

REPUBLIC OF KENYA



MINISTRY OF LANDS, HOUSING AND URBAN DEVELOPMENT

COUNTY GOVERNMENT OF LAIKIPIA

Nanyuki Town Integrated Strategic Urban Development Plan (2014-2034)

BY



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PLAN APPROVAL

This Plan has been prepared, publicized and circulated as per the requirements of the Physical Planning Act Cap 286 of the laws of Kenya. The plan has fulfilled all the statutory requirements and is hereby approved.

CERTIFIED

County Director of Physical Planning

Laikipia county Government

Date -----

CERTIFIED

Director of Physical Planning

Date -----

APPROVED

Cabinet Secretary for Lands, Housing and Urban Development

Date-----

Approved Development Plan No. -----

FORWARD

Inadequate planning is one of the major constraints facing urban development in the country. This has impeached sustainable development of these towns. This is manifested by the numerous unplanned and uncontrolled developments in many of our cities, towns and urban centres. It is highly lamentable that urban planning has not been able to keep pace with the rate of development and expansion of our urban centres. Truly, lack of effective urban planning has resulted in urban centres that are poorly planned resulting in, conflicting land uses narrow roads, incessant traffic jams, lack of public amenities, and are overcrowded. To a great extent, mushrooming of various uncontrolled 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 recognizes that there cannot be sustainable development without well planned urban centres. It is anticipated that over half of Kenya's population will be resident in urban areas that by 2030. The migration of rural population to towns is expected to increase. The Ministry of Lands, Housing and Urban Development through the Directorate of Urban Development in collaboration with county governments has therefore prioritized the urban planning of all urban centres as a basis for achieving effective and sustainable urbanization. Within this scenario, the ministry facilitated a participatory process of planning urban centres in collaboration with the private sector and other stakeholders. The ministry identified Nanyuki town as one of the urban areas that was to be prioritized in preparing an urban plan for the town.

It is satisfying to note that the Integrated Strategic Urban Development Plan for Nanyuki town has now been completed. The plan is to provide a development blue print to guide the spatial growth and transform Nanyuki town into a modern urban area. Considering that the preparation of the Plan has been participatory, it is hoped that its implementation will greatly contribute to social-economic growth of Nanyuki town and beyond will also enhance the competitiveness of Nanyuki town as a centre of choice for

investment in central Kenya. It is in this regard that I recommend that all government ministries, parastatals, development partners, and all residents of Nanyuki use this plan as a guide in their present and future activities in Nanyuki town. This will not only ensure a harmonious development agenda, but will also spur the town economic, political and social interconnectivity in realization of Vision 2030.

Signed:

Director,

Urban Development Department

ACKNOWLEDGEMENT

Uncontrolled urban development has remained the greatest problem for many developing countries and Kenya in particular. This has indicted sustainable development of these towns. The growing trend where a majority of the World's population lives in urban areas is indeed universal. Urbanization is strongly associated with economic growth and indeed *Vision 2030*, Kenya's blue print for long-term development, shows that over 50 percent of Kenyans will be living in towns by the year 2030. This document presents Nanyuki Town Integrated Strategic Urban Development Plan (20014 – 2034). The Plan has been prepared with the support of Associates in Integrated Development Africa Limited (AIDAL) under a contract agreement with the Government of Kenya (GoK) through the former Ministry of Local Government.

AIDAL Consultants would like to acknowledge the support bequeathed to the planning team during the situational analysis and the preparation of the Integrated Strategic Urban Development Plan exercise by individuals and groups who either directly or indirectly contributed towards to the formulation of this plan. We acknowledge the technical and logistical support rendered by the Ministry of Lands, Housing and Urban Development through the project team comprising of Mrs. Grace Masese, Mr. Ken Nyaseda and Mr. Isaac Mungania from the Directorate of Urban Development.

The planning team benefitted from consultations with Laikipia County Physical Planner, among other relevant county government and central government officers who provided both literature and verbal information to further enrich the planning process. The findings and views expressed therein are exclusively those of the consultants and consulted stakeholders and do not necessarily represent the views of the Government of Kenya. Exceptional gratitude goes to AIDAL Consultants that worked on the preparation of this plan. This includes but not limited to the following: Project Director, Planner. Hellen Nzainga, Project Planner, Planner Steven Ngari, Project Surveyor, Maina Gikinya, Planner and GIS Expert Godfrey Momanyi.

In addition we wish to acknowledge His Excellency Joshua Irungu the Governor of Laikipia County and the entire Laikipia County Government for his great efforts to ensure acceptance and ownership of the plan both by his administration. Special thanks to the immediate former Mayor, the Chair and Members of Committees, Councilors, the

Town Clerk and Departmental Heads for the support during the preparation of the plan. Last but not least, we thank the people of Nanyuki town and its environs for their warm support during the planning process.

It is indeed a great pleasure that this plan has reached completion. It is hoped that this initiative will provide a framework to guide growth in all of our rapidly expanding urban areas. The plan has been prepared by consultants outsourced by the Ministry in a process that involved stakeholders from different sectors including the Government, Private sector and Nanyuki town residents.

We are confident that implementation of the plan will address development challenges facing Nanyuki town and contribute to the overall achievement of the Kenya Vision 2030.

We therefore look forward to the finalization of the approval process.

Signed:

County Director of Physical Planning,
County Government of Laikipia

EXECUTIVE SUMMARY

Cities are engines of economic growth. Urbanization is strongly correlated to the level of economic development. Urbanization in Kenya is growing at a rate of approximately 7% per annum. It is projected that, by 2020, half of Kenya's population will be urban. This phenomenon will continue to exert pressure upon existing urban physical and social infrastructure and agricultural land thus suppressing production. This high rate of urbanization is compounded by increased poverty levels, inadequate transport and infrastructure facilities, poor housing conditions, unemployment and underemployment, inadequate capacity of institutions, inadequate civic participation in the planning process and urban development, increased deterioration of environment. Nanyuki town and its environs has not been spared in these urban challenges. It is on this rationale that Nanyuki Town Integrated Strategic Urban Development Plan (2014-2034) has been prepared through the initiative of the Ministry of Lands, Housing and Urban Development and is in line within the provisions outlined by laws governing planning in the Republic of Kenya.

From the situational analysis, revealed a number of emerging planning issues were identified. Nanyuki town and its environs lack a spatial framework to guide its development and growth with the previous plan having been outdated. The town presently faces a number of challenges which include among others: high population growth which has strained the available infrastructural facilities, unplanned expansion or urban sprawl, the town has a significant number of informal settlements in addition to informal commercial activities which are scattered in various parts of the town, the town lacks adequate basic infrastructure developments like paved roads, sewer, water supply, solid waste disposal and surface water drainage among others, it also experiences environmental degradation in form of encroachment on riparian reserve.

In order to tackle the challenges identified in the town, an integrated spatial urban development plan for the town, development strategies and area action plans for the town have been proposed. The integrated spatial urban development plan indicates broad land use classifications, in relation to land uses and provides a broad framework to guide the development of the area for the next 20 years. Planning regulations for proposed zones includes such regulations as; permitted land use, types of dwelling,

number of dwelling and density of housing, minimum plot sizes, ground coverage, plot ratios and parking areas among others. In addition to the structure plan, the plan proposals include Action Area. The detail action area plans are expected to guide the day to day planning and development activities. Unlike the action area plans which deal with specific locations of the planning area. Area action plans will serve as the mobilization arena to achieve critical solution to the immediate needs afflicting them which also serves as platforms for attaining the medium term and the long-term needs.

Furthermore, the plan proposes various planning strategies focussing on transportation, housing, environment, economic investment and revenue enhancement. The transportation strategy has been proposed and seeks to improve and enhance road transport by the establishment of new roads and upgrading of the existing roads in a hierarchical order. The economic investment strategy focuses on economic activities that will propel economic growth within the town. The environmental protection and management strategy looks into all environmental matters and issued within the planning area and proposes on how to better the environment sustainably. Lastly, revenue enhancement strategy identifies challenges, opportunities and proposed way on improving town service delivery and revenue boosting. The plan provides for a framework for implementation, monitoring and evaluation. This also provides for prioritization of projects and gives a time frame for each action indicating the expected implementation time, i.e. immediate, continuous, short term, medium term or long term. It also identifies the relevant institutions that are crucial to the implementation of the various action programmes.

It is believed that the plan proposals addresses major planning and development challenges as outlined by stakeholders of Nanyuki Town. Implementation of the plan by the county government of Laikipia and other government agencies is expected to provide solutions to most of the concerns that have become critical to development in Nanyuki Town and will be a significant step towards achieving the development vision of Nanyuki Town.

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LIST OF ACRONYMS

ASAL	Arid and Semi-Arid Land
ASK	Agricultural Society of Kenya
BPO	Business Product Outsourcing
CBD	Central Business District
DPPO	District Physical Planning Officer
ECD	Early Childhood Development
ENNDA	Ewaso Nyiro North Development Authority
GoK	Government of Kenya
ICT	Information and Communication Technology
ISUDP	Integrated Strategic Urban Development Plan
KCC	Kenya Cooperative creameries
KERRA	Kenya Rural Roads Authority
MCN	Municipal Council of Nanyuki
MDGs	Millennium Development Goals
MOUNTEX	Mount Kenya Textiles
NAWASCO	Nanyuki Water and Sanitation Company
NWSB	National Water Services Board
PCEA	Presbyterian Church of East Africa
SEP	Special Economic Programs
SEZ	Special Economic Zone
SME	Small and Medium Enterprises
WARMA	Water Resources Management Authority

PART ONE: INTRODUCTION

1. CHAPTER ONE: INTRODUCTION

1.0 Overview

In 2010, Kenya adopted a new constitution. The constitution provides for the structure of government to be divided into two levels: national and county government. Schedule 4 of the constitution specifies planning functions assigned to the National Government and to the County Governments. Among the plans specified is the county spatial plan and town and city plan for urban areas in the county. This ISUDP adopts a more dynamic, continuous and consensual vision building and policy-making process. The plan presents a set of interrelated proposal and strategies for the city aimed at enabling all public and private initiatives to promote economic growth, provide basic infrastructure services and enhance the quality of the environment. The integrated spatial development plan for Nanyuki town identifies and gives priority interventions that can make the town a competitive urban place with quality living and working environment that can attract investments for sustainable development.

1.1 Vision of the Plan

The planning proposals were premised on a development vision formulated in light of various considerations. The stakeholder development vision was also captured during the various stakeholder sessions during which their view of “the Nanyuki Town” as a well-planned town with:

- Adequate, efficient and quality physical and social infrastructure
- A Clean and healthy environment
- A vibrant and sustainable economy
- Transparent, accountable and participatory administrative structures
- Accessible, affordable and adequate housing

1.2 Goal and Purpose of the Plan

The goal and purpose for the Integrated Strategic Urban Development Plan for Nanyuki Town is to guide and direct the growth of the town and its environs for a period of 20 years to advance sustainable urbanization. The plan:

1. Integrates national and regional development policies in terms appropriate to Nanyuki town;

2. Articulates the aims of the government and local authority for the areas together with strategies, policies and general proposals which are intended to achieve those aims;
3. Provides a framework for detailed development policies and proposals for subsequent short-term plans for the town;
4. Indicates action areas for immediate development or re-development;
5. Provide a coordinated basis upon which various implementing agencies can develop their programmes for which they have executive responsibility, for example, housing, transportation, water supply, electricity supply or even sewerage development.

1.3 Objectives of the Plan

The objectives of the plan are to:

1. Enhance and promote integrated socio-economic development in the town and its environs;
2. Allocate sufficient space for all land-uses to ensure efficient operation and comfort of users and accommodate future growth;
3. Ensure compactness of urban forms and design of transport and communication network to enhance interaction while minimizing loss of open land, agricultural land, forest, wildlife (land and riverside), and water catchment areas;
4. Avoid juxtaposition of incongruous uses and bringing together specially harmonious uses, or those whose combination will enhance benefits (compatibility of land uses);
5. Preserve and protect existing good features and fragile ecosystem, which may often require removal of unsatisfactory features;
6. Create a specific town character by different uses of topography and other natural features and by specific grouping of uses and densities;
7. Provide a policy framework for socio-economic investments, economic use of space, infrastructure services and community facilities;
8. Provide a framework of plan implementation, organization and administration structure requirement, and resources needed to implement the plan.

1.4 Scope of the Plan

The planning area covers the entire former Municipal Council of Nanyuki, parts of Icuga, Gakawa, Kanyuni, in Nyeri County and parts of Katheri and Nturukuma in Meru County. The planning area covers an area of approximately 143km². The plan covers the spatial plan,

action area plans, strategies and implementation framework. In addition physical, socio-economic, physical infrastructure, social infrastructure and institutional framework for Nanyuki town have been highlighted. It is expected that the plan proposals and most of the envisaged outcomes will be implemented and achieved within the next 20 years.

1.5 Outputs of the Plan

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 town. These include the following:

- i. Area Action Plans
- ii. Transportation Strategy
- iii. Environmental Protection and Conservation Strategy
- iv. Economic (Investment) strategy
- v. Housing Strategy
- vi. Social Infrastructure Strategy
- vii. Plan Implementation Strategy

1.6 Terms of Reference

The plan was prepared in response to the following terms of reference:

- Carry out a physical and natural ecological features study of town and its outlying region with view to preparing a strategy for their efficient use, conservation and spur economic development.
- Undertake a land-use and socio-economic studies with a view to proposing a policy/strategy for mixed land uses, minimum standards applicable in urban areas; and minimum agricultural economic units.
- Identify and document all existing slums in and around the CBD and land belonging to the council including existing markets with a view to re-planning and the improvement of the existing infrastructure and neighbourhoods.
- Undertake, where necessary, mapping and digitisation of topographical cadastral features and natural resources of the town.

- Identify the existing land malpractices and settlements and propose strategies for improved land Management, administration, development approval, control and regularisation.
- Undertake an assessment of transport, infrastructure and utility needs, housing and community services and propose new strategies.
- Prepare analysis reports and present proposals for future spatial, demographic, social and economic growth.
- Prepare a long term 20-30 years Integrated Strategic Development Plan for town, together with detailed plans in the identified areas.
- Prepare attendant transport infrastructure services and community development facility plans.
- Undertake a detailed study of the CBD structure with view to upgrading.
- Identify suitable land for both public purpose and utilities
- Prepare plan implementation schedule, planning and development policy guidelines and attendant resource and institutional requirements.

1.7 Methodology

The process of preparing Nanyuki town was unique in that it employed systematic and participatory planning methodology. The plan preparation process was divided into the following phases.

1.7.1 Preparatory

The preparatory phase involved:

- Preparation of a preliminary base map which entailed acquisition of satellite images, acquisition and digitization of PIDs and RIMs and the preparation of a map showing the existing situation.
- Transect survey to appreciate the planning area, ground truth and prepare a final base map.
- Stakeholder identification and analysis to identify the right stakeholders that would be engaged and develop a strategy for communication during the planning process.
- Data needs assessment to identify the correct information that would be required and develop a data acquisition, storage and analysis strategy.

1.7.2 Sensitization

During this phase, identified stakeholders were engaged to provide information about the preparation of the plan, and receive their feedback on the same. The stakeholders also provided additional information required for planning. Stakeholder engagement was undertaken through workshops, targeted consultative meetings and other public fora as was found appropriate. The stakeholder workshops were divided into three for; presentation of visioning and objective setting, validation of data collected about the area and validation of draft plan. The planning consultants also met with His Excellency Laikipia County Governor and members of his cabinet.

1.7.3 Investigative

In this phase investigation was undertaken to enhance understanding of the area's social, economic and environmental dynamics through desktop and field studies. The outcome of the investigation as well as the stakeholder engagement formed a basis for the formulation of intervention measures of the plan. Among the studies that were undertaken include;

- Land use and land suitability analysis,
- Infrastructure gap analysis,
- Human settlement trends and patterns analysis,
- Demographic analysis,
- Needs analysis,
- Environmental profiling, etc.

1.7.4 Plan Formulation

Based on stakeholder concerns, feedback on concept plan and findings from investigation the previous Nanyuki Town Local Physical Development Plan (comprehensive spatial development framework) were formulated.

PART TWO: PLANNING CONTEXT AND SITUATIONAL ANALYSIS

2. CHAPTER TWO: PLANNING CONTEXT

2.0 Overview

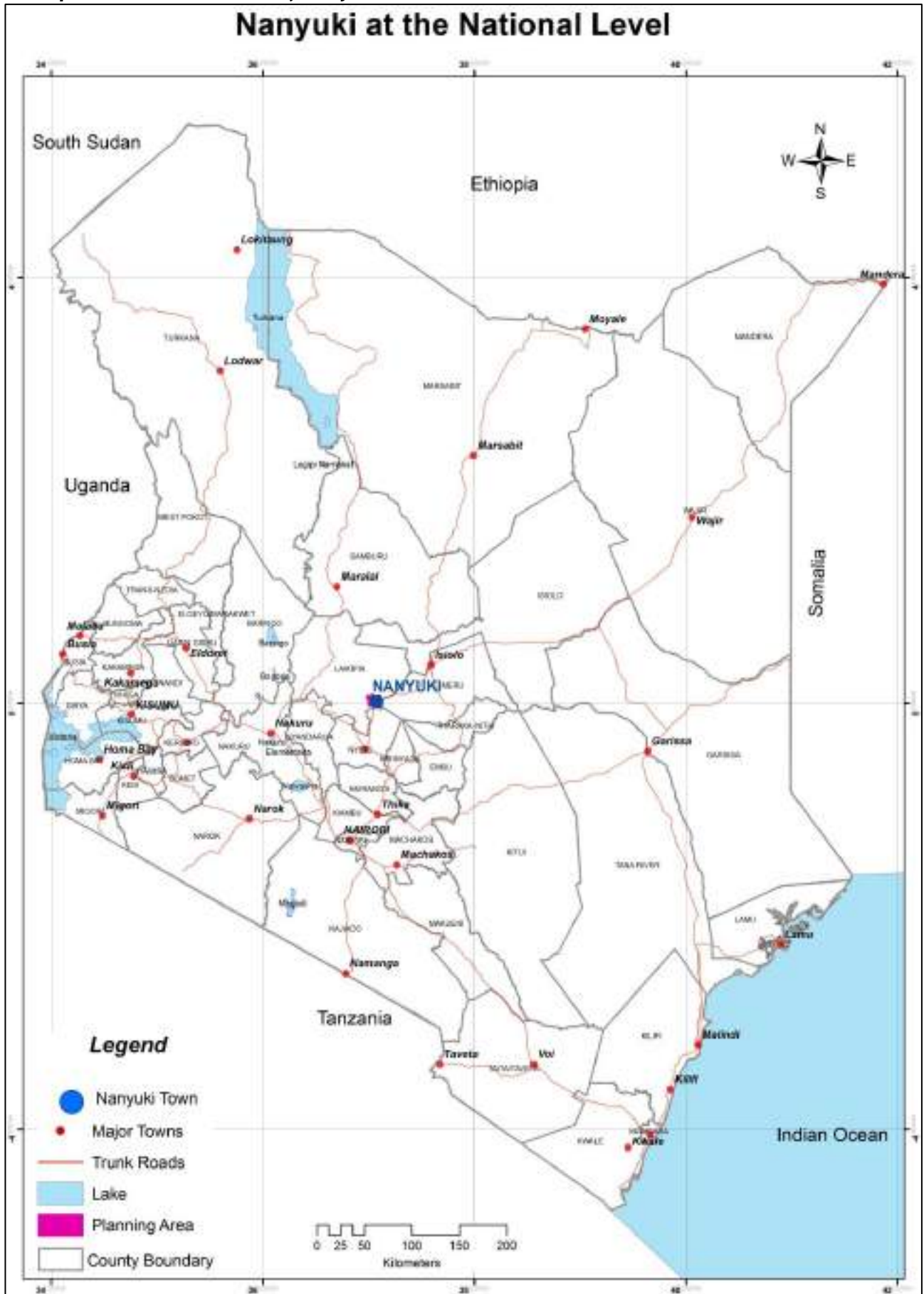
This section articulates the location of Nanyuki town and the legal provisions that guided its preparation.

2.1 Location and Position

2.1.1 National Context

Nanyuki town is the main administrative, service and commercial center located in the central-east region of Kenya. Nanyuki town is found with ENNDA region which covers approximately 34% of the entire country. ENNDA region comprises of 10 counties: Laikipia, Nyeri, Nyandarua, Samburu, Isiolo, Marsabit, Meru, Garissa, Wajir, and Mandera. According to the 2009 Population and Housing Census, the total population in the ENNDA area was 3,947,606, which accounted for 10.2 per cent of total population of Kenya. The town is located along international road (A2) and at the terminus of the branch railway from Nairobi. It is situated just north of the Equator (0° 01' North). The town is approximately 208km north of Nairobi city and is connected by the international road (A2). The road also connects Nanyuki town to Isiolo approximately 85 km to the north. The strategic location of Nanyuki town provides high connectivity locally, regionally and internationally. Nanyuki town is the gateway to Mt. Kenya. From Nanyuki town, it is easy to get to Meru National Park, Mt. Kenya National Park, Maralal National Reserve among others tourist facilities. The town is home to the British Army Training Unit (BATUK) in Kenya since 1970. In addition, the town has military establishments by the Kenya Defense Forces. The town is emerging as preferred retirement home for many retirees.

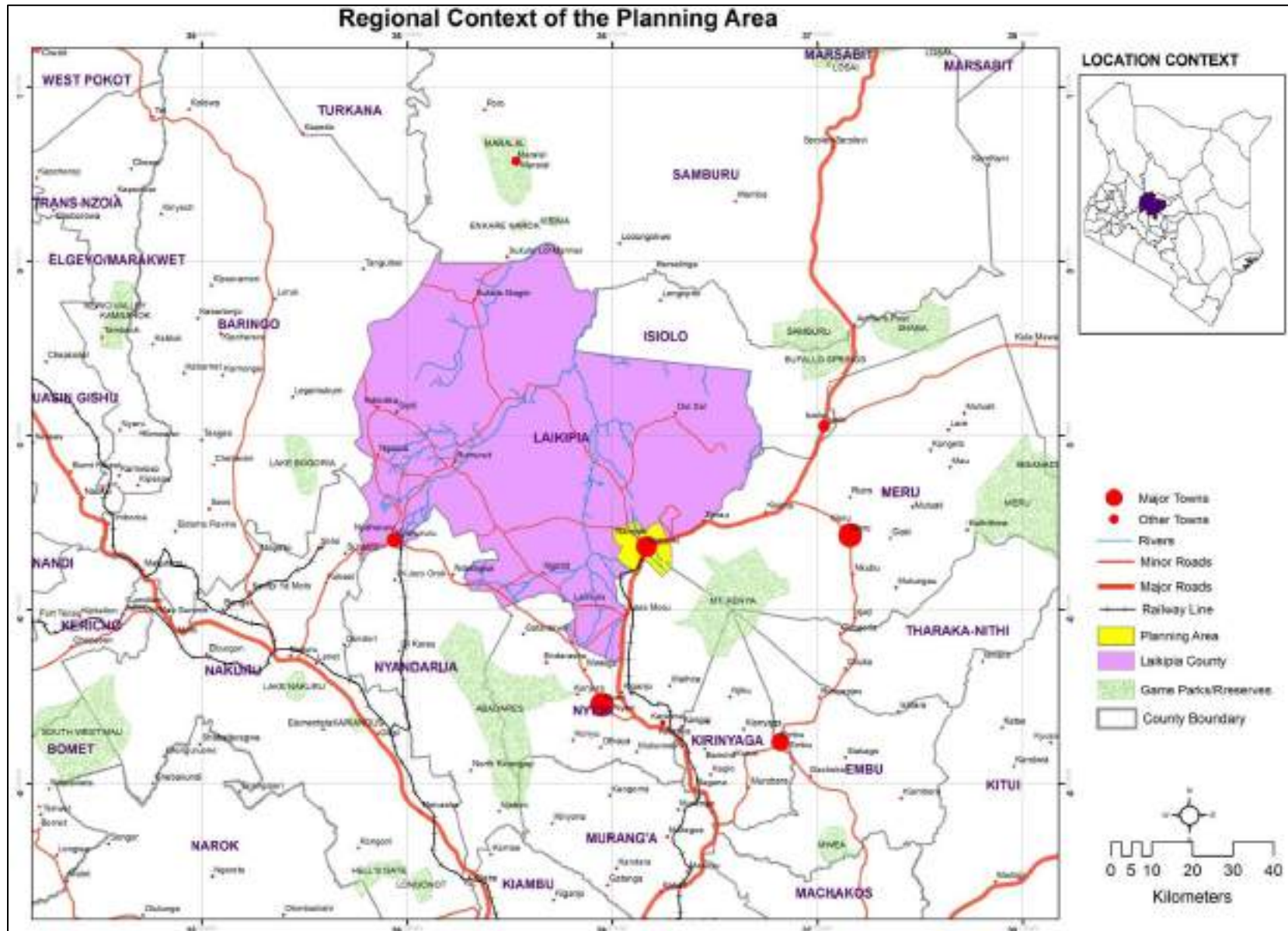
Map 2-1: National Context of Nanyuki Town



2.1.2 Regional Context

At the regional level, Nanyuki town is located in Laikipia County. The County borders seven other counties namely Samburu to the North, Isiolo to the North East, Meru to the East, Nyeri to the South East, Nyandarua and Nakuru to the South West and Baringo to the West. Nanyuki town is an economic hub serving a wider hinterland. The region's hinterland is characterized by ranches and wildlife conservancies of international repute. The settlement patterns in the county are influenced by the potential of land, infrastructure development, land use system and availability of amenities. Nanyuki town is a trans-counties town traversing Laikipia, Meru and Nyeri Counties. This bequates the town both advantage of regional sphere of influence and functional area as well as the disadvantage of political and administrative structure. The town is highly inter-linked regionally. It is part of transport-wise well connected circuit that dominate the central Kenya region economy in terms of tourism, agri-business and entrepreneurship. These are Meru-Nanyuki-Embu-Kirinyaga-Nyeri and Nyahururu.

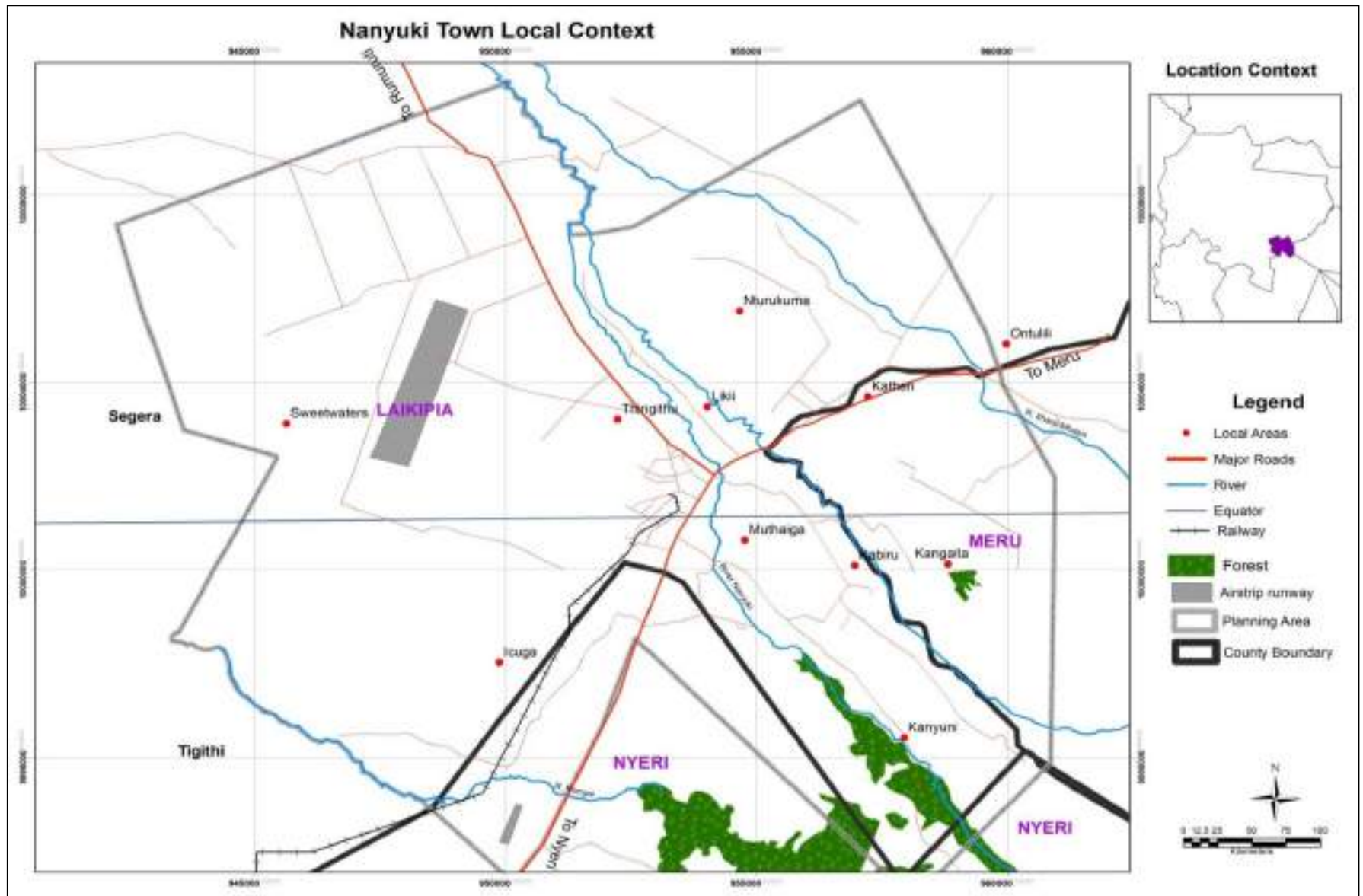
Map 2-2: Regional Context of Nanyuki Town



2.1.3 Local Context

Nanyuki town is located on the border of three counties that fall under different jurisdiction. The planning area comprises of the former municipality and the peri-urban areas falling in Meru and Nyeri counties respectively. This is an area almost at the edge of Laikipia County. Nanyuki and Nyahururu towns are the main urban centers in the County. Other urban centers include Rumuruti and Kinamba. Market centers in the County include Sipili, Ol-jabet (Marmanet), Wiyumiririe, Lamuria, Dol Dol, Mukogodo, and Ol-Moran. Nanyuki town does not enjoy any measure of Laikipia County's geographical centrality. The county is semi-arid in nature. The high and medium potential land accounts for 20.5 per cent of the total county's land area while the rest 79.5 per cent is low potential and mainly non-agricultural land ideal for livestock farming and wildlife conservation. There are gazetted forests in Mukogodo, Rumuruti and Marmanet areas. Its unique location in three counties makes presents it as special planning in terms of jurisdiction of development activities.

Map 2-3: Local Context of Nanyuki Town



2.2 Historical Development of Nanyuki Town

Nanyuki town derives its name from the Maasai community. From history, the Maasai had a fierce confrontation with the Purko community along the banks of one of the local rivers. Many Morans were slaughtered in the battle and the river came to be known as “Engare Nanyuikie” meaning, the river of blood and therefore, the name Nanyuki. The town is located in central Kenya, lying northwest of Mount Kenya along the A2. It was founded in 1907 by British settlers, some of whose descendants still live in and around the town.

The settlers, mainly ex-British soldiers had acquired land in the outlying area and embarked on farming activities; mainly wheat growing and cattle and sheep rearing. These farming activities triggered mushrooming commercial establishments within the centre, leading to steady growth. By 1930 the consistent growth and the economic potentials of both the centre, and its outlying neighborhood had justified the construction of a railway line connecting the town to Nairobi. This was accomplished in 1954 under the then Aberdares Area council. In 1974 the center attained the status of a town council. Through the same steady growth, the town was elevated to its current status of a municipal council in 1982. Nanyuki has grown to be a military town with the main airbase of the Kenya Air Force.

The population growth rate of Nanyuki is 4.3 % (2009). This is attributed to the rural – urban migration and also the availability of land which is currently being sub-divided and sold to individuals especially in the peri-urban areas like Kilimo, Teachers Farm, Icuga, Nturukuma & Trench Farm.

2.3 Policy and Legal Framework

The Integrated Strategic Urban Development Plan for Nanyuki has been prepared in fulfillment and in accordance to various policies, administrative and statutory requirements.

2.3.1 Policy Framework

2.3.1.1 Kenya Vision 2030

The Kenya Vision 2030 seeks to transform Kenya into a newly industrializing, middle income country providing a high quality of life to all its citizens by the year 2030. The plan articulates aspects of the economic, social and political pillar. In line with the social pillar, it facilitates the provision of social infrastructure including schools, health facilities, water and sanitation. Under the economic pillar: the plan facilitates promotion of wholesale and retail, value addition, SMEs, BPOs. The plan facilitates provision of an ICT park, SEZs, heavy and medium industrial zones, tourist facilities and dual carriage roads as the main flagship projects. Under political pillar; it promotes good governance, gender issues, participation, safety and security. The plan has achieved this by providing land for development of wholesale and retail markets, providing zones for SEZs, strategies and measures to improve and access quality education, strategies and measures on developing new and upgrading existing hospitals for adequate and accessible health care, and zoning ecologically fragile areas with appropriate measures to conserve them

2.3.1.2 National Land Policy, 2009

The plan articulates to the provisions of the policy which include: provides for better coordination and strengthening of development control, informal settlement upgrading, peri-urban planning, sustainable and equitable use of land, efficiency and access to land management system and uphold principles of land policy set out in Article 60 of the Constitution. National Land Commission formed under this policy manages public land on behalf of the National and Laikipia County Government among other county governments.

2.3.1.3 National Housing Policy for Kenya, 2004

The plan articulates the objectives of the housing policy including:

- Facilitate progressive realization of the right to adequate housing by all Nanyuki residents,
- Promote functional, healthy, aesthetically pleasant and environmentally friendly housing development
- Earmark and set aside land for public housing development in urban areas and redevelopment of the dilapidated houses
- Facilitate housing delivery and improvement, access to land and security of tenure for all socio-economic groups especially in Majengo and Likii areas.
- The plan provides strategies and measures to facilitate greater access to funds and promote innovative ways of mobilizing funds to easily achieve quality housing delivery for all.

2.3.1.4 The Integrated National Transport Policy of 2003

The policy calls for optimal planning for development and maintenance of transport infrastructure. The plan provides for local regional and international transport connectivity of Nanyuki town to attain the vision of global competitiveness. The plan articulates the objective of the policy which aims at developing an integrated, balanced and environmentally sound urban transport system in which all modes efficiently play their roles.

2.3.1.5 Draft National Urban Development Policy

This draft policy recognizes that a major challenge with Kenya's urban centres 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. Secondary towns in Kenya, Nanyuki being one, continue to absorb the bigger number of rural-urban migrants. This means that the Nanyuki Town Integrated Strategic Urban Development Plan should cater for a population greater than what is expected from natural growth. Most rural-urban migrants are of little means and this means 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.

2.4 The Constitution of Kenya, 2010

The constitution is the supreme rule of law in Kenya. It guarantees fundamental rights and freedoms for the citizens. This right among others includes Chapter five of the constitution provides for use and management of land in a manner that is equitable, efficient, productive and sustainable. The plan shall promote the realization of the constitution particularly respect to the following articles;

- Article 43 (1) pertaining to economic and social rights which include the right to clean and healthy environment, adequate and decent housing and to reasonable standards of sanitation, right to education
- Article 60. (1) Land in Kenya shall be held, used and managed in a manner that is equitable, efficient, productive and sustainable, and in accordance with the land policy principles
- Article 66 provides for regulation of the use of any land, or any interest in or right over any land for purposes of land use planning, public order, public morality, public health and public safety in Kenya.
- Article 69 provides for the management and protection of the environment. Thus, the Integrated Strategic Urban Development Plan for Nanyuki Town (2011-2030) will be fully anchored within the confines of the Constitution.

2.4.1 Legal Framework

2.4.1.1 Physical Planning Act Cap

The Physical Planning Act Cap 286 formed the main legal framework which guided the process, content and approval of this plan. The Physical Planning Act (PPA), vests in the Director of Physical Planning the responsibility for preparing regional physical development plans. The Director of Physical Planning is required to formally delegate planning authority to the county governments where they can carry out this responsibility while only providing policy and professional guidance to the same. This Act is under review to conform to the constitution and other emerging enabling legislation.

2.4.1.2 The Urban Areas and Cities Act, 2011

The act provides for institutionalizing participation of residents, forms the basis for accessing resources, guides governance and management of urban areas. The Act covers among others the following: Classification and establishment of urban areas and cities; governance and management of urban areas and cities; delivery of services; integrated development planning; financial provisions; miscellaneous and transitional provisions. There are also important provisions within the schedules including: classification of cities and towns by services; rights of, and participation by residents in affairs of their city or urban area; and preparation of an integrated plan.

2.4.1.3 County Governments Act No. 17 of 2012

The act provides for county governments' powers, functions and responsibilities to deliver services and for connected purposes. The act also provides for public participation in county planning, articulates Principles of public services delivery in the county, responsibilities and powers of the governor among others. The objectives of county planning shall among others be to ensure harmony between national, county and sub-county spatial planning requirements. To guide, harmonize and facilitate development within each county the following type of plans shall be prepared: county integrated development plan (CIDP), county sectoral plans, county spatial plan, and cities and urban areas plans as provided for under the Urban Areas and Cities Act. Nanyuki Town Integrated Strategic Urban Development plan has been prepared on the basis of section 107(1) (d) of this act.

2.4.1.4 The Transition to Devolved Government, 2012

The Transition to Devolved Government, 2012 provide a framework for the transition to devolved government pursuant to section 15 of the Sixth Schedule to the Constitution, and for connected purposes.

2.4.1.5 The Land Act No 6 of 2012

Land Act, 2012 provides for the sustainable administration and management of land and land-based resources and other connected purposes.

2.4.1.6 The National Land Commission Act No. 5 of 2012

National Land Commission Act provides for the functions and powers of the National Land Commission, qualifications and procedures for appointments to the Commission. The act also gives effect to the objects and principles of devolved government in land management and administration.

2.4.1.7 The Land Registration Act No.3 of 2012

The act which revised consolidated and rationalized the registration of title to land, give effect to the principles and objects of devolved Government in land registration and related purposes and compulsory land acquisition.

2.4.1.8 Environmental Management and Coordination Act, EMCA (1999)

EMCA provides guidelines for the preparation of environmental strategy in the protection and conservation of the environment.

2.4.1.9 The Survey Act (Cap 299)

The Survey Act (Cap 299) makes provision in relation to surveys, land subdivisions, conversions, geographical names and the licensing of land surveyors, and for connected purposes.

2.4.1.10 Agriculture Act (1986)

The act provides for the promotion and maintenance of stable agriculture, conservation of soil and its fertility to stimulate development of agriculture

2.4.1.11 Public Health Act (Cap 242) of 1967

The act provides for enforcement of the plan, habitable buildings, proper sanitation through provision of high quality of water and proper solid and liquid waste management.

PART THREE: SITUATIONAL ANALYSIS

3. CHAPTER THREE: PHYSIOGRAPHY

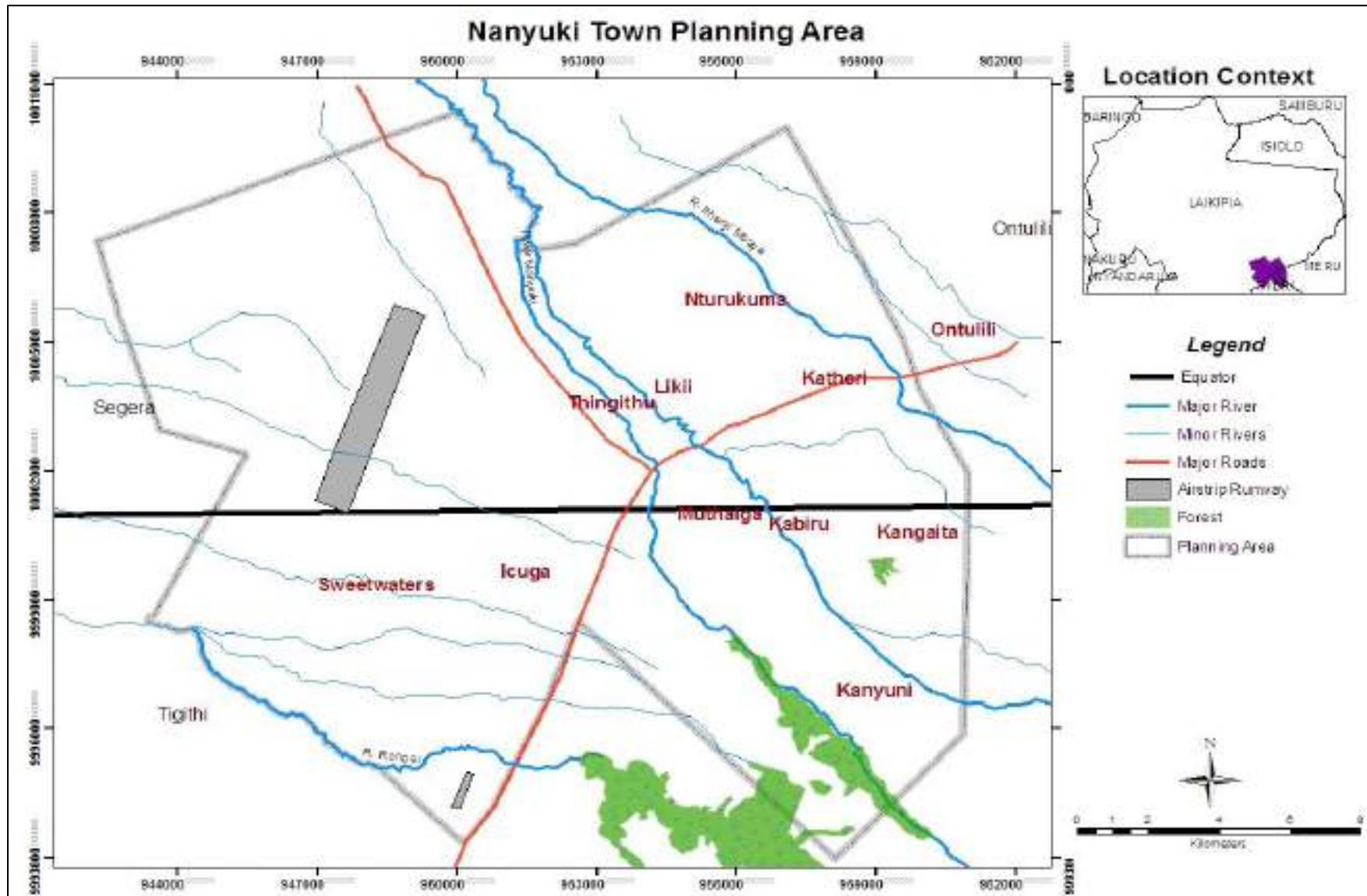
3.0 Overview

This section examines the existing natural resource base and climatic conditions within Nanyuki town and its environs. It also looks to support development and challenges. It is noted that several factors are responsible for the regional growth but the natural resource endowments and utilization rank highest. Therefore, it is through appropriate utilization of these resources and enhancement of the potentials of others that sustainable regional development can be realized. It is further noted that the utilization of the devolved fund to spur growth will also largely rely on this.

