security and agricultural production which is the main economic activity of the planning area.

- The increase in population has also led to the increased subdivision of agricultural land. Some previously agricultural areas have since become residential.
- Competition for spaces to carry out economic activities and businesses such as jua kali sheds open air market among others. This has led to such activities taking place in road reserves.

Opportunities

- The increasing population increases markets for goods and services in the planning area
- The largely youthful population provides affordable labour to existing and potential investors in the area.
- The different cultures of the population offer an opportunity for cultural mix and exchange
- The population offers an opportunity for governments, researchers, environmental, economic, social and physical planners to plan for it.
- The position of Maua as an administrative town and commercial hub serving the surrounding areas and other far and large areas such as Part of Garissa, Wajir, Isiolo, Tharaka Nithi and Meru has seen it attract a large number of immigrants.
- A high population engaging in business activities increases the revenue base for governments.
- A high population creates economies of scale in provision of infrastructure and services as well as market for production companies.

3.4 Land and Housing

3.4.1 Land

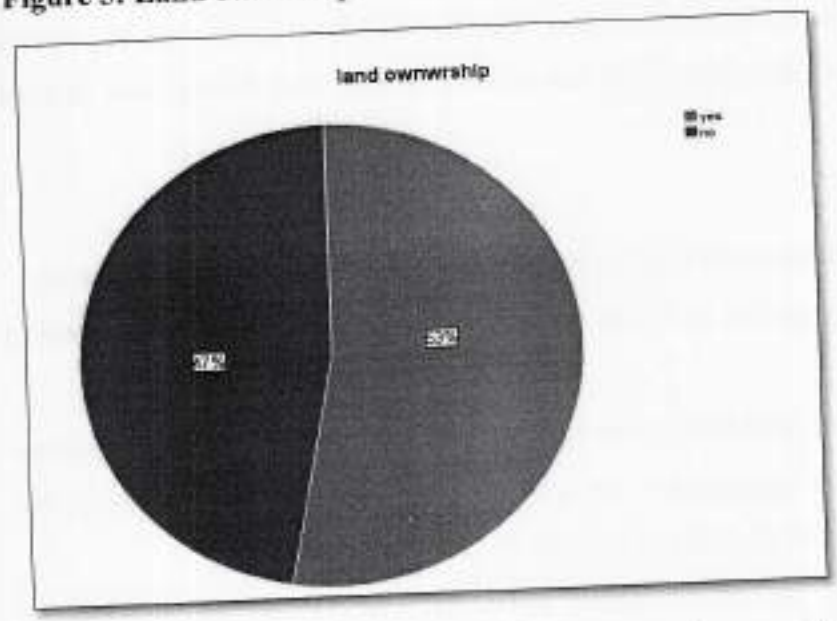
Land is a factor of production and as such, analysis of land uses is very critical in planning. Land is also a finite resource and therefore its usage must be controlled for sustainability and optimization. In addition, land is the resource in which development occurs in terms of urbanization, housing and provision of social and infrastructural services.

3.4.1.1 Land ownership

Land tenure systems play a very important role in the administration and management of the natural and the built environment. The important of land in production, growth and

development cannot be over emphasized. Ownership of land is therefore regarded as a priority in the African culture. Out of the over 5000 residents whom were interviewed, 53% said that they owned land.

Figure 5: Land ownership



It is also important to note that there are many land disputes in the planning area which results to delays in adjudication and registration of land. One of the reasons for the disputes is the high productivity and unavailability of land in the planning area. With agriculture being the main economic activity and Miraa and tea being the main cash crops of this area, land is a valuable resource.

3.4.1.2 Land tenure systems

Out of the total respondents that owned land, 92% were on freehold land and 8% on leasehold land tenure system. Only a small portion of land in the planning area is under leasehold tenure and most of that is under government facilities such as law courts, police station and government offices

3.4.2 Housing

A vibrant housing industry is critical for a residential "family" town like Maua and indeed overall the country's social economic development. It is acknowledged universally that, housing is one of the three essentials of life besides food and clothing. Adequate housing is therefore a foundation for family security and long term happiness as it fortifies a

household's quality of life. There is limited data on housing developments in Maua town including demand and supply analysis.

3.4.2.1 Settlement Systems

Settlement within the planning area is fairly even except in Maua town where is highly populated than the surrounding hinterlands. The hinterlands have settlements on farms with over 50% of land sizes of below 1 acre. Maua town has a population of around 30,220 people (KNBS, 2009 Census). This high population concentration on the urban core is because of the many opportunities in Maua town in terms of jobs, education and commerce.

In the surrounding markets of Kimongoro, Kithetu, Mailitatu and Kiegoi, little concentration of population has been occurring gradually. This concentration has been slow since the people still consider Maua as their central location for trade.

3.4.2.2 Building materials

Conventional building materials (stones, sand, wood and iron sheets) are common within the planning area. The planning area produces some of the building materials such as wood, stones and ballast in small quantities. Most of the stones, ballast and sand are sourced from Meru and Isiolo. Iron sheets, cements and other building materials are sourced from hardware stores in Maua town. The availability of building materials in the planning area and nearby areas reduces cost of construction and thus impacts development positively.

3.4.3 Emerging issues

Challenges

- Land registration and issuance of titles is still pending in some areas
- Disputes over ownership thus derailing development
- Wanton land subdivision to unsustainable levels.
- Lack of knowledge in the steps/process of acquiring the ownership documents
- Lack of clear land use/zoning policies
- Inadequate housing facilities which contributes to high rental prices on the available rental houses.
- Lack of effective development control mechanisms

Potentials

- Increased funding from government

- Opportunity for adoption of new building technology
- Opportunity for partnerships in construction of houses
- Opportunity for construction of low cost housing
- The land is agriculturally productive
- Land is available for growth and investment

3.5 Transport

Transportation is a key factor in economic growth of any region or economy. Road transport is the main means of transport in the planning area with the mode of transport used by majority of the population being walking, motor cycles and Matatus/ hatchbacks.

Road class is determined by the function of a road in relation to other roads in a road network. The function of a road in a network should be decided based on the desired types of traffic, their speeds and volumes, and the existing land use through which the road passes.

3.5.1 Road Transport

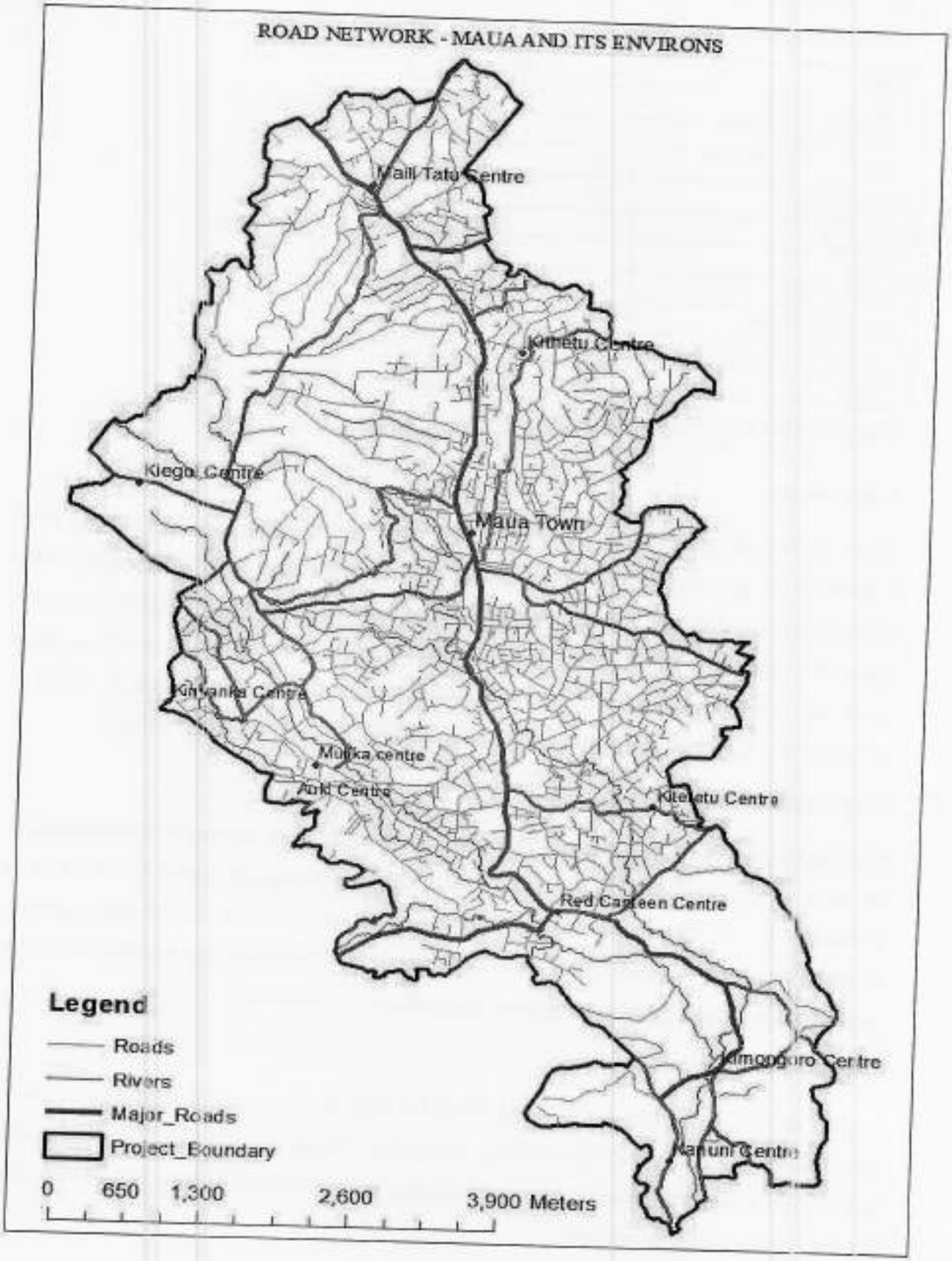
The planning area has an approximate of 18km of tarmac road. The following roads form

Part of the road network within the planning area.

Table 3: Road Network

Road	Class	Length in km	condition
Meru – Mikinduri – Maua	C360	60	Tarmac
Maili Tatu – Kawiru - Mutuati	C370	11.0	Tarmac
Maua -Kimongoro - Kanuni	C370	7.2	Motorable
Meru – Kangeta – Maua	C91	58	Tarmac
Kangeta – Kalaoni – Meru National park	C366	27.5	Motorable
Kibilaku – Auki – Athiru Gaiti	C371	8.8	Motorable
Maili Tatu – Kaibu – Maua	UCB3	8.1	Motorable
Auki – Maua	G	1.6	Motorable

MAP 3: Road Network System in Maua and its Environs



3.5.2 Traffic Modal split for Maua Town

Table 4: Traffic Modal Split

User	Average Daily User
Bicycle	1
Motor Cycles	475
Cars	161
Probox Type	239
Pick Ups	53
Carts	13
Matatus/Vans	76
Buses/Minibuses	14
Lorries, Trucks, Tractors	36
Others	2

Source: Traffic Survey 2016

Motor cycles

Motor cycles are the biggest motorized means that use the roads in the planning area. Regardless the growing number of demand and use Motorbike (boda bodas) transport is has not been well provided for. It lacks adequate designated areas for parking, unfavorable weather protection mechanisms and general facilitation of the mode. The motor cycles use the same roads and carriage way as other road users including pedestrians. The disorderly nature of motor cycles is an impediment to free flow of traffic. The roads lack any designated

Public service vehicles

Public service vehicles in the planning area include Matatus, buses, minibuses and hatchbacks. Of these, only Matatus and hatchbacks have a designated stage in Maua Town which is inadequate as it is. There are other hatchbacks and vans which do not use the stage and pick and drop passengers along the road. This contravenes traffic rules as well as affecting traffic flow along the roads in the planning area and especially Maua town.

Lorries, trucks and tractors

Lorries, trucks and tractors form around 5% of the total road users in Maua and its environs. These are large vehicles and require bigger spaces for parking and stopping. They are mostly used to carry building materials, tea among other heavy material to sites and commercial premises in Maua and its environs.

Private vehicles

Private vehicles form close to 30% of the overall road user (except pedestrians) of Maua town and its environs. The greatest challenge of these cars is lack of parking space. The only parking space available is street parking along three streets. These parking spaces are not enough for the overall car population in Maua town and drivers find parking in none designated areas.

Lack of parking is an inconvenience to drivers and a loss of revenue to the county government.

3.5.2 Non-motorized Transport

Pedestrian

Pedestrians are the biggest users of roads in Maua town and in the planning area in general. The road network within the town needs to be expanded to accommodate the pedestrians. The recent development in the CBD has not adequately taken care of the walking modes.

Bicycles

The bicycle population in the planning area is very low. This can be attributed to the hilly topography of the area which limits use of bicycles.

3.5.3 Emerging issues

Challenges

- Unmaintained, poor, rough, dusty, muddy, roads
- Narrow roads
- Lack of walkways
- Accidents
- Overloading and over speeding
- Inadequate parking spaces, bus park and inadequate space for public service vehicles
- Lack of street names

Opportunities

- Segregating roads for different users
- Construction of new termini and parks for various vehicles and motor cycles
- Recognizing heroes and heroines during street naming

3.6 Physical Infrastructure

3.6.1 Water Infrastructure

Water is an essential for life and development. The planning area experiences high rainfall area owing to the fact that it lies on the windward side of Nyambene Ranges. There are numerous perennial streams that flow through the planning area. The section covers the state of water access and related issues in Maua Town and its environs.

3.6.1.1 Water Demand and Supply

Major users of water in Maua and its environs are households, institutions and agriculture. Maua town with a population of 30,220 in 2009 the Household water demand was at 1045m^3 per day approximately and currently the water demand stands at 1495 m^3 per day.

Table 5: Water demand and supply analysis

Year	Population	Water demand (m^3 per day)	Existing Supply (m^3 per day)	Gap (m^3 per day)
2009	21,138	1,045	1045	
2016	24,025	1,188	1045	-143
2020	26,730	1,322	1045	-277
2025	29738	1470	1045	- 425
2030	33,086	1,636	1045	-591
2035	36,810	1,819	1045	-774

Source: IMETHA 2016

The projected water demands for 2035 will not be met if IMETHA maintains the current water production capacity of 1045m^3 per day. Expansion plans should be underway in response the ever increasing demands due to the population growth.

IMETHA currently has 2107 registered connections with only 1268 customers been active and it is expected to cover an area of 14km^2

3.6.1.2 Emerging Issues

Challenges

- Unplanned water distribution network especially in Maua town

- Lack of control- 20% of water is lost or unaccounted for
- Old and dilapidated systems
- Conflicts with land owners
- Small coverage -Inadequate capacity to cover the whole area.
- There is no reasonable space for water service facilities
- Clogging of the drainage network causing flooding on the roads and pedestrian tracks that result in the destruction of the infrastructure
- Encroachment of wetlands and natural drainage channels

Opportunities

- Opportunity for private companies to provide waste management services
- Opportunity for recycling of waste
- Increased funding from government and other partners like ADB
- Availability of water resources like springs, Mporoko swamp, rivers among others

3.6.2 Solid Waste Management

Waste management is the collection, transportation, processing or disposal, managing and monitoring of waste materials usually produced by human activity. The process is generally undertaken to improve sanitation, aesthetics and create a clean environment.

The CBD lacks a comprehensive network of dustbins and collection points. Refuse within the CBD is collected in wheelbarrows and other means and put in receptacles located next to the fruit market along the Maua - Meru road. Maua Township has the one tractor and one lorry and each make three trips per day, collecting 8 tones daily.

3.6.3 Liquid Waste Management

Maua town lacks sewerage network for liquid waste management. People use septic tanks, open drains and pit latrines to drain their liquid waste. They often employ exhauster services as the main means of liquid waste disposal with serious risk of environmental pollution. Maua Methodist has a sewer system which is funded by donors however it lacks a sewerage treatment plant

3.6.3.1 Emerging Issues

Challenges

- Lack of adequate space for water service facilities

- Inadequate sewer way leaves
- Clogging of the drainage network causing flooding on the roads and pedestrian tracks that result in the destruction of the infrastructure
- Waste resources are not harnessed
- Inaccessibility of some areas
- Encroachment of wetlands and natural drainage channels.
- Pollution of rivers such as Mboone affecting the consumers downstream.

Potential

- Construction of an artificial lake at the 'Maua Basin' as a leisure park
- Construction of an efficient, clean and well-connected drainage network. The water in this drainage system can be used for other purposes.
- Waste water recycling and treatment.

3.6.4 Energy Infrastructure

Energy used in the area include, electricity, wood/firewood, solar, charcoal, LPG and Kerosene. Energy in the area is used for cooking, lighting, heating, powering machines and equipment. Firewood and charcoal are the most common within the planning area as source of energy for cooking. There is potential of bio-gas, particularly from farms practicing zero- grazing. There is also a high potential for solar energy which is being utilized at very low levels.

Kenya power is the main supplier for electricity in the area. The main office covering the area is based in Meru town; however Maua regional has some offices in Maua town. The electricity supply network covers the majority of the areas in the planning area.

Table 6: Source of Energy for Lighting

Ward	Electricity	Pressure Lamp	Lantern	Tin Lamp	Gas Lamp	Fuel wood	Solar	Others
Maua	41.3	1.8	29.6	23.7	1.0	0.2	1.7	0.6
Kiegoi	16.4	1.2	34.8	39.6	1.5	1.8	4.5	0.2
Akachiu	0.6	0.1	13.0	77.1	0.9	3.9	4.3	0.1
Kanuni	3.9	0.1	11.2	73.8	1.0	5.3	2.5	2.1
Njia	4.1	0.5	29.2	60.3	1.8	1.5	2.3	0.2

Source: KNBS & SID 2013

Table 7: Sources of Energy for Cooking

	Electricity	Paraffin	LPG	Biogas	Firewood	Charcoal	Solar	Others
Maua	0.7	12.0	6.2	0.6	35.6	43.2	0.0	1.8
Kiegoi	0.8	4.2	2.1	1.6	72.5	18.3	0.2	0.4
Akachiu	0.1	0.3	0.6	0.6	94.5	4.4	0.0	0.0
Kanuni	0.1	0.7	0.1	0.5	91.7	6.7	0.1	0.2
Njia	0.3	0.7	0.6	0.3	84.0	13.9	0.1	0.1

Source: KNBS & SID 2013

Challenges

- Heavy reliance on wood and charcoal especially in rural setting which increases deforestation
- High frequency of power outages which leads to production losses
- Limited coverage of electricity especially in rural setting
- Poor workmanship on distribution
- Limited co-ordination with other stakeholders when extending grid network
- Vandalism
- Way leave challenges

3.6.5 Communications Infrastructure

Telecommunication services have become the engine of development which if well deployed and utilized can enhance efficient and effective communication within the town thus improving investments opportunities within the town.

There is the presence of all mobile phone operators in Kenya including, Safaricom, Airtel, Orange, Equitel and Yu Kenya. There are several mobile money transfer agents and services, especially Mpesa shops in Maua town, indicating the high demand for the mobile money transfer system.

Various national television and local stations broadcast in the area. People have embraced digital transmission as well as the regulations and standards governing broadcasting have enhanced the quality of transmission and increase in content.

Newspaper in the area includes, Daily Nation, the Standard, The star, Citizen, People's Daily and County Newsletter.

The Kenya postal services have their presence in the planning area. They have a functioning Post office within the Maua town. However, the facility faces competition from alternative communications and parcel delivery service providers such as Matatus SACCOs, G4S among other private enterprise.

3.7 Social Facilities and Services

They include educational facilities, health care, religious, recreational, social halls and community centers.

3.7.1 Education

The provision of education and training to all Kenyans is fundamental to the success of the government's overall development strategy. In the recent years, the government has placed a lot of emphasis on the provision of basic education and training for all children. Besides, development of quality human resource is central to the attainment of national goals for industrial development. Educational services are offered by both the government and the private sector; however, the government owned institutions play the leading role in the provision of education services.

There is a total of 45 primary schools in the planning area out of which 24 are public primary schools while remaining 21 are private. Nevertheless, all private primary schools are registered under the Ministry. The analysis of the distance covered to the nearest primary school showed that majority access the schools within a range of less than 0.5km. The recommended walking distance should not be more than 2km with a catchment population of 4000 people. 84% of the people have access to a primary school at a distance of less than 1.5km.

Secondary education is provided by both the government and the private sector and absorbs students from both public and private primary schools. There are a total of 14 secondary schools out of which 17 are public, whereas 2 are private schools and they are distributed within the planning area. The recommended distance according to the Physical Planing Handbook (2007) is a walking distance of not more than 3km and a catchment population of 8000 people. Only 4% of the people in the planning area live more than 2.5 km to a secondary school.

Figure 6: Secondary School Enrolment

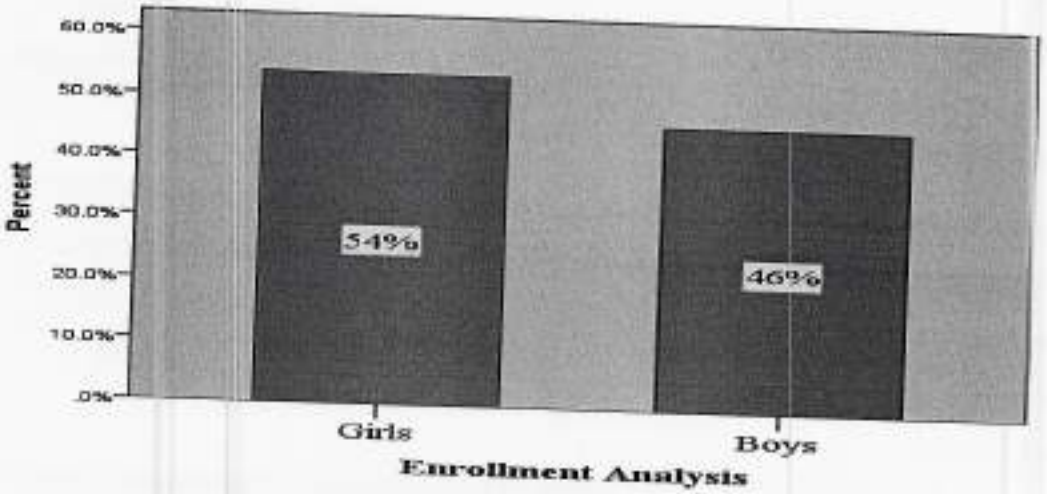
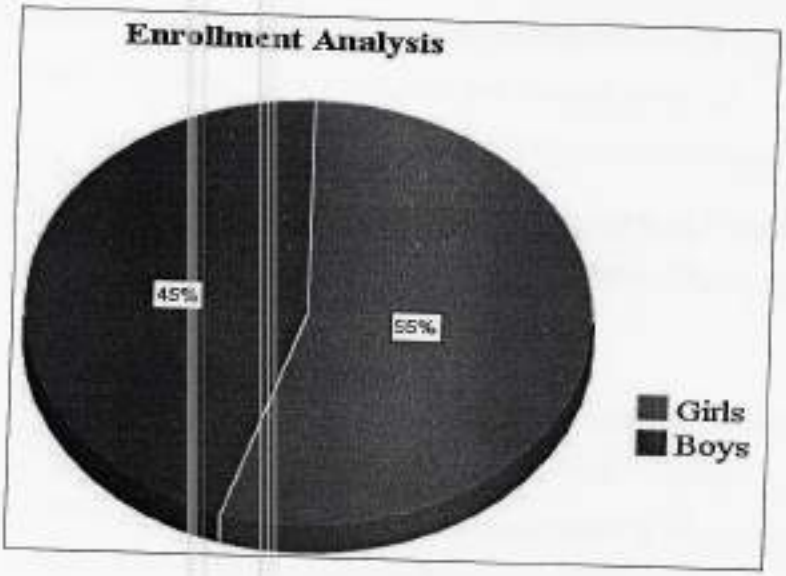


Figure 7: Primary School Enrolments



Emerging issues

- Absenteeism among the pupils.
- Congestion due to high enrollment.
- High School drop outs rate, which affects school completion and transition.
- Lack of adequate teachers.
- Poor infrastructure facilities in schools.
- Lack of land ownership documents.
- Inadequate support from parents and stakeholders.
- Low net enrollment rate.
- Low literacy levels among the parents.

3.7.2 Health

Health services within the planning area are provided by the government and the private sectors. There are also a number of health facilities run by the community, non-governmental organizations and faith based organization.

The various types of health facilities within the planning area are hospitals, health centers and dispensaries among others. The major health facilities include the Nyambene Sub County hospital, Maua Methodist hospital Nyambene nursing home, Maua cottage hospital. These are situated in Maua town and they serve the expansive Igembe Central and South Sub Counties and beyond.

Health centers include Kiegoi health centre and Akachiu health centre. Dispensaries: Kanthiari dispensary, Antubochiu dispensary, Gitura Dispensary among others. Other private health facilities include; Samaritan hospital, Kawiria maternity and nursing home and Thaene clinic among others. This implies long for those beyond the immediate catchment area, again contrary to existing physical planning standards on accessability.

There is a mortuary in Maua Methodist hospital which serves the entire population of the sub county and beyond. The area lacks a public cemetery.

Emerging issues

- Insufficient infrastructure and basic facilities such wards, mortuary, Ambulances, wheel chairs, storage facilities, X-ray machines resulting in poor service delivery to patients.
- Insufficient drug supply which results in Straining to cure patients with the insufficient facilities resulting to poor hygiene in the health facility, Referring patients to other health facilities which kill their morale and attention and coping with the prevailing situation as the only alternative but not comfortable.
- Lack of specialization resulting in patients attaining first aid services only, then referred elsewhere instead of full medical attention.
- Understaffing- Majority of the government hospitals and dispensaries in the planning area are understaffed, this poses a challenge to the available staff in the hospitals to sometimes work on overtime hours and on pressure due to the large population they serve.
- Shortage in the number and capacity of hospitals leading to congestion and poor service delivery.
- Delays in providing services

3.7.3 Social Cultural

There are numerous religious institutions within the planning area which serve people of different denominations. Such facilities include mosques, churches and Njuri Ncheke sites. Churches are many compared to other worship centers since most of the population in the planning area is predominantly Christian. Some of the most prominent religious institutions include; ACK church, the Catholic Church, Compassion church, the Methodist Church, KAG, and Mosque among others.

3.7.4 Other Social Amenities

Maua town attracts a number of people due to the flourishing commercial activities and potential business opportunities. It is in this regard that there is the need to provide better social and physical facilities.

Police stations/Posts

The planning area has one police station in Maua town and 2 police posts, one in Kimongoro and another in Kaciongo area of Maua town. The officers are serving expansive area and therefore have been overstretched since the ratio of police officer to the area population is 1:500 persons. Inadequate transport facilities and impassable roads has have also affected their operations, making it difficult to respond to the overwhelming number of malicious property damage, emergencies and other crimes. However, the community policing have played a significant role in enhancing security in the area.

Post Office

There is only one post office located in Maua town that serves the entire planning area. Despite advancement in telecommunication technology and innovation of modern and alternative means of communications, people still use the post office to send and receive correspondence. There is need to improve this facility or construct a *Huduma* Center in the town.

Fire stations

There is only one fire sub-station that is located within Maua town and serves the entire planning area. It also extends to Igembe central sub County. The personnel in the fire station include the firemen and drivers who work in shifts day and night to provide emergency responses.

3.8 Recreational facilities

3.8.1 Stadia

There is one stadium in Maua town which is owned by the County government of Meru. No staff has been recruited for its management so far. This pitch is in poor condition and lacks sports facilities. The stadium is also prone to flooding during rain seasons and sometimes animals graze inside freely even when school children are playing. There are open playgrounds in learning institution and a public one in Mailitatu.

3.8.2 Public parks

The current setup of Maua town has limited availability of public spaces. There are 2 public recreational parks identified in the planning area. One is located along Mboone River adjacent to the lands' office and Sub county administration offices and occupies approximately 0.6 acres in size. It is largely underutilized as it is not developed to a level of being attractive to the public. Besides, it lacks adequate utilities and in most cases used as a car parking.

The central Park is located within the CBD and covers approximately 0.8 acres of an acre and runs as a strip between two roads. The park lacks proper solid waste management since there are no litter bins within the facility. In addition, the park lacks utilities and recreational facilities such waiting benches and shades.

3.9 Economy

The economy of a place is greatly influenced by the economic activities of that place. The economy determines demand for goods, services as well as infrastructure of a place. The planning area, being a predominantly agricultural, will demand infrastructure that support agriculture.

3.9.1 Agriculture

Agriculture is the main source of livelihood for the majority of residents of Maua area and its environs. Factors which makes the planning area favorable for agriculture includes; its altitude and climate, its access to a reliable rainfall, fertile soils and access to local markets.

Cash crops grown in the area include tea, coffee, macadamia, nuts and Miraa. Tea and coffee farming is majorly done in Kiegoi and some parts of Kimongoro area. Miraa farming is majorly done in Kimongoro, Athiru Gaiti, Maili Tatu and Kithetu while Macadamia

commonly grown in Maili Tatu area. Most notable tea factory is Kiegoi tea factory which processes most of the tea grown within that area. Food crops include maize, beans, passion fruits, kales, cabbages, sweet potatoes, cassava and yam.

Table 8: Crops grown in specific areas

Area	Commonly grown crops
Kiegoi	Tea, horticulture(kales, green maize)
Antubochiu	Bananas(main) , maize, Miraa(small scale)
Kimongoro	Bananas(commercial), Miraa , Tea and coffee
Kithetu	Potatoes(commercial)
Mailitatu	Macadamia, Miraa

Source: Geoland Surveys 2016

Fishing

Fish farming (aquaculture) is practiced within the planning area in small-scale in ponds as individual and as groups. The main fish types produced are the African Cat fish and Tilapia. Fish is a non-traditional delicacy in this area hence its wide acceptance and consumption has been slow. This has however not deterred the fisheries department in Maua from encouraging fish farming in the area. With the numerous educational institutions, the civil service and the numerous banking outlets and the booming service sector, employment creation will transform the area with resultant demand for better and quality services.

Table 9: Pond Statistics

Ward	No. of farmers			No. of active ponds	Area (M^2) of active ponds	No. of dormant ponds	Area (M^2) of dormant ponds
	M	F	Institution				
Maua	5	0	6	8	2,400	5	1500
Kiegoi	2	2	3	7	2,100	0	0
Akachiu	8	4	3	27	4,500	18	5,400
Kanuni	20	2	4	26	7,800	5	1500
Athiru Gaiti	10	5	3	18	5,400	0	0
Total				**77**	**22,200**	**19**	**5,700**

Source: Ministry of Agriculture 2015

Challenges in agriculture sector include;

- Pest and diseases both for animal and crop
- Poor infrastructure.

- Inadequate extension services.
- Unsustainable farming practices.
- Land fragmentation.
- Poor marketing channels.
- Poor land tenure
- Inadequate value addition
- Border conflicts
- Banning of Miraa trade in external market

Opportunities

- Dairy farming has not been fully invested in
- Opportunity for intensive small scale farming
- Diversification
- Opportunity for value addition in agricultural sector such as coffee, dairy and bananas
- Potential for horticulture is not fully utilized

3.9.2 Industries

Maua town has no a defined area for industrial development. There is little industrial activity in the area, despite the fact that the county produces adequate quantities of different agricultural outputs. There are few industries, especially the agro based industries expected to add value to farm produce and help secure better market prices for farmers.

Table 10: Tea Production Kiegoi

Year	Green Leaf (Kgs)	Made Tea (Kgs)
2015/2016	14910971	3451682
2014/2015	12516445	2867948
2013/2014	12532495	3033175
2012/2013	12891179	3054884
2011/2012	996980	2375586

Source: Kiegoi Factory 2016

Nevertheless tea and several coffee factories are located in the planning area. Kiegoi Tea factory is one of the processing industries which have created job and business opportunities

to the locals as well as market for their tea farmers in the area. Light industries in the area include: furniture workshops, motor vehicle garages, electronics repair shops, tailoring shops, food catering industry, service industries and juakali which can create employment opportunities for the rising number of unemployment of the youth.

3.9.3 Commerce

Commerce has facilitated economic development of Maua town. Maua town is a prime spot for investors seeking business activities especially in Miraa. It offers a wide category of businesses such as (general businesses), entertainment, finance and insurance (banking), food and drink, processing and service industries (farming) etc.

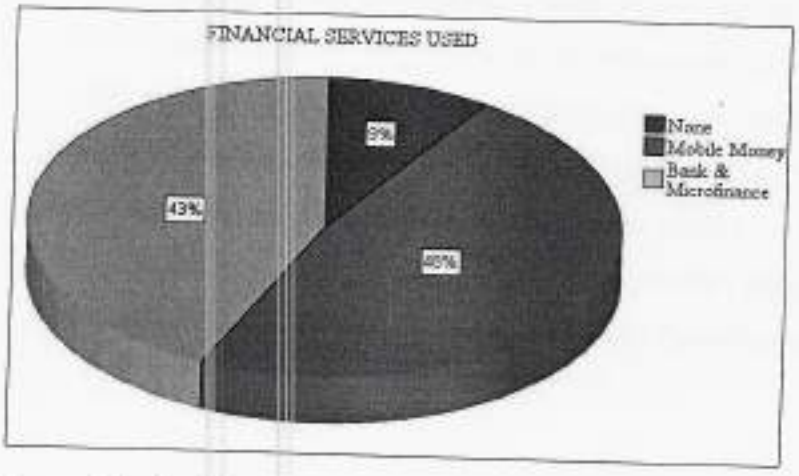
Within the CBD there are supermarkets, retail and wholesale businesses. Other businesses in Maua town in the recent past are Ikweta Country Inn and Conference Centre, Modern Inn Plaza, restaurants and clubs, Society Every day, Tradena and Bei Sawa among others. There are a number of shopping centers and markets in the planning area which include Kimongoro center, Maili Tatu market and Kiegoi shopping centers.

In Maua town, there various designated markets: agricultural market next to the Matatu terminus and another one opposite Maua Methodist Hospital; an open air market along the way to Maua Methodist church; there are also various undesignated areas where hawkers sell their wares.

3.9.4 Financial services

Financial institutions have penetrated the planning area in depth.

Figure 6: Financial services used



Source: Geoland Surveys 2016

Residents of Maua and its environs have embraced financial services in use of mobile money transfer and remittance as well as use of banks and Microfinance institutions. Out of the interviewed residents 48% cited that they use banks and microfinance services while 43% use mobile money service, only 9% of the respondents use none of the two. The distribution and access of the formal banking facilities is fairly good due to several banking institutions in Maua town. Commercial banks include Equity, Co-operative, Family bank, National bank, KWFT, Barclays, Post Bank, Faulu Bank and Consolidated Bank.

Micro-finance institutions and SACCOs include Remu Sacco, Dhabiti Sacco, Arimi Sacco, Real People Business finance, SMEP and Transnational Sacco among others. There are several mobile money transfers and mobile banking in the area which include M-PESA agents, Equitel and Equity agents, Airtel Money, KCB Mtaani among others. This indicates that there is high demand for mobile money transfer system. Mpesa shops and services identified form majority of the agents in the planning area as compared to others.

