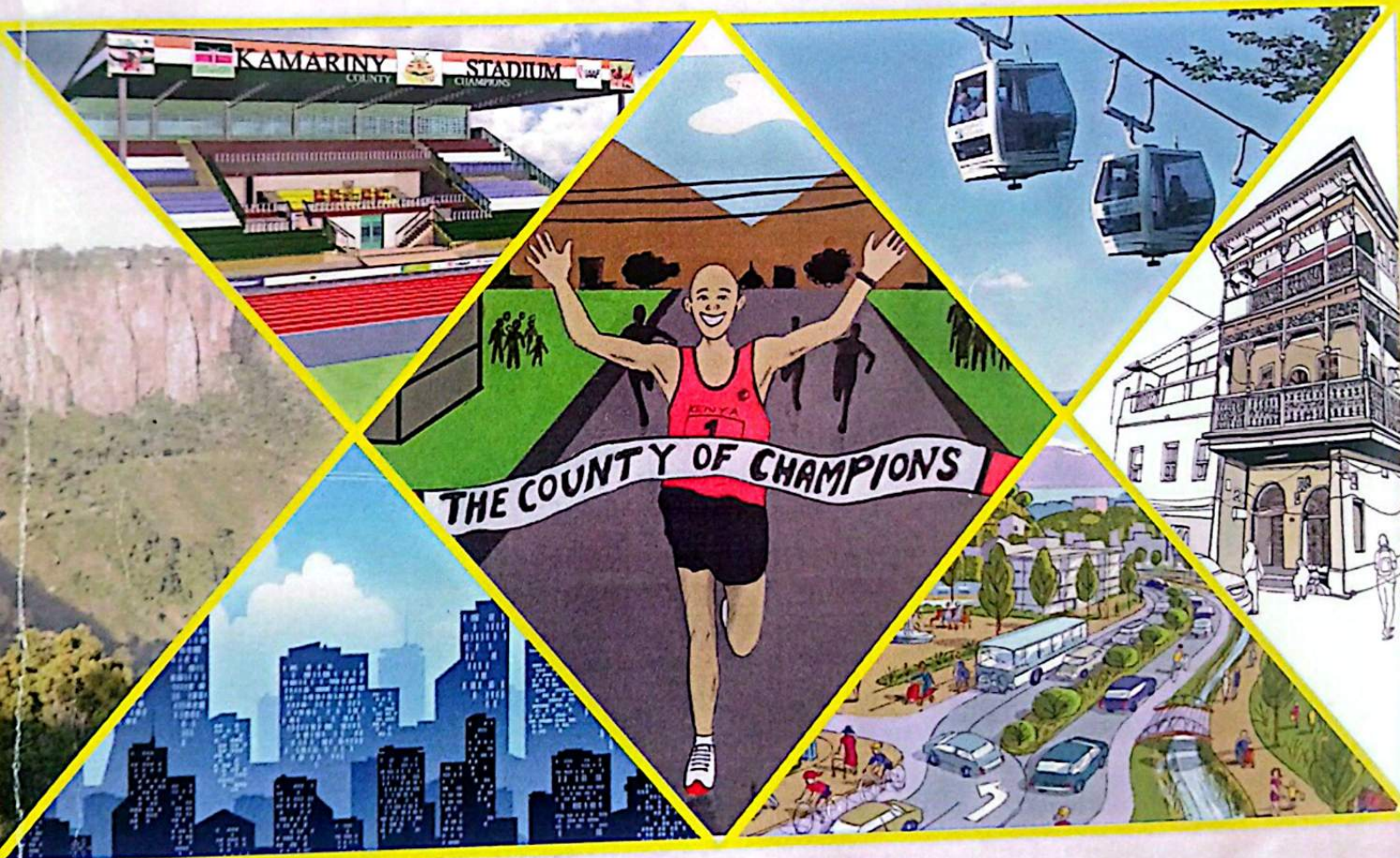




COUNTY GOVERNMENT OF ELGEYO MARAKWET

ITEN TOWN INTERGRATED SPATIAL

DEVELOPMENT PLAN 2015-2035



Towards a competitive, efficient and attractive sports town

Iten Town Integrated Spatial Development Plan: 2015-2035



County Government of Elgeyo Marakwet

March, 2016

Preface

The Government of Elgeyo Marakwet County is on course to fully and timely fulfil its mandate to the people as elaborated in County Integrated Development Plan (CIDP) (2013-2017). Successful completion of the preparation of Iten Town Integrated Spatial Development Plan is a major milestone of the Government of Elgeyo Marakwet County. The CIDP has rightly recognized urbanization challenges facing the County, thus prioritized planning of the major urban centres beginning with Iten Town. Planning and development of Iten Town is top on the County Government's agenda because of several reasons, much more importantly because it is the largest urban centre in the County and it is the seat of the County Government. With devolution of governance and management in the country as per the Constitution of Kenya 2010, it is possible to expect increased urbanization of the hitherto largely rural communities especially County Headquarters. It is against this background that the County Government prioritized planning of Iten Town to better respond to the urbanization challenges that are likely to ensue in addition to creating a framework for sustainable urbanization in the County.

The fourth schedule of the Constitution of Kenya 2010 states that planning and development is a devolved function. Further to the Constitutional requirement, County Government specifies municipal and town plans as a set of plans expected of County Governments. By undertaking this exercise, the County Government of Elgeyo Marakwet is fulfilling its Constitutional and legislative mandate on planning.

The preparation of this plan is timely as urbanization has not taken root in the town, so it is possible to pre-empt the ills that bedevil virtually all urban areas in Kenya, i.e. informality, lack of infrastructure and services and deteriorating environmental quality. The population of Iten Town is estimated at 7,500, while the population in the revised town's boundary is just 46,000 growing at 3%. By the end of the plan period, i.e. 2035, the town's population is projected to reach 80,000. The envisaged population will increase pressure on infrastructure and services and other social amenities. Therefore, this plan seeks to create a framework for structured, systematic and flexible development to meet the needs of the growing population.

The unique characteristics of Iten Town and its environs, which this plan seek to nurture are the beautiful landscape (Elgeyo Escarpment, Kerio Valley, both high and low altitude), excellent athletics tradition, rich culture and heritage, Rimoi National Reserve, friendly community, strategic location in the North Rift, rich agricultural hinterland, and unexploited natural resources. This plan aims at tapping these unique opportunities to spur sustainable development for better and prosperous County.

Let me implore upon the people of Elgeyo Marakwet to join hands in the implementation of this plan. Successful implementation of this plan will create a clean and healthy urban environment, a growth centre for employment creation and a centre of excellence in sports and sports-led tourism. We warmly welcome the National Government, development partners and the private sector to take their rightful position in supporting the implementation of this plan.

Finally, I would like to salute all stakeholders, especially the people of Elgeyo Marakwet, residents of Iten Town, County Assembly of Elgeyo Marakwet, my Government led by CEC in charge of Lands, Water & Natural Resources.

May God bless Elgeyo Marakwet County and her people as we take necessary measures to develop the *County of Champions*.



H.E. Hon. Alex Tolgos
The Governor, Elgeyo Marakwet County

A handwritten signature in blue ink, appearing to read 'Alex Tolgos', written in a cursive style.

Iten Town Planning Team

The team that undertook Iten Town Integrated Spatial Development Plan are:

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Executive Summary

1. Urbanization Processes and Challenges

Urbanization is taking root in Kenya and with devolution of governance and management in the country, it is expected that urbanization will be devolved away from the relatively more urbanized regions, especially to the county headquarters. Since independence in 1963, the country has rapidly urbanized and it is projected that the trend will persist in future. At independence the country was 8% urbanized and today it is estimated that 35% of Kenyan population lives in urban areas. It is projected that by the year 2030, over 50% of the country's population will live in cities and urban areas. Most developed economies are over 60% urbanized. So, the projected 50% urban population in the country by the year 2030 may be evidence of Kenya's vision of becoming a middle income economy.

Despite the advantages of urbanization, it is doubtful whether Kenya's cities and urban areas have the capacity to spur sustainable urbanization. Kenyan cities and urban areas face serious challenges, which dampen expectation of sustainable urbanization in the country. Some of the major challenges facing our cities and urban areas are poor governance and management, inadequate infrastructure and services, poor planning, informality of urban economies, high rates of unemployment, high incidence of poverty, high inequality, insecurity, and deteriorating environmental quality. It is estimated that 60% of urban population in Kenya live in informal settlements lacking basic infrastructure and services. As the country implements devolved governance structures as per Kenya's Constitution 2010, the challenges facing cities and urban areas may worsen. Thus, there is need for proactive intervention strategies, i.e. integrated urban spatial development plans to aid and control the growth and development of cities and urban areas.