3.1 Nanyuki Town Planning Area

The planning area covers the entire former Municipal Council of Nanyuki area of jurisdiction within Laikipia county measuring approximately 143Km² including existing peri-urban developments and sprawl which covers a small sections of portion of Meru and Nyeri counties.

Map 3-1: Nanyuki Town Planning Area



3.2 Relief and Topography

Mt. Kenya has great significance on the climatic conditions and development of the town. The town is situated along the equator, at the foot of Mt. Kenya on the lee ward side which impacts negatively on the amount and distribution of rainfall. The town slopes gently from highlands in the south to the lowlands in the north. The town is at an elevation of about 1947.4 meters above sea level. This high elevation gives the town its cooler climate in contrast to what would be expected along the equator.

3.3 Geological and Soil Characteristics

Geological and soil characteristics greatly determine the form a town takes. The major concern being the earth's tectonic forces. Location of urban centers in areas with weak geological structure can be hazardous hence the prudent option will be to avoid development in such areas.

3.3.1 Geological Characteristics

Kenyan lava and agglomerate of the Mt. Kenya volcanic series form the main geological formation for Nanyuki town and its environs. Underlying this is an undifferentiated basement system of rocks consisting of gneisses, granulites and schists. These rocks have a strong foundation to promote intensive urban development.

3.3.2 Soils

Nanyuki town has predominantly black cotton soils that are poorly drained therefore can only support heavy urban development if the foundation is excavated deeper.

3.4 Agro-Ecological Zones

Over 60 per cent of Nanyuki town and its hinterland are covered by agro-ecological Zone 3 to 5 which constitute medium to low potential areas for agricultural production. These zones cover mainly the western, central and northern areas of the basin. High potential areas cover about 30 per cent of the area and are mainly found near the mountain. Pastoralism, the main means of livelihood in these areas, experiences severe difficulties under these conditions.

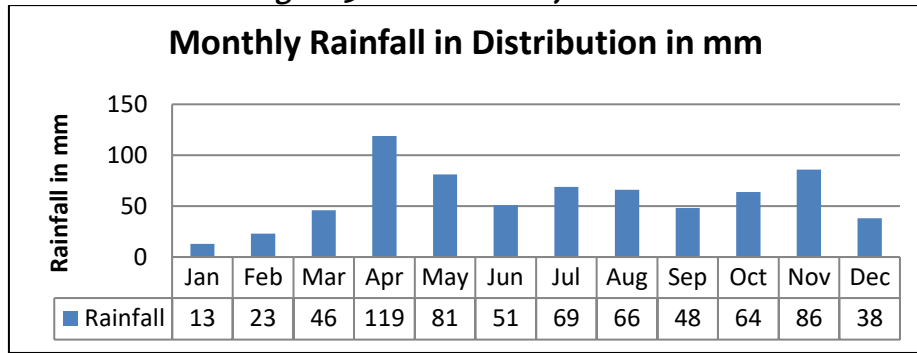
3.5 Climate

The climate is influenced by two factors namely; its lee wards position in regard to the moisture carrying eastern winds and; its altitude -1947M above sea level.

3.5.1 Rainfall

Nanyuki town is situated in an ASAL area and at the foot of Mt. Kenya on the lee ward side which impacts negatively on the amount and distribution of rainfall. The town receives seasonal relief rainfall with an annual average rainfall ranging from 600-900mm with the annual distribution of the rain varying very much in the area. Rainfall cannot adequately support agriculture hence need to diversify to other economic to support the town's economy.

Figure 3-1: Annual Rainfall in mm

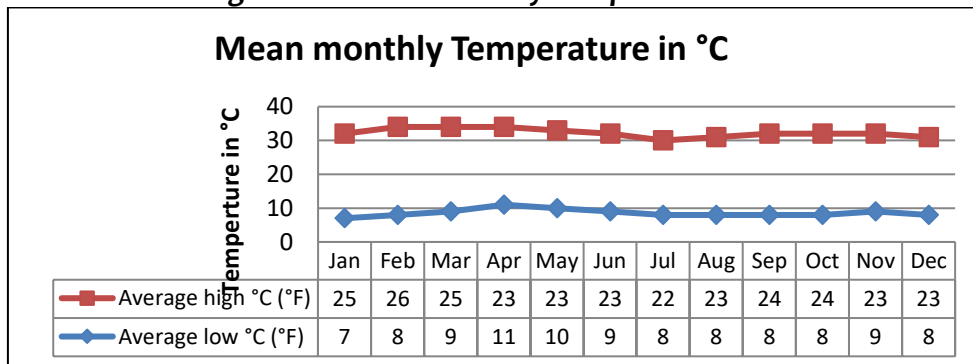


Source: Metrological Department, 2012

3.5.2 Temperature

The town’s average maximum temperature is about 25-27°C while the minimum temperature is about 8 – 13°C. The northern part of the town is hotter compared to the southern part that are cooler due to close proximity to Mt. Kenya.

Figure 0-2: Mean monthly Temperature in °C



Source: Metrological Department, 2012

3.5.3 Sunshine and Solar Radiation

Being semi-arid, Nanyuki receives reliable sunshine throughout the year. Nanyuki experiences an annual mean of approximately 10 hours of sunshine per day. The intensity is high resulting in high evapo-transpiration rates. The moderate temperatures and high solar hours present an opportunity for enhancing solar power exploitation.

3.5.4 Wind Run

Nanyuki town and its environs have an annual average wind run of 196km/day. The wind run reduces as the altitude decreases. This wind run rate is sufficient to generate wind energy.

3.6 Vegetation Characteristics

There is no gazetted forest within the Nanyuki town and its environs. However the planning area includes parts of Mt. Kenya forest which is gazetted forest of approximately to 2 Km² that is predominantly indigenous. The forest plantations have fast growing commercial trees such as cypress, pine and eucalyptus. The forest is under danger of encroachment from human activities. Due to availability of large tracts of lands, agro forestry should be encouraged to the household level.

3.7 Wildlife

Nanyuki town is situated in an in the hinterland which is endowed with wildlife, distributed in parts of Laikipia County, Meru County and extending to Samburu County Mt. Kenya wildlife corridors/ecosystems. The five major species are the lion, leopard, elephant, buffalo and the rhinoceros though other smaller wildlife species are also abundant particularly the African Wild Dog and gazelles. This makes the town a tourist destination.

Plate 3-1: Wildlife resources in Nanyuki town hinterland



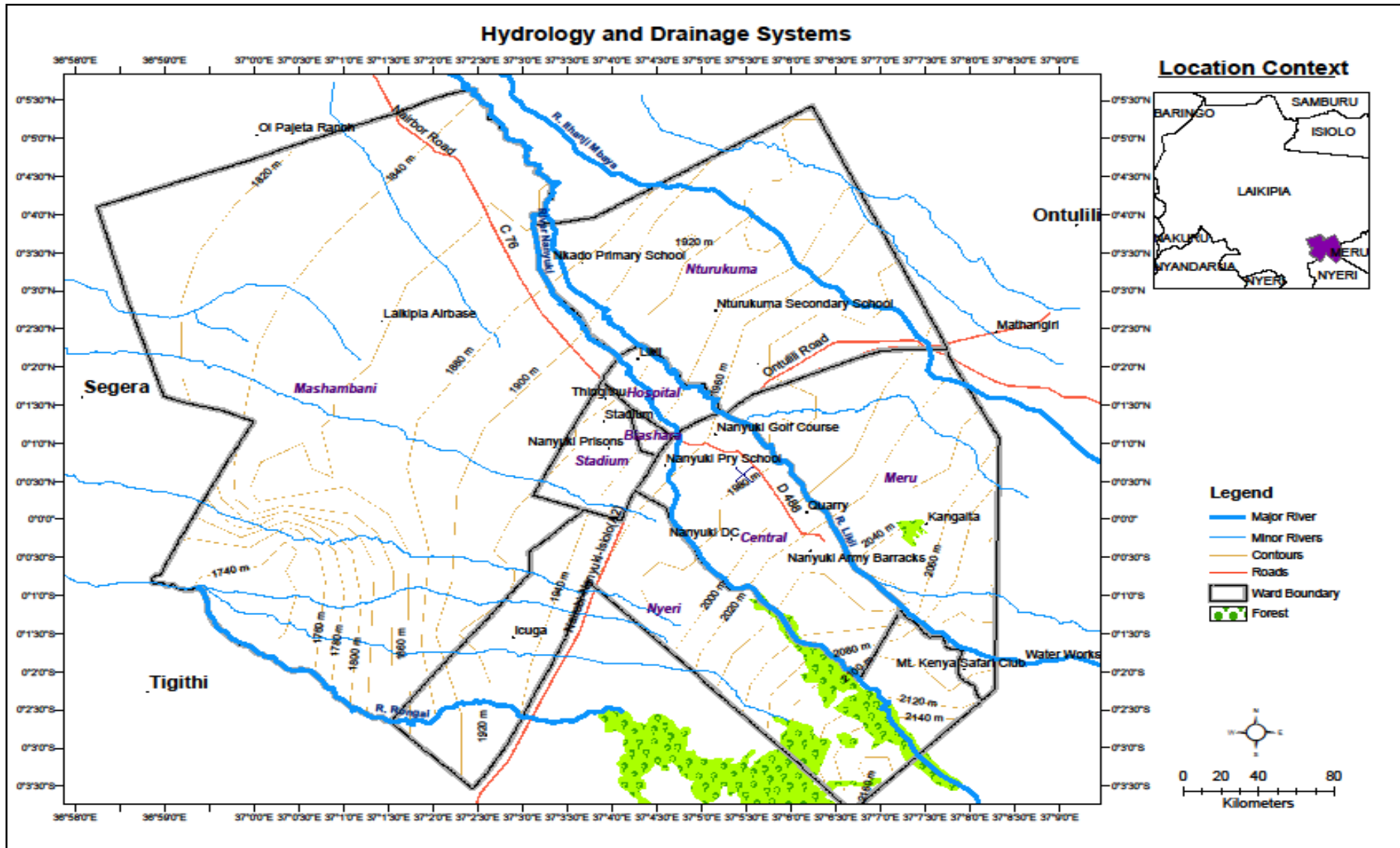
Source: Field Survey, 2012

3.8 Hydrology and Drainage Systems

The town is drained by two main rivers namely Nanyuki and Likii rivers that drain into Ewaso Nyiro downstream of the town. These two rivers form a major structuring element of the town. The rivers have a great influence in the settlement patterns as they are a source of water both for human and livestock consumption and irrigation activities. These rivers are faced with many challenges including encroachment, pollution (from improperly

treated sewage and uncollected garbage), water abstraction by flower farms and failure to observe riparian reserves. This has led to water pollution, water-borne diseases, and environmental degradation among others.

Map 3-2: Hydrology and Drainage Systems



4. CHAPTER FOUR: POPULATION AND DEMOGRAPHIC DYNAMICS

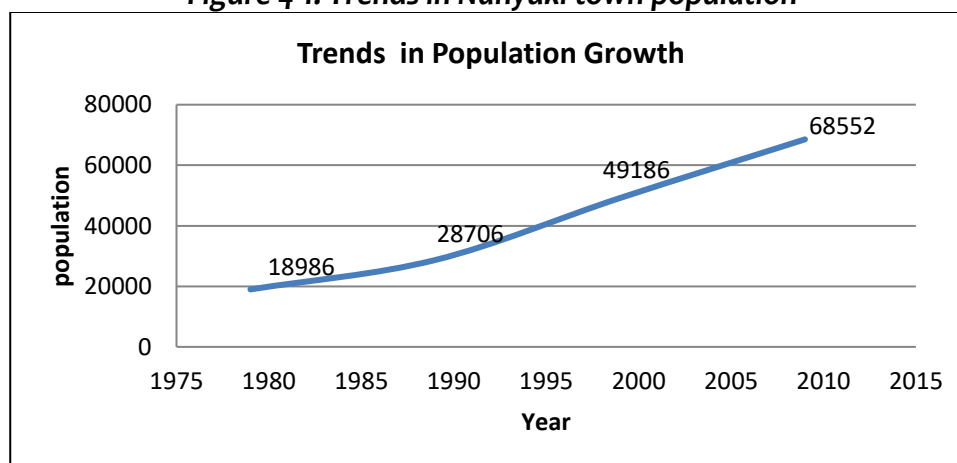
4.0 Overview

Appreciation of the population size, composition, trend, socio-economic profile and spatial distribution of people are important aspects in the preparation of Nanyuki Town Integrated Strategic Urban Development Plan. In addition demographic analysis allows to measure the dimensions and dynamics of populations, helps to identify the directions of future growth and enables to make infrastructure provisions.

4.1 Population Size

Nanyuki town has experienced a tremendous population growth rate since the development of the urban centre in 1907. Nanyuki town population according to 1999 population census was 49,186 people while in 2009 the population was 68,552. In 1979 the population was 18,986 while in 1989 Nanyuki town population was 28,706 presenting a population growth of 4.2%. In 1999-2009 the population of Nanyuki town had rapidly increased and that decade, presented an increase of 4.3% whereas the country registered 3.02% population growth.

Figure 4-1: Trends in Nanyuki town population



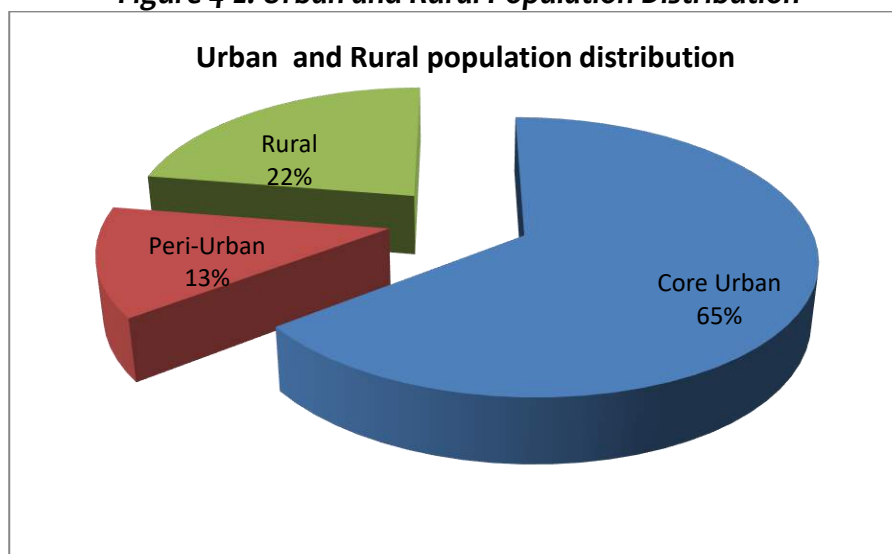
Source: National Population and Housing Census, 2009

4.2 Urban and Rural Population Distribution

The bulk of the planning area population represented by approximately 65% is still urban with dispersed settlement where agriculture and livestock production are dominant

activities. Peri-urban and rural population account for 13% and 22% of the planning area's population respectively.

Figure 4-2: Urban and Rural Population Distribution



Source: National Population and Housing Census, 2009

4.3 Population Distribution and Urban Densities

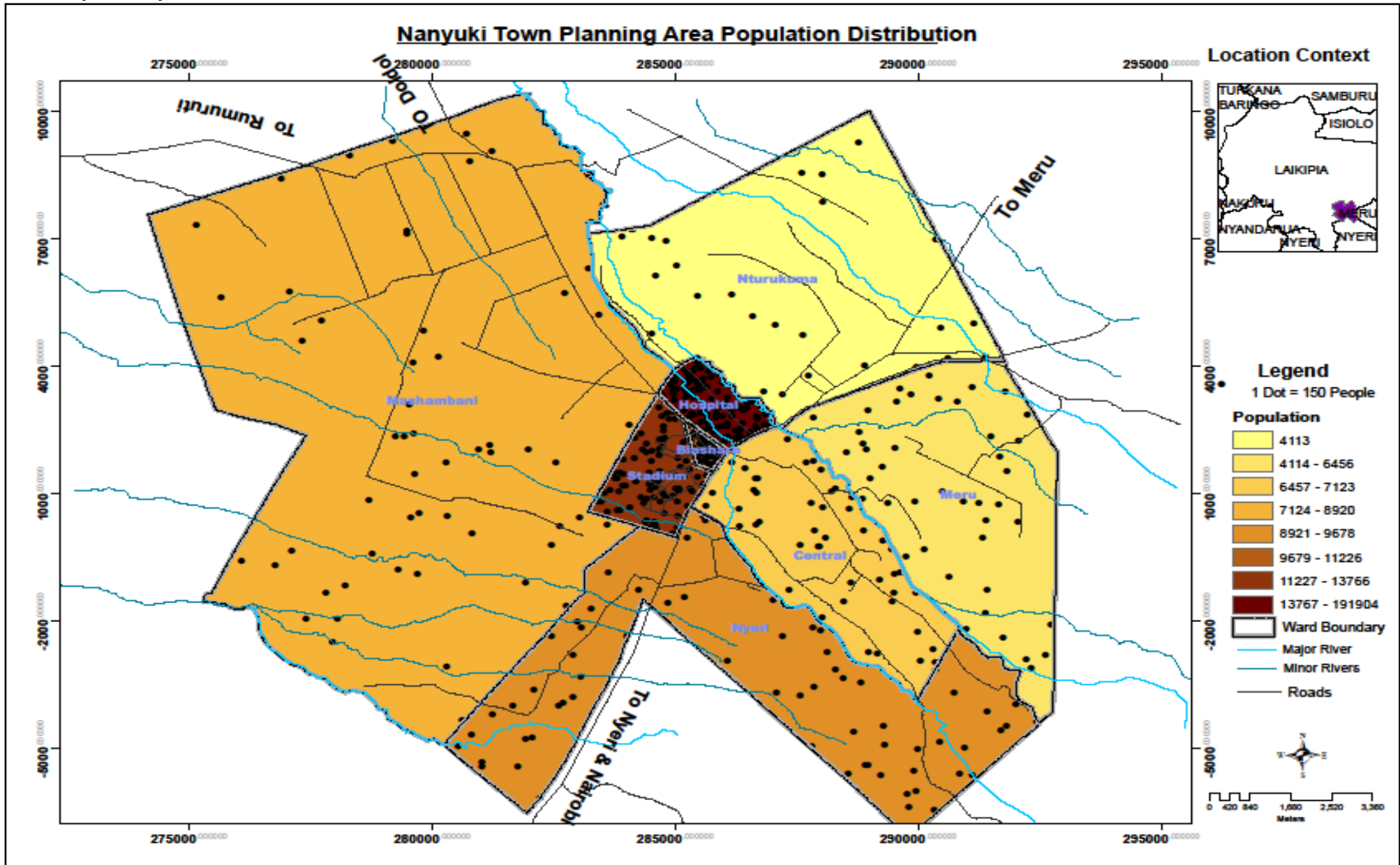
Nanyuki town planning area has a population density of 479.4 people per km² according to the National Population and Housing Census, 2009 while that of Laikipia County is 42 people per Km² and Kenya's is 66 people per Km². The population density for the town in 1979, 1989 was 142.7 and 201 per km² respectively. The most populated areas are Likii, Majengo and Icuga while the least densely populated are Thingithu, Muthaiga and Kwa-Huku.

Table 4-1: Nanyuki Town Population Structure

Locality	Male	Female	Total	households	Area in km ²	Density
Nanyuki	16472	15717	32189	9591	78.0	413
Majengo	9537	8517	18054	5391	15.7	1148
Thingithu	6935	7200	17135	4200	62.3	227
Nturukuma	5214	5217	10431	3402	20.3	515
Likii	3037	3060	1697	2189	1.7	3606

Source: National Population and Housing Census, 2009

Map 4-1: Population Distribution



4.4 Population Characteristics

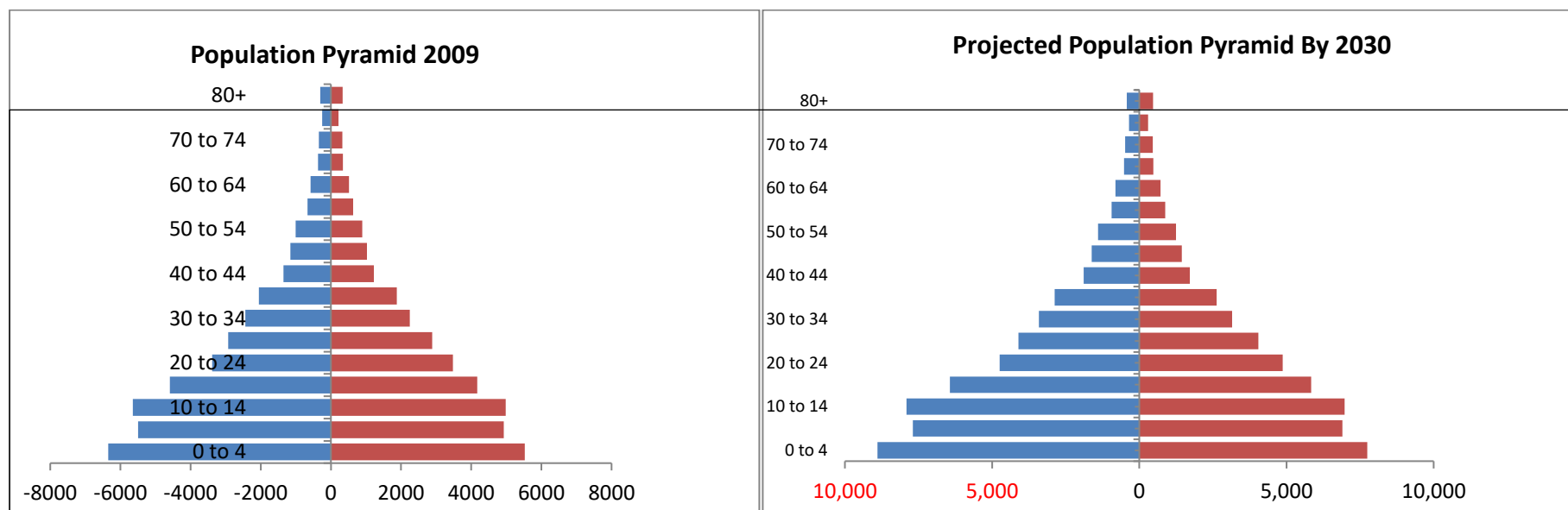
4.4.1 Age Sex Ratio

Nanyuki town has a high sex ratio (103). In general, most urban areas in Kenya have high sex ratios as depicted in the National Population and Housing Census, 2009.

4.4.2 Population Structure

The population structure reveals a young and growing population with a small proportion of ageing population. Figure 4-3 below shows a population pyramid for Nanyuki town.

Figure 4-3: Population Pyramid for 2009 and 2030



Source: Compiled from National Population and Housing Census by AIDAL Consultants, 2012

4.4.3 Projected Population Structure

Population for Nanyuki reveals that the population of Nanyuki is young with those less than 20 years of age. This has important implications for future planning for the Town in terms of basic social services particularly educational and medical facilities as well as infrastructural services and economic enhancement.

4.5 Demographic Characteristics

4.5.1 Average Household Size

The average household size for Nanyuki town is 3.9 persons while the national average is 5.1 persons per household while that of Laikipia County is 4.9. This is typical of urban areas and is characteristic of the more urbanized areas and also a young generation. Approximately 20% of the households are made up of more than 6 household members.

4.5.2 Infant Mortality

Infant mortality has been declining for several years and the acceptance of immunization programs is increasing. Infant Mortality Rate for Nanyuki is 90/1000. Under Five Mortality Rates: 109/1000.

4.5.3 Fertility Rate

Fertility has been and is still a major determinant of population growth in Kenya. Kenya's fertility rate stands at 4.19 children born/woman whereas for Nanyuki town is 4.2 which is relatively low compared to other areas.

4.5.4 Mortality

Infant mortality has been declining for several years and the acceptance of immunization programs is increasing. Infant mortality rates stands at 90/1000. The less than five mortality rate stands at 109/1000.

4.5.5 Life Expectancy

Life expectancy here as shown in the National Population and Housing Census, 2009 is approximately 50 years. Females have a higher life expectancy (52 years) than their male counterparts (48). The expectation of life at birth signifies the general standard of living of the people. Many factors determine the life expectancy for example health, economic status and level of education. The current HIV AIDS pandemic has a significant effect on life expectancy; it will significantly reduce it if adequate measures are not undertaken.

4.5.6 HIV Prevalence

Nanyuki town has an average HIV prevalence rate of 6.5% whereas the prevalence rate nationally is 6.2% (2011).The country’s HIV prevalence has been declining over the years. The presence of the high transit population attracts sex workers and also tends to encourage the engagement in transactional sex by women who do not self-identify as sex workers thereby increasing HIV prevalence.

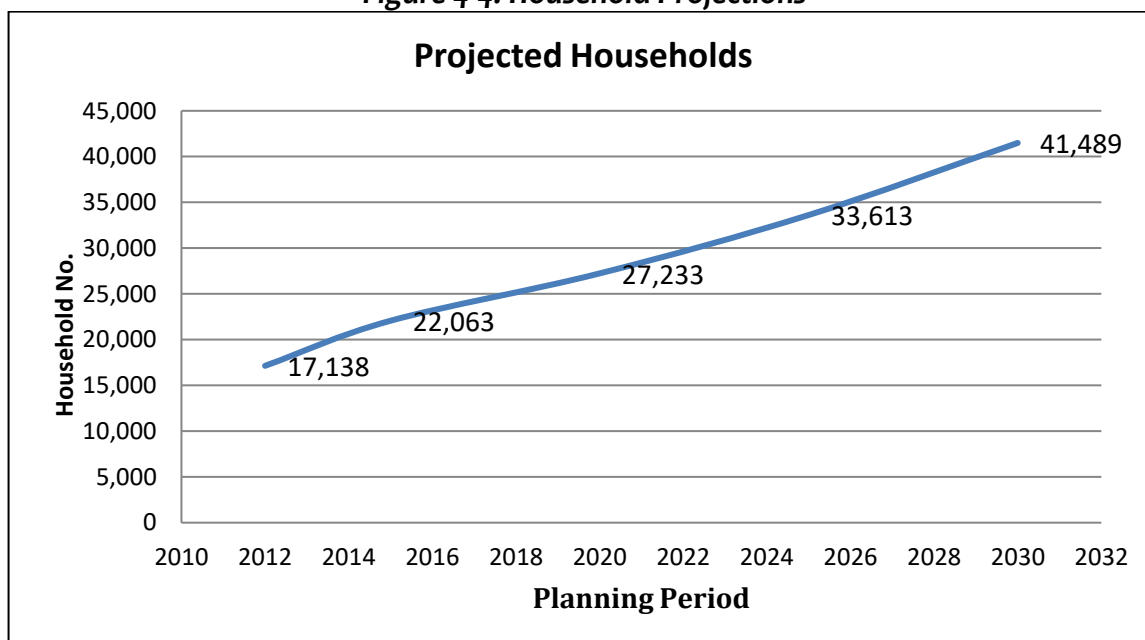
4.5.7 Dependency Ratio

The dependency ratio is 73% and the population depending is 51% assuming that the labor participation is rate is 100%. With high unemployment levels, there is a burden on the productive population.

4.5.8 Household Numbers

Nanyuki town has a population of approximately 68,552 spread in is 24,773 households. Total number of households in 1979 was 8,262 while in 1989 it was 11,972. Figure 4-4 below shows households trends in Nanyuki as per the 2009 census.

Figure 4-4: Household Projections



Source: Compiled by AIDAL Consultants from CBS, 2012

4.5.9 Socio-Cultural Dynamics

Nanyuki town is cosmopolitan in nature. The Kikuyu form about 60% of the population, with the balance composed of several other ethnic communities, including Maasai, Samburu, Meru,

Borana, Kalenjin, Somali, European, Asian, and Turkana, giving the district a diverse population. Most of the land is owned by a small population of old Kenyan settler families, and increasingly naturalized Kenyan wealthy landowners and international organizations.

4.6 Population Forecasts

Nanyuki town's future population growth will continue to be dominated by natural increase i.e. excess of births over deaths. According to the 1999 National Housing Census, Kenya had a 2.9% growth rate. The planning areas' population had grown by 4.3% per annum as at 2009. The middle variant (4.7%) has been taken as the average of national urban population growth rate and Nanyuki town population growth rate of 5.3% and 4.3% respectively. Based on these assumptions, three growth rates will be used to represent the lower, mid and higher growth rates for Nanyuki. The actual growth rate of Nanyuki is 4.3% and was used as the middle growth rate variant while the general national growth rate of 2.9 % and the general national urban growth rate of 5.1% were assumed as the lower and higher growth rates respectively.

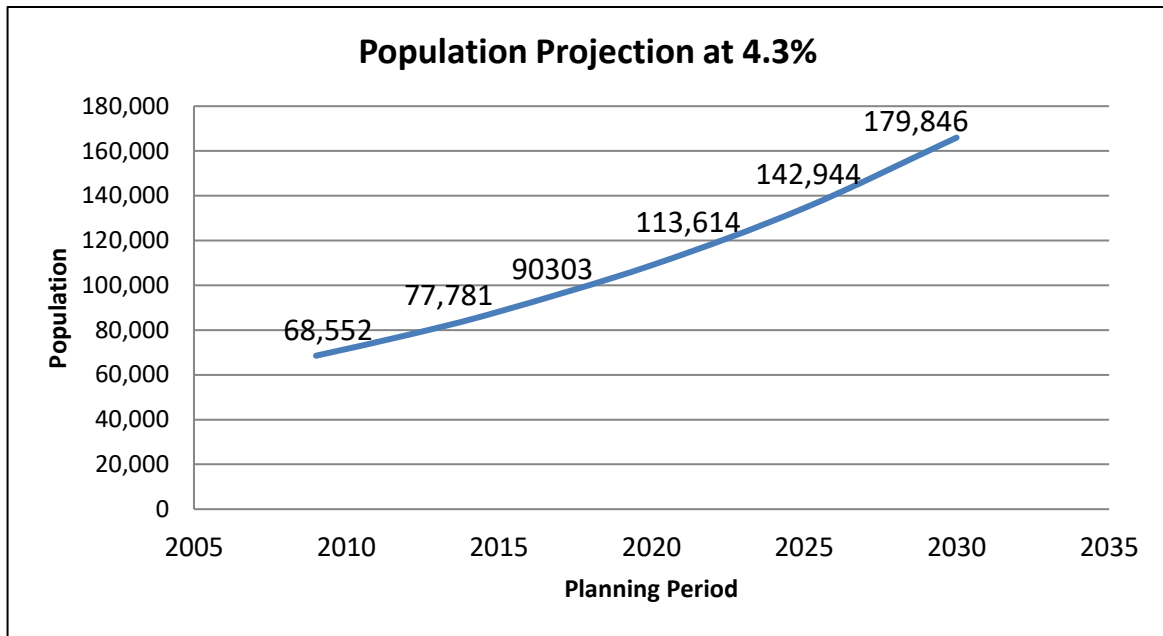
Table 4-2: Population Projections

Planning period	Upper Variants 5.1%	Middle Variants 4.7%	Lower Variants 2.9%
2009	68,552	68,552	68,552
2012	79,584	77,781	74,691
2015	92,392	90,303	81,379
2020	118,481	113,614	93,883
2025	151,937	142,944	108,309
2030	194,840	179,846	124,952

Source: Compiled from National Population and Housing Census

Watchful organisation of growth is critical for the prosperity, well-being and image of Nanyuki town. The Integrated Strategic Urban Development Plan is an important instrument in balancing growth and facilitating change in an optimal and sustainable manner.

Figure 4-5: Population Forecasts at 4.7% per annum



Source: Compiled by AIADL Consultants from CBS

Land use proposals were derived from the land use budget that was derived from the above population forecasts. In addition planning for social infrastructure and services was guided by the above population projections.

5. CHAPTER FIVE: ECONOMIC ANALYSIS

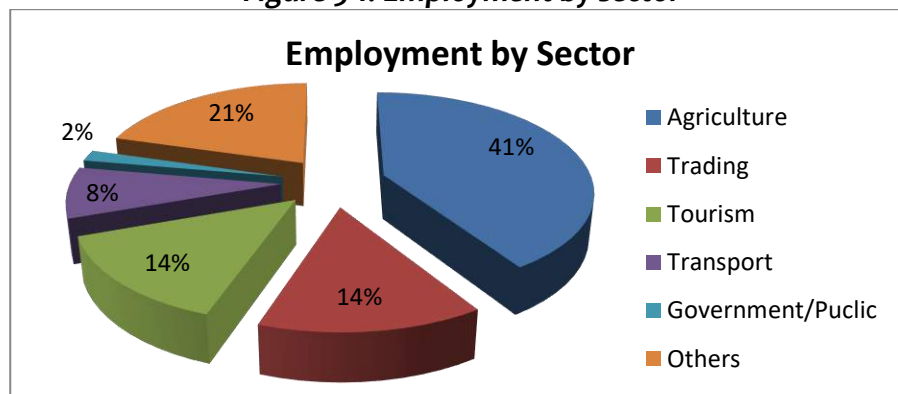
5.0 Overview

Economic base of the Nanyuki town comprises the flow of economic activities for supporting needs of the people and fixed asset wealth. Economic activities in Nanyuki town and its environs are; agriculture, quarrying, building and construction, wholesale and retail, restaurants and hotels, transport and communications, finance, insurance, real estate and business services.

5.1 Employment Levels

Initially Nanyuki town was an industrial town and was by the largest employer. However, most industrial establishments have ceased to operate. Agricultural sector especially the horticulture sector is the biggest employer employing approximately 41% of the people. Commerce and trade employ approximately 14% of the residents while tourism sector employ approximately 14%. Others sectors such as transport and government/public sector account for 8 and 2 % respectively. In the hospitality industry, the main employers are the Sports Arm Hotel, Falcon Height hotel, IBIS Hotel, Kirimara Hotel, and Simba Lodge Hotel. Other sectors that provide employment opportunities include Nakumatt and Budget super markets, British Army, the Kenya armed forces, Horticultural farms and private educational institutions and Parastatals and government departments

Figure 5-1: Employment by sector



Source: Field Survey, 2012

5.2 Trade and Commerce

Nanyuki town has an agglomeration of economic activities. As a major regional centre in the central -east region of Kenya, Nanyuki town is strategically positioned to be a key commercial centre for the surrounding counties and urban centres. Further, the town is situated along an International Highway (A2) Road that opens Kenya to the north, a factor that promotes transportation to and from the town and makes it an important call-point for travelers. Wholesale and retail trade and the hotel and restaurant industries are leading in formal sector employment nationwide. Commerce is the major economic activity in the town and comprises the following activities viz: formal and informal.

5.2.1 Formal

5.2.1.1 Wholesale and Retail Trade

The town is largely driven by both large scale and small scale retail activities. The town hosts Nakumatt supermarket chain store among other local supermarket retails. Wholesalers dealing mainly in retail items are located within the town. Most of the hardwares have increased in the past three years due to increase in the construction industry during the same period.

Table 5-1: Wholesale and Retail Trade

Category	No
Mega stores	3
Large trader, whole sale shops	148
Retail outlets	2,767
Hardwares	11

Source: Municipal Council of Nanyuki, 2012

Within the town there are emerging satellite centers which serve as shopping center. Nanyuki town's potential for development as a commercial centre is evident due to the presence of Nakumatt Supermarket as indicated by plate 5-1 below.

Plate 5-1: A shopping mall along Kenyatta Highway



Source: Field Survey, 2012

5.2.1.2 Petrol Stations

There exist 11 petrol stations and petrol filling stations and numerous fuel pumps in the planning area. Most of the petrol stations and petrol filling stations are located within the town centre and at the periphery of the town especially along the major transportation corridors. Liberalization of the petroleum sector has resulted in the increased number of petroleum outlets whose operations are a threat to public safety, the environment and sustainability of the existing adjoining physical investments. Petroleum outlets are retail facilities that distribute petroleum to the consumers.

5.2.2 Informal commercial activities

Informal activities are a reality in most towns in developing countries. Informal commercial activities play an important role in socio-economic life of any town. Informal trade activities in Nanyuki include general retail, tailors, workshops charcoal dealers, hawkers, vegetable sellers etc. Hawkers are effective and efficient as economic agents in the distribution of goods and services found both within the CBD and peri-urban areas. The Central Business District (CBD) area of the town has been crowded with many informal commercial activities which have taken over public space.

5.3 Markets

Markets are important for town for many reasons as they offer and create incredible opportunities for social, cultural, and economic wealth at the local level. Apart from contributing significant revenue generation to the county government, markets also enhance the town's local economy. The county operates three markets i.e. The New

Market. Nanyuki Municipal market; Likii market and Nanyuki open air market. The Mitumba Market and the new market are not developed.

Plate 5-2: Undeveloped Markets



Source: Field Survey, 2012

This is a periodic market, operating on Wednesday and Saturdays every week. Despite the food market generating high quantity of solid waste, there are no containers/skips to handle this is due to inadequate capacity and procedures in handling waste poor waste management. The markets are also characterised by poor storm water management. The Municipal Council of Nanyuki market is located in near Majengo opposite the social hall. The market is developed with stalls and adequate roofing. The market mostly deals with food products.

Plate 5-3: Municipal Market



Source: Field Survey, 2012

Inadequate capacity as demonstrated with the number of people who do not have stalls thus operating from the corridors. The market's infrastructure is deteriorating as indicated by plate 5-3 above.

5.4 Industry

5.4.1 Formal Industry

Historically Nanyuki town was an industrial town. However most of the industrial activities e.g Kenya Fibre, MOUNTEX, Tim sales has ceased to operate. The fall of MOUNTEX can be attributed to the liberalization of the cotton industry in the early 1990s. In addition, the ones that is operational like KCC, Camel Milk Plant, Kenya Industrial Estates and Slaughter operating or is operating below their capacities owing to either high competition or higher costs of operation. The facilities for the two industries have been vandalized. The Kenya Fiber Industry also collapsed and is now under ownership of Braeburn School with the proposal of establishing a university.

Plate 5-4: Vandalized MOUNTEX Factory



Source: Field Survey, 2012

However, there are a number of cottage industries involved in value addition. The industrial zone from the town is located to the west of the town at railways. The industrial zone is rarely used after the collapse of the coffee industry. The industrial zone is facing encroachment from the adjacent residential areas.

5.4.2 Informal Industry (SMEs) in Nanyuki town

The informal sector continues to play an important role in absorbing the unemployed persons in the labor force that are unable to get into the modern sector. Nanyuki town has a vibrant informal industrial sector involved in value addition, spinning and baking.

5.4.2.1 Motor vehicle garages

The town has 17 registered motor vehicle garages providing automobile repair and maintenance services in Nanyuki town and the surrounding areas.

5.4.2.2 Carpentry & Furniture

The carpentry and furniture sector in Nanyuki town is not developed to its full potential and there are prospects to expand the use of modern technology for increased furniture production. Many saw millers are located in the region combine the process of timber production and the manufacturing of furniture. The town has approximately 32 registered and operational carpentry shops.

5.4.2.3 Nanyuki Spinners and Weavers

This is a self-help project registered under the Ministry of Culture and Social Services started under the umbrella of the Presbyterian Church of East Africa (PCEA) in 1977 to empower women. Basically it was started with the main aim of training poor, widowed and single women living in the surrounding villages of Nanyuki town in the craft of Spinning, Knitting and Weaving with the main objective of making them self-reliant. Nanyuki town was targeted because it is one of the major wool producing areas in Kenya, its weather being favorable for sheep rearing and raising. It was agreed from the beginning of the project that half of the proceeds acquired would go directly to the women under the project and the other half would be retained at the center

Plate 5-5: Nanyuki Spinners and Weavers: A cottage industry



Source: Field Survey, 2012

5.5 Industrial Potential

Kenya Vision 2030 aims to transform Kenya into a newly industrializing “middle-income country providing a high quality life to all its citizens by the year 2030”. The objective of vision 2030 can be localized in the Nanyuki by enhancing industrial development. Despite the current low level of industrial development, Nanyuki town has potential for a number of industries due to availability of raw materials in its hinterland, a big market

and basic infrastructure availability. Through assessment of the current industrial development, challenges and opportunities of Nanyuki town and its hinterland have great potential for the following industries:

5.5.1 Livestock farming

The County is semi-arid with a large population dependent on livestock farming from individuals or from group ranches. The hinterland is rated among the leading producer of quality beef in the country under intensive, ranching and smallholder systems and has a well-developed livestock market. Increase production, processing and value addition of livestock products mainly milk, hides, skins and meat

5.5.2 Water bottling

The location of Nanyuki town on the foot of Mt. Kenya ensures its constant supply of water. Water could be tapped from the slopes of Mt. Kenya commercial bottling.