3.9.5 Tourism and hospitality

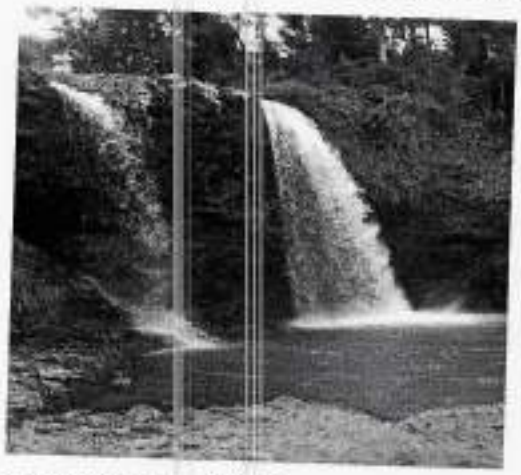
Maua and its environs have diverse attractions to offer to visitors. It is a tourism hotspot as it serves as one of the major routes to Meru National park and is surrounded by a number of expansive tea and Miraa farms. One of the more notable characteristics of Maua town is the setting in which it lies as a strip at the bottom of the hills. Its proximity to Meru National park and Nyambene hills has also contributed to its popularity since the Nyambene hills and Meru National Park increase its tourism potential.

The Nyambene Mountains has an indigenous forest with many indigenous species of flora and fauna. It retains unique plant species that include the now rare indigenous tall trees, bushes, thickets and various species of undergrowth. At the top most part of the mountain, is a sizeable natural cleared portion of the forest a few meters from the road said to be a sacred shrine.

Other tourist attractions sites within Maua and its environs include Urra River waterfalls located 200m from Kimongoro Market and Iga ria ngutu. Iga ria ngutu is a very big boulder, which has got a very dark crack cave in the middle in which water trickles and disappears under the ground. The rock is found within the Nyambene ranges at Kiolo, past Mikinduri market on your way to Maua town through Mikinduri-Maua road, and the rock is next to the road.

There are two major hotels in the planning area; namely; Kiringo and Ikweta Country-Inn hotels. Kiringo Hill Hotel is located along Maua Meru road and offers easy access to tourists wishing to explore the Meru National Park and Northern part of Meru.

Figure 7: Urra river waterfall at Kimongoro



Source: Geoland 2016

3.9.6 Informal Activities

Informal commercial activities have become an increasingly common feature in the town. Small scale business and hawking activities are concentrated at major transport terminals and on the reserves of busy internal roads and fronting the formal businesses housed on permanent structures. These informal businesses include: fruit and vegetable vending kiosks, Miraa vendors, shoe and clothes selling, cafes among others. The county government of Meru has tried to nurture informal businesses through construction of business stalls.

3.9.7 Emerging Issues

- Lack of adequate market for the products.
- Poor infrastructure.
- Lack of modern technology
- Low level of agro-processing, industrialization
- Lack of spaces to house informal business
- Under investment in some potential economic activities e.g. tourism.
- Encroachment into fragile areas i.e. Mporoko swamp, Rivers and wetlands
- Informal traders which make it difficult for authorities to collect revenue

3.10 Governance

3.10.1 Institutional Systems

Urban development in Maua town has is characterized by numerous institutional stakeholders and actors most of the times competing or working at cross purpose to each other. Most importantly, Maua town lacks effective and appropriate internal institutions to coordinate urban development with committees made of elected councilor being one of the organs guiding development. Furthermore, existing investments and provision of social and economic infrastructure has largely taken place in the absence of strategic structure and land use plans. Other notable challenges of urban institutions in Maua revolve around:

- A number of overlapping responsibilities and gaps evident between and among various agencies
- Lack of a clear and compelling vision
- Uncoordinated urban development sectoral policies
- Capacity gaps hindering urban development institutions to execute their mandates, roles and responsibilities.
- Absence of a predictable platform of engagement for actors in the urban development sector.
- Insufficient monitoring, control and evaluation indicators and mechanisms

3.10.2 Sub county Sources of Revenue

Table 11 Summary of Revenue Sources in Maua FY 2014/2015

Revenue Source	Amount in Kshs.
Miscellaneous	4,627,755.00
Single Bus Permit	14,729,404.00
Land Rates	699,134.00
Parking Fee	9,860,170.00
Market fee	10,057,900.00
Miraa Cess	12,805,200.00
Houses &Stall Rent	1,078,300.00
Toilet fee	420,950.00
Slaughter fee	837,460.00
Bodaboda	567,375.00
signboard and advert	291,000.00
Total	***55,974,648.00***

The Sub county main sources of revenue include government grants, land rates, Single Business Permit (SBP), market fees, parking fees, advertisements, billboards, slaughter house, public toilet fees, sale of tenders, boda boda operations permits, approval fees and a variety of cess charges and royalties levied on movement of agricultural and mineral produce from or through the Sub county area.

3.11 Stakeholders concerns

- Proposal for Maua town to be connected to big towns to ease transport and marketing of its products.
- Compensation of land owners in case developments affecting their land
- More investments needs to be done on recreational and social facilities such as stadium, social halls, art and cultural center, libraries, museum, colleges, industries to create employment
- Encroachment of public utilities and enforcement of planning standards
- More space for utilities such as cemetery, livestock market, open air markets
- Public participation be done in designing the location and size of markets, transport termini to ensure they are used for the purposes they are designed for.
- Need for strict land use zoning to ensure agricultural land is conserved
- Encourage and plan for sustainable development
- Ensure Synergy among all elected leaders to actualize the vision and reduce redundancy in their plans and strategies.
- Solid waste management is a challenge for all urban areas. Plan for landfills rather than dumpsites for solid waste management.
- While planning, prioritize utilities such as; roads, water, electricity, sewerage network to make it attractive and cheaper for investors.
- Pollution of river Mboone passing through the Maua town. There is need for safety of water for users downstream.
- Construct one large Miraa market that can be used for sale and packaging to reduce the number of stalls on road reserves.

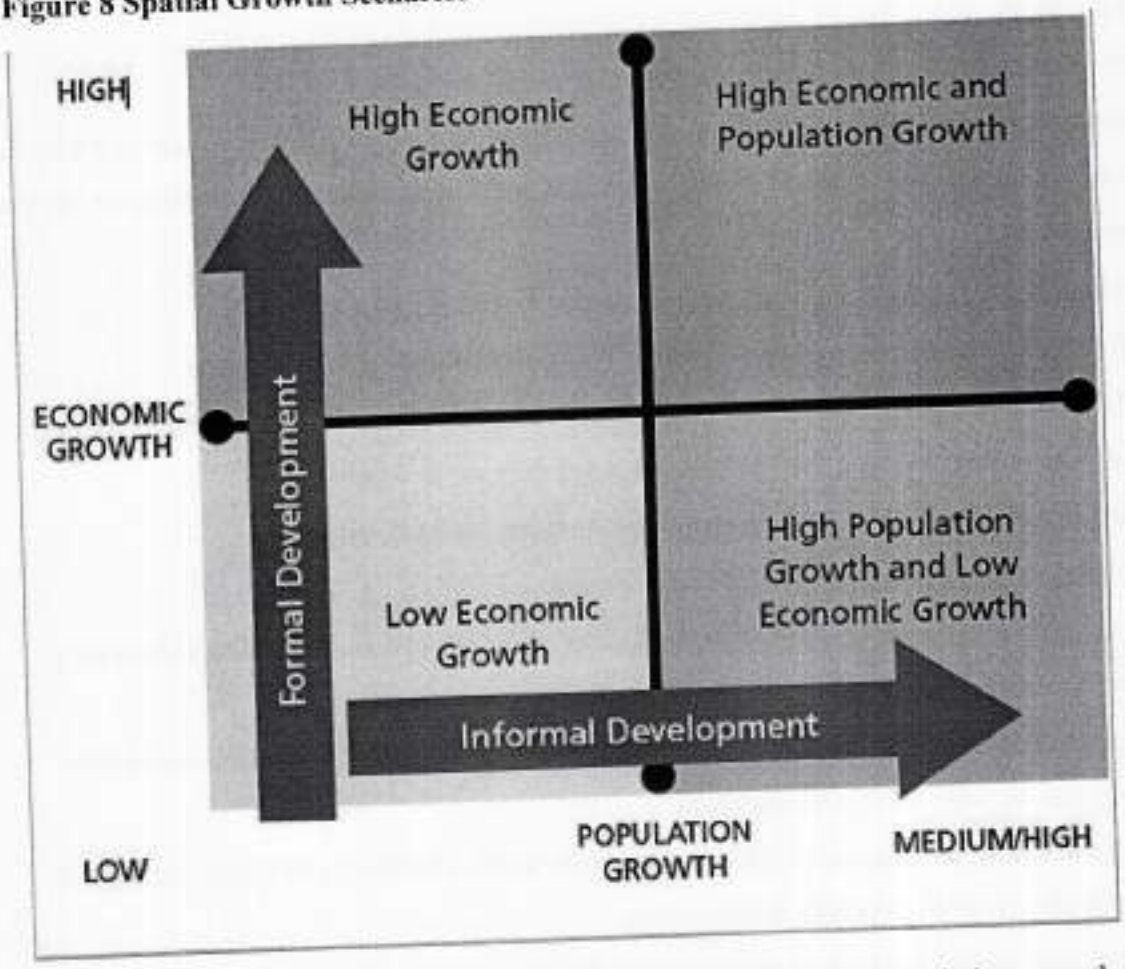
CHAPTER 4

DEVELOPMENT GROWTH SCENARIOS

4.1 Spatial Growth Scenarios

Scenarios are creative devices used to shed light on the impact of today's strategic decisions on future outcomes. Four possible scenarios for future growth in Maua Town have been developed based on different population and economic growth rates.

Figure 8 Spatial Growth Scenarios



The town is presently positioned somewhere between the 'high population growth and low economic growth' and "low economic growth quadrants. Economic growth is relatively slow, and resources for accommodating population growth and immigration are limited, resulting in increasing levels of informal development.

A 'high economic growth' scenario coupled with a low population growth rate will ensure that the city is well resourced. This scenario is also likely to result in smaller household sizes. 'High economic and population growth' is likely to result in urban sprawl if not actively managed.

Different scenarios will require different strategic choices and land use management decision making. In respect of the different scenarios, the current projections suggest that the population will continue to increase, which will result in an increasing demand for land and resources. No matter whether this situation is coupled with a fast or slow growing economy, it is essential that the city manages growth appropriately, prevents sprawl, and exploits opportunities created by economic growth appropriately.

4.1.2 Implications for spatial planning

The interplay of the urban growth drivers reviewed in the preceding section has spatial implications for the way in which future spatial planning takes place in the city. The following section provides a summary of these implications for forward planning.

4.1.3 Urbanization

Further urbanization is inevitable, and it is critical that this anticipated growth is planned for in a sustainable way in order to maximize benefits for people, the environment and the economy. City policies should be pro-poor and accommodate newly urbanized communities and the urban poor. An approach accommodating new growth needs to ensure a city dynamic that is resilient and can adapt to changing local and global circumstances.

Maua town remains characterized by social stratification, and needs to integrate different income levels and create environments that provide a greater mix of land uses. The 'City' must therefore promote integrated settlement patterns in existing and new residential areas to accommodate Maua Town's growing population and to redress social and land use fragmentation. Recognizing that informal development will remain part of Maua Town's urban fabric for the foreseeable future, the 'City' must find ways of accommodating formal and informal development processes in a creative and positive way. The transformation of townships and informal settlements into integrated residential neighborhoods will not take place without a well-formulated plan of action supported by public investment. The 'City' must therefore prioritize incrementally improving the living conditions and sense of citizenship of the most marginalized residents of Maua Town, the homeless and the poorly housed. The availability and accessibility of basic services, social facilities and public open spaces to everyone from the cornerstone of an inclusive city. The 'City' needs to promote equal opportunities, improve the quality of living environments, and reduce crime.

4.1.4 The Economy

A lack of employment-generating opportunities, specifically in areas with large population concentrations, remains the key challenge to the city's economically active population. In order to address inequalities, the 'City' must promote inclusive, shared economic growth and development, support the informal economy, and improve people's access to economic opportunities and urban amenities. The 'City' must direct public investment towards and encourage private investment in marginalized areas, and focus on improving public transport systems. The 'City' must ensure that it remains competitive, and capitalizes existing and developing sectoral comparative advantages.

Spatial planning will have a limited impact on economic growth and development, unless the key drivers of growth are understood and land and infrastructure are made available to guide and support economic investment as well as to facilitate specialization desirable city locations.

The 'City' must adopt an integrated approach to land use planning, economic development and transport operations. It must align public transport service provision with a logical spatial structure, which is supportive of land use intensification and a concentration of economic and employment-generating land uses. The integration of land use and transport planning must be promoted, with one of the objectives being the identification and formation of activity nodes of varying intensities within transport corridors.

The development of regional infrastructure is critical in order to sustain the economy and enhance logistics and freight distribution. The 'City' must therefore support the rationalization, upgrade and development of road transport infrastructure. There is an urgent need for expansion

4.1.5 The Natural Environment

It is important that all forward spatial planning initiatives recognize that Maua Town's natural environment and the uniqueness and amenity that it offers are critical components of the cities competitive advantage and its service sector-based economy. The protection of the City's natural environment is therefore not purely a conservation effort, but also a way of ensuring continued investment in the city. To put Maua Town on a more sustainable growth path, the impacts of urban development on biodiversity and the city's natural and ecological services must be managed. New urban development should be directed towards locations

where its impact on critical biodiversity areas, water bodies and agricultural areas will be minimized. The value of maintaining well-functioning ecological systems must be recognized.

In order to reduce the City's unsustainable rate of land consumption, a more compact and efficient form of urban development must be promoted. The City must contain Maua Town's development footprint in order to protect natural, rural and heritage assets with development edges, and promote densification in appropriate locations, in order to encourage more sustainable use of resources, improve economies of scale, and increase thresholds required for public transport. The development of areas suited for urban development must be facilitated in order to avoid development in hazardous areas. The planning of new development areas in Maua Town should be informed by existing infrastructure capacity, as well as by the City's infrastructure planning.

4.1.6 Identifying spatial structuring elements

From the above mentioned conclusions it becomes clear that the 'City' will need to identify a long-term spatial structure within which it can formulate strategies and interventions to achieve a desired city form and function. Based on the analysis of key drivers of growth in Maua Town and their spatial implications, the following are considered to be the spatial structuring elements from which to plan a more sustainable city:

- Adopting an approach to urban growth that promotes a city that is resilient and adaptive;
- Recognizing that the City functions within a broader region;
- Protecting natural assets and biological diversity;
- Planning for a multidirectional accessibility grid that facilitates more equitable access to urban economic opportunities;
- Identifying areas of land use intensification that encourages the concentration of economic activities in more accessible locations;
- Putting in place urban growth informants that will manage the city's growth and form in a more sustainable and beneficial way; and
- Protecting and enhancing the city's collection of unique cultural landscapes and recreational assets, which face intense development pressure. These assets include major tourist destinations and some of the most sought-after environments in the country.

4.2 Long-Term Spatial Structure

The long-term metropolitan spatial structure envisioned for Maua is based on a system of interrelated structuring elements that have been developed to provide overall direction to the future spatial form, structure and development of the city. The identification and active promotion of structuring elements is fundamental to the implementation of Maua's 2035 vision and spatial development goals.

4.2.1 Resilience and adaptability

In the long term, Maua's sustainability and prosperity will be determined by the city's ability to respond to change – rapid urbanization, contrasting wealth and poverty, high unemployment, infrastructure and service backlogs, resource scarcity, energy and water supply constraints, and climate change. The spatial organization of Maua will therefore need to be resilient and adaptable, and the City will constantly have to balance competing agendas for the provision of basic needs, social services and utilities against the stimulation of economic development and employment, the management of city growth, and the protection of environmental resources and systems. New growth must be directed towards appropriate locations, and the spatial structure of the city must be flexible so as to adapt appropriately to market trends, such as shifts in the demand for industrial, commercial and residential property. Conversely, the market must be incentivized to respond to the spatial structuring elements and policy directives identified by the citizens. To maximize gains, while strategically protecting natural resources, this symbiotic relationship will need to be mutually beneficial. The City must therefore be simultaneously proactive and precautionary in the way it prepares for change and manages competing land use demands.

4.2.2 A city within a region

Maua should not become a sprawling conurbation that absorbs all the surrounding towns in its growth path in an unplanned and uncoordinated manner. It is important to understand that the future of Maua town and the futures of its neighbors are interdependent. The diverse identities, functions and growth opportunities of the towns and rural settlements surrounding Maua town must be preserved and their functional interrelationships recognized, respected and enhanced. Coordinated planning, budgeting and management of the region's infrastructural development and water, energy and biodiversity resources are critical. In addition, greater coordination is required to enhance the region's tourism assets, cultural and

natural character, and the economic positioning of the cities and towns in relation to each other as well as collectively, within a county, regional and national context.

4.2.3 Natural assets

Maua's natural assets and biological diversity are part of what makes the city a unique and desirable place in which to live, work and play. Because people derive benefits from the natural environment in a number of direct and indirect ways, natural assets play an important role in shaping where and how the city develops. The recreational functionality and functional integrity and connectivity of ecosystems must be improved, and an interlinking network of parks with foot paths should be established to facilitate easy movement of fauna and flora. Urban development must respect the presence, role and function of natural assets, and should make the most of the possible benefits residents and visitors can derive from them conceptually identifies the natural assets that merit protection in the longer term, and/or where the impacts of development need to be carefully managed. At a metropolitan level, natural assets include the following:

- Biodiversity conservation areas, ecological support areas, and other natural vegetation. These could include terrestrial as well as freshwater aquatic habitats, such as the city's extensive network of rivers and wetlands;
- High-potential and unique agricultural land, as well as areas of significant agricultural value;
- Sites and landscapes with scenic, recreation or place making qualities.

4.2.4 The multidirectional accessibility grid

Maua 'the City' must have a movement system that provides all residents and visitors with convenient and affordable access to the city's employment opportunities, resources and amenities. The movement system must be public transport-orientated and provide an equitable pattern of access, so that all people can reach a broadly similar range of opportunities and facilities in the city.

In order to establish a more equitable pattern of access, the grid system should be encouraged to develop into a hierarchical, multidirectional, open-ended, legible 'accessibility grid' to facilitate efficient multidirectional movement. This must occur on a citywide basis, between districts, and locally between suburbs.

The concept of an accessibility grid is guided by recognition that the need to travel is a derived demand and a function of the land use distribution that supports the grid. From a spatial planning perspective, transport routes are thus recognized primarily as conduits of economic opportunity, and secondly as movers of people, goods and services. The notion of accessibility is considered to be an overarching concept comprising of three interconnected functions, namely land use proximity, transport network connectivity, and system performance. The accessibility grid identifies routes – from a land use and public transport perspective – which are characterized by higher levels of accessibility (and hence a concentration of urban development and public transport services). In this conception, the competing objectives of accessibility and mobility must be balanced to ensure optimum system performance. Segments of the accessibility grid may therefore be more suited to performing mobility function rather than an accessibility function.

At a metropolitan scale, two route types (which are key elements of the primary accessibility grid) are identified:

- Activity routes: Activity routes are characterized by strip and/or nodal urban development along sections of the route. Activity routes are generally supported by a mix of land uses and higher density urban development. They are characterized direct access and interrupted movement flows, especially at bus and taxi stops and traffic lights.

- Development routes: Development routes have a greater mobility function than activity routes. Mixed land use and higher-density development tend to be nodal, with access provided at intersections and generally linked to parallel and connecting side routes. Development routes may include short stretches of activity route-type development.

4.2.5 Development corridors

Development corridors are broad areas of high-intensity urban development centered around activity and development routes. They are characterized by a dynamic, mutually supporting relationship between land use and the supporting movement system. Development corridors are generally supported by a hierarchy of transport services that function as an integrated system to facilitate ease of movement for private and public transport users. Corridor development is focused predominantly on activity / development routes serviced by mass rapid public transport services (i.e. bus rapid transport (BRT)); however, the system of routes may serve different functions, with some routes combining route functionality in terms of accessibility and mobility.

The concentration of intense bands of high-density urban development reduces overall trip lengths and improves access to opportunities, offering a means of conveniently integrating communities with service provision, and fulfilling a range of economic and social needs. Development corridors attract different levels and types of private investment, which generate different types of formal and informal economic and social opportunities. The areas of intensification are usually characterized by strip or nodal development located within development corridors on activity routes.

4.2.6 Urban nodes

Urban nodes are characterized by the intensity, mix and clustering of activities or land uses (including commercial and business development and associated employment opportunities and higher-order services) at points of maximum accessibility, exposure, convenience and urban opportunity.

Urban nodes are identified as areas within the city suitable for further land use intensification, clustering and reinforcing economic land uses, public services and high-density residential development. The generative capacity of an urban node is generally a function of the mix of land uses that it supports and its position in the accessibility grid. The role and function of urban nodes are differentiated in terms of scale (metropolitan, sub metropolitan, district, local) based upon its structural position within the accessibility grid and the intensity and mix of land use it supports.

4.2.7 Civic precincts

Social facilities and public institutions should be clustered in civic precincts, at points of highest accessibility (the intersections of the grid). The hierarchy of the civic precincts will be determined by the hierarchy of the accessibility grid. The civic precinct should be a focus of public investment, and will create opportunities for private-sector investment in commercial, mixed-use and higher-density residential development. From a spatial structuring perspective, civic precincts will therefore be closely associated with urban nodes

4.3 Development Models

4.3.1 Introduction

The structure plan discussed in this chapter is the overarching plan for the town. It indicates the preferred direction of urban growth and the location of different land uses. The proposal for a new structure plan aims at addressing the problems listed in the previous chapters.

The structure plan delineates Maua town into broad land use zones. The zones are the preferred boundaries for those land uses. The zones are further broken down in the detailed land use plan. The land use plan is the basis for land use regulations which ensure that development takes place within the confines of this desired model.

The plan identified various alternative planning models which can be applied to enable the attainment of the set goals and objectives. The models include:

1. Linear/Ribbon Model
2. Dispersed Model
3. Densification Model
4. Zero Option Model
5. Hybrid model

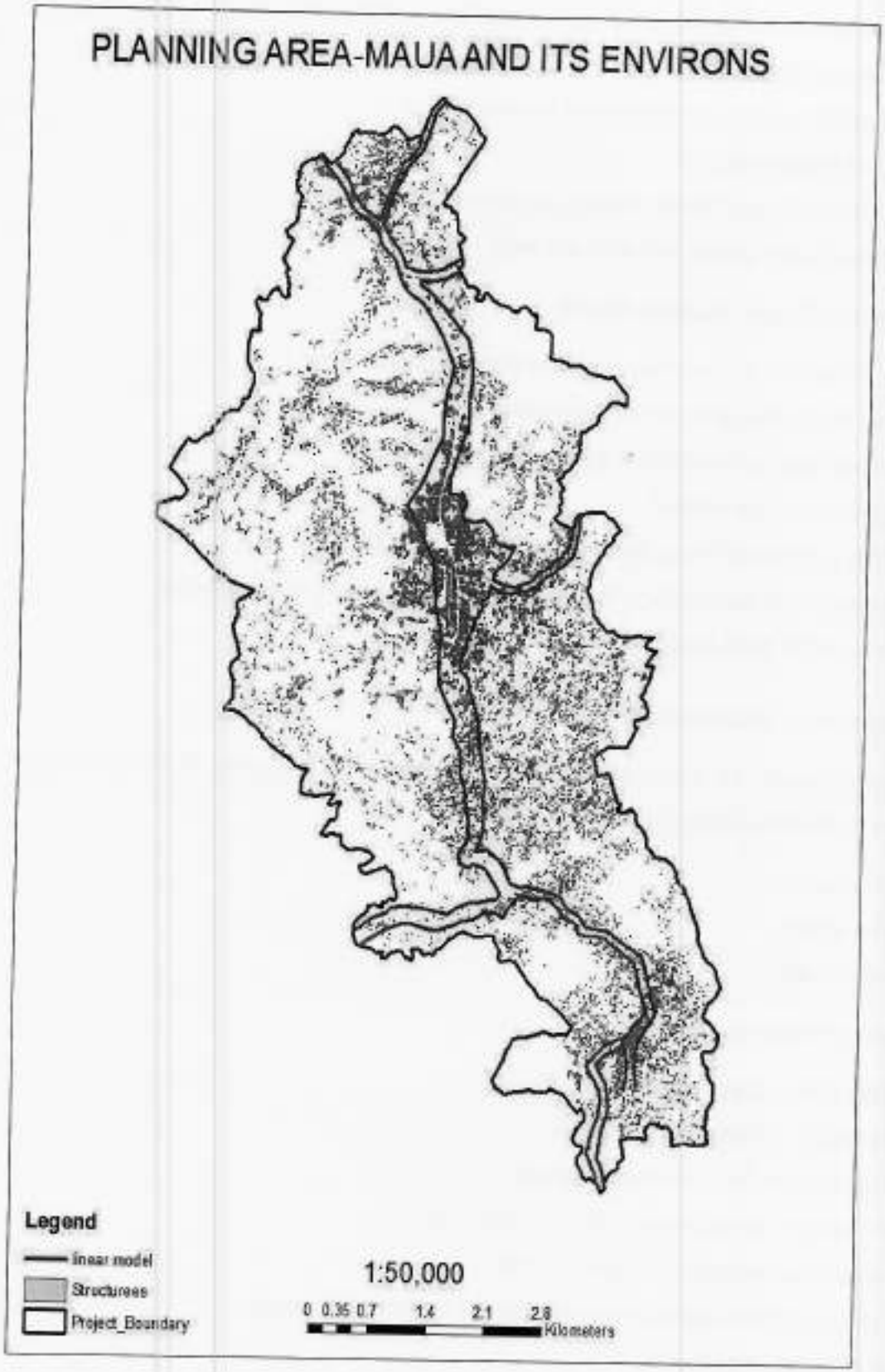
In developing the structure plan, the existing land use situation was carefully examined. The development trends and challenges were all taken into consideration. Five growth scenarios were presented as alternative growth patterns for Maua town. Each is presented in the pages that follow. After further analysis of the pros and cons of each model, one was chosen as the best fit development model for Maua town.

4.3.2 Alternative I: Linear/ Ribbon Model

In these form of planning, the growth and development in Maua and its environs could be encouraged along the transportation routes, terminals, corridors and trucks. Within the planning area such routes includes;

- Maua-Mailitatu-Meru road
- Maua-Njoune road
- Mailitatu-Laare road
- Maua-Mikinduri road
- Maua -Kimongoro road
- Maua-Athiru Gaiti road.

Map 3 Linear Growth Model



Advantages of Linear/Ribbon Model

- Minimizes urban expansion on agricultural and riparian areas.
- Mixes land uses.
- Minimizes movement within local neighborhoods
- Easy to merge and plan.
- Easy installation of utilities along the main corridor.
- Relatively easy access to individual plots.

Disadvantages of Linear/Ribbon Model

- Crowding/congestion along the main transportation routes.
- Some mixed land use may create conflict.
- Increases movement along the main street.
- Encourages urban sprawl.
- Traffic congestion along the main spine of transport.
- Poor access to the periphery hence the inefficiency of the development.
- Restricted to plain landscapes.

2.3.3 Alternative 2: Dispersed Model

The dispersed model of planning encourages growth within/adjacent to the designated commercial nodes and centers. The nodes include;

- Urban centers
- Rural centers
- Market centers

Advantages of Dispersed Model

- Reduces overcrowding within the town.
- Distributes development benefits.
- Reduces the effect of concrete jungle.
- Encourages growth of secondary centers of growth.
- Focuses development around the nodes.
- Reduces encroachment on agricultural and conservation areas.
- Reduces congestion.
- Promotes equitable growth of a given area.

- Discourages or breaks primacy.

Disadvantages of Dispersed Model

- High cost of infrastructure and services.
- Reduces spatial competitiveness.
- Encourages sporadic growth.
- High chances of conflicts due to overlapping boundaries and duplication of duties.
- Increases travelling distances between centers
- Different rates of development due to different priorities.
- May cause unequal development in a given region.

NAVI MUMBAI – DESIGN PRINCIPLES

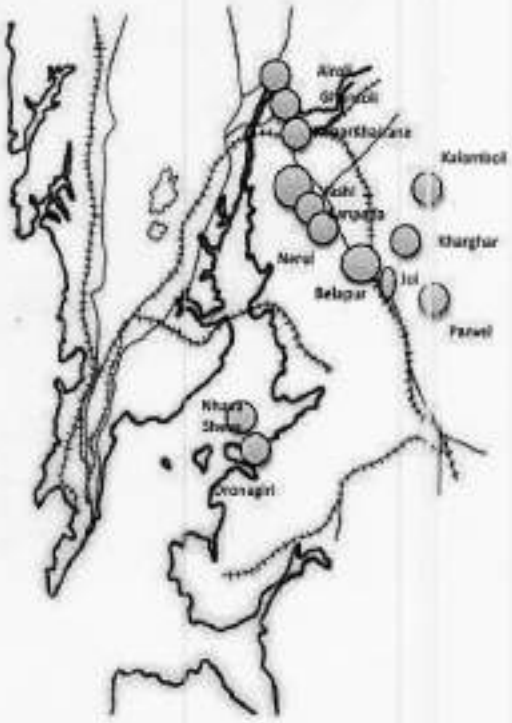
- The conceptual design of Navi Mumbai was developed at a height of modernism

- The principles were
  - Decentralization by the design of self sufficient townships (nodes).
  - Residential neighborhoods (sectors)
  - Single use zoning as opposed to traditional multiple use zoning.

- The total area of Navi Mumbai was divided into three townships. Each township has several sectors. Many were residential in nature.

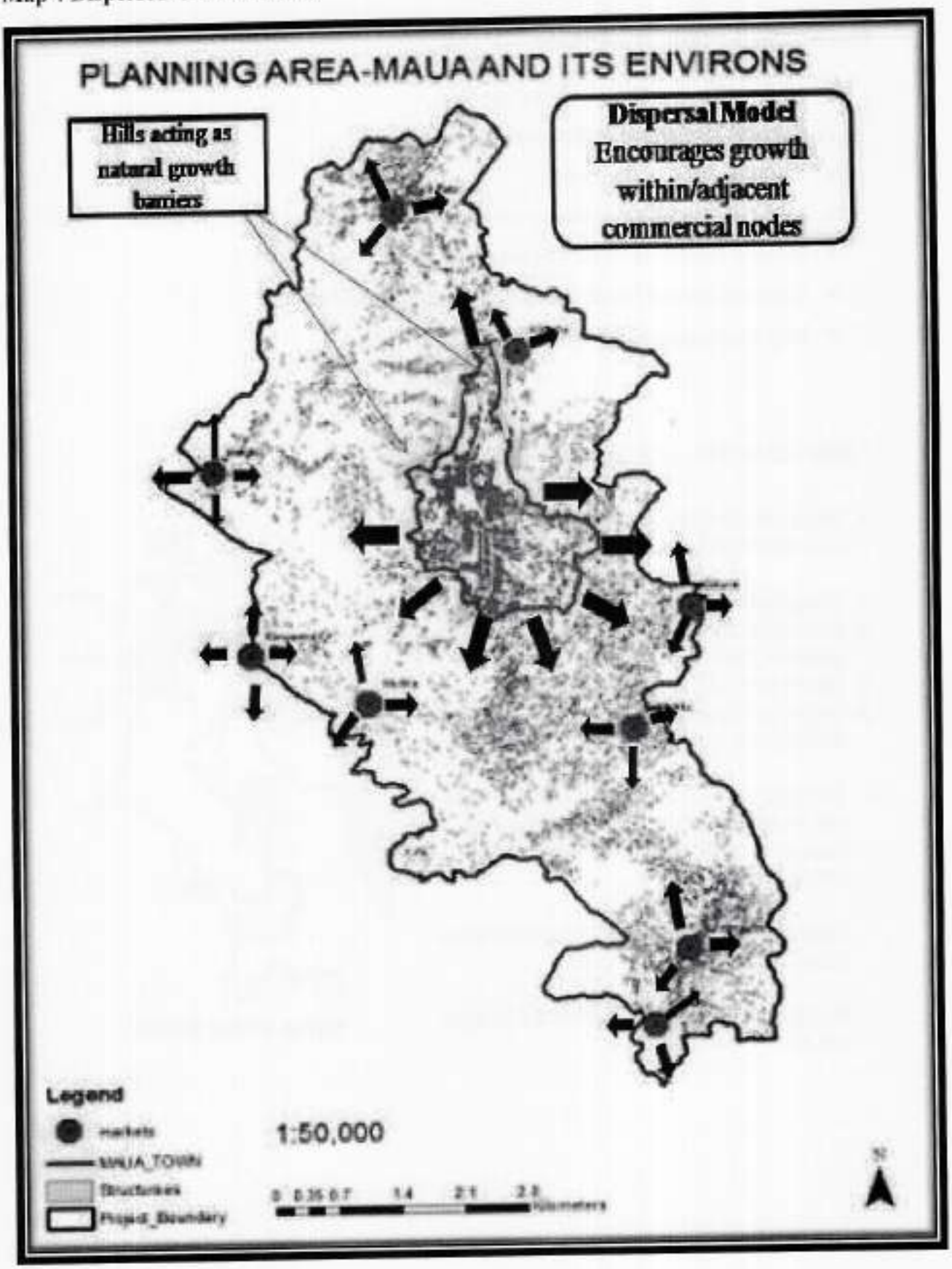
- Each node was planned to accommodate a range of some income groups.

- Ponds were created to accumulate excess run off.



Nodes of Navi Mumbai

Map 4 Dispersed Growth Model



4.3.4 Alternative 3: Densification Model

Freezes any further expansion of urban areas and renew/ redesign what is already urban. It will prevent the acquisition of land in the periphery or rural land which lies outside the urban boundary.

Advantages of densification Model

- Will contain further loss of agricultural land.
- Create compact urban growth.
- Contains urban sprawl.
- Minimizes movements.
- Contain urban growth on existing areas.
- Intensifying developments.
- Renewal/redevelopment strategies.