2. Constitutional, Policy and Legislative Framework for Iten Town Planning

Iten town integrated spatial development plan has been prepared in conformity with the Constitution of Kenya 2010, County Government Act 2012, Urban Areas and Cities Act 2011 and Physical Planning Act 1996. Article 184 of the Constitution creates framework for urban governance and management in the country. Both Urban Areas and Cities Act and County Government Act elaborate the operational levels of article 184 of the Constitution. They provide legislative framework for the preparation and implementation of urban plans. Both of them provide for the preparation of spatial plans for urban areas and cities. Therefore, this plan has been prepared in conformity with the Constitution and applicable laws; thus contributing towards the realization of the Constitution and Vision 2030.

3. The Case for Iten Town Planning

Iten town is the headquarters of Elgeyo Marakwet County. The town is relatively small with a population of about 7500 people. Although the town is old, its growth remains sluggish for various reasons including poor planning, inadequate infrastructure and services. In addition to the status of County Headquarters, Iten Town is endowed with unique natural resources, i.e. its location at the edge of Rift Valley (Keiyo Escarpments) enjoying both high and low altitude

climatic conditions, rich culture and heritage in sports and sports talents, location in a rich agricultural and livestock hinterland, and Rimoi Game Reserve.

The low levels of urbanization in Iten town is important as it is possible to avoid paths that the already more urbanized towns have gone through, i.e. extensive informal settlements, poor planning, lack of basic infrastructure, and deteriorating environment. With prompt action today, it is possible to create a framework for sustainable urbanization in the town. Further, with implementation of devolved governance structures, the town needs to position itself to tap into devolved funds to spur its growth. Currently, the town lacks a comprehensive spatial development plan, attractive urban form, and a framework for sustainable development. The town lacks basic infrastructure, i.e. roads, water supply, sewerage system, storm water drainage, solid waste management, and strategic focus.

In line with the Elgeyo Marakwet County Integrated Development Plan (CIDP) (2013-2017), the County Government undertook to prepare Iten town integrated spatial development plan that seeks to guide development of the town to the year 2035.

4. Approach and Methodology

In undertaking Iten town planning, constitutional, policies and legislative provisions at both National and County Governments levels were adhered to. Participatory planning approaches and methodology was followed in the preparation of this plan. In planning the town, both secondary and primary data was used. The preparation of the spatial plan was informed by the existing plans, base maps, socio economic and biophysical set up. Primary data sources included households, businesses, National and County Governments, private sector, and civil society organizations (CSOs) operating in the town. Public consultation was realized through series of public meetings (*barazas*), workshops and focus group discussions (FGDs). Another important component of the assignment was the preparation of base maps to provide a basis for both surveying and planning. Once the plan was prepared, it was subjected to validation by various stakeholders, i.e. County Government Executive, County Assembly Lands/Planning Committee, local communities in the wards and business groups.

Socio-economic surveys and physical mapping of the town was undertaken. Socio-economic survey covered households, businesses, and institutions in the town. This was achieved using structured household and business questionnaires and observation sheet. Participatory mapping captured social and physical infrastructure, land uses, and bio-physical characteristics of the town. Biophysical characteristics captured the Rift Valley floor, two levels of the escarpment, forests, wetlands, and other environmentally sensitive areas.

In preparing the spatial plan participatory processes were employed, especially stakeholder meetings, FGDs, participatory mapping, and workshops to agree on the vision, mission, objectives, and principles. Further, stakeholders were engaged in agreeing on the strategic issues, proposed land uses, and strategies for implementation, monitoring and evaluation. In addition, environmental management strategy and investment strategy have been prepared.

5. Vision, Mission, Principles and Objectives of Iten Town Plan

Vision

To be a competitive, efficient and attractive sports town

Mission

To facilitate sustainable urban development of the town by tapping into abundant sports talents, beautiful landscape and agriculturally rich hinterland.

Objectives

- To ensure effective and efficient governance and management of Iten town;
- To promote development of adequate infrastructure, both social and physical, and services in Iten Town;
- To facilitate development of sports and sports-led tourism in Iten town;
- To support development of agriculture and livestock in the County; and
- To ensure proper integration of natural environment in the development of Iten town.

Principles

- Good urban governance
- Competitiveness
- Connectivity
- Inclusivity
- Equity
- Liveability
- Environmental sustainability

6. Key Planning Issues and Proposals

Smart growth planning, polycentric urban development, grid iron planning, and neighbourhood planning frameworks informed the planning of Iten town. Smart growth planning is employed to optimize utilization of scarce resources and conserve the beautiful landscape and rich agricultural hinterland. Polycentric planning approach has informed the creation of five growth nodes in the town, while grid iron planning has been used to structure the town using major roads for efficient flow of traffic and land use functions. In promoting sustainable urban communities, this plan embraces neighbourhood concept. The key planning issues and proposals are:

- Lack of effective urban governance and management in Iten makes it impossible to drive sustainable urban development in the town. To address this issue, necessary measures should be taken by the County Government to streamline

urban governance and management in the town, including embracing good governance.

- The town suffers under the burden of poor infrastructure and services. This plan makes specific recommendations to create the much needed infrastructure and services, especially roads, water supply, sanitation, solid waste management, and storm water drainage.
- The town does not have adequate sports facilities to harness huge sports talent and sports tourism in the town. This plan has made robust proposals to promote the development of sports facilities, support the development of sports and wellness tourism in the town and marketing the town as a place of choice in sports tourism. Priority areas are sports centres, running tracks, para-gliding, cable cars, tourist hotels and lodges in the town.
- Poor management of beautiful environmental resources has been identified as a major planning issue in the town. This plan has made proposals to harness the beautiful landscape for sustainable urbanization, while at the same time conserving ecologically fragile areas, i.e. the escarpments, wetlands and natural forests. The escarpment has been used to structure high value urban development.
- The hinterland of the town has high agricultural and livestock potential that can be tapped for agri-business industries and employment creation. To achieve this, the plan proposes development of agro-processing industries in the town.
- The town faces serious shortage of appropriate housing making it impossible to attract investors and other people to the town. There is need to facilitate housing development through planning, development of infrastructure and attracting and retaining private sector investment.
- Poorly developed commercial and industrial development has been identified as a major planning issue in the town. This plan has made ambitious proposal to support the development of an integrated commercial and industrial development, designating four additional commercial centres and one major industrial area supported by other minor ones in each commercial area.
- The town lacks well developed system of educational facilities. This plan has proposed a strategy to promote the development of educational facilities right from early childhood development education (ECDE), primary, secondary, technical training, and university in line with population and spatial growth of the town.
- As the County Headquarters, the town lacks well planned and developed County Administrative centre and County/Governor's residence. This plan has proposed a County Administration Headquarters, Governor's residence, and County residential zones.

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ACRONYMS AND ABBREVIATIONS

CIDP	County Integrated Development Plan
CBD	Central Business District
CRA	Commission for revenue Allocation
DNI	Direct Normal Radiation
ECDE	Early Childhood Development Education
EPA	Environmental Protection Agency
EMP	Environmental Management Plan
FPE	Free Primary Education
GII	Gender Inequality Index
GPS	Global Positioning Systems
HDI	Human Development Indicators
ICT	Information Communication Technology
ISP	International Service Provider
ITWASCO	Iten-Tambach Water and Sanitation Company
ISWM	Integrated Solid Waste Management
KBC	Kenya Broadcasting Corporation
KURA	Kenya Urban Roads Authority
KPLC	Kenya Power and Lighting Company
KVDA	Kerio Valley Development Authority
LPG	Liquefied Gas Petroleum
ME&NR	Ministry of Environment, Water and Natural Resources
MTC	Medical Training Centre
NMT	Non-Motorised Transport
PPP	Public Private Partnership
SWERA	Solar & Wind Energy Resources Assessment
TTC	Teachers Training College
RVWSB	Rift Valley Water Service Board
VTI	Vocational Training Institute
WSRB	Water Services Regulatory Board

Chapter One: Introduction

1.1. Urbanization Processes, Challenges, and Planning Context

Kenya is rapidly urbanizing and it is projected that the trend will persist in future. At independence in 1963, Kenya was 8% urbanized and today it is estimated that 35% of Kenyan population lives in the urban areas. It is projected that by the year 2030, over 50% of the country's population will live in the cities and urban areas. With devolution we expect urbanization to be devolved with small urban centres in the counties and in particular, county headquarters attracting significant proportion of the increasing urban population. This may be welcome news as urbanization is associated with modernity, concentration of population, ease of infrastructure and services provision, and release of strategic resources in the rural areas i.e. land for modern economic development. Most developed economies are over 60% urbanized. So, the projected 50% urban population in Kenya by the year 2030 may be evidence of Kenya's vision of becoming a middle income economy.