5.5.3 Tourism

Nanyuki town hinterland has potential for tourism that has not been adequately tapped e.g. panorama views, social cultural assets, wildlife and development of camping sites and lodges within the nearby forests/ranches. In addition the town can be developed and promoted as a high end niche eco-tourism center with a tourism resort. Also the town has potential for development of conference, hospitality tourism and sport tourism.

5.5.4 Food processing

Nanyuki town and its environs has untapped potential for agro processing industry. This is considering the rich agricultural areas such Nturukuma and neighbouring parts of Meru and Nyeri. Among the agricultural produce include potatoes and fruits.

5.6 Mining

Nanyuki town does not have minerals. Mining take place in form of quarrying. Major quarrying activities for gravel and building stones at Kangaita quarry. Large scale extraction of ballast is undertaken by Nanyuki Constriction Company. In addition individuals carry out quarrying at the small scale.

Plate 5-6: Quarrying activities at Kabiru and Kangaita areas



Source: Field Survey, 2012

Unregulated quarrying has had negative impacts on water quality along Kabiru River a tributary of river Nanyuki in addition to contributing to land degradation at Kabiru Quarry areas.

5.7 Tourism

Tourism remains one of the key sources of foreign exchange earnings in the country. Due to the town's strategic location in a tourism rich hinterland such as the slopes of Mt Kenya, Nanyuki is popular as a base for mountain climbers and backpackers ascending through Sirimon, Timau and Burguret routes.

Figure 5-2: Tourist attractions of Nanyuki town



Source: Field Survey, 2012

Nanyuki town is located in a hinterland rich in tourism potential concentrated along Mt. Kenya, Meru, Samburu game parks systems, the Ewaso Narok tributary, Kirimon, around Nyahururu town, the lower parts of the county and conservancies. The equator passes through the southern part of Nanyuki. This spot is popular with tourists who stop there

for a demonstration of Coriolis force on both hemispheres of the earth. The Northern parts of the county have a high potential of eco-tourism that is still untapped. The town can be developed and promoted as boarding town for tourists visiting tourist attraction areas.

5.7.1 Hospitality Industry /Conference Tourism

Nanyuki and its environs have major tourist attractions. Hospitality facilities get a majority of their clientele from the tourism sector. Evidence of the vibrancy in tourism in Nanyuki town is present in the wide variety of hospitality facilities available. Some among others are listed below; Sportsman's arms hotel, Fairmont Mt. Kenya Safari Club, Nanyuki River Lodge, Nanyuki Simbas Lodge, Sweet waters tented among others.

Plate 5-7: Mt. Kenya Safari Club



Source: Field survey, 2012

5.7.2 Nanyuki Commonwealth War Graves

Nanyuki town has a rich historical background. This among them is the commonwealth war cemetery. Commonwealth soldiers who fell in the World War 1 cemetery are or commemorated on memorials, in the campaign areas. Many who died are also buried in war cemetery but others, whose graves are in places where they cannot be properly maintained on the memorial in Nairobi war cemetery which carries the names of 480 East African soldiers Nanyuki war cemetery contains 190 graves; they comprise 131 East African, 31 South African, 18 West African, 18 British, 6 West African, 2 Australian, 1 Canadian and others. The war cemetery was constructed and maintained by the commonwealth. The war graves are located along Mt. Kenya Rd. the cemetery can be promoted as a tourist attraction and a historical preservation.

Plate 5-8: Nanyuki Commonwealth War Graves; A historical site

Source: Field Survey, 2012

5.7.3 Sports Tourism

Sport Tourism is the fastest growing sector in the global travel industry. Nanyuki town has one Golf Course located in Mugambi Estate near the showground on the out skirts of the central business district. Golfing is an active sport in Nanyuki with Kenya Golf Union organizing events at the venue.

Plate 5-9: Potential for sport tourism (golf)

5.8 Banking and Financial Services

Banks play a very important role in the economic life of a town. Banks through lending and related activities facilitate the process of production, distribution, exchange and consumption of wealth. Nanyuki town currently hosts 9 commercial banking and financial institutions' branches. These include Kenya Commercial Bank (KCB), Barclay's

Bank, Co-operative Bank, Equity Bank, Standard Chartered Bank, K-REP Bank, Kenya Women Finance Trust, Bank of Africa and Fina Bank which have taken advantage of the town's positioning as a tourism and commercial hub. In addition there are fifteen (15) micro finance institutions and nine (9) insurance services and agents are available in the town. The cooperative societies that run the economy of Nanyuki town are as follows: Urban SACCO which was started by companies, Traders SACCO, Laikipia Teachers SACCO Municipal Council SACCO, Equator SACCO, Taifa SACCO, Nyeri Tea SACCO, and Mwananchi SACCO etc.

Plate 5-10: Financial services in Nanyuki town

		Number
1.	Banks	9
2.	Micro finance	15
3.	Insurance services and agents	9
4.	SACCOs	21

Source: Municipal Council of Nanyuki, 2012

5.9 Agriculture

The economy of Kenya is primarily dependent on the agricultural sector. Agriculture development in the planning area comprises of agriculture, livestock development and fisheries development.

5.9.1 Crop Farming

The agricultural potential in the county is quite prospective as characterized by highly potential farming lands particularly in the Southern parts of the county. Over 20 % of the county's total land is arable. Total area under crops is about 1,984 Km² of which 80% is under food crops.

5.9.2 Fish Farming

Fishing is commonly practiced in high potential natural dams and artificial ponds. In 2011, the county had 471 fish ponds and 4 natural fish dams, 3 fingerling multiplication farms of which majority were established under the Economic Stimulus Project and 182 other ponds are under private initiative.

5.9.3 Horticulture

Horticulture is becoming a major economic activity in planning area and its environs employing majority of the people mostly immigrant population. Among the major

corporations involved in horticultural farming within Nanyuki are: Agrifresh Kenya Limited, Greenland Agricultural Co., Homegrown K, Likii River Farm and Shamba Connections among others. Most of this produce is exported to the UK but some is also transported to the rest of Europe, the Middle East and South Africa. Most of the farms have modern processing, packaging and cold storage facilities. Horticulture is a highly specialized enterprise with some having dams and boreholes. Special attention is also paid to efficient irrigation.

5.9.4 Animal Husbandry

Nanyuki town located in Laikipia County is rich livestock keeping. The County is semi-arid with a large population dependent on livestock farming. Livestock production is dominant in the Western and Northern parts of the county. The main livestock products include beef, mutton, milk, eggs, and pork among others. There are about 189,685 heads of cattle in the county and 623,648 sheep and goats, 50 holding grounds. Pastoralism is done both as nomadic and sedentary keeping cattle, sheep, goats, camels and donkeys. This is especially in northern parts of the county outside the group ranches. Due to the uncontrolled increase of livestock number most of the livestock rearing areas are characterized by degraded landscapes and poor pasture yields. This arises from poor range management on land that continues to be degraded.

6. CHAPTER SIX: PHYSICAL INFRASTRUCTURE

6.0 Overview

Infrastructure improvements contribute to economic development. Inadequate infrastructure limits a town's ability to utilize its natural resources, distribute food and other finished goods, integrate the manufacturing and agricultural sectors, and supply education and medical services. This chapter highlights the town's physical infrastructure as is essential because of the town's position within central-east region of Kenya.

6.1 Transportation

All sectors link one to another through transportation networks. For the economy of any region to be improved and properly managed, the movement of people and goods must be conducted efficiently and sustainably. With rapid socio-economic development as envisaged in Kenya Vision 2030, the intensity of movements is bound to accelerate and increase by three to four times in a short period of two decades. This section provides an analysis of the existing transport system to provide the basis for the improvement so as to enhance accessibility and mobility in Nanyuki town and its link with the rest of Kenya.

6.2 Existing Transport System

6.2.1 Road Transport in Nanyuki

Road transport accounts for over 80% of the country's total passenger and 76% freight traffic (National Development Plan 2002-2008).

6.2.1.1 Regional Road Connectivity

Nationally and regionally Nanyuki town is accessed by the international (A2) road that passes through the town from Nairobi to Isiolo. Nanyuki town can be accessed at a distance from Isiolo, Meru, Nyeri, Maralal and Nyahururu. It can therefore be fairly accessed from a number of towns within its regional context due to its centrality. This centrality gives Nanyuki town prominence and therefore can act as a good economic hub for the south-western region of the country. Within Laikipia County the Nanyuki town is fairly accessed. Bitumen road surface in the county stands at 158 kilometers, covering mainly Nyeri-Nanyuki road, Nyeri-Nyahururu, and Nyahururu-Kinamba-Rumuruti roads. The gravel surface stand at 296.9 kms and the earth road at 601.9

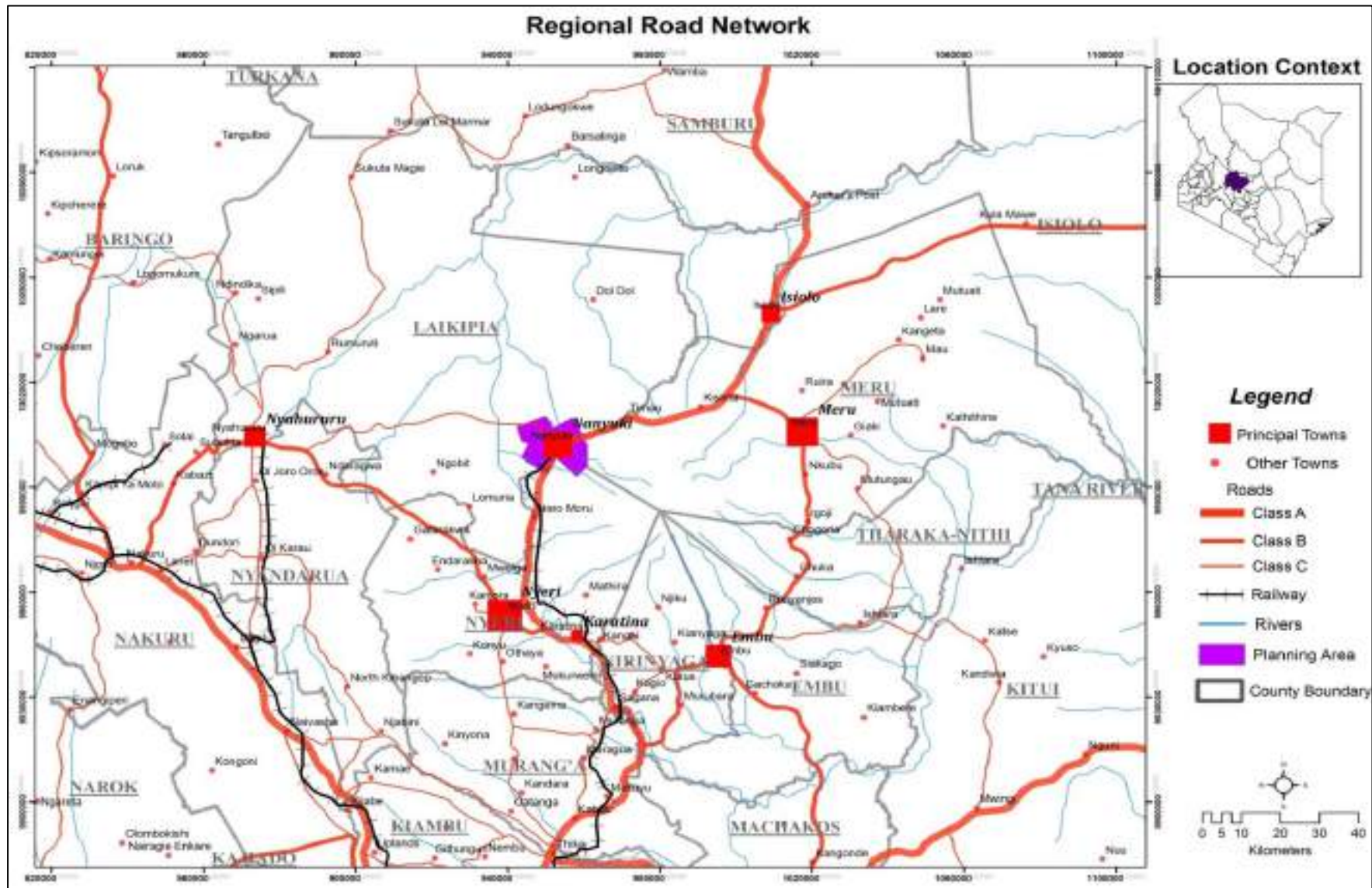
kilometers. Whereas the main urban centres are relatively well served by road communication network; the rural areas have low access hence movements to the major urban centres is hindered.

Plate 6-1: Nanyuki- Meru Road and Kenyatta Highway



Source: Field Survey, 2012

Map 6-1: Regional Road Connectivity



6.2.1.2 Internal Road Connectivity

The inventory of all other roads within the planning area does exist. The total length of roads within the Nanyuki town is estimated at 382.5 km.

Table 6-1: Road Classification in the Planning Area

Type of road	Length in km	% of total
1. Tarmac roads		
Total tarmac roads	22.4	5.85
2. Murram roads		
a) In town	20.1	5.25
b) Sweet waters areas	7.0	1.83
c) Nturukuma areas	8.0	2.09
Total Murram roads	35.1	9.18
3. Earth roads		
a) Opened	80	20.92
b) Unopened	240	62.75
i) In rural wards		
ii) In town	5	1.31
Total earth roads	325	84.97
Total Road Length	382.5	100

Source: Source: Kenya Rural Roads Authority, 2008

6.2.1.3 CBD Roads

The road network inventory within Nanyuki town was prepared by Kenya Roads Board (KRB) under KURA. Approximately 60% of the roads in the CBD are tarmacked.

Plate 6-2: Status of roads in the CBD



Source: Field Survey, 2012

6.2.1.4 Peri -Urban and Rural Roads

Most roads in the peri urban are unclassified roads. Most of the roads are of murrum standards hence impassable during rainy seasons. Other sections are roads have been encroached making them narrow.

Plate 6-3: Status of roads in the Nanyuki town periphery

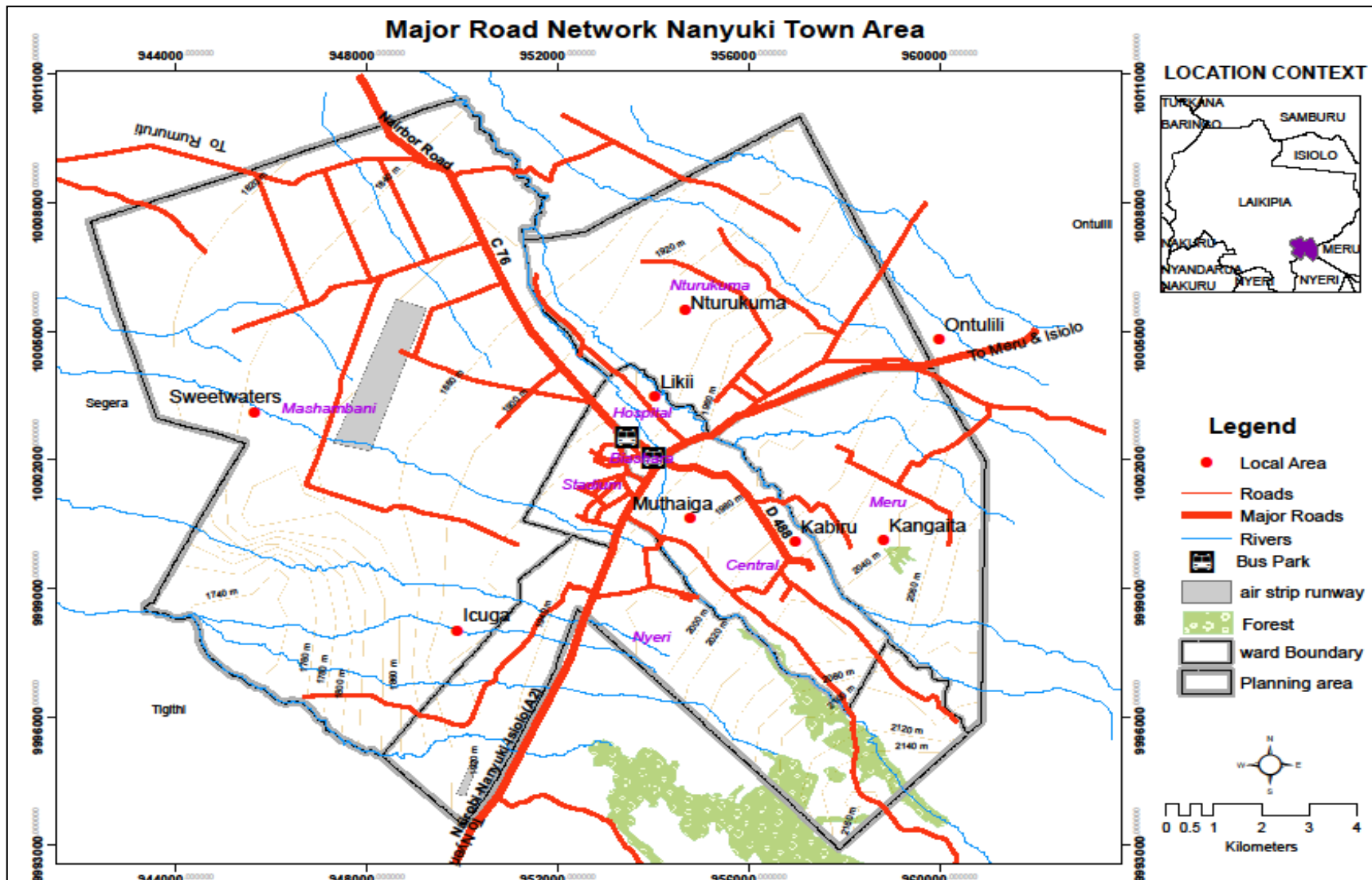


Source: Field Survey, 2012

6.2.1.5 By-Passes

Bypass helps to “bypasses” traffic in the town, to let through traffic flow without interference from local traffic, to reduce congestion in the town centre, and to improve road safety. Nanyuki town has no bypasses despite the presence of an international road (A) that passes through the town. A bypass is required to bypass traffic along Nanyuki-Meru Road (A2) which is a major transportation corridor passing through the planning area.

Map 6-2: Planning Area Road Network



6.2.2 Storm Water Drainage

Nanyuki town has storm water drainage facilities mostly which are open. Storm water drainage facilities in the town are poor and inadequate. The primary storm drainage system consists of natural streams and built up drains. Storm water drainage is a critical problem on the usability of roads. Maintenance of the drainage system seems to be a problem compromising the efficiency of the functionality of the roads during rains. This also leads to erosion and quick deterioration of the roads and streets. The soils of black cottony do not easily absorb storm water. This always results in poor environmental quality. The built up drains are open which may endanger pedestrians especially during the night. Within the CBD and neighborhoods such as Ngei Estate storm water drains have been provided and integrated with the road network. The secondary drainage system in many parts of the town is inadequate and where provided, blockages are common due to accumulation of solid wastes, soil and vegetation in the drainages aggravating the problem.

Plate 6-4: An open storm water drain in the CBD



Source: Field Survey, 2012

The residential neighbourhoods, including Muthaiga, Likii and Nturukuma do not have formal discharge system for storm water. Water from these areas rapidly discharges to the rivers.

Plate 6-5: Lack of storm water drains in Muthaiga and Majengo areas

Source: Field Survey, 2012

6.2.3 Air transport

Kenya has a well-developed air transport network with five airports in Nairobi, Wajir, Mombasa Kisumu and Eldoret operating on international and national. Nanyuki town is served by air transport. The town has two air strips which handles small aircrafts operating on the national routes. Nanyuki town has an Airfield located approximately 8 kilometers from Nanyuki town center which is a government-owned, privately leased airfield, serving private and commercial air operators. Nanyuki airport has a single asphalt runway which measures 1,200 metres (3,900 ft) in length. With only one landing strip, the airfield handles mostly small light single engine aircraft and some larger twin aircraft. Most traffic through Nanyuki is routing from Nairobi, carrying tourists to Mara Serena Airport, Samburu airport, Laikipia and Meru. In addition the town military air base, Laikipia Air Base located approximately 8 km west-northwest of Nanyuki town. It was established in 1974 as Nanyuki Air Base. With the growing demand, for air transport, there is a need for expansion and development of the airport to promote tourism as well as international trade of the horticulture and livestock products.

6.2.4 Rail Transport System

Nanyuki town is served by a railway line thus opening Nanyuki town regionally and nationally. Nanyuki railway station is the only one to the north of Kenya. The Nanyuki railway line station was intended to be used for transporting animals, wheat and other agricultural products to Nairobi. The railway line is in poor condition, is no longer in effective and has therefore no role in in the economic development of the region. The Government of Kenya has proposed to construct a new railway line from Lamu Port to

Isiolo, where the line will branch to Ethiopia and Southern Sudan. A new extension will also be built on the old Nairobi-Nanyuki line for 120 km from Nanyuki to Isiolo, to link with the proposed line.

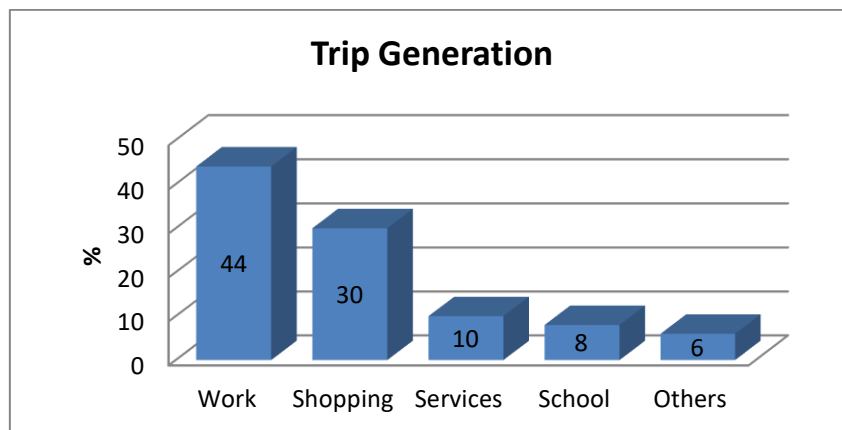
Plate 6-6: Nanyuki underutilized Railway Station



Source: Field Survey, 2012

6.2.5 Trip Generation

The trip generation modeling makes use of land use and socioeconomic data such as population, household size, household income, employment, school/college enrolment, and developed commercial or industrial land area to determine the number of trips produced by and attracted to analysis zones. Nanyuki town attracts people the greater county regions and parts of Meru and Nyeri counties because it is the major urban area that has major services and facilities. Major government offices, including the Lands Offices, higher order services such as health and shopping areas theta are located in the town attracts population from such a wide hinterland. From the field survey, 44 % of the residents accounted for work and business as their main reasons of travel. Shopping, services and school accounted for approximately 30%, 10%, and 8% respectively. Travel demand assists in revealing the type of service sought in a given locality hence need to provide these services at the lowest level.

Figure 6-1: Trip Generation Characteristics for Nanyuki Town

Source: Field Survey, 2012

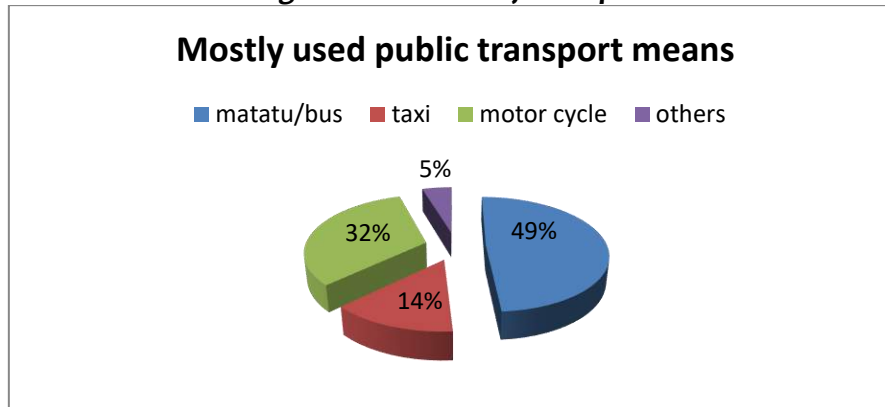
6.2.6 Frequently Visited Localities

Nanyuki town centre is the mostly frequented locality within the planning area, there is need to provide lower order goods and services in other market centers so as to distribute the population within the planning area equally and also to decongest the town. Other areas indicated include Majengo, Ichuga, Likii, Kangaita and some parts of Nyeri.

6.2.7 Means of Transport

6.2.7.1 Public transport

Public transport is a shared passenger transport service which is available for use by the general public. Public transport in Nanyuki is the most popular mode of transport accounting for nearly 87% of mobility within Nanyuki and outside as shown by the chart below. However, there is a gradual shift away from the public to private transport. This is attested by the high demand for parking space in the town centre. The shift from public modal to private transport will greatly contribute to traffic congestion especially during peak hours. Various means of public transport in Nanyuki include matatus, taxis and motorcycles. Dominance of matatus as a public transport mean is reflected by nearly 49% while motor cycles and taxis accounts for nearly 32 and 14% respectively. Chart 14 below shows modes of transport in Nanyuki town.

Figure 6-2: Means of transport

Source: Field Survey, 2012

High use of public modes of transport necessitates need to plan for mass transit in Nanyuki town.

6.2.7.2 Motor Cycles (Bodaboda)

Kenya is witnessing an upsurge of use of motorcycles for mobility purposes in urban areas and peri urban areas. This is also reflected in Nanyuki town and other surrounding urban centers. Motor cycles account for 32% of the transport means in planning area. The council estimates the number of motor cycles operating within the town to be more than the licensed 500. There are no areas specifically designated as motor-bike and bicycle parks. This has resulted in obstruction in areas where they are parked by the users. This is because the roadside is used as the parking space. Challenges faced by motor cycles are majorly caused by their high numbers which lack marching adequate facilities causing traffic chaos and congestion especially in the CBD mainly due to narrow roads

6.2.8 Pedestrian and Non-Motorized Transport Facilities

Walking is a key element of a balanced urban transportation system. It is an integral element in the majority of trips made by other modes. In Nanyuki, it is the predominant mode of travel. With the affordability levels still very low, walking has become the means of mobility for a large number of people. While with increasing income levels, the share of walking trips would come down, walking as a mode would still be the choice for a large number of people. There is a need for promoting walking, both as a primary mode as well as an access mode to transit system, through appropriate development strategies.

Plate 6-7: Pedestrian walkways in some roads in the town centre



Source: Field Survey, 2012

6.2.9 Terminal Facilities

Nanyuki Town has three Bus Parks namely the Main Nanyuki Bus Park, Dol Dol Bus Park, and Matanya Bus Park. The town's main bus park is located within the town center. There are three major bus parks in Nanyuki. These are the main bus park, the Doldol bus park and the new upper bus park which was established in 2009. The main bus park has capacity of 187 vans and 16 large busses. The bus park is not adequate as it is prone to congestion. In addition it lacks curbing and markings for parking and designations.

Plate 6-8: Condition of the main bus park in the town center



Source: Field Survey, 2012

Upper Bus Park is meant for vehicles designated for facilitating mobility within the town. The main bus park is filled to capacity whereas both the Doldol and new upper bus parks are 60% full. This indicates that there is a need for the provision of more bus parks in the future. The bus parks all require upgrading to bitumen.

Plate 6-9: underutilization of the new bus park

Source: Field Survey, 2012

Stalled construction of 126 new business premises at the Nanyuki main bus park which was a public-private partnership between the former Nanyuki Municipal Council and small-scale traders has degenerated into a bitter legal dispute. Doldol Bus Park which was established in 2009 has a capacity approximately of 100 vehicles. The Park does not have adequate lighting and has a public toilet.

6.2.10 Street Lighting

Adequate and efficient street lighting offers safety and convenience to residents and creating an environment for a 24-hour economy. Street lighting along Kenyatta Highway has been undertaken in liaison with a private company. Approximately 60% of the town center is covered but street lights are rather few in the estates. As at November 2012 Nanyuki town had 153 lamps which were in good working conditions. Most of the street lights and lamps were concerned in the hospital Majengo, Likii Phase One and II Likii C and around the stage. Major streets in the CBD have lights. However some lights were not functional. The table below shows the proportion of the estate covered by street lights in Nanyuki.

Table 6-2: Status of street lighting in various estates

Estate /Area	Percentage covered
Muthaiga	20
Majengo	80
Likii	40
Thingithu	50
Stadium Estate	50

Source: Municipal Council of Nanyuki, 2012

Emerging residential areas such as Shika Adabu, Baraka among others are not served with street lighting. Street lighting consumes a significant amount of energy. Street lighting energy costs can be dramatically reduced by using energy efficiency fixtures, to protect the environment and reduce global warming emissions.

6.2.11 Parking Facilities

Parking facilities are provided in the CBD although the parking demand is not high. Existing parking facilities have not been adequately marked. In some areas vehicles were parked in undesignated areas which leads to serious traffic congestion in the CBD as well as obstructing free flow of traffic (vehicular and NMT). Proper provision of parking spaces within the CBD can greatly contribute to the council's revenue base. The following are the parking charges levied by the former municipal council:

Table 6-3: Motor vehicle parking fees

Vehicle	Charges per day
Private cars	50
Trucks and pick-ups	70
Matatu	100
Lorries	200
Motor cycles	10

Source: Municipal Council of Nanyuki, 2012

14-seater matatus are charged a parking fee of 1500 shillings per month. It is noted that one of the challenges facing the town administration in respect to parking is the lack of cooperation by motorists when it comes to making the payments.

6.2.12 Transport Challenges in Nanyuki Town

About 47% of the respondents cited poor conditions of roads as the major challenge while approximately 21% said that fare charged by public transport vehicles were high. Approximately 24% of the respondents however said that mobility was adequate and that they did not encounter any significant challenges as far as transportation is concerned.

6.3 Water Supply

Access to safe water and sanitation is a universal need and a basic human right. An insufficient access to water is not only bad for health, but also contributes to a poor food security and a lagging social development. Nanyuki town is situated within arid-semi-arid class of climate. However, the town enjoys almost all year round water supply as it gets its water from Mt. Kenya. The supply level is grossly inadequate to meet water demand. Besides quantity constraints, inequitable distribution and inadequate maintenance and

management support make the situation further difficult, requiring substantial overall up gradation interventions.

6.3.1 Existing situation

Prior to the passing of the Water Act 2002, the supply of water to Nanyuki town and its environs was the sole responsibility of the former Nanyuki Municipal Council. However following the passing of the Act in 2002 this role was relinquished by the Council and all the Councils water assets passed over to the Northern Water Services Board (NWSB) to manage. This was effected on 6th June 2006. The NWSB in turn leased these assets to NAWASCO in accordance with the Act.

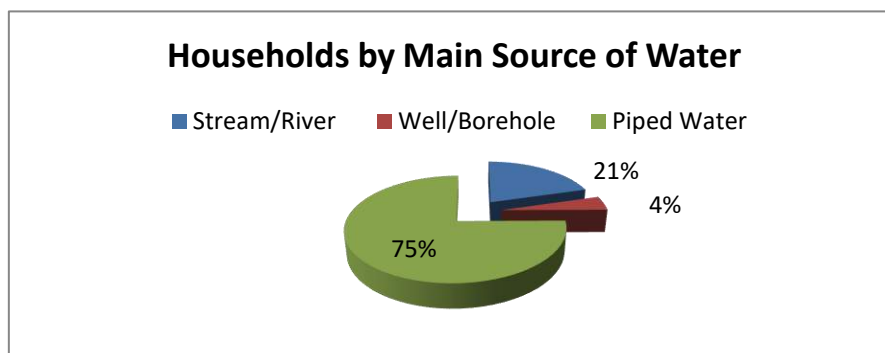
6.3.2 Water Demand and Supply

The current population of Nanyuki town is approximately 68,000 according to the (Housing and Population Survey, 2009). The current daily water demand as estimated by NAWASCO is at approximately 13,617m³ per day against current capacity generation of approximately 15000m³ that is supplied NAWASCO. The projected water demand for Nanyuki town by the year 2030 is approximately 30,000M³/day. This therefore calls for measures to be put in place to address this water deficit.

6.3.3 Household by Sources of Water

From the Housing and Population Survey 2009, major water sources for domestic use in Nanyuki town are piped water households representing approximately 75%. Other main eater sources include river/streams and borehole/wells represented by 21% and 4% respectively. There is need to increase the number of people connected to piped water as this is considered safe to other water sources.

Figure 6-3: Households by main sources of water



Source: Field Survey, 2012

6.3.4 Piped Water Supply

NAWASCO had a client base of about 6,500 in the year 2009. Currently there are 9636 active connections and 189 dormant connections active water connections which serve an estimated population of 60,290. The total volume of water produced by the company is 283,790M³ per month and a daily average of 9460 M³produced.

6.3.5 Water Reticulation

Nanyuki's primary water source is the Likii B River which stems from the slopes of Mt. Kenya. The Company's intake weir is located about 4.5 km in the Mt. Kenya forest where water flows under gravity about 6km to the treatment works locate about 6km from the town between the army and Mt. Kenya safari club. The old water system was built in 1957 and the new system was constructed in 1987.

Plate 6-10: Water Treatment Works and Water Tanks in town



Source: Field Survey, 2012

There are two parallel pipes i.e. one 250mm diameter pipe and one 400mm diameter pipe that convey raw water which then gravitates to the treatment works. The design capacity of the treatment works is 14,650m³/day but currently the plant currently treats an average of 12,000m³/Day. Water is treated using three chemicals namely; aluminium sulphate, magadi soda & chlorine. The water is then dispensed to three capable of then distributing up to 11,200m³ of water per day. The treatment process is done as per the requirements of the water treatment hand book manual with the plant currently treating an average of 12,000m³/Day. The water is then dispensed to three capable of then distributing up to 11,200m³ of water per day. The maximum capacity of each storage tanks is 3,762m³ well below 50% of the daily water demand of the town.

6.3.6 Water Distribution System

Water is distributed to the consumers in Nanyuki town by gravity though it is pumped to Mt. Kenya Safari Club and Mt. Kenya Wildlife Conservancy. This has seen some of the areas within the town experience serious water shortages. Adequate space for expansion at the new water works was provided. Areas cover by piped water include Muthaiga, Army barracks, entire CBD, Thingithu Ngei estate, areas around the Stadium e.t.c while areas that are underserved include. Sweet Waters, Ichuga, Gatheri, Trench farm, Kilimo farm, Nturukuma and Teachers farm. The spatial distribution of water tanks and pipe water reticulation network is as indicated in map below.

6.3.7 Water Demand Forecast

With high population growth in Nanyuki town, water demand is bound to increase. Using projected population and current water demand levels, Nanyuki town's water demand has been projected as shown below. The projected water demand for Nanyuki town by the year 2030 is approximately 28,000m³/day. This therefore calls for measures to be put in place to address this water deficit.

Table 6-4: Projected water demand for Nanyuki town

Projected Water Demand for Nanyuki Town and Environs					
		Current Year 2008	Initial Year 2010	Future Year 2020	Ultimate Year 2030
1	Human consumption for town population only	8,328	9,025	13,488	20,158
2	Human consumption for new areas to be served	645	699	1,045	1,562
3	Commercial entities	359	389	581	868
4	Livestock	189	200	271	364
5	Schools	455	493	737	1102
6	Health Facilities	115	124	186	278
	Total water demand	10,091	10,931	16,308	24,332
	Allow for (50,25,15 and 15%)unaccounted for water respectively	5,045	2,733	2,446	3,650
	Total Water Demand for Project Area (m³/day)	15,136	13,663	18,754	27,981

Nanyuki Water and Sewerage Company Feasibility Study Report, 2009

6.3.8 Challenges facing NAWASCO

- Rampant meter, manhole and water chambers cover theft.
- Inadequate water sources to cater for the rapidly increasing population and to cater for month of dry period.
- Dilapidated water pipeline and vandalism of pipes
- Illegal connections
- Collection of old debts especially from Government Institutions (Schools, Governments Departments, Army etc.)
- Inadequate storage tanks and transmission
- High operational and maintenance cost
- High statutory remittances

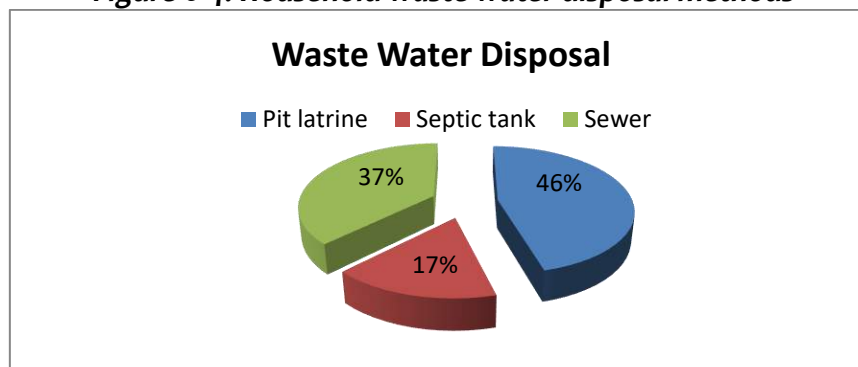
6.4 Sanitation

Ensuring adequate sanitation facilities is one of the Millennium Development Goals (MDGs) goals. In the face of rapid urban growth, towns face great difficulties in providing sustainable infrastructure to their citizens. The character of urban growth is often informal and takes place predominantly in peri-urban areas or at city fringes. These results in a high number of people exposed to severe health and environmental risks because they are not served by the sanitation systems.

6.4.1 Wastewater Disposal Methods

Pit latrines are the most common method of waste disposal in the town. This accounts for nearly 46% of the households. Use of pit latrines is prevalent in the rural hinterland and in the informal settlements. The usage of sewer lines is low with nearly 37% of the households being connected and using the sewer. These are households in Nanyuki town centre and its surrounding areas. Use of septic tanks accounts for only 17%.

Figure 6-4: Household waste water disposal methods



Source: Field Survey, 2012

According to the field survey, the low connection to the sewer line has been due to prohibitive sewer connection charges and unavailability of the sewer in some areas. However, NAWASCO is in the process of extending the sewer line in the uncovered areas such as Icuga among others.

6.4.2 Sewer Reticulation

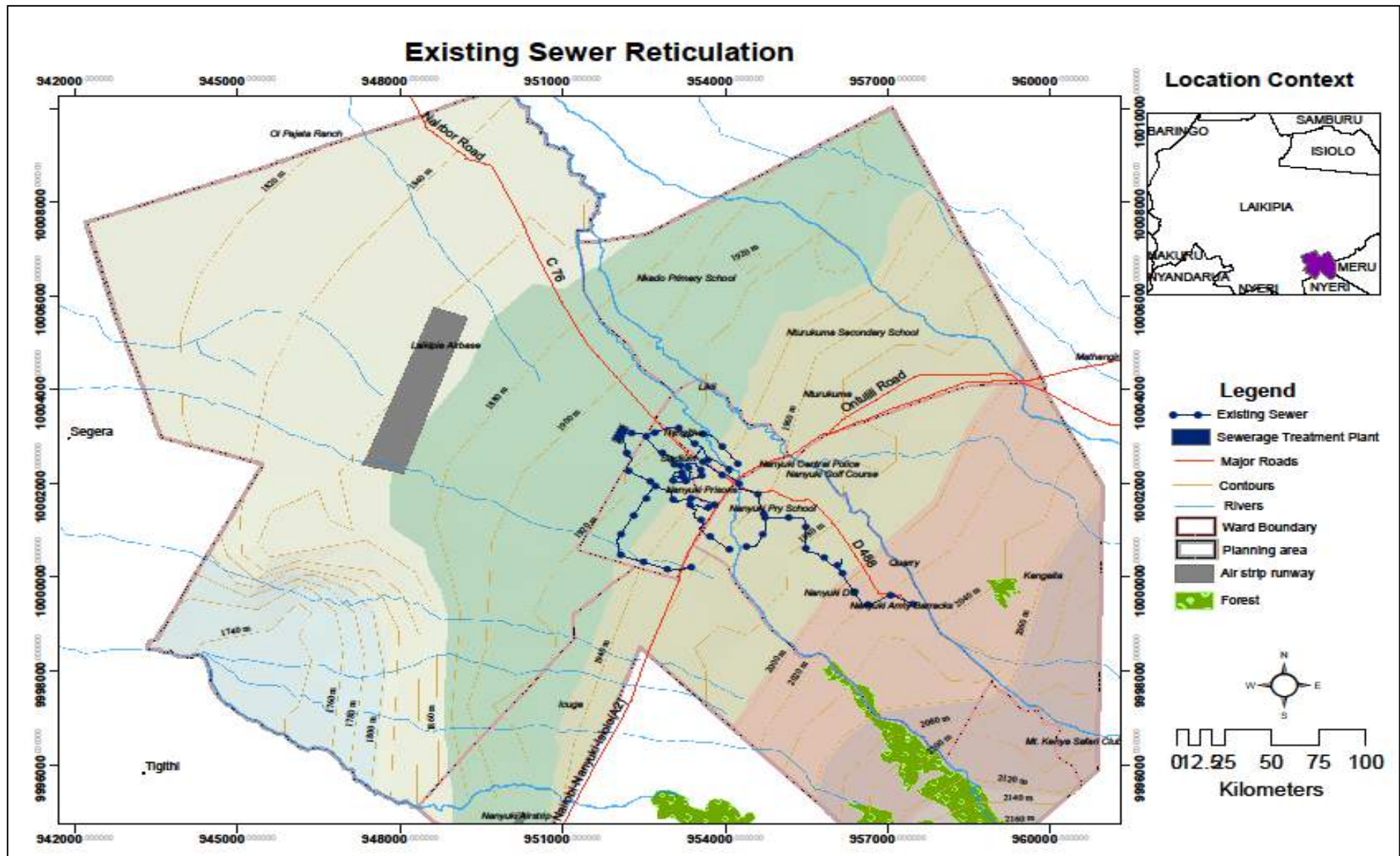
As indicated in figure above there is over reliance of pit latrines as a method of liquid waste disposal. The total length of sewer network is 35km which serves approximately 20% of the town's population. The town's sewerage network is mainly concreted in the town centre and its environs. Currently there are approximately 2,243 households connected to the

main sewer line. This represents approximately 28,584 people or 41% of the total population. NAWASCO has embarked on extension of sewer line to areas which had been partially connected to the system i.e. stadium area to enhance access to these facilities. Following the El-Nino disaster, a lot of silt accumulated in the primary sewer ponds and thus needs to be removed. However the current sewer design does not permit the removal of silt unless a parallel system is constructed.