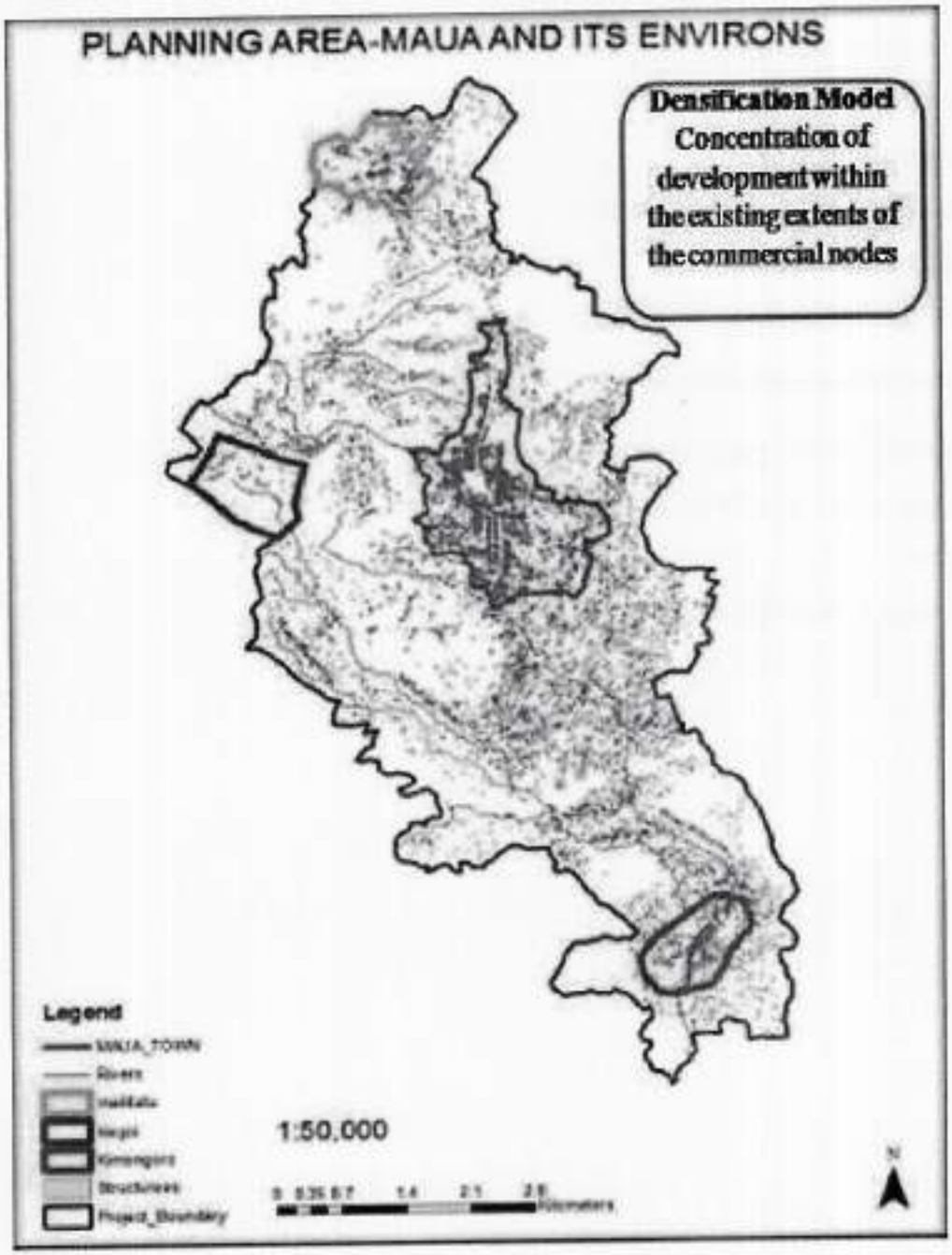
Disadvantages of Densification Model

- High cost of redevelopment of infrastructure.
- High social cost of demolition/movements.
- Unpopular.
- Will not lead to desirable separation of land use.

4.3.5 Alternative 4: Zero Models

This model will allows growth without any regulatory planning intervention. For instance Maua town will be left to take its own form and pattern without planning interventions. This could also be the default model which could dominate in the event that planning interventions are not enforced effectively.

Map 5 Densification Model



Advantages of Zero Models

- Maximizes individual choice/freedom.
- Maximizes reduction of movement.
- No resistance to change.
- No demolition of existing developments i.e. buildings.

Disadvantages of Zero Model

- Increase land use conflicts.
- Reduces spatial order.
- Lacks mechanism to provide land for public amenities.
- Loss of property values.
- Lacks popular consensus.
- Encourages sporadic growth.
- Encourages haphazard growth with negative social and economic impacts.
- Lack adequate infrastructure and community facilities.
- Alarming urban sprawl onto ecologically fragile area.
- Overexploitation of natural resources such as water, land, forests and minerals.
- Solid waste generation goes beyond the county's capacity to properly manage and dispose.
- The traffic generated outweighs the capacity of the roads.
- Poor quality housing with more slum dwellings mushrooming in the centers (informal settlement).
- Wasteful competition for resources.
- Low quality of life/loss of property value and standard of living.
- High cost of living.
- Perpetual encroachment of existing riparian reserves-road.

4.3.6 Alternative 5: Hybrid Model [Optional Model]

This is a strategy that combines aspects of the above four models. Key considerations for the model are;

- Existing developments protect further sub division of agricultural land
- Conservation of forest and other environmentally fragile areas
- More flexible

- Encourage external and internal competition

Advantages of Hybrid Model

- Recognizes the importance of urban growth as key to development as enshrined in vision 2030
- Recognizes the importance of agriculture
- Discourage car use and transport-related pollution; they can help lower greenhouse gas (GHG) emissions
- Environment conservation
- Energy efficiency for the delivery of key public services (e.g., pump costs for water, fuel costs for garbage collection)
- Lower cost of development of infrastructure and services
- Protection of public land/forest
- Need to make Maua town externally and internally competitive

Disadvantages of Hybrid Model

These existing disadvantages are to be mitigated by the interventions from the proposed plan.

In conclusion, the consultant adopted the hybrid model approach which combines aspects of the various models. This is upon recognition of the need to formulate clear interventions which recognizing the extents of existing developments. The overriding influence of the various structuring elements which significantly dictates the urban form requires adoption of more pragmatic model which can duly be obtained through the hybridization. The structure plan proposed below therefore reflects the planning proposals that borrow from variety of the planning models discussed above.

CHAPTER 5
THE STRUCTURE PLAN

5.0 OVERVIEW

The Integrated Strategic Urban Development Plan for Maua and its environs deals with existing and proposed land use, population density, etc within the agreed planning area. It has been prepared after analyzing the existing situation of land use, environmental sensitivity, regional setting, linkages, and provision of services among others.

5.1 STRUCTURE ELEMENT

The preparation of the structure plan involves the formulation of the long term strategy to guide the development of the town. This reviews analysis that will guide the formulation of land use planning proposals.

All the proposals which have been made under the various land uses have been put forward on the land most suitable for urban use as can be seen in the urban suitability. The structure plan taken into consideration the structuring elements, slope analysis, settlement pattern, land tenure, environmental concerns, protection of agricultural land, urban and non-urban land availability, planning vision and the existing land use.

The land use proposal has been grouped in the standard categories. The zones are originally broad. The structure plan proposes seven major broad land uses and they consists; High density residential, Medium density residential, Low density residential, Industrial, Commercial, Agricultural, and recreational / conservation. The plan shows the form, shape, urban development limits, trends and pattern in developments that Maua town will take

The Maua CBD still remains the major commercial area. High density residential areas are closer to the main commercial zones and the medium density ones right after them. Some of the medium density residential areas border the agricultural zones in order to ensure least disturbance and less potential for encroachment into agricultural land.

Low density residential zones are in Luluma and Makiri areas. These are areas with high potential agricultural areas and the plan seeks to minimize subdivision of that land.

The structure plan was further elaborated into a detailed land use plan. The purpose of this plan is to guide the day to day implementation of the structure plan. From this land use plan, development regulations are set out for each zone. These regulations will enable the county

government to evaluate development applications with a view to ensuring development adhere to the envisioned plan.

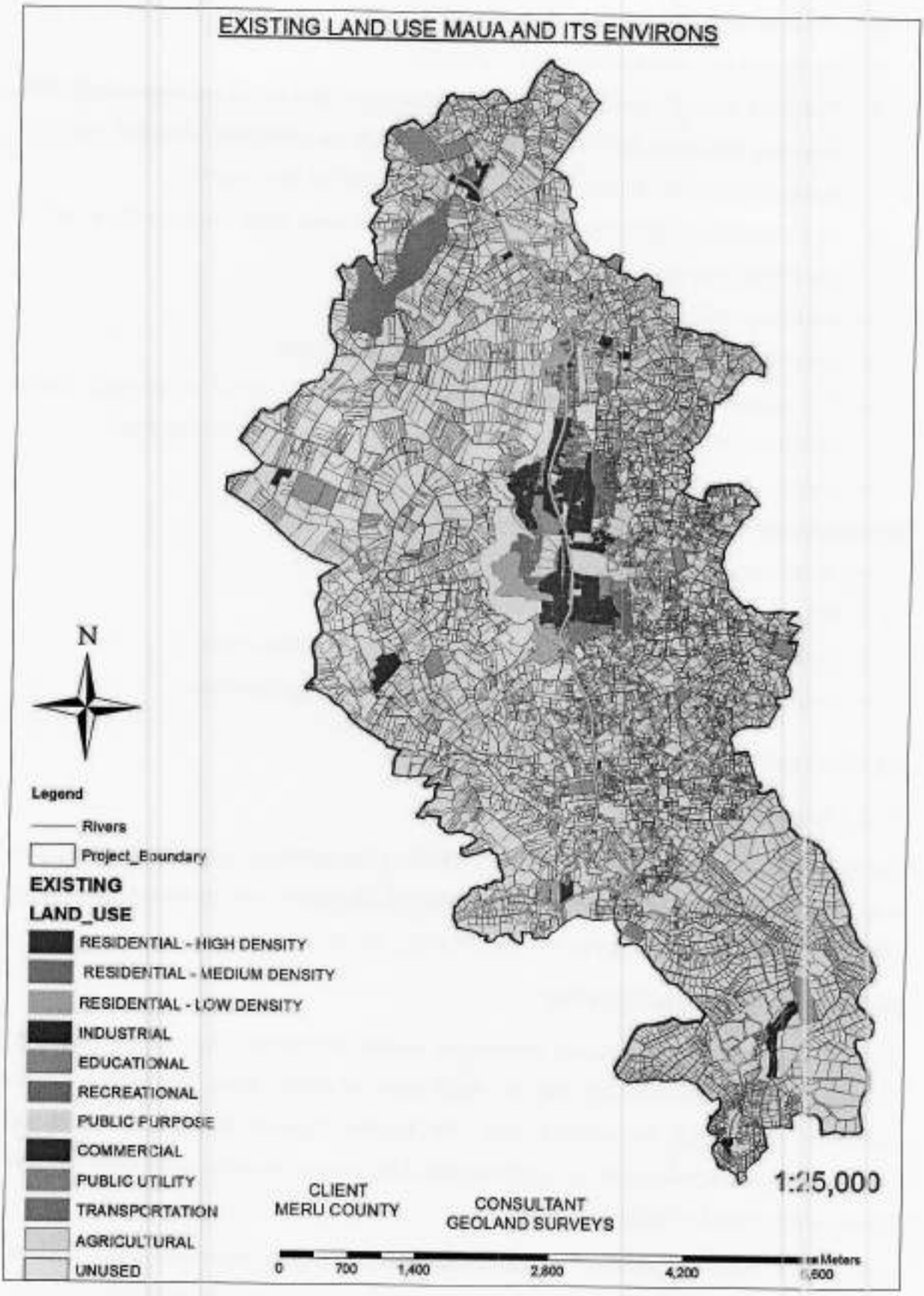
5.1.1 Existing land use within the planning area

The planning area of Maua town and its environs is an approximate 37km^2. Out of this total area, the largest use is agriculture (80.9%), followed by residential (8.7%), transportation (1.7%), educational (2.4%), public purpose (1.8%), public utility (%), water body (%), industrial (%) and recreational/conservation (%), unused land (0.1%). It should be noted that majority of the area within planning area is under agriculture.

Table 12 Existing Land Uses

No	Land Use	Area (Ha)	Percentage area
0	Residential	320	8.7
1	Industrial	30	0.8
2	Educational	86	2.4
3	Recreational/conservation	48	1.3
4	Public purpose	66	1.8
5	Commercial	60	1.6
6	Public utility	24	0.6
7	Transportation	64	1.7
8	Unused land	4	0.1
9	Agricultural	2978	80.9
TOTAL		**3680**	**100**

Map 6: Existing Land Use



Issues/ Observations

- The majority of land is under agriculture use
- Haphazard and unplanned growth of the town
- There is a lack of hierarchy of commercial spaces. Most of the commercial activities including wholesale and retail are concentrated in the CBD area. Beyond the CBD, commercial activities appear to have developed without any planning
- In the peripheral areas dominated by agricultural uses, there seems to be a lack of development control
- Inadequate equipment for the survey process
- Limited personnel for surveying, planning and enforcement
- The infrastructure services and amenities have not been provided in a planned manner and the spatial distribution of these facilities does not meet the current needs.
- Subdivision of land to uneconomical sizes

Recommendations

- Roads need to be widened
- Sensitization of the public on planning is necessary
- Put more emphasis on the land use zoning and development control
- Improving the capacity of the land and physical planning department

5.1.2 Proposed Land Use Plan of the Planning Area

5.1.2.1 Residential

The residential area is proposed to occupy 11.44% of the planning. Currently the residential areas are spread all over within Maua town. With a suitable policy and convenient procedures, the existing residential areas have considerable scope for re-densification.

High Density Residential Land Use

They are located close to the main commercial centers; the Maua CBD, Annex, Iriene and Kaciongo areas. Since these are also the major areas of employment, this is a convenient residential location for the working class. The location reduces the need for travel and contributes to the development of a compact city. This zone is expected to accommodate the low income segment of society.

Land close to town is also more expensive and scarce. It is thus imperative that it is put to optimum use. Building high density residential units covers this need. As urban population is

expected to increase, infill development and redevelopment of pockets of low and medium density housing is recommended.

Medium Density Residential Land Use

It covers parts of Makiri, adjacent to Kilalai and after Maua stadium. These are housing areas that are expected to house the middle class.

The zones are between the high density residential areas and the agricultural land use zone. This follows the current trend of development of residential developments within those areas. Since the area was previously agricultural the densities are not high. However, there is need to limit the spread of such developments and to protect agricultural land. A boundary has thus been set to prevent overspill of this land use into agricultural land. The details of that zoning are contained in the land use regulations.

Low Density Residential Land Use

The location of these zones is next to the agricultural zones. Areas include Luluma and outlying areas of market centers and along Kiegoi – Maua Road. It is expected that any developments next to the agricultural area should be least disruptive and discourage encroachment. The population densities in these areas are thus lower and plot sizes are bigger.

Also since this area is expected to accommodate the high income bracket, the plot sizes have been increased in order to accommodate requirements such as extra parking and guest houses. It is also away from the town centre and provides the serene environment conducive for low density residential areas. The distance from the town centre is rational for the high income bracket since most of them own private vehicles. Even so, the detailed land use shows pockets of commercial nodes which ensure that primary goods are easily accessed.

Table 13: Proposed Land Use

Use		Land In Ha	% Of Total Area
Residential	High Density Residential	53.97	1.43
	Medium Density Residential	107.24	2.85
	Low Density Residential	158.1	4.21
Industrial		22.55	0.6
Educational		101.44	2.7
Recreational		136.73	3.64
Public Purpose		54.45	1.45
Commercial		62.13	1.65
Public Utilities		1.60	0.6
Transportation		166.53	0.04
Conservation		65.78	1.75
Agricultural		2826.91	75.22
Total		**3758**	**100**

5.1.2.2 Industrial Land Use

Maua town has limited land for industrial use. This zone is located adjacent to the public works and Maua market. Other industrial zones comprise include the tea and coffee pulping factories which are spread out in the coffee and tea growing areas. The good agricultural base of Miraa, coffee, tea, bananas, etc. will be helpful in developing the new industries and strengthening existing industries.

The proposed Industrial land use consists of 28.8Ha mostly agricultural industries. An Industrial Park Approximately 6.5 Acres of land has been proposed to be set up at Maua area next to the proposed recreational park due to its flat terrain. The existing industrial area (0.8 acres) is to be retained, and is proposed for *Jua Kali* activities. In addition 4 acres has been proposed at Antubochiu for Miraa packaging and warehouse. Moreover 2 acres proposed at Maili Tatu for Miraa packaging and warehousing.

5.1.2.3 Educational land use

The current area under educational facilities in the planning area is 86 Ha of the total developed area and for the planning period an area of 101.2 Ha has been proposed. All the educational facilities are planned on private land, which will require compensation or compulsory land acquisition.

5.1.2.4 Recreational

The plan sets different areas to be used for recreational purposes. The main recreational area will be the 'Maua Basin', Maua stadium, Mailitatu Sports ground, existing open green spaces in the CBD, two recreation areas in Kimongoro along River Urra, more recreational areas to be provided by the riparian buffer along the rivers in the planning area.

According to Physical Planning Handbook (2012), open space requirements for a population of 10,000 is 1ha for a density of 50 persons per ha is to be provided. The plan also proposes some part of the stadium which is used for parking of construction equipment to be converted into a public square and that equipment moved to the industrial park.

Maua recreational park approximate 10 ha has been proposed at the current Maua Basin, Recreational parks at Kimongoro between Urra and Mboone rivers. Redevelopment of Maua stadium and Maili Tatu to accommodate more recreational activities. Open spaces are to be provided within residential neighborhoods.

5.1.2.5 Public purpose

Public purpose includes community facilities like hospitals, social halls, libraries, post offices, security, religious facilities, banks, government offices among others. The plan has proposed 2.1% area for public purpose. The share of area under public purpose facilities has been increased for future considering Maua town as a commercial base in the northern part of Kenya.

Approximately 76.1 ha are required for public purpose such as health facilities, Sub-county Hall, police station, Library, religious facilities. The development of land for public purposes is to be intertwined within the residential and commercial developments. Existing administrative centers at Maua town, Kanuni and Kiegoi are to be maintained. It is proposed that the public purpose at Maua town centre is to be vertically densified to accommodate the Sub-county functions. The plan proposes a social hall where we have a cattle dip (unused)

next to youth empowerment centre. The plan proposes establishment of library at Maua primary school.

5.1.2.6 Commercial Land Use

The main commercial zone within the planning area is located within the Maua Town. The centrality of the old town and the level of infrastructural development have led to it continued dominance as the main commercial area.

There are also minor commercial centers at other places. These centers have grown around markets. The markets within the planning area are; Maili Tatu, Kithetu, Kimongoro, Kiegoi Antubochiu, Kinyanka, Kanuni, Mulika and Red Canteen. These centers ensure that goods and services are conveniently accessible to the hinterland areas.

The current commercial area along some parts of the Maua town especially Kaciongo emerged without any significant planning guidance. As a result it is quite congested and poorly developed. Existing developments directly adjoin the major roads without any provision for service lanes. The commercial developments are mainly found in the front rows while the rest are residential. There is therefore limited room for expansion.

Currently, there are businesses licensed to operate in Maua. Majority of these are retail shops, cafes, boutiques, medical, clinics, hard wares, salons, wines-spirits-cigarette etc. The main commercial area includes the current CBD. High rise commercial developments are expected to dominate in these areas for optimum use of the space.

The main development constraints facing the commercial sector include lack of a formal market, proliferation of informal markets, absence of service lanes, uncontrolled hawking and lack of well-defined commercial areas. The emergence of the commercial sector is one of the most noticeable developments in Maua town. It is proposed also to set up modern market next to public works office and an expanded commercial zone to cater for the demand for commercial activities at this centre.

5.1.2.7 Public utilities land use

The proportion of public utilities caters for 0.6% of the planning area so that adequate land can be provided to serve the town with infrastructure and services in future. Approximately 20.5 ha are required for public facilities such as water treatment works, cattle dips, and waste collection points. A fire station is proposed at Maua town next to Maua Girls.

5.1.2.8 Transportation

There is inadequate area in the town for roads and transport facilities. The share of transportation facilities has not kept pace with the development in town.. The broad transportation proposals for parking, transport terminals, bus/Matatu station, truck terminal, new roads, streets and lanes and expansion of existing ones have been proposed in the plan. Approximately 69.6 Ha of the planning area will be dedicated for transport networks. The plan proposes widening of roads to a minimum of 9m in width and service lanes of 6m. The plan proposes bus parks at Kathima, Kimongoro Makiri coffee factory and a lorry parking site at Maili Tatu.

5.1.2.9 Deferred/Unused Land

Currently there is minimal land lying unused as most of the undeveloped land area has been planned to be consumed for various other uses. The existing Makiri dumpsite needs to be fully decommissioned and deferred for future use.

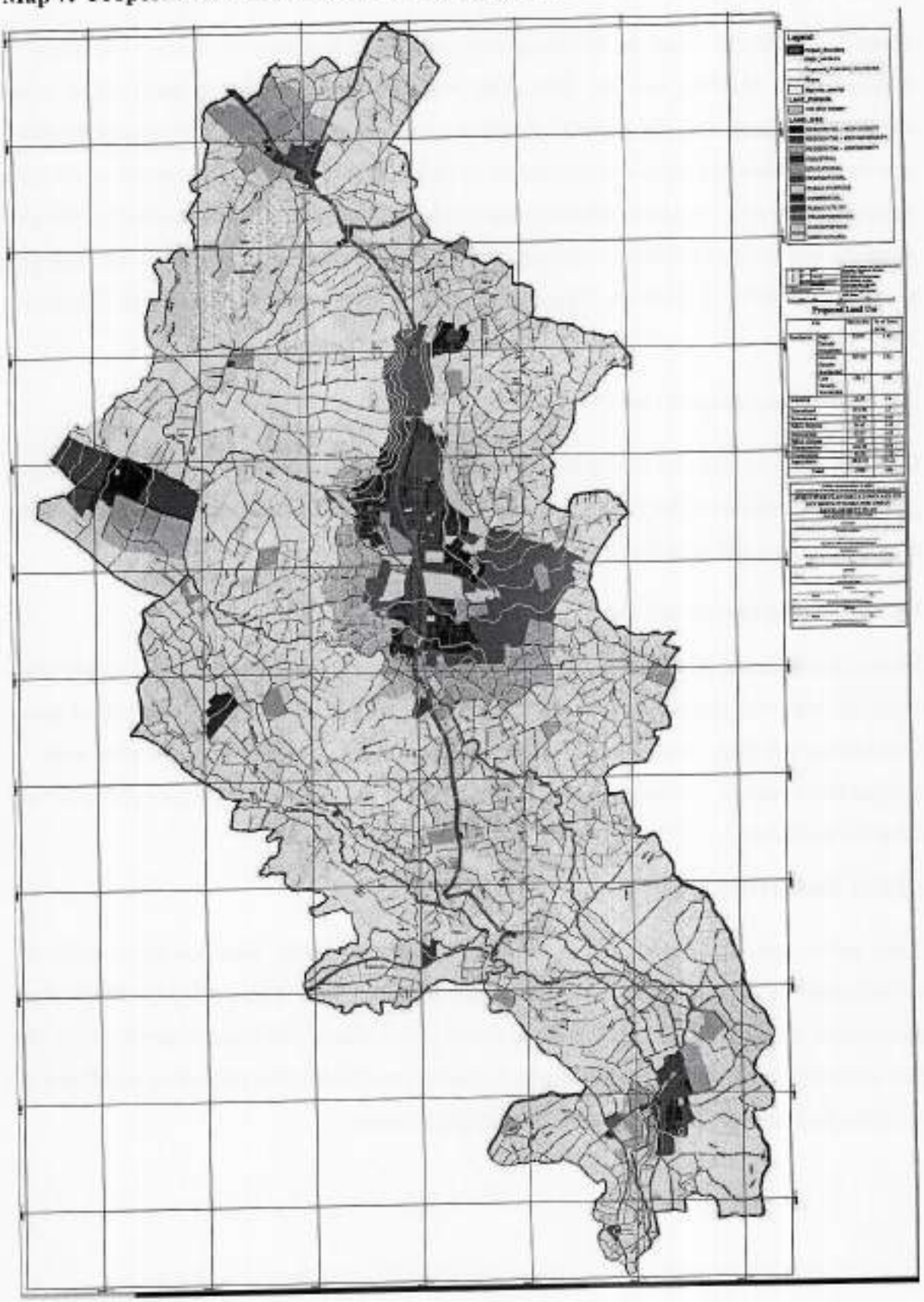
5.1.2.10 Agricultural Land Use

Most of the planning area is under agriculture. These areas are now threatened by urbanization due to the high rate of subdivision and the establishment of residential areas within these areas. Considering the high agricultural potential of the planning area, the structure plan seeks to safeguard the land by instituting regulations that ensure minimal subdivision or change of use of agricultural land.

5.1.2.11 Conservation Land Use

There are no gazzeted forests within the planning area. However, there are areas which are environmentally fragile and conservation efforts have been proposed and those areas demarcated. These areas are mostly along rivers and wetlands, hills and water sources. The plan also proposes protection of hill tops and riparian reserves conservation areas and therefore no urban development should occur within or at those areas.

Map 7: Proposed Structure Plan of the Planning Area



5.2 DETAILED LAND USE PLAN FOR MAUA TOWN

The detailed land use plan is an elaboration of the Maua town. Each of the zones presented have unique development regulations that will guide in implementation of the plan. The regulations have details such as density, minimum plot size, allowable developments, plot ratio, plot coverage and other relevant details per zone.

5.2.1 Land Use Proposals

The Physical Planning Handbook provides guidelines for determining the allocation of land for various uses.

In formulating a structure plan, a review of the existing developments was undertaken. It was observed that Maua generally has no distinct land use that can clearly be demarcated. This is attributed to the lack of any previous physical planning that would have defined clear land use zones. Existing land use was grouped into planning categories namely residential, industrial, educational, conservation, public purposes, commercial, recreational, transportation and agricultural. Analysis of the existing land use pattern helped inform the formulation of the proposed broad land uses.

All the proposals which have been made under the various land uses have been put forward on the land most suitable for urban use. The land use proposal was worked out taking into consideration the structuring elements, analysis of the existing physical characteristics, slope, infrastructural provisions as well as the logical directions of urban growth within Maua town.

Maua town is the main commercial zone within the planning, though the CBD is primarily commercial, there are several other land uses within it. The interaction of these land uses can produce conflicts if they are not well thought out in location. The centrality of the old town and the level of infrastructural development have led to it continued dominance as the main commercial area.

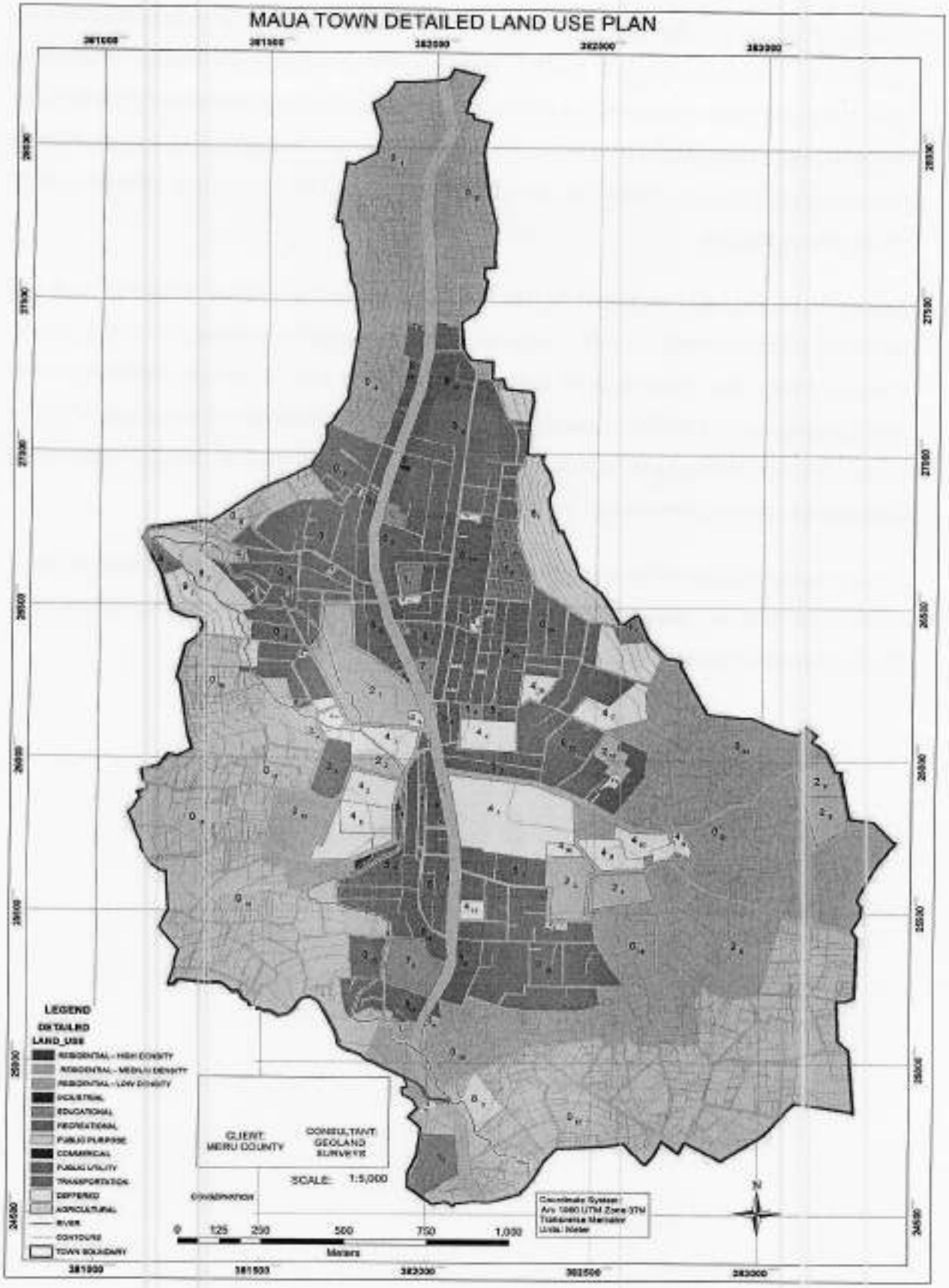
The Maua town plan was developed to further detail out the land uses and give development guidelines to ensure the livability and sustainability of the town. The Maua town has been divided into various zones, each with its own development guidelines. If the guidelines are adhered to, urban decay and other social ills associated with deterioration of the urban landscape can be prevented.

The problems necessitating the detailed consideration of Maua detailed plan are;

- Uncontrolled development and activities- hawking on the streets, garages on the road reserves, wanton subdivisions
- Congestion
- Encroachment of roads and road reserves.
- Lack of non-motorized transport facilities.
- Poor liquid and solid waste management
- Environmental degradation and encroachment into riparian reserves
- Lack of utilities – cemetery, social hall, library
- Inadequate infrastructure and services – recreational zones, housing

Each of the zones within the CBD has been assigned specific development guidelines. These guidelines will ensure that land use conflicts are avoided and that each use is catered for sufficiently in terms of land allocation. They will also guide the county government in plan approval and development control. The proposed land use plan for the town is as shown in the plan below showing the location of the zones and the land use within. The table that follows presents the land use regulations for that area.

MAP 8: Maua Town Detailed Land Use



5.3 ZONING PLANS

The built environment, the type, location and intensity of existing land use defines the character of the town. Understanding how much land is presently devoted to residential, commercial, open space and other uses as well as the locations of vacant and undeveloped properties is an important step in developing a vision for the future. The town's zoning and land use regulations are its central tools for controlling its array of land uses. These controls influence future development patterns.

Zoning regulations are motivated by the need to regulate the location of commercial and industrial activities. Zoning is often used to maintain the distinctive character of a town or city. For residential areas, whereas some could argue that there may be adverse concerns of such zoning in relation to possible economic segregation, the consequences of not zoning would be juxtaposition of incongruent land use in a town like Maua. Therefore, zoning endeavors to achieve harmonious, pleasant and compatible development in our town.

Zoning regulations should be subject to periodic review depending on dynamic changes and levels of services and demand for various uses of land. The proposed zoning regulations for Maua town are presented in the table below.