Despite the advantages of urbanization, it is doubtful whether Kenya's cities and urban areas have the capacity to spur sustainable urbanization. Kenyan cities and urban areas face serious challenges, which dampen expectation of sustainable urbanization in the country. Some of the major challenges facing our cities and urban areas are poor governance and management, inadequate infrastructure and services, poor planning, informality of urban economies, high rates of unemployment, high incidence of poverty, inequality, insecurity and deteriorating environmental quality. It is estimated that 60% of urban population in Kenya live in informal settlements. As the country implements devolved governance structures as per Kenya's Constitution 2010, challenges facing cities and urban areas may worsen. First, because urban planning and development is a devolved function and as the Counties put in place new governance and management structures, there is a danger that cities and urban areas may suffer neglect. This fear is compounded by constitutional changes that followed the promulgation of the Constitution of Kenya, 2010. Unlike the previous constitution that placed cities and urban areas under the second level of governance i.e. local authorities as semi-autonomous entities, the new Constitution places cities and urban areas under the jurisdiction of County Government. Second, since counties are young entities, they lack capacity to put in place requisite structures and resources for sustainable urbanization.

Notwithstanding the challenges brought by constitutional changes, it is expected that with the implementation of the Constitution urbanization in the Counties will take root in the hitherto rural areas. Therefore, County Governments, in line with County Government Act (2012) should proactively position themselves to harness urbanization opportunities. To deliver sustainable urbanization in the Counties, it requires serious commitment by the County Government to take necessary measures including, planning, investment in requisite infrastructure and services, and good governance.

1.2. Iten Town Planning

Iten town is the headquarters of Elgeyo Marakwet County. The town is relatively small with a population of about 7500 people. Although the town is old, its growth remains sluggish for various factors including poor planning, inadequate infrastructure and services. The dominant role of Eldoret Municipality in the region has affected the growth of Iten town. Eldoret Municipality located 32km to the west of the town is seen as a place of choice for investment and living because of superior infrastructure and services, among others. In addition to the status of County Headquarters, Iten town is endowed with unique natural resources, i.e. its location at the edge of Elgeyo Escarpment with both high and low altitude, rich tradition and heritage in sports talents, and location in a rich agricultural and livestock hinterland.

The low levels of urbanization in Iten town is important as it is possible to avoid paths that the already more urbanized towns have gone through, i.e. extensive informal settlements, poor planning, lack of basic infrastructure, and deteriorating environment. With prompt action today, it is possible to create a framework for sustainable urbanization in the town. Further, with the implementation of devolved governance structures, the town needs to position itself to tap into devolved funds to spur its growth. Currently, the town lacks a comprehensive spatial development plan, suitable urban form, and a framework for sustainable development. The town lacks basic infrastructure, i.e. roads, water supply, sewerage system, solid waste management, and strategic focus.

Pursuant to the Constitution of Kenya (2010), County Government Act (2012), Urban Areas and Cities Act (2011), Physical Planning Act (1996) and Elgeyo Marakwet County Integrated Development Plan (CIDP) (2013-2017), the County Government undertook to prepare Iten town integrated spatial development plan that seeks to guide the development of the town to the year 2035.

1.3. Vision, Mission, Principles and Objectives

1.3.1. Vision

To be a competitive and attractive sports town

1.3.2. Mission

To facilitate sustainable urban development of the town by tapping into abundant sports talents, beautiful landscape and agriculturally rich hinterland.

1.3.3. Principles

- Good urban governance
- Competitiveness

- Connectivity
- Inclusivity
- Equity;
- Liveability
- Environmental sustainability.

1.3.4. Objectives

- To ensure effective and efficient governance and management of Iten town;
- To promote development of adequate infrastructure, both social and physical, and services in Iten town;
- To facilitate development of sports and sports-led tourism in and around Iten town;
- To support development of agriculture and livestock in the County;
- To ensure proper integration of natural environment in the development of Iten town.

Chapter Two: Constitution, Policy and Institutional Framework

2.1. Constitution of Kenya 2010

The preparation of this plan is in conformity with the Constitution of Kenya (2010). Article 184 of the Constitution creates structures for classification, urban governance and management of urban areas and cities in the country. To effectuate Article 184 of the Constitution, the Country made provisions in County Government Act (2012) and Urban Areas and Cities Act (2011). This spatial plan of the town is contributing to the realization of Article 184 of the Constitution. Furthermore, article 42 of the Constitution makes a clean and healthy environment a human right. The realization of this article involves a combination of processes; including proper spatial planning, development control, and development of appropriate infrastructure and requisite services.

2.2. Policy Framework

Vision 2030 takes cognizance of rapid rate of urbanization that is set to see the country predominantly urban by the year 2030. The policy recognizes poor urban planning in the country and the need to plan for decent and quality urban life. The Vision prioritized preparation of spatial plans as an important means of realizing sustainable development. The policy seeks to address urban planning problem by initiating nationwide urban planning and development campaign starting with major municipalities and towns. Similarly, the Vision has identified waste management as an important means of addressing environmental degradation associated with urbanization. The Iten town integrated spatial plan contributes towards the realization of Vision 2030's political, economic and social pillars and promoting sustainable urbanization in the town.

2.3. Legislative Framework

Iten town spatial plan is prepared in conformity with County Government Act (2012), Urban Areas and Cities Act (2011), and Physical Planning Act (1996). Urban Areas and Cities Act (2011), which is an elaboration of Article 184 of the Constitution of Kenya (2010), creates framework for the governance and management of urban areas and cities. One of the key aspects of the Act is integrated urban planning, which this plan complies with.

2.3.1. Principles of Planning and Development Facilitation

In preparing Iten town spatial plan, we are guided by the planning principles stated in County Government Act (2012). The principles of planning and development facilitation in a county shall:

- integrate national values in all processes and concepts;
- protect the right to self-fulfilment within the county communities and with responsibility to future generations;

- protect and integrate rights and interest of minorities and marginalized groups and communities;
- protect and develop natural resources in a manner that aligns national and county governments policies;
- align county financial and institutional resources to agreed policy objectives and programmes;
- engender effective resource mobilization for sustainable development;
- promote the pursuit of equity in resource allocation within the county;
- provide a platform for unifying planning, budgeting, financing, programme implementation and performance review; and
- Serve as a basis for engagement between county government and the citizenry, other stakeholders and interest groups.

2.3.2. Objectives of County Planning

The preparation of Iten town spatial plan is guided by the objectives of county planning as articulated in County Government Act (2012). The objectives of county planning shall be to:

- ensure harmony between national, county and sub-county spatial planning requirements;
- facilitate the development of a well-balanced system of settlements and ensure productive use of scarce land, water and other resources for economic, social, ecological and other functions across a county;
- maintain a viable system of green and open spaces for a functioning eco-system;
- harmonize the development of county communication system, infrastructure and related services;
- develop urban and rural areas as integrated areas of economic and social activity;
- provide the preconditions for integrating under-developed and marginalized areas to bring them to the level generally enjoyed by the rest of the county;
- protect the historical and cultural heritage, artefacts and sites within the county;
- make reservations for public security and other critical national infrastructure and other utilities and services;
- work towards the achievement and maintenance of a tree cover of at least ten per cent of the land area of Kenya as provided in Article of the Constitution; and
- develop the human resource capacity of the county.

2.3.3. Obligation to Plan by the County Government

By preparing Iten town spatial plan, Elgeyo Marakwet County Government is complying with the planning obligations as stated in County Government Act (2012). The planning obligations are:

- A county government shall plan for the county and no public funds shall be appropriated outside a planning framework developed by the county executive committee and approved by the county assembly.
- The county planning framework shall integrate economic, physical, social, environmental and spatial planning.
- The county government shall designate county departments, cities and urban areas, sub-counties and Wards as planning authorities of the county.
- To promote public participation, non-state actors shall be incorporated in the planning processes by all authorities.
- County plans shall be binding on all sub-county units for developmental activities within a County.

2.3.4. Planning in the County

County Government Act (2012) states that a county planning unit shall be responsible for:

- coordinating integrated development planning within the county,
- ensuring integrated planning within the county,
- ensuring linkages between county plans and the national planning framework,
- ensuring meaningful engagement of citizens in the planning process,
- ensuring the collection, collation, storage and updating of data and information suitable for the planning process, and
- ensuring the establishment of a GIS based database system.

The Act states that the designated planning authority in the county shall appropriately organise for the effective implementation of the planning function within the county.