6.4.3 Sewer Treatment Plant

The town's sewage treatment is located along Airbase Rd. The design capacity of NAWASCO's sewerage treatment facilities is 1965m³/Day with a retention capacity of 101days. Sewerage is treated in sewage lagoons where it undergoes purification.

Map 6-4: Existing Sewer Reticulation



6.5 Solid Waste Management

Solid Waste Management (SWM) is one of the important obligatory functions of any urban local authority. The fundamental target of solid waste management is to protect the health of the population, promote environmental quality, develop sustainability and provide support to economic productivity through utilisation of waste as a resource. The management of solid waste in Nanyuki town is the responsibility of the MCR. However, the private sector has been increasingly involved in refuse collection and disposal.

6.4.1 Types of Wastes

In Nanyuki town solid waste mainly consists of garbage from households, commercial enterprises, factory waste, agricultural waste from markets and farmers, metal scrap from garages and fabricators, plastic and polythene bags from bars, hotels and restaurants, etc. Like many towns in Kenya, Nanyuki is experiencing a growing challenge of inorganic waste which is non-biodegradable.

6.4.2 Waste Handling and Waste Sorting

This involves the activities associated with management of waste until they are placed in storage container for collection. Separation of waste components is an important step in the handling and storage of solid waste at the source. Solid waste is rarely sorted out at the source. All the waste (paper, plastic, glass, metals and foods) are all mixed together. From the ground survey, waste sorting disposal or storage in the core of the town and the surrounding areas is minimal. Only 22% of the households that were sampled sort waste and this are found in mostly rural areas. However rural hinterland and peri urban areas residents normally separate waste before composting into manure. Most urban households do not sort their waste.

6.4.3 Solid Waste Collection

Out of the total waste generated, approximately 70% Laikipia County Government collects waste for disposal at the dumpsite. The town lacks adequate containers for holding waste. Within the CBD waste is collected daily. However in residential areas waste is collected weekly. However during field work residents complained that waste is collected twice a month or monthly.

Plate 6-11: Lack of waste collection containers in Majengo area

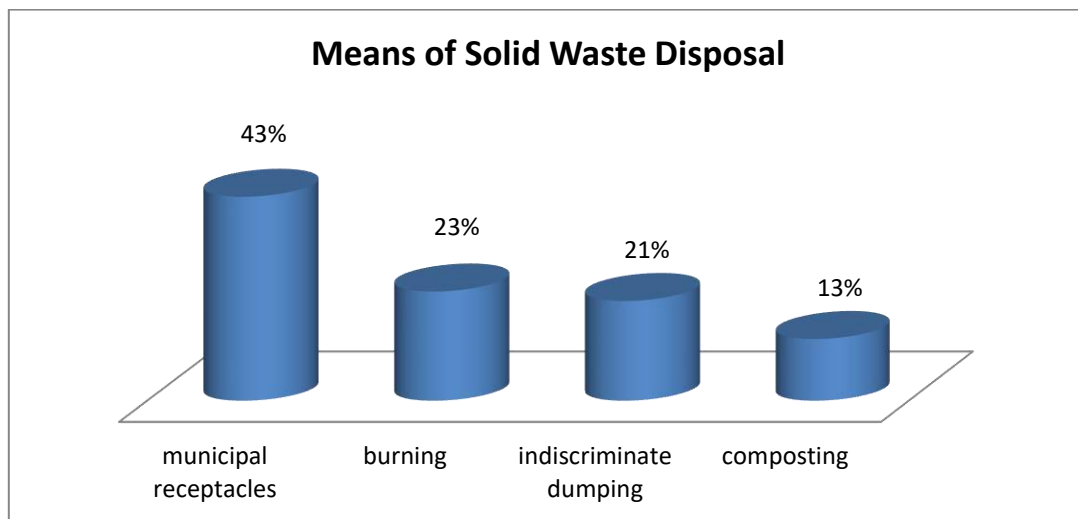


Source: Field Survey, 2012

6.4.4 Household solid Waste Disposal Methods

At the household level use waste receptacles was identified as the most common mode of waste disposal represented by approximately 40 % of the households. Composting is mostly carried out in the rural areas. Burning of waste is second most popular mode of disposal representing 23% of the respondents. Indiscriminate dumping is practiced mostly in urban areas especially in slum/informal areas. This is represented by 21% of the households. Composting of waste is represented by approximately 13%. This is practiced mostly in rural hinterland.

Figure 6-5: Solid waste disposal at the household level



Source: Field Survey, 2012

6.4.5 Solid Waste Collection

Approximately 40 tonnes of waste is collected by the council daily. The council has three open lorries for collecting waste. All these vehicles are serviceable and are able to collect waste daily. There table below shows the staff responsible for solid waste collection in Nanyuki. The council has thirteen members of staff dealing with waste management in various categories as shown in table.

Table 6-5: MCN solid waste management staff

Staff	Number
Technical officers	1
Support staff	10
Drivers	2

Source: MCN Public Health Office, 2013

6.4.6 Waste Disposal

6.4.6.1 Dumpsite

The current Nanyuki town dumpsite is located adjacent to the sewerage treatment site. Open dumping is practiced. No service levies are charged on waste disposal at the dumping site. The road leading to the site is in bad condition hence inaccessible during rainy season. In addition, dumping of waste along the road worsens its condition as also shown in plate 6-12 below.

Plate 6-12: Poor state of the access road to the dumpsite



Source: Field Survey, 2012

The site is not fenced hence it is easily accessible to animals, children and other people easily thus exposing them to serious health risks. In addition the dumpsite is a home to approximately 100 homeless people who scavenge collecting plastics and metals for sale to local dealers. In as much as scavenging reduces waste at the dumpsite by recycling waste, it should be done with the safety of the scavengers in mind by:

- Registering scavengers so that their numbers can be controlled and a strict code of safety introduced.
- Barring children from accessing the dumpsite.
- Providing protective gears at all times to protect them from sharps, (hypodermic needles, broken glass, timber with nails, metals, etc).
- vaccinating scavengers against tetanus, hepatitis B, cholera among other diseases

Plate 6-13: Poor waste disposal and drainage at the dumpsite



Source: Field Survey, 2012

Decomposing waste from the dumpsite leads to production of leachate which can contaminate ground water sources. Decomposing waste also increases the chances of global warming by releasing methane which is produced from accumulated waste. Methane is 20 times more dangerous greenhouse gas than carbon dioxide which is also released through burning of waste at the site. One of the problems of waste dumping is windblown plastics that are littered all over the town thus polluting the neighboring areas. For example plastic bags from the dumping site were noted to pollute areas outside the fenced dump site boundaries. The bags further pollute the nearby waste treatment ponds, reducing efficiency, resulting in more environmental degradation like air pollution. Another challenge posed by the existing dumpsite is the presence of Marabou storks and other bird species that pose threat during landing and taking off of aircraft. This is due to the presence of the nearby Laikipia Air force. To achieve sustainable solid waste management in Nanyuki, the study observed various options that can be adopted to improve the existing situation. These options include waste separation at source, recycling, efficient and better management and fencing of the dumpsite.

6.4.6.2 Hazardous Waste Disposal

A Hazardous waste is waste that poses substantial or potential threats to public health or the environment. Characteristic hazardous wastes are materials that are known or tested to exhibit one or more of the following four hazardous traits: ignitability (i.e. flammable), reactivity, corrosivity and toxicity. Within Nanyuki town and its environs hospital waste is the only hazardous waste. Hospital waste is disposed using an incinerator.

Plate 6-14: Nanyuki District Hospital Incinerator

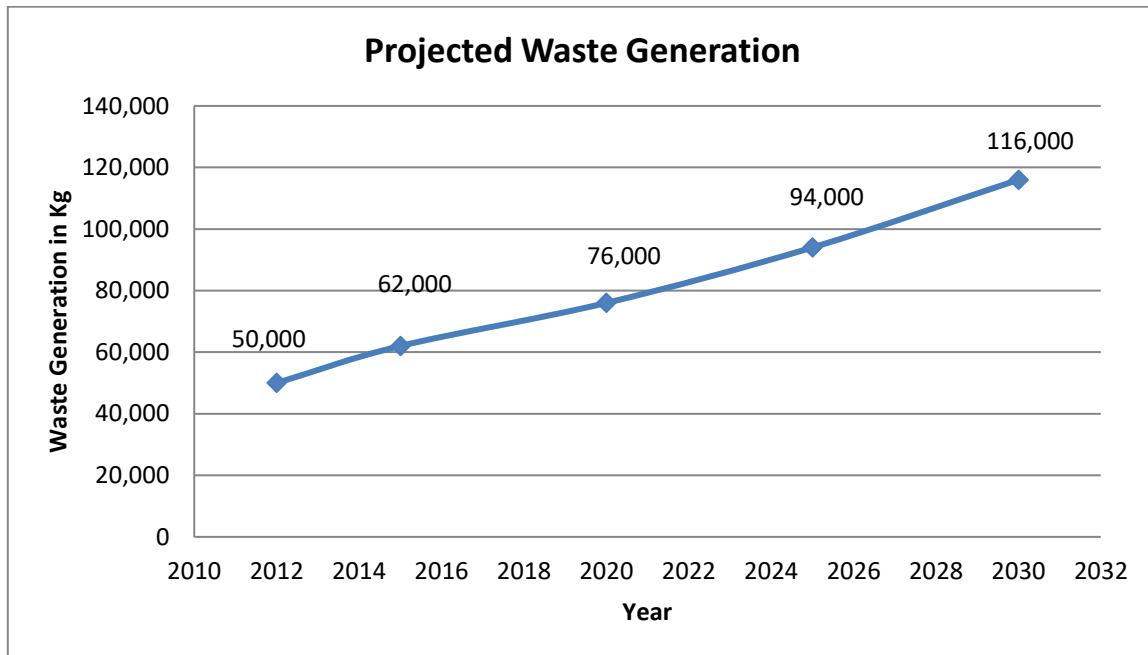


Source: Field Survey, 2012

6.4.7 Projected Waste Generation

Waste generation is a component of consumption levels. Waste generation in Nanyuki town is approximated to be approximately 50 tonnes per day. Forecasting future waste quantities is an integral element of waste management that assists in the management and planning of waste programs. Waste generation for Nanyuki town and its environs and for the planning period has been projected from the current trends in population growth and waste generation. More so, solid waste generation trends in developing countries have been used where it is approximated to be 0.5kg per person. Waste generation by the year 2030 is approximated at 199,443kgs per day. Figure 6-7 below illustrates projected waste generation in Nanyuki town up to the year 2030.

Figure 6-6: Projected Daily Waste Generation by 2030



Source: AIDAL Consultants

6.5 Cemetery

Local Government Act (Cap 265) states that it is the duty of every local authority council to ensure that it has an area that is adequate and suitable for the burial or cremation of the dead. Presence of a cemetery is vital for a rapidly growing town such as Nanyuki town. Despite presence of cemeteries Field surveys revealed that some area residents prefer to bury the dead within homesteads. This is especially in the rural hinterland of the town. Future urban developments may be hindered due to numerous graves. Nanyuki town is cosmopolitan hence cemeteries for the two main religions have been provided. The town has three cemeteries. Thingithu cemetery is a Muslim cemetery used by the Muslim faithful. The site measure approximately 3.1 acres are fenced and is considered adequate. St. Georges cemetery measures approximately 5.6 acres. In addition there is another Christian at Kabiru opposite Nanyuki High School. The cemetery is adequate. Though the cemetery is fenced people criss-cross it as through the gates that are not closed.

Plate 6-15: Kabiru cemetery in Nanyuki



Source: Field Survey, 2012

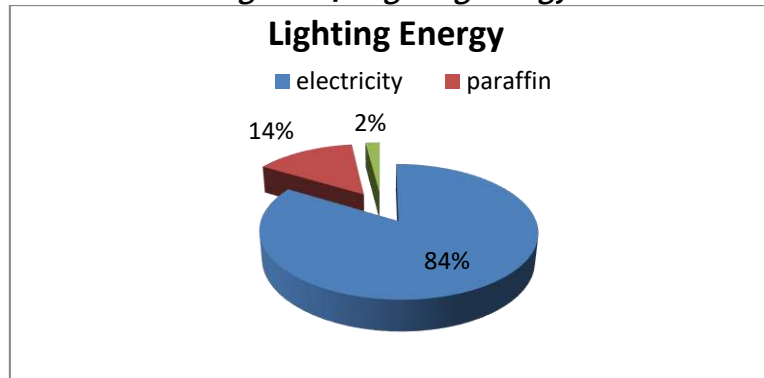
6.6 Energy Sources

Energy is the driving force for economic growth of towns. Modern towns consume large amounts of fuel, and the energy industry is a crucial part of the infrastructure and maintenance of society in almost cities. The main energy sources in the Nanyuki are electricity, petroleum fuel and wood fuel. Most of the energy sources in Nanyuki are non-renewable sources of energy. Use of Green energy such solar and wind geothermal that has less negative impact to the environment is minimal.

6.6.1 Energy sources for lighting

From the field survey, more than half of the respondents use electricity for lighting while 84 % of the households use electricity. Use of paraffin as a source of energy for lighting is represented by approximately 14% of the residents. The number of people using renewable power sources like solar energy is very small with less than 1 % accounting for this. The results of the field survey were in agreement with the Population and Housing Census, 2009. The study revealed that that the use of renewable power sources like solar is very low and therefore recommends community sensitization on the need to shift from the non-renewable sources to renewable power sources that are sustainable and relatively cheap. Figure 6-11 below shows the sources of energy used for lighting.

Figure 6-7: Lighting Energy

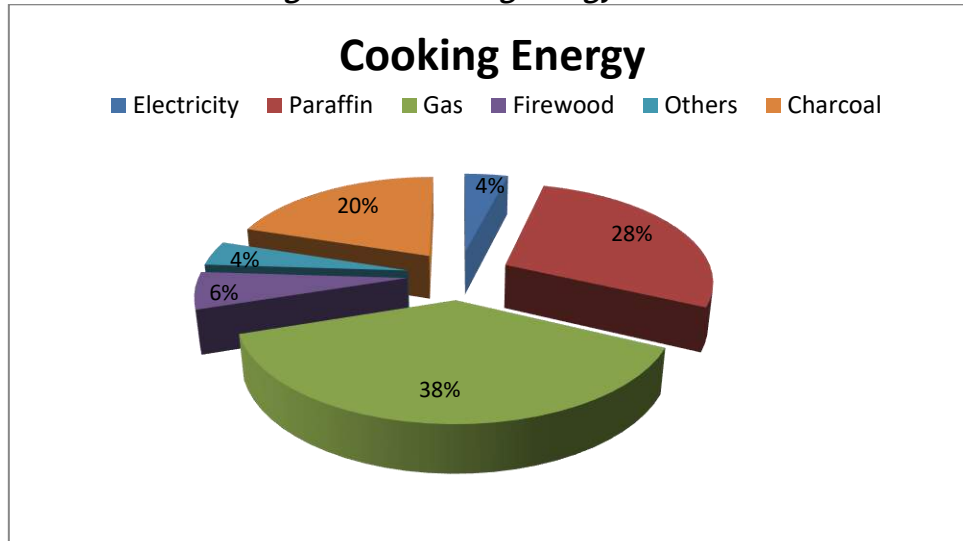


Source: Field Survey, 2012

6.6.2 Energy sources for cooking

Cooking energy used is mostly the non-renewable. Firewood as source of energy for cooking accounts for nearly 6% whereas charcoal accounts for 20%. Firewood is used mainly in the rural hinterland and in informal settlements such as Likii. The proportion of people who use gas and electricity for cooking is 28% and 6% respectively. Approximately 28% of the households use paraffin for cooking as illustrated in figure 6-9 below.

Figure 6-8: Cooking energy sources



Source: Field Survey, 2012

From the analysis of the findings, nonrenewable energy is the most used source of cooking energy. Continued exploitation of wood fuel, poses great challenges to their forest and other vegetation thus leading to environmental degradation. A possible way that could be used to reverse the situation is educating the residents on tree planting and also shifting to renewable sources of energy such as solar and biomass.

6.6.3 Connection to Electricity

Electricity used in Nanyuki town is generated from hydropower and is supplied in Nanyuki town by Kenya Power from the national electricity grid. Nanyuki town is well covered by electricity. (Regional Manager- Kenya Power, Nanyuki Region).

Table 6-6: Installed transformers in the planning area

Locality	Number of transformers installed
Kangaita	5
Ichuga	2
Likii	2
Kanyoni	1

Source: Kenya power, Nanyuki Region 2012

Areas near the town are well served with electricity compared to the other parts of the planning area. This can be attributed to the economic competitiveness of the town centre as compared to the other areas. For the areas where there is no electricity supply, Kenya power is working on reinforcement scheme projects which include addition of transformers where the power distribution lines are at convenient distances. At the household level approximately 84% of the households are connected to electricity. Cost of electricity connection was the main reason for not connecting.

6.7 Slaughter House

Nanyuki town's hinterland is rich in ranching activities with high potential for livestock keeping. The town has an abattoir and a livestock holding ground located along the Nanyuki- Marura road measuring approximately 6.67 acres of land.

6.8 Fire Fighting

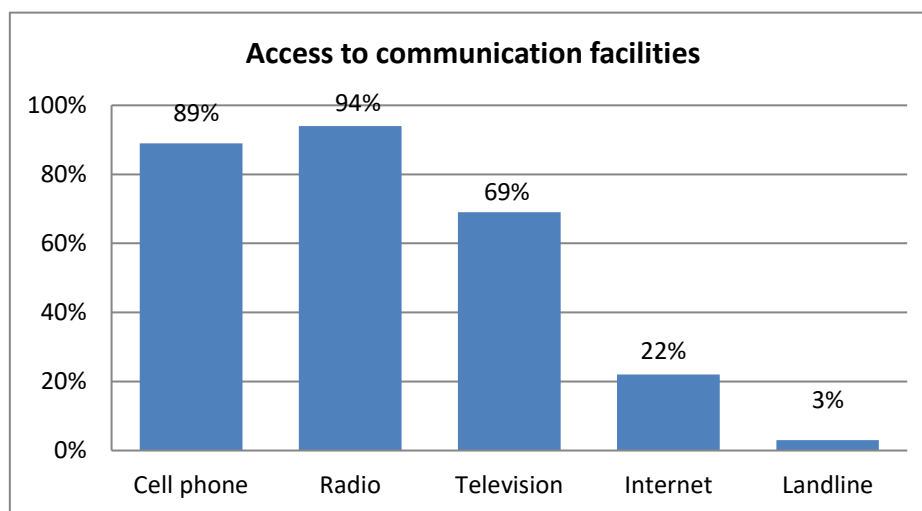
In a rapidly urbanizing town, there is need for a fire station. A fire station would require 1 fire engine and at least 30 staff members to cover a population of 50,000 – 100,000 such as Nanyuki town. The Physical Planning Handbook outlines minimum land required for a fire station as 0.4 hectares which will include station, staff accommodation and drilling area. Nanyuki town has no fire station for its firefighting brigade. However the town has a fire fighting engine located within the premises of the former municipal offices.

6.9 Information Communication Technology (ICT)

Nanyuki town is well served in terms of information, communication and technology facilities. About 94% have access to radio while 88% thereof have television. Most

national radio stations have a good coverage and a considerable share in terms of listenership. There are also the local vernacular radio stations which have high listenership mostly in the rural areas. Radio stations include Inooro FM, Coro, Muga FM Citizen Radio, KBC, and Easy FM among others. Majority of the national TV stations also have good coverage in Nanyuki. This includes KBC channel one, Citizen TV, KTN and NTV. In terms of mobile telephony communication, Nanyuki is served by all the five cell phone networks- (Safaricom, Airtel, Yu, Orange and Telecom wireless. About 98% of the population of Nanyuki has access to cell phones. Access to Internet is however on the lower side since only about 22% enjoy access to internet services. Most of the respondents complained of the low speed internet in the area. Use of landline telephones has been on the decline due to stiff competition from the mobile telephony.

Figure 6-9: Access and Use of Communication Facilities



Source: Field Survey, 2012

Major challenge reported with regard to ICT in Nanyuki was weak signals in some parts of the planning area especially for cell phone reception. Signals for TV and radio were however noted to be satisfactory.

6.10 Postal Services

According to the Economic Survey 2009, the number of post offices has been on the decline. The Physical Planning Handbook provides that full postal facilities should be provided in any designated centre, which serves a resident population of about 2,000 – 10,000 and rural population of 40,000 people. Minimum land required for a post office is

0.04 hectares. Postal Corporation of Kenya has a Post Office at Nanyuki Town serving the town its environs. The post office is located along Kenyatta Highway on land measuring approximately 150 by 100 feet which is enough. According to the Postmaster, the post office 2100 boxes and which of all of them are in use. Demand for postal boxes is low as there are some postal boxes that have not been allocated. Postal offices as a conventional way of sending and receiving mails and parcels is also facing stiff competition from private courier services and this as cited by the postmaster, is due to poor marketing strategy and lack of vehicles to do the deliveries.

6.10.1 Courier Services

The dominance of Postal Corporation of Kenya in mail and parcel delivery is facing stiff competition from the private sector hence diminishing in use of postal services. Private Courier Services G4S, KK etc are fully established and operating in Nanyuki town. Also Matatu SACCOs are actively involved in courier services and their dominance is being felt in Nanyuki.

7. CHAPTER SEVEN: HOUSING

7.0 Overview

Housing development is strategically an important social-economic investment to a country and its people. Comfortable housing is necessary for good living and this constitutes well planned and designed housing and infrastructure of acceptable standards and affordable cost which when combined with essential services affords dignity, security and privacy to the individual, family and community at large. Adequate availability of quality and affordable shelter also reduces proliferation of slums and informal settlements. However, urban areas in Kenya Nanyuki town being one of them are characterized by severe shortage of basic services like potable water, well laid out drainage system, sewerage network, sanitation facilities, electricity, roads and appropriate solid waste disposal. This chapter looks at the formal and informal housing, housing conditions (quality), housing typologies, demand and supply gaps, location vis-a-vis other activities, housing support infrastructure, housing delivery systems e.t.c for the town.

7.1 Housing Providers

There are two categories of housing providers in Nanyuki town and its environs i.e. private and public. housing in Nanyuki is predominantly private housing comprises of housing stock developed by individuals for rental purposes or for their own habitation Public housing comprises of central government agencies' initiatives..

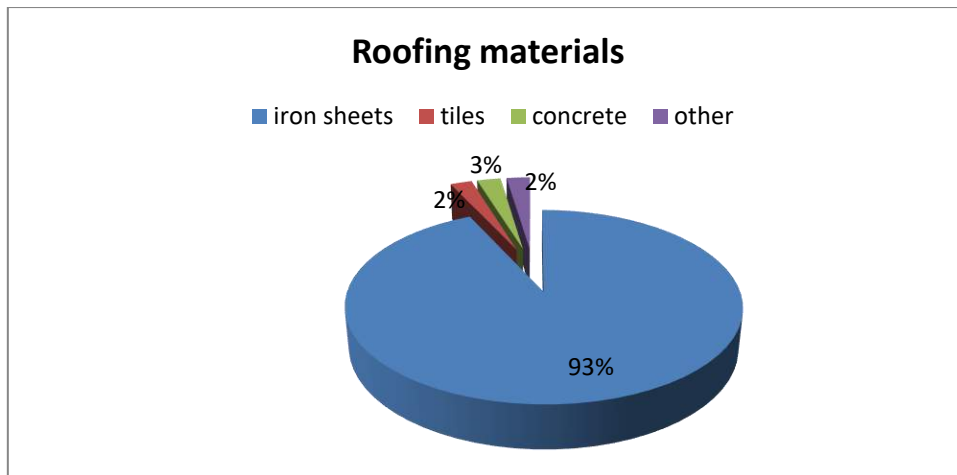
7.2 Building Materials

The physical characteristics of the dwelling in which a household lives are important determinants of the health status of household members especially children. They can also be used as indicators of the socioeconomic status of households. Building materials are divided into three categories namely roofing materials, wall materials and floor materials.

7.2.1 Roof

The most prevalent roof material in Nanyuki town is iron sheets which accounts for 93%. Tiles and concrete account for 3% and 2% respectively. Field survey results were in agreement with the findings in the Population and Housing Census, 2009.

Figure 7-1: Roofing material in the town and its environs

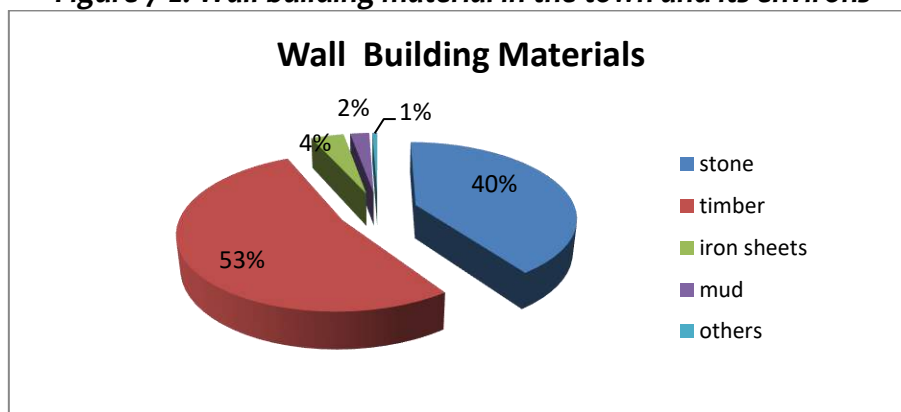


Source: Field Survey, 2012

7.2.2 Wall Building Material

The Population and Housing Census, 2009 showed that approximately half of the planning area wall building materials are made of timber. This is especially in the sprawling Likii informal settlements and the rural hinterland housing. Nearly 40% of the population has their houses constructed stones. Other wall materials include mud and iron sheets. Use of mud is predominant in the low income area of Majengo which originated during the colonial period. Nearly a quarter of the walls are constructed using mud. Field survey results were in tandem results with the National Population and Housing Census 2009.

Figure 7-2: Wall building material in the town and its environs

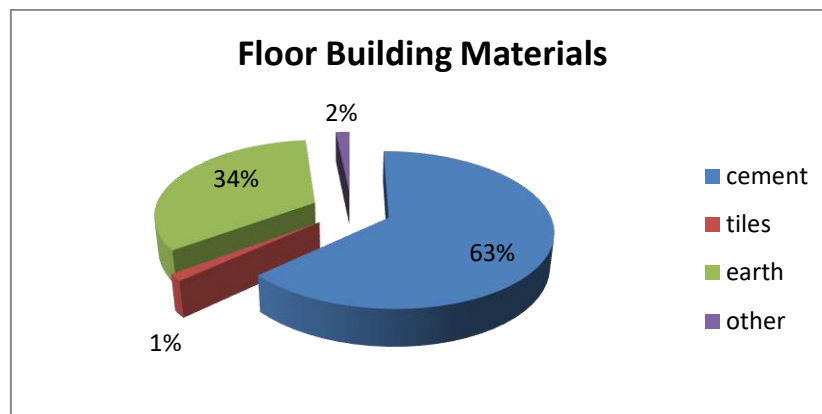


Source: Field Survey, 2012

7.2.3 Floor

The Population and Housing Census, 2009 revealed that use of cement as building material for the floor is prevalent accounting for nearly 63% of the households. Earthen floors account for 34% of the households and this represents mainly rural and low income areas. Other floor materials include tiles, wooden floors.

Figure 7-3: Floor building material in the town and its environs



Source: Field Survey, 2012

7.3 Housing Conditions and Quality

Three types of housing can be distinguished in Nanyuki town according to the type of materials used for their construction. These include permanent dwelling buildings, semi-permanent and temporary dwelling buildings. Permanent buildings are those built out of construction materials (for the roof, foundation and wall) that can maintain their stability for more than 15 years. Semi-permanent buildings include those built with a combination of permanent and temporary materials. While temporary dwelling units, are those that are built with materials that cannot maintain their stability for more than three years.

Plate 7-1: Housing typology at Likii and Mugambi Estate

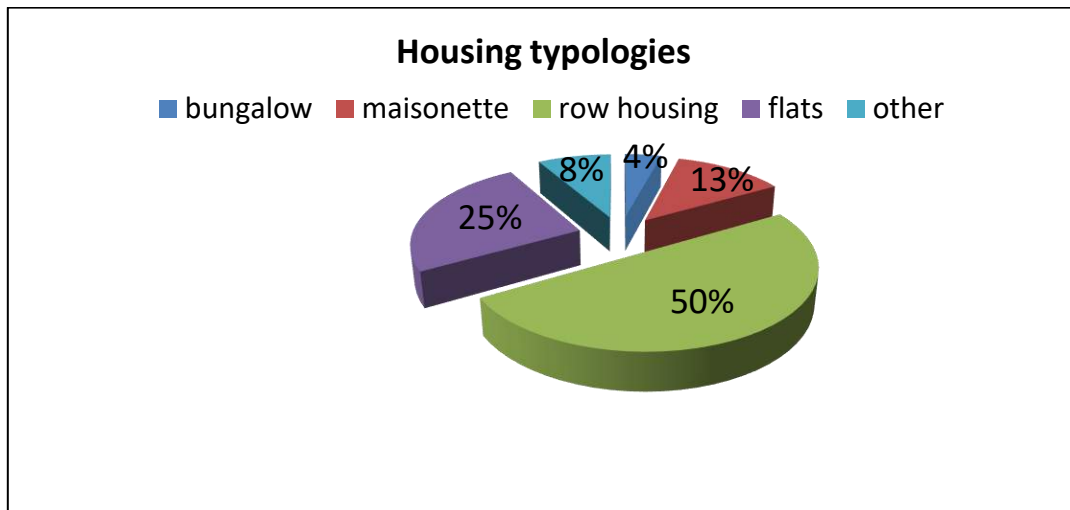


Source: Field Survey, 2012

7.4 House Typologies

As the duality of both rural and urban housing stands out in Nanyuki town .There are numerous typologies of housing in the town. Major house typologies include bungalows, maisonettes, flats, row housing, and informal housing typologies (huts).

Figure 7-4: Predominant housing typologies



Source: Field Survey, 2012

Flats typologies are concentrated mainly in Mung’etho, parts of Muthaiga, Laikipia Airbase and Nanyuki barracks.

Plate 7-2: Housing typologies in Nanyuki



Source: Field Survey, 2012

Maisonettes and bungalows are located especially at Mugambi Estate, Muthaiga, Thingithu, Baraka estate and Icuga. Row housing is located at Majengo, Likii and Kwa Githui among others. Detached and terrace houses were mostly observed especially in the Likii area of Nanyuki.

Plate 7-3: Emerging housing typologies at Muthaiga

Source: Field Survey, 2012

7.5 Housing Tenure

Regarding house ownership, 17% of the respondents during the survey reported that they owned the houses they currently live in. In the rural orientation housings commonly owner occupied. Rental housing is prevalent within the town centre and this is high due to the high immigrant population. On average approximately 58% of the tenant pay between ksh. 1001-3000 as rent per month while nearly 9 % between Ksh. 100-900. Approximately 18% of the populations pay more than ksh 5000 per month. Cases of rent going for an average of Ksh. 50,000-100,000 are common due to high British Army presence in the area.

7.6 Delineation of human settlements

Density of human settlements may be defined by population size, plot coverage and the number of dwelling units. Human settlements are normally differentiated into low, medium and high density zones. This differentiation is based on socio-economic status.

7.6.1 Low Density Residential

Low Density Residential areas include areas such as low density Mugambi Estate, Nturukuma, Muthaiga parts of Icuga Kwa Hukuand in the rural areas. There is an emerging low density residential especially for the high income end at Nturukuma. High income housing typology is denoted by single detached or semi-detached two or three bed-roomed bungalows and a few maisonettes. Services in these areas are adequately provided for.

7.6.2 Medium Density Residential

Nanyuki town middle class neighborhoods include Lions Court, Muthaiga, Ichuga Middle income housing house typologies is mainly composed of two or three-storied flats. Other house typologies include the detached, massionettes and bungalows

7.6.3 High Density Residential

Generally high densities correspond with low-income group of people. High density residential areas include: Majengo, Mungetho, Railways Railways Kabiru, Likii, parts of Muthaiga. The house typologies for this class of residential area are; row housing and flats. High density housing is usually poorly serviced.

7.6.4 Low Income/ Slums Areas

Informal settlements have become an integral part of the urban fabric and can no longer be overlooked considering that about 61% of the total urban population in Kenya resides in slums. Slums describe a wide range of low-income settlements and/or poor human living conditions. These inadequate housing conditions exemplify the variety of manifestations of poverty. Housing is described as informal when it does not conform to the laws and regulatory frameworks set up in the environment in which it occurs.

7.7 Informal Settlements

As Nanyuki town continues to grow and expand without proper planning, informal settlements continue to mushroom. It is generally accepted that one of the most important factors that hinders development in the third world is rapid population growth rates. In developing countries, a considerable urban population is increasingly housed in informal settlements. This, together with continuing poverty and lack of basic needs of acceptable life (e.g. food, clean water, shelter, basic health care, security of tenure) imposes a great challenge for sustainable development. Thus, a major focus in achieving sustainable development has also been directed towards informal settlements where most problems experienced in rapid urban growth area is strongly manifested.

7.8 Squatting

Just like any other town in Kenya, Nanyuki has witnessed the emergence of squatters that are hindering the realization of the improved lives for all. There is a good population of squatters in town who have contributed to unplanned settlement and are distributed in

Kwa Mbuzi, Kahurura and Likii. The squatters problem has aggravated the need for food relief in an already food deficient area. The willingness of the government to avail land for resettling the landless has been hampered by the fact that it's currently hard to determine the specific number plus the scarcity of land which has also been politicized.

7.9 Informal Settlement Areas

Major informal settlements are found within the following areas Likii, Majengo Kanyoni among others. This subsection looks at the existing informal settlements in Nanyuki town.

7.9.1 Likii

Likii informal settlement is located on the north side of Nanyuki town between river Nanyuki and river Likii. The settlement measures approximately 53ha of land. The settlement began in 1970s by people who squatted on the government land. The haphazard boundaries are still in place and are demarcated by fences. The squatting was given blessing of the government when the council was asked to carry out a census in 1980. In 1980 the population of the settlement was 5,835 and by 1995 the population 10000 people. Currently the settlement is inhabited by approximately 18,000 people representing approximately 5000 households. The settlement is unplanned and therefore it has not storm water management, electricity, degradation of rivers Likii and Nanyuki. Due to the large population a large proportion of the population is unemployed leading to a large number of idlers. This has in turn led to a growing number of youth who engage in risky behaviors such as drug abuse, crime and prostitution. These can explain the high HIV/AIDS prevalence rates.

7.9.2 Majengo

An African settlement scheme set by the British in the colonial era. Initially, Islam, Hindu and Christianity were the main religions and the Somalis and the kikuyus were the major tribes hence giving rise to the cosmopolitan nature of Nanyuki which still persists to date. After the First World War, many African young men who fought were homeless so the British offered them land, which they subdivided into small plots, and this land is where the current Majengo stands. A look at the most houses in Majengo shows they are tin roofed, property owners at Majengo complained that the rates owed to the former municipal council of Nanyuki are too high hence prohibiting disposal of the land. Furthermore due to the fact that most of the residents in the area are poor, they can't

manage to put up permanent dwelling units once the existing unit deteriorates as the council regulations bar them from improving the house unit unless it is putting up permanent housing.

Plate 7-4: Housing developments in Majengo area



Source: Field Survey, 2012

7.10 Housing Demand and Supply Projections

With a growing middle class, rapid urbanization, and increasing numbers of young households, Kenya is on the cusp of a sustained housing boom. Due to this explosion in rents, many home owners have found the offer quite tempting and are renting out their houses. This has not only increased demand for residential houses, but has also triggered a lot of activity in the previously almost dormant construction industry.

7.10.1 Housing Demand

The demand for housing in Nanyuki town by far exceeds the supply. With high urbanization and growth rates of Nanyuki town, the demand for housing for all the income levels is likely to increase during the planning period. Demand for housing is on the rise due to among others the following factors:

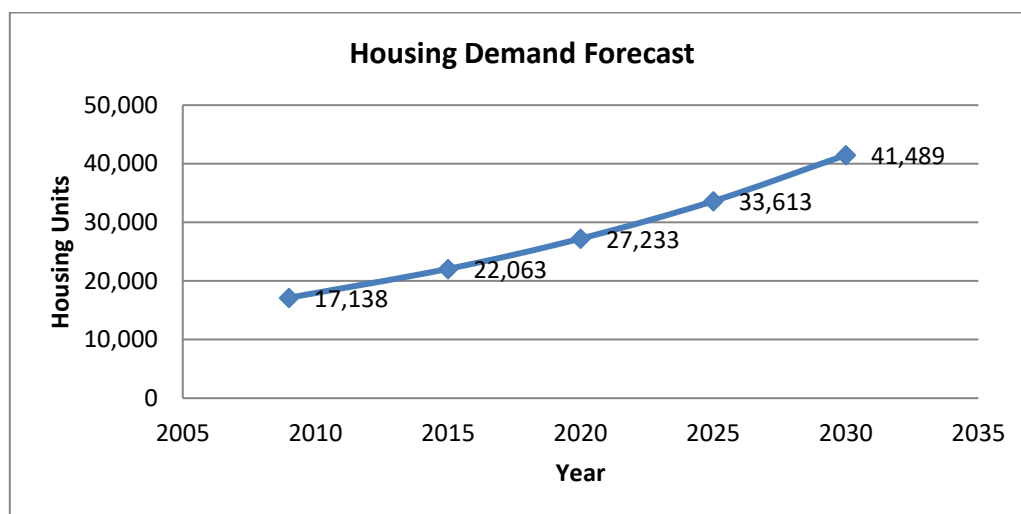
- i. **Military establishment:** The British Army Training Unit Kenya (BATUK) is one three-bedroom house for an average of Sh12,000, but British Army is now taking such houses for between Sh150,000 and Sh180,000 per month with a four-bedroom going for Sh280,000. British Army Training Unit Kenya is currently building a headquarters a few kilometres from Nanyuki town centre. Those benefiting from the boom are people with good homes in prime areas such as the up-market Muthaiga and other areas in the outskirts such as Mugambi, Mukima and Sweet Waters.

- ii. **Diminishing family land:** Due to population increase over the years the family land for most local residents has diminished to very small sizes pushing people to urban centers in search for shelter, and other economic opportunities.
- iii. **Civil servants/ workers:** civil servants and business people are initially interested in rental houses but some eventually settle and want to own homes. In addition influx of flower farms workers has increased demand for low end housing.
- iv. **High growth rate** of the town which has factored the higher immigration rates.

7.10.2 Housing Demand Forecast

Analysis of the available housing revealed that there is a shortage of approximately 2500 dwelling units in the town, most of which fall under low-income brackets. These households reside in other forms of unconventional housing. Housing demand projection for Nanyuki town has been done on a five year interval. By the year 2020 housing demand in the town will be approximately 22,063 units and by the long-term 2030 demand for housing will be 40, 489 as indicated by the graph below.

Figure 7-5: Housing Projections for Nanyuki Town



Source: AIDAL Consultants, 2013

Within the various income groups projected demand for housing has been worked as shown below. Demand for low income group will be high compared to the other categories.

Table 7-1: Housing Projections for Nanyuki Town

Income Category	% of the Total Population	Existing No of Households	No of Households (2015)	No of Households (2020)	No of Households (2025)	No of Households (2030)
Low income	70	11,997	15,444	19,063	23,529	29,042
Middle income	25	4,285	5,516	6,808	8,403	10,372
High income	5	857	1,103	1,362	1,681	2,074
Total	100	17,138	22,063	27,233	33,613	41,489

Source: AIDAL Consultants, 2012

With land's nature of fixed supply, alternative building designs that maximize on the vertical density will be required.

8. CHAPTER EIGHT: EMERGING ISSUES FROM SITUATIONAL ANALYSIS AND STAKEHOLDERS' CONSULTATION

8.0 Overview

The purpose of this chapter is to undertake a synthesis of the existing situation, resource base, administration and management of Nanyuki town with a view to providing a framework for a detailed strategic urban development plan formulation, implementation and administration.

8.1 EMERGING ISSUES

8.1.1 Physical Environment

8.1.1.1 Opportunities

- Mt. Kenya and Mt. Kenya forest provide areas of scenic beauty and regulate the micro-climate of Nanyuki town and its environs
- Wildlife resources from the hinterland with potential for tourist attraction
- High wind speeds and long periods of sunshine present opportunity for green energy generation
- Favorable relief helps in the distribution of water through gravity thus reducing cost of pumping water.
- Rivers Nanyuki and Likii provide adequate supply of water to support socio-economic development of Nanyuki town.

8.1.1.2 Challenges

- Poorly drained black cotton soils, escalating the cost of construction.
- Poor rainfall amount and distribution which does not favor agriculture
- water abstraction and encroachment of the riparian reserves that has resulted to reduced water volumes down streams
- Pollution of rivers by human activities thus compromising the health of the residents.
- Loss of vegetation due to high urbanization.

8.1.2 Population and Demography

8.1.2.1 Opportunities

- Large number of young and energetic persons is a potential for high productivity when channeled for economic investment and/or employment.
- Potential for investment support in the town because of high population density.