Table 14: Maua Town Land Use Regulation

RESIDENTIAL								
Zone	Area description	Use	Density	Minimum Plot size	Types of Developments Allowed	Coverage Plot (%)	Plot Ratio	No. of floors
0_{1-1}	Adjacent to com,mercial zone along Maua –Meru Road	Residential	High	0.03ha	Flats & apartments	75 %	525%	7
0_{1-2}	Along the road to Mboone water treatment plant	Residential	High	0.03ha	Flats & apartments	75 %	525%	7
0_{1-3}	Behind Maua Girls	Residential	High	0.03ha	Flats and Apartments	75 %	525%	7
0_{1-4}	Around proposed bus park at Makiri	Residential	High	0.03ha	Flats & Apartments	75%	525%	7
0_{1-5}	Behind KPLC offices at Makiri	Residential	High	0.03ha	Flats & Apartments	75%	525%	7
0_{1-6}	Behind public works grounds	Residential	High	0.03ha	Flats & Apartments	75%	525%	7
0_{1-7}	Around Maua Level IV hospital	Residential	High	0.03ha	Flats & apartments	75%	525%	7
0_{2-1}	Along Maua-Meru Road at Kariene area	Residential	Medium	0.05ha	Maisonnettes, Bungalows,	50%	200%	4
0_{2-2}	Along Maua-Kiegoi Road	Residential	Medium	0.05 Ha	Maisonnettes & bungalows,	50%	100%	2
0_{2-3}	Luluma area along Athiru Gaiti road	Residential	Medium	0.05Ha	Flats & apartments	65%	390%	6
0_{2-4}	Kilalai area	Residential	Medium	0.05 ha	Flats & apartments	65%	260%	4
0_{2-5}	Kilalai area	Residential	Medium	0.05 ha	Flats & apartments	65%	260%	4
0_{2-6}	Ministry of livestock housing	Residential	Medium	0.05ha	Flats & apartments	65%	260%	4
0_{2-7}	Along Maua-Meru road-Kariene area	Residential	Medium	0.05 ha	Flats and Apartments	65%	390%	6
0_{3-1}	Along the Road to Mboone treatment plant	Residential	Low	0.1 ha	Maisonnettes, bungalows	50%	100%	2
0_{3-2}	Behind Maua stadium	Residential	Low	0.1ha	Maisonnettes, bungalows	50%	100%	2
0_{3-3}	Along Maua-Kiegoi road behind Ikweta Country Inn	Residential	Low	0.1 ha	Maisonnettes, bungalows	50%	100%	2
0_{3-4}	Makiri-Luluma area	Residential	Low	0.1	Maisonnettes, Bungalows,	50%	100%	2

INDUSTRIAL							
Zone	Area description	Use	Types of Developments Allowed	Minimum plot size	Plot coverage	Plot ratio	No of floors
I_1	Smart services filling station	Inoffensive light industry	Filling station and associated facilities	0.004Ha	50%	-	N/A
I_2	Kenol filling station	Industrial	Filling station and associated facilities	0.5Ha	75%	-	N/A
I_3	Central Filling Station	Inoffensive light industry	Filling station and associated facilities	0.04Ha	75%	-	N/A
I_4	Makiri Slaughter House	Inoffensive light industry	Godowns, Cold Rooms Warehouses	2.0Ha	75%	-	N/A
I_5	Existing Jua Kali Site	Inoffensive light industry	Workshops, Carpentry Fabricating	0.2Ha	75%	-	N/A
I_6	Juacali site	Inoffensive light industry	Workshops, Carpentry Fabricating	0.3Ha		-	N/A
I_7	Oilibya Filling station	Inoffensive light industry	Filling station and associated facilities	0.1Ha		-	N/A
I_8	Kaciongo TBC	Inoffensive light industry	Tea Buying	0.04Ha		-	N/A
I_9	Maua NCPB	Inoffensive light industry	Godowns, Warehouses	0.6Ha		-	N/A
I_{10}	Proposed Jua Kali Site	Inoffensive light industry	Workshops, Carpentry Fabricating	0.03Ha		-	N/A
I_{10}				0.4Ha		-	N/A

EDUCATIONAL							
Zone no.	Area description	Use	Minimum plot size	Types of Developments Allowed	Plot coverage	Plot ratio	No of floors
2_1	Kariene Nursery	Educational	0.3Ha	Multistorey buildings	10%	30%	N/A

2_2	Bridge International School	Educational	0.2Ha	Multistorey buildings	10%	30%	NA
2_3	Matunda Education Centre + EAPC Church	Educational	0.09Ha	Multistorey buildings	10%	30%	
2_4	Maua Girls	Educational	6.24Ha	Multistorey buildings	10%	30%	N/A
2_5	Morning Joy Academy	Educational	0.04Ha	Multistorey buildings	10%	30%	N/A
2_6	Hepta School	Educational	0.16Ha	Multistorey buildings	10%	30%	N/A
2_7	Fr Soldati Teachers College	Educational	0.82Ha	Multistorey buildings	10%	30%	N/A
2_8		Educational	0.12Ha	Multistorey buildings	10%	30%	N/A
2_9	Nyambene Hills Boarding School	Educational	0.23Ha	Multistorey buildings	10%	30%	N/A
2_{10}	Josirenes High School	Educational	0.04Ha	Multistorey buildings	10%	30%	N/A
2_{11}	Victorian Academy	Educational	0.19Ha	Multistorey buildings	10%	30%	N/A
2_{12}	Maua Primary	Educational	2.85Ha	Multistorey buildings	10%	30%	N/A
2_{13}	Maua Youth Polytechnic	Educational	1.82Ha	Multistorey buildings	10%	30%	N/A
2_{14}	Kilalai Secondary School	Educational	1.54Ha	Multistorey buildings	10%	30%	NA
2_{15}	Kilalai Primary	Educational	1.27Ha	Multistorey buildings	10%	30%	NA
2_{16}	MCK Maua School	Educational	0.91Ha	Multistorey buildings	10%	30%	NA

RECREATIONAL /CONSERVATION

Zone	Area description	Use	Minimum plot size	Types of Developments Allowed	Plot coverage	Plot ratio	No of floors
3_1	Proposed recreational area along R.Mboone	Recreational	N/A	Hotels, Lake, public park	N/A	N/A	N/A
3_2	Recreational area adjacent to Kenol Filling station	Recreational	N/A	Public park	N/A	N/A	N/A
3_3	Maua Stadium	Recreational	1.38Ha	Public park	N/A	N/A	N/A
3_4	Proposed square	Recreational	0.23Ha	Public park	N/A	N/A	N/A
3_5	Recreational Park along R.Mboone next to County offices	Recreational	N/A	Public park	N/A	N/A	N/A

3_6	Maua Central Park	Recreational	N/A	Public park	N/A	N/A	N/A
3_7	Swamp Maua Town	Recreational	N/A	Public park	N/A	N/A	N/A
PUBLIC PURPOSE							
Zone	**Area description**	**Use**	**Minimum plot size**	**Types of Developments Allowed**	**Plot coverage**	**Plot ratio**	**No of floors**
4_1	Existing church	Public purpose	0.03Ha	Church	N/A	N/A	N/A
4_2	Existing church	Public purpose	0.03Ha	Church	N/A	N/A	N/A
4_3	Nyambene Maternity Nursing Home	Public purpose	0.03Ha	Nursing Home	N/A	N/A	N/A
4_4	Kawiria Maternity Nursing Home	Public purpose	0.03Ha	Nursing Home	N/A	N/A	N/A
4_5	King of Kings Worship Centre	Public purpose	0.07Ha	Church	N/A	N/A	N/A
4_6	N/A	Public purpose	0.22Ha	N/A	N/A	N/A	N/A
4_7	Presbyterian Church	Public purpose	0.45Ha	Church	N/A	N/A	N/A
4_8	N/A	Public purpose	0.13Ha	N/A	N/A	N/A	N/A
4_9	N/A	Public purpose	0.20Ha	N/A	N/A	N/A	N/A
4_{10}	Maua Catholic Church	Public purpose	1.92Ha	Church	N/A	N/A	N/A
4_{11}	Maua EAPC Church	Public purpose	N/A	Church	N/A	N/A	N/A
4_{12}	Interior and Devolution Ministry	Public purpose	1.48Ha	Church	N/A	N/A	N/A
4_{13}	Public Offices: Land Registry, Adjudication Settlement, Tana Water Service Board etc.	Public purpose	1.47Ha	Public Offices	N/A	N/A	N/A
4_{14}	Public offices	Public purpose	4.37Ha	Public Offices	N/A	N/A	N/A
4_{15}	IEBC Igembe South	Public purpose	0.22Ha	N/A	N/A	N/A	N/A
4_{16}	Fountain Church	Public purpose	0.05Ha	Church	N/A	N/A	N/A

	International						
417	Bread of Life Church	Public purpose	0.05Ha	Church	N/A	N/A	N/A
418	Assistant Chief's Office Maua	Public purpose	0.39Ha	Public Offices	N/A	N/A	N/A
419	Kenya Power Office	Public purpose	0.46Ha	N/A	N/A	N/A	N/A
420	Maua Methodist Hospital	Public purpose	7.8Ha	Hospital	N/A	N/A	N/A
421	Proposed Library	Public purpose	0.40Ha	Library	N/A	N/A	N/A
422	Maua County Offices	Public purpose	1.29Ha	Public Offices	N/A	N/A	N/A
423	District Education Office	Public purpose	1.03Ha	Public Offices	N/A	N/A	N/A
424	International Pentecostal Church	Public purpose	0.30Ha	Church	N/A	N/A	N/A
425	Cattle Dip Karimantiiri	Public purpose	0.30Ha	Public Utility	N/A	N/A	N/A
426	Global Vision Church Maua	Public purpose	0.03 Ha	Church	N/A	N/A	N/A
427	Redeemed Gospel Church Maua	Public purpose	0.19Ha	Church	N/A	N/A	N/A
428	Public Works Maua	Public purpose	1.63Ha		N/A	N/A	N/A
429	KAG Church	Public purpose	0.02Ha	Church	N/A	N/A	N/A
430	Maua Level 5	Public purpose	4.66Ha	Hospital	N/A	N/A	N/A
431	Maua ACK Medical Centre	Public purpose	0.69Ha	Medical Centre	N/A	N/A	N/A
432	Maua Level 5	Public purpose	4.66Ha	Hospital	N/A	N/A	N/A
433	Gospel Revival Centre	Public purpose	0.02Ha	Church	N/A	N/A	N/A
434	Gospel Celebration Church	Public purpose	0.05Ha	Church	N/A	N/A	N/A
435	Holy Trinity Power Deliverance Church	Public purpose	0.05Ha	Church	N/A	N/A	N/A
436	TBC Kachiongo	Public purpose	0.16Ha		N/A	N/A	N/A
437	Excellent Glory Centre	Public purpose	0.04Ha	Church	N/A	N/A	N/A
438	Abundant Life Ministries	Public purpose	0.02Ha	Church	N/A	N/A	N/A

4_{39}	LR C Church Maua	Public purpose	0.16Ha	Church	N/A	N/A	N/A
4_{40}	New Hope Ministries	Public purpose	0.16Ha	Church	N/A	N/A	N/A
4_{41}	Life Ministries	Public purpose	0.21Ha	Church	N/A	N/A	N/A
COMMERCIAL							
Zone	Area description	Use	Minimum plot Size	Types of Development Allowed	Plot coverage	Plot ratio	No of floors
5_1	Existing commercial zone along Maua –Meru road	Commercial	0.03Ha	Flats, Flats, offices and institutions	75%	-	Multiple
5_2	Existing commercial zoen opposite the existing bus park	Commercial	0.03Ha	NA	75%	-	Multiple
5_3	Existing CBD	Commercial	0.03ha	Flats	75%	-	Multiple
5_4	Existing CBD	Commercial	0.03Ha	Flats	75%	-	Multiple
5_5	Opposite IEBC offices along Maua-Kiegoi road	Commercial	0.03Ha	Flats	75%	-	6
5_6	Along Maua-Mikinduri road at Makiri	Commercial	0.03Ha	Flats	75%	-	Multiple
5_7	Along Maua-Mikinduri road at Makiri	Commercial	0.03Ha	Flats	75%	-	Multiple
5_8	Between KPLC offices and Maua Methodist Hospital	Commercial	0.03Ha	Flat	75%	-	Multiple
5_9	Opposite Maua MCK Church along Athiru Gaiti road	Commercial	0.03Ha	Flats	75%	-	Multiple
5_{10}	Adjacent to Oil Libya petrol station	Mixed development	0.03Ha	Flats	75%	-	Multiple
5_{11}	Maua Public(Open air)Market	Mixed development	0.03Ha	Flats	75%	-	Multiple
5_{12}	Along the road to Maua Level IV Hopsital	Mixed development	0.03Ha	Flats	75%	-	Multiple
5_{13}	Next to Maua Level IV Hospital	Mixed development	0.03Ha	Flats	75%	-	Multiple
5_{14}	Next to NCPB	Mixed development	0.03Ha	Flats	75%	-	Multiple
5_{15}	Next to the proposed	Mixed development	0.03Ha	Flats	75%	-	Multiple

	recreational and industrial parks						
5_{16}	Along Maua-Meru road next to the proposed recreational park	Mixed development	0.03Ha	Flats	75%	-	Multiple
	Maili Tatu	Mixed development	0.025ha	-	75%	-	-
	Kiegoi	Mixed development	0.025ha	-	75%	-	-
	Kithetu	Mixed development	0.025ha	-	75%	-	-
	Kimongoro	Mixed development	0.025ha	-	75%	-	-
	Kanuni	Mixed development	0.025ha	-	75%	-	-
	Antubochiu	Mixed development	0.025ha	-	75%	-	-
PUBLIC UTILITIES							
Zone	Area description	Use	Minimum plot size	Types of Developments Allowed	Plot coverage	Plot ratio	No of floors
6_1	Tana Water Service Mboone Treatment Centre	Public utility	0.26Ha	N/A	N/A	N/A	N/A
6_2	Maua Fire Rescue Substation	Public utility	0.24Ha	N/A	N/A	N/A	N/A
6_3	Waste Transfer Station	Public utility	0.04Ha	N/A	N/A	N/A	N/A
6_4	Telecomm Mast	Public utility	0.04Ha	N/A	N/A	N/A	N/A
TRANSPORTATION							
7_1	Proposed Kariene bus park	Transportation		N/A	N/A	N/A	N/A
7_2	Proposed Parking(existing buspark)	Transportation		N/A	Proposed car parking	N/A	N/A
7_3	Parking space	Transportation		N/A	Petrol station	N/A	N/A
7_4	Prposposed bus park (Existing Makiri Coffee Factory)	Transportation		N/A	Petrol station	N/A	N/A
7_5	Meru – Maua Rd	Transportation		N/A	Petrol station	N/A	N/A
7_6	Kenol Filling Station	Transportation		N/A	Petrol station	N/A	N/A
7_7	Oil Libya Filling Station	Transportation		N/A	Petrol station	N/A	N/A
7_8	Planet Filling Station	Transportation		N/A	Petrol station	N/A	N/A
7_9	Smart Service Filling Station	Transportation		N/A	Petrol station	N/A	N/A

CONSERVATION							
8_1	Existing wetland around Iriene	Conservation	0.1Ha	Conservation	N/A	N/A	N/A
8_2	Former dumpsite in disuse	Conservation	N/A	Conservation	N/A	N/A	N/A
8_3	Along Maua-Kithetu Road	Conservation	N/A	N/A	N/A	N/A	N/A
8_4	Makiri Dumpsite	Conservation	N/A	N/A	N/A	N/A	N/A
8_5	River Mboone Riparian Reserve	Conservation	N/A	Riparian Reserve	N/A	N/A	N/A
AGRICULTURAL							
9_1	Adjacent toMboone Treatment Works	Agricultural	N/A	N/A	N/A	N/A	N/A

5.4 Proposed interventions Maua town

5.4.1 Commercial Activities

Maua town has limited land to accommodate expected growth for commercial activities. The plan proposes to convert from residential to commercial the following areas:-Parts of Iriene and Kaciongo, Area adjacent to Maua Primary (Friends Corner). The plan further proposes to densify those areas to modern multi-storey structures to accommodate more activities. The plan proposes development and densification of vacant plots to multi-storey structures in the core area to meet the demand for commercial facilities.

The existing markets next to stage and opposite Maua Methodist are small and not well utilized. Most of the trading activities take place in open air markets with inadequate amenities. Due to informal commercial activities the plan takes into consideration of expansion and redevelopment of stage market and open air Market adjacent to Public works into multi-storey modern market to accommodate more commercial activities and ease congestion within the CBD. The existing Jua Kali industrial area need to be redeveloped into a modern multi-storey SME park to accommodate some light industrial activities like clothing, furniture workshops. An Industrial Park has been proposed to be set up at Iriene to cater for light industrial activities such as garages and metal works. The multistory modern markets have been done in some parts of the country such as Gatundu and Kongowea and can form a basic benchmark and model for the proposed ones in Maua town.

Figure 9: Modern Market Models

Kongowea Modern Market

Gatundu Modern Market

5.4.2 Non-Motorized Transport (NMT)

Maua is a compact town currently marred by conflicts between motorized and NMT. These problems will be rectified by creating pedestrian segments along major routes: - Along Meru – Maua road those passing through the CBD. Internal roads of the existing CBD area will be redesigned to incorporate pedestrian friendly features, which include creative paving, landscaping with shade trees and flower beds, shaded colonnades with shops and restaurants, ramps for easy access for the physically challenged. Amenities for pedestrians will be provided including ample shaded seating, drinking water points, street lights and poles, dust bins etc.

Figure 10: NMT Models

5.4.3 Drainage and Sewerage

Drainage is a major issue here due location of Maua town. Drainage in the CBD flows to River Mboone. There are natural drainage networks which need to be developed and protected, and the ones following the development of mainly roads and natural surface runoff courses.

There is need therefore to provide storm water drainage as natural drainage network and along all the roads. Maintenance of drains should be carried out regularly and given the importance it deserves. In the short and medium term a sewerage treatment works at Tumutumu has been proposed.

5.4.4 Bus park

There is congestion of vehicles in the central business district due to the inefficient utilization of the stage by the Matatu operators. There is a public toilet facility at one side of the stage and is functional. The lighting system in the matatus also not adequate. The stage is in fairly good condition only requiring urgent routine maintenance.

The current Matatu stage is inadequate in the immediate term and can decongest town. There is need for the county to develop another bus park at Makiri Coffee Factory to develop bus parks integrated with commercial activities and preserve the existing stage for taxi operator.

5.4.5 Recreational/Aesthetics measures

- Provide for street furniture at Mboone river park and central park
- Green all streets in the town
- Redevelop the Maua Stadium to international standards
- Waterfront development.
- Improve and increase Street Lighting coverage the Entire CBD and in all residential neighborhoods.

CHAPTER 6

ACTION AREA PLANS

6.0 Overview

An action area plan is an action oriented plan for a specific area within the planning boundary. The main objective is to provide details of road networks, facilities to be provided, measures to be taken for implementation, etc. Such plans provide the overall framework for the sustainable, phased and planned development of specific areas where significant regeneration or investment is needed to be planned and managed. Such plans address the specific challenges and issues of an area and specify the required land uses in particular locations and identify key strategic interventions for short and long terms. In the Planning Area, four areas have been selected which include; Kithetu, Kimongoro, Maili Tatu and Kiegoi.

The existing centers of Kithetu, Kimongoro, Maili Tatu and Kiegoi should be allowed to grow just as Maua town grows; instead of allowing Maua town to grow outwards alone.

6.1 KITHETU ACTION PLAN

Kithetu is on the eastern side of Maua town. It lies on the eastern hill of the town. The section of Kithetu covered by this plan is located approximately 2 Km from Maua town CBD. The center lies in the Amwathi/Maua Land Registration section which is partly registered.

6.1.1 Previous planning efforts

An attempt to plan the center was done in by the defunct Nyambene County Council. The output was a layout of Kithetu market and the surrounding freehold land. The market had 30 plots of plot Sizes 20*80 together with a market and public land. However, the layout is not comprehensive as the dimensions of the road and details on land uses are not clearly defined. The layout has no information in terms of a planning report, scale and the year when it was drawn.

6.1.2 Existing land uses

Kithetu market hosts a few shops and cafes. The market is not active as it should be. Efforts should be put in place to bring activities to the market to make it active. There is a nearby primary and secondary school. The area is predominantly agricultural with Miraa being the main crop. Further away there are crops such as potatoes.

Challenges

- ✓ The terrain of getting to Kithetu from Maua town is quite steep.
- ✓ Its proximity to Maua town makes it less attractive for business.

Opportunities

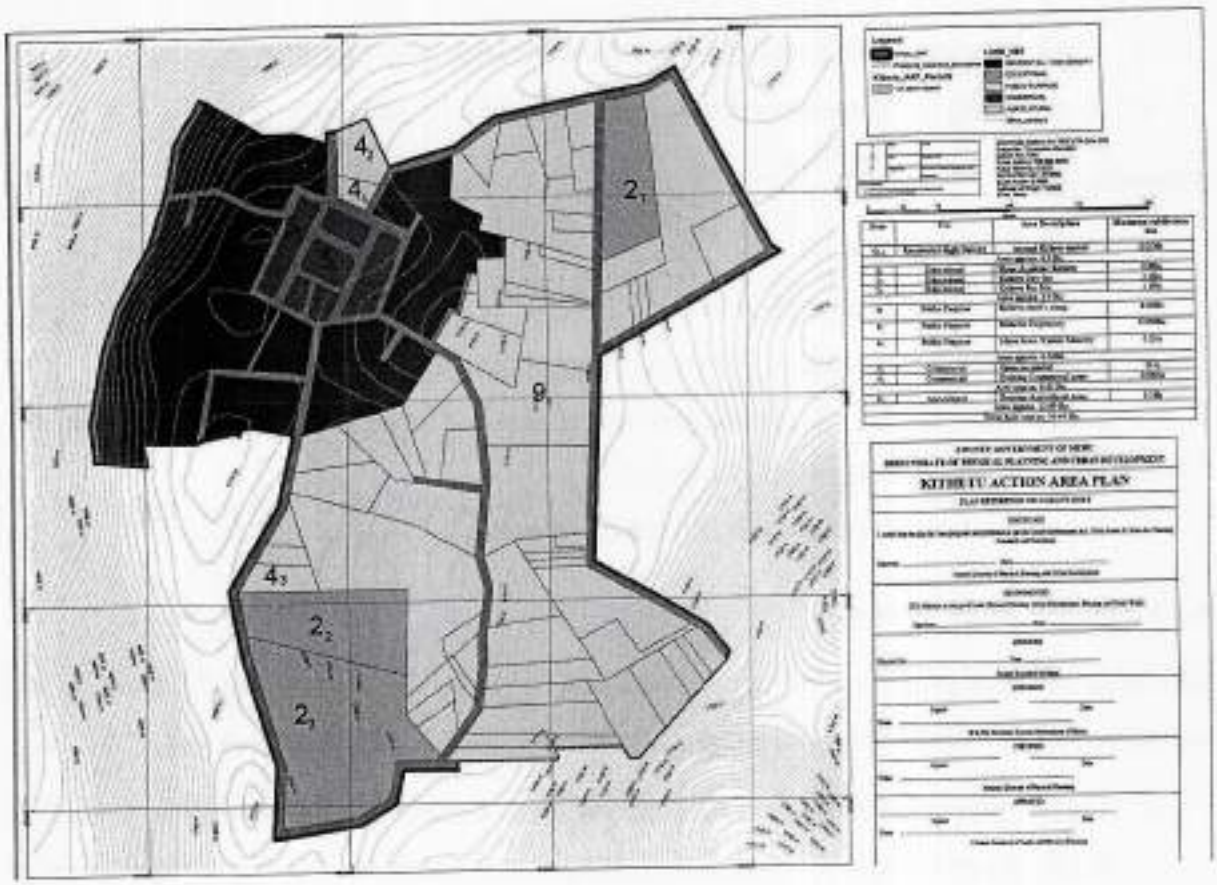
- ✓ Proximity to Maua town
- ✓ Kithetu has a planned market
- ✓ It lies on the eastern hill of the town. This area has been proposed for animal auctioning markets. The area is near Maua town and as such can serve as an auxiliary market for uses that are land intensive.
- ✓ There is a nearby primary and secondary schools.

6.1.3 Strategies and Measures

This area has been proposed for animal auctioning market. The area is near Maua town and can serve as an auxiliary market for uses that are incompatible with a modern city.

- ✓ Expand the commercial land uses for the area. Kithetu is a dull market as it is. This might be attributed to it being so near Maua town. Therefore; there is an urgent need to make it more vibrant. This can be achieved by moving some of the activities to Kithetu from Maua town such as livestock auctioning and residential high density houses around the commercial area.
- ✓ Landscape the hills heading to Kithetu as they will be facing the 'Maua Basin'. This will create wonderful scenery for both residents and tourists.
- ✓ Allowing development of high density residential units around the market
- ✓ Set up water supply network
- ✓ Landscaping of the hills
- ✓ Improve the existing Kithetu market with requisite facilities
- ✓ Improve the commercial activities
- ✓ Delineating land for an open space in Kithetu
- ✓ Complete the construction of Kithetu dispensary
- ✓ Extend water reticulation to cover Kithetu market
- ✓ Upgrading of Kithetu Maua road to bitumen standards
- ✓ Provide a flood light in Kithetu

MAP 9: KITHETU ACTION PLAN



6.2 KIEGOI ACTION PLAN

Kiegoi market is located 4.5 km from Maua Township and is sandwiched between Kinyanka and Kiegoi hills. Administratively, the town is situated in Antubochiu/Kiegoi Ward, Igembe South Sub County. The center lacks a physical development plan to inform developments. However, like most centers in the area, layout plans of the markets were done by the defunct Nyambene Municipal Council.

6.2.1 Previous planning efforts

The market had been sub-divided into 22 plots surrounding the open air market. The layout has no recommendations on the road extents and permitted land uses. The Centre fall under Kiegoi/Kinyanka Land Registration Section.

The layout has no information in terms of a planning report and the year when it was drawn. It also shows the location of each plot and the key roads without specifying land uses.

6.2.2 Existing land uses

The market hosts a few shops, cafes and pubs. There are two primary schools, one secondary school, a chief's camp, a health center and a university campus. The area neighbors extensive tea plantations to the west which are adjacent to Nyambene forest.

This area is predominantly agricultural with the main crops being tea and horticulture with little shrubs of Miraa.The growth of Kiegoi market has been happening on the surrounding freehold land.

The extent of this action area plan has been proposed to be 0.35km^2.

Challenges

- The area looks deserted and void of activities
- The state of roads leading to the market is poor. These make people living in nearby areas prefer to access services in Maua town rather than Kiegoi trading center.

Opportunities

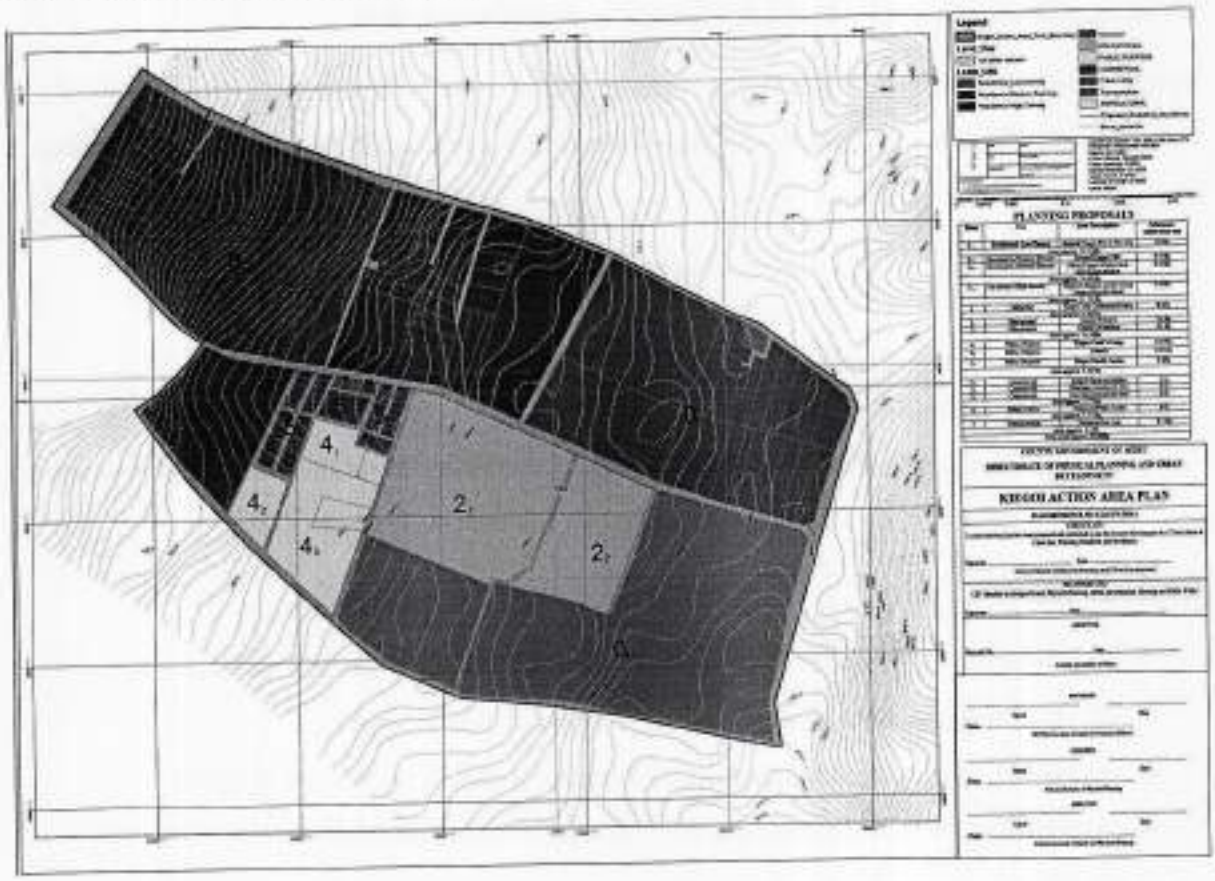
- Availability of different modes of transport to the area- taxis and motor bikes
- Good climate to support agriculture in the surrounding areas
- Availability of social amenities such as schools, health center, local center
- Availability of basic infrastructure – electricity, telecommunication network and water
- Kiegoi Tea factory is near the market and may act as pull factor of development and activity

6.2.3 Strategies and Measures

- Upgrading of Kiegoi - Maua road to bitumen standards
- Promote institutional development in the area such as the university campus
- To make Igembe Campus a fully-fledged public university by the year 2030
- Construct drainage channels along the roads
- Gravel all access roads in the planning area.
- Expand the existing milk coolant plant
- Redevelop the existing Kiegoi Market for agricultural products

- Demarcate land for an open space

MAP 10: KIEGOI ACTION PLAN



6.3 KIMONGORO ACTION PLAN

Kimongoro is located about 6.5 km from Maua town along Maua – Kanuni road in Kanuni Ward, Igembe South Sub-County. It is named after one of the local residents by the name Kimongoro who was working as a revenue collection officer. The center began in the early 1970s after Kimongoro built a small shop to serve the locals. It has now grown to accommodate several commercial shops, hotels, schools, a health center, administrative offices and religious institutions.

The centre lies in the Amung'enti A Land Adjudicatioon section.There have never been planning efforts for this center.

6.3.1 Previous planning efforts

There have been few planning efforts by authorities in Kimongoro. These efforts have not been consistent or enforced. There were access and service lanes delineated but have since been encroached or closed.

6.3.2 Existing land uses

Kimongoro is growing in a linear model along transport routes. Most activities and developments are along the major transport routes of Kimongoro.

Kimongoro hosts several land uses among them schools, commercial buildings residential buildings, religious institutions, public offices, health center among other social amenities. However, one significant outlier is that it lacks a public open air market.

Challenges

- Lack of a public market
- The area lacks recreational facilities
- The area lacks a terminus and parking facilities
- Land in Kimongoro is freehold and thus difficult to regulate

Opportunities

- Availability of many and diverse social amenities
- The area can be accessed through a Tarmac road from Maua Town

6.3.4 Strategies and Measures

Kimongoro market is proposed as residential cum commercial town

Commercial Land Use

- Improve and densify the existing commercial area
- Restrict urban development outside the Kimongoro action plan (Kanuni/Tumutumu junction)

Residential Land Use

- A mix of low, medium and high density residential land uses has been proposed in Kimongoro

Roads and Transportation

- Acquire land to widen roads
- Open up access roads and service lanes within the area.
- Gravel all access roads in the planning area.
- Demarcation of roads, access and service lanes

Local Economic Development Actions

- Acquire land and develop a recreational park between river Urra and Mboone and at River Urra and maintain riparian of 10m for the River. -
- Acquire land and develop a market near Igembe Boys approximately 1.0 Ha of land near Igembe boys. The proposed irrigation of 450 acres in Kanuni will boost the activity of the market
- Acquire and develop a bus park next to Akachiu Health Center - The proposed location is on 1.5Ha of land near the Akachiu Health Center. The location is prime since it is surrounded by roads. It will also serve as a car park

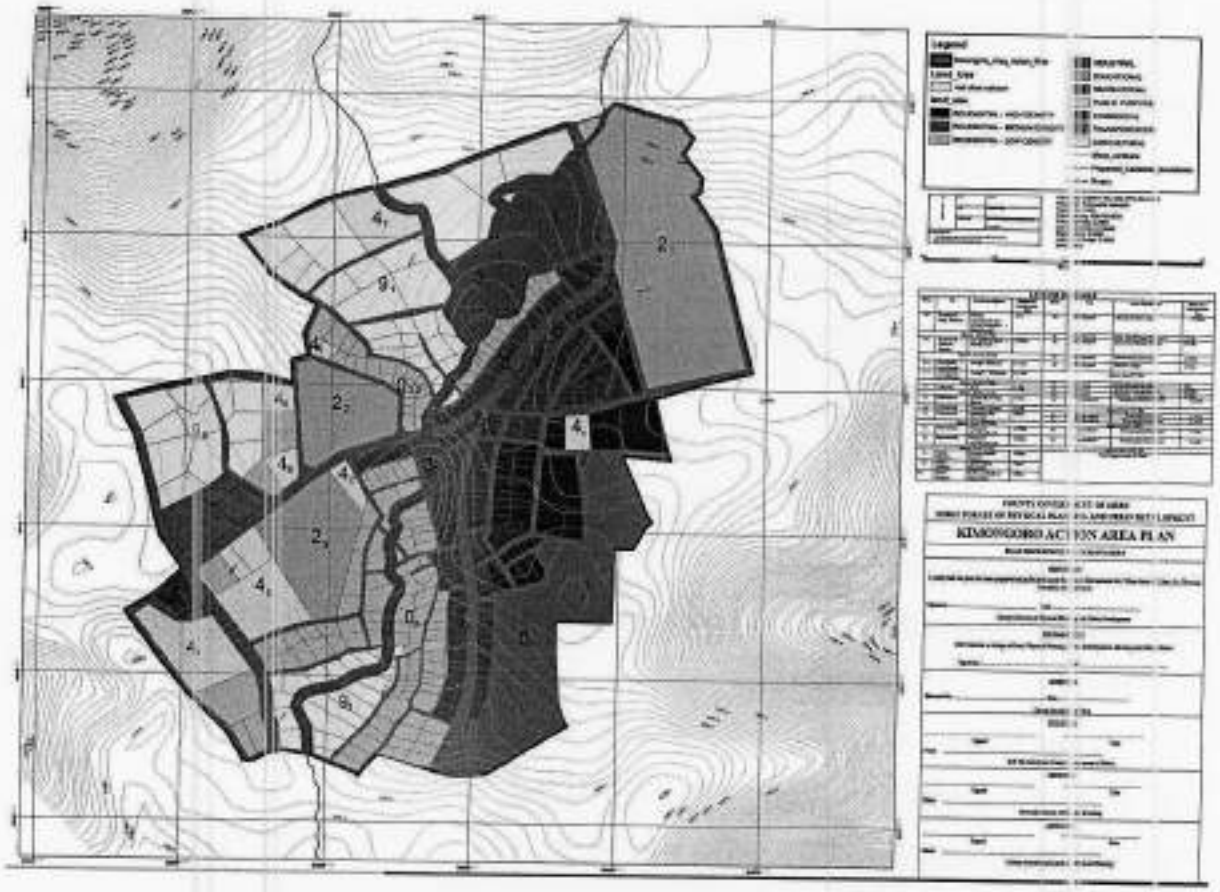
Infrastructure and Services

- Extend water and sewer services to Kimongoro centre
- Delineate 6m service lanes within the commercial zone
- Observation of uniform building lines, setbacks
- Develop a solid waste disposal site within the centre
- Construct drainage channels along the roads
- Increase the height of the existing flood light in Kimongoro

Recreation

Recreation areas are a requisite in any urban development. Kimongoro lacks an area which can be used as a public recreation area such as a parks or play grounds. The proposed areas for recreation are 0.2Ha at the River Urra waterfalls and 2.5 Ha between Rivers Urra and Mboone.

MAP 11: KIMONGORO ACTION PLAN



6.3 MAILI TATU ACTION PLAN

This is a small market center located along Meru – Maua Road at the junction with Laare road, 4.8 Km from Maua town. Administratively, Maili Tatu is in Njia Ward, Igembe Central Sub-county and Njia/Burieruri registration sections. Its strategic location and proximity to Maua town makes it a potential growth center.There have been few planning efforts for the Maili Tatu centre.

6.3.1 Existing land uses

Mailitatu has a few shops, kiosks, pubs and cafes. In addition to these there is an open place where miraa packaging and loading is done. It hosts three primary schools, one secondary school, a nursing home and a stadium.

Challenges

- Informality – there are various informal and temporary kiosks and houses along the Maua –Laare road.
- Lack of a designated or planned market

- Miraa packaging is done in a small and undesignated area
- No clear land use regulation model.