2.3.5. City or Municipal Plans

County Government Act (2012) provides for planning of cities and municipalities. County Headquarters are expected to grow to municipal status. For each city and municipality there shall be the following plans—

1. City or municipal land use plans, which shall provide for:
 - Functions and principles of land use and building plans;
 - Location of various types of infrastructure within the city or municipality;
 - Development control in the city or municipality within the national housing and building code framework.
2. City or municipal building and zoning plans, which shall be:
 - Binding on all public entities and private citizens operating within the particular town;
 - The regulatory instruments for guiding and facilitating development within the town;

- Basis for location of recreational areas and public facilities.
- Each city or municipal land use and building plan shall be reviewed every five years and the revisions approved by the respective county assemblies.

2.3.6. Citizen Participation

Section 115 of County Government Act 2012 makes public participation in the county planning process mandatory. This has been achieved through among others, provision to the public of clear and unambiguous information on any matter under consideration in the planning process. In preparing Iten town integrated spatial plan, the following aspects of Part VIII of County Government Act on principles of citizen participation in counties were taken into consideration:

- timely access to information, data, documents, and other information relevant or related to policy formulation and implementation;
- reasonable access to the process of formulating and implementing policies, laws, and regulations, including the approval of development proposals, projects and budgets, the granting of permits and the establishment of specific performance standards;
- protection and promotion of the interest and rights of minorities, marginalized groups and communities and their access to relevant information.

2.3.7. Objectives of Integrated Urban Areas and City Development Planning

Every city and municipality established under Urban Areas & Cities Act (2011) shall operate within the framework of integrated development planning which shall:

- give effect to the development of urban areas and cities;
- strive to achieve the objects of devolved government as set out in Article 174 of the Constitution;
- contribute to the protection and promotion of the fundamental rights and freedoms contained in Chapter Four of the Constitution and the progressive realization of the socio-economic rights;
- be the basis for preparation of environmental management plans;
- preparation of valuation rolls for property taxation;
- provision of physical and social infrastructure and transportation;
- preparation of annual strategic plans for a city or municipality;
- disaster preparedness and response;
- overall delivery of service including provision of water, electricity, health, telecommunications and solid waste management;
- the preparation of a geographic information system for a city or municipality;
- nurture and promote development of informal commercial activities in an orderly and sustainable manner;
- provide a framework for regulated urban agriculture; and

- Be the basis for development control.

In addition to the objectives set out in subsection (1), an integrated urban or city development plan shall bind, guide and inform all planning development and decisions and ensure comprehensive inclusion of all functions.

2.3.8. Plan to align to County Government Plans

Urban Areas & Cities Act (2011) notes that a city or urban area integrated development plan shall be aligned to the development plans and strategies of the county government.

2.3.9. Preparation of an Integrated Plan

A city or urban area shall prepare an integrated city or urban area development plan in accordance with the Third Schedule of Urban Areas and Cities Act (2011). The third schedule of Urban Areas Act, section 38, provides for a procedure to prepare Urban Integrated Plan. In the preparation of the integrated urban area or city development plan a city or urban area shall provide for:

- an assessment of the current social, cultural, economic and environmental situation in its area of jurisdiction;
- a determination of community needs and aligning them to the requirements of the Constitution;
- protection and promotion of the interests and rights of minorities and marginalized groups and communities;
- a shared vision for its development and that of the county as a whole;
- an audit of available resources, skills and capacities;
- prioritization of the identified needs in order of urgency and long term importance;
- integrated frameworks and goals to meet the identified needs;
- strategies to achieve the goals within specific time frames;
- specific implementation programmes and projects to achieve Intended goals;
- performance management tools to measure impact and performance and make appropriate corrections;
- linkage, integration and coordination of sector plans;
- development control; and
- any other necessary matter.

2.4. County Strategies and Plans

Elgeyo Marakwet County CIDP (2013-2017), Section 2.8 on Physical Planning, Urbanization and Housing Sector shows that the County Government has put planning in the development agenda of the County. The County Government recognizes the importance of spatial planning in determining the quality of human settlements. The CIDP states that urban and rural areas in the county are facing problems related to poor infrastructure, poverty, environmental degradation and inadequate waste disposal systems. CIDP takes cognizance of spatial planning in urban development, land adjudication, investment promotion, security of land tenure and conflict resolution, protection of natural resources and quality design and construction of housing in the county. CIDP has therefore prioritized planning of urban areas. Iten town is one of the eight urban centres that the County Government has prioritized for planning. Therefore, spatial planning of Iten town is one of the important milestones of CIDP.

Chapter Three: Methodology

3.1. Approach

In undertaking this planning exercise, constitutional, policies and legislative provisions at both National and County Government were adhered to. The principle of public participation was complied with. The Constitution of Kenya (2010), Kenya Vision 2030, National Land Policy (2009), Physical Planning Act (1996), County Government Act (2012), Urban Areas and Cities Act (2011), and Elgeyo Marakwet CIDP (2013-2017) guided spatial planning of Iten town.

In planning Iten town, both secondary and primary data was used. Secondary data source includes published and unpublished government documents. Primary data sources were households, businesses, National and County Government, private sector, and civil society organizations (CSOs) operating in the town.

The first step in undertaking this assignment was preparatory work, which included meeting with the client, reconnaissance survey, acquisition of literature, publicising the process and scheduling activities. This was followed by community mobilization and sensitization for stakeholder engagement. Public consultation was realized through workshops, FGDs, and public meetings (*barazas*). Observation was realised though transect walks. Another important component of the assignment was the preparation of base maps to provide a basis for both surveying and planning.

Socio-economic surveys of the town were undertaken. Socio-economic survey covered households, businesses, and institutions in the town. This was achieved using structured household and business questionnaires and observation sheet. Photographs were taken to depict snapshot of situations at the time. Participatory mapping captured social and physical infrastructure, land uses, and bio-physical characteristics of the town. Biophysical characteristics captured include two levels of the escarpment, Rift Valley floor, forests, wetlands, biodiversity, and other environmentally sensitive areas were mapped.

3.2. Delineation of Iten Town Planning Area

At the beginning of Iten town spatial planning project, the Elgeyo Marakwet County Government and other project stakeholders consulted to agree on the geographic extent of the area to be planned as part of Iten town. The spatial extent was curved out from sixteen sub locations covering a total area of 206 square kilometres (

Table 1; Figure 1).

To ensure a complete satellite imagery dataset was acquired for the compilation of the County base map, the Area of Interest to be covered by the imagery was defined using existing administrative boundary geographical information system (GIS) data. An administrative map of Iten town planning extent (Figure 3.1) was compiled using existing data in GIS environment and in Google Earth to

depict the perimeter of interest for which the high resolution satellite imagery would be acquired. This ensured a complete and seamless satellite image data coverage across the whole town to avoid data gaps.

Table 1: Sub-Locations forming Iten Town Planning Area

Sub Location	Area (Km ²)	Sub Location	Area (Km ²)
Bugar	6	Kapkessum	9
Kapkonga	8	Sergoit	7
Singore	7	Chesitek	12
Siroch	29	Kiptabus	10
Kaplamai	9	Rimoi	29
Anin	32	Iten township	3
Chebokokwo	3	Katalel	14
Mindililwo	6	Kessup	21