8.1.2.2 Challenges

- High population growth rates and resulting to strain/pressure the existing infrastructure
- Lack of employment among the urban dwellers, especially the youth leading to crime and other social evils.
- High level of immigration, rural-urban migration

8.1.3 Land, Land Management and Development Control

8.1.3.1 Challenges

- Land tenure is mostly freehold hence difficult it is difficult to regulate the use of land under freehold tenure. This is worsened by inadequate enforcement.
- Encroachment into the industrial area by residential and commercial developments.
- Lack of a spatial framework to guide developments. Uncontrolled developments in many parts of the town have resulted in land use conflicts.
- Informal residential areas such as Majengo are well serviced and occupy prime land. Redevelopment/ renewal of Majengo is long overdue.
- Many of the public open spaces have been encroached upon by other uses and the existing ones neglected by the authorities.
- Encroachment on access roads and road reserves

8.1.4 Economy

8.1.4.1 Opportunities

- With the introduction of devolved government Nanyuki town's economic base is expected to grow and expand
- Historical heritage and rich hinterland composed of former settlers boasting the economic base of the town.
- The strategic location of Nanyuki town makes it to be commercial nerve center in the northern region.

- The high population in the town and the hinterland creates a market for the goods and services
- Potential for milk and livestock processing industrial development
- Agglomeration of banking and financial institutions

8.1.4.2 Challenges

- Although Nanyuki is well linked to other major towns, access roads within the town and particularly to the hinterland are mostly poor.
- Untapped tourism potential
- Despite potential for industrial sector development in Nanyuki, the sector is not fully developed.

8.1.5 Transportation

8.1.5.1 Opportunities

- Nanyuki town is accessible to other parts of Kenya through the International (A2) highway (Nairobi -Nanyuki-Meru) which facilitates easy movement of people, goods and services
- Relatively flat terrain that is suitable for road construction

8.1.5.2 Challenges

- Railway system is not operational
- Inadequate facilities for public transport
- Access roads are poorly maintained and inaccessible during rainy seasons
- Encroachment of some road reserves in the town
- Inadequate NMT facilities within CBD thus leading to conflict between cyclists and other road users

8.1.6 Housing

8.1.6.1 Opportunities

- Availability of land for housing development
- High demand for housing in the town and nearby regional towns such as Nyeri, Isiolo

8.1.6.2 Challenges

- Housing demand exceeds housing supply attributed to seasonal demand of housing by transit population

- Lack of space for parking, children play areas, pedestrian walkways,
- Inadequate provision of and Poor provision of infrastructure and services -street lighting, water roads, sewerage, solid waste
- High incidences of informal and substandard housing eg. Kanyoni, Majengo, Likii

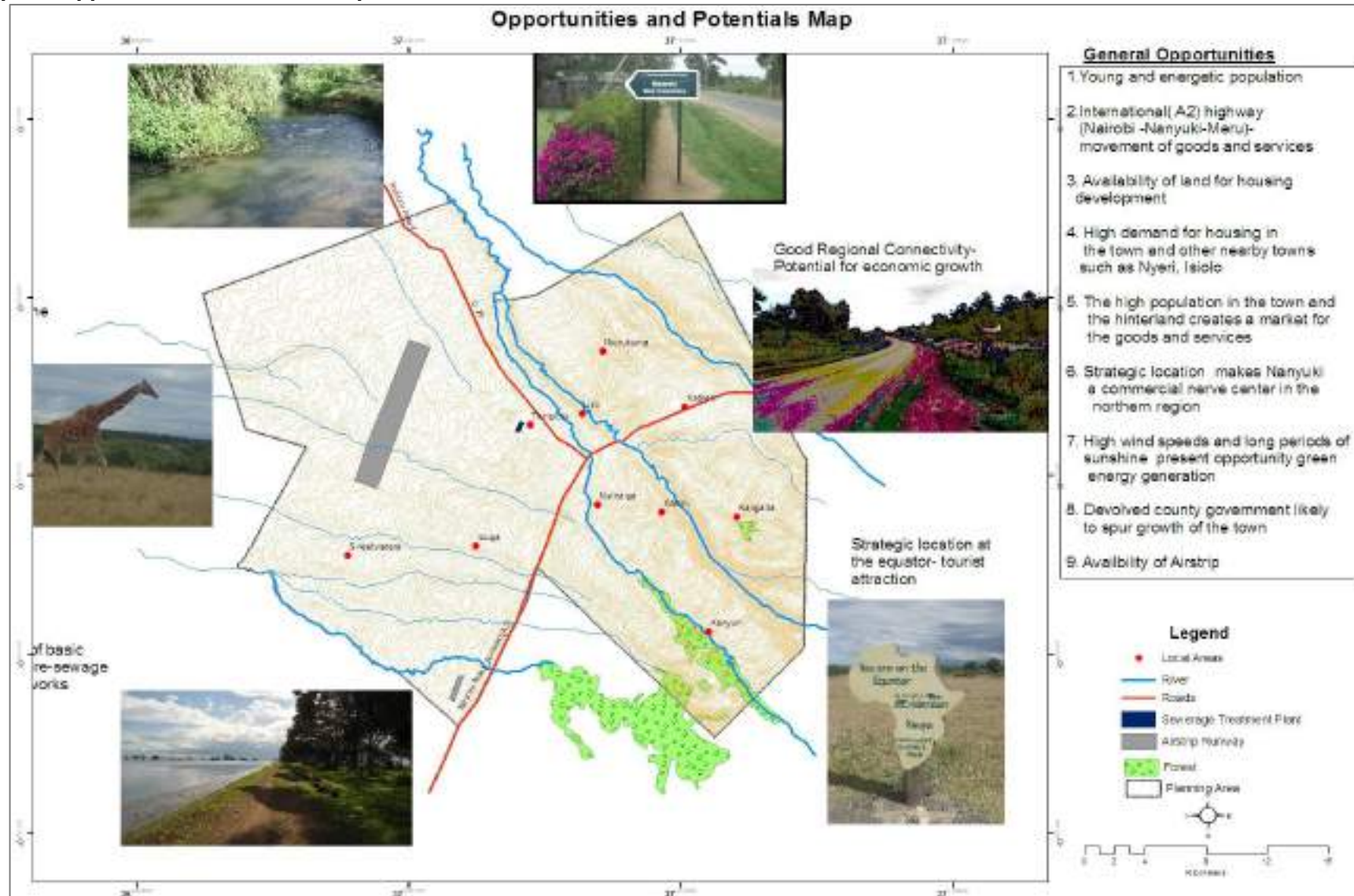
8.1.7 Social infrastructure

8.1.7.1 Challenges

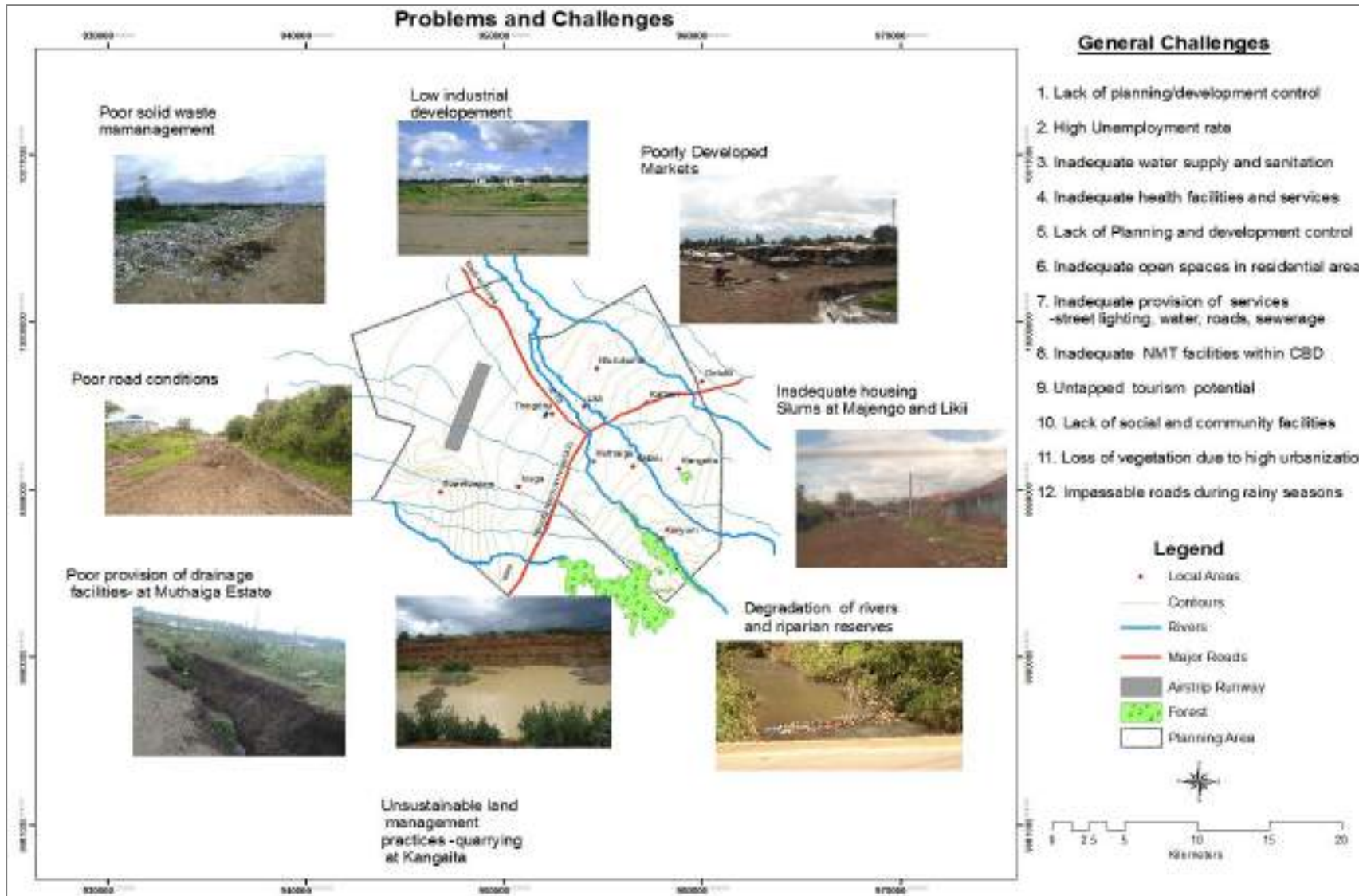
- Inadequate health infrastructure as evidenced by congestion at the Nanyuki District Hospital
- Delays in providing services and inadequate lack of ambulance services
- Inadequate open spaces in most residential areas.
- Lack of land for expansion of community facilities such as the cemetery
- inadequate homes for the people with special needs especially elderly homes

Maps 8-1 and 8-2 below highlights some of the development opportunities/potential and development challenges/constraints.

Map 8-1: Opportunities/Potentials Map



Map 8-2: Problem and Constraints



8.2 Nanyuki Town Residents and Stakeholders' Concerns

During the consultative forums held with stakeholders in Nanyuki town, the following planning issues and development challenges were highlighted:

- It was alluded that the town lacks adequate despite housing being a universal right. Proliferation of informal settlements was identified as a major planning issue. There was an expectation of housing strategies that facilitate provision of adequate and quality housing.
- A need was expressed for strong policy and prompt enforcement to ensure constructions that come up do so in a proper manner.
- Poverty was raised as an observed challenge in Nanyuki town by stakeholders. The stakeholders expressed the importance of diversifying economic activities in the town and ensuring that all the residents partake in it.
- There were concerns on the perpetual degradation of the environment commended measures that sustainably conserve the environment..
- In respect to the environment, some issues of concern included pollution which was especially rampant in the Likii River posing a challenge to the health of the people inhabiting the surrounding areas. Poor waste disposal and the factors above were observed as major causes of environmental degradation.
- Stakeholders had an expectation that the transportation strategies in the plan would enhance mobility and competitiveness. There was also concern that some access roads are not communicable making access to residential areas problematic.
- Among the issues raised by Nanyuki town residents is inadequate enforcement and capacity to enforce development control. Issues of encroachment onto the industrial area by residential and commercial establishments also represent unsatisfactory enforcement of land legislation. Overlap of mandate between the Laikipia Meru and Nyeri County Governments as identified as the main cause of this bottleneck.
- Insecure land tenure was raised by the stakeholders which is especially rampant in the Likii and Majengo areas. It was noted that this was bought about by double allocation or a total lack of ownership documents.

- The stakeholders decried of the inadequate sewer system with the current sewerage network only serving 30% of Nanyuki town.
- Stakeholders raised concerns on the poor distribution and capacity of health facilities and that there was shortage of staff, equipment and drugs in some especially those which are public. In addition, recreational grounds such as parks, stadia and playgrounds are insufficient.
- The stakeholders noted that disaster preparedness and management situation of Nanyuki is wanting. The town does not have a fire station despite meeting the population threshold required for this facility. Stakeholders also recommended land to be allocated to the Kenya Red Cross, an organization effective in disaster response and management.

PART THREE: PLAN CONCEPT AND DEVELOPMENT SCENARIOS

9. CHAPTER NINE: PLAN CONCEPTUALIZATION

9.0 Overview

This chapter highlights the conception of Nanyuki Town ISUDP. The section highlights population projections and land use requirements for different activities.

9.1 Population and Household Forecasts

The projected population for Nanyuki town and its environs in intervening five year periods between 2012-2030 is given in the table 9-1 below indicating that by the year 2030, the total population of Nanyuki is expected to be 165,955 persons with total projected households of 41,489.

Table 9-1: Population Forecasts

Year	Total Population	No. of Households
2009	68,552	15,234
2012	77,781	17,138
2015	88,252	22,063
2020	108,930	27,233
2025	134,453	33,613
2030	165,955	41,489

Source: AIDAL Consultants, 2013

9.2 Population Need Analysis

Population need analysis; the process of identifying and evaluating needs in a community or other defined population of people, describes “problems” of a target population and possible solutions to these problems. Nanyuki town population need analysis examines the aggregated assessment of population need. Below is the assessment of population needs for Nanyuki town.

- i. **Housing:** The relationship between population and housing is two-sided. Population change leads to a changing demand for housing. Population growth and particularly growth in the number of households will lead to a growth in housing demand. Nanyuki town has potential for a dormitory town for people working in neighbouring towns. With the projected number of 41,489 households in Nanyuki town planning area by 2030 demand there is need to plan for affordable and adequate housing.
- ii. **Water:** With high population growth in Nanyuki town, water demand is bound to increase. From the projected population water demand levels, Nanyuki town’s water

demand will increase to approximately 30,000m³ per day 2030. This calls for action to upscale the current water provision in Nanyuki town.

- iii. **Employment:** Youthful population in Nanyuki town represents 51% of the total population. In order to address the needs of this category there is need to promote the local economy in order to absorb this population development. This calls for policies that encourage investment and business in Nanyuki to address the problem of unemployment.
- iv. **Social Infrastructure:** Approximately 27% of the residents are school going population. With the current population growth trends and growth, there is need to provide additional educational facilities to curb rising demand. Demand for health facilities is anticipated to increase with time hence need for up scaling and providing additional health facilities. Other social infrastructure such as recreational areas, homes for the aged, etc will also be considered during the planning period.

9.3 Land Use Requirement Analysis

Space allocations for various facilities such as housing and health centres, schools and social halls should be made, bearing in mind that one generation may contribute for substantial benefit of a subsequent one. With population projections, the land use requirements were then extrapolated to the year 2030. The projected land requirements are derived from the physical planning handbook and the evaluation of the existing land use, best practices and development trends in Nanyuki town among others.

9.3.1 Residential Land Requirements

Using the following assumptions:

- Segregation of the population according to income levels i.e. 75% for low income, 20% for middle income and 5% as for high income earners.
- The development densities adopted are as follows: For high density – 35units per hectare; medium density – 16 units per hectare; low density – 10 units per hectare.
- The minimum plot should be 450m²

Table 9-2: Residential land use land requirements

Segregation	Number Of Households	Units Per Hectare	Land Required(Ha)
High Density	31,117	35units/ hectare	889
Medium Density	8,298	16 units / hectare	518
Low Density	2,074	10 units/hectare	207
Total	41,489		1,614

Source: *Physical Planning Handbook, 2008*

9.3.2 Commercial Land Requirements

Nanyuki town is a key center for commerce for the immediate and wider hinterlands. Approximately 4.9% of the total planning area represented by approximately 715 Ha will be required for commercial activities in the town.

9.3.3 Educational Land Requirements

The Physical Planning Handbook provides stipulation on catchment population and minimum land requirement desirable for the provision of education facilities as highlighted in table 9-5 below.

Table 9-3: Projected demand for educational facilities by 2030

Planning period	Projected Population	Pre-primary	Primary	Secondary
2012	77,781		36	18
2015	88,252		23	18
2020	108,930		28	18
2025	134,453		34	18
2030	165,955	66	42	24

Source: AIDAL Consultants, 2013

Table 9-4: Projected demand for educational facility by different levels

Level	Catchment population	Projected number by 2030	Minimum land requirement (Ha)	Total land requirement (Ha)
Pre-primary	2,500	66	0.25	16.5
Primary	3,500	42	3.25	136.5
Secondary	8,000	42	4.5	189
Tertiary/Colleges	-	4	10.2 Ha.	40.8
University	-	1	50	50
Total				432.8 Ha

Source: *Physical Planning Handbook, 2008*

9.3.4 Recreational Land Requirements

It is recommended that 1-2 hectares of land is provided for open spaces per 10,000 populations in areas with a population density of above 50 persons per hectare (Physical Planning Handbook, 2008). Using the upper limit approximately 33.2 Ha of land is required

for open space. An additional 40 ha of land will be required for other recreational facilities such as golf course, riparian reserves, stadia etc

9.3.5 Public Purpose Land Requirements

i. Health Facilities

Table 9-5: Health Facilities requirements by 2030

Level	Catchment Population	Activities	Land Requirement	Projected Demand By 2030	Total Land Requirement(Ha)
Level 1	5000	Health behaviour change activities, recognition of signs and symptoms of conditions	0.4 hectares	33	13.2
Level 2	10000	Curative, rehabilitative, preventive, and promotive services, health census of the population in catchment area, record-keeping and reporting activities, coordinating information flow from facilities in catchment area.	2 hectares	17	34
Level 3	30,000	In addition to level 2 activities, minor surgery, limited emergency inpatient services, limited oral health services, maternity for normal delivery, laboratory.	3 hectares	6	18
Level 4	100,000	All activities of level 2 & 3, clinical supportive supervision to lower facilities, health behaviour change, referral services, logistical support to lower facilities, co-ordination of information flow	4 hectares	2	8
Level 5	1,000,000	Training services for health workers, referral for curative and specialized care services, management and coordination support to districts, provision of internship	8 hectares	1	
Total					73.2

ii. Administrative Areas

These are areas/zones where public buildings/offices are sited for the purposes of administering public matters and rendering services to the general public. Approximately 80 Ha of land will be required for administrative purposes.

iii. Police Stations

Approximately 5 hectares will be required for the development of police stations and police posts.

iv. Law Courts

Approximately 2.0 hectares is recommended for law courts within the CBD.

v. Prisons

A minimum of 16 hectares should be reserved for this user and the current prisons should be relocated to the urban fringes particularly in areas where urban expansion would not be unnecessarily curtailed.

vi. Children's home

Juvenile homes are also considered and a minimum of **8 hectares** proposed.

vii. Homes for the elderly

Homes for the elderly are also considered and a minimum of **2.0 hectares** proposed.

viii. Community Centres

They include social halls, libraries and cultural museums. A minimum of **10.0 hectare** is proposed.

ix. Fire Stations

Land required is **0.4 hectares** minimum to include station, staff accommodation and drilling area.

x. Protected Areas

Existing special public purpose land primarily military land is to be retained.

9.3.6 Public Utilities Land Requirements

Approximately 186 Ha of land will be required for public utilities. This represents nearly 1.3% of the total planning area land.

9.3.7 Industrial Land Requirements

Due to the industrial potential identified in Nanyuki town approximately 4% of the total land has been proposed for industrial land use. This is approximately 572 Ha. This will accommodate light medium and heavy industrial establishments in the town. The exiting industrial area to be retained and change of use to be discouraged.

9.3.8 Transportation

In order to enhance efficient communication networks within the own the plan proposes approximately 20% of the total land to be dedicated for transportation land use. This is represented by approximately 2,860 Ha of the total planning area.

10.CHAPTER TEN: DEVELOPMENT TRENDS AND SCENARIOS

10.0 Overview

The purpose of this chapter is to describe the urban form and evaluate its cost effectiveness and sustainability in provision of infrastructure and services. The other purpose is to consider and evaluate alternative development scenarios and select the best or a combination of options for Nanyuki town planning area.

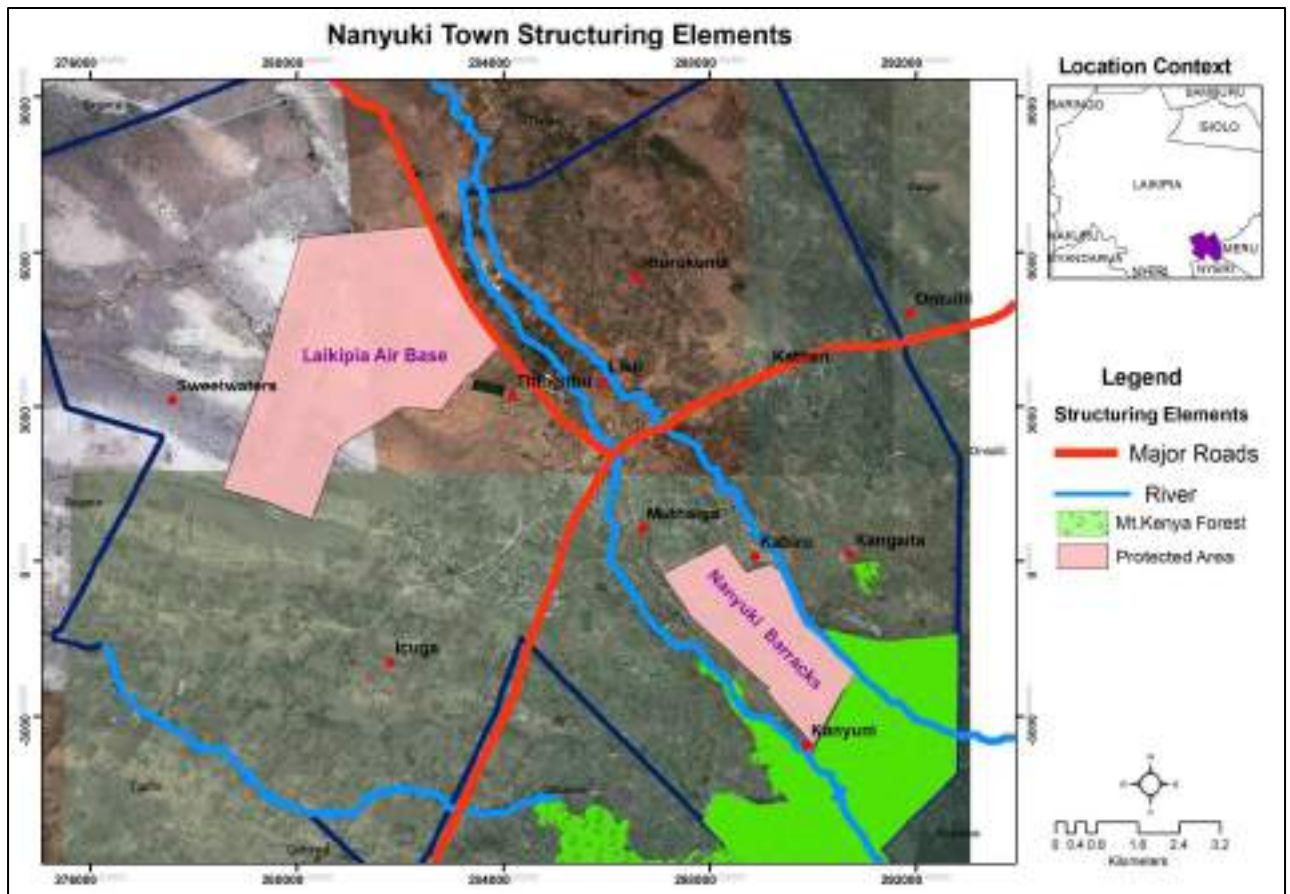
10.1 Existing Spatial Framework

10.1.1 Structuring Elements

The form and character of physical development of Nanyuki town is influenced by a number of structuring element including the following;

- **Rivers Likii and Nanyuki** which traverse the town in a north west –south east direction. The two rivers divide the town in three distinct zones (west, centre and east).
- **Meru-Nanyuki- Nyeri and Nanyuki-Doldol Roads:** Apart from dividing the town into two distinct zones they act as major point for the organization of internal circulation and accessibility. They are also key factors influencing the spread of urbanization. Linear development has the potential to create overcrowding along these roads and creation of transportation bottlenecks. It could also lead to disparities in the provision of safe and efficient services.
- **Laikipia Airbase and Nanyuki Garrison Barracks** located to the north west and south east respectively occupy large tracks of land and act as barrier to urban development in both direction and redirecting growth in a north east and south west directions.

Map 10-1: Nanyuki Town Structuring Elements



10.1.2 Nanyuki Town Previous Urban Plan

Currently Nanyuki town has no update plan to guide its growth direction and development trends. The existing plan was prepared in 1991 by the Physical Planning Department. However the plan is obsolete has it has been overtaken by events. There was also a zoning plan in 2000 for the entire town. This zoning plan never anticipated the development trends that have taken place especially since 2008.

10.2 Existing Land Use

Existing land uses have emerged from the previous attempts for land use organization, structuring elements while others emerged organically.

10.2.1 Residential

Most of the residential areas emerged from the previous planning efforts of the town. Low density residential areas are Mugambi Estate, Ntuturukuma, Shika Adabu and parts of Muthaiga, part of Kwa Huku Estate. Medium density residential areas include Muthaiga, Icuga, Thingithu, and Mountain View. High density areas include the expansive Likii area, Majengo, Mung'etho and Kabiru.

10.2.2 Industrial

Historically Nanyuki town was an industrial town. However, most industrial establishments have collapsed e.g. MOUNTEX and the Blanket Industry at Ntuturukuma. Only a few establishments such camel milk industry, flour mills, KCC among others exist. The industrial zone is located to the west of the town centre at railways station. The industrial zone is experiencing encroachment from residential land use and commercial land uses. A medium industrial zone proposed by the 1992 development plan has been converted to commercial and residential.

10.2.3 Educational

Land under educational use includes land covering various educational institutions including nursery schools, primary schools, secondary schools and tertiary institutions. Educational land uses are mostly distributed within the CBD and residential areas.

10.2.4 Recreational

Recreational use includes public open spaces (Central Park), Nanyuki Golf Course, playgrounds, stadium, riparian reserves and forest areas. Most of the land zoned for public open space in the previous plans has been interfered with. Mt. Kenya forest located to the south east is a major conservation area which restricts further expansion of the town in that direction while the stadium is located near Majengo Estate within the town centre. The golf course is located along Mt. Kenya Road near Mugambi Estate. Most recreational

areas especially public play grounds have been encroached while others have been illegally acquired for other purpose.

10.2.5 Public Purposes

This includes health facilities, social facilities and administrative areas among others. Among the special purpose land uses include the military barracks at to the south east of the town Laikipia airbase to the south west of the town the British Military Base (BATUK) and of the military barracks to the south cover a substantial amount of land. Public administration zone exists along Kenyatta Highway within the town centre where government offices at the county and district level, civic and parastatals are located.

10.2.6 Commercial

The commercial areas of Nanyuki include shops, markets, and some private offices. Commercial areas are basically located within the CBD, Majengo area, Likii and along the major roads, and in some parts of the satellite centers such as Baraka and Nturukuma. Within the town centre commercial areas mixed developments i.e. commercial-cum-residential exist. Commercial land use is expanding toward Majengo area and parts of Thingithu estate and also along major roads.

10.2.7 Public Utilities

Public utilities in the town are mainly concentrated in the CBD. These include Muslim and Christian cemeteries, sewerage treatment plant water intake plants, electricity substation among others.

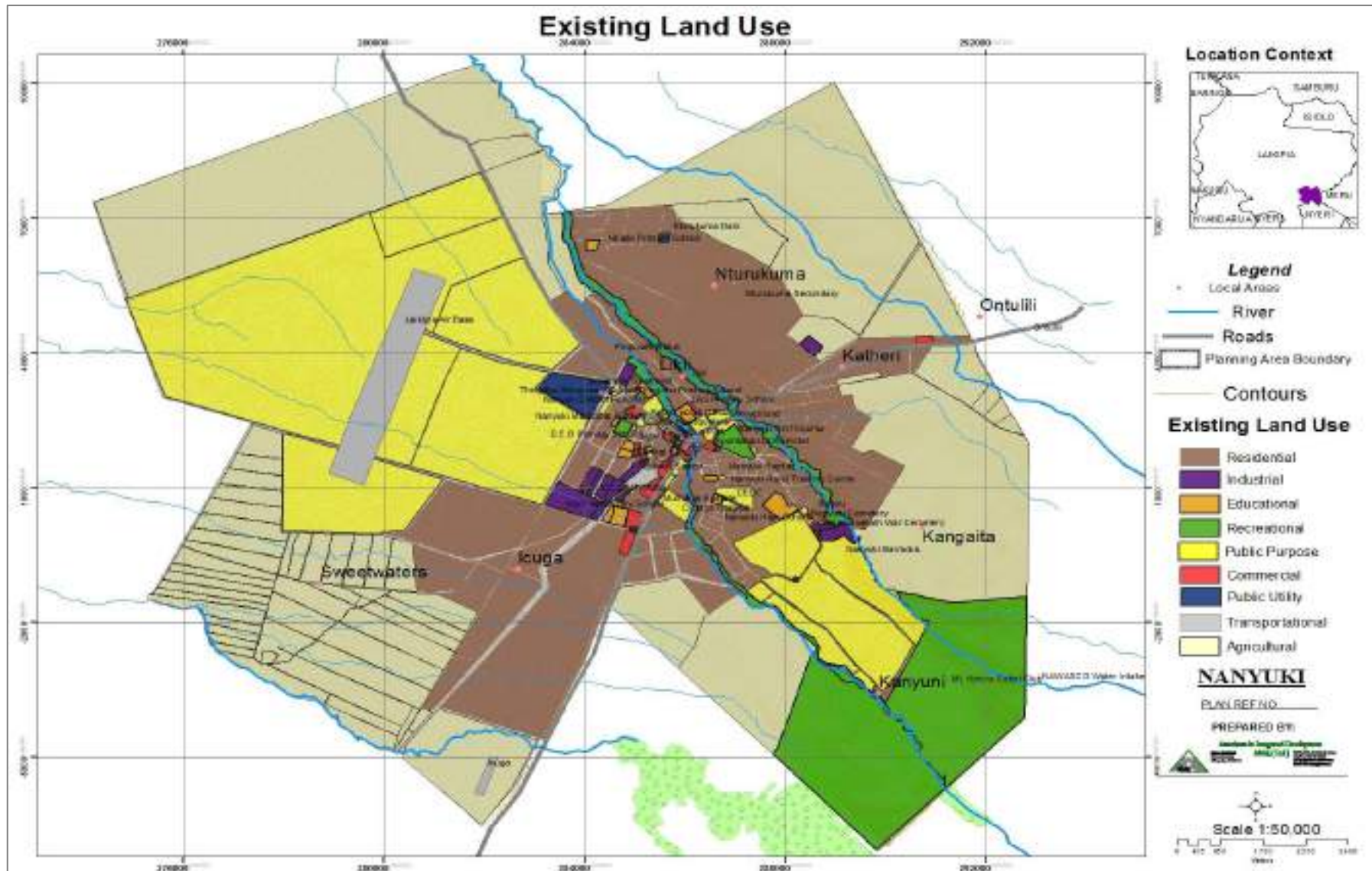
10.2.8 Transportation

Transportation land uses in includes all land under highways, roads, and footpath networks, vehicle parking, airstrips, and bus and taxi terminals. The bus parks are located in the town centre. Road reserves in the town have been encroached especially in the CBD by the development of stall and kiosks. The railway station (*mwisho wa reli*) is located at the industrial zone. However the railway station is facing encroachment from residential land uses.

10.2.9 Agricultural

The town's environs have major horticultural establishments and ranching activities. Major agricultural activities take place under irrigation in the following areas Kangaita, Kwahuku, Katheri and Nturukuma. Areas that were initially agricultural and rural e.g Nturukuma and Katheri are undergoing transformation due to demand for land.

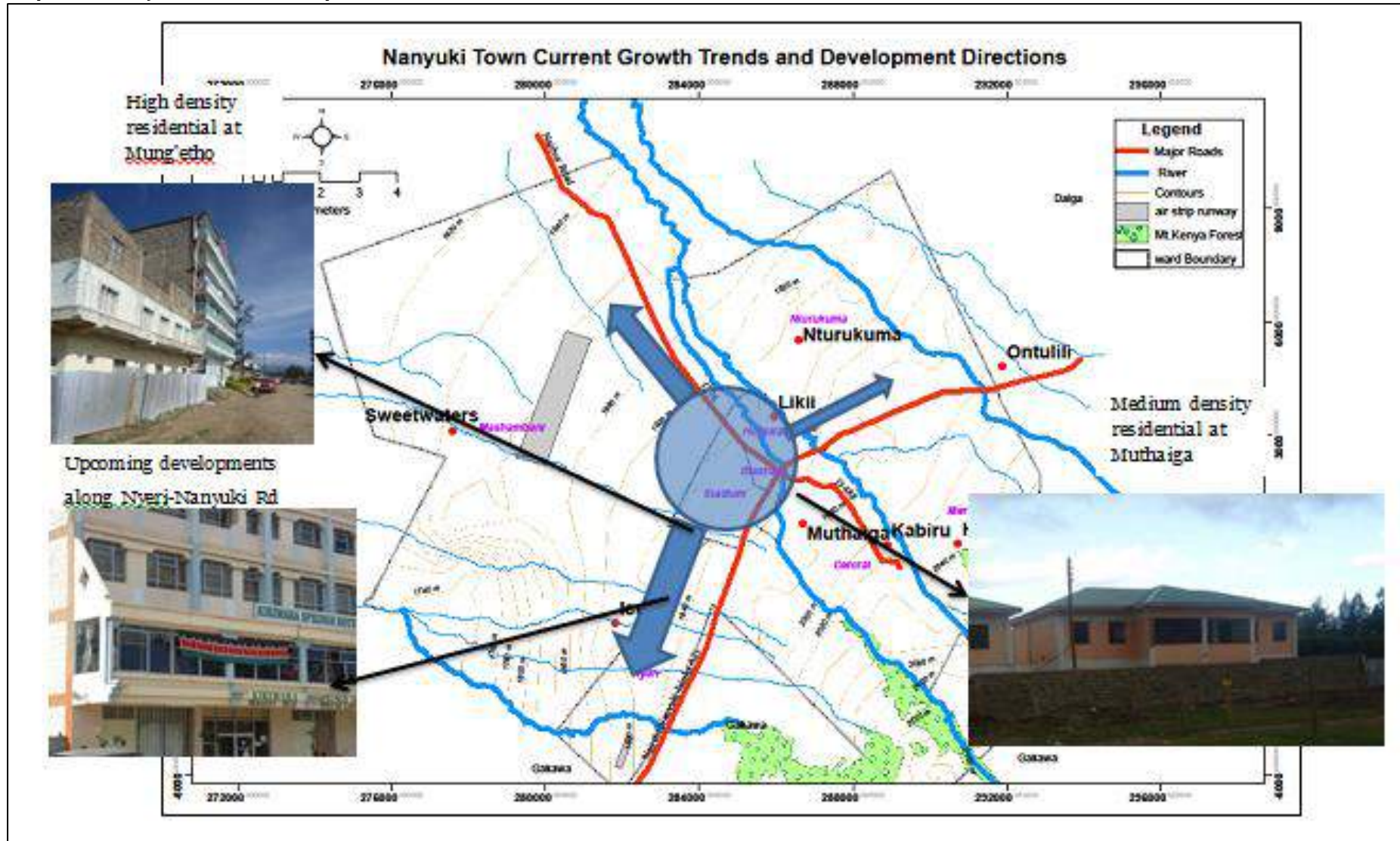
Map 10-3: Existing Land Use



10.3 Urban Development Patterns, Growth and Trends

Nanyuki town continues to undergo urban metamorphosis. This change is shaped by economic, social, cultural and institutional factors. These changes require innovative intervention; demand for land in the CBD has exerted pressure on the neighboring residential zone. The CBD has therefore expanded outwards taking some residential areas such as Majengo. Intensive development is area taking place along Meru-Nanyuki- Nyeri and Nanyuki-Doldol Roads. Apart from dividing the town into two distinct zones they act as major point for the organization of internal circulation and accessibility. They are also key factors influencing the spread of urbanization. Linear development has the potential to create overcrowding along these roads and creation of transportation bottlenecks. It could also lead to disparities in the provision of safe and efficient services. Dense developments are taking place in Icuga, Mountain View, Muthaiga, Nturukuma.

Map 10-4: Nanyuki Town Development Trends



10.4 Formulation of the Plan

Visioning and objective setting workshop, situational analysis report and various discussions elicited some interesting urban characteristics of Nanyuki town from a spatial planning's perspective. The key ones are;

1. What are the residents' development priorities?
2. What is the acceptable land use model capable of delivering quality shelter and services to the residents?
3. How can employment opportunities be enhanced to absorb the youth?
4. How can land-uses be rationalized to avoid juxtaposing and incongruous developments
5. What urban management practises can be adopted to accelerate the goals set for resolving rapid urbanization and land management concerns?

10.5 Nanyuki Town Planning Principles

The planning principles used to guide plan formulation include, but not limited to;

1. A green town that plans with nature,
2. A pedestrian friendly town,
3. An environmentally-sensitive town,
4. A compact town with identity,
5. A town planned around neighbourhoods which have distinctive identity,
6. A town whose neighbourhoods are connected,
7. A town that facilitates enjoyment of nature,
8. A town that maximizes the use of green energy, i.e., solar, wind and biogas
9. A town where planning and building standards are applied, e.g., setbacks facilitate consistency of building lines, road, power line and riparian reserves

11. CHAPTER ELEVEN: SPATIAL DEVELOPMENT MODELS

11.0 Overview

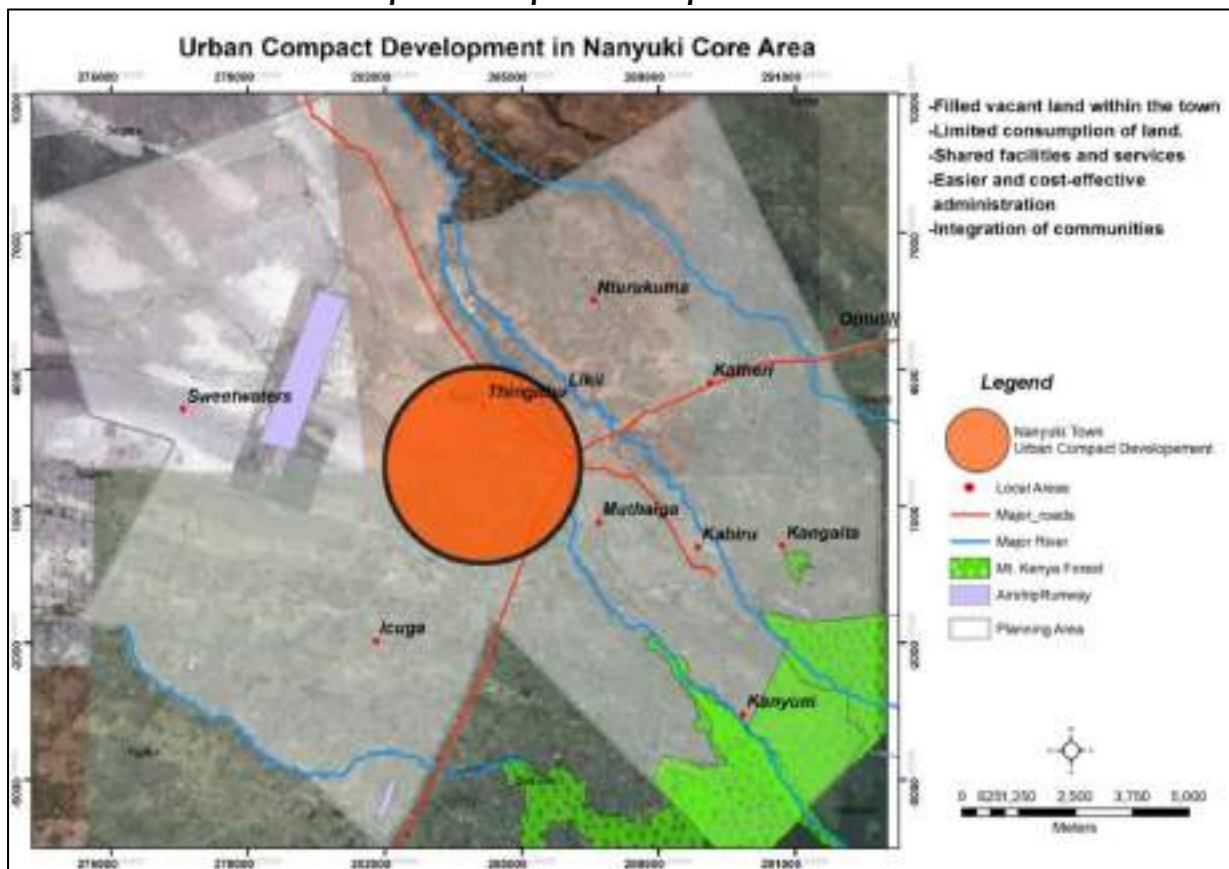
Given the physical character and the structuring elements influencing Nanyuki town development, the following urban development patterns may emerge.

11.1 Alternative Development Scenarios

11.1.1 Alternative 1: Compact Development

Compact town is a high density urban settlement that has the following main characteristics: Central area high-density development which promotes mixed-use development. In this urban development model, development is concentrated in the main urban core area of Nanyuki town leaving the other areas of the planning area to grow with minimal intervention in terms of provision of infrastructure and services. This model advocates for infill development of vacant plots, densification and intensification in the town center.