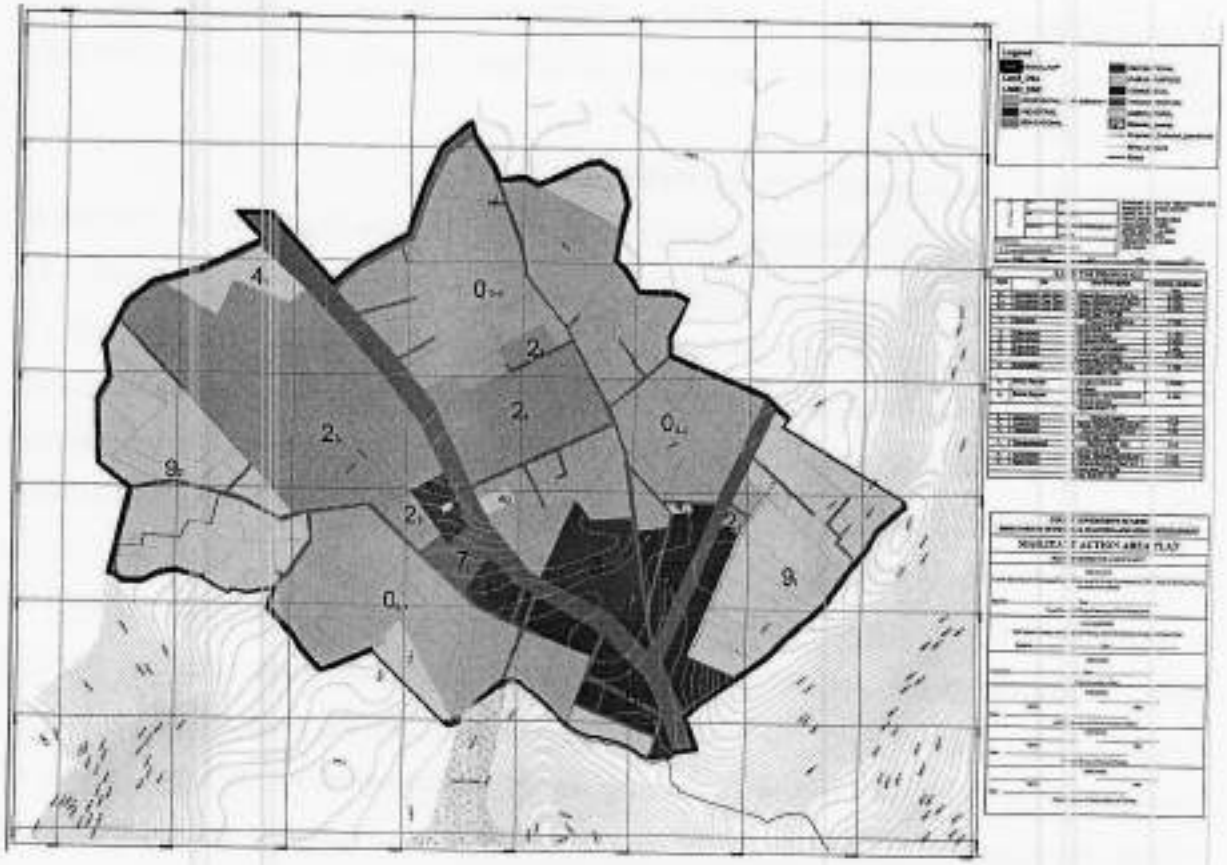
Opportunities

- ✓ The area is fairly flat
- ✓ The presence of roads that are in good condition
- ✓ The presence of social amenities-schools, health facility, stadium
- ✓ Availability of water- it lies adjacent to Mporoko swamp

6.3.2 Strategies and Measures

- Extend water reticulation to cover Maili Tatu market
- Acquire land for Miraa sorting and packaging - An area of approximately 0.4Ha has been selected for this purpose.
- Upgrade the existing Maili Tatu stadium so as to make Mailitatu an arts and sports center.
- Provide standard size and design for stalls
- A residential land use has been proposed in Maili Tatu
- Restrict linear development within the plan

MAP 12: MAILI TATU ACTION PLAN



CHAPTER 7

SECTORAL DEVELOPMENT STRATEGIES AND MEASURES

7.1 ENVIRONMENTAL STRATEGIES

7.1.1 Solid waste management

The trend has been consistent – less waste must go to landfill and more must be recycled; all waste management must be environmentally safe.

Long-term interventions 2015-2035

Place greater emphasis on reducing the quantity of waste and the hazard it poses.
The quantity of waste and the hazard it poses can only be mitigated to a limited degree by action taken at the waste stage. Measures to reduce the quantity of waste and the hazard it poses should primarily be taken as part of the strategy on products and chemicals.

Improve knowledge about pollutants

Because of the large number of hazardous substances that have been, and still are, handled, waste management continues to constitute a major environmental risk. We still know little about some of the long-term risks and effects of diffuse emissions of hazardous substances from waste handling.

It must be easy for households to sort their waste

Reduced land filling and increased recovery and recycling have largely been achieved by household sorting of waste at source. Public confidence is essential if the progress achieved is to be maintained. It must be easy to sort household waste in the right way. The division of responsibility between producers and county should not be changed, but cooperation between them should be further developed. It is important to monitor this cooperation and service levels.

Waste management is an environmental issue where waste is often a resource as well as a problem. The aim is to produce as little waste as possible. Where waste does arise, the resource it represents in the form of materials or energy should be used as efficiently as possible.

Waste management has long been a key feature of our infrastructure, in some respects comparable to energy supply, water and sewage treatment and the road and rail networks. Households, public bodies and private enterprise are all dependent on someone coming to collect and dispose of their waste. Waste management must also be performed in an efficient and user-friendly way. Prerequisites for sustainable waste management include a clear division of responsibility and a proper regulatory framework.

Impact of Waste Management

On environmental Objectives

The overall aim of environmental policy and protection is to ensure that we can hand on to the next generation a society in which the major environmental problems have been solved.

Strategies

The quantity of waste going to landfill, not including mining waste, must be reduced by at least 50 per cent by 2022, as compared with 2015.

- By 2022 at least 50 per cent of household waste is to be recycled by recovery of materials, including biological treatment.

• By 2022 at least 35 per cent of food waste from households, restaurants, institutions, catering and shops is to be recycled by biological treatment. The target covers food waste sorted at source for composting at home or treatment at a central facility.

• By 2022 food and similar waste from food manufacturing facilities etc are to be recycled by biological treatment. This target applies to waste arising without being mixed with other waste, whose quality renders it suitable for use as fertilizer after treatment.

• By 2025 at least 60 per cent of phosphorus compounds in sewage are to be recycled for use on productive land, of which at least half should be used on arable land.

Producer responsibility for waste

A number of measures have been taken to reduce waste quantities and the environmental impact of products throughout their life cycle. Measures focusing on the waste phase include producer responsibility for packaging, newspapers, tyres, cars and electrical and electronic products, where producers are responsible for dealing with end-of-life products.

Measures to reduce land filling

From an environmental viewpoint, land filling, or dumping waste on a rubbish tip, is the worst method of disposing of waste from which materials can be recovered or which can be incinerated for energy. However, for the foreseeable future landfill will remain a necessary method for disposing of waste that, for various reasons, is unsuitable for any form of recycling.

Stakeholders responsible for waste management

If measures are to be implemented and have the desired effect, responsibilities must be defined and the rules must be clear. Counties are responsible for collecting and disposing of household and similar waste. Exceptions to this are household wastes for which producers are responsible (packaging, newspapers, tyres, cars and waste from electrical and electronic products). Responsibility for other waste rests with the operator of the facility where it is generated.

Capacity to deal with all waste

The importance of waste management as infrastructure has come to the fore in recent years when there has been insufficient capacity to recycle the waste subject to the landfill ban. The

increased technical requirements to be met by landfill sites have also rapidly reduced their numbers.

Short term interventions

- Increase the number of containers and street bins and make their design compatible with collection and transportation systems. The design of containers should reduce unnecessary handling of the waste and make loading of vehicles easier. Containers should be heavy and/or chained to poles in order to minimize tipping over by scavengers. Their size should be adapted to the quantities and densities of waste generated.
- Provide protective clothing to waste handlers.
- Increase collection frequency
- Encourage collection of waste in plastic bags, as this reduces loading times for the waste collection crews. However, waste collection in plastic bags needs a fixed timing of the collection service, so that scavengers have minimal access to them.
- Improve communication and capacity building among residents. This will involve informing them about waste separation at source. That is separating degradable waste and non-biodegradable waste into different bins.
- Competent private collection companies and NGOs should be encouraged to develop community-based collection schemes.
- Establish regional collection systems in rural areas, covering several villages and small urban centers
- Establish proper monitoring and supervision mechanisms for waste collection and transportation to ensure reliability and satisfactory operation of the service.
- Promote waste recovery and recycling
- Provide adequate waste handling technology.
- Make waste management bylaw and build enforcement capacity for the existing waste management laws.
- Promote waste recovery/recycling.
- Handle and dispose hazardous waste separately from the normal municipal waste. Follow hazardous waste management guidelines.

7.1.2 Liquid waste management

Liquid waste includes all waste water from households and other facilities as well as storm water. Maua at the moment lack a sewerage network and adequate storm water drainage facilities. Riparian lands have been encroached in all of the planning area.

Short-term interventions

- Construct a sewerage network in Maua town passing along roads. (There is one to be constructed by Tana Water Board)
- Increasing the depth and width of already existing storm water channels and constructing new ones along all roads in Maua Town and markets.
- Ensure that all development or agriculture observes a riparian distance of at least 6m depending on the size of a river or water point.
- Control water polluting sources/agents

Long term interventions

Connecting all the markets and their environs to the sewerage network

- Acquiring land surrounding the Maua Basin' to ensure preservation of riparian land as well as creation of a park and Man-made lake at the Maua basin
- Discourage more human settlements/population and land subdivision to a minimum of one acre near water sources.
- Control grazing and agricultural activities in the swamps, wetlands and other water catchment areas.
- Replace the eucalyptus trees with indigenous vegetation.
- Formulate detailed environmental management plan for the swamps and other water resource areas.
- Control human activities at or near the water sources.
- Use the waters sources sustainably for domestic, livestock and small scale irrigation, fishing, recreation and ecotourism.
- Form a water users/ stakeholder's management committee and formulate a comprehensive environmental management/action plan to help in managing the water resources.

7.1.3 Sewerage and Sanitation

The trend has been consistent less waste must go to landfill and more must be recycled; all waste management must be environmentally safe.

Table 15 Sewerage and Sanitation Development Action

Problem	Objectives	Strategies	Action Plans	Actors	Time-frame
Lack of sewer network system	Development of an efficient sewage management system	Assessment of need for a waste treatment site Slope analysis towards south-east of planning area, the location is suitable	-Undertake feasibility study for sewerage system. -Construct a sewerage network in Maua town passing along roads	-Donors -Meru County -WARMA -NGOs - National Government	Short- term (on-going)
Poor sanitation	Toilets facilities in every house	-IEC measures for safe sanitation practice - Linking of functional toilet design with building approval system	Awareness campaign to emphasize the benefits of safe sanitation practices	- NEMA - Meru County -Individuals -CBOs - NGOs	Short- term
Inadequate public toilets	Providing community and public toilets	Public Toilets in market areas and public buildings and spaces (total 10)	Identification of existing and proposed market areas , public spaces and buildings	Government corporations - NEMA - Meru County -Individuals -CBOs.	Medium-term

7.1.4 Land degradation

Some parts of the planning area are experiencing continued and sustained land degradation. There is need for both short term and long term interventions to be made.

Short term interventions

- Control soil erosion on roads and bare spaces including "shambas" through the use engineering road side erosion control techniques, plant vegetation cover, terrace sloppy areas and pave dusty roads and footpaths

Long term interventions

- Provide covered urban storm drainage system
- Backfill open holes and abandoned quarries on the land
- Control the specified land pollution sources/agents
- Ensure building demolition and excavated materials are dumped on county authorized sites.
- Discourage human settlement and unsustainable agricultural practices on the hills. Control land subdivision to a minimum of one acre on the sloppy areas and near the water sources.
- Introduce mountain ecotourism activities.

7.1.5 Air pollution

Strategies

- Ensure vehicles meet exhaust emission standards
- Promote use of non-motorized transport, organize it and provide the necessary supporting infrastructure such as cycling lanes and parking grounds
- Control open burning of materials including solid waste especially in crowded areas
- Safely dispose rotting organic matter and improve hygiene standards in pit latrines, urinals and waterborne toilets to kill the foul smells
- Pave roads/footpaths and improve land vegetation cover to contain dust
- Promote use of cleaner domestic energies such as electricity and liquefied Petroleum Gas to control indoor air pollution

7.1.6 Forest Management Plan

Roles of county governments in forest management

1. Manage all forests on public land defined under Article 62(2) of the Constitution
2. Implement national policies on forest management and conservation
3. Prepare an annual report, with the approval of the County Assembly, for the Service on the activities of the county government in relation to this Act and any national policies on forest management and conservation
4. Promote afforestation activities in the county
5. Advice and assist communities and individuals in the management of community forests or private forests

6. The preparation of a management plan with respect to forests in the county.
7. Enter into joint management agreements with communities or individuals for the management of community forests or private forests.
8. Partner with the Kenya Forest Service on the best way to enact provisions of the Forest Act
9. Enact legislation to help actualize its roles

7.1.7 Arboreta and recreational parks

Every individual owner of a plot in residential neighborhoods to have at least 5% of their land dedicated to forestry

A recreational park in every market center that is: Kiegoi, Kithetu, Kimongoro, Mailitatu and Maua town

No arboretum or recreational park shall be converted to any other use unless the County Department responsible for forestry, consults the residents of the area in the jurisdiction within which such arboretum, green zones or recreational park is situated

County Department responsible for forestry may in consultation with the Service prescribe conditions as to the species of trees to be planted in a green zone, arboretum or recreational park

7.1.8 Consent for quarrying

Consent from KFS to carry out quarrying activities is required. This consent can only be issued where-:

- The area does not contain rare, threatened or endangered species;
- The forest does not have any cultural importance or contain sacred trees or groves;
- Independent Environmental Impact Assessment or audit has been carried out;

7.1.9 Riparian Reserve Strategies

Water is a basic need for livelihoods and industrialization. The planning area is endowed with various water resources. Effects of climate change have may need it necessary for everyone and authorities to protect any water resources available in their areas of jurisdiction.

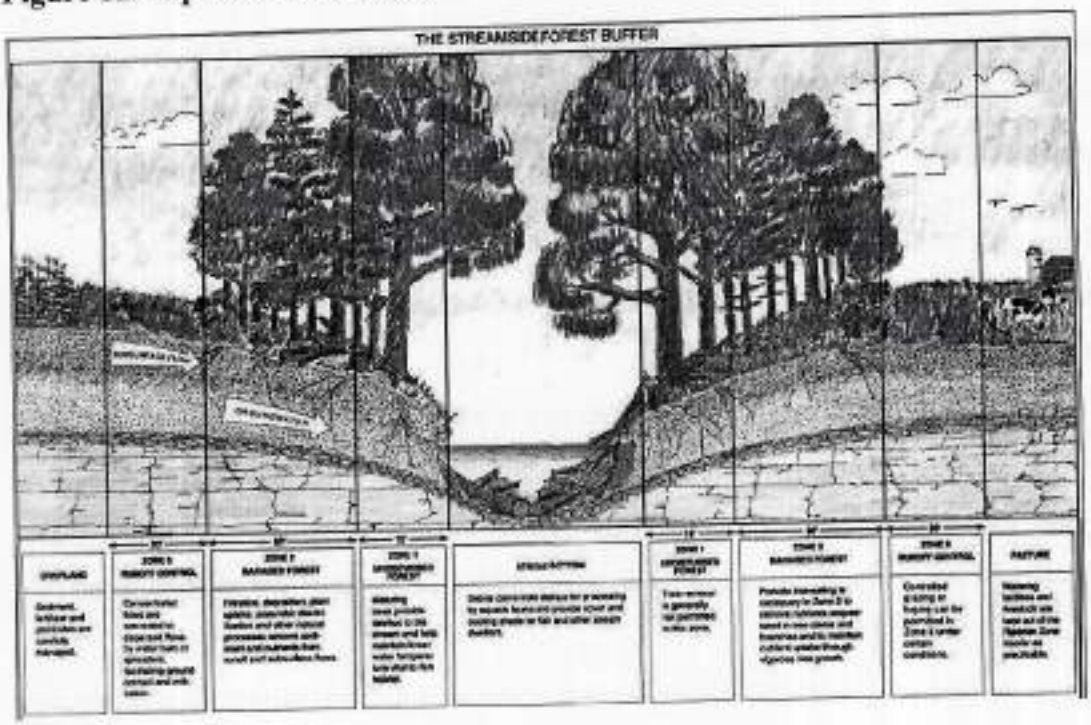
Buffers are most effective when they are contiguous. Guidelines for buffer widths recommend that long, continuous buffer strips should often be a higher priority than fragmented strips of greater width. Small gaps in vegetation along the bank can channelize

runoff into the river and effectively negate the effect of surrounding buffers. For this reason, landowners who currently have lawns that run to the edge of the river should be encouraged to replant trees and shrubs along the bank. In addition, footpaths cleared for river access should be winding, rather than straight, and as narrow as possible to minimize sedimentation.

Roles of riparian buffers

- Protection of surface and ground water quality from impacts related to human land use.
- Provide food and habitat for unique plant and animal species
- Mitigation and control of nonpoint source pollution
- Protecting multiple outstanding resource values (ORVs), including water quality, hydrology, unique species and natural communities, and watershed ecosystem function.
- Decreases erosional impacts during flood events and prevents undercutting of stream banks.
- Reduces sedimentation of rivers thus reducing turbidity and siltation
- Riparian plants act as sinks, absorbing and storing excess water, nutrients, and pollutants that would otherwise flow into the river, reducing water quality.
- Enhances infiltration of surface runoff
- Riparian vegetation in the buffer surrounding a water body increases surface roughness and slows overland flows
- Vegetated buffers may serve as screens along waterways, protecting the privacy of riverfront landowners and blocking views of any unsightly development
- Hiking and camping opportunities are also facilitated by forested buffers
- The diversity of plant species provides visual interest and increases aesthetic appeal.

Figure 11: Riparian Buffer zone



In the planning area, the recommended riparian buffer is 10m ion either side of the streams or rivers. The ideal vegetation cover to be planted along the buffer is as shown in the diagram above.

Table 16 Proposed Environmental Plan

Problem	Objectives	Strategy	Action Plans	Actors	Timeframe
Encroachment into Ecologically Fragile areas	• Protect ecologically fragile areas • Development of fragile areas economically. • Sustainable utilization of natural resources • Promoting good farming practices.	• Identification of Ecologically fragile areas • Designating Ecologically fragile areas as conservation areas • Development of Eco-Tourism as a revenue earner to the area • Enhancing environmental education.	• Restricting physical Developments in these zones • Forestation. • Construct access road to Urra river water fall. • Protection of riparian areas along all rivers in the planning area	Meru County Government NEMA Private sectors WRMA	Short Term
Encroachment of riparian areas	• Conserve and protect the riparian • Riverfront development.	• Identification of the encroached riparian • Community Education on riparian conservation. • Control and buffer water sources from pollutants • Tree plantation along river banks	• Delineation of the riparian areas • Planting of trees • Discourage building developments with the above. • Restrict human activities close to the water resource	WRMA NEMA CBOs Residents.	Long Term
Noise pollution.	♦ To reduce noise levels to acceptable limits	♦ Erect billboards showing the effects of unnecessary hooting. ♦ Decongest the existing stage through improved parking design. ♦ Increase designated motorcycle parking.	♦ Sound proofing in clubs ♦ Licensing of the noise places ♦ Introduction of stiff fines and penalties ♦ Enforcement of noise regulations ♦ Involve stakeholders in noise control efforts.	♦ Meru County government ♦ NEMA ♦ Taxi Operators ♦ Matatu Operators ♦ Transport	Long term.

Air pollution.	♦ To reduce air pollution.	♦ Erect billboards illustrating the effects of air pollution. ♦ Promote utilization of gas as a clean source of energy in households. ♦ Ensure vehicles meet exhaust emission standards	♦ EIA for development projects and annual audits. ♦ Recycling. ♦ Public health inspections and installation of incinerators.	♦ NEMA ♦ Ministry of Environment ♦ Ministry of industrializat ion	Short term.
Soil erosion	To reduce soil erosion.	• Increasing vegetation cover in the planning area	• Ploughing along the contours. • Encourage cover cropping	NEMA CBOs Residents.	Short term
Land degradation	• Promote the sustainable management of the environment • Reduce the negative impact of Human activities to Environment.	• Sensitization programmes • Research into extents and types of destructions • Environmental education and public participation	▪ Provide covered urban storm drainage system ▪ Backfill open holes and abandoned quarries on the land ▪ Ensure building demolition and excavated materials are dumped on county authorized sites. ▪ Discourage human settlement and unsustainable agricultural practices on the hills. ▪ Control land subdivision to a minimum of one acre on the sloppy areas and near the water sources. ▪ Introduce mountain ecotourism activities.	-NEMA - CBO's -Meru County Government Residents.	Long Term

Pollution of water sources	• Conserve and protect water resources • To identify sources of pollutants (point and non-point sources	• Identification of the pollutants/polluters • Restrict human activities close to the water resources	• Development of a system to oversee and check pollution • Observe riparian way leaves • Reclaim riparian reserve of all the river e.g.Mboone • Observe riparian way leave • Enforce polluter pay principle	- WARMA. NEMA. CBOs Residents. Meru County Government	Short Term
Deforestation	• To provide for the conservation and management of forest resources • To promote optimal utilization and sustainable use of forest resources • To promote environmental education.	• Sustainable utilization of forest resources • Public education on use and management of forests • Public participation in the conservation and management of forest resources • Enhance reforestation	• Reclamation of encroached areas • Public sensitization and campaigns on conservation and management of forest • Establish community tree nurseries for afforestation programmes • Promote and encourage alternative energy sources.	Meru County Government CBOs Ministry of mining and natural resources KFS KWS	Long term
Inadequate consideration of environment concerns	• Mainstream environment issues approval	• Involvement of NEMA in development Approvals. • Circulation of development applications, Subdivisions including NEMA reports	• Circulation of application, Subdivision, Building plans to include NEMA	-Meru County -Sub county Boards -Local Village administration	Short Term
Inadequate consideration of environment concerns	• Mainstream environment issues approval	• Involvement of NEMA in development Approvals. • Circulation of development applications, Subdivisions including NEMA reports	• Circulation of application, Subdivision, Building plans to include NEMA	-Meru County -Sub county Boards -Local Village administration	Short Term

7.1.10 Arts and sports

Majority of the population in the planning area is youthful. However, it is not known to produce artists or develop talents in the national or county levels. The development of arts and sports might be hindered by a lack of talent identification programmes, facilities and services for talent development among other reasons. The education system also does not offer any chance for recognition, development and reward for talents.

Table 17: Social Services Strategies

Strategies	Projects	Timelines	Actors
Development of an arts and Sports Center	Construction of community halls	Medium and long term	CGM
	Construction of an arts and cultural center with an amphitheater at Maili tatu	Medium term and long term	CGM Private sector
	Construction of a library	Medium term	CGM
Sports circuit development	Preparation of a regional sports circuit	Short term	Private sector CGM Ministry of Sports
Promotion of arts and sporting activities	Rehabilitation of playgrounds and open spaces	Short term	CGM schools
	Rehabilitation and continuous maintenance of Maua stadium	Short term	CGM
	Supporting sporting and arts events in schools	Medium term	CGM

7.1.11 Tourism

The findings in relation to tourism are that is not a major contributor to the economy, but Maua might be able to use its role as a knowledge centre to attract conferences and similar trade. Tourist sites within town and in the surrounding area of Meru County are not developed properly to attract local and international tourists. Combined with a lack of proper marketing of tourist sites in and around Maua town and the entire planning area this indicates that there is considerable potential. The situation is further affected by the fact that there are no suitable hotels and restaurants for tourists.

The tourism sites and areas of wonderful scenery in and around the planning area include-

Table 18: Tourism Sites

Site	Location	Activities	Improvement
Meru National Park		Wildlife Camping	conservation
Nyambene forest and ranges	Adjacent to the planning area	Hill climbing Site seeing-caves, lake	conservation
Urra river water falls	In the planning are	Swimming Site seeing	Conservation Construction of a public park and/ hotel near the falls
Igembe crater, Igembe North		Site seeing	conservation
Maua- Mikinduri road	A road leading to the planning area On the foot of Nyambene forest and ranges	Site seeing-bends and hills in Tharaka Nithi	Constructing view points
Mporoko swamp	In the planning area	Site seeing-springs	Conservation
Iga ria Ngutu	Along Mikinduri – Maua road	Site-seeing-cave	Conservation
Mbili waterfalls		Site seeing-swimming	Conservation
Mutuate(MauMau) caves		Site seeing-caves	Conservation

Table 19 Tourism Proposals

Strategies	Projects	Timelines	Actors
Development and maintenance of tourism infrastructure	Construction of new hotels and guest houses	Medium and long term	Private sector
	Landscaping	Medium term	CGM Private sector
Tourist circuit development	Preparation of a regional tourist circuit	Short term	Private sector CGM KTB

Promotion of cultural activities	Construction of community halls	Medium term	CGM
	Construction of an arts and cultural center with an amphitheatre	Long term	CGM Private sector
	Construction of a library	Medium term	CGM
Publicity and marketing	Listing tourist attraction site with documentation of sites with description	Short term	CGM
	Establishing a tourism information center	Medium term	CGM

7.1.12 Monuments and Buildings of Heritage

There are no monuments or any largely known buildings of cultural heritage in Maua or the planning area. However, there are two buildings which their preservation would be vivid to the people of Maua, The Maua Catholic Church and Maua Plaza.

The plan proposes a monument at the strip where there is a green space in the old town CBD and a town clock at the junction of Maua-Meru road and the road leading to Maua Level IV hospital.

7.1.13 Sustainable buildings

In an effort to ensure sustainable development band energy efficiency, the plan recommends that all buildings coming up in the planning area and especially Maua town to have alternative sources of renewable energy other than that from KPLC. This may include solar panels and having designs that are energy efficient. In ensuring that buildings are sustainable, authorities must check whether the buildings meet some minimum standards. It will be prudent to ensure that the buildings-:

- Optimize site potential
- Optimize energy use
- Protect and conserve water
- Optimize building space and material use
- Enhance indoor environmental quality
- Optimize operational and maintenance practices

7.1.14 Linkages of the Environmental Plan to Urbanization

Maua town and the planning area in general lie in a predominantly ecologically fragile area. Therefore, the environmental plan and the urbanization strategies have to interlink and ensure that the area is sustainably utilized without causing any negative effects on the environment. The MISUDP has proposed various interventions which are aimed at mitigating, preventing any disaster such as flooding and protecting of riparian reserves as well. Some of the interventions include:

- Riparian reserves of 10m along rivers- with afforestation and landscaping
- Water front development along rivers- create recreational areas- scenic beauty
- Restricting development on hills
- Protection of water sources
- Development of an ultra-modern recreational park at the 'Maua Basin'
- Promoting non-motorized transport
- Prioritizing solid waste management
- Liquid waste management through construction of a sewerage network
- Carrying out awareness campaigns on the need to protect the environment
- Increasing the number of public toilets
- Rehabilitating and increasing open spaces and parks
- Promoting tourism through creating attractive sites, festivals and activities

7.2 RURAL DEVELOPMENT STRATEGIES

7.2.0 Overview

A healthy and dynamic agricultural sector is an important foundation of rural development, generating strong linkages to other economic sectors. Rural livelihoods are enhanced through effective participation of rural people and rural communities in the management of their own social, economic and environmental objectives by empowering people in rural areas, particularly women and youth, including through organizations such as local cooperatives and by applying the bottom-up approach. Close economic integration of rural areas with neighbouring urban areas and the creation of rural off-farm employment can narrow rural-urban disparities, expand opportunities and encourage the retention of skilled people, including youth, in rural areas. There is considerable potential for rural job creation not only in farming, agro processing and rural industry but also in building rural infrastructure, in the

sustainable management of natural resources, waste and residues. Rural communities in developing countries are still faced with challenges related to access to basic services, economic opportunities and some degree of incoherence with regard to planning related to rural-urban divide. Investments in environmental protection, rural infrastructure and in rural health and education are critical to sustainable rural development and can enhance national well-being. Beyond meeting basic needs, investments must be linked to the potential to raise productivity and income. The vulnerabilities of the rural poor to the economic and financial crisis and to climate change and water shortage must be addressed. The success of sustainable rural development depends on, inter alia, developing and implementing comprehensive strategies for dealing with climate change, drought, desertification and natural disaster.

Decreasing incomes from farming, especially for small-scale producers who, because of a lack of land, water or capital, are unable to intensify and switch to higher value crops, means that increasing numbers of rural residents engage in on-farm activities that are often located in urban centers. For those who continue farming, direct access to markets is essential in the wake of the demise of Parastatals marketing boards – and markets are also usually located in urban centers.

Better access to markets can increase farming incomes and encourage shifts to higher value crops or livestock. Population growth and distribution patterns affect the availability of good agricultural land and can contribute to rural residents moving out of farming. With the expansion of urban centers, land uses change from agricultural to residential and industrial, and in the peri-urban interface these processes go hand in hand with transformations in the livelihoods of different groups – with the poorest often losing out. Perhaps more significant than the absolute availability of natural resources in relation to population numbers and density are the mechanisms which regulate access to, and management of, such resources. These include land tenure systems and the role of local government in negotiating the priorities of different users and in providing a regulatory framework which safeguards the needs of the most vulnerable groups while, at the same time, making provision for the requirements of economic and population growth. Such mechanisms continue to call for attention, to make it possible for more vulnerable groups to successfully plot a course through this increasingly complex "landscape".

These spatial flows overlap with inter-linkages between sectors both at the household level and at the level of local economies. They include backward and forward linkages between agriculture and manufacturing and services, such as production inputs and the processing of

agricultural raw materials. Most urban centers, especially small and intermediate ones, rely on broad-based demand for basic goods and services from surrounding populations to develop their secondary and tertiary sectors. Overall, synergy between agricultural production and urban-based enterprises is often key to the development of more vibrant local economies and, on a wider level, to less unequal and more "pro-poor" regional economic growth.

Whilst, to some extent, these flows and linkages exist between all rural and urban areas, their scale and strength are determined by the nature of economic, social and cultural transformations.

7.2.1 Agribusiness

Agribusiness is a broad concept that covers input suppliers, agro-processors, traders, exporters and retailers. Agribusiness provides inputs to farmers and connects them to consumers through the financing, handling, processing, storage, transportation, marketing and distribution of agro-industry products. First agricultural input industry for increasing agricultural productivity, such as agricultural machinery, equipment and tools; fertilizers, pesticides, insecticides; irrigation systems and related equipment. Secondly, agro-industry involves the value addition in food and beverages; tobacco products, leather and leather products; textile, footwear and garment; wood and wood products; rubber products; as well as construction industry products based on agricultural materials. Thirdly, equipment for processing agricultural raw materials is important and this includes machinery, tools, storage facilities, cooling technology and spare parts. Lastly, but not least important, is various services, including financing, marketing and distribution firms, including storage, transport, ICT, packaging materials and design for better marketing and distribution.

Table 20: Agribusiness strategies

Farming type/crop	Strategies to improve	Actors
Tea	Diversification-purple tea, green tea, agroforestry Encourage consumption of locally produced tea Tea Tourism Improve water and soil management Value addition	Tea factory Farmers Min of Environment Investors
Miraa	Marketing of the product worldwide Constructing miraa packaging warehouses in Mailitatu and Antubochiu Moving the final packaging from Nairobi to Maua	Miraa Association CGM

Coffee	Processing, branding and value addition	Coffee union CGM Investors
Dairy	Milk cooling plants in milk producing areas Milk processing plant Value addition- yoghurts, powdered milk Extension services to dairy farmers	Farmers unions Investors CGM
Fish	Promote fish farming-awareness Promote fish consumption in the county Value addition-packaging	CGM Investors Farmers unions
Horticulture	Irrigation-planned in Kanuni Construct a market in Kimongoro and Maua town	Min of agriculture CGM

It is clear that agribusiness still needs to be developed in Maua, by catalyzing farming plus all the other industries and services that constitute the supply chain from farm through processing, wholesaling and retailing to the consumer.

The main cash crops in the planning area are coffee (Kanuni), miraa (Mailitatu, Luluma, Kithetu, and Kanuni) and tea (Kiegoi). The proposal is to improve miraa trade by moving the packaging sheds out of the town. The proposed areas are one at Antubochiu center and another at Mailitatu. The two areas have been proposed as they already serve that purpose. In addition, warehouses are to have cooling facilities. These warehouses are a way to gradually move final Miraa packaging from Nairobi to Maua.

General improvement of roads will benefit the whole agricultural sector and reduce costs of transporting outputs from the farm or inputs into the farms.

7.2.2 Land Subdivision

Land in the planning area is highly fragmented with over 53% of the parcels measuring less than an acre. These land sizes are unsustainable for agriculture. MISUDP recommends land sizes be limited according to the agricultural zones as follows

Table 21 Land Subdivision Guidelines

Crop	Minimum acreage allowed
Bananas	1/2
Tea	1/4
Coffee	1
Miraa	1/4

7.2.3 Road Networks

A good road network is essential for rural development. Transport is regarded as a crucial factor in improving agricultural productivity. It enhances quality of life of the people, creates market for agricultural produce, facilitates interaction among geographical and economic regions and opened up new areas to economic focus. Agricultural products are highly perishable and therefore need to rich the markets fast. MSIDP recommends that all roads in the planning area should have a minimum width of 9m.

7.2.4 Rural Urban Linkages

Decreasing incomes from farming, especially for small-scale producers who, because of a lack of land, water or capital, are unable to intensify and switch to higher value crops means that increasing numbers of rural residents engage in on-farm activities that are often located in urban centers. For those who continue farming, direct access to markets is essential in the wake of the demise of Parastatals marketing boards – and markets are also usually located in urban centers.

Better access to markets can increase farming incomes and encourage shifts to higher value crops or livestock. Population growth and distribution patterns affect the availability of good agricultural land and can contribute to rural residents moving out of farming. With the expansion of urban centers, land uses change from agricultural to residential and industrial, and in the peri-urban interface these processes go hand in hand with transformations in the livelihoods of different groups – with the poorest often losing out. Perhaps more significant than the absolute availability of natural resources in relation to population numbers and density are the mechanisms which regulate access to, and management of, such resources. These include land tenure systems and the role of local government in negotiating the priorities of different users and in providing a regulatory framework which safeguards the needs of the most vulnerable groups while, at the same time, making provision for the requirements of economic and population growth. Such mechanisms continue to call for attention, to make it possible for more vulnerable groups to successfully plot a course through this increasingly complex "landscape".

These spatial flows overlap with inter-linkages between sectors both at the household level and at the level of local economies. They include backward and forward linkages between agriculture and manufacturing and services, such as production inputs and the processing of agricultural raw materials. Most urban centers, especially small and intermediate ones, rely

on broad-based demand for basic goods and services from surrounding populations to develop their secondary and tertiary sectors. Overall, synergy between agricultural production and urban-based enterprises is often key to the development of more vibrant local economies and, on a wider level, to less unequal and more "pro-poor" regional economic growth.

Whilst, to some extent, these flows and linkages exist between all rural and urban areas, their scale and strength are determined by the nature of economic, social and cultural transformations..

In Maua, the growing rural urban areas interdependent through the constant interchange of people, goods, capital, ideas and information must be acknowledged. Well-managed urban Maua will continue to act as trading and processing centers for agricultural produce. It will also act as a crucial service hub, providing infrastructure connections, business and administrative services, and markets. In addition, the "multi-spatial household", i.e. a household with members living in different locations in order to take advantage of employment or educational opportunities in different locations, is now a well-established feature as a result of improved means of transport and communications. Links exist between rural and urban locations in the same way that links exist between people and their activities. These links are not only key components of livelihoods and of local economies, they are also 'engines' that drive economic, social and cultural transformations. Rural-urban interactions include:

- Linkages across space (such as flows of people, goods, money, information and wastes), and
- Linkages between sectors (for example, between agriculture and services and manufacturing).

Rural-urban interactions can also include 'rural' activities taking place in urban centers (such as urban agriculture) and activities often classified as 'urban' (such as manufacturing and services) taking place in rural settlements.

Recognition of rural-urban linkages has become all the more important in light of the ongoing decentralization of government functions.

In order to further develop rural-urban linkages in County government of Meru will:

- Encourage agro-processing enterprises close to urban areas to support livelihoods for both urban and peri-urban residents;

- Encourage specific programmes granting support to small- and medium-sized enterprises in urban areas to be funded by the national and Meru county governments; and,
- Sustain the focus on the establishment of infrastructure linking urban and rural markets to enable both urban and rural residents to access both markets.

7.3 PHYSICAL INFRASTRUCTURE STRATEGIES

7.3.1 Water

Based on the status assessments and water demand and supply analysis, together with the views expressed by the stakeholders during consultations including workshops, development strategies and projects have been developed to achieve the sectoral goals and town's vision. The development strategies and projects have been identified considering the existing gap and projected demand.