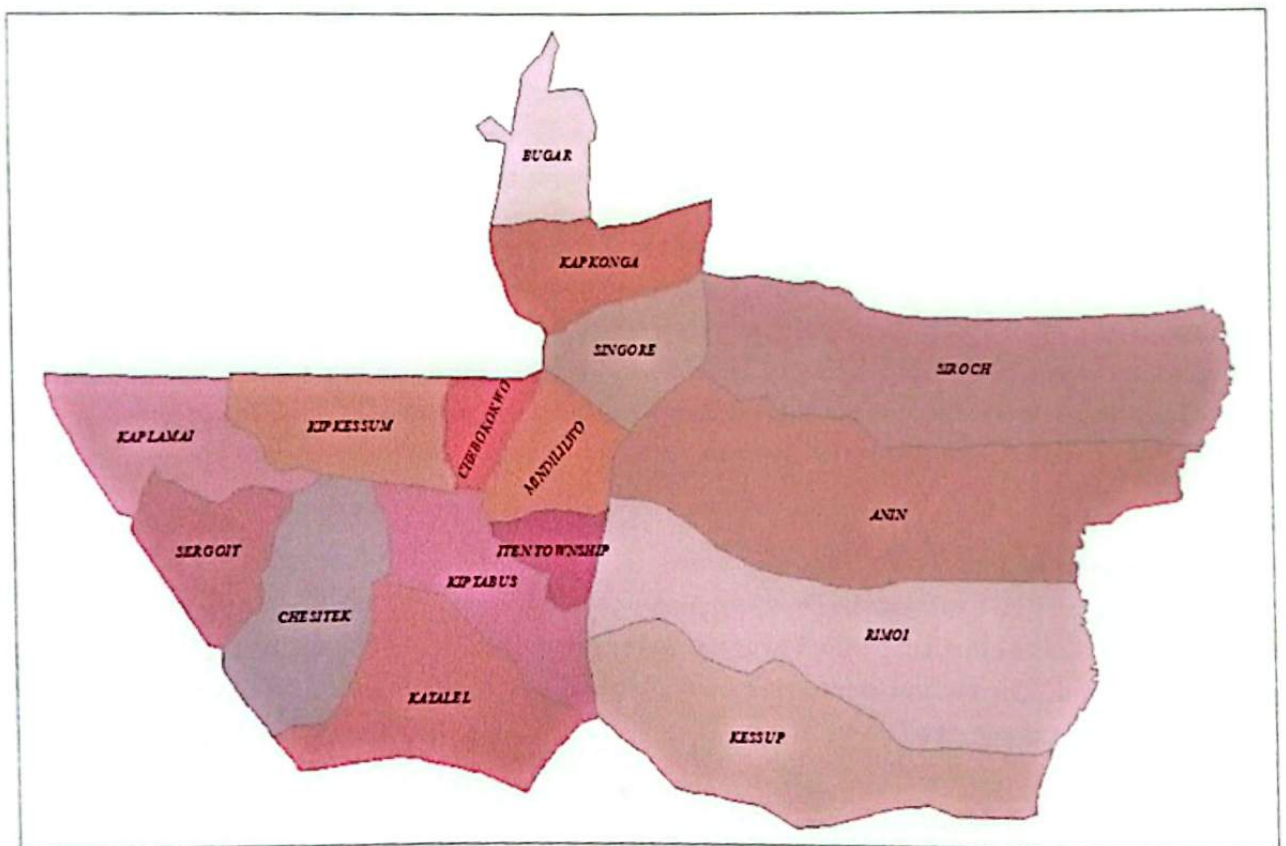


Figure 1: Iten town planning area sub locations

3.3. Procurement of Iten Town Spatial Planning Data

Given the vast planning area (approximately 210km²), it was more economical to use satellite imagery mapping in the compilation of the planning area base map as an alternative to aerial photography. High resolution satellite imagery has been used in the spatial planning domain and has proved effective as base information for digitization/extraction of topographic vector data in the compilation of spatial planning base map. However, the high resolution satellite imagery provides the topographic detail data without the height dimension i.e. ground contours. The height data was sourced separately and coupled with the high resolution satellite imagery to give full three dimensional base map information for Iten town spatial planning.

3.3.1. Acquisition of High Resolution Satellite Imagery

In the acquisition of satellite imagery base data (Figure 2), a range of technical issues were considered to ensure adequate imagery data was acquired for the compilation of the topographic base map for the study area. After the project area was defined, the satellite imagery data specifications were drawn as procurement controls. These specifications were largely guided by the following factors:

1. Requisite spatial resolution (at least 0.5 metre or better)
2. Minimal cloud cover

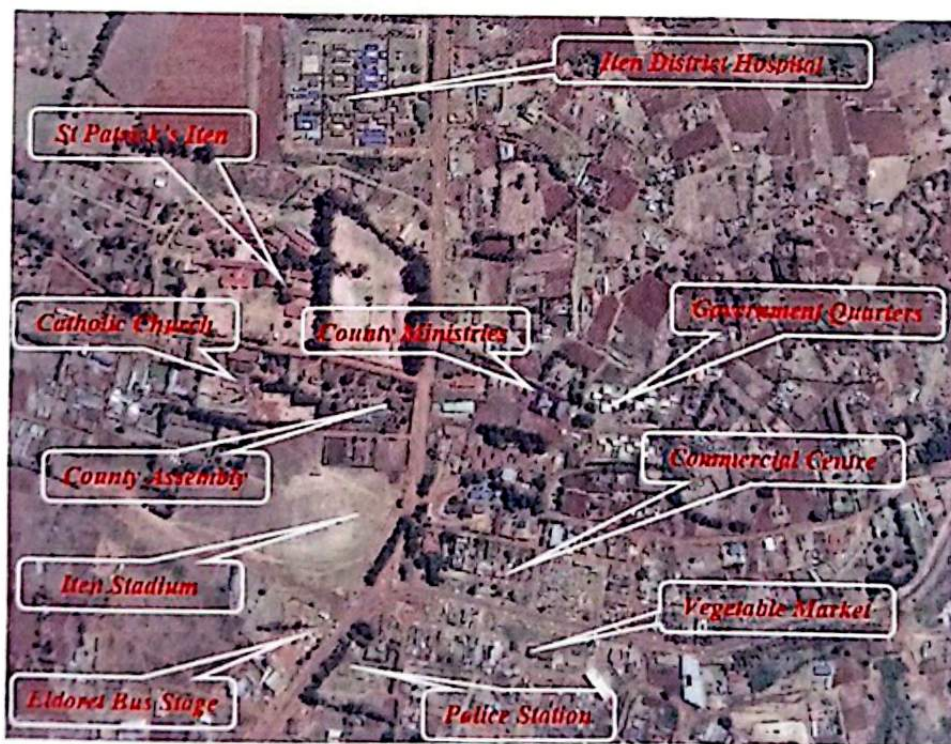


Figure 2: High resolution satellite image of Iten town centre

The controls on spatial resolution ensured the acquired satellite imagery reveals adequate topographic detail at the required resolution for area topographic base map compilation. The cloud cover in the images was kept at zero or minimum possible to avoid obstruction of topographic detail in the satellite imagery. The procurement standards were used to acquire high resolution satellite imagery mosaic of the study area ready for topographic base map compilation

3.3.2. Using Shuttle RADAR Topographic Mission Height Data

As the high resolution satellite imagery does not come with the height dimension, this data was acquired separately. The ground height contour data was generated from Shuttle RADAR Topographic Mission (SRTM) digital elevation models (DEM). This is an open source data available for download in the National Aeronautics and Space Administration (NASA) website. SRTM is a NASA global terrain mapping project. The SRTM DEM data was downloaded from the NASA website and mosaicked in GIS software to generate a complete DEM across the study area as the height information data source. The processed DEM were used to interpolate ground contours across the project area to give the terrain configuration above sea level. The interpolated ground contours were coupled with the high resolution satellite imagery to have a full three dimensional GIS information for compilation study area base map.

3.4. Compilation of Iten Town Planning Area Base Map

The acquired high resolution satellite images were used as source information to compile topographic base map of the study area. The GIS databases of the following topographic layers were designed in shapefile format in ArcGIS 10 software:

- Buildings/Institutions/Settlements/Industries/ commercial centres
- Transport network – Roads
- Agricultural areas
- Wetlands
- Forests
- Escarpments
- Rivers

The topographic layer shapefiles were edited in ArcGIS software to capture the data into their respective shapefiles. For the height configuration of the study area, the SRTM digital elevation data was processed in ArcGIS 3D module to generate the ground height contours at 2-meter height interval. The contour data define the terrain heights across the spatial planning extent. The GIS database of the above topographic layers was developed as an existing development base map. This data was handy in geographic analysis and visualization of the following aspects of the planning domain:

- Settlement patterns
- The existing transport network
- The topography across the planning domain
- The environmentally sensitive areas i.e. wetlands, rivers, landslide-prone areas, forests and escarpments

3.5. Field GPS Survey of Existing Facilities

After the planning area base map was developed, a field survey was conducted across the planning area to map all the existing facilities. The facilities were mapped using global positioning system (GPS) instruments; during which all existing utilities, public institutions, recreational facilities, environmental areas and commercial centres were captured in field mapping survey questionnaire.

The GPS field mapping data was processed and integrated with the developed base map to show where each of the mapped facilities is located in the base map. The extents or boundaries of those facilities were captured as area data in polygon data types in their respective GIS shapefiles.

The Ground truthing mapping exercise enriched the spatial planning base map. This enabled the planning team identify the existing distribution of those land use types as a basis to design the proposed land uses. Specifically, the complete base map with the existing facility overlay enhanced the visualization and answering of the following question:

1. Which are the existing utilities and where are they located?
2. Which are the existing public institutions and how is the distribution?
3. Where are the environmentally sensitive areas?