Map 11-1: Compact Development Model

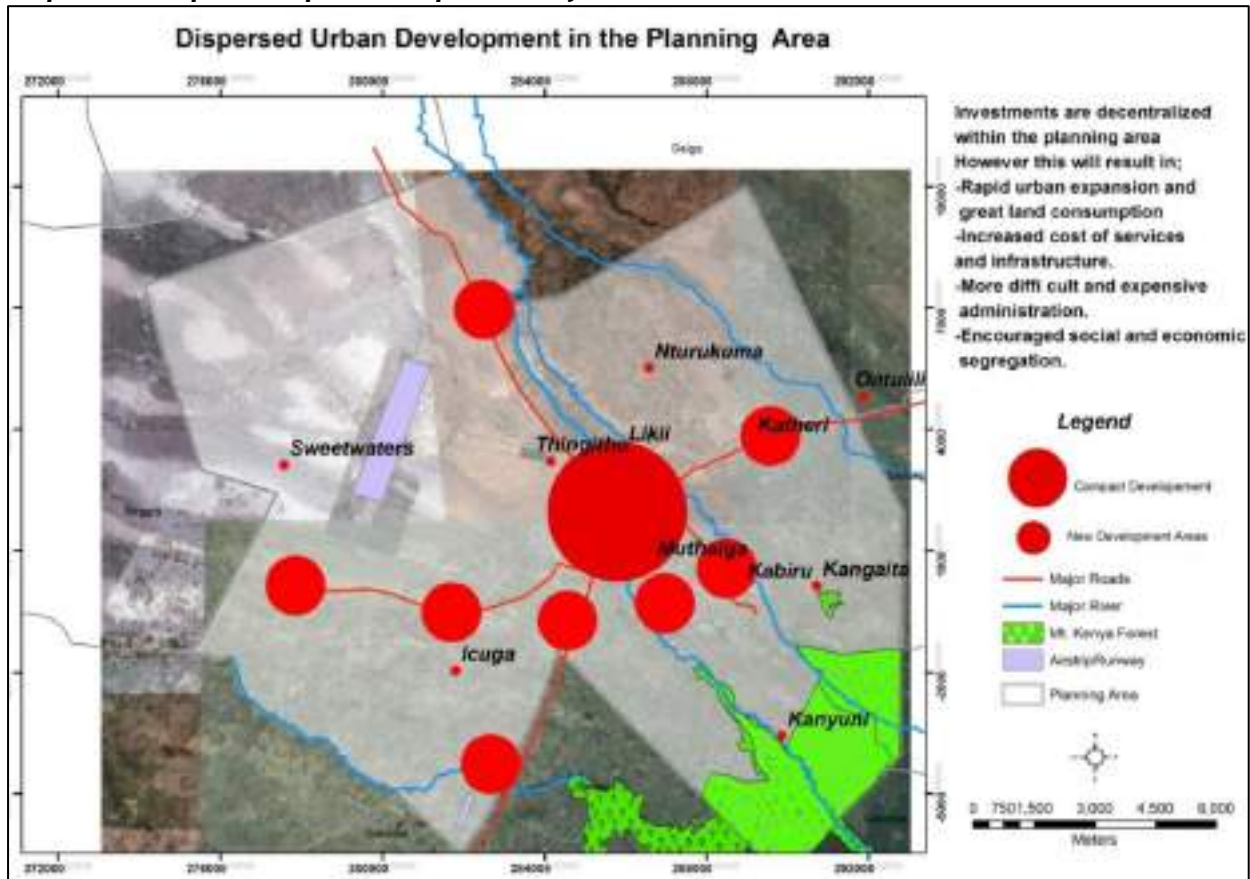


The compact town acts as magnet for investments and people to the core urban area where services and infrastructure are provided. In the short run this development model is cost effective, maximizes investments and expedites development at the urban core area. It also leads to compact urban form which is desirable as it conserves agricultural land. However, in the long run the core area is likely to experience overwhelming population growth, resulting into increased demand for services and amenities and eventually urban decay. The peripheral urban areas are likely, in this circumstance, to suffer urban decay.

11.1.2 Alternative 2: Complete Dispersal/ Dispersed Town

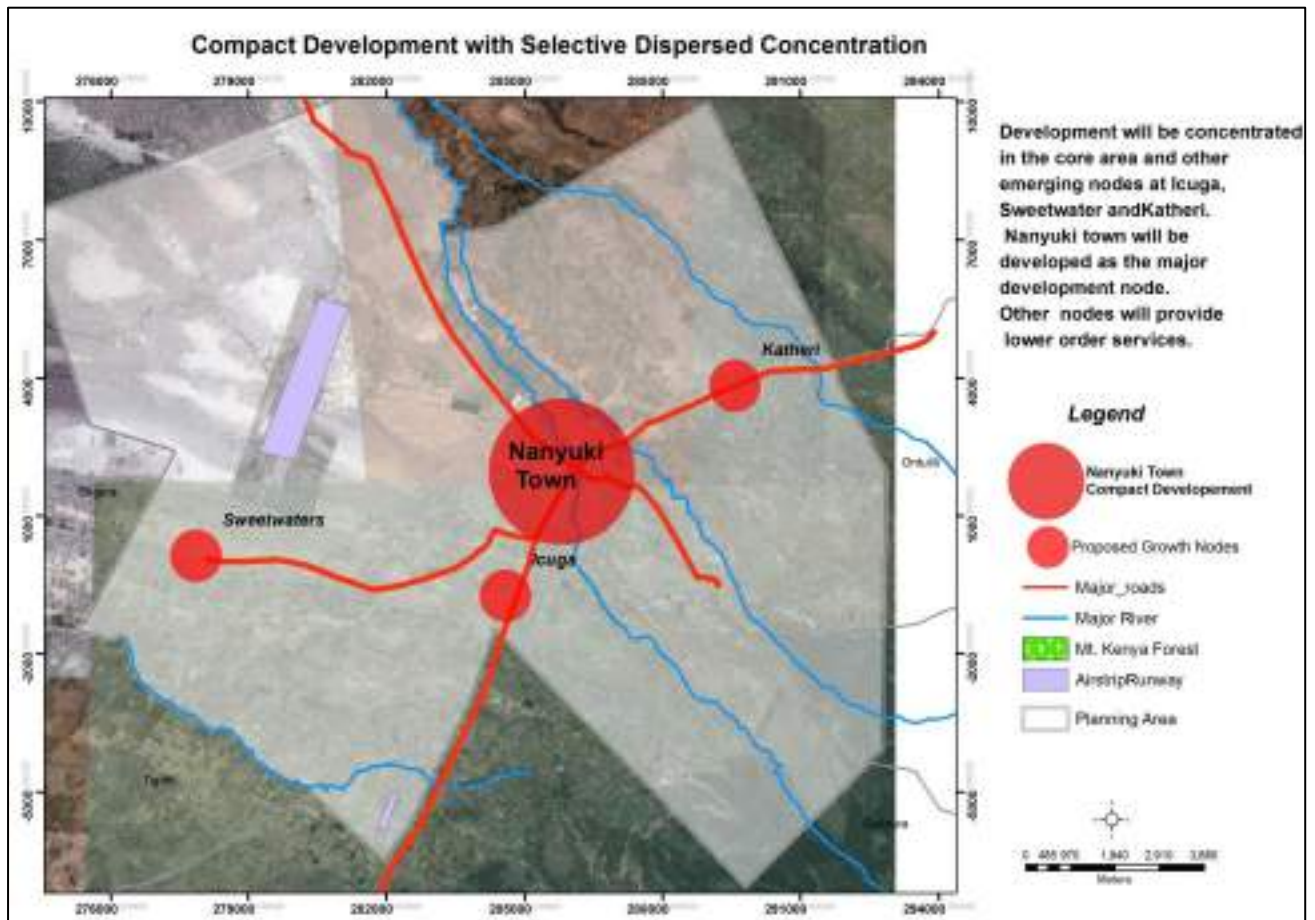
Complete Dispersal development model results to the outward spreading of a city and its suburbs, to low-density and on rural land. In this approach development and investment in physical and social infrastructure for Nanyuki town is spread in a decentralized manner within the planning area both at the core and the periphery. Complete dispersal will be beneficial for the majority of the population in the town in terms of better accessibility to amenity and services. However, such development model would be economically very expensive in terms of provision of services and amenities and ultimately lead in diminishing of agricultural productive areas such as Nturukuma and Katheri.

Map 11-2: Complete Dispersal/Dispersed City



11.1.3 Alternative 3: Compact with Selective Dispersed Concentration

In this model, development will be concentrated in Nanyuki town/core area and other identified node to support the CBD. Development will be hierarchical in and each development node will have its specialization. The core Nanyuki town will be developed as the major development node with the plan encourages growth and development of satellite centers at of Icuqa, Sweetwater and Katheri. The proposed development nodes will complement but not compete with the core Nanyuki town. These development nodes will provide lower order services and be dependent on the Nanyuki town core urban area. This approach has the advantage of discouraging the spread of urbanization into agricultural areas.

Map 11-3: Compact Development with Selective Dispersed Concentration

Of the three approaches discussed, the preferred approach is a hybrid model comprising of Compact Town with Selective Dispersed Concentration due to the following advantages it presents with regards to the planning area:

- It is going to build on existing development trends and patterns by developing a compact Nanyuki town (core area) and selected compact urban nodes that will compliment Nanyuki town.
- Mitigating Urban sprawl into agricultural and ecologically fragile areas
- Discouraging linear development along the major transportation corridors and encourage specialization
- Mitigate cost of infrastructure and service provision

PART IV: DEVELOPMENT PLAN, STRATEGIES AND AREA ACTION PLANS

12. CHAPTER TWELVE: INTEGRATED URBAN STRUCTURE PLAN

12.0 Overview

The plan presents the long term development framework for Nanyuki town by indicating broad land uses transportation corridors in relation to land uses, location of utilities and services. The ISUDP shows the form, shape, urban development limits, trends and pattern in developments that Nanyuki town will take.

12.1 Land Use Proposals

12.1.1 Residential

The objective of the residential land uses is to provide a living environment which conforms to the economic ability of the developer without compromising the environmental standards. The proposed residential land use covers approximately 6943.1Ha

12.1.1.1 High Density Residential(HDR)

Areas earmarked for high density housing include: Likii, Majengo, Thingithu, Icuga, Mungetho, areas around Railways and Kabiru. This will consist of mainly multiple residential developments. These are the areas already densely populated and are expected to house the bulk of the population. Population densities in the areas are expected to be 70 dwelling per hectare. The total area earmarked for high density residential neighborhoods is 458.3Ha.

12.1.1.2 Medium Density Residential(MDR)

Areas proposed for high density housing include Muthaiga, Lions Court, parts of Thingithu, Icuga, Mountain View. The total area earmarked for medium density residential neighborhoods is 1910.7Ha. Ha. These areas are projected to have a combination of single and multiple dwelling units but with the latter being more dominant. Population densities in the areas are expected to range from 32-60 dwellings per hectare.

12.1.1.3 Low Density Residential(LDR)

Proposed low density residential areas include Mugambi Estate, Nturukuma, Muthaiga, parts of Icuga, Kwa Huku. The total area earmarked for low density residential neighborhoods is 4574.1Ha. The delineation of parts of these areas into low housing areas was significantly influenced by the current low population levels. Low density residential

areas have been proposed for the larger rural hinterland in order to encourage agriculture. Urban agriculture is expected to take place given the large plot sizes. Population densities in the areas are expected to range from 10-20 dwellings per hectare.

12.1.2 Industrial

The plan seeks to promote industrial development of Nanyuki town by harnessing its industrial potential for a number of industries due to availability of raw materials in its hinterland, a big market and basic infrastructure availability. The total area earmarked for industrial development is 180.1Ha.

12.1.2.1 Light Industrial/ Industrial Parks

Approximately 20 Ha at the industrial area have been earmarked for *Juakali* development. The plan set aside 25Ha at Mountex area for the development of an ICT park to act as an Incubation Centre, a Data Processing Zone where various ICT service companies who will offer various ICT services to companies and individuals locally. In addition the plan earmarks 2.2 Ha at Public Works, Likii for development of juakali sheds.

12.1.2.2 Medium Industrial

With potential in industrial that has been alluded to above, approximately 10 industrial establishments have been earmarked in this zone. Medium industrial activities have been designated at the existing industrial area at approximately a total area of 105Ha. Medium industries proposed include flour milling, animal feeds production, bakeries, milk processing and cooling plant, and meat processing, poultry processing, horticultural processing.

12.1.2.3 Heavy Industrial

Heavy industrial zone is earmarked at Kililimo farm which measures approximately 55Ha. This will attract the bulk of industrial investments e.g. tannery processing industry, plastic industries (recycling), energy centre, winery, brewery.

12.1.3 Educational

With a projected population of approximately 165,955 people by the year 2030, approximately, approximately 66 pre-primary schools, 24 primary schools 24 secondary and 2 Universities will be required in Nanyuki town and its environs. The plan proposes a

university at the Monastery. Proposed schools will be located in close proximity to residential areas. It is proposed that Nanyuki polytechnic be upgraded to a national polytechnic. Approximately 197.3 Ha of land is earmarked for educational development.

12.1.4 Recreational

Approximately 1782.8 Ha has been earmarked for recreational purposes. Recreational areas will be integrated within specific planning zones and especially within residential neighbourhoods.

12.1.5 Public Purpose

The government and the county government has not been economical in use of its land which is evident at the current DC offices and the municipal offices where various office are scattered. The plan proposes development of a multi-storey capital complex at the current DC and municipal offices to house all central government and county functions. the existing public works at Likii is to be relocated for other use while council offices at the Annex will be relocate to the to the proposed capital complex. The development of other public purposes such as religious facilities is generally expected to be intertwined within the residential and commercial developments. As result no broad zones for public purposes are expected. Existing special public purpose land primarily military land is to be retained. Approximately 5154.9Ha of land is set aside for public purpose.

12.1.6 Commercial

The plan proposes approximately 198.9Ha for commercial developments. The existing Nanyuki town CBD is proposed to be extended to include Ngei Estate, Asian Quarters and parts of Majengo. The plan proposes that the maximum number of floors in the CBD to be 12. The plan proposes promotion of commercial nodes at Sweetwater's, Icuga, Nturukuma, Likii, Katheri, and Thingithu. The commercial nodes will provide access to commercial facilities within neighborhoods in order to facilitate the provision of goods and services and at the same time provide employment opportunities.

12.1.7 Public Utilities

Public utility land uses include water intake points, cemetery, and waste treatment site. Approximately 67.2 Ha has been set aside for. The plans propose decommissioning the existing cemetery at Kabiru and acquire land measuring approximately 4.5 Ha at Kililmo

Farm for the same. The plan proposes a crematorium at the same area. A fire station is proposed at Majengo and a substation at Likii. The existing sewerage treatment site is retained while the current dumpsite is to be upgraded to a sanitary landfill.

12.1.8 Transportation

Urban areas depend on efficient channels and flows if economic and sustainability goals are to be achieved. The plan proposes approximately 716.5 Ha for transportation purposes. The efficiency of the urban system is directly related to the efficiency of the transport and movement system. The plan establishes a transportation network which will promote efficient and reliable movement of goods and traffic. The plan proposes retaining the existing transport facilities.

12.1.9 Peri-Urban Agriculture

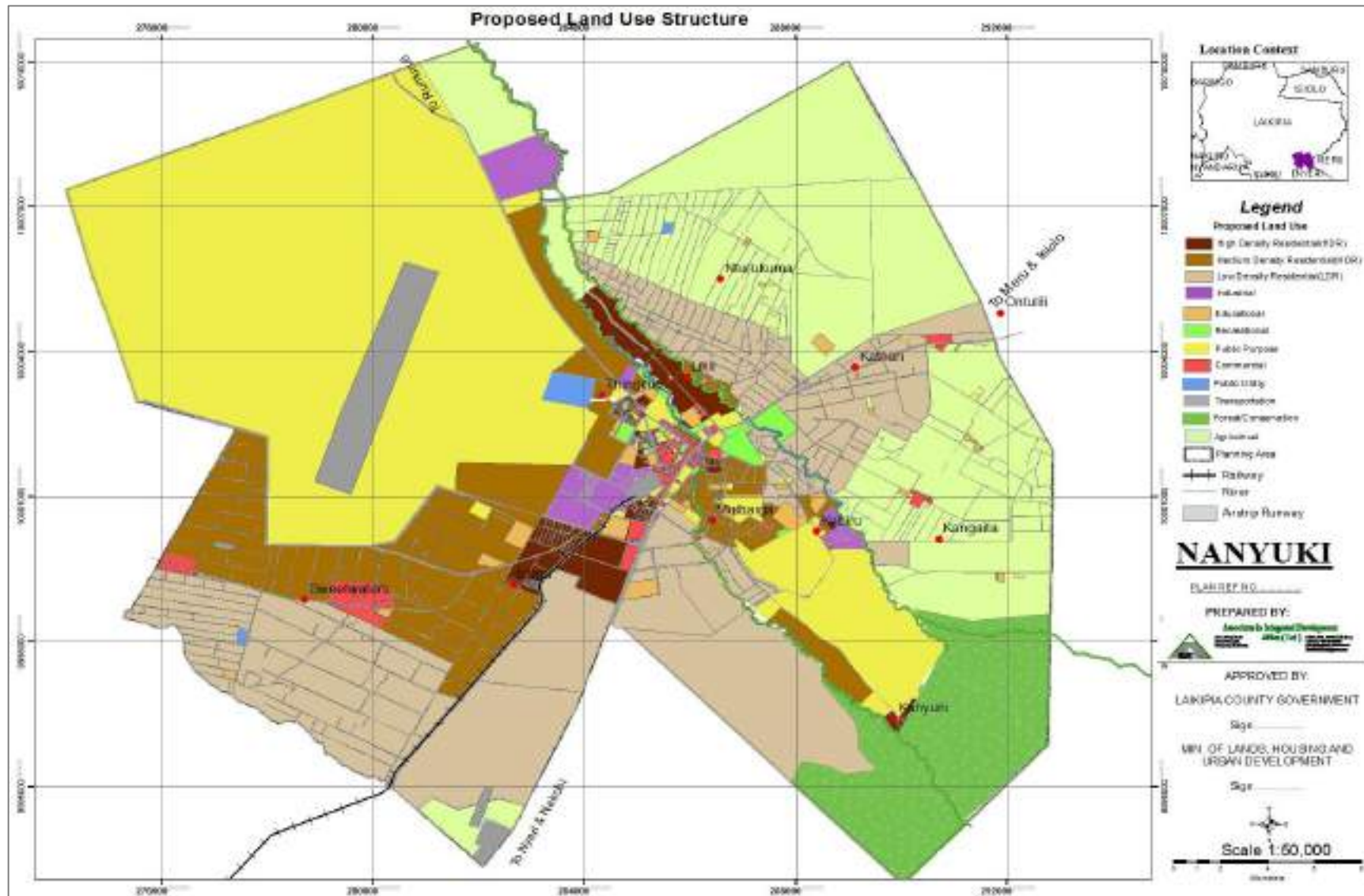
The plan proposes approximately 6473.2 Ha for purposes. This will include areas of Katheri, Nturukuma and Kangaita. In order to promote urban agriculture in the area, there should be adequate provision of infrastructural services to enhance easy access to the markets among other related factors. Table 12-1 belows the proposed land uses and their approximate proportions.

Table 12-1: Proposed Land Use

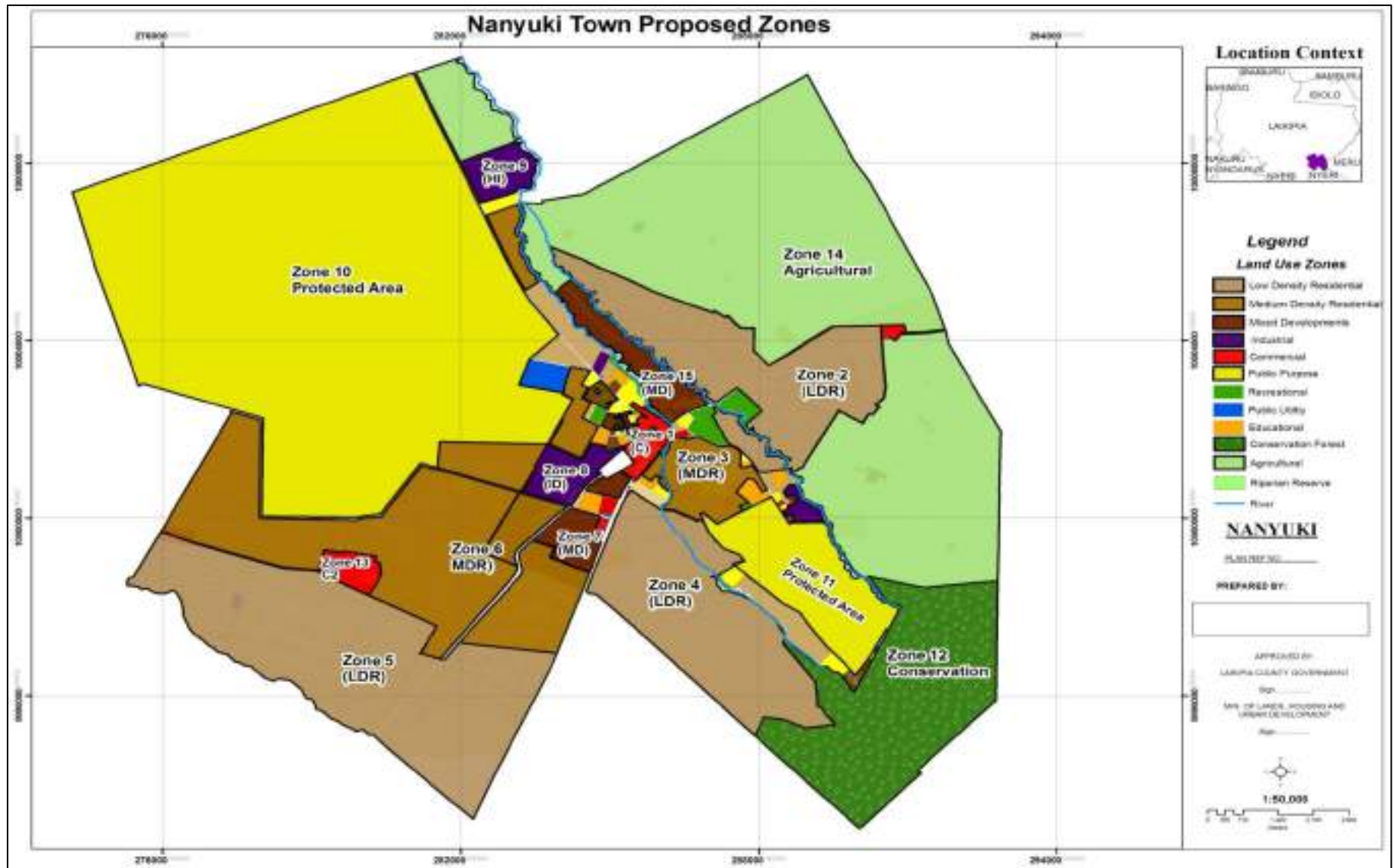
	Land Use	Approximate Size (Ha)	% of Total Area
1.	Residential: Low Density Medium Density High Density	4,574.1 1,910.7 458.3	
2.	Industrial	180.1	
3.	Educational	197.3	
4.	Recreational/Conservation	1782.8	
5.	Institutions /Public Purpose	5154.9	
6.	Commercial	198.9	
7.	Public Utilities	67.2	
8.	Transportation	716.5	
9.	Agriculture	6473.2	
	Total	21714Ha	

Source: AIDAL Consultants, 2013

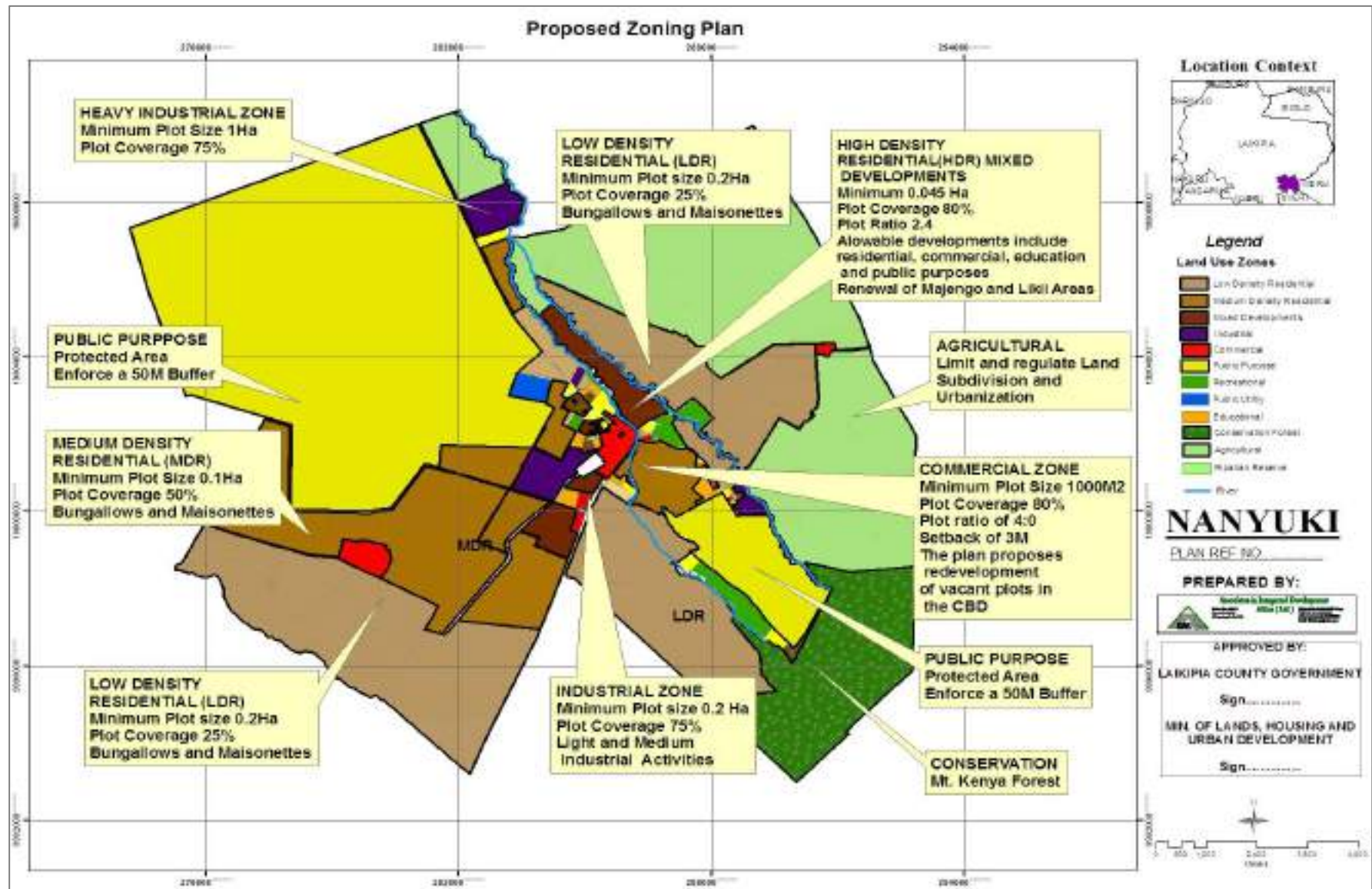
Map 12-1: Proposed Land Use Structure



Map 12-2: Proposed Zones



Map 12-3: Proposed Zoning Plan and Regulation



12.2 Proposed Land Use Zones and Regulations

The following table details the various land use zones described above. The land use zones have been numbered systematically and the area in which they apply identified. The existing developments on the proposed zones have also been pointed out then the proposed type of development together with the regulations and standards for the particular zone.

Table 12-2: Proposed Land Use Zones

ZONE	AREA	LOCATION	EXISTING DEVELOPMENTS	TYPES OF DEVELOPMENTS ALLOWED	MAX. GROUND COVERAGE %	PLOT RATIO %	MIN. PLOT SIZE (Ha)	No. OF DWELLING UNITS/ REMARKS
RESIDENTIAL								
01	Kwa Githui		Mixed Development (Residential and Commercial)	Mixed Development (Residential and Commercial)	80 %	2 (multiple dwellings)	0.045	Multiple Dwelling Ground floor plus three
02	Likii A Likii B		Residential	Flats	80%	2 (multiple dwellings)	0.045	Multiple Dwelling Ground floor plus three floors
03	Muthaiga		Residential	Bungalows, Maisonettes	50%	1.5 (multiple dwellings)	0.2	Ground floor plus one floor
04	Majengo		Mixed developments (Residential and Commercial)	Mixed Development (Residential and Commercial)	70%	3. (multiple dwellings)	0.2	Ground floor plus three floors
05	Thingithu Phase A Phase B		Low density residential (row housing)	Medium density Residential	45%	2 (multiple dwellings)	0.05 0.04	Single dwelling units (Bungalows)
06	Icuga II		Residential	Mixed Development (Residential and Commercial)	75%	2 (multiple dwellings)	0.1	N/A
07	Icuga		Residential	Medium density residential	50%	1.5 (multiple dwellings)		Single dwelling units (Bungalows)
08	Icuga		Agricultural and residential	Low density residential	25%	1 (single dwellings)		Single dwelling units (Bungalows)
09	Sweetwaters		Agricultural and residential	Low density residential	25%	1 (single dwellings)		Single dwelling units (Bungalows)

010	Sweetwaters		Agricultural and residential	Medium density residential	50%	1 (single dwellings)		
011	Nturukuma		Agricultural	Low density residential	25%	1 (single dwellings)		
INDUSTRIAL								
11	Railways yards and adjacent areas		Industrial and religious	Light and medium industrial	90%		0.9	Environmental protection measures to be guaranteed
12	Mountex		Residential	ICT Park	75%		1	Environmental protection measures to be guaranteed
13	Kilimo farm		Agricultural	Heavy industrial	60%		2	Environmental protection measures to be guaranteed
14	(Likii)		Public purpose	Jua kali				As per individual user requirement
EDUCATIONAL								
21			Public purpose	Educational/university	Not below 15%			Encourage multi-storey development
22	Likii secondary		Likii Primary School	Likii Secondary School				Co-location and Encourage multi-storey development
23	Nanyuki Polytechnique		Polytechnique And prison	Nanuki Polytechnique				Encourage multi-storey development
RECREATIONAL								
31	Central		Recreational	Recreational				
32	Stadium		Stadium	stadium				
33	Kwa mbuzi		Vacant	Racing track				
34	Golf course		Golf course	Golf course				Upgrade the golf course
35	Kahura/Mt. Kenya forest		Forest	Conservation /Conservation				
35	Majengo		Open space	Community park				
			Open space	Community park				
36	Likii		Public purpose	Community park				

37	Showground		Showground	Showground				
38				Riparian Reserve				Enforce the riparian reserve standards specified
39	Annex		Public purposes(Council Offices)	Recreational				
41	DC		Government offices County offices	Government offices County offices				
42	Majengo		AP Lines	AP Line Recreational				
43	Laikipia Air Base		Military	Public purposes Military				Protected area A buffer zone of 50m to be created from air force boundary Protect the flight path from encroachment
	Nanyuki Barracks		Military	Public purposes Military				Protected area Intense urban developments to be regulated A buffer zone of 50m to be created from barracks boundary
	Kilimo farm		Agricultural	Cemetery and crematorium				
COMMERCIAL								
51	CBD		Mixed developments: commercial, residential and industrial Public purposes	Commercial, Institutional Commercial/Of fices/ Residential	80%	600	0.05	
52	Icuga		Mixed developments: commercial and residential	Commercial	70%			Commercial activities to be concentrated on the designated areas

53	Jicua		Mixed developments: commercial and residential	Commercial Tourism Promotion	60%			Commercial activities to be concentrated on the designated areas
54	Swwetwater		Mixed developments: commercial and residential	Mixed developments(commercial and residential)	75%		0.45	Commercial activities to be concentrated on the designated areas
55	Katheri		Mixed developments: Commercial and residential	Commercial				
	Likii		Public purpose	Market				
	Muthiaga		Residential	Commercial	60%			
	Shika adabu		Residential and commercial	Commercial	60%			
PUBLIC UTILITIES								
61	Along Nayuki-Meru Rd		Public purpose	Fire Station				
65	Thingithu		Dumpsite	Sewerage Treatment and Sanitary land fill				
TRANSPORTATION								
72	Laikipia wildlife forum		AirStrip	Airport				Protect the flight path from encroachment
AGRICULTURAL								
91	Ntrukuma,		Agriculture	Urban Agriculture				Land subdivision and Urbanization to be limited
92	Katheri, Kanagita							Land subdivision to be limited
93	Doldol Road							Land subdivision and Urbanization to be limited

13. CHAPTER THIRTEEN: ACTION AREA PLANS

13.0 Overview

Area action plans were aimed at making proposals and policies for the development of specific areas. These plans set down the framework for the sustainable, phased and managed development of particular areas. Action areas selected include the CBD, Majengo, Likii, Muthaiga and Icuga.

13.1 Nanyuki CBD

13.1.1 Objectives of Nanyuki CBD Action Area Plan

The objective of the area action plan for CBD is to create a vibrant and premier commercial hub in the region which is responsive to the community needs.

13.1.2 Proposes Actions

Commercial

The plan proposes to intensify the density of existing built-up areas through infill development and setting growth limits, which would need to be moved outwards at regular intervals to prevent land shortages. Intensifying density implies regenerating and replacing existing buildings with new ones that accommodate more people. Detailed urban regulations for the management of Nanyuki town CBD have been developed. Allowable activities include that are designated as commercial, which include offices, shops, stalls, hotels, cyber cafes, cultural centres and banks. In the core area of the CBD it is proposed that the developments can cover up to eighty percent (80 %) of the ground area and a plot ratio of up to six hundred percent (600%).

Actions

- Expand the CBD to include the following areas parts of Majengo, Asian quarters, Ngei Estate as shown in map 13-1 below.
- Develop and densify vacant plots to multi-storey structures in the core area to meet the demand for commercial land use.
- Clear all encroachments on road reserves.
- Establish a 3M setback in the extended CBD.
- Develop Ngei Estate into an arts and cultural centre of the town/entertainment precinct of the town.

Plate 13-1: Proposed arts and cultural centre /entertainment precinct



The precinct will feature a world class performing arts centre and entertainment complex. It will be surrounded by relaxing outdoor spaces dotted with cafés, restaurants, art galleries, an amphitheatre, contemporary art displays, pubs and boutiques, making it a unique and attractive destination for locals as well as visitors.

Recreational /Green Spaces and Parks

Actions

- Enforce a 30M Riparian reserve along River Nanyuki.
- Redevelop the riparian reserves within the town center to nature trails.
- Relocate the Nanyuki Municipal Council Annex to the proposed county capital complex and redevelop the site to a community park.
- Redevelop Nanyuki Stadium to international standards.
- Rehabilitation and construction of roadside green areas.
- Green area around the stadium facility an on existing free space to prevent encroachment of its land.
- Redevelop the Central Park to a green urban park with prerequisite facilities.

Plate 13-2: Redeveloped the central park to a green city park



Development of Markets

Actions

- Expand and redevelop municipal market into multi-storey modern market with perquisite infrastructure to accommodate more commercial activities.
- Develop a modern multi storey SME park and relocate informal commercial activities to decongest the CBD.
- **Redevelop Ukumbusho market to a multi-storey shopping precinct**

This area is proposed to be Nanyuki's key shopping precinct. It capitalizes on its current status as hot spot for clothe and textile retail.

Plate 13-3: Proposed multi-storey shopping precinct at Ukumbusho market**Public Purposes****Actions****Development of County Capitol Complex development**

- Redevelop the land around the former Municipal council offices, County Council Offices and DC offices to a multi-storey county headquarters to accommodate all administrative functions and release the rest for recreation and parking.
- Redevelop the current civic and administration area to a County Capitol Complex.
- Enhance the image of the civic and administration premise by providing statues.

Roads**Measures**

- Provide and improvement of drainage to cover all the roads in the CBD.

- Promote closed drainage systems to enhance safety.

Bus Park

Actions

- Redevelop the bus park and improve its management.

Non-motorized Transport (NMT)

Actions

- Create pedestrian routes/ precincts from the major residential areas to the CBD.

Plate 13-4: Artistic impression of the pedestrianization scheme



- Provide for zebra crossings to protect pedestrians from accidents and give them a sense of security as road users.

Plate 13-5: Artistic impression of the pedestrian street crossings



- Enforce the following standards on Pavements, Sidewalk;

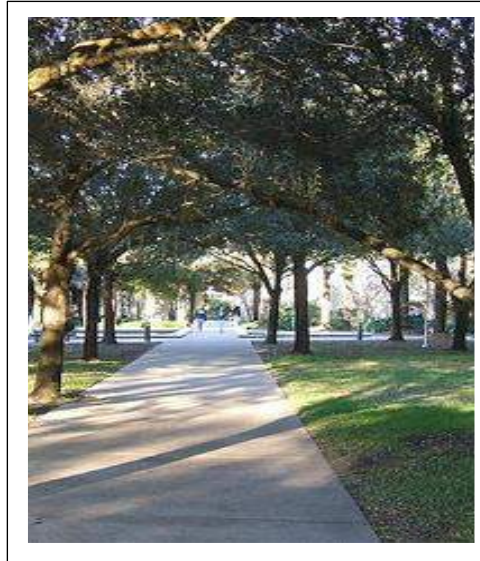
- a) Establish standards for placing buildings on a site, locating building entrances, and designing facades and other site improvements.
- b) Design, establish and implement the following as minimum standards for pedestrian amenities;
 - A minimum width for sidewalks is 1.5m on local streets and 1.8m (or wider) of a 1.2 M.
 - Vertical clearance must be a minimum of 2.1M.
 - A cross slope must not be greater than 2 % but must allow for adequate drainage.

Improvement of aesthetics in Nanyuki CBD

Actions

- Develop boulevards on major routes.
- Design Statues in Nanyuki town.
- Provide for street furniture in the following area.
 - Central Park
 - In the CBD and DC's offices
- Initiate rejuvenation of the Central Park by providing street furnitures,
- Improve appearance of buildings by;
 - i. Adhering to determined building height of 10 floors in the core CBD and 6 floors in the outer CBD.
 - ii. Enhance modern architectural designs.
 - iii. Adhere to the minimum of five floors
 - iv. Enforce a plot coverage of 80%
 - v. Enforce a plot ratio of 4:0
- Landscaping and Street Trees on all town roads.

Plate 13-6: Proposed Street landscape along Kenyatta Highway



- Plant street trees along all streets in the town in intervals of 9, 12 or 15m.
- Introduce a roundabout at the junction between Nanyuki- Doldol and Nanyuki-Meru Rd.

Plate 13-7: Artist impression of the proposed roundabout at Nanyuki- Doldol and Nanyuki-Meru Rd



Improve and increase Street Lighting Coverage

Through public private partnerships, carry out street lighting in the entire CBD and along major roads/ principle roads to improve security, aesthetic and accessibility.

Increase and improve Parking Facilities in town

- Make by laws and enforce requirements that for every 100m² of land in the central business district a minimum of 1 ½ parking spaces must be provided for off-street parking except where basement parking is provided.
- Restrict some streets within town to one way so as to create more space for parking which shall eventually boost income to the county government.
- Develop Parallel parking; angled on-street parking is encouraged along shopping streets within the core commercial areas, where slow drive-by traffic is desired.

Implement Outdoor Advertising Policy

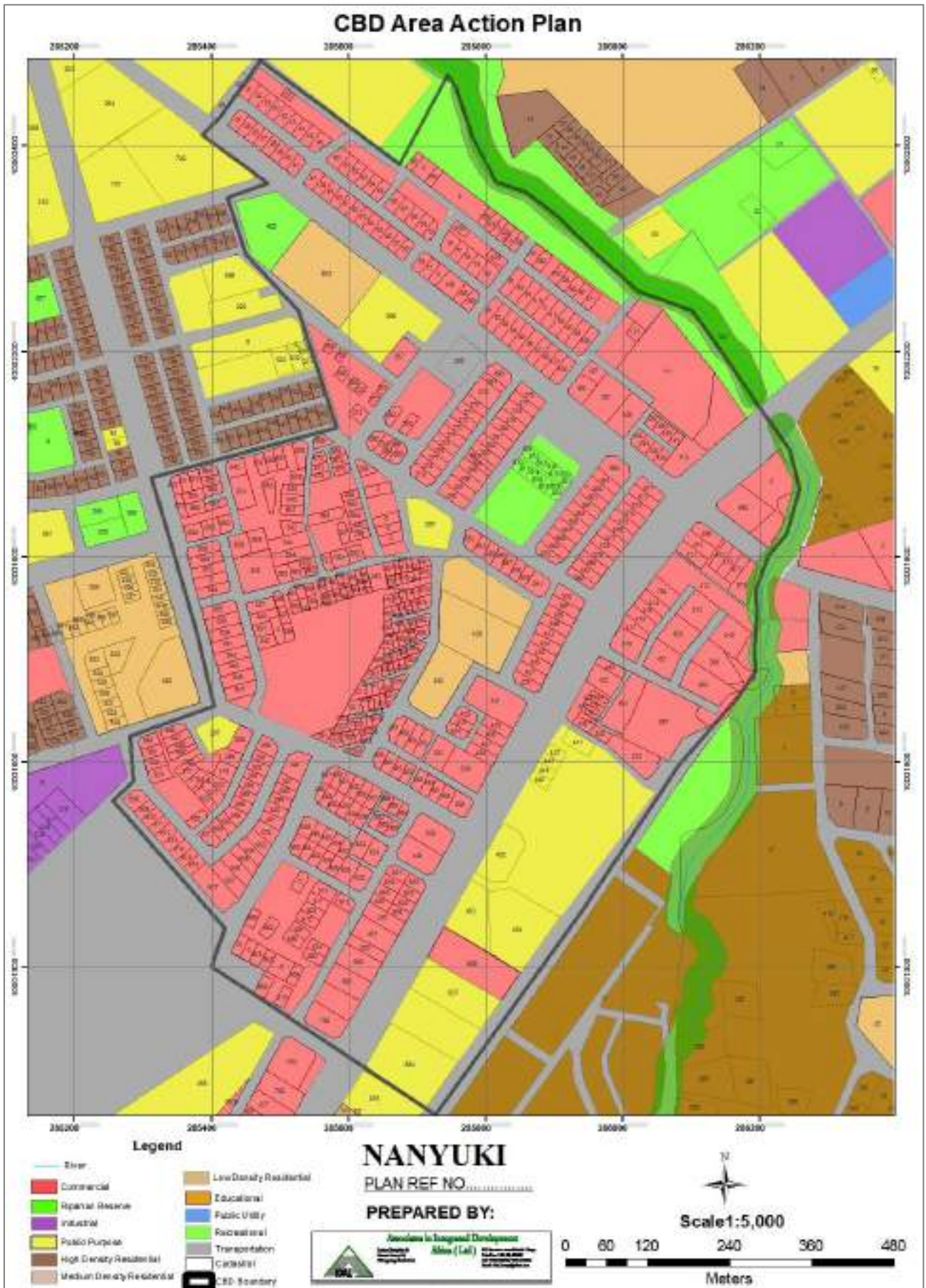
Objective of the policy is to provide guidelines to regulate outdoor advertising, introduce an efficient and reliable advertising revenue collection method for the county government.