Table 22: Development strategies for water infrastructure

Problem	Objectives	Strategies	Action Plans	Actors	Time-frame
Inadequate capacity to cover the whole area.	New treatment plant.	Expand the current water treatment plant to meet 2035 requirements	To cover the planning area and also plan for new planned development as per structure plan	WRMA NEMA CBOs CGM Private sector	Long term
Old and dilapidated systems	Improve the trans-mission system Reducing lost water during transmission.	Rehabilitation of old and damaged pipelines	Identification of the old piping system Mapping of water supply network within the existing lines	WRMA NEMA CBOs CGM Private sector	Medium -term
Small coverage	Improve the Distribution system	Laying new pipelines	New main trunk pipe line to serve the 14km^2	WRMA NEMA CBOs CGM Private sector	Medium-term
Unsafe drinking water	Safe Drinking Water for all	Installation of community water points public places and village	Public awareness Detailed analysis of the centers	WRMA NEMA CBOs CGM Private sector	Medium-term

		centers			
Unplanned water distribution network	Water Management Plans	Recycling of waste water harvesting Asset management system	GIS Mapping of water supply network Waste water can be utilized for other purposes	WRMA NEMA CBOs CGM Private sector Residents	Short - term

7.3.2 Storm water drainage

Table 23: Storm Development Action

Problem	Objectives	Strategies	Action Plans	Actors	Time-frame
Inadequate drainage channels in Maua town	Efficient drainage system	Identification of natural drainage channels	Provide covered urban storm drainage system	- NEMA -Individuals -Private waste collectors. -CBOs. -Meru County -Government corporations - Donor agencies	Short- term
Encroachment of wetlands and natural drainage channels	To provide for surface drains.	Construct storm water retention facilities Enhance preparedness to reduce loss of life and property during flooding.	Creation of a park and Man-made lake at the Maua basin Constructions of drainage channels.		Long- term
Clogging of the drainage network	Improvement/repair of existing drains		Deepening and widening of already existing storm water channels Regular opening of drainage channels blocked by waste Waste water recycling and treatment		Short-term

7.3.3 Energy strategies

Strategies:

1. Improve coverage of electricity
    - Set up a step down station around the town
    - Encourage use of alternative energy sources
    - End vandalism of electric cables
    - Ensure agreements and consensus of way leaves

Measures to support the strategy

- Encourage use of LPG and solar energy sources-green energy
- Generation of electricity from solid waste.
- Repair all the faulty security lights along the major roads and in the core areas.
- Provide street lighting along the major roads and in the core areas and in public places
- Encourage eco-building designs
- Use amicable approaches to acquire way leaves
- Educate, create awareness among the people on the need to give way leaves

Table 24: Energy Infrastructure strategies

Challenge	Objectives	Strategies	Actors	Time frame
Over reliance on charcoal and firewood	Reduce overreliance on these sources	Promote use of LPG and other sources of energy	CGM Private sector National Govt	Medium term
	Reduce destruction of forests and forest resources	Encourage, educate, empower people to use biogas	CGM KFS	
		Enforce laws against cutting down on trees	KFS	
Low use of electricity	Increase supply of electricity	Increase number of households connected to the grid	National Govt Kenya Power	Long term
		Reduce cost of connection		
		Reduce the price of electricity		
Vandalism	End vandalism of electric cables	Set strict laws on vandalizes	National Govt Kenya Power CGM	Medium term
		Regulate the scrap metal business to ensure no vandalized cables are sold	CGM	
Way leave conflicts	Ensure agreements and consensus	Use amicable approaches to acquire way leaves	Kenya Power	
		Educate, create awareness among the people on the need to give way leaves		
		Compensation where necessary		
		Clearly demarcate roads and road reserves	CGM KERRA KURA	

7.3.4 Communication networks

Challenge	Objectives	Strategies	Actors	Time frame
Unstable telecom network	Improve and Stabilize the networks	Increase the number communication masts	Telecoms	
Access to services	Bring services closer to the people	Construct a Huduma Center in Maua Town	National Govt CGM	Medium term
Technological illiteracy	Improve technological literacy	Capacity building Improve overall literacy levels	CGM Private sector NGOs	Long term Medium term

7.3.5 ROADS AND TRANSPORT

The objectives of the measures and Strategies proposed are:

- To provide timely infrastructural services to accommodate the growth of Maua town up to the year 2035 and beyond.
- To coordinate infrastructural services planning with land use planning as described in the strategic structure plan for Maua town.
- To create infrastructural services network that maximizes citizens' choices and options.
- To create infrastructural services network that conveniently links the various services. These shall enhance services provision (e.g. Road transport, water, sewer collection network, solid waste collection, fire and rescue services, delivery of parcels and letters, street lighting, drainage, etc.).
- To enhance aesthetics, environmental conservation, public health and minimize negative impacts of transportation system on existing neighborhoods and businesses.

7.3.5.1 Road Network

Strategies

- Systems should be put in place to prepare and maintain an updated road inventory for all roads (classified, access and streets, etc.) in the town. These shall cover but not limited to road condition survey, available road reserve, required road reserve, classification, to be done biannually. The roads be prioritized in order of need for opening up, routine maintenance, periodic maintenance, rehabilitation, reconstruction, and construction.
- Prioritized roads be budgeted for and developed in accordance to the prioritized list.
- Systems be put in place to prepare and commence acquisition of land for road reserves as shall have been identified.

- Systems be put in place to identify and address short term traffic flow constraints in the entire planning in the short term.
- Systems be put in place to identify and address long term traffic flow constrains in the entire planning area.
- Need to re-classify all the CBD roads in Maua town in accordance to their functions.

Measures to actualize the Strategies

- Improve the capacity of the department of transport, physical planning and inspectorate in the county government of Meru to ensure routine maintenance, policy making and evaluation as well as enforcement.
- Develop and improve infrastructure services in growth centres
- Secure Adequate Way Leave for road widening
- Engage affected plot owners along each road and work out a way leave acquisition plan (WLAP).
- Enforce the building code, especially as pertaining to building lines and setbacks.

7.3.5.2 Road Improvements

Peak hour traffic volume in some of the major roads in Maua exceeds their capacity under existing traffic conditions. Based on this traffic volume and projected traffic analysis, the following roads need capacity augmentation.

i. Kimongoro to Maua C370
ii. Maili Tatu to Maua C91
iii. Athiru Gaiti to Maua
iv. Kiegoi to Maua
v. Kithetu to Maua
vi. Maili Tatu – Kaibu – Maua UCB3

Table 25: Proposed road improvements

Road name	Road Segment		Existing Lanes/Road	Proposed Lanes/Road Type
	From	To		
Kimongoro to Maua C370	Antubochiu	Makiri coffee	2 undivided	4 Divided
Meru - Maua C91	Maili Tatu	Makiri Coffee	2 undivided	4 Divided
Athiru Gaiti to Maua	Maua town	Athiru Gaiti Centre	Gravel	2 lane Tarmacked
Kithetu to Maua	Maua	Kithetu Centre	Gravel	2 lane Tarmacked

Maili Tatu – Kaibu – Maua UCB3	Farm	Kaibu then Maua	Gravel	2 lane Tarmacked
Hospital road	Maua Girls junction	Nyambene level four hospital	One lane Paved	2 lane tarmac road

The existing rights of way of Maua -Meru road (C91) and Maua Kimongoro Road (C370) need to be upgraded to accommodate four lane carriage ways, pedestrian paths on both sides, cycle tracks on both sides and landscaping.

The Maua – Athiru Gaiti, Maua – Kiegoi Road, Maua – Kiegoi Road, Maua – Kithetu Road and Maili Tatu- Kaibu- Maua will be upgraded from earthen to paved two lane roads with a 20m right of way to accommodate a 2-lane carriageway. Hospital road need to be upgraded from one lane to 15m road 2 lane carriage way.

Bypasses

In order to segregate through traffic from Maua bound traffic, two bypasses will be developed. The Eastern Bypass and Western Bypass will also provide easy access to the existing and future growth of Maua town.

The Western Bypass will start from the Maua town just next to administration offices. It will pass through Kiegoi Market and join the Maua - Meru road at Nturibi. The Bypass will provide easy passage for the long distance Meru-bound heavy vehicles and will facilitate segregation of city and long distance traffic. The bypass will be developed on the existing road. The eastern bypass will start at Makiri and it will run through Miori and finally join the Maili Tatu Kawiru -National Park road at Njoune.

Figure 12: Typical Cross section Model for Meru - Maua Road

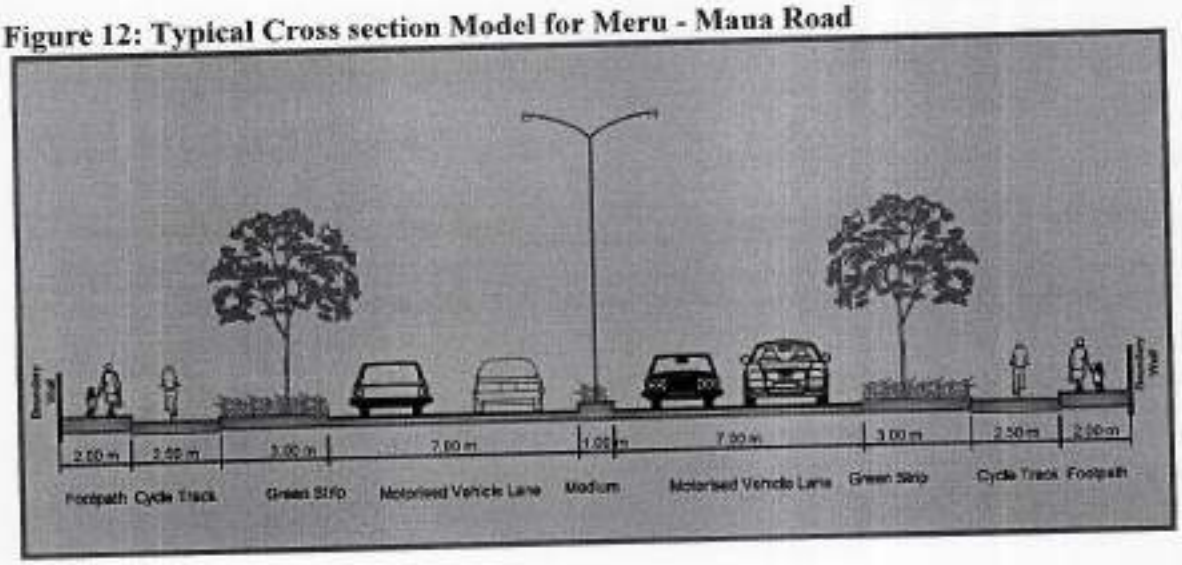
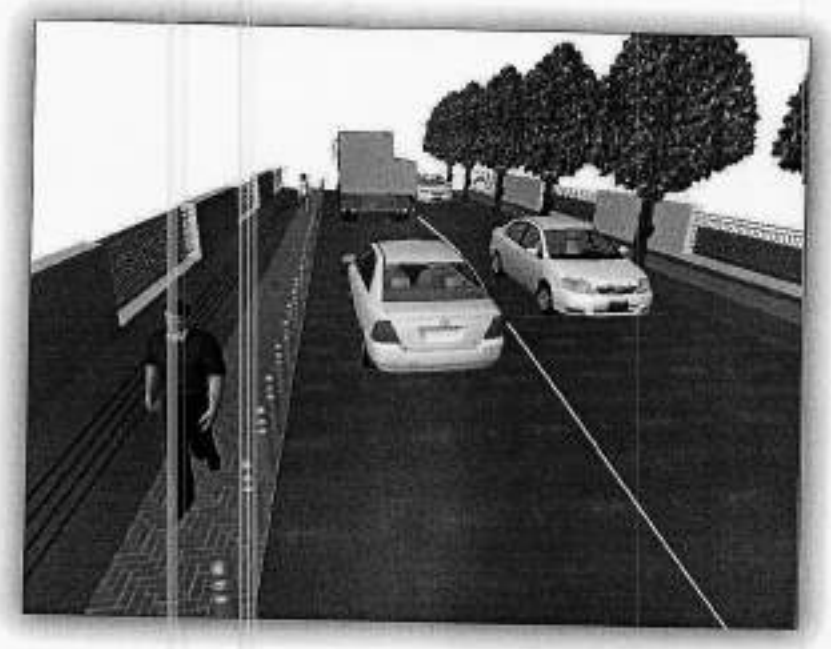


Figure 13: Model for proposed 20M Road

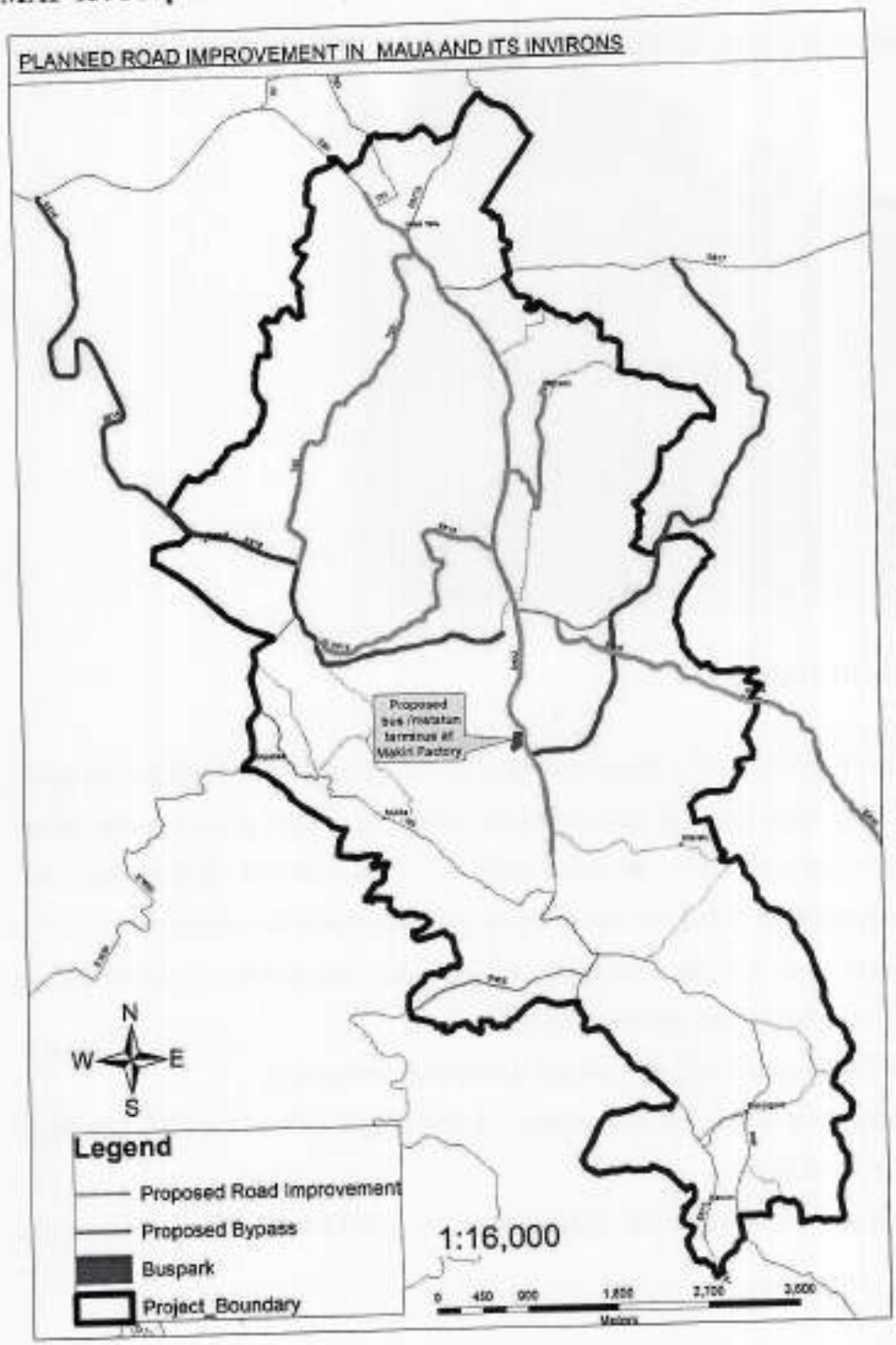


7.3.5.3 Non-Motorized Facilities

Strategies

- Systems should be put in place to prepare and maintain an updated NMT facilities inventory for all within the planning area and more so Maua town. These shall cover but not limited to NMT facilities condition survey, available NMT facilities, required NMT facilities etc. These are done biannually. The NMT facilities be prioritized and documented in order of need for opening up, routine maintenance, periodic maintenance, rehabilitation, reconstruction, and construction are documented.
- Prioritized NMT facilities be budgeted for and developed accordingly.
- Systems are put in place to prepare and commence acquisition of land for NMT facilities as shall have been identified.
- Systems be put in place to identify and address short term NMT traffic flow constrains in the entire town.

MAP 13: Proposed road improvement



7.3.5.4 Public Transport

Acquire land to build three terminuses for public service vehicles at Makiri coffee factory, Kathima and Kimongoro.

Intermediate Motorized Transport

The most common intermediate motorized transport means are the motor cycles.

Strategies and measures

- Enforce discipline among the riders and users of motor cycles
- Educate users and riders of the motor cycles
- Specify routes to be used by motor cycles
- Provide terminus for this mode of transport.

For an efficient transport system in the planning area, condition of roads must be in tandem with the system in place

7.3.5.5 Parking Facilities

Strategies

- Systems should be put in place to prepare and maintain an updated parking inventory for all parking requirements in the town. These shall cover but not limited to parking condition survey, available parking, required parking spaces to be done biannually. The parking areas be prioritized in order of need for opening up, routine maintenance, periodic maintenance, rehabilitation, reconstruction, and construction.
- Prioritized parking areas be budgeted for and developed in accordance to the prioritized list.
- Systems should be put in place to prepare and commence acquisition of land for parking spaces as shall have been identified.
- Systems be put in place to identify and address short term traffic flow constrains in the entire municipality that relate to parking.
- Systems be put in place to identify and address long term traffic flow constrains in the entire municipality that relate to parking.

Measures to actualize the Strategies

- Establishment of a programmes unit / department to deal with the development and management of the transport infrastructure. This to include a section for parking spaces.
- Improvement of the existing terminus at the CBD.
- Development of new parking facilities in the CBD, Mailitatu and Kimongoro for Buses, Matatus, Motorcycles and private vehicles.
- Development of new parking facilities at Kathima and Makiri.
- The county government undertakes a master plan for development and maintenance of all types of parking spaces in the town. This to include acquisition of land for long term development of this infrastructure.

Table 26: Transport action plan

Mode of transport	Challenge	Objectives	Proposal	Actors	Time frame
Non-motorized transport	Lack of facilities such as walkways, zebra crossing, street lights, traffic calming facilities	Ensure safety for road users	Construct NMT facilities	KURA CGM	Medium term
	High risk mode of transport prone to accidents (involves cars, motor cycle and pedestrians)	Ensure safety for all road users	Educate road users on road safety Ensure Enforcement of transport rules Ensure proper use of designated facilities	NTSA CGM	Short term Medium term Long term
Vehicles	Inadequate facilities such as terminus for PSVs, parking facilities, signage.	Provide adequate facilities for all vehicles Make roads user friendly	Acquire land to Construct multi-storey parking Acquire land for terminus. One at Makiri and another at Kathima.	CGM	Short term Medium term Long term
	Limited parking space	Ensure enough parking spaces for all vehicles.	Construct multi storey parking in the town Encourage use of public transport and/or non-motorized transport Develop more parking spaces	CGM Private sector	Short term Medium term Long term
	High risk mode of transport prone to accidents (involves cyclists, motor cycle	Ensure safety of all road users	Educate people on road use Segregate road users Prevent encroachment of roads by hawkers	CGM NTSA KURA KERRA	Short term Medium term
	Overloading and over speeding	Regulate and ensure use of recommended speed at various intervals	Enforcement County traffic marshals to help the traffic police	CGM NTSA	Short term Medium term

	Congestion and traffic snarl ups brought about by road mis-use by hand carts, animal transport and motorcycles	Reduce these traffic snarl-ups	Increase the road inventory to ensure more roads are available to users Segregate the different road users	CGM NTSA KURA	Short term
Intermediate modes of transport(motor cycles)	Inadequate facilities- carriage ways are narrow causing conflict among users	Reduce conflicts	Segregate routes of the various road users in their different categories.	CGM	Medium term
	Limited parking space	Ensure adequate space and efficient and optimum use of the existing parking spaces	Construct modern, parking and waiting bays through participation. Enforcement to ensure that the already constructed sheds are used for the intended purpose.	CGM NTSA	Short term Medium term
	High risk mode of transport prone to accidents (involves motor cycles, pedestrians, passengers and other road users)	Reduce the fatalities and accidents	Segregate routes of the various road users in their different categories.	CGM	Medium term
	Overloading and over speeding	Regulate and ensure use of recommended speed at various intervals	Traffic marshals, police and NTSA to enforce traffic laws. Have maximum speed limits for various zones	CGM	Short term

Challenge	Objective	Action plan	Actors	Time frame
Lack of an efficient road system	To have a sound road hierarchy	• Officially designate roads status within the hierarchy	• KURA • KeRRA • KeNHA • CGM	• Short-term
Traffic congestion	Ensure smooth flow of traffic	Increase Capacity by • construction of service roads along the Meru- Maua-Kimongoro road between Kathima and Makiri • construction of service roads along the Maua Athiru Gaiti road between Maua MCK Education offices • construction of service roads Develop additional by-pass roads to divert traffic from the town centre: • by-pass from Kathima to Makiri to pass behind Maua Girls • by-pass from Kathima to Makiri to pass behind Maua Level IV hospital	• KURA • KeNHA • CGM	• Medium-term
Narrow roads	Have adequate road widths to support current and projected traffic	• Widen roads according to the traffic demand • Implement the proposed road widening strategy (mapped and tabulated)	• KURA • KeRRA • CGM	• Short-term
Encroachment on road reserves	Recover encroached road reserves	• Set up neighborhood committees to identify encroached areas • Task the committees in conjunction with the authorities to devise measures to address the challenge and prevent occurrence in future	• KURA • KeRRA • CGM	• Short-term

Poor surface drainage on roads	Have proper surface drainage on all roads	• Unclog blocked drainage channels • Construct new drainage channels where none exist	• KURA • CGM	• Short-term
Poor road condition	Improve road surface conditions	• Upgrade the loose surface roads to gravel standard • Priorities road upgrading as per the strategy in the transportation report	• KURA • KeRRA	• Long-term
Inadequate terminal facilities for both local and outbound matatus	Provide sufficient space for terminal facilities	• Construction of other terminal facilities at designated areas Makiri and Kathima	• CGM	• Medium-term
Taxis congesting streets through indiscriminate stops	Reduce traffic congestion	• Designate taxi ranks – • Designate taxi stops	• CGM	•

7.3.6 ECONOMIC AND INVESTMENT STRATEGIES

The following issues/ observations emerged from the analysis of the economy of the town

- The CBD of Maua is a commercial centre for the people of the town and surrounding hinterland
- The other commercial areas of town are not properly planned
- The town mainly serves as an administrative, commercial, education and health centre to the local people and people from surrounding hinterlands
- The town can be the industrial centre for agro-processing industries because there is a huge potential to exploit the agricultural resources of the region like coffee and other horticulture crops
- Maua is located in a fertile area and can consider strengthening its role as an agricultural marketing and support centre.
- Tourism is not a major contributor to the economy, but Maua might be able to use its role as a knowledge centre to attract conference and similar trade
- In jua kali areas, most of the basic amenities like toilets, drinking water facility, storm water drainage, street lights, roads, etc. are inadequate. Some of the area allocated to Jua Kali has been grabbed near sewage pond site. There is no proper platform to get better training for the artisans and there is no platform for marketing of jua kali products

With the devolved system of governance, Maua Town is expected to be the centre for a wide range of partnership initiatives to leverage resources and expertise beyond the county in order to address the economic development challenges of accelerated and shared economic growth as well as job creation in the Town. Proposed activities and programmes towards that end are based on three thematic thrusts:

1. Improving the capacity of County government of Meru business regulatory regime to be amenable to the promotion of private enterprise;
2. Increasing selected agricultural sector value chains' productivity and stimulating other sectoral opportunities; and
3. Stimulating non-farm employment and income generating opportunities.

Existing Opportunities

The opportunities that can be utilized by County government of Meru according to the interviewed residents mainly dwell on agricultural production enhancement, improvement of infrastructure, and empowerment for the residents as tabulated

Table 27: Existing opportunities in economic investment

Opportunity	Reasons
Tea production and factories	Can engage the tea factories to support roads improvements and in addressing tea productivity through public–private partnerships
Several shopping and trading centres	Opportunities to invest in jua kali sheds for the youths and construction of stalls to improve livelihoods for women
Land availability	Expansion of town amenities and required infrastructure
Accessibility to other regions	Easy to access to markets for products in the neighbouring districts
Availability of land for town expansion	-Adequate land for Expansion and development of town and For essential facilities development
Availability of vibrant of cooperative societies	Very good resource in facilitating infrastructure investments if well utilized by the management and members
Available water resources	Easy for water supply expansion
Dairy industry	Can generate and create more employment opportunities for the youths and women
Proactive business community willing to support urban development	Ready to participate in town expansion and development
Quarry for sand and building blocks	Available materials for improvement of housing and estates development

Table 28: Commercial development goals, strategies and actions

COMMERCIAL LAND USE DEVELOPMENT					
CHALLENGES	**OBJECTIVES**	**STRATEGIES**	**ACTION**	**ACTORS**	**TIME FRAME**
Congested Central Business district (CBD)	To reduce on traffic congestion in the CBD	Establishment of a good road hierarchy system Encourage construction of parking bays at commercial premises	Establishment of a road hierarchy e.g. Meru – Maua- Mikinduri road Every developer to provide enough parking within the property.	Individuals KURA CGM	Short, Medium and long term
Poor growth of secondary commercial nodes	To improve on accessibility and connectivity to secondary nodes	Promotion of secondary commercial nodes Provide security of land tenure in commercial nodes	Designate secondary commercial nodes at Kithetu, Kiegoi, Mailitatu and Kimongoro Assign different activities for the nodes as proposed in the action plans	CGM	Medium term
Proliferation of informal commercial developments e.g. hawking	To minimize on the emerging informal developments	Clear demarcation of commercial zones Regulate all informal commercial activities	Proper zoning of commercial areas. Construction of a modern market	CGM	Medium and long term
Urban decay	To enhance urban renewal	Rehabilitation and conservation of urban developments in high standards Demolition and reconstruction of such developments	Setting up of policies on urban decay e.g at Annex estate Community sensitization on urban decay measures Improvement of infrastructure Security enhancement	CGM Private developers NEMA	Short and medium term

Inadequate parking space	To designate more land for parking	Setting up of more parking slots Enhancing that all developments are planned with adequate parking	New public service vehicle terminus Clearing of road reserves for parking	CGM KURA	Medium term Short term
Inadequate open air markets	To improve on the access to safe and clean markets	Setting up new markets across the planning area Strict zoning out of market plots for potential commercial developers	Construction of a modern market in Maua town Purchase land for open air market in Kimongoro. Direct activities to Kiegoi and Kithetu markets	CGM Ministry of Trade	Medium term
Inadequate access to market facilities	To improve on the accessibility to the markets areas	Lobbying for improvement of roads to the market areas	Construction of roads to improve on accessibility at Kiegoi and Kithetu areas.	CGM KURA, KERRA	Medium term
Underutilized resources	To promote efficient use of resources To promote revenue earning from resources	Identification of under-utilized resources	Development of new technologies to tap into agricultural potential, Research into tapping of underutilized resource potential.	Department of Agriculture Department of Tourism' Individuals	Long term

7.3.6.1 Growth Sectors

The growing sectors are agriculture, business, education, and transport services. However in the same sectors, some aspects were seen to be declining, e.g., in agriculture; maize growing, dairy farming, potatoes growing and also small scale businesses and food crops as indicated below

Table 29: Growth Sector Analysis

Growth Sectors	Improving sub sectors	Declining sub- Sectors
Education	Tertiary (universities and colleges) early childhood education	Polytechnic (attendance) Public primary school(attendance)
Industry	Jua kali-motor cycle repair, garages, workshops, car yards	Tailoring Posho mills Coffee processing
Business and commerce	Formal business – boutiques, wholesale shops, supermarkets, Small-scale business/shops Informal businesses – mitumbas, hawking	
Agriculture	Fish farming Banana farming Tea farming Horticulture	Coffee farming Miraa market Forestry
Transport	Bodaboda Taxi Outbound buses	Local Matatus
Tourism , Arts and Sports	Bars and hotels Recreational centres Tours and adventure	Informal eateries and cafes

Transportation sub-sectors like Bodabodas have grown by leaps and bounds but have brought in hazards like numerous accidents affecting the cyclists and pedestrians. The sector is also unregulated and support facilities in the town are minimal. This sector needs planning, close regulation and support in terms of provision of parking bays, picking and dropping zones within the town. The declining sectors in agriculture require revamping by the line ministries and private sector service providers.

In order to improve growth and accelerate development, there is need for improvements in services like credit provision, supply of electricity and inclusion of business community in

the formulation of bylaws, improving market facilities, provision of security and the revitalization coffee, Miraa and tea markets.

Table 30 Quick Win Proposals to Improve Business

▪ Access to credit and loans ▪ Adequate electricity supply ▪ Adequate water supply and sewerage services ▪ Improving on business management ▪ Dialogue and involvement of business community in formulation of bylaws ▪ Establishment of industries and factories ▪ Creating Forums for business association ▪ Open up the town to allow for construction of buildings – leads to having more space for doing business	▪ Having a Good market facilities ▪ Improvements of feeder roads ▪ Miraa, coffee and tea markets revitalization ▪ Market for selling products ▪ Reducing cost of inputs through bulk buying ▪ Security improvements ▪ Stability in commodity prices and production ▪ Consistent laws and cost of permits

In order to raise the competitiveness of Maua Town, Meru County government will need to:

a) Review and harmonize the business licensing regime in the town and other relevant bye-laws to make them pro-business; and

b) Facilitate provision of improved infrastructure in the town and surrounding localities.

Table 31 Proposals by Group for Improving Business

Tea industries & other farmer related enterprises	• Forming cooperatives to augment the services of the county government by investing in infrastructure development to enhance agriculture productivity	• Support from the county government and the community in ensuring transparency and accountability
Private sector – large businesses	• Developing associations to facilitate and lobby for improvement of the town • Increasing investment and formation of association to promote urban development • Participation in key investments of the county	• County Administration • Facilitate public –private partnerships for the growth of the town • Financial institutions • Funding of businesses
Private sector –	• Develop cooperatives to participate in	• County Administration good

small businesses	investments for the growth of the town • Working with the county government to improve the livelihood of the community members through support of various businesses. • Ensuring the provision of key amenities and services that support the growth of their business.	will • Access to credit from finance institutions and Micro-finance • Financial support • County government infrastructure support
Women groups	• Awareness creation • Lobbying for women involvement at all levels of urban planning and development • Promoting the role &participation of women for the growth of the town • Supporting women driven initiatives and investment in scaling up urban development	• Advocacy for change & involvement • CBOs support in Awareness creation • Credit from Donors • Micro-finance capacity building on credit management • NGOs support in capacity building • Resident Associations moral support
Youth groups	• Lobbying for jua kali sheds to facilitate job creation for the youths • Promoting the provision of essential facilities for the youths and • Promoting youth development initiatives to reduce youth unemployment and addressing other needs of the youth in urban planning and development i.e. the need to have recreational facilities and jua kali sheds • Supporting and promoting vocational skills development to enhance self-reliance among the youths	• Advocacy for change & involvement • Credit from Donors • Financial support from Micro-finance institutions • County government's moral support • NGOs support incapacity building • Resident Associations goodwill

Table 32 Integrated business Improvement Strategies

STRATEGIES	PROJECTS	TIMELINES
Provision of land for new commercial and industrial	Allocation of land for new commercial areas	Short and medium term
	Allocation of land for new industrial areas	Short and medium term

Integration and improvement of jua kali industries	Improvement of basic infrastructure in the industrial zone e.g. roads, electricity supply, water supply, drainage	Short and medium term
	Training and skill development-vocational training	Short and medium term
	Marketing of jua kali outputs- e.g. through a cooperative society	Short and medium term
	Trade fairs to show case jua kali products at county and national levels	Short and medium term
Improving the existing markets and construction of new ones	Improving the existing commercial areas	Short and medium term
	Construction of a modern market in Maua town	Medium and long term
	Acquire land and construct a market in Kimongoro	Medium and long term
Reduce cumbersome business approval process	Decentralization of the processes to sub county level	Short and medium term
	Single window approval process	Short and medium term
	Automating the business permit approval process- go online	Short and medium term
Infrastructure for commercial and industrial development	Notification of land demarcated for commercial and industrial uses	Medium term
	Development of basic infrastructure that promote investment e.g. water and sewerage network, roads, drainage	Medium and long term
Government promotion	Tax holidays for new businesses e.g. no payment of SBP for the first year.	Medium and long term

7.3.6.2 Improving Market Competitiveness

There is an urgent need to improve market competitiveness of products produced in the planning area. Tea produced by the smallholder tea growers in Maua through dissemination of information, knowledge and skills using the most efficient and available extension pathway so as to achieve quality and food safety assurance through certification to meet customer demands.

7.3.6.3 Indicative Employment Effects of the Proposed Activities

Central Business District (CBD)

Jua kali

The Jua Kali Sheds can be increased in numbers to create work spaces for more artisans. The current existing sheds (about 3173m^2 of working space) if increased as suggested by **expansion** of new sheds by about 25457m^2 of working space for artisans working outside the sheds could create additional employment of about 1000 artisans and workers.

Hospitality

It is also suggested that to provide more hotel facilities, at least 2 new tourist class hotels in the town can be built. This would create employment for not less than 1000 direct and indirect workers.

Agricultural market

There is only one horticultural market in the planning area. This is not enough. The county government of Meru should acquire land for construction of a modern market in Maua town.

7.3.7 HOUSING AND SETTLEMENT

Strategy 1: Promote Land Use Planning by allocating sufficient land for housing development

Measures

- Identify suitable alternative areas for comprehensive housing development.
- Prepare detailed action physical development plans for areas identified for housing development.
- Initiate dialogue and participatory planning activities among all the stakeholders in the housing sector
- Mainstream livable neighborhoods planning concepts, strategic planning and environmental conservation to guide development in housing
- Provide basic infrastructure: electricity, sewer, solid waste management, water and access roads.
- Prevent the growth of squatter areas by anticipating demand and planning for it appropriately.
- Encourage public private partnership in housing development

Strategy 2: Provide and improve Infrastructure and services

Measures

- Upgrade main and access roads to residential neighborhoods

- Provide piped water
- Connect sewer reticulation to include all residential neighborhoods areas
- Enhance solid waste collection services in residential neighborhoods
- Improve storm water drainage in residential neighborhood

Table 33 Housing and Settlement Strategies

Challenge	Objectives	Strategies	Actors	Time frame
Temporary and semi-permanent houses	Increase the percentage of permanent houses		Residents Developers	Long term
Expensive building materials	Have affordable and easily available building material	Promote use of cheaper and high quality building material e.g. prefabs, containers, EPS	CGM Developers	Long term
Poor sanitation in residential areas	Achieve clean neighborhoods for all	Construct and maintain drainages Garbage collection Enforce strict waste disposal methods	CGM Residents	Medium term
Inadequate housing facilities	Clear zoning and development of housing	Promote Land Use Planning by allocating sufficient land for housing development	CGM	Long term
Lack of effective development control mechanisms	Have clear development control guidelines	Employ law enforcement officers Increase the capacity of the Physical Planning Department	CGM	Medium term
Inadequate land for residential development	Optimal use of the available land	Partnerships in construction	Private Sector Individuals	Long term Medium term Short term
	Encourage vertical development	Offer incentives for those building one storey and above		Medium term

CHAPTER 8

PLANNING POLICIES

8.0 Introduction

As part of the strategic urban planning process various subject plans referred to as planning polices and development control, have been formulated. The planning policies address planning concerns affecting various types of development applications that are likely to impact of the attainment on the overall objectives of the plan. They target developmental concerns that are not adequately provided for in the structure plans, the action area plans or in the strategies forming part of TOR's. The planning policies serve to guide the planning, approval and development of various facilities.