3.6. Digitization of Existing Cadastral Data

Alongside the existing facilities, a GIS database of the existing cadastral data was compiled and integrated in the town planning base map. Most of the land parcels, especially within Iten town commercial centre are already surveyed with existing land titles. Therefore, it was prudent to capture the existing cadastral database to try and keep the land parcel boundaries intact in the spatial plan (Figure 3).

The County Ministry of Lands, Water & Natural Resources assisted with sourcing existing cadastral information to be integrated with the base map. This data was delivered in form of hard copy survey plans showing the locations and dimensions of the surveyed land parcels. The cadastral layer was captured in AutoCAD environment to generate a digital cadastral layer for integration into the GIS base map. The subsequent proposed land use structure was aligned to this cadastral layer to avoid boundary conflicts.



Figure 3: Iten town centre cadastral layer captured in AutoCAD

3.7. Development of Iten Town Land Use Structure

The preparation of the spatial plan was informed by the existing plans, base maps, socio-economic and biophysical set up. Every effort was made to ensure that the process was participatory and inclusive. After a complete base map of the town was developed, the spatial planning team began to develop the land use structure proposals. The team worked in various groups with specialities in different aspects of land uses.

3.7.1. Development of Transportation Land Use Structure

The transportation land use structure was developed to optimize accessibility across the spatial planning domain. The transportation layer was coupled with the sports theme so that some of the proposed road corridor widths would provide for racing tracks for the athletes and other sports men and women.

The concept of bypasses is used to ensure much of the traffic does not restricted to go through the commercial centres in an attempt to enhance mobility across the planning domain. The Eldoret-Kapsowar road was adopted as the main axis of the planning area. To the West of this road we had the upper altitude area encompassing areas like Sergoit and Chebokokwo; while to the East we had the lower altitude areas covering the upper escarpment, Anin and Kessup area, the lower escarpment all the way down to Kerio Valley. On the upper and lower altitude areas, bypasses of 60 and 40 metre corridor widths were proposed and connected to the Eldoret-Kapsowar road both to the

North and South of Iten town centre. The proposed bypass widths are envisaged to include racing tracks for lower and higher altitude athletic training.

Within the proposed bypasses, lower level roads were proposed to feed the bypasses and ensure adequate and balanced connectivity across the planning domain. For the lower level roads, the proposed widths were 40, 30, and 25 meters. The proposed road networks were aligned as much as possible to the existing road network, mostly by regularizing their corridors and expanding the widths since the land across planning area is mostly private. The road network proposal divided the planning area into blocks, which structured other land use proposals.

For the transportation layer, bus parks, transport nodes, and cargo lorry parks were proposed along the major roads and around the proposed and existing commercial centres. A 2 square kilometre airport was also proposed in the Chebokokwo area.

3.7.2. Development of Environment Land Use Structure

The environmental theme was highly prioritized in the Iten spatial plan. The planning team undertook to protect the environmentally sensitive areas to avoid future destruction. The forests, escarpments, wetlands and rivers were mapped and curved out in the plan to reflect their current status. It was realized from the satellite images that the forests and escarpments had been encroached over time and the trend was worrying if it would continue into the future. Cases in point were Kessup and Sing'ore forests and the upper escarpment.

The land use structure was design to ensure the land uses abutting those environmentally sensitive areas do not clash to perpetuate destruction of the environment. Rivers Anin and Kessup were identified as potential reliable water sources and were clearly mapped for protection.

3.7.3. Development of Commercial Land Use Structure

The commercial potential across the planning area was investigated to design an optimal commercial structure that would spur equitable growth across the area. For this purpose, the existing commercial centres were analysed and adopted as growth centres in their respective regions. For these centres the existing areas of commercial centre was expanded according to their foreseeable growth potential and surrounding population.

Iten town was retained as the main commercial centre with adequate acreage reserved for commercial purpose. For the lower altitude areas, Anin and Kessup were adopted as their sub-commercial centres. For the higher altitude areas, Katalel, Sergoit, and Bugar were adopted as commercial. Another commercial centre was proposed next to the proposed County Administration area.

3.7.4. Development of Utilities Land Use Structure

The utility land use structure was entirely a new one as most of the major utilities like sewage works, solid waste sites, and cemetery did not exist previously. However, the water storage and treatment works existed with just a few more proposed at the high altitude points to ensure adequate gravity flow.

Two sewerage treatment works are proposed for this planning period, one for the higher altitude and another for the lower altitude. However, this plan envisages the future sewage works, for post this plan, which is proposed in the Rimoi area. These sites were identified using terrain contour analysis to ensure that effluent will flow under gravity.

One solid waste site was proposed between Sing'ore and Burgar along Iten-Kapsowar road. However, solid waste transfer stations sites are proposed around each one of the existing and proposed commercial centres. However, a post this plan site is proposed in the lower escarpment, Rimoi area next to sewage works.

A Cable car route is also proposed with three terminals; one in Kamariny, the second in Kessup and the third in Rimoi next to the Game Reserve.

The currently existing electricity sub-station on the way to Kamariny is mapped and designated as a utility site. Other two power sub-stations are proposed in Anin Centre and in Chebokokwo area next to the proposed airport site.

3.7.5. Development of Public Open Spaces and Conservation Areas Land Use Structure

The recreational and conservation theme was emphasized to go in tandem with the sports theme in spatial planning of Iten town. For this land use, Kamariny and Iten stadia are retained as major recreational sites with a new sport training centre proposed next to Anin centre. Two golf courses are proposed, one next to Kamariny and another one in Rimoi; with an arboretum proposed in Kamariny area along the low density high income residential area. Botanical garden is also proposed next to the proposed County Administration area in Chebokokwo. Within the Kamariny stadium, paragliding take-off site is proposed with two other landing sites in the second escarpment within vicinity or around school compounds.

3.7.6. Development of Agricultural Land Use Structure

Given the agricultural potential of Iten area, the areas with agricultural activity are curved out and reserved for agricultural land use. Mostly the areas encompassing Sergoit, Chebokokwo, Singore and Burgar were identified for agricultural potential. Such areas are delineated for agricultural land use.

3.7.7. Development of Residential Land Use Structure

The residential land use structure was developed to follow existing settlement patterns (Figure 4). Low, medium, and high density residential areas are designated considering the current activities, topography and environmental characteristics of various areas.

The low density residential areas are mainly located around escarpments and forests to mitigate encroachment and also along high end land use areas like recreational facilities. However, the high density residential areas are majorly designated (a) along currently existing roads, (b) where settlement patterns already depict high density; (c) around commercial centres, and (d) next to industrial zone.

The medium density settlement areas were designated between high and low density settlement areas and where the settlement patterns are showing average density trends.

3.7.8. Development of Industrial Land Use Structure

Bugar is designated as the main industrial site of the planning area. This is because Bugar has a concentration of saw mills and the economy has often relied on industrial base of saw mills. Besides, Bugar is close to a forest and located upper side; thus away from wind blowing to other urban land uses. Kamariny area, where we have the KCC cooling plant, has been designated a light industrial area. Light industries like flour (*posho*) mills, auto repairs are permissible in each commercial node.

In efforts aimed at tapping tourism potential, the County Government of Elgeyo Marakwet County commissioned rehabilitation works at the Rimoi National Reserve, valued at Kshs 34 million through the Department of Tourism. The annual County Cultural Festival to showcase the county's rich culture has been established. The County also hosts the KCB M-Benki Safari Rally. The County has forged strong links with the organizers of the safari rally to ensure that it happens in the county every year to become an attraction for both local and foreign tourists.

According to KNBS & SID (2013) access to employment opportunities is still limited with only 18% of the employable cohort engaged in wage employment. The report also indicated that 20% of those in the employable category were full time students while a further 21% were either retired or doing unpaid for house work and 4% had no work. This means, therefore, that only 54% were involved in productive work that included wage employment (18%), family business (10%), family agriculture (25%), and volunteer work (1%).

4.12. Poverty and Economic Inequality

The poverty incidence in Elgeyo Marakwet County is 55.2% compared to the national average of 46.6 percent. This makes Elgeyo Marakwet County one of the poorest counties in Kenya. The widespread poverty incidence is caused by natural resource endowment, high population growth rate and limited employment opportunities outside the agriculture and livestock sector (World Bank, 2011). These problems are exacerbated by lack of opportunities for entrepreneurship brought about by lack of support systems for business start-ups. Poverty-stricken groups include the female-headed households, orphans, widows, street children, beggars, disabled and the handicapped. Additionally, Iten town lacks a strong industrial base to spark off growth and attract additional economic activities.