Types of Advertisements

Facilities covered under the outdoor advertising policy include

- Billboards/ Wall wraps/ Sky signs/ City clocks/ Sign boards/ Suburb signs/Banners/Posters /Hand bills/Fliers
- Branded umbrella / Street displays/ Multi motion neon signs /LED screen advertisement
- Guard Rail Advertisement /Construction site boards/ Wall/ Window branding.
- Advertisements on canvas/ canopy/Signs above /sitting on canopy (Illuminated /Non Illuminated).
- Sky signs/ Wall wrap 20 Ft above the ground and over properties
- Advertisement by loudspeaker (P. A system) per day.
- Advertisement on hoarding/Street light pole advertising.
- Business encroachment within street pavement/ shop corridors (Canopies).
- Wall painting adverts on temporary premises (Kiosks, litter bins).

Map 13-1: Nanyuki CBD Action Area Plan



13.2 Majengo

13.2.1 Objectives of Majengo Action Area Plan

- To accommodate more people in the area given its strategic location relative to the CBD.
- To improve on services and infrastructure.
- To improve on quality of housing and to enhance the living environment.

13.2.2 Proposed Actions

Residential

- Rezone and redevelop Majengo to high density residential (Flats) development.
- Enforce a Plot Coverage of 80 %(percent).
- Existing site with single dwelling housing units owned by the former municipal will be redeveloped with multiple residential dwelling units under private public partnerships.

Plate 13-8: Proposed Residential Developments at Majengo



Commercial

- Rezone and redevelop area near the market for mixed use (residential and commercial)

Public Purpose

- Densify the AP line to multi-storey development with a compact neighborhood with adequate open spaces

Roads

- Upgrade all roads to bitumen standards.
- Provide for street lighting along the roads.
- Provide and improve on r storm water drainage.

Public Utilities

- Designate and provide garbage collection containers.
- Provide for additional water kiosks in the neighborhood.
- Encourage all households to connect to the sewer line system.

Recreational

- Develop the existing open space to a neighborhood park.

13.3 Likii

13.3.1 Objectives of Likii action area plan

The objective of Likii Action area plan is to improve on quality of housing, living environment and to improve on services and infrastructure. The vision of the residents is transforming the squatter/slum settlement into to a well-planned estate. Full land titling and registration to ensure security of tenure for the households should be an immediate priority by the county government.

13.3.2 Proposed Actions

Commercial

- Designate areas around Simbas Lodge into a commercial centre.
- Relocate the existing Public Works to develop a modern market to create employment opportunities.

Plate 13-9: Proposed Market to replace part of Public Works



- Acquire land for the development of Jua Kali sheds/ SMEs Parks at Public Works.

Residential

- Promote high density residential developments.
- Regularizing security of tenure.
- Enforce the minimum plot ratio of 0.045 Ha and maximum plot coverage of 50%.

Roads and Transportation

- Existing murrum roads to be upgraded to bitumen standards

- Provide for street lighting along the roads.

Infrastructure and services

- Extend water and sewer services to cover the entire settlement.
- Develop and design an efficient storm water drainage system.
- Formulate special planning rights for low income areas whose densities are higher than formal areas.
- Clear all encroached access roads to enhance circulations.
- Upgrade the roads in the settlement to bitumen/motorable standards to enhance accessibility.
- Carry out storm water drainage works.
- Provide a fire fighting substation equipped with necessary facilities at the current Public works.

Social facilities and service

- Acquire abutting land to the existing Likii Dispensary and upgrade the dispensary to a hospital.
- Acquire land for a home for the elderly.
- Develop a secondary school to be co-located next to Likii Primary School.
- Acquire land for development of another public primary school.
- Acquire land for the development of a multi-purpose training centre to train the residents on entrepreneurial skills and income generating activities.

Recreational and conservational

- Acquire land for developing a playground at Public Works.
- Enforce a 30m riparian reserve (ecological buffer) on River Likii
- Rejuvenate River Likii and develop nature trails.

Map 13-3: Likii Action Area Plan



13.4 Muthaiga

Muthaiga neighbourhood was initially a low density residential area. However the neighbourhood is transforming into a medium density neighbourhood.

Plate 13-10: Existing residential developments and storm water challenges at Muthaiga



Source: Filed Survey, 2012

13.4.1 Objectives

The objective of muthaiga action area plan is enhance the neighborhood as a well planned medium density residential area.

13.4.2 Proposed Actions

Residential

- Promote medium density residential development.

Plate 13-11: Proposed housing typologies at Muthaiga



- Enforce a Plot Coverage of 50 % and a plot ratio of 2.

Commercial

- Designate areas around Kwa Githui, Muthaiga Primary school and Shika Adabu for and commercial as shown in map 13-4 below.

Infrastructure and services

- Provide sewer services to unsewered part of the estate.
- Provide for street lighting along the roads.
- Provide for adequate storm water drainage within the estate roads.

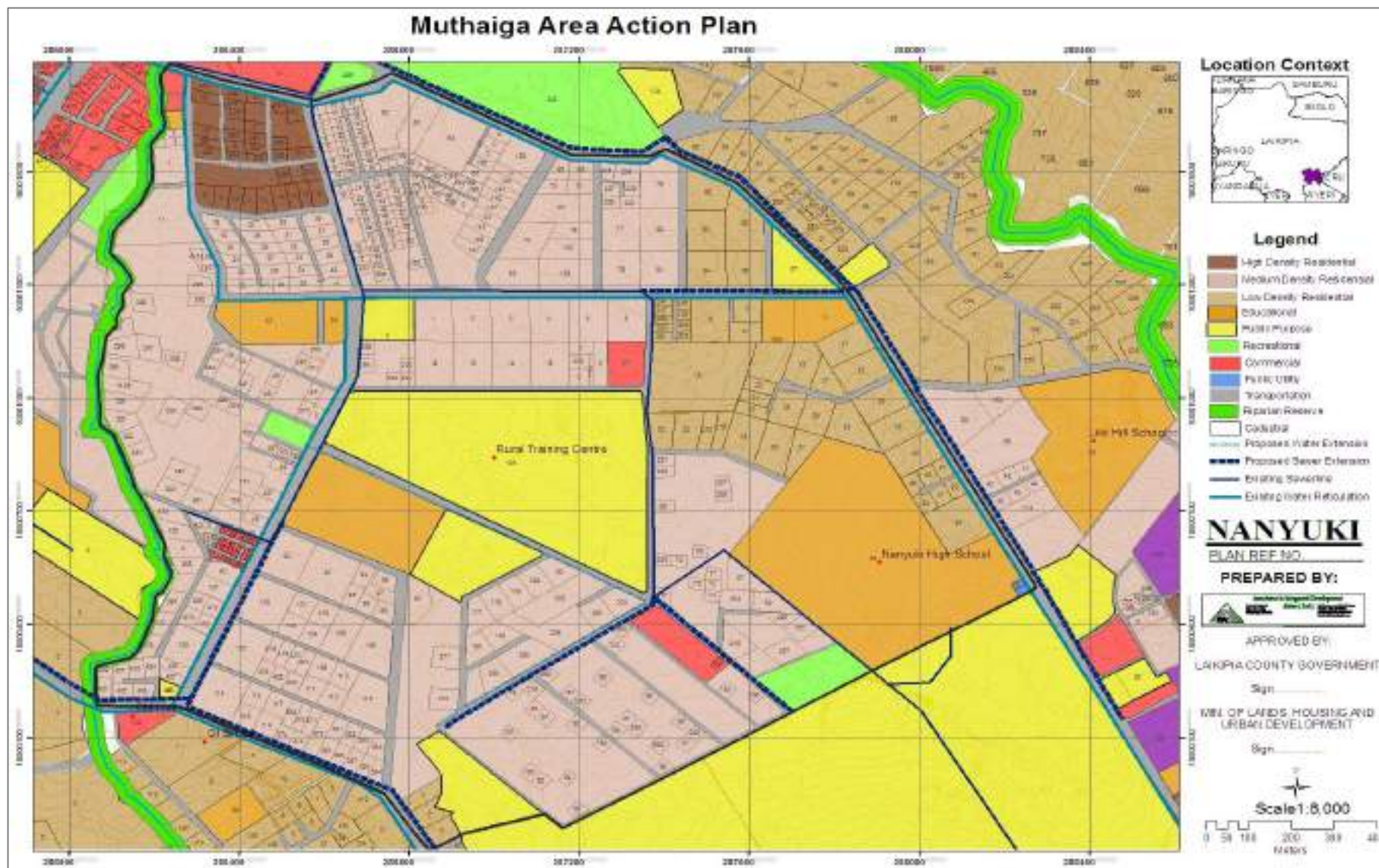
Roads

- Widening the roads to a minimum width of 9M.
- Open and upgrade all roads to bitumen standards.

Recreational

- Acquire, rezone and develop an undeveloped open area near Muthaiga Primary School to a neighborhood park.

Map 13-5: Muthaiga Proposed Action Area Plan



14.CHAPTER FOURTEEN: STRATEGIES FOR DEVELOPMENT

14.0 Overview

The purpose of this chapter is to provide for strategies and their specific measures/actions creating a framework for bridging the future.

14.1 Transportation Strategy

The objective of the transportation strategy is to create an effective and efficient transport system in Nanyuki town as an important prerequisite in facilitating internal circulation, between the Nanyuki town and its immediate and wider hinterland thus promoting trade, economic growth, enhance connectivity and accessibility. The objectives of the transportation strategy proposed are:

- To coordinate infrastructural services planning with land use planning as described in the strategic structure plan for Nanyuki town.
- 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.

There is need to observe a strict development code to manage land use activities within the major corridors. This will ensure compatible activities are encouraged and reserves adhered to for future expansion and development of utilities. In addition a green belt is proposed along the major roads that lead into and out of Nanyuki to help filter noise and pollution. Greening the corridor provides motorists with beautiful landscape and scenic views as they drive along the highway.

14.1.1 Strategy 1: Improve Regional and National Connectivity

Actions

- Widen and upgrade to dual carriage way Nairobi-Nanyuki-Meru (A2) Road

14.1.2 Strategy 2: Promote transport integration to form an efficient urban network

Actions

- Promote connectivity between Nanyuki town its and emerging satellite commercial nodes such as Likii, Katheri, Sweetwaters and Daiga.
- Improve connectivity and accessibility with proposed green corridors in Nairobi-Nanyuki-Meru (A2) and roads to Nturukuma, Sweetwaters and Daiga.
- Improve connectivity and accessibility within satellites commercial nodes.
- Creation of hierarchical road network system.
- Traffic segregation in the CBD and other highly pedestrian areas.
- Undertake street lighting within the CBD and along major roads.
- Domestic parking for one third of vehicles generated by activities in a building.
- Upgrade bridges and pedestrian crossing points at Nkado Brige, Thingithu Bridge, Mountex Bridge.
- Undertake a master plan for development and maintenance of all classes of roads in the town and its environs. This includes acquisition of land for long term development of roads infrastructure.

14.1.3 Strategy 3: Provide for Non-motorized Transport (NMT)**Actions**

- Integrate non-motorised transport with all transport and land use planning activities.
- Provide suitable walking lanes along Nairobi-Nanyuki-Meru (A2) all CBD roads and roads leading to Icuga Likii, Thingithu, Sweetwaters, Kabiru, and Muthaiga.
- Develop street traffic calming and other traffic control measures within the town centre at pedestrian crossing points.
- Provide pedestrian crossings facilities (signal-controlled crossings, flashing lights, street lighting for illumination at the facilities).
- Create pedestrian streets.
- Provision for adequate footpaths and cycle tracks network on the existing roads on major roads in the town.

14.1.4 Strategies 4: Enhance Parking Facilities**Actions**

- Prepare and acquire land for parking spaces as shall have been identified.

- Development of new parking facilities in the CBD,

14.1.5 Strategy 5: Railway Transport

The plan seeks to take advantage of the proposed construction of a new railway line from Lamu Port to Isiolo, where the line will branch to Ethiopia and Southern Sudan to open up Nanyuki town for economic development. Systems should be put in place to identify and address long term railway transport needs for the entire county.

Actions

- Undertake a master plan for development of Railway transport in the town. This to include acquisition of land for long term development of this infrastructure.
- acquire land that has been illegally acquired in the railway station
- protect the railway station and railway reserve from encroachment

14.1.6 Strategy 6: Enhance and Improve Air Transport

Actions

- Acquisition of land for expansion of the existing air strip to national airport.
- Undertake expansion the runway and construction of a terminal building with related amenities with Kenya Airport Authority as a partner.

14.1.7 Strategy 7: Enhance Road Safety and Security

Actions

- Identify and address short term road safety and security constrains in the town that relate to road safety and security.
- Provision of street lighting in strategic areas of the CBD and along major roads.

14.1.8 Strategy 8: Provide and Improve Storm Water Drainage

Actions

- Provide drainage way leaves of 3M – 4.5M.
- All roads to have covered storm water drains.

14.2 Trunk Infrastructure Strategy

The purpose of the strategy is to improve quality of life by providing adequate water and proper sanitation.

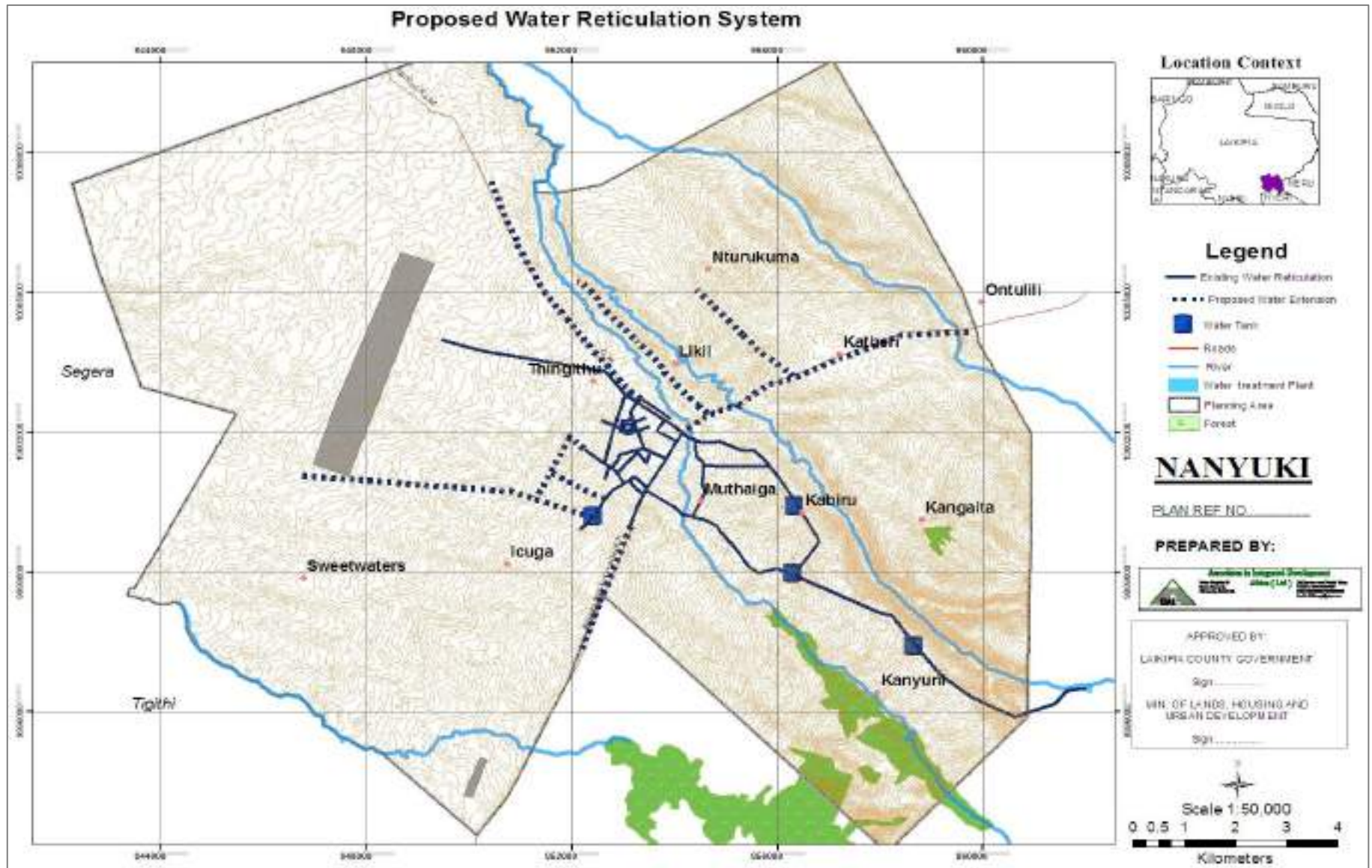
14.2.1 Strategy 1: increase and modernize the capacity of the water provision

Access to safe water and sanitation is a universal need and a basic human right. An insufficient access to water is not only bad for health, but also contributes to a poor food security and a lagging social development. Nanyuki town is situated within arid-semi-arid class of climate. However, the town enjoys almost all year round water supply as it gets its water from Mt. Kenya.

Measures to support the strategy

- NAWASCO to extend piped water supply to cover the whole planning area.
- Construction of dam for water storage.
- Construction of a new treatment works with adequate low lift and high lift pumps.
- Drilling of boreholes in high ground water potential areas.
- Encourage rainwater harvesting.

Map 14-1: Proposed Water Reticulation System



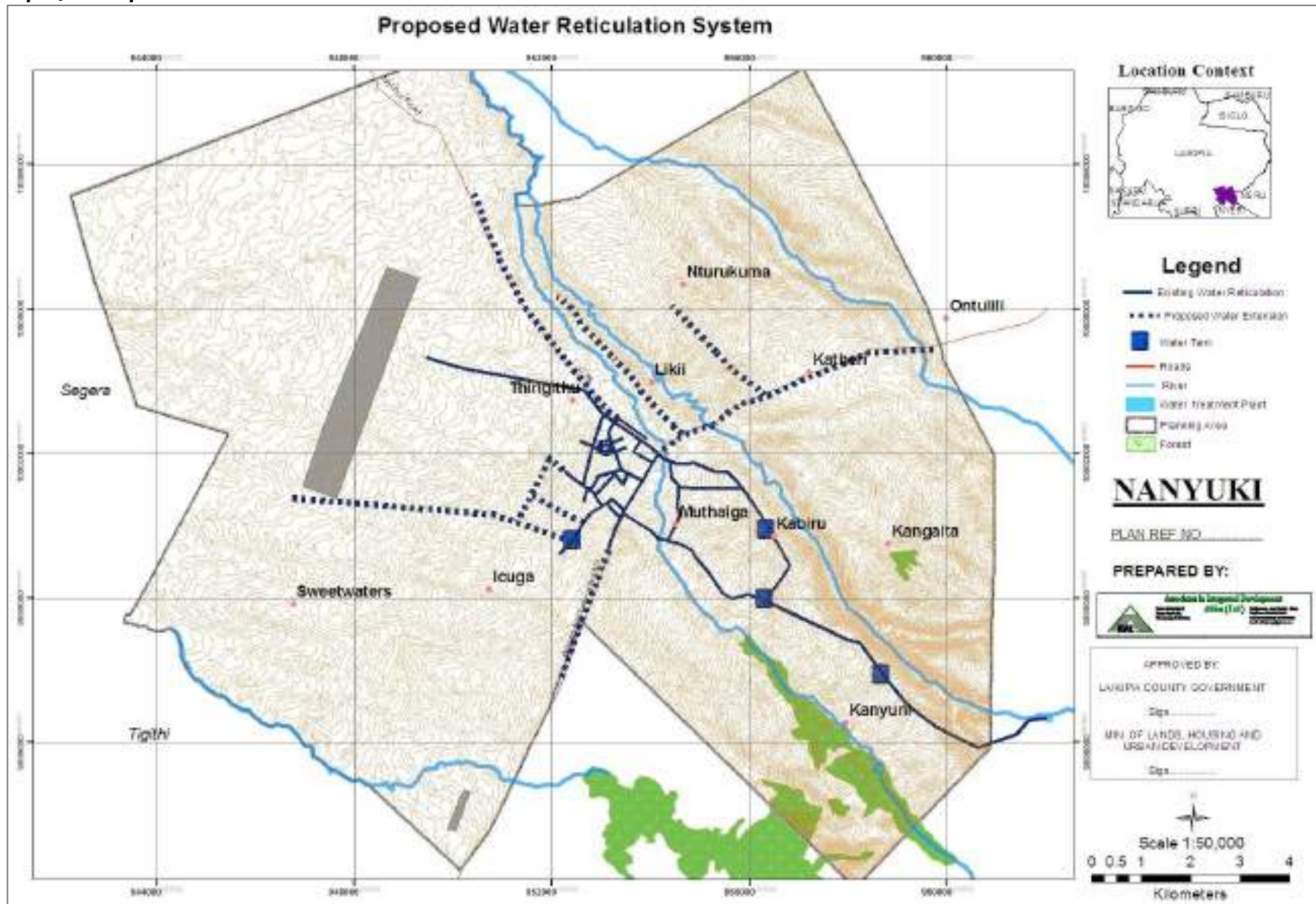
14.2.2 Strategy 2: Improve and Modernize the Capacity of Sewer System

Ensuring adequate sanitation facilities is one of the Millennium Development Goals (MDGs) goals. In the face of rapid urban growth, towns face great difficulties in providing sustainable infrastructure to their citizens. The character of urban growth is often informal and takes place predominantly in peri-urban areas or at city fringes. These results in a high number of people exposed to severe health and environmental risks because they are not served by the sanitation systems. According to the field survey, the low connection to the sewer line has been due to prohibitive sewer connection charges and unavailability of the sewer in some areas. However, NAWASCO is in the process of extending the sewer line in the uncovered areas such as Icuga among others.

Actions to actualize the strategy

- County government undertakes a master plan for development and maintenance of sanitation facilities system in the town.
- Extend sewer line to cover areas not covered such as Muthaiga, Kwa Huku Likii Kilimo Farm, Mugambi estate.
- Proper maintenance of existing sewer reticulation.
- Regular drains check up at the sewerage treatment site.
- Increase the sewer treatment works.

Map 14-2: Proposed Sewer Reticulation



14.3 Social Infrastructure Strategy

The purpose of this strategy is to improve access to basic social facilities and ensure that the dilapidated social facilities are upgraded and provide them with requisite infrastructure so as to improve Nanyuki town's and improve Nanyuki town's community well-being.

14.3.1 Health Services and Facilities

14.3.1.1 Strategy 1: Enhance and Improve Access to Health Care Facilities and Services

Actions

- A health clinic to be established in each neighborhood with requisite infrastructure.
- Enhancing capacities of existing health facilities
- Each clinic is to serve a catchment population which is sustainable at a distance of 1Km.

14.3.1.2 Strategy 2: Redevelop and Upgrade existing hospitals

Actions

- Upgrade Nanyuki General Hospital to Level 5 Referral Hospital with a Medical Training College to serve the greater Laikipia region and neighboring counties
- Upgrade Sweetwater Dispensary to a Health Centre
- Likii dispensary to be to be upgraded to a hospital with requisite infrastructure
- Develop a dispensary at Icuga.
- prisons dispensary to be upgraded to a health centre.
- Acquire land abutting health facility to reserve adequate land for future expansion.

14.3.1.3 Strategy 3: Improve quality of health care

Actions

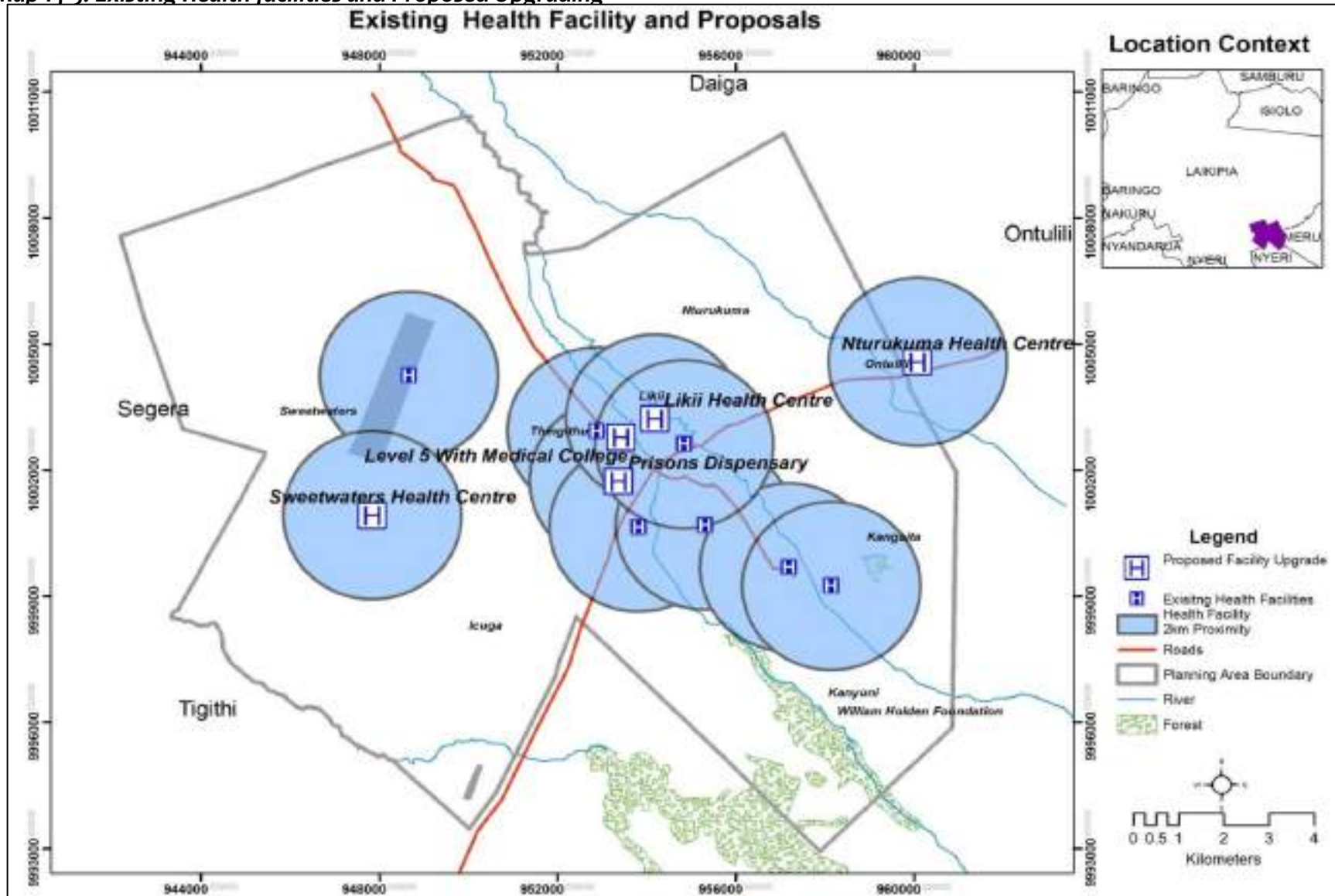
- Provide for Adequate medical staff in every hospital and health centre to a recommended WHO doctor patient ratio of 1:600.
- Increase bed capacity in hospitals to ensure that bed occupancy is not more than 100%.
- Central and County Government to facilitate medicine supply at a subsidized rate.

14.3.1.4 Strategy 4: Improve sanitation to prevent diseases

Actions

- County government to strictly enforce by laws that focus on public health and general sanitation.
- Connect all households with sewer to reduce sanitation diseases
- NAWASCO to supply portable water to all households in order to minimize effects of waterborne diseases.
- Putting in place prevention of mother to child transmission services in all health centers.
- Every hospital to have an incinerator.

Map 14-3: Existing Health facilities and Proposed Upgrading



14.3.2 Education

14.3.2.1 Strategy 1: Enhance and improve access to educational facilities and services

Measures to support the strategy

- Acquire land for development a university (land banking).
- To build two full-fledged public universities by the year 2030.
- 50 secondary schools to be established by the year 2030.
- 114 primary schools to be established by the year 2030.
- Education Institutions to observe minimum land requirements as stipulated in the Physical Planning Handbook, 2008.
- Schools are encouraged to develop vertically to save on space.
- Special institutions to be provided within major primary schools.
- Expand the Nanyuki library to a modern multi-storey library.

14.3.2.2 Strategy 2: Improve quality of education

Measures to support the strategy

- Inspection of all schools in the planning area and immediate registration of all unregistered schools.
- Government to deploy adequate staff in rural and peri-urban schools to a recommended teacher pupil ratio of 1:40.
- Community to employ teachers through PTA.
- Every private investor wishing to develop educational facilities to adhere to the guides provided for in the education policy.

14.4 Economic (Investment) Enhancement Strategy

The objective of the local economic development policy for Nanyuki town is to unlock and support a dynamic, sustainable local economy that is in tandem with the economic pillar of Kenya vision 2030. This economic development strategy provides a framework for a collaborative partnership approach, which will to improve the Nanyuki town's regional competitiveness and the acceleration of economic growth, job creation and poverty reduction.

14.4.1 Strategy 1: Development of an ICT Park at the former Mountex Factory

The proposed ICT Park will make to make Nanyuki town a tech-savvy town.

Actions

- Acquire land for the development of the ICT Park.
- Invite the private sector to develop an ICT park.
- Establish public ICT centers in schools, neighbourhood and community centers- ICT Villages.
- Promote a “culture of innovation” using ICT for development.

14.4.2 Strategy 2: Develop and Improve Markets

There is need to create business workspaces for small scale traders in the town and its suburbs.

Actions

- Development of modern retail cloth retail market at Ukumbusho Market
- Redevelopment of the existing municipal market at Majengo to a multi-storey market
- Develop markets at Likii, Thingithu, Icuga, Sweetwaters and Nturukuma

14.4.3 Strategy 3: Development of Retail trade/ Stalls/ Exhibitions

The objective of this strategy is to provide one stop shopping retail stalls in addition to reducing sprawl of informal activities in the town centre.

Actions to support the strategy

- Create zones/precincts for exhibitions/stalls

14.4.4 Strategy 4: Increase accessibility and availability of financial services

- Linkage to other enterprises.
- Financial support and capacity building.
- Partnership in the agro-business support could play a role in promoting access to appropriate funding by SMEs.

14.4.5 Strategy 5: Tourism Promotion

Nanyuki town has advantages that can be tapped to promote tourism. It is popular as a base for mountain climbers and its strategic location within the western tourist circuit and the fact that the equator passes through the southern part of Nanyuki. Proximity to tourist areas e.g. Mt. Kenya National Park, Meru National park among others. The objective of the tourism promotion strategy is to facilitate and implement an effective and dynamic tourism marketing strategy for the products developed by community based tourism enterprises.

Actions to support the strategy

Development of a museum and cultural center

Measures

- Develop the existing tourist site at Equator.
- Development of a museum and redevelop Laikipia County Cultural Centre at Equator to tap into the rich cultural heritage and cosmopolitan nature of the county.
- Collect, conserve, document and display historical artifacts for current and future generations at the proposed museum.
- Hold annual cultural festivals to celebrate the rich cultural heritage.

Develop Scenic and Attractive Areas in the Town

Measures

- Development viewpoints and camping sites.
- Develop riverine and riparian reserves as nature trails,
- Redevelop Nanyuki Golf Course for sports tourism.
- Develop a system of pedestrian walkways and open spaces.

Develop Hospitality Industry/Conference Tourism

Measures

- Classify and improve the hotels in accordance with Kenya Tourism Board (KTB) standards.
- Encourage development of training college for tourism for skills enhancement.
- Encourage attractive architectural designs for tourist hotels to promote aesthetics, comfort and convenience.
- Brand the town to promote and attract potential investors.

14.4.6 Strategy 6: Promote Value Addition through Industrial Development

Nanyuki town and its large hinterland have a lot of potential in agricultural processing, milk and beef processing, tannery etc. This potential needs to be exploited to foster industrial development. There's need to exploit fully and efficiently the industrial potential of the town and its hinterland in order to promote industrial development.

Actions

- Land banking for industrial development.
- Set aside land for the establishment near Kilimo Farm industries along Nanyuki-Doldol Road.
- Protect the current industrial zone from encroachment by other land uses
- Develop meat processing industry at the current industrial zone.
- Develop a tannery processing industry near Kililimo Farm.
- Develop a plastic industry at the Industrial area.
- Revive the collapsed blanket industry at Nturukuma.
- Revive the collapsed Mount Kenya poultry at Nturukuma.
- Explore the possibility of establishing partnerships between with county government and the private sector.
- Improve road connectivity to enhance marketing of processed products.
- Provide support infrastructure such as sewer, water, energy among others on the planned and designated site for agro based industries.
- Establish a favorable environment for industrial investors through public-private partnership and through improved financial support.

- Improve road, rail and air linkages to promote export market for the processed livestock products and services.
- Provide financial services to investors as a startup through partnership between Kenya Industrial Estate, entrepreneurs and other financial institutions.

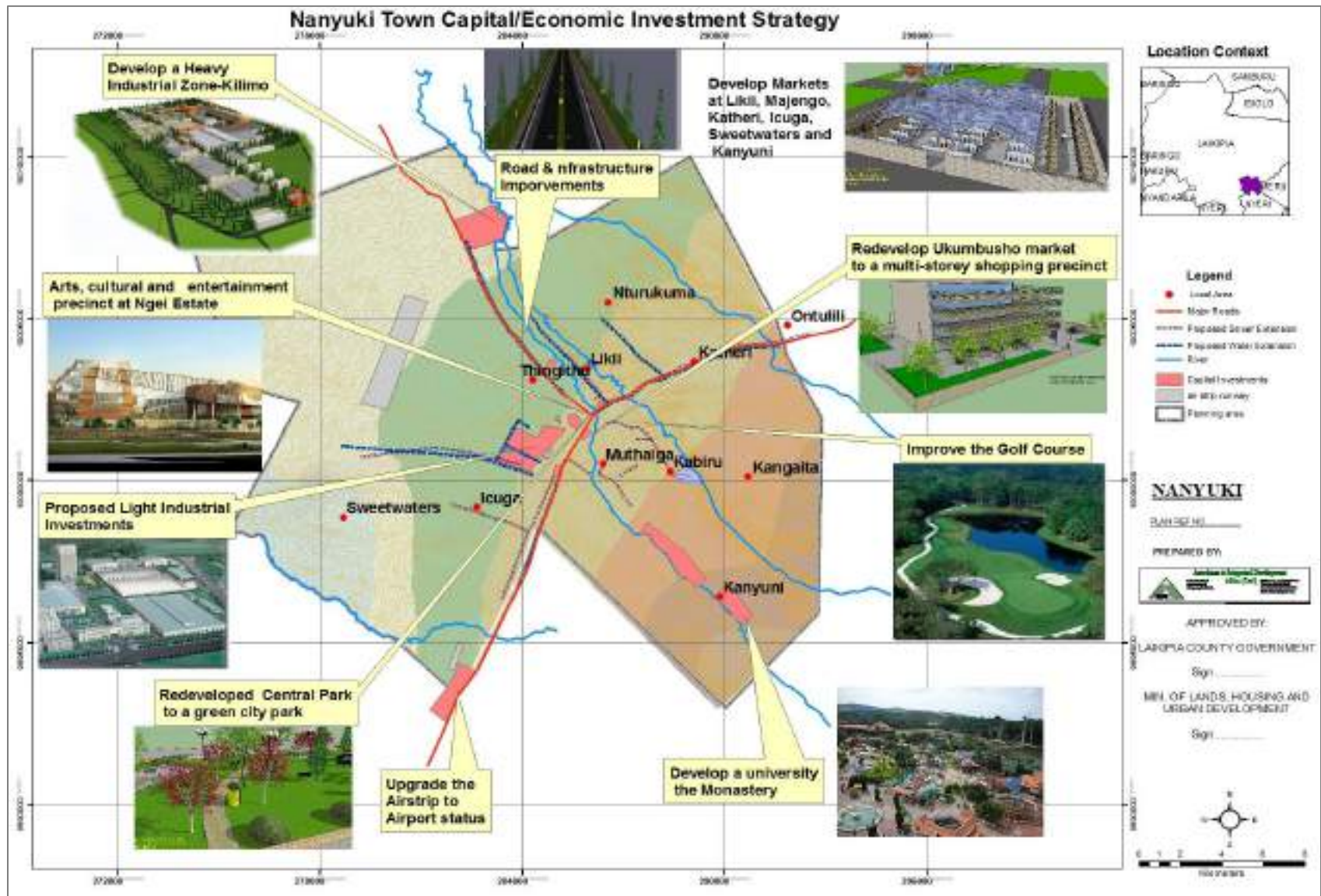
14.4.7 Strategy 8: Promote Urban Agriculture

The strategy seeks to promote urban and peri-urban agriculture as a means of improving food security among the people living in Nanyuki town.

Actions

- Earmark Nturukuma, Katheri as urban agricultural areas with minimal urban development.
- Train farmers on modern methods of farming and disaster preparedness through the early warning systems.
- Plant high value crops especially horticulture.
- Use appropriate modern agricultural technologies that are suitable for intensive farming.
- Subsidize farm inputs as incentives to the farmers.

Map 14-4: Capital Investment Strategy



14.5 Housing Strategy

Housing development is strategically an important social-economic investment to Nanyuki town residents. Adequate availability of quality and affordable shelter also reduces proliferation of slums and informal settlements as well as prevent social unrest occasioned by depravity and frustrations of people living in poor housing settlements. The overall objective of the Nanyuki town housing strategy is to bridge the gap the demand and supply, forestall emergence of informal settlements Upgrade informal settlements at Majengo, Likii and Kanyuni, and improve competitiveness of the town.

14.5.1 Strategy 1: Increase Housing Supply in Nanyuki Town

Actions

- Identification of new housing areas.
- Zoning of different parts of the town, thereby extending planning guidelines, norms and services to the free hold areas.
- Create land banks for housing development.
- Consultation between national and county governments to develop appropriate incentives to encourage private sector participation in housing delivery.
- Enhance security of tenure by Providing titles and land ownership documents to act as collaterals in raising funds for housing development and security of tenure.
- Support the formation of housing cooperatives and groups.
- Create collaborative and networking framework to encourage increased housing stakeholders participation particularly government participation and spending in local housing through existing institutional frameworks such as Civil Servants Housing Scheme and National Housing Corporation (NHC) and any other new institutional arrangement that may emerge from the devolved governance.

14.5.2 Strategy 2: Provide and Improve Infrastructure and Services

Actions

- Upgrade main and access roads to residential neighborhoods.
- Extent sewer reticulation to include all residential neighborhoods areas.
- Enhance provision of solid waste collection services in residential neighborhoods.
- Improve storm water drainage in residential neighborhood.

14.5.3 Strategy 3: Promote Housing Finance

Actions

- Encourage formation of cooperatives and societies to invest more in real estate including land banking.
- Encourage non-conventional housing finance approaches towards housing improvement and construction ventures.
- Seek new sources of housing subsidies that can enhance affordable housing supply.
- Devise policies that enable flow of resources to housing especially mortgages.

14.5.4 Strategy 4: Promote Land Use Planning by allocating sufficient land for housing development

Actions

- Identify suitable alternative areas within the town and its hinterland for comprehensive housing development.
- Prepared 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.
- Provides minimal infrastructure such connection to sewer, electricity and water and access roads etc in advance of spontaneous development.
- Prevent the growth of squatter areas by anticipating demand and planning for it appropriately.

14.5.5 Strategy 5: Densification of existing residential neighborhoods

Actions

- Re-zoning of Muthaiga to accommodate medium density and to maintain class and maximize land use.
- Re-zone and Develop Majengo area for high density residential flats.
- Work with property owners to identify sites for low-income housing within public private partnership frameworks.

- Enforcement of urban planning and development control systems to prevent informality.

14.5.6 Strategy 6: Promote and Facilitate Supply & Management of Land

Actions

- Implement the National Land Policy at the local level for optimal use of available resources including enhanced supply of serviced land for sustainable development.
- Identify and create Land banks for housing development.
- Establish Management Information System for housing management.
- Provide infrastructure and services to identified land banks.

14.5.7 Proposed Housing Typologies

i. Detached Single-Unit Housing

This housing unit does not share any external walls with any other housing unit. This housing type can be developed in several forms such as: Bungalow and Mansion.

Bungalow: one-floor/ single-dwelling unit, which does not share any external wall with another different dwelling unit.

Mansion: a single-dwelling unit that is more than one floor in height, which does not share any external wall with another different dwelling unit.