8.1 Education

The population of the planning area is projected to grow at a rate of at least 2.14%. This means that the current enrolment in learning institutions will continue to grow. There are two options in this case-:

1. Develop more learning institutions in the planning area.
2. Increase the capacity of the existing learning facilities.

With the spatial distribution of the existing learning institutions being fairly good and land being fixed and available in small sizes, the second option is better. From the spatial analysis over 98% of the people in the planning area access learning institutions within the recommended distances.

Objectives

The objective of the education policy is to formulate a framework for guiding the approvals of development applications for various types of education facilities. It seeks to ensure that County only approves and authorizes the establishment of educational facilities that meet minimum requirements that are basic to providing quality education. It also provides a guide for private investors wishing to develop educational facilities. It is also recommended that institutions should provide land use plans before any development is done.

Type of Educational Facilities

This policy covers day care centers, nursery schools, primary schools, secondary schools, and

tuition centers, special institutions and commercial colleges.

The Problem

The lack of clear guidelines of monitoring and evaluating the education sector has been the cause for many challenges facing the education sector in Maua and its environs. They include haphazard development in education facilities, inappropriate location of institutions, overcrowding, inadequate land for basic amenities, and lack of a clear approval process for school registration. This has then resulted to the deterioration of educational standards leading to poor performance, drop outs, drug abuse, and alcoholism, high level of drop outs, prostitutions and early pregnancies. It is in light with this situation that at the policy seeks to address the problems. Others includes; Inadequate land to provide support facilities, Inappropriate location, Some schools are not registered by the ministry of education, High costs of education, Shortage of low cost high quality educational service providers, High school drop-out rate in the area due to poverty, domestic challenges, social evils among others.

Planning Requirements

The basic requirements for the establishment and development of the various educational facilities are outlined in table below:

Table 34 Planning Standards for Education Facilities

Institution type	Min plot size (Ha)	Ground coverage (%)	Population catchment	Other requirements
Day care centers	**0.05**	**40**	2500	In residential neighborhoods. Not to be accessed from a major road exceeding 15m. Not within a commercial and industrial area/premises.
Nursery schools	Single stream (0.1) Double stream (0.15) Triple stream (0.25)	**40**	3500	In residential neighborhood. Not to be accessed from a major road exceeding 18m. Not to be accessed from a public transport road route.
Primary schools	Single stream (1.2) Double stream (2.0) Triple stream (3.0)	40	8000	Have an access road of a minimum of 12m. Not within 100 m of a liquor outlet.

				Co sharing of facilities is allowed. Site planning be undertaken to ensure efficient land use. Vertical development is encouraged for optimal land use. Provision of adequate space per student at 4 meters sq in a class room.
Secondary schools	Single stream (3.4) Double stream (3.5) Triple stream (4.5)	30	-	Site planning be undertaken to ensure efficient land use. Vertical development is encouraged for optimal land use Fronting a minimum of 15 m road Not within 100 m of a liquor outlet Co-sharing of facilities is allowed Accommodation for subordinate and key staff for boarding schools Provision of a school dispensary in case of a boarding school.
Tuition centers	0.05 ha	-	Depending on the needs of population	Within residential zones
Special institutions/ Orphanages	Minimum of 0.4 ha	**40**	-	Within major primary schools in the area Have an access road of a minimum of 12m. Provision of a boarding section that ought to include accommodation for caretaker, matron and support staff.
Commercial colleges	Depending on needs and type of service offered	-	2500	Not to be located within residential estates. Preferably to be located within commercial area.

8.2 Health Facilities

Distribution

As in the case for education, the health facilities are fairly well distributed in the planning area. However, their capacity needs to be improved. Over 75% of the people have access to a

health facility within a distance of less than 1.5km and only 11% cover a distance of more than 2.5km.

Cemetery

The proposed site for the cemetery is at Murera which is outside the planning area.

8.3 Recreational Facilities

There is only one stadium in the planning area and an open playground in Maili Tatu. Other playing grounds are within schools.

Recreation is the sum total of all human, social-cultural and economic activities that enhances the therapeutic status of the mind. It brings a relaxation of the body and mind. Recreational areas can be private or public. There is need to provide the facilities both in the rural and urban areas because of the following reasons:

- Need for relaxation after a long days work/break from routine
- Income generation/economic activities
- Social interactions
- Tourist attractions
- Set as carbon sinks/breathers
- Preservation of socio-cultural and or religious values
- Environmental conservation-forest, trees, flowers planting
- Competing users due to population pressure hence overcrowding living conditions in the informal settlements.

Areas of recreation include:

- Areas of scenic beauty
- Areas of historic/cultural importance
- Unique physiographic features
- Parks, forests, water masses, etc
- Play fields, stadia, green spaces, zoos, snake parks, museum, amusement parks, etc.
- Discotheques and cinema halls
- Conservation areas
- Road Reserves

Demand for Recreational Facilities

There are several socio economic factors among the urban and rural population that suggest a real need for a generous provision of green spaces within the urban environment. These include:

(a) New urban population

The majority of adult population in urban areas is migrants from rural areas and shows a strong attachment to the land. The rural environment has been a formative influence in their lives.

(b) Low earnings

The majority of the population lack money for all but their basic needs. They are therefore essentially pedestrian and their recreation must be found within walking distance to their homes. They cannot afford much living space and tend to live in cramped overcrowded conditions. Some relief is necessary from the pressure generated by overcrowding

(c) Population Structure

Majority of the population in major urban areas are under 25 years. Open spaces are therefore necessary for their health physical and psychological development. Overcrowded living conditions, lack variety in the environment and lack of opportunities for independent play and exploration during the early years of children tend to inhibit their intellectual development. It is therefore essential to provide opportunities for children to play in safe attractive and stimulating surroundings within the residential areas.

(c) Limitations on Public Expenditure

Public funds are limited and this could result in poverty of the man-made environment. A sensible landscaping policy could be one of the cheapest and most effective way of counteracting eyesores in the manmade environment; producing an urban environment in which it is attractive to live and work and providing areas of inexpensive recreational opportunity.

Planning standards

The recommended size and distribution of parks is **1-2 hectares** to be shared by a population of **10,000** people.

Situational analysis

There are two public parks and one stadium in Maua town. There is one community play ground in Mailitatu. These public recreational facilities have a total area of approximately **4.8 Ha**. This is largely inadequate.

Table 35 Planning Standards for Recreational Facilities

Year	2016	2019	2035
Population	68419	73561	120211
Recreational space requirement in Hectares	6.8	7.4	12
Deficit	2.0	2.6	7.2

Recommendations

The planning area is highly populated and land has competition among uses. For this reason land required for the purpose of creating recreational areas which are fairly distributed might be unavailable. The proposed conservation areas can be used as open spaces such as riparian spaces near rivers. It has also been proposed two recreational spaces in Kimongoro.

Schools serve communities and the people. In the planning area, there is approximately **18 Ha** of land held by primary and secondary schools as playgrounds. It is therefore recommended that the county governments and the schools should partner in development and maintenance of these recreational grounds so that they benefit the communities where those schools are based.

8.4 Social Halls and Community Centers:

Distribution

The demand for these facilities will probably be around **1 to 20,000** Population catchment. Land needs approximately **0.25 hectares** to be located in positions along main pedestrian routes not isolated and away from main lines of pedestrian movement.

Situational analysis

There is no single social hall in the planning area. The numbers of social halls required are analyzed as follows

Table 36 Planning Standards for Social Halls

Year	2016	2019	2035
Population	68419	73561	120211
Number of Social halls required	3	4	6
Land requirement in Hectares	0.75	1	1.5

Recommendations

As indicated, land is a scarce resource in the planning area. Therefore there is need for partnerships with the existing land owners. The County government should partner with public purpose facilities (schools, churches, health facilities) to avail land for the construction of the social halls. In addition, one social hall can be constructed in the stadium in Maua town, another at Kilalai and another at Maili Tatu playground. These halls can also host indoor games.

8.5 Disaster management

Meru County lacks an elaborate body with the mandate to control, prevent and respond to events threatening the stability and sustainability of the human and natural environment in the county. It is important to have a body that deals specifically with urban disasters due to their likely high impact on a densely settled area and associated economic issues.

Potential disasters include fire, especially in the informal settlements in Maua town. Maua fire engine does not suffice.

Flooding is another risk, especially in low-lying flat areas, as a result of increased discharge from paved areas. These areas are often occupied by low income people that have low mitigation ability against flooding. Further, with low sewerage coverage the wet season is likely to be characterized by storm water mixed with sewage with high chances of a disease outbreak. In several cases the sewer has leaked into the river with the potentially high risk of disease outbreak since most of the downstream users have no piped water.

The steep gradients in parts of Maua town mean that there is a high likelihood of landslides, especially where building foundations are weakened by poor land management such as erosion. A landscape approach is important to safeguard investments where soil erosion

control, riverbank conservation, gabion erection and land cover management approaches are integrated. This approach ensures a holistic approach so as to achieve social, economic, and environmental development, and ensure that highland areas are connected with lowlands. Soil erosion is minimized by tree planting and terrace farming in steep areas, and riverine areas are preserved. Very important is promotion of sustainable land management on the farming areas around the town boundary through practices like agro-forestry and permaculture.

8.5.1 Projects of disaster management

The goals, strategies and projects have been identified for disaster management and are presented in table below:

Table 37: Goals, Strategies and Projects for Disaster Management

Strategies	Projects/ Programmes
Link the building approval system with safety precautions	Mandatory provision of smoke detectors in all buildings with overall building approval system
Mandatory provision of earthquake resistance in building design	The county government needs to prepare design templates for different house sizes
Provision of adequate fire safety mechanism	Establishment of 1 fire station and 3 fire sub-stations
Repairing of existing fire hydrants and construction of new fire hydrants	
Purchasing of fire tenders/vehicles	
Provision of water and sanitation facilities and awareness generation	Awareness generation for general hygiene and health to prevent any health disaster
Provision of potable drinking water to all	Adequate provision given under infrastructure
Provision of proper sanitation facilities to all	

8.5.2 Fire Station

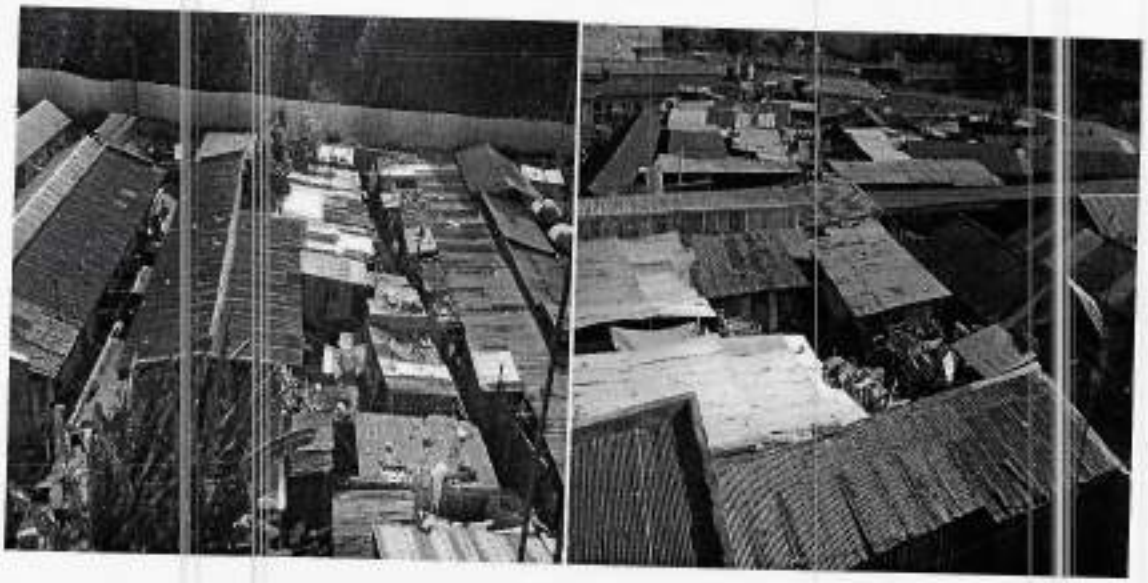
Planning standards

For high-risk areas - there is need for accessibility to major road network. Land required is **0.4 hectares** minimum to include station, staff accommodation and drilling area. A small fire station would require 1 fire engine and at least 30 staff members to cover a population of between 50,000 – 100,000 depending on degree of fire risk.

Situational analysis

From the standards, the only fire engine in Maua town is grossly understaffed with an area of approximately **0.22 Ha.** Moreover, Maua is a high risk area in terms of fires and natural disasters. In Maua town structures have been constructed in such a way a fire engine cannot get through in case of a fire. In addition, most building in the high density areas are made from flammable materials such as timber adding the risk.

Figure 14 High Risk Settlements



Recommendations

Maua needs a complete and adequately equipped and staffed fire station. From the planning standards, Mau will need at least 2 fire engines by 2019 and at least 4 by 2035. Each fire engine will need at least 30 well trained employees with housing facilities being provided.

8.6 Administration and Security

The users of this include police posts, national and county government administrators. These offices are used to serve the public.

Situational analysis

There are two police posts and one police station in the planning area. Other administration offices are chief's camps, courts and other public purpose offices.

Recommendations

A police post established at every market center (Kiegoi, Mailitatu and Kithetu) in the planning area.

8.7 Street Naming Policy

Maua belongs to all its citizens and as such names of the streets should reflect the diversity and rich culture of the people of Maua.

The Importance of Names

1. Names are essential location tools and navigational aids for a predictable, manageable and orderly environment and create a 'sense of place';
2. Names are the beginnings and ends of journeys or destinations;
3. Names are place markers and focal points through symbolism, association and remembrance;
4. Names have powerful positive or negative meanings for people and provide opportunities to promote community harmony or perpetuate hurt and division.

Policy Objectives

The objectives of this policy are as follows:

- To ensure an inclusive, consultative clear process that enjoys public and political support and which will stand the test of time, and which can be followed when a proposal for a name change is received;
- To ensure that a transparent and community-driven process is undertaken when a name change is proposed;
- To replace controversial and offensive names;
- To guide renaming of public streets and County-owned features which have names that are in conflict with the rules of the "Policy on Street Naming and Numbering

Policy Considerations

Categories of Names That Should Be Avoided

- Offensive or insensitive names
- Names that are cumbersome in the sense that the name may be construed as unintelligible in the spoken or written form, and physically in the sense that the length of the name may be considered impractical on a street sign;
- Linguistically corrupted or modified names;
- Similar sounding names should be avoided within a 5km radius (eg. Baite and Vaite avenues);

- Names that could be construed as commercial advertising;
- Names of living persons.

8.8 Parking Policy

Problem

- Uncontrolled parking on road sides
- Inadequate parking facilities

Objective

The objective of the parking policy is to provide guidelines that will increase the provision of parking facilities by developers and the public spaces provided by CGM so as to improve service and revenue collection.

Types of Parking Facilities

There are various options in the type of parking facilities available for development as outlined below:

1. Basement Parking

This is private parking provided on the lower floors of high rise buildings. It is usually provided in commercial and residential premises. These are provided in plots exceeding 0.1 hectares and a width span of 30m. These facilities are exclusively private and they are regulated by the land owner.

2. Roadside Parking

Roadside parking is usually provided within public road reserves. It is usually regulated by the County. It comprises angle or flash parking. A standard parking bay measures 15 – 35 square metres per vehicle.

3. Silo Parking

This comprises of a high rise building that is almost exclusively dedicated for parking. They are private developments that are regulated by the land owner. In cases where there are offices in the same building, these may occupy up to 10% of the building usually the upper floors.

4. **Open Parking Yards**

These are private facilities comprising mostly of an open plots that are used for parking. The facilities are regulated by the land owner.

CBD Parking Proposal

Table 38: CBD Parking Proposals

	Flush parking size (m)	Angle parking size (m)
Cars	5.0 - 6.5 by 2.5	5.0 - 6.5 by 2.5
Buses	10.0 by 3.3	10.0 by 3.3
Trucks	30.0 by 4.0	40.0 by 2.5

Figure 15 Model of a Car Park

Parking regulations

Table 39 Parking Regulations

Type of development	No. of parking
15 storey commercial building	2 floors parking only
7 storey commercial building	1 floor parking
3-4 bedroom house	1 parking bay per unit
2 bedroom house	1 parking bay per 2 units
1 bedroom house	1 parking bay per 4 units
Town house	2 parking bays per unit

3-4 bedroom bungalow/ maisonette	1 parking bay per unit
2 bedroom bungalow/ maisonette	1 parking bay per unit
1 bedroom bungalow	1 parking bay per 4 units
Hotels	1 parking bay for 5-8 beds
Hospital	1 parking bay for 5-10 beds
Industrial	1 parking bay per 10 workers

Every building should comply with the parking space requirement before approval.

8.9 Change of Use Policy

The urban landscape is dynamic and therefore subject to change over time. There is however need to regulate such change to ensure that developments do not deviate from the permitted use on the title or from the set zoning regulations. Processing of change of use applications enables the county and other relevant agencies to remain alongside each other with the changing land use and needs. By so doing, the agencies are able to initiate reviews of the existing zoning regulations where necessary.

The problem

Currently there are no zoning regulations in force. Land in Maua and its environs is agricultural but developments have continued to take place without an elaborate change of use framework. The developers are developing without applications of approvals from the county and the other relevant authorities. This has led to unchecked developments leading to unplanned environments with little or no regard to spatial and environmental considerations.

Policy Objectives

This policy seeks to provide a frame work for regulation of change in land use. The specific objectives include:

- To identify the various types of permitted land use;
- To avoid uncontrolled change of use;
- To obtain consensus in change of land use;
- Maintain harmony in the constantly changing urban character;
- To ensure that the new users remain compatible with the zoning regulations; and
- To set requirements for development applications.

Planning Requirements

The following requirements are essential in order to acquire approval for a change of user:

a) A Planning brief;
b) Land ownership documents i.e. land allotment letter, tenancy at will agreement, land certificates, title deed;

c) Duly filled and signed PPA 1 forms;

d) Rates payment receipts;

e) Newspaper advert; and a

f) Public Notice/ Site Notice.

Types of Land Uses Regulated by the Policy

The transformation of the use of land or premises from one to any of the following land use constitutes change of use. Often the permitted use is defined in the lease in case of leasehold land. For freehold land, unless where expressly stated to the contrary, is usually agricultural. Change of use involves the change in the density of use of land or a deviation from the stated use permitted in a lease. The various permitted uses in Meru area as follows:

a) Residential Purposes

Single Dwelling

Single dwelling use entails construction of one dwelling house including a guest wing that may include a Maisonnette, bungalow, or town house.

Multiple Dwelling Units

This is the use of land/property for several dwelling units. The use should be specified to any one of the following:

- **Flats** - residential premises with multiple dwelling units with or exceeding 2 floors.
- **Maisonnettes**- single dwelling units with two levels; attached, detached or semidetached. It has internal stairs and a single on street entrance.
- **Bungalows** - attached, detached or semi attached dwelling units with ground level only.
- **Town houses** - this applies to single dwelling units with up to three levels.

b) Commercial Purposes

Commercial purposes allow a variety of business activities. It therefore permits the unrestricted use of land/premises for one or many types of business activities. This is appropriate for designated commercial areas.

c) Offices

This category allows the use of land/ premise for offices. This is ideal for tertiary services as opposed to trading of commodities prevalent in commercial areas.

d) Professional offices

Under this category, the policy applies to use of land/premises for rendering consultancy services. Professional offices attract low volumes of clientele and traffic and therefore can quite easily operate within residential neighborhoods without raising land use conflicts. Professional certificates should accompany applications as evidence of the specialization.

e) Commercial-cum-Residential

The category is also referred to as Business-cum-Residential (BCR). It allows mixture of compatible commercial and residential activities. The two activities may each take between 20 to 80% of the utilization.

f) Shops and Residential

Under this application, a minimal mixture of business and shops is allowed. The principal use, mainly residential may take of up to 80%. The shops provide basic household items. The shops should be located at the plots fronting the main roads only. Bars, clubs, hardware shops, distributor outlets are not permitted given the strong residential character and the narrow roads.

g) Industrial Use

Industrial use permits the use of land or premises for all types of industrial activities. The change of use to industrial use should be allowed in designated industrial areas only.

h) Light industry

This category permits use of land or premises for light industrial activities. The major activities permitted are inoffensive and may therefore interrelate quite well within or adjacent to residential and other populated locations.

i) Educational

Under this category, the use of land or premises is limited to one or more of various educational purposes. This includes a nursery, day care centres, tuition centers, primary schools, secondary school or tertiary institutions. The type of institutions to be developed should be clearly stated.

j) Mixed Developments Use

Mixed developments permit a combination of various compatible uses resulting from comprehensive developments. They may include various types of uses such as residential, educational, shopping centre etc. Each subplot or unit within the scheme has no mixed use but a distinct use.

k) Institutional Use

Institutional use permits development of institutions. This allows a comprehensive nature of developments that may include offering combination of services such as religious, educational, health, recreational, staff housing, guest houses etc.

Application requirements

Applications for change of use to be submitted to the county and to include:

a) A planning brief;
b) Land ownership documents i.e. land allotment letter, tenancy at will agreement, land certificates, title deed;
c) Duly filled and signed PPA 1 forms by a registered planner;
d) Rates payment receipts;
e) Survey plans;
f) Comprehensive location plan;
g) A newspaper public notice;
h) Site notice; and
i) Professional certificates in case of professional offices.

8.10 Extension of Use Policy

Extension of use implies a combination of two or more land uses on a single unit of land.

Challenge

There is increasing utilization of land for two or more uses without approval from the County. This has led to a combination of incompatible uses. This creates land use conflicts that may lead to loss of economic value, social benefits and aesthetic significance. Extensions of use require regulation so as to avoid changes that may affect the zoning regulations. There is thus the need for the County to evaluate the existing land use to enhance land use compatibility and to provide harmony in the constantly changing urban character while ensuring that the proposed use is compatible with the zoning regulations for the area where the plot is located.

Policy Objectives

The major objectives of this policy include:

- To provide a framework for approval of combination of developments;

- To ensure that only compatible uses are combined;
- To safeguard neighborhood character;
- Adhere to zoning regulations; and
- To maintain harmony in changing urban character.

Planning Requirements

- Principal use should take up to 80% of the utilization
- Ancillary use should take up to 20% of utilization
- Ancillary use may be short term
- Building alterations to accommodate the ancillary use, if any, may not to exceed 10%
- Only maximum two uses are allowed

Applications requirements:

- A planning brief;
- Land ownership documents i.e. land allotment letter, tenancy at will agreement, land certificates, title deed;
- PPA 1 forms signed by a registered planner;
- Rates payment receipts;
- Survey plans;
- Comprehensive location plan;
- English newspaper public notice;
- Swahili newspaper public notice; and
- Site notice.

CHAPTER 9

PLAN IMPLEMENTATION STRATEGY

9.1 Communication Strategy

There is need to develop an effective communication strategy:

- To encourage participation through structured information and awareness program, that spells out opportunities and avenues for engagement during the Plan implementation.
- To ensure that residents stay informed and are empowered to see through the strategy's implementation.
- To Enhance a shared and common vision for the realization of MISUDP 2015-2035
- To maximize the visibility of measures undertaken in order to fulfill the overall strategy.
- To ensure complimentarily particularly given the multiple layers and other equally competing agendas within a devolved governance structure

9.1.1 Guidelines for the Communication Strategy

- CGM shall ensure that the strategy is designed in such a manner that it shall apply to the whole planning cycle, including the monitoring and evaluation and reporting. It shall also be accompanied by effective and continuous documentation.
- CGM shall design the most suitable channels of information based on different needs and circumstances.
- Ensure that information provided about the Plan is accurate, relevant, accessible and regularly updated to develop mutual trust.
- The communication plan should be well resourced with both staff and financial resources

The communication and information strategy approaches should reach out to both internal and external actors.

The Internal Implications of the strategy should resolve current intrigues in services delivery such as lack of coordination amongst departments and sectoral agencies. Besides the organogram, CGM shall develop well-structured mechanisms for internal communication and coordination.

On the other hand, the external Implication of the communication strategy will be structured in a manner to ensure that external stakeholders and residents of the planning area are more

meaningfully involved in governance affairs. Currently residents rarely have the chance to know what the CGM plans for the town's sustainability and continued growth are. As a result the residents have largely been passive on matters involving urban development. The proposed CGM external communication and information sharing strategy therefore seeks to engage with the towns' residents and other publics on the governance and development plans of the town. Overall, the strategy will ensure public participation, compliance with legal requirements, alignment with Constitution 2010 and Vision 2030 and delivery of reports and other outputs on set milestones.

Measures to Support the Strategy

- Cause for the adoption of the vision statement to provide community focus, while generating and maintaining adequate levels of excitement amongst residents
- Conduct continuous civic education campaigns to articulate on the rights of town residents.
- Publicize and facilitate access to public platforms or meeting places
- Produce appropriate editorial media to provide a balanced and positive view and especially in regards to "crisis management" issues,
- Enable the preparation of statements in response to publicly-raised issues or queries.
- Establish documentation centers where public can access town plans and deliberation minutes.

Media for Delivering the Strategy

Taking cognizance of the need for proper control and direction of communication and information sharing within the CGM will design and utilize a mix of channels and tools as part of the communication and information sharing strategy.

Email and Intranet for Internal Communication and Information Sharing

The flow of communication and information sharing within the county has relied on the traditional memos, circulars letters and even word of mouth. In line with the aspirations of vision 2030 and the Constitution where ICT is expected to be key driver of delivering government service, a functional communication and information sharing system be adopted as soon as feasible followed by an effective email and intranet system to actualize the smooth flow of communication as well as sharing of information.

Electronic and Print Mass media

The CGM is expected to identify the popular mass media outlets in the jurisdiction for delivering the communication and information sharing strategy. Channels falling under this include radio stations, newspapers and television, where radio still remains the primary source of information in much of rural with newspaper and television penetration still lagging. These channels are useful for running advertising features mainly in newspapers, techniques that have been utilized by private companies to popularize products as well as expand and deepen market penetration. Similarly documentaries or infomercials are increasingly being used in the electronic mass media to disseminate relevant communication and share information.

Media Visits and Briefings

Closely related to the above, the proposed media visits and briefings will allow the CGM to control and direct content of communication and information sharing to the mainstream media for them to report objectively.

Citizen Fora, Public and Meetings Workshops

Public meetings and workshops have been one of the traditional vehicles for information dissemination and sharing in much of the republic. To this extent it is now a legal requirement to provide information and generate important feedback from the various actors in the given jurisdiction. These may be meetings held quarterly or on a needs basis around key thematic areas and strategy milestones.

Social Media and Web 2.0 tools

To build on the expected increased ICT capacity the CGM will seek to engage the residents particularly the youth through social media. This will involve the use of increasingly popular platforms such as Face book, Twitter amongst other social media. This will further be supported by other web 2.0 based communications and information sharing platforms which enable users to interact and collaborate with each other in discussions as moderators or contributors of content in these largely virtual community, such as blogs and interactive websites.

9.2 Institutional and Governance structures

The effective implementation of the Maua ISUDP 2015-2035, will largely depend how well it is anchored within a clear and appropriate institutional framework.

Key Interventions that Facilitate Plan Implementation

1. **Infrastructure provision** –infrastructure provision can be used to stimulate and direct development in desired areas in accordance with the development plan. The CGM should be proactive in the provision of trunk infrastructure in priority areas in order to promote private and public sector initiatives.
2. **Social services provision:** urban authorities should ensure that the social services are developed alongside residential developments to encourage residents to enjoy the services in the neighborhood and also reduce traffic congestion in the long run.
3. **Land availability** is a critical aspect of plan implementation and measures should be taken to ensure adequate and timely availability (this could be done through land banking, resolution of land tenure issues etc)
4. **Manpower Deployment and development**: Successful plan implementation will require trained and competent manpower. It is imperative that CGM employs the necessary staff in the relevant fields to oversee the plan implementation to its conclusion in conjunction with other players.
5. **Technology:** need for computerized database (data capture, processing, storage, retrieval and application including dissemination); this requires putting in place the necessary hardware, software and skilled human resources. Through application of e-governance developers and professionals can begin to submit development applications and receive approvals on-line to make the process more efficient and transparent.
6. **Integrated approach to services delivery**-an integrated package in delivery of services will be crucial in delivering the plan, encouraging an inter-departmental and across- agency coordination
7. **Logistical Resources**: in addition to manpower covered above plan implementation will require resources such as transport, equipment (e.g. computers. GPS, digital cameras, survey equipment etc), finance, office accommodation, telecommunication. Coordination with other relevant authorities is crucial particularly in enforcement.
8. **Zoning plan** interpret the structure/comprehensive plan and stipulate detailed development control standards. The plan should be embedded within the zoning plan of the area

Source: Adapted and improved on from Urban Planning and Development Control Manual, KLGRP, 2009)

9.3 Human Resource and Funding

Furthermore once the Maua ISUDP has been prepared it is necessary that it is operationalized with sound governance structures and principles in line with aspirations of the constitution. Therefore an effective urban governance system that promotes genuine partnerships and mutual relationships across various institutional spheres-local, civil societies, public and the private sector is desired to fully achieve/implement the proposals and programmes expressed in Maua ISUDP 2015-2035.

Like many other counties in Kenya, CGM has serious inadequacies with regard to technical staff to undertake planning and implementation of urban development work. The CGM is also unable to raise sufficient revenue to meet its development needs. CGM will employ technical staff to ensure effective implementation of the Plan. Besides, increasing avenues for revenue collection, the County will also develop framework for raising funds both internally and externally. Equally important is that the frontline staff and employees will continuously be capacitated and exposed through a funded exposure programme as they are the ones in direct contact with the public in services delivery.

9.4 Fast tracking and building synergies with ongoing Initiatives

There are on-going projects that are being carried out by the national government in conjunction with the county government. For example, the on-going sewerage network being done for Maua town by Tana Water Board. There are also plans to tarmac 18km of streets and roads in Maua town by KURA. There is also a plan to put under irrigation 450 acres of land covering 450 farmers in Kanuni. These projects will go a long way in actualizing the Maua ISUDP 2015-2035.

9.5 Land Availability for Urban Development

Maua town is still growing and expanding but this growth and expansion needs to be controlled through proper planning. For this to happen land will need to be made available for various uses in the future. This will have to take place in various ways as outlined below:-

9.5.1 Land Acquisitions

Land could be acquired for the purposes of putting up urgently required public facilities. Of priority are the Land acquisitions for putting up a public service vehicles terminus, market at Kimongoro, miraa warehouses and packaging centers at Mailitatu and Antubochiu and a public park at the 'Maua Basin'.

9.5.2 Land Pooling

Land pooling is a form of temporary public ownership that seeks to achieve unified control over large areas and means of financing public service installations during the crucial land development stage of urban growth. This process entails a Public Authority e.g. the County Government of Meru, to assemble numerous parcels of Land without paying compensations to the owners. Instead the CGM services and subdivides the Land for urban use and returns most of the resulting building sites or plots to the original owners on prorate basis i.e. in proportion to their Land contributions and sells the remaining sites to recover public costs.

Government or public sponsored land pooling is an efficient way to convert rural land to urban use and allows the Government to capture some of the land value increases resulting from the supply of inputs. This system is widely used in South Korea, India, Japan and China. Locally in Kenya the process has been used in Changamwe, Mombasa. The Changamwe Re- Pooling Scheme through the defunct Municipal Council of Mombasa is a live example of the success of this process.

9.5.3 Public – Private Partnership

Private Investors in Maua could be encouraged to partner with the CGM in raising funds for the acquisition of land for specific projects and share the accrued profits. For instance, land could be acquired for medium or high density residential use, after which a block of flats on tenant purchase could be put up and availed to the residents.

Owners of private land zoned for Industrial purposes for instance could be allowed to enter into direct arrangements with private entrepreneurs for purposes of putting up Industries with the CGM having an overseeing role as well as involved in the provision of infrastructure and basic services. Their local contribution will be in the form of land and could work out profit sharing or sublease for the land.

9.5.4 Revolving Fund

Funds could be set aside for purchase of strategic land. For instance the Government/CGM could buy out some of the plot owners in the freehold area at the 'Maua Basin' and develop a park with an artificial lake. Accruing proceeds could be shared on a 50 – 50 ratio whereby the Government/CGM remains with the asset and 50% of the rent whereas the balance of the 50% of the rent could remain in the revolving fund to be used to replicate the exercise at another site.

9.5.5 Open Market Transactions

Entrepreneurs could be encouraged to be involved in a willing buyer, willing seller transactions when looking for land to put up various types of investments provided the particular piece of land has been zoned for that purpose. However, this will need a lot of publicity once the Plan is completed to make entrepreneurs aware of this possibility. The social media and the Local Planning Steering Committee could be used to popularize these options amongst the local owners in the planning area and could even attract external or international investors.

9.5.6 Subleasing of Land

The owners of the land in the freehold area for instance could sublease their land for the various urban uses and earn reasonably good amount of money while still remaining as the lesser of the land. This however implies that Government regulations such as change of user will need to be compiled with.

9.5.7 Land Banking

The CGM could have more controls on the development control conditions on subdivision and change of users.

Presently a large number of freehold owners near the C.B.D. are operating commercial enterprises on hitherto agricultural land. These should revert to 99 year leases and bring these lands under direct Government control and be able to increase the Government Land Bank. These conditions apply to the whole country as per the Government Land Act.

9.5.8 Some Quick Wins and Priority Projects for Economic Growth of the Planning Area

Quick-Win Projects

There are certain projects that can revamp business in Maua which are relatively cheap and easy to implement. They can also be designed to head off community frustration at delays to more substantial improvements of the town that can be often dogged by long processes and procedures. Quick Win projects can bring about vital gains in the well-being of residents. The quick win projects which can be implemented very first and also realize good results for the town were mainly improvement of access roads, electricity network, construction of markets, having polytechnics, market centre improvement, among others.

Table 40: Suggested Quick Wins and Priority Projects for Business in the Planning area

Action area	Priority project	Reasons
Maua Town	Demarcation of all streets, service lanes and access roads	To improve access and open up the town
	450 Market stalls for hawkers	Promote business and formalize hawking
Mailitatu	Construction of miraa warehouse and packaging centre	Improving business in the town
Kithetu	Move animal auctioning market to the area	Increase business activities of the area
Kiegoi	Support the university campus	Improving activity of the center that will pull development
	Rehabilitating roads to the market	Improve access and mobility
Kimongoro	Construction of a market	Improve and support new and existing businesses
	Opening up of service lanes and streets	Improve access and businesses

Source: Geoland Surveys 2016

CHAPTER 10

CAPITAL INVESTMENT PLAN

10.1 Introduction

Physical planning in the past has suffered from many deficiencies, of which the most important ones were the inflexibility of the instrument and the difficulties of updating it; the other has been the split between planning and implementation. Capital Investment Plans (CIPs) are intended to help bridge this gap by providing practical and realistic guidance regarding the next steps in implementing the capital development aspects of the plan.