Figure 5: Distribution of infrastructure and services in Icen planning area



4.13. Financial Institutions

Iten town has four banks, which happen to be the only ones in the county. The banks are Kenya Commercial Bank (KCB), Equity Bank, Transnational Bank and Post Bank. There is also a micro-finance institution, Kenya Women Finance Trust (KWFT) at Iten; with the most dominant SACCO being Teachers SACCOs. Lack of major economic activities in the town restricts the establishment of Banks in the town. This amounts to lost economic opportunities since some residence prefer doing their shopping and banking activities in the neighbouring Eldoret municipality. Interestingly, the locals consider Eldoret municipality in Uasin Gishu as their home town largely because of the shared tradition with the natives of the town.

There are also women groups who operate table banking and merry-go-round initiatives in different parts of the county and this should be improved further by promoting mobile banking as well as the establishment of more SACCOs.

4.14. Markets and Urban Centres

Iten town does not have a well-established market centres. Most of the agricultural produce from the rural hinterland is sold directly to business persons from Eldoret and beyond who provide better prices. Nonetheless, there is increasing demand for fresh produce markets hence the need for more investments into requisite market infrastructure. Both large and small scale business entrepreneurs need markets in order to promote smooth trading activities in the county. However, efforts to establish a well-equipped market have been hampered by shortage of land or poor location. In addition, trade fairs and exhibitions need to also be encouraged to enable business groups to market their produce thus improving marketing opportunities in the county. The hitherto popular Kamariny Agricultural Show collapsed in the late 1990s leaving the local farmers and business people without an avenue to show-case their products.

Further, the county will pursue Twinning or Sister Cities development strategies in order to link major county urban centres with model urban cities in other countries so as to attract investments and replicate best management and investment practices. Already, the county has managed to Twin Iten Town with Irvin City in the USA and, subsequently, representatives of Council members for the Irvin City have visited the county.

4.15. Energy Access

The main source of energy in the county is firewood with about 91% of the population using it as a source of energy. The use of charcoal and paraffin is also another source of energy used by most families within the county and this has led to destruction of vegetation and increase in health hazards. The KNBS & SID (2013) showed that fuel wood and charcoal remained the predominant source of cooking energy with the use of Liquid Petroleum Gas (LPG) only embraced by about 1% of the households in Iten Households. Kapchemutwa registered the highest proportion of usage of LPG at 1.6% while in other wards like Kamariny and Tambach the usage was 0.03% and 0.2% respectively. The use of renewable sources of energy either for lighting or cooking was significantly low. There is therefore need for sensitization and creation of awareness on alternative or renewable

sources of energy like biogas, wind mills, hydro power and solar energy. This will ensure that more sources of energy are tapped hence the opening up the county for investors.

4.16. Roads and Airstrips

Iten is set to become the hub of economic activity in Elgeyo Marakwet County, hence the need for proper transport network to support business and economic activities within the County. The County has a road network of 1,579.4 km of which 152 km (9.6%) is Bitumen (tarmac), 996.2 km is gravel surface (63.1%) and 431.2 km is earth (27.3%). Tarmac is less than 10% of the total road network as compared to an average of 69 percent in other counties with better road networks. The 996.2 km gravel surfaced roads are crucial in accessing major agriculture and settlement areas of the county while the 431.2 km earth surfaced roads are difficult to navigate, especially during rainy season. It is expected that the tarmac road coverage will increase after completion of construction of Iten-Bugar road which is on-going. It is also anticipated that all the earth surfaced roads will be improved to gravel standards as the county also endeavours to open more roads in order to improve access to markets and open up the county for development.

The development of Iten town is hinged on the development of the county; which would depend on feeder roads constructed to all-weather roads along the Kerio Valley (Kipsies-Socolow-Kimwarer-Emsea-Tot) and on the Highlands (Nyarukaptarakwa-Iten) by the national government. This should be given the highest priority by the county government. All-weather roads would promote investment in the county, development of agriculture, promotion of trade; enhance delivery of health care services and education, as well as business information. Proximity to Eldoret International Airport and the railway line passing the neighbouring Uasin Gishu County also have great potential to promote trade between the county and other neighbouring counties.

Apart from surface transport described above, there are two airstrips in the county; one at Tot in Marakwet East and another at Chepsirei in Keiyo South. Though these airstrips have not been utilized optimally, their maintenance has been irregular and thus is in a deplorable state. Besides these, there is need to develop a new airstrip within Iten town planning area.

Iten town, however, does not have proper road network within its estates. The existing roads are narrow and poorly developed with a large proportion not having any drainage system. Apart from the roads passing through the town from Eldoret to Baringo and the one under construction from Iten to Kapsowar-Kapenguria, there are no tarmac roads within the town centre. The lack of proper road networks in Iten town stands as a major impediment to the development of high end estates and other industrial and commercial enterprises.

Chapter Five: Land Use Analysis

5.1. Origin and History

Iten town traces its origin to 1919 when the colonial regime established Kamariny station as the administrative centre for Elgeyo area. The administrative centre was later moved to Tambach (Elgeyo Marakwet, 1980). Elgeyo Marakwet District was formed in 1927 with Tambach as the headquarters for about 50 years, until 1976 when the headquarters was moved to Iten. The district headquarters was moved from Tambach to Iten town because of poor road infrastructure and lack of land for expansion. Tambach terrain was characterised by undulating terrain with limited space for expansion. When the late President Kenyatta was touring the area recognized the difficult terrain and ordered the headquarters to be moved from Tambach to Iten (Kenya, 1983). Iten and Tambach were later joined to form Iten-Tambach Town Council with an area of 144km² (ITWASCO, 2014).

The Constitution of Kenya, 2010, established the devolved system of government in Kenya. The devolved system of Government created 48 entities, i.e. National and 47 County Governments. Elgeyo Marakwet County with its headquarters in Iten town has four districts, i.e. Keiyo North, Keiyo South, Marakwet East and Marakwet West. Save for the time when the administrative functions were briefly moved to Tambach, Iten town has since its establishment performed administrative functions, especially district headquarters (Kenya, 1996).

The name 'Iten' was coined from the words "Hill Ten", which were inscribed on a rock by a British explorer Joseph Thompson in 1883. The rock on which the British explorer inscribed the words lay along the road toward Kessup, about 800 metres from Iten town centre, (Bartoo, 2009). On the rock the British explorer inscribed the number of hills he had conquered. Therefore, the local communities unable to pronounce Hill Ten, called the place Iten.

Iten town dates back to 1950s; when the town grew as an agricultural hub due to its favourable climate. This led to the establishment of Kamariny Agricultural Show, which was opened by Queen Elizabeth II in 1952. Initial investors in Iten town were prominent farmers who set up the first businesses. Development of the town was given more impetus with the advent of Irish Catholic Church Missionaries who established a church and a school (St. Patrick's High School). The major impetus of the town's growth is driven by its administrative functions as the district headquarters of Elgeyo-Marakwet District. In addition, as the centre of excellence in sports; Iten town has attracted high altitude training and paragliding putting the town in the global map.

5.2. Location and Size

Iten Town is located along Kabarnet-Eldoret Highway at an elevation of 2,400m above sea level. It is located within coordinates 00 40'23"N and 35030'30"E (Figure 6). The town is located approximately at the centre between Kabarnet and Eldoret, 31 and 33km from Eldoret municipality and Kabarnet town respectively. The area of the town was 0.79km² in 1985, in 2006 the boundary was extended to 11.4km² and the proposed plan will cover just over 200km².