Plate 14-1: Proposed Housing typologies for low density residential



The above housing typologies are recommended in low density residential (LDR) areas such as Mugambi Estate, Nturukuma, Muthaiga parts of Icuga, Katheri, Kwa Huku and in the rural areas.

ii. MULTI-UNIT HOUSING

It is defined as dwelling unit that has multiple separate housing units within one building, or several buildings within one complex. This type of housing can be developed in several forms such as: apartments, mansionettes and row housing

Apartments/flats: these are multiple separate housing units in a building higher than one-story. Development of apartments/flats is recommended in high density residential (HDR) areas such as Likii, Majengo, parts of Thingithu, Kwa Githui, Mungetho, Icuga Kabiru, and parts of Muthaiga

Row Housing: This is a series of houses, often of similar/ identical design, situated side-by-side and joined by common walls. Row housing can be of two types:

Single-level-These are housing units of only one floor in height, each with their own street-level entrance that shares more than one common wall with other similar dwelling units.

Multi-level-These are housing units' more than one floor in height, each with their own street-level entrance and internal stairs, and share more than one common wall with other similar dwelling units.

Plate 14-2: Proposed housing typologies for high density residential



Development of the above residential typology is proposed in the medium density (MDR) areas such as parts of Thingithu, Muthaiga Lions Court, Sweetwaters,

Plate 14-3: Proposed house typology for low density residential

14.5.8 Development Control measures for housing development

Building Lines (Setbacks)

The principle value of establishing building lines (setback) is to achieve a uniform visual effect of the position of building in a neighbourhood. It also reduces the possibilities of destruction of properties if and when necessary to expand road reserves, provision of services like water, electricity, telephone, IT cables, maximum use of sunlight, fresh air and other services. The following minimum setback distances are proposed.

Table 14-1: Proposed Housing Development Standards

category	Areas covered	Minimum Plot size(Ha)	Maximum Plot Coverage	Plot Ratio	Setbacks
High Density Residential (HDR)	Likii Majengo, Thingithu Icuga, Mungetho, Kabiru Kanyuni	0.045	80	2	3M
Medium Density Residential (MDR)	Icuga Sweetwaters Muthaiga, Lions Court, parts of Thingithu, Mountain View	0.05	50	1	4.5 M
Low Density Residential (LDR)	katheri Sweetwaters Mugambi Nturukuma Muthaiga, parts of Icuga, Kwa Huku	0.1 0.2	25	1	6M

14.6 Environmental Protection and Conservation Strategy

The strategy aims to minimize impacts of human and natural activities on the environment, improve the aesthetic value of urban places, create a variety of recreation spaces, conserve hill tops, wetlands, and riverines, and restrict human activities on disaster prone areas and climate change mitigation. The objective is to establish and maintain a clean and healthy urban environment in Nanyuki town.

14.6.1 Strategy 1: Improve and Enhance Sustainable Solid Waste Management

Actions

- Internalize a culture of solid waste management by Involving the public in monthly clean-up activities as an effective way in solid waste management
- Formulate and enforce appropriate solid waste management by laws.
- County Government to pass by law requiring all town residents to have waste bins
- County Government to install street bins and elevated masonry waste storage cubicles for ease of waste collection in appropriate locations in town.

Plate 14-4: Proposed Waste Collection bins in town centre



- Increase waste collection coverage and frequency
- Use enclosed and NEMA licensed waste collection vehicles.
- Fence and plant trees along the dumpsite boundary and cover deposited waste with soil.
- Initiate protective clothing to waste handlers in the town

- Establish a department of environment to handle solid waste management among other environmental issues.
- Provide adequate waste handling technology.
- Promote waste recovery/recycling.
- Handle and dispose hazardous waste separately from the normal municipal waste. Follow hazardous waste management guidelines.
- Encourage and create awareness on waste separation at source, reduce, recycling, and re-use
- Formulate and enforce by laws to discourage haphazard waste dumping.
- Encourage Public Private Partnership in solid waste management.
- Designate areas solid waste transfer stations in the CBD and In residential areas

14.6.2 Strategy 2: Enhance Waste Water Disposal Management Methods

Actions

- Construct storm water drains along all roads within the planning area
- Provide and extend sewer especially in CBD and unsewered areas.

14.6.3 Strategies 3: Protection of Water Resources and Riparian Reserves

Actions

- Observe 10-30 meters wide riparian reserve from the high water mark on all water bodies and keep it under natural vegetation cover.
- Control water polluting sources/agents.
- Relocate and Discourage human settlements/population and land subdivision to a minimum of one acre near water sources.
- 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.

- Provide sewer or waterborne toilets to stop potential of underground water pollution.

14.6.4 Strategies 4: Enhance Landscaping and Greening

Actions

- Increase vegetation cover town wide with dominant indigenous species especially along the roads and on all open spaces
- Promote efficiency in wood fuel utilization
- Promote use of non-wood building materials and energy sources
- promote and encourage Practice agro forestry
- Control livestock grazing in urban beautified areas

14.6.5 Strategies 5: Mitigate on Land Degradation

Actions

- Control soil erosion especially on road reserve 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
- Provide covered urban storm drainage system
- Reclaim all open and abandoned quarries
- Control the specified land pollution sources/agents
- Ensure building debris and excavated materials are dumped on authorized sites.
- Discourage human settlement and unsustainable agricultural practices on fragile ecosystems. Control land subdivision to a minimum of one acre on the sloppy areas and near the water sources.

14.6.6 Strategy 6: Control on Air pollution

Actions

- Pave roads/footpaths and improve surfaces to bitumen standards.
- Plant trees along all roads within the planning area to increase land vegetation cover to contain dust.
- Provide recreational areas within the settlement areas within the planning area to act as lungs of the neighbourhoods.

- Encourage urban afforestation and re-afforestation projects in the planning area.
- 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
- Pave roads/footpaths and improve land vegetation cover to contain dust
- Promote use of cleaner sources of energy such as electricity and liquefied Petroleum Gas

14.6.7 Strategy 7: Promote Aesthetics

Actions

- Sitting of outdoor advertisement billboards and signs boards to be approved and regulated by the County government
- Control illegal structures and building materials
- Enhance greenery and town beautification.

14.6.8 Strategy 8: Mitigate on Noise Pollution

Actions

- Promote use of acoustics materials and measures at the noise sources.
- Discourage use of loud speakers.
- Discourage heavy traffic from densely populated areas
- Enforce EMCA noise standards.

14.6.9 Strategy 9: Promote Capacity for Stakeholders Involvement

Actions

- Encourage stakeholders' participation in environmental matters.
- Broaden incentives to attract wide participation.
- Broaden and strengthen public/ private partnership.
- Enhance community participation environmental management.

Strategy 10: Poverty and environment

Actions

- Reduce poverty by initiating economic empowerment programs for the poor.

- Work with the poor in improving their neighborhood environments.
- Channel the bulk of environmental resources and programs to the poor.

14.6.10 Strategy 12: Enhance Disaster Preparedness and Management

Actions

- Formulate Disaster Preparedness and Management by laws and a Disaster Preparedness and Management section within the county
- Enforce Zoning regulation to ensure separation of conflicting land uses so as to reduce chances of disasters like fire.
- Acquire land for firefighting facilities at Majengo and Likii areas
- Formulate and enforce laws that require e.g all buildings to have complete firefighting equipment which should include the fire-fighting horse reel, fire extinguishers and fire hydrants.
- Develop a disaster rescue centre

14.6.11 Strategy 13: Promote Environmental Awareness

Actions

- Promote community environmental awareness through electronic and print media(including poster),publics meetings, organized sector forums, youth and women
- Strengthen and Enhance community participation structures for stakeholders participation in environmental matters such as clean ups.
- Broaden and strengthen public/ private partnerships.
- Work with the poor in improving their neighborhood environments.
- Channel the bulk of environmental resources and programs to the poor.

14.6.12 Strategy 14: Enhance Climate Change Mitigation and Adaptation

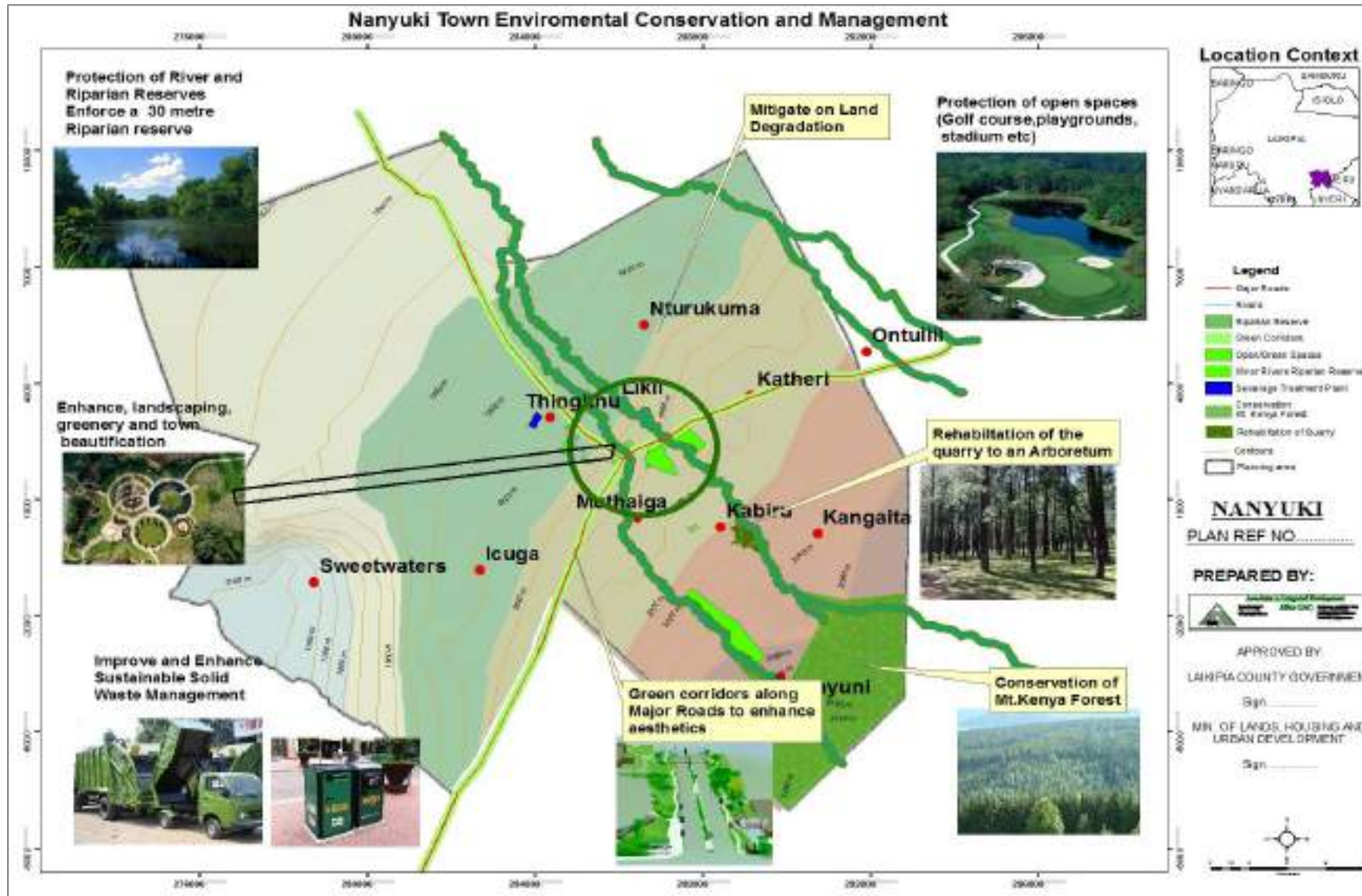
The objective of this strategy is to enable Nanyuki town to participating in reducing the “Carbon Footprint”- the impact on the environment in terms of the amount of greenhouse gases produced, measured in units of carbon dioxide- of urban civilization.

Actions

- Encourage green building to cushion high temperatures, efficient use of energy, water and reduce environmental degradation.

- Plant variety of trees to increase vegetation cover to increase carbon sequestration capacity within the planning area.
- Develop green energy solutions wind and solar energy projects
- Increase public awareness on climate change through the early warning system.
- Introduce alternative sources of cooking energy to reduce overreliance on firewood and charcoal.
- Encourage community environmental awareness through the local media.

Map 14-5: Environmental Protection and Management



14.7 Revenue Enhancement Strategy

Capability of the county government to implement the plan greatly depends on its financial capacity so as to be able to implement the projects and programmes as outlined in the plan. This strategy comes up with ways the town administration and the Laikipia County Government can enhance its revenue with an emphasis on local revenue. The following are the measures to actualize revenue enhancement strategy.

14.7.1 Increase Reliance on Local Revenue Sources

To eliminate revenue deficits the Laikipia County Government needs to enhance annual revenue yields from all its revenue sources to the point when its operations will be funded more by locally generated revenue than by externally sourced grants.

14.7.2 Create a Single Business Permit (SBP) Database

There is no database of individuals and businesses for Single Business Permit (SBP) fee. This makes enforcement and monitoring of licenses revenue collection difficult. The county government should conduct a business's survey to set-up and regularly up-date a register/database of businesses operating in the Town. It should also review and up-date its licenses fees regularly.

14.7.3 Integrated Property Tax System with Geographical Information System (GIS) Based Cadastre

The town does not maintain a complete register of owners, users and uses of all plots in Nanyuki town and all its environs. The county government should conduct a census land parcels in its area to establish registers of their numbers, sizes, location, use, and details of owners. The town's tax/rates registers, valuation rolls and physical planning maps and other records that carry information such as plot numbers, sizes, levels, location, ownership and of occupancy of buildings, roads, rivers, schools, recreational grounds, etc. should be digitally integrated so that data arising from transactions relevant to revenue mobilization is captured and recorded in all related registers simultaneously and stored in a Geographical Information System (GIS) for quick retrieval for improved assessment, invoicing and collection of revenue due to the council. Digital cadaster so developed should be maintained and continually up dated by a system which ensures all transactions

relevant to property tax assessment, invoicing and collection are captured and recorded promptly and accurately.

14.7.4 Review of the Valuation Tax

The county government should review its property tax system and valuation roll in Nanyuki town. The valuation roll only captures the town centre hence need to include other areas of the town.

14.7.5 Increase investment in operating and revenue generating assets

The town's capital asset base is insufficient to enable it sustain quality services provision to its residents. It needs to substantially increase investment in operating assets and equipment. There opportunities for investment in operating assets and equipment for efficient services delivery e.g. in refuse collection / disposal equipment and in cess pit emptying equipment and also in income generating assets such as markets, bus parks and rental housing. The current locations of the slaughter house and bus park in Nanyuki town are inappropriate. The council should consult with residents and stakeholders in selecting convenient sites for relocation of these and indeed other public facilities and in deciding whether to lease out the provision of slaughter house services. There are no sufficient parking places for buses, matatus, bodabodas and Lorries which park in the town and its trading centers. In addition, parking fees are improperly classified, recorded and reported under other fees. It should provide properly designed, serviced, secure and convenient day and overnight parking areas for all modes of public transport.

14.7.6 Use of Resource Envelope

The practice to apportion the available Resource Envelope equally to the county wards results into small amounts that cannot finance projects with visible impact at county assembly level. It should instead prioritize and allocate funds to projects with potential to generate positive town wide impact.

14.7.7 Apportionment of development costs to beneficiaries

Borrowed funds are best suited for financing the development of bankable projects e.g. markets, bus-parks, slaughter houses e.t.c. whose expected returns are sufficient to service the loan repayment. Justification for use of borrowed funds exists when both the

residents and the town administration do not have resources to immediately satisfy a genuine public need e.g. development of an access road or sewer connection.

14.7.8 Develop Staff Capacities and Competence

The town lacks critical professional expertise it requires to analyze, formulate, and review policies and strategies relevant to its operations. Its enforcement and markets staff are few to control markets' activity in the town. In the short-term run it should recruit appropriately qualified staff into the positions of Treasurer and Accountant. In the medium and long-term, the town administrator should review its terms of service for its financial staff with a view to attract and retain appropriately qualified and experienced personnel. It should establish positions for and engage survey, financial, legal, engineering, public health, physical planning, environment planning and other technical expertise which are currently lacking.

14.7.9 Alleviate Tax Evasion

Laikipia County Government should recruit competent staff to enforce tax collection. Civic education programs for county staff and the wider public should be mounted to enhance their awareness of their responsibility pay taxes and other dues to the county government. The county government in addition should impose heavy penalties for cases of evasion of payment of taxes and other fees.

14.7.10 Adjustments in Costs Structure

More than half of the town's annual revenue should not go to financing personnel costs, leaving a small proportion to finance services provision and acquisition and maintenance of assets. To reduce the proportion of resources committed to staff costs and to review its costs structure to give prominence to services provision, the county government needs to conduct job evaluations to rationalize employee jobs contents and to determine optimum staff positions per service/activity or cost centre. It should also develop appropriate training programmes for its policy makers and staff to ensure their increased and positive output.

14.7.11 Initiate Public Private Partnership (PPPs)

Where the town administration and the county government is not in a position to provide a service, it may contract it to private sector operators to provide the service with such

conditions as will ensure sustained availability of the service at an affordable cost to all who need it. Services that can be privatized include water supply, solid waste management, slaughter houses, rental housing, nursery schools, markets, hotels, lodges and restaurants. Provision of public health and pre-primary school education mainly by religious organizations, NGOs and parents-teachers associations are good examples of private sector participation in the provision of public services in the town. The county government should adopt policies and strategies that further promote private sector participation in provision of services needed by residents at the local level.

14.8 Governance and Capacity Building Strategy

The strategy aims at providing an appropriate framework for the planning and management of urban affairs in Nanyuki town. It also addresses the shortcomings of Nanyuki town's planning and institutional context.

14.8.1 Strategy 1: Enhance Execution of Delegated Planning Powers

Actions

- Prepare plans, regulate land use and co-ordinate the actions of the public and private sector in land development to local authorities.

14.8.2 Strategy 2: Enhance Participatory Planning

The strategy aims at involving local communities in plan formulation and implementation processes to improve the quality of plans and acceptability of plans by all stakeholders hence the effectiveness of proposals and action plans.

Actions

- Increase public sensitization towards planning initiatives.
- Establish a framework for effective and structured public engagement.
- Involve stakeholders in various stages of planning, decision-making and plan implementation.
- Allocate adequate resources for plan preparation, implementation, monitoring and evaluation processes.
- Provide an enabling environment for community and other stakeholders to participate in all phases of plan preparation, project formulation and implementation in the spirit of building partnerships with these stakeholders.

- Privatize some aspects of service provision and play a greater role in facilitating these private initiatives.
- Devise a policy to provide incentives for individuals and organizations, which participate in activities that lead to the achievement of the overall goals and objectives of the plan.

14.8.3 Strategy 3: Enhance Institutional Capacity Building

Measures to support the strategy

- Staff, equip and improve the financial base of the Nanyuki town to take on added responsibilities in managing and coordinating development in its jurisdiction.
- Establish Town Planning Department with well-established and equipped personnel.
- Strengthen the enforcement of the plans through development control to create ability to police and control urban development.
- Strengthen other departments responsible for service provision by recruiting adequate qualified personnel and by supplying adequate equipment that is appropriate for local conditions.

15. CHAPTER FIFTEEN: PLAN IMPLEMENTATION STRATEGY

15.0 Overview

This section provides a platform to ensure that all the proposals are implemented in the manner proposed and within the time frame indicated in the strategies. It also proposes the prioritization of projects and provides ways and means for sourcing of funds. A time frame for each action has been given indicating the expected implementation time, i.e. immediate, continuous, short term, medium term or long term. It identifies the relevant institutions that are responsible for the implementation of the various programmes and projects.

15.1 Short Term Projects

Projects enumerated here are short term actions achievable within a period of 1 – 5 years. These projects also serve the immediate needs of the community, less costly, does not involve many actors and ultimately form a basis for medium and long term projects.

15.2 Medium Term Projects

These are Projects, programs and actions achievable within a period of 5-10 years, require more collaborators than short term, require more inquiry before commencement, acquisition of land and need wider consultations among all the involved partners.

15.3 Long Term Projects

These are projects that take a long time to implement and take a period of (above 10 years). These actions can be expected to have been achieved by the end of the planning period, require phasing, feasibility studies, major capital investments, more funding and wider consultation

15.4 Financing Framework

The implementation of Nanyuki town ISUDP requires the best elements of organization and management. The capability of authorities to implement the plan greatly inclines on their financial stability. This provides the fundamental basis for having a well-organized and coordinated departmental structures and organizations.

15.5 Projects and Programs

15.5.1 Strategic Projects

Critical projects are transformative, have higher multiply effects (forward and backward linkages) and have the highest potential to kick-start the economy of Nanyuki town. These projects are facilitative, productive and perceptive in nature. These projects include:

Water and Sewer

- Ministry of Water in partnership with the county government to expand sewer and water reticulation to serve the developed areas.

Commerce

- Designate areas for development of commercial centres at Sweetwaters Icuga and Katheri.
- Development of a market at Likii and Katheri and Sweetwaters.

Tourism

- Develop Nanyuki museum and a cultural centre.

Green spaces

- Provision of open spaces in every neighborhood.

15.5.2 Quick Wins Projects

Projects enumerated below as quick wins are those projects that will be achieved immediately preferably within a period of 100 days. These projects have high visibility and serve the purpose of rallying support for subsequent planning activities. They also require low funding.

- Formation of Community forum to ensure and monitor provisions of the Spatial Urban Development Plan.
- County Government to provide skips/waste bins within town.
- Encourage waste sorting, reuse and recycling at source
- Encourage and facilitate Youth, CBOs and NGOs to participate in tree nurseries programmes and planting of trees along Nairobi-Nanyuki-Meru Road and Nanyuki- Dol Dol- Rumuruti Road.
- Enforcement of development control.
- Undertake Training of staff in the use of the plan for decision making.

- Establishment of spatial planning directorate.
- Facilitate issuance of land titles at Likii and Majengo.
- Establish of a digital plot register.

15.5.3 Short Term Projects

a) Public utility

- The County government of Laikipia to acquire land for cemetery and crematorium at Kilimo Farm.
- Provide for fire substation at Likii at Public works.
- The county government to redevelop the existing dumpsite to a sanitary landfill.

b) Environment

- Develop all riparian reserve and clear all encroachments.
- Create nature trails along sections of the river in town.
- Encourage agroforestry in agricultural areas such as Katheri.
- Encourage tree plant at the household level.

c) Safety and Security

- Commence street lighting in the entire CBD, Majengo Likii, Muthaiga, Mountain View, Mungetho and along Nairobi-Nanyuki- Meru rd in conjunction with private partners.

d) Transport

- Upgrade all the roads within the CBD to bitumen standards.

e) Social infrastructure

- Upgrade Nanyuki District Hospital Level 4 to a County Referral Hospital (Level 5) with teaching college.
- Acquire land for upgrading Likii Dispensary to a Health Centre.
- Collocate and develops a secondary school at Likii Primary School.

f) Public Purpose

- In conjunction with the national government, County government to redevelop the land at the council offices, DC offices to a multi-story county capital complex to accommodate all administrative functions and release land for other uses especially parking and open space.

- Relocate Nanyuki GK Prisons to Prisons farm to facilitate for the expansion and upgrading of the Nanyuki Polytechnique.

g) Recreation

- Undertake beautification of Central Park by planting trees and providing seats.
- Provide benches along Nairobi-Nanyuki- Meru Rd.
- Acquire land for an open space at Likii.
- Undertake beautification activities for the entire town.

h) Housing

- Facilitate security of tenure for plot owners in Majengo and Likii areas

i) Local Economy

- Development of business within the town and develop the Kenya Industrial Estates which have plans of putting up *jua-kali* sheds.
- Develop the municipal market to multi-story market to accommodate more traders.
- Develop *Jua Kali* shed for informal industries at Public works, Likii.
- Provide sheds *Mitumba* market at Majengo.
- Relocate and acquire land acquire land and develop a market at Likii at Public Works.

j) Governance

- Prudence use of resources.
- Establish a full-fledged town planning department.
- Public education, sensitization and awareness creation.

15.5.4 Medium Term Projects

a) Environment

- Rehabilitation of the quarries at Kabiru to an arboretum/urban forest

b) Housing

- Redevelop and undertake settlement upgrading through public private partnership and neighborhood associations.
- NHC and the county government to undertake renewal /redevelopment of all public and government houses.

- Encourage use of appropriate technology in housing development.

c) Economy

- National Museums of Kenya to acquire land and develop a museum at Equator.

d) Recreation

- Redevelop Nanyuki stadium to international standards for county and national functions.

15.5.5 Long Term Projects

a) Transport

- Kenya National Highways Authority (KENHA) to expand Nairobi-Nanyuki-Meru Road to a dual carriage way with four lanes.
- Pave all internal roads within the CBD, residential and industrial areas
- Acquire and develop pedestrian streets from the CBD to the residential neighbourhoods.
- County Government in collaboration with Kenya Airports Authority to acquire land to expand and redevelop Nanyuki Airstrip to international airport status
- Private developers to construct underground parking facilities in all modern commercial buildings.

b) Economy

- Acquire and develop an ICT park at Mountex to be implemented include private developers.

c) Social infrastructure

- Ministry of Education and private developers to acquire and develop a university at the monastery near Kwa Mbuzi.

d) Trunk infrastructure

- NAWASCO and the county government to undertake sewer and water infrastructure reticulation to serve the whole of the planning area.

15.6 Project Costing

The table below shows the approximate cost of the proposed project costs.

Table 15-1: Proposed Project Cost

Sector	Project	Cost KSh.
QUICK WINS		
Governance	<ul style="list-style-type: none"> Formation of Community forum to implement and monitor the Plan. 	10M
	<ul style="list-style-type: none"> Provide skips/waste bins within town. 	20M
	<ul style="list-style-type: none"> Encourage waste sorting, reuse and recycling at source 	5M
	<ul style="list-style-type: none"> Enforcement of development control. 	5M
	<ul style="list-style-type: none"> Facilitate Youth, CBOs and NGOs to participate in tree nurseries programmes and planting of in the town. 	5M
	<ul style="list-style-type: none"> Establish spatial planning directorate. 	15M
	<ul style="list-style-type: none"> Establish a GIS Based plot register. 	10M
	<ul style="list-style-type: none"> Facilitate issuance of land titles at Likii and Majengo. 	50M
	<ul style="list-style-type: none"> Undertake training of staff 	30M
SHORT TERM		
	<ul style="list-style-type: none"> Acquire land for cemetery and crematorium 	20
	<ul style="list-style-type: none"> Provide for fire substation at Likii at Public works. 	80
	<ul style="list-style-type: none"> Redevelop the existing dumpsite to a sanitary landfill. 	150M
	<ul style="list-style-type: none"> Street lighting in the entire CBD, Majengo Likii, Muthaiga, Mountain View, Mungetho and along Nairobi-Nanyuki- Meru Rd 	150M
	<ul style="list-style-type: none"> Clear riparian encroachments and redevelop riparian reserve 	20M
	<ul style="list-style-type: none"> Provide nature trails along sections of the river in the town. 	20M
	<ul style="list-style-type: none"> Encourage tree plant at the household level 	8M
	<ul style="list-style-type: none"> Undertake beautification of Central Park and amenities. 	50M
	<ul style="list-style-type: none"> Undertake beautification activities for the entire town. 	100M
Roads	<ul style="list-style-type: none"> Upgrade all the roads within the CBD to bitumen standards. 	2B
	<ul style="list-style-type: none"> Upgrade Nanyuki District Hospital to a County Referral Hospital (Level 5) 	500M

	<ul style="list-style-type: none"> Acquire land for upgrading Likii Dispensary to a Health Centre. 	100M
	<ul style="list-style-type: none"> Collocate and develops a secondary school at Likii Primary School. 	80M
	<ul style="list-style-type: none"> Relocate Nanyuki GK Prisons to Prisons farm to facilitate for the expansion and upgrading of the Nanyuki Polytechnique. 	200M
	<ul style="list-style-type: none"> Undertake beautification of Central Park and amenities. 	50M
	<ul style="list-style-type: none"> Acquire land for an open space at Likii. 	10M
MEDIUM-TERM		
	<ul style="list-style-type: none"> Development of business within the town and develop the Kenya Industrial Estates which have plans of putting up <i>jua-kali</i> sheds. 	200M
	<ul style="list-style-type: none"> Develop the municipal market to multi-story market to accommodate more traders. 	300M
	<ul style="list-style-type: none"> Develop <i>Jua Kali</i> shed for informal industries at Public works, Likii. 	100M
	<ul style="list-style-type: none"> Provide sheds <i>Mitumba</i> market at Majengo. 	50M
	<ul style="list-style-type: none"> Relocate and acquire land acquire land and develop a market at Likii at Public Works. 	150M
Environment	<ul style="list-style-type: none"> Rehabilitation of the quarries at Kabiru to an arboretum/urban forest 	20M
	<ul style="list-style-type: none"> Redevelop and undertake settlement upgrading through public private partnership and neighborhood associations. 	1B
	<ul style="list-style-type: none"> NHC and the county government to undertake renewal /redevelopment of all public and government houses. 	500M
Tourism	<ul style="list-style-type: none"> Acquire land and develop a museum at Equator. 	300M
Recreational	<ul style="list-style-type: none"> Redevelop Nanyuki Stadium to international standards 	200M
LONG-TERM		
	<ul style="list-style-type: none"> Expand Nairobi-Nanyuki-Meru Road to a dual carriage way with four lanes. 	500M
	<ul style="list-style-type: none"> Pave all internal roads within the CBD, residential and industrial areas 	50B

	<ul style="list-style-type: none"> Acquire land and expand and redevelop Nanyuki Airstrip to international airport status 	1B
Economy	<ul style="list-style-type: none"> Acquire and develop an ICT park at Mountex to be implemented include private developers. 	1B
Education	<ul style="list-style-type: none"> Acquire and develop a university at the monastery near Kwa Mbuzi. 	1B
Utilities	<ul style="list-style-type: none"> Undertake sewer and water infrastructure reticulation to serve the whole of the planning area 	6B

15.7 Monitoring and Evaluation

Monitoring and evaluation processes help in effective and efficient implementation of the plan. Nanyuki Town Integrated Spatial Urban Development Plan recognizes the need to strengthen use of Monitoring and Evaluation by focusing on: Efficiency, Effectiveness and Impact aspects. During the plan period, more attention will be given to the critical programs and projects that form the vital path to achieving the town's vision. For a proper implementation of an effective monitoring and evaluation system, there will be an effective institutional setup for coordination and implementation, adequate involvement of the various stakeholders and adequate resources allocated for monitoring and evaluation activities.

To effectively monitor implementation of programmes, projects and activities within the plan period, participatory monitoring and evaluation approaches will be applied. These include provision of a feedback system on progress, awareness of impacts, transparency and accountability. The feedback mechanism will provide information on whether existing or new approaches that have been developed are working effectively. It is expected that this will allow strengths to be built upon and any deficiencies to be rectified. Participatory monitoring and evaluation will be adopted at all levels of planning including the community level as a means of promoting teamwork and stakeholders' involvement in implementation. This will be used as a continuous feedback system, on-going throughout the plan period and involves overseeing or periodic review of each activity, at every level of implementation.

Table 15-2: Table 15 1: Plan Implementation Matrix

Planning Issue	Strategies	Actions	Area	Actor	Cost(Ksh.)	Time Frame
Underutilized CBD	<ul style="list-style-type: none"> Achieve maximum utilization of the CBD by providing basic infrastructure 	<ul style="list-style-type: none"> By laws created to regulate building heights in the CBD Tarmac all the roads Cycle lanes and pedestrian walkways to be provided Rejuvenate the existing central park and acquire land for another park 	CBD	County Government KURA, KERRA, KENHA	1.2B	Short term
						Long term
						Short term
Inadequate housing and slum emergence	<ul style="list-style-type: none"> Promote adequate, affordable and efficient housing to Nanyuki residents 	<ul style="list-style-type: none"> Rezoning of residential areas Encourage formation of cooperative societies to invest more in real estate Identify suitable alternative areas within the town and its hinterland for comprehensive housing development Adopt Integrated Neighborhood Planning approach where services are within reach of residents Provision of piped water, sewer connection, storm drainage 	Muthaiga, Ngei, Thingithu, Majengo	County Government, NHC, Housing finance, NAWASCO	5.5B	Short term
			Town wide			Short term
			Public works land,			Medium term
			Majengo, Likii Nturukuma, Muthaiga,			Long term
						Long term
Lack security of tenure	<ul style="list-style-type: none"> Provide security of tenure 	<ul style="list-style-type: none"> Provide land holding documents(leases and titles) Use of modern GIS systems in land registry 	Majengo, Likii	County Government	50M	Short term
						Short term
Environmental degradation	<ul style="list-style-type: none"> Promote environmental conservation and management 	<ul style="list-style-type: none"> Enforcement of NEMA laws to curb land degradation By laws requiring all town residents to have waste bins Promote waste recycling Construction of closed storm water drainage system 	Town wide	County Government, NEMA, Community	170M	Short term
			Town wide			Short term
			Town wide			Short term
			Town wide			Long term

		<ul style="list-style-type: none"> Control and regulation of quarrying activities Inconsistent waste collection 	Kabiru			Short term
Low industrial potential	<ul style="list-style-type: none"> Promote Nanyuki town as an industrial town 	<ul style="list-style-type: none"> Compulsory acquisition of encroached land Reopening of collapsed industries and establishment of new manufacturing industries Efforts to legitimize roadside establishments such as 'jua kali' industry 	Industrial zone near Majengo MOUNTEX, KMC, Mt. Kenya Poultry	County Government	1.5B	Medium term Short term Long term
Inadequate recreational facilities and social amenities	<ul style="list-style-type: none"> Rehabilitation of the existing public recreation ground and provision of more facilities 	<ul style="list-style-type: none"> Land acquisition for provision of recreational spaces Encourage sharing of private recreational grounds with the general public 	In residential areas	County Government Schools, Hotels	250M	Short term Short term
Inadequate infrastructure standards	<ul style="list-style-type: none"> Provide adequate infrastructure for economic growth 	<ul style="list-style-type: none"> Widen the Nanyuki A2 road Traffic segregation especially in high pedestrian areas Improve national and regional road connectivity Promote land use and transport integration Extension of sewer to areas currently not served Identify and address road safety constraints Street lighting initiatives 	CBD Mugambi, Likii, Nturukuma, Muthaiga C, Muthaiga, Thingithu, Majengo, Ngei, Nturukuma,	County Government, KURA, KENHA NAWASCO KURA, KERRA	20B	Long term Short term Long term Short term

Weak economic base growth	<ul style="list-style-type: none"> • Unlock local economy to create jobs, reduce poverty and boost economic growth 	<ul style="list-style-type: none"> • Boost sports tourism such as golfing • Construction of markets and improvement of existing ones • Use of greenhouses in horticulture • Designated areas for jua kali industries • Enhance access to to provide credit facilities to SMEs • Tap tourism potential 	<p>Nanyuki Golf Course Likii, Nanyuki old market Nturukuma, Ranches Likii, CBD, Industrial zone</p> <p>Town wide</p>	<p>County Government, banks, cooperative societies</p>	<p>2B</p>	<p>Short term</p> <p>Medium term</p> <p>Short term</p> <p>Medium term</p>
Inadequate institutional capacity and poor development control	<ul style="list-style-type: none"> • Provide adequate institutional capacity to guide development control 	<ul style="list-style-type: none"> • Strengthen structures for stakeholders' participation • Strengthen public private partnerships • Enhance community participation 	<p>Town wide</p>	<p>County Government, Community</p>	<p>100M</p>	<p>Short term</p> <p>Short term</p> <p>Short term</p>
Inadequate disaster management facilities	<ul style="list-style-type: none"> • Promote disaster preparedness awareness and management 	<ul style="list-style-type: none"> • Formulate disaster preparedness by laws • Zoning to ensure separation of conflicting land uses • Acquire land for firefighting facilities • Make and enforce laws that all buildings must have complete firefighting equipment 	<p>Town wide</p>	<p>County Government</p>	<p>200M</p>	<p>Short term</p> <p>Short term</p> <p>Short term</p> <p>Short term</p>

REFERENCES

1. **GoK, (1999): *The Environmental Management and Coordination Act 1999*.** Government Printers.
2. **GoK, (1999): *The Sessional Paper No. 6 (1999) on Environment and Development*.** Government Printers.
3. **GoK, (2001): *1999 Population and Housing Census, Vol. 1*** Government Press
4. **GoK, (2005): *Geographic Dimensions of Well-Being in Kenya: Where Are the Poor? A Constituency Level Profile. Vol. II*.** Nairobi: Ministry of Planning and National Development.
5. **GoK (2007): *Kenya Vision 2030: The popular version*.** The National Economic and Social Council of Kenya (NESC), Nairobi.
6. **GoK, (2007): *Kenya Integrated Household Budget Survey – 2005/06 (Revised edition)*,** Nairobi: Kenya National Bureau of Statistics.
7. **GoK, (2007): *The Forest Act of 2006*.** Government Printers.
8. **GoK, (2007): *The popular version: Kenya Vision 2030*.** The National Economic and Social Council of Kenya (NESC), Nairobi.
9. **GoK: (2007a): *Kenya Vision 2030: A globally competitive and prosperous Kenya*,** Ministry of Planning and National Development and the National Economic and Social Council (NESC). Nairobi
10. **GoK *The public health (Cap.242)*.**Government Printers.
11. **GoK: *The Water Act (Cap 372)*.** Government Printers.
12. **GoK: *The Forest Act of 2006*.** Government Printers.
13. **GoK: (2010): *2009 Population and Housing Census, Vol. 1*** Government Press.
14. **GoK: (2011a): *First Medium Term Plan Update*.** Ministry of State for Planning, National Development, & Vision 2030 and Office of the Prime Minister and Ministry of Finance, November 2011.
15. **GoK: *The Local Government Act (Cap.265)*.** Government Printers.
16. **GoK: *The Merchant Shipping Act (Cap 389)*.** Government Printers
17. **GoK: *The Public Health (Cap 242)*.**Government Printers.
18. **GoK: *The Water Act (Cap 372)*.** Government Printers.
19. **Republic of Kenya: *The Physical Planning Act (Cap 286) 1996*.**

20. Republic of Kenya: Vision 2030. Government Printers 2008.
21. Draft National Water Resources Management Strategy
22. Draft National Water Services Strategy
23. Economic Recovery Strategy Paper.
24. Feasibility Report on the Augmentation of the water Supply by Aqua-Terra Engineers, July 2002
25. National Water Master Plans Study Report 1992
26. Nanyuki Water and Sewerage Company Strategic Plan 2008-2012
27. Pre-feasibility Study Report on Rehabilitation and Augmentation of Nanyuki Town Water Supply by Ministry of Water and Irrigation, July 2008

ANNEXES

Annex1: List of Stakeholders

STAKEHOLDERS FORUM-DIGITAL TOPOGRAPHICAL MAPPING - A PREPARATION OF AN INTERGRATED URBAN DEVELOPMENT PLAN FOR NANYUKI TOWN

NO.	NAME	DESIGNATION	TELEPHONE NO.	SIGNATURE
	MARGARET W. ETOOLONG	M.C.A - LAIKIPIA		
	Mervyn W. Mwangi	Sub-C		
	HELEN W. KURITU			
	K. W. MAKUWA			
	ROSE M. NDIKIRI			
	SARAH M. MURUGU			
	ESTHER M. MURUGU	Sub County		
	JENNIFER W. MURUGU	Sub-County L.E.		
	EM GICHOKI			
	WALTER W. MURUGU			
	JOHN W. MURUGU	FIVE HUNDRED Club		
	BENSON MURUGU			
	JOSPH ONDORO			
	PETER W. MURUGU			
	ISSACK O. SHARIF			
	DAVID NJIRI			
	MICHAEL KURITU			
	GODFREY M. MURUGU			
	DANIEL MBOGO			
	MALINDZA M. HASSAN			
	BENSON M. MURUGU			
	BENEFIC MURUGU			
	JOSEPH MURUGU			
	MARY MURUGU			
	LUCY MURUGU			
	MARGARET W. MURUGU			
	JOSEPH M. MURUGU			
	JOSEPH LOPEK			

STAKEHOLDERS FORUM-DIGITAL TOPOGRAPHICAL MAPPING - A PREPARATION OF AN INTERGRATED URBAN DEVELOPMENT PLAN FOR NANYUKI TOWN

NO.	NAME	DESIGNATION	TELEPHONE NO.	SIGNATURE
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	James Peltam			
	MAIRAK NDOEGE			
	IMAM SAID OMAR			
	James Muriithi			
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	Stephen K. Muriithi			
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	ISAAC MATHERGE	S	07	
	John Kurui			
	Charles Wambui			
	Charles MATHA			
	SPRINGWELL			
	Julie Wanjui			
	Josphat Muriithi			
	PAUL MAINA			
	Esther N. Muthara			
	Molly Muthara			
	Veronica Wager			
	Peter Kayo			
	Foster Ndoto			
	Charles N. Wachira			

Annex 2: Public Notice on 'Daily Nation' Newspaper

PUBLIC NOTICE

NOTICE OF INTENTION TO UNDERTAKE DIGITAL MAPPING AND PREPARATION OF INTEGRATED STRATEGIC URBAN DEVELOPMENT PLAN FOR NANYUKI TOWN.

Notice is hereby given to all residents and stakeholders of Nanyuki Town and its environs that, pursuant to the Physical Planning act Cap 286, the Local Government Act cap 265 and the Cities and Urban Areas Act of 2011, the Municipal Council of Nanyuki, in collaboration with the Ministry of Local Government, the Ministry of Lands, Residents of Nanyuki Town and its environs and other stakeholders intend to prepare digital Maps and Strategic Urban Development Plan that will guide the growth of the Town and its environs for a period of 20 years.

The plan will cover Nanyuki Town. The purpose of the plan is to prepare a framework that will promote integrated socio-economic development of the Town and its environs. The plan will endeavor to organize and allocate sufficient space for all land uses.

The preparation of the plan will be participatory and interactive. All stakeholders are hereby invited to participate in the planning process. Those who wish to make comments or suggestions may submit them in writing to:

Michael M. Kimwele

The Town Clerk,
Municipal Council of Nanyuki
P.O Box 156 Nanyuki
Email: nanyukimunicipal@yahoo.com
Or: info@nanyukimunicipal.go.ke
Dated 22th day of October, 2012

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