County Governments face at least four substantial challenges in dealing with capital investment planning:

1. Demands and desires for capital investment are always higher than available funding; therefore, CGs must make choices.
2. There is an intrinsic timing challenge. On the one hand, allocating funding for capital projects should be done annually within a city's budgeting cycle. On the other hand, complex infrastructure projects may require several years' preparation and "packaging" before external financing (grants or loans) can be sought.
3. Contemporary approaches to evaluate options for complex infrastructure projects usually exceed the CGs' technical capacities, even in large cities.1
4. Capital investment planning is an evolving area of public management. Local governments across the world are continuously trying new approaches.

10.1.1 Principles in capital investment planning

1. County government does not spend its limited resources on "frivolous" investment in projects that should not be government business (for example, speculative commercial real estate).
2. All needs are compared objectively.
3. Prudent long-term fiscal policy is exercised.
4. Innovative solutions at the project level are considered.
5. Individuals have effective channels through which to express their preferences.

10.1.2 Impacts of capital investments

Capital investment by county governments has a direct, multifaceted impact on local life.

Three key implications are:

1. ***Quality of life in a particular*** city and its attractiveness to people and businesses depend, to a substantial degree, on the quality of public infrastructure and related services. In most cases, this infrastructure in turn is an outcome of local capital investment planning. Given that public funding for capital projects usually is limited, making the right choices among competing investments becomes an important factor in the city's long-term vitality and competitiveness.

2. ***Long-lasting spatial effects*** of capital investment projects impact local life after the projects have been implemented. Locating public capital investment wisely and according to private sector demand can serve as a catalyst to attract private sector capital investment—on top of public investment—in a particular location and thus create a node of urban renewal or growth. Conversely, errors in locating public capital projects can dramatically reduce their utility and waste limited public resources. For instance, infrastructure-equipped land for industrial uses can sit vacant for years due to oversupply. Erroneous choices also can have negative socioeconomic implications. An example is housing for the poor built by the government in locations far from jobs and markets.

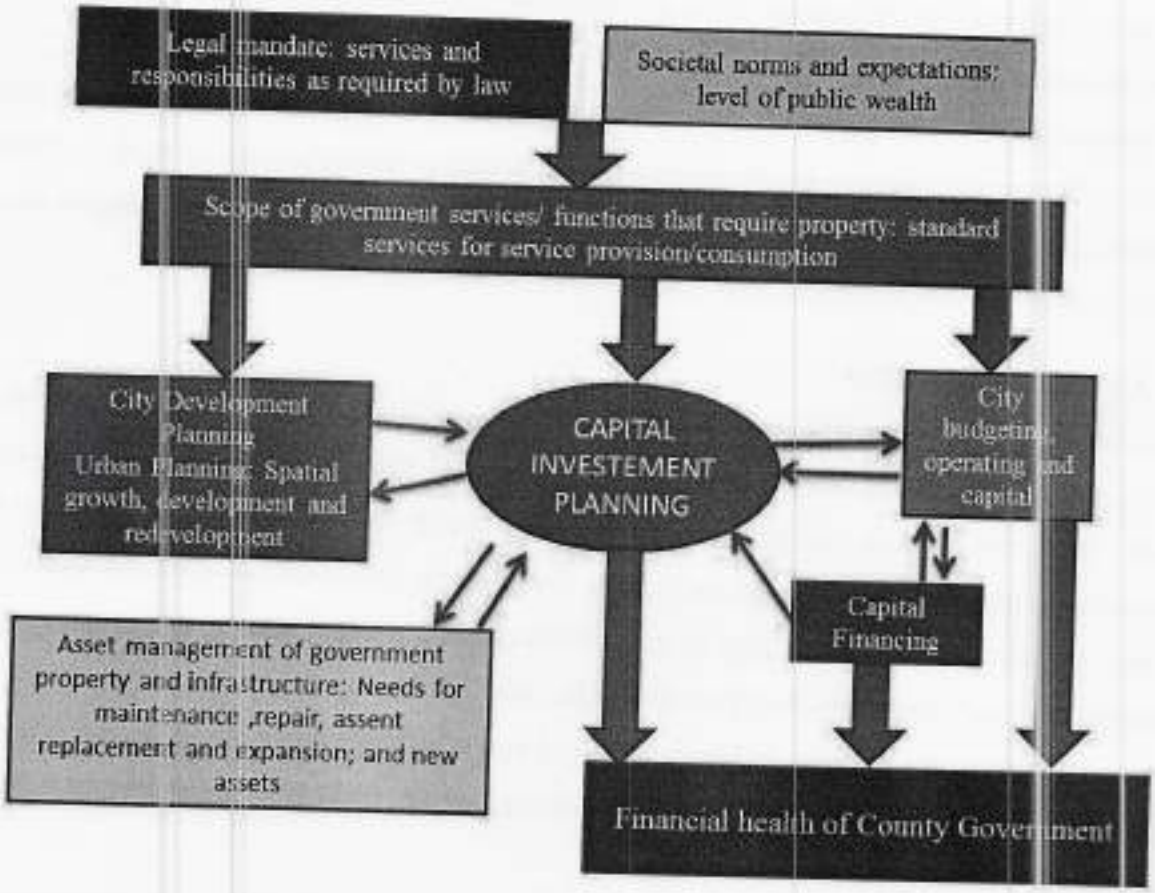
3. ***Fiscal legacy.*** Capital investment by CGs often requires some form of long-term borrowing. Moreover, even if new properties and infrastructure are acquired or built without borrowing, making wise choices is important because funding spent unwisely could be used better elsewhere. In addition, capital investment usually leads to ongoing annual operation and maintenance expenses.

10.1.3 Fundamental contexts of CIPs

CIPS need to meet the following fundamental contexts

- Conceptual- the drafting of CIPs should be based on various concepts
- Legal-the various laws in fiscal planning and budgeting that should be observed.
- Social- the CIPs should meet the aspirations of the people
- Economical- CIPs should ensure efficiency in use of resources.

10.1.4 How CIP is related to County Government's Activities



There are several challenges related to incorporating the infrastructure stipulated by a spatial development plan such as an ISUDP into projects for a capital investment plan. First, when it comes to suggesting projects for capital investment, most of the "real" planning is done by line departments or enterprises responsible for services such as roads, water supply, sewage, or public transit systems. If these multiple entities all act consistently by following the spatial concept of the ISUDP, the infrastructure required t

o implement the spatial plan will be built, as in Singapore. However, in many cities, the actions of different departments and enterprises are inconsistent with stated long-term spatial plans. In addition, CGs themselves often lag far behind in providing infrastructure according to their own planning documents.

Moreover, urbanization in developing countries often occurs so rapidly that even a well-prepared ISUDP becomes irrelevant. In these cases, land development by the private sector often goes ahead—with varying degrees of informality—without public infrastructure. In turn, such development makes it necessary later to retrofit the infrastructure.

To avoid gaps between what is planned and what is built, CGs need to secure:

1. Good institutional coordination both within the government and with external stakeholders to ensure that real link exists from a Master Plan to the implementation of infrastructure investment that it stipulates

2. Increased capacity to physically deliver the infrastructure projects in a timely manner, at a pace consistent with urban growth. In this regard, a simple solution that can work in some countries is to engage the private sector to design and build infrastructure according to plan specifications instead of relying on the government 'sown capacity.

10.1.5 Asset Management

The capital assets under CG control include property and infrastructure such as buildings, roads, parks, water and sewage systems, city landfills, and vehicle fleets. Among other things, asset management means managing each property or facility for its entire life, as long as it is owned or controlled by a CG or its entities (institutions, enterprises). Asset management addresses the costs associated with property's lifecycle: the acquisition cost, operation and maintenance and repair costs during the life of the asset, and replacement or disposition cost of replacing it when the property exhausts its useful economic life. There are deep connections between asset management and capital investment planning, which CGs must factor into the CIP process. These connections are:

In cities in which some infrastructure already exists, a proportion of capital expenses (sometimes, a very substantial part) should be appropriated not for new construction but for the repair and replacement of existing assets. The necessity to allocate capital funding to existing assets implies that the *asset condition and needs assessment* by departments and enterprises—part of their asset management—should produce a significant number of investment requests. Moreover, it can be useful to have formal or informal policies that give priority to the repair and replacement of existing core infrastructure over the construction of new facilities that could be "flashier" for politicians to support than the prosaic replacement of invisible pipes and pumps.

The initial construction cost of most government capital assets—from general county buildings to city roads—constitutes only a part of the total cost incurred by the CG during the useful life of these assets. (This total cost is called the life cycle cost, defined below.) Moreover, as a rule, the construction cost makes up only a fraction of the total cost incurred during the50year life of a facility. This fact demonstrates very clearly that capital investments only the first, and not the main, cost related to government assets. The implication is that

planning any new construction or capital reconstruction must be linked to simultaneous planning for the future institutional and financial operation of the new property. In particular, CGM should define (1) which entity will manage and operate the new infrastructure and (2) from which sources the operating expenses will be funded. If any new capital asset is planned to be built or purchased, managing it during its life as government property would become a task of asset management. In addition, future operating costs should be factored into obligations for the city operating budget (unless this asset is used by a fully independent and financially self-sustaining operator).For CGM with advanced asset management, all asset activities, including capital planning, originate from a Strategic Asset Management Plan, which defines long-term intentions regarding assets based on the government's service and program needs. When a Strategic Asset Management Plan does not exist, three areas of asset management become critically important for the capital planning process and associated budgeting:

1. Inventorying assets
2. Tying capital investment to life cycle costing
3. Estimating long-term repair and replacement needs for the entire asset portfolio.

In addition, contemporary asset management can suggest new, alternative options for addressing infrastructure needs, including private sector participation and integrated service provision. ***Inventorying assets.*** To reflect conditions and the maintenance and repair needs of the assets in the CIP process, CGM needs use these data to create and maintain an asset inventory. CGs do not maintain a comprehensive inventory of their capital assets. It is recommended that CGM start by creating a basic inventory with a simple database. As the scope and sophistication of their asset management as a whole grows, CGM can advance incrementally to a more sophisticated database such as one linked to a geographic information system (GIS).

As a start, the inventory should include a brief description of the asset (or group of assets), its location, condition, year of acquisition, remaining useful life, and replacementcost.6 The initial inventory can be a simple spreadsheet which later can be imported into a more sophisticated database. Even basic inventory information can help prioritize capital project needs. Furthermore, assets usually are grouped in inventory databases, for example, by asset type or by holders/managers (departments, county enterprises). Typical groupings may include:

- Utility and sanitation assets, including sewer and water systems, solid waste facilities, and county electric and lighting systems
- Highways, roads, and bridges
- Public buildings (in large cities, this portfolio can be further specialized: government use, education, sport, culture, public housing)
- Land or rights to land
- Certain improvements to land other than buildings
- Certain equipment, vehicles, and furnishings.

It is important to note that the content of the inventory database depends on the tasks for which the data will be used. The data outlined above is needed to plan capital investment and life cycle costing. However, for other asset management tasks, such as optimization of the building portfolio, CGM would need to collect and maintain other information (for example, the level of vacancy of each building).

Life cycle costing. The useful life of buildings and infrastructure facilities and networks can be 25–75 years or even longer. The costs associated with the useful life include:

- Construction/acquisition
- Annual expenses
- Disposition.

The annual costs, in turn, have many components. There is no unified view on how these components should be grouped. In addition, annual costs depend on the type of facility, materials and equipment used, climate (in some places, heating is needed; in others, air conditioning; in some, both or none), and labor. Moreover, as mentioned above, there are differences in interpreting which expenses should be paid from the operating budget and which from the capital budget. However, commonly recognized ideas underpin good public sector asset management policies and practices:

1. Maintenance and repair (M&R) costs are distributed unevenly during an asset's life and depend on the type of the asset (figure A1). As noted, these costs vary geographically as well.

2. Annual operations costs, compared with replacement costs, also vary substantially by type of asset and constitute a substantial amount. The M&R and operations costs together, taken over the asset lifetime, are much larger than the initial (replacement) cost. Justas with the M&R costs, the operations costs vary very substantially geographically.

3. Less certainty and agreement exists about what should be included in annual restoration and modernization(R&M) costs, which also are called *recapitalization* or *depreciation,* and

how these costs should be distributed over the useful lives of assets or beyond.8 Nevertheless, it is commonly recognized that sufficient resources should be budgeted and accumulated to fund restoration and modernization or to replace the asset after the end of The total annual costs associated with properties/facilities during their lives are almost always many times higher than the initial construction costs. However, these annual costs may be lower (although still more than the initial construction cost) for facilities that cost more to build—if the savings on the M&R and operations costs exceed the extra construction. The same is true for the costs of certain types of repair, replacement, or renovation. For example, replacing an old air conditioning system with modern, energy-efficient one can lead to substantial savings on annual energy cost, so that in a few years, the investments recaptured and life cycle savings begin.

5. Failing to properly fund M&R or R&M costs results in deferred maintenance, repair, and recapitalization. These, in turn, diminish the useful life of the assets and the initial investment in their construction.

10.1.6 Public Participation and Overall Transparency of the CIP Process

"Public participation" should provide channels not only for citizens but also for the business community to have a say in the CIP process and product. Public participation ensures that what is funded and how these capital investments are paid for reflect the views of not only the politicians and technical experts from the government but also broader constituency of local taxpayers, both individual and corporate. At the same time, public participation in the CIP process enables the government to convey to the public unpopular truths: about the true cost of new or improved services and the associated tariff/fees implications for the public. Without such communication, there is a risk of a common problem: people like services to be improved but tend to ignore the fact that improvements cost money. The overall transparency of the process—both within the government and for the public—and of the CIP is no less important than the direct contribution of nongovernmental players. Transparency is essential to keep the government accountable and to reduce opportunities for corruption, especially since government investment and construction projects around the world have been prone to corruption.

10.2 Anticipated reviews

Project Name	Current status	Immediate period in years
Review of Trade Licensing	Not reviewed	2

by-Laws		
Review laws to Facilitate Good Climate for Development	Not reviewed	3
Establish effective development control mechanisms	Not done	5
Formalizing of hawking Business	Not done	3
Solid waste management systems	Not done	1
Survey and delineation of all roads	Survey not done	Continuous
Identify Service Lanes to facilitate Commerce	Lanes not identified	3
Introduce and encourage use of NMT	NMT facilities are unavailable	3
Physical address system	Many streets and buildings not named	3
Delineation of urban land	Not adequately done	5
Identify/purchase Land for Public Utilities	No County Land	5
Review of land rates	Not reviewed	3

10.3 Roads and transport

One of the major problems of the Maua town is the poor planning of the road network within the town that is manifested in traffic congestion, lack of pathways for non-motorized transport, inaccessibility in some parts of the town, narrow roads and lack of traffic lights to regulate traffic movement. In the outer parts of the CBD, the roads are either gravel or paved. This makes it difficult to move around the area particularly within the agricultural segment.

Purpose

To improve the capacity of the road, accessibility to the areas, reduce traffic jams and road accidents in this part of Maua town during the period between 2015 and 2035.

Table 41: Road cost analysis and prioritization

No.	Name of Road	Status	Proposal	Distance (Km)	Priority	Cost in millions	Term
Dual Carriage Ways							
1	Mailitatu-Antubochiu	Tarmac	Make it into a dual carriage way	7.2	4	600	Long term
By-Passes							
1	Maua Town-Kiegoi-Nturibi	Gravel	Tarmac	9.2	5	900	Long-term
2	Njoune-Miori-Makiri	Gravel	Tarmac	6.7	4	528	Medium term
	Total			**23.1**		**2028**	
Other roads							
1	Maua town-Kiegoi	Gravel	Tarmac standard	4.5	3	360	Medium term
2	Maua town – Kilalai	Gravel	Tarmac standard	1.5	2	120	Short term
3	Antubochiu-Luluma-Maua Town	Gravel	Tarmac Low volume	4	3	160	Medium term
4	Maua-Athiru Gaiti	Gravel	Tarmac Low volume	4	4	160	Medium term
5	Mailitatu-Kaibu-Kiegoi	Gravel	Tarmac Low volume	4	4	160	Medium term
6	Tarmacking of all urban roads	Not all tarmacked	Tarmac standard	26	3	2000	Medium term
7	Opening up of new streets, services lanes and tarmacking them	Not there	Tarmac standard	3.5	1	280	Short term
	Total			**47.5**		**3240**	

Table 42: Other road related activities

Activity	Status	Priority	Cost	Term
Survey of informal roads to allow for 9m- include public participation and awareness	Not surveyed	1	50	Short term
Construction of a footbridge at Mailitatu	Not done	3	100	Long term
Construct NMT facilities	Not done	1	100	Short term
Install Traffic Lights	Not done	2	50	Medium term
Provide Street Lights	Some installed	1	50	Short term(on-going)
Land acquisition for new roads and road expansion	Not done	1	400	Short-term
General Road Maintenance	Continuous	1	375	Continuous
New terminus at Makiri	Not done			
Land acquisition	Not done	3	100	Medium term
Construction	Not done	3	100	Medium term
Kimongoro				
Land acquisition	Not done	1	10	Short term
Construction	Not done	1	72	Short term
Kathima				
Land acquisition	Not done	3	15	Medium term
Construction	Not done	3	32	Medium term
Lorry terminus at Mailitatu				
Land acquisition				
Construction				
Improve Parking facilities	Inadequate and poor quality	2	150	long term
2000 spaces				
Boda boda sheds (10)		2	15	medium term
Physical addressing system	Not done	2	100	medium term
Total			**1712**	

10.4 Water Supply

A smart town must have adequate water supply. Fortunately, Maua town and its environs has numerous sources of water that can be harnessed to satisfy domestic, industrial, agricultural and institutional needs. Currently, water is supplied by the IMETHA, Community water

projects and private sectors. There are many perennial streams from Nyambene ranges that traverse the area.

In areas where water is in short supply, and where water vendors operate, communal water points should be provided. In order to improve water and sanitation by year 2035, the following projects and programs should be implemented.

Purpose

To improve water transmission systems for Maua town and its environs

Activity	**Term**	**Priority**	**Cost in millions**
Expand the capacity of water treatment plant to meet 2035 requirements	Medium term	2	400
Rehabilitation of Maua town piping system	Ongoing	1	100
Extend Water Connection to un-served areas 30Km	Short term	1	45
Installation of community water points in public places and village centers (20)	Short term	2	2
Total			**1547**

10.5 Sewerage and sanitation

In order to improve the standard of living of the people within the planning area, it is important that sewer development be done to reduce the number of houses that use septic tanks and other unhygienic ways of waste disposal. The Tana Water Service Board is currently designing the sewerage system for Maua town.

Activity	**Term**	**Priority**	**Cost in millions**
Development of an efficient sewage management system	Short- term (on-going)	1	900
Public Toilets in market areas and public buildings and spaces (total 10)	Medium-term	2	10
Education on public health	continuous	3	20
Improvement/repair of existing drains	Continuous		50
Total			**580**

10.6 Social Services

The purpose of an investment plan is not only to ensure economic development but also to ensure that social services are improved to give quality life to the inhabitants of the area. The tables below provide the current situation and the investment plan by year 2035.

Activity	Term	Priority	Cost in millions
Health			
Construction and Equipping the Mortuary Block in Nyambene Level 4 hospital	Short- term (on-going)	1	50
Increase the capacity of health facilities gradually	Continuous	1	1000
Construction of a dispensary at Mailitatu	Short term	1	10
Construction and Equipping the Kithetu Dispensary	Medium-term	2	5
Total			**1065**
Education			
Increase the capacity of educational institutions gradually	Continuous	1	1000
Construction of KMTC at Maua Level IV	Long term	1	2000
Improvement of ECDE infrastructure	continuous	3	20
Construction and Equipping Igembe Campus Kiegoi	Long term	4	3000
Construction and equipping vocational training institutions in every ward (4)	Long term	3	2000
Total			**8020**

10.7 Community facilities

A smart city must provide adequate basic social facilities such as social halls and community centers, parks and more importantly fire stations. These facilities should be constructed during the plan period. These projects should be phased out over the plan period. The fire stations should be done during the short and long run. The cost of these projects will depend

on, among other things, the size of the facilities. The figure provided here are therefore indicative.

Activity	Number Required	**Term**	**Priority**	**Cost in millions**
Acquisition of land for Cemetery (20acres)	1	Medium term	1	10
Construction of Library	1	Medium term	2	10
Construction of social halls	2	Medium	2	10
Construction and equipping of Fire Station at Maua town	1	Short term	2	250
Total				**280**

10.8 Economic and investment

Given economic activities of the planning area it is expected that the private sector directly or through PPP, will carry out activities in commerce and trade, industry, Jua Kali, transportation, tourism, and value addition. Industrial development and value addition could focus on agricultural produce in the planning area such as bananas, Miraa among others.

This would act to enhance wide range of partnership initiatives to leverage resources and expertise beyond the County funds in order to address the economic development challenges of accelerated and shared economic growth as well as job creation in the Town. The table below gives a summary of investment plans in economic and investment.

Activity	**Term**	**Priority**	**Cost in millions**
Modern market in Maua town-7floors	Medium term	1	900

Upgrading of Markets- stage market-roofing Kiegoi-designate open air market Kithetu-fenced livestock auctioning market Kimongoro- - acquisition of land 2 acres -construction of market	 Short term Short term Short term Short term Medium term	 2 2 1 1 2	 1 2 2 10 8
Improvement of informal markets in Maua town Construction of stalls(450)	Short term	1	50
Miraa warehouses at Mailitatu and Antubochiu- includes acquisition	Long term	2	50
Total			**1023**

10.9 Environmental Plan

Activity	**Term**	**Priority**	**Cost in millions**
Enhancing environmental education.	Continuous	3	20
Conserve and protect the riparian-10m Tree plantation along river banks 16000trees for 24km of streams and river riparian channels	Long term	2	16
Solid waste management Increase the number of garbage collection trucks each with compactors to 20 Land acquisition for a land fill-50 acres Development of the dumpsite into a landfill	 Long term Medium term Long-term	 2 2 3	 260 15 100
Increase number (10) and capacity to of waste transfer station	Short-term	2	20
Total			**431**

10.10 Administration and Security

Development cannot progress as planned if insecurity is allowed to persist. People must feel safe as they carry out their social and economic activities. Their property must be protected. Additional police posts in three markets should be provided. Community policing should be stepped up while flood lights are built in some markets.

Table 43: Summary of safety and security

Activity	Term	Priority	Cost in millions
Installation of 30m high mast lights (15) in major activity areas	Medium term	3	4.5
Construction of police posts in three market centers	Medium term	3	12
Security lights	Long term	2	24
Total			**40.5**

10.11 Recreational and open spaces

Activity	Term	Priority	Cost in millions
Development of Eco-Tourism as a revenue earner to the area-Maua recreational park(artificial lake)	Long term	5	1500
Upgrading of Mailitatu play ground into a sports and arts center	Long term	3	950
Upgrading and renovation of Maua stadium	Medium term	3	200
Urban waterfront development programme-landscaping	Medium term	2	20
Upgrading of the existing Public Parks	Short term	2	1
New parks at Kithetu Kiegoi Kimongoro –land acquisition Landscaping	 Short term Short term Short term Medium term	 1 1 1 2	 3 3 10 12
Total			**2699**

10.12 Agriculture development strategies

Activity	Term	Priority	Cost in millions
Tea Marketing and branding Improve water and soil management Value addition	Medium term Medium term Medium term	5 5 5	50 10 20
Miraa Marketing of the product worldwide Moving the final packaging from Nairobi to Maua	Continuous Medium term	1 1	1000 100
Coffee Processing, branding and value addition	Medium term	3	100
Dairy Milk cooling plants in milk producing areas (4) Milk processing plant Value addition- yoghurts, powdered milk Extension services to dairy farmers	Medium term Medium term Long term Short term	3 2 1 1	140 100 10 5
Fish Promote fish farming-awareness Promote fish consumption in the county Value addition-packaging	On going On going Short term	1 1 1	3 2 10
Horticulture Irrigation-planned in Kanuni-450acres	Medium term	2	100
Total			**1650**

10.13 Summary of Costs

Time frame of activities	Cost in millions
Short term	**2561**
Medium term	**6609.5**
Long term	**11660**
Continuous	**3485**
Total	**24315.5**

10.14 Funding Sources

The amount of funds required to implement the MISUDP is large and the County government of Meru may not have immediate financial resources to do that. It therefore calls for alternative sources of funds to be explored. Possible sources of funds are enumerated below

Table 44 Sources of Funds

Source of funding	Pros	Cons
Public Private Partnerships	Faster implementation of projects Government is left to invest in other socio-economic areas Transfer of operational and executional risks from the government Projects are executed efficiently	Private entities expect to be compensated for any risks involved Few number of private entities available for PPPs Might be expensive for the government in the long run
County Government Bonds	Effective-counties become self-reliant	Need certain laws to be enacted Interest rates might be high Leads to governments being in debt
Public Financing Institutions/Bank Financing	Leads to governments being in debt Interest rates might be high	Need certain laws to be enacted
Multilateral Financing Institutions	Deliver some services that would be too expensive for county governments Effective	Might invest in non-priority projects
Donor agencies	Mostly grants Dependable sources for capital intensive projects	May have some conditions
Property Taxes	Dependable Stable Leads to improved quality of land use	Regressive Inelastic Difficult to enforce
National Government Transfers	Dependable Predictable	May be delayed
County Sources of Revenue	Flexible-Can be reviewed from time to time	Collection may be affected by inefficiency and corruption
Divestiture	The government is left to carry out other social activities for its citizens	May require laws enacted
National Government Constituency Development Fund	Easily accessible Citizens prioritize its spending	May be affected by local politics The legality of this fund is in question

CHAPTER 11
MONITORING AND EVALUATION STRATEGY

11.1 Monitoring Projects in the Capital Budget and Their Implementation

There is need to develop a system for monitoring and reporting on the projects in the CIP. The credibility of the CIP process rests on the timely implementation and completion of the construction or reconstruction of the priority projects.

Local and county governments lacking a tradition of budget discipline and capital planning face at least two big challenges in implementing a CIP. The first challenge is that the priorities included in the CIP, even if they were approved by the representative body, may be revised during a fiscal year; and other projects not included in the CIP may be funded instead. For example, instead of capital repairs of two schools, funds may be used to repair street lighting and refurbish the governor's office. The second challenge occurs when cost estimates included in the CIP turn out to be insufficient and need to be increased, thus consuming funds planned for other investments. For example, street repair may cost twice what was budgeted, so that kindergarten roof cannot be replaced. Overcoming such shortcomings requires better government accountability and planning and effective public participation.

11.2 Transparency and Public Information

To maintain the public's support, the CGM needs to make special efforts to keep the public informed about the status of projects. Inviting the public to meetings of the representative body when CIP status reports are being presented can be one important method. Even for cases in which CGM is just beginning the CIP process transparency can be achieved through simple, inexpensive means if the political and administrative will is there. For example, if CGM does not have yet an established system of monitoring and reporting on its capital investments, it can simply publish annually a list of capital projects paid for during the past year that includes costs, and a list of projects *planned* for the past and upcoming year. These lists would be very informative for residents and would show whether the CGM had been disciplined in following its plan. "Publishing" can be as simple as posting table with the list of planned and executed projects and related costs on a billboard at county hall or on a city website. If the capital planning process is already established, transparency can include reporting on achieving the "targets" of a multiyear plan.

To improve the chances of success, attention needs to be placed on some of the common areas of weakness in programmes and projects. Four main areas for focus are identified consistently:

1. Planning and programme and project definition—Projects and programmes have greater chance of success when the objectives and scope of the programmes or projects are properly defined and clarified. This reduces the likelihood of experiencing major challenges in implementation.

2. Stakeholder involvement—High levels of engagement of users, clients and stakeholders in programmes and projects are critical to success.

3. Communication—Good communication results in strong stakeholder buy-in and mobilization. Additionally, communication improves clarity on expectations, roles and responsibilities, as well as information on progress and performance. This clarity helps to ensure optimum use of resources.

4. Monitoring and evaluation—Programmes and projects with strong monitoring and evaluation components tend to stay on track. Additionally, problems are often detected earlier, which reduces the likelihood of having major cost overruns or time delays later.

- Without proper planning and clear articulation of intended results, it is not clear what should be monitored and how; hence monitoring cannot be done well.
- Without effective planning (clear results frameworks), the basis for evaluation is weak; hence evaluation cannot be done well.
- Without careful monitoring, the necessary data is not collected; hence evaluation cannot be done well.
- Monitoring is necessary, but not sufficient, for evaluation.
- Monitoring facilitates evaluation, but evaluation uses additional new data collection and different frameworks for analysis.
- Monitoring and evaluation of a programme will often lead to changes in programme plans. This may mean further changing or modifying data collection for monitoring purposes.

11.3 Monitoring and Evaluation Mechanisms

Monitoring and evaluation is an essential element of urban planning and development for it provides important feedback on performance and impact. However, this has been a neglected activity because of the lack of a legal framework for plan implementation and audit, and inadequate resources and manpower. There will be attempts to improve monitoring and evaluation systems in CGM. The public with some capacity building can play a key role in M&E, though their participation in M&E is weak.

There is need to institutionalize and strengthen the M&E function in CGM by including a strengthened broad based community monitoring committee as part of Stakeholders Forum.

In CGM an M&E system can be an effective way to:

- Provide continuous feedback to and get views from stakeholders on the extent to which MISUDP is achieving its objectives,
- Identify potential problems in implementation of MISUDP at an early stage and come up with possible solutions,
- Monitor the accessibility and usefulness of the Plan and activities to all stakeholders in Maua Town and its environs, and
- Monitor the efficiency with which the different components of the Plan are being implemented and suggest areas of improvements.

For the MISUDP, monitoring and evaluation should encompass the following:

- A description of the plans/projects to be implemented by the county in a certain period of time,
- Details of the project including technical and financial inputs,
- Operational status and outputs of all the project components, and
- Remedial measures undertaken to ensure that outputs/impacts are well delivered. This should also include daily, weekly, monthly, quarterly and yearly operations and maintenance.

Table 45: M&E Framework for Maua

Component	Comments on the desired ends plans/projects
Inputs	This should include among others technical, land legislations, and financial resources devoted towards a specific plan. -Also would include services provided by the county Should also indicate details of sourcing and cost

Outputs	Includes among others the products the project is expected to produce/deliver as a result of the inputs or services provided by the county -should also take note of the effect of the outputs e.g. facilities
Impacts	Examining if the plan/project goals or objectives have been met
Processes	-Measuring if both operational and implementation processes are being followed. -Aspects/level of community/beneficiary participation in plan implementation, taking note of special groups such as women, disabled and youth
Schedules	Measuring if the implementation of the plan is adhering to the stipulated time and budget lines -if there are delays, they should be recorded and reasons well noted

Source: Geoland Surveys, October 2016

11.4 Sample M & E Checklists

Table 46 Roads and Transport

Sample outcomes	Indicators
Increasing accessibility within the town	Number of roads opened
Ample parking	Number of parking spaces delineated
Terminus for public service vehicles and lorries	Construction of terminus
Naming of streets	Number of streets named
Construction of non-motorized transport facilities	Number of footpaths done, bumps and traffic calming interventions
Delineation of roads	Number of roads clearly delineated
Widening of roads- minimum of 9m and service lanes of 6m	Number of roads widened and service lanes demarcated.

Table 47 Water and sanitation

Sample outcomes	Indicators
Improved access to clean water	Adequacy of reticulation network Percentage of households with access to water in their homes
Adequate sewerage system	Adequacy of reticulation network Percentage of households with access to sewerage system in their homes
Public toilets	Number and continued maintenance of public toilets

Table 48 Environment

Sample outcomes	Indicators
Rehabilitating riparian reserves	Number of trees planted on riparian areas
Storm water control	Drainage channels constructed and maintained
Improve garbage collection, transfer and disposal	Number of garbage collection trucks Garbage sorting at source
Recreational parks and open spaces	Continued maintenance of open spaces and parks Size of areas dedicated for recreation, arboreta or open spaces in the planning area

Table 49 Economic and Investment Strategies

Sample outcomes	Indicators
Setting up an industrial complex	A distinct industrial area for the Maua town
Miraa warehouses in Mailitatu and Antubochiu	Status of implementation-and its acceptability
Revitalized secondary nodes	Improved activities in the secondary nodes
Stalls for hawkers	Number of stalls done
Modern market	Number of retailers housed by the market

Table 50 Education

Sample outcomes	Indicators
University at Kiegoi	Functionality and size of the university
High quality infrastructure in schools	Status of the infrastructure of educational institutions
High literacy levels	School enrollment and transition rates
Standard teacher-student ratio	Teacher- student ratio

Table 51 Health

Sample outcomes	Indicators
High quality infrastructure in health facilities	Quality of infrastructure in health facilities
Standard doctor –people ratio	Number of doctors hired and their ratio
Number of health facilities	Number of health facilities completed within the stipulated times

Table 52 Arts, Sports and Recreation

Sample outcomes	Indicators
Social hall constructed	Number of social halls constructed Use of the social halls
Regional circuit games, festivals	Number of games/festivals held
Upgrading of Maua town stadium and Mailitatu play grounds	Improvements and maintenance done

Table 53 Disaster Management

Sample outcomes	Indicators
A modern fire station- fully equipped and staffed	Number of workers vis-a-vis the requirement Quality and capability of equipment and disaster rescue engines
Safe buildings	Number of unsafe building brought down Periodic audit of buildings Change in the manner building approvals are done Buildings to have fire extinguishers, emergency exits , lightning arresters,
Storm water control system	Condition of drainage channels

Table 54 Administration and Security

Sample outcomes	Indicators
A police post at every chief's camp	Number of police posts constructed
Security lights installed in major centers	Adequacy of the installed lights

CHAPTER 12

CONCLUSION

The completion of the preparation of the strategic urban development plan for Maua is expected to guide its development up to the year 2030. The plan provides a broad framework with specific components that address various development needs.

The structure plan provides a broad and long term strategy to guide the development of Maua in line with national aspirations and local needs in particular. The plan formulates a strategy that captures the long term development vision of Maua. It forms as an overall guide to the short term plans.

The Action Area Plans, the planning policies and the various sectoral strategies constitute an important planning component to facilitate easier plan implementation. The plans provide useful guides for day to day planning and development control. They act as useful tools for development regulation and also for guiding development applications and in decision making by the council, land owners and developers.

While the responsibility for implementation of the plan largely lies with the council, the plan identifies all the key actors and points out some of their specific mandates towards the realization of the plan objectives. The role of the council, government agencies, local groups, the stakeholder group, land owners and the general public is made elaborate. The implementation of the plan is key to achieving orderly development of Maua.

The plan is strategic and allows flexibility to change during implementation. It allows for reviews of the provisions of the plan but through a participatory approach. The change of use and extension of use policies allows flexibility that is necessary given the highly dynamic nature of urban developments.

In order to achieve the proposals made, there is a need for building capacity and developing legal frameworks at the local level for meaningful success to be realized. The county government needs to enhance its capacity to manage the implementation process. There is need for urgent implementation of the plan so as to guide growth for the fast expanding center. The time for implementation is now.

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