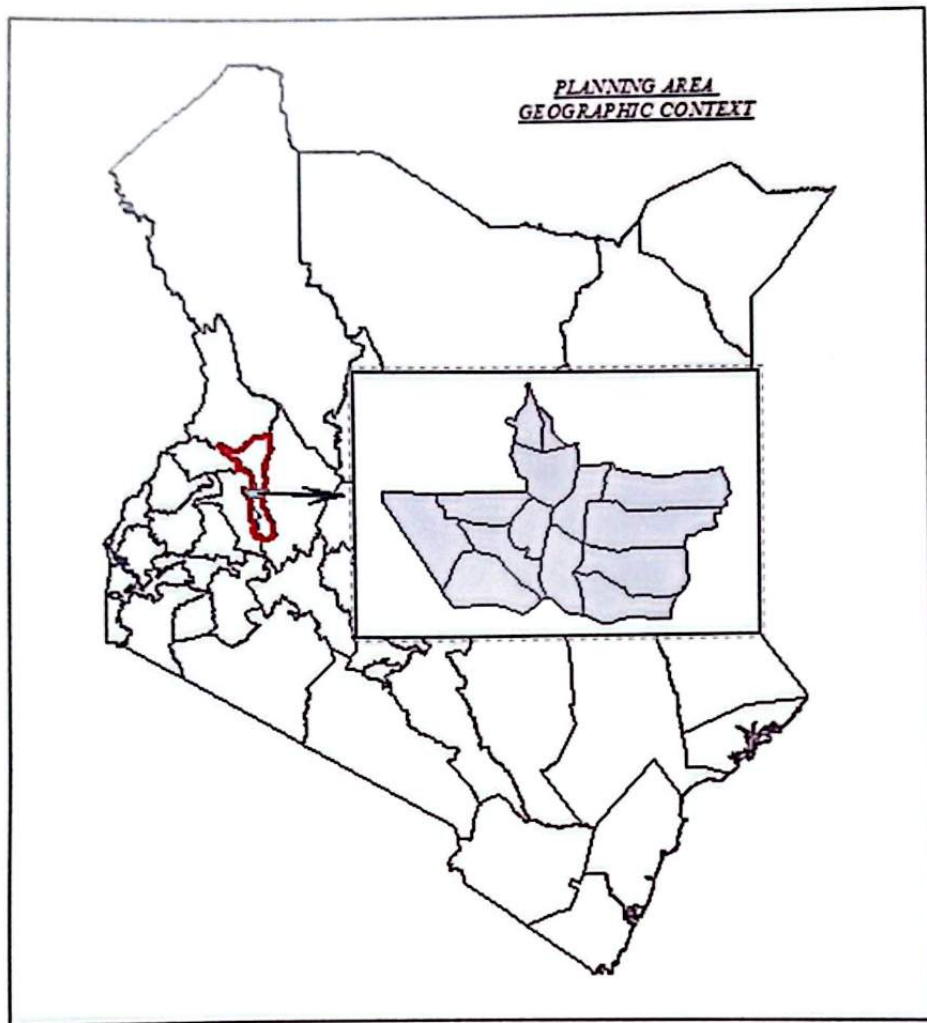


Figure 6: Location of Iten town planning area in the national context

5.3. Biophysical Characteristics

5.3.1. Climate

Iten town experiences two rainy seasons a bi-modal tropical climate influenced by Inter-Tropical Convergence Zone (ITCZ). The long rainy season occurs between March and June, while the short rainy season is takes place between September and November. The mean annual rainfall is 1,263mm. There are no distinct dry months, but December, January and February have less precipitation. The annual rainfall for the areas averages between 1210mm to 1500mm. The temperatures range between 15° C and 24° C with a mean of 19°C. Table 9 shows the average monthly rainfall recorded in nearby rainfall stations.

Table 9: Average monthly rainfalls (mm) in Iten planning area

Month	Elgeyo Border ¹	Keiyo District ²	Iten ³	Kaptagat Forest ⁴
Year	1966-1975	1987-1991	1990-2007	1983-2007
January	30	38	30	65
February	70	80	47	66
March	69	95	108	105
April	180	153	207	173
May	160	173	142	133
June	132	97	73	134
July	181	178	119	139
August	162	91	104	147
September	62	57	51	83
October	65	124	63	91
November	87	117	150	111
December	60	58	117	74
Total	1258	1261	1212	1322

The high altitude influences not only the temperature, but also rainfall regime in the town. The high altitude offers ideal condition for athletics training as it is characterized with low concentration of oxygen. Training in an environment with low concentrations of oxygen better prepares athletes to excel in global competition.

¹ Ministry of Transport and Communications, Kenya Metrological Department Data 1996

² Ministry of Planning and National Development, Elgeyo/Marakwet District Development Plan 1994 - 1996

³ Ministry of Water Development – Keiyo District, Iten 2008

⁴ Kaptagat Forest Station 2008

5.3.2. Topography and Drainage

The topography of Iten town planning area is influenced by the Rift Valley formation. The topography is defined by the two levels of Elgeyo escarpment (Figure 7). The highest point in the town is 2416m above sea level, along the escarpment; whereas the lowest point is on the floor of Rift Valley, which is 1042 metres above sea level. To the far end of the town in Sergoit wetland is the lowest point at 2125m above sea level. To the West of the escarpment, the topography is generally gently sloping with some relatively flat pockets and valleys. To the East of the escarpment, there are two broad categories of landscape. Between the two escarpments, there is a relatively undulating terrain with pockets of steep slopes. The terrain in this part of the town can support urban development. After the lower escarpment, in Rimoi area on the Rift Valley floor, which is characterised by a relatively flat land that is amenable to flooding.

The topography of the area also influences the drainage regime in the town. The planned area has limited surface water resources. The western part of the town beginning from the upper escarpment, there are no permanent rivers save for seasonal streams. But the area is endowed with wetlands, which are threatened by human encroachment. The only two rivers (Kessup and Sing'ore) in the planning area originate from the upper escarpment and drain to Rimoi. Kessup River originates from Kessup forest, while Sing'ore River originates from Sing'ore forest (Figure 7).

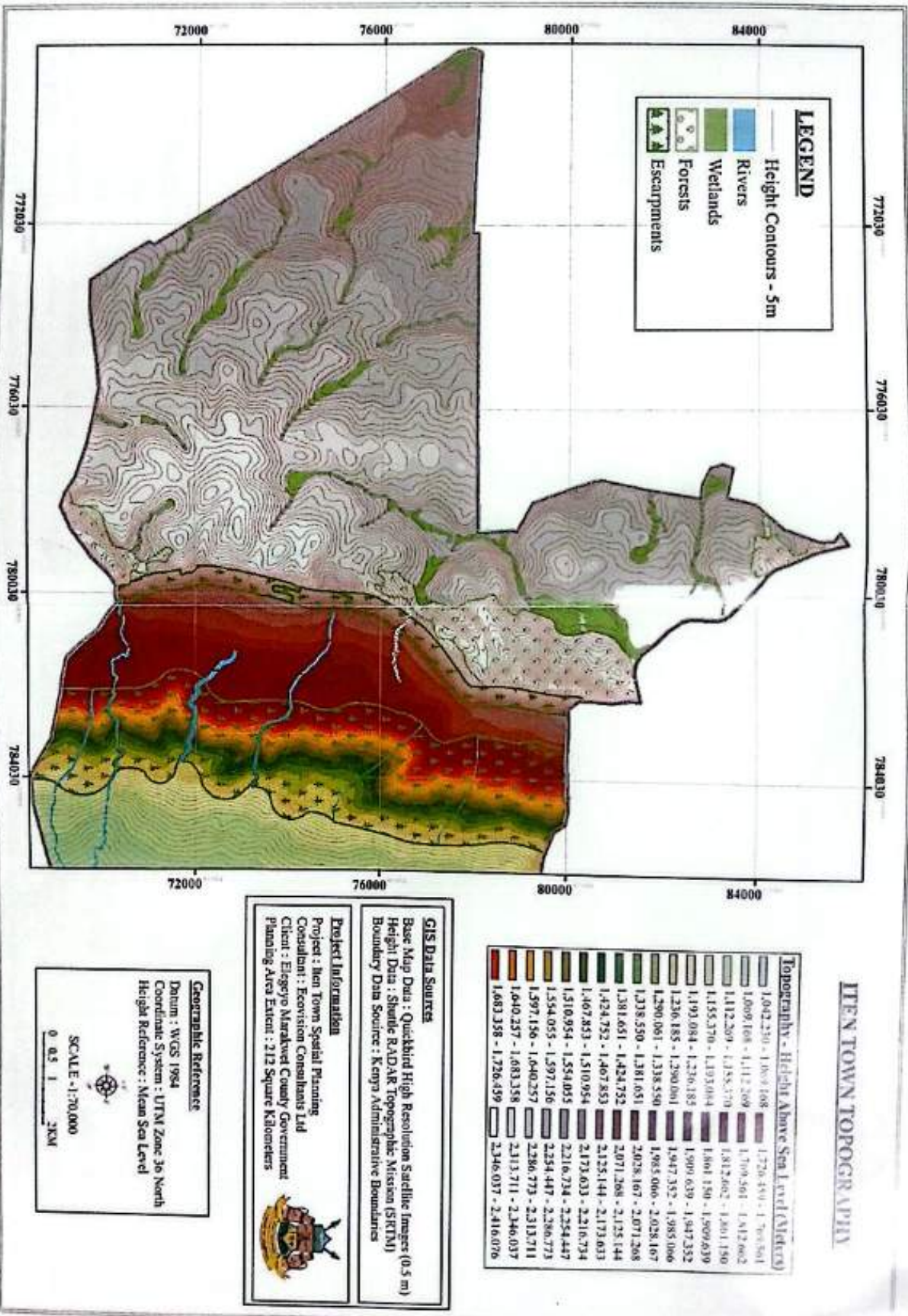


Figure 7: Ifen planning area topography and drainage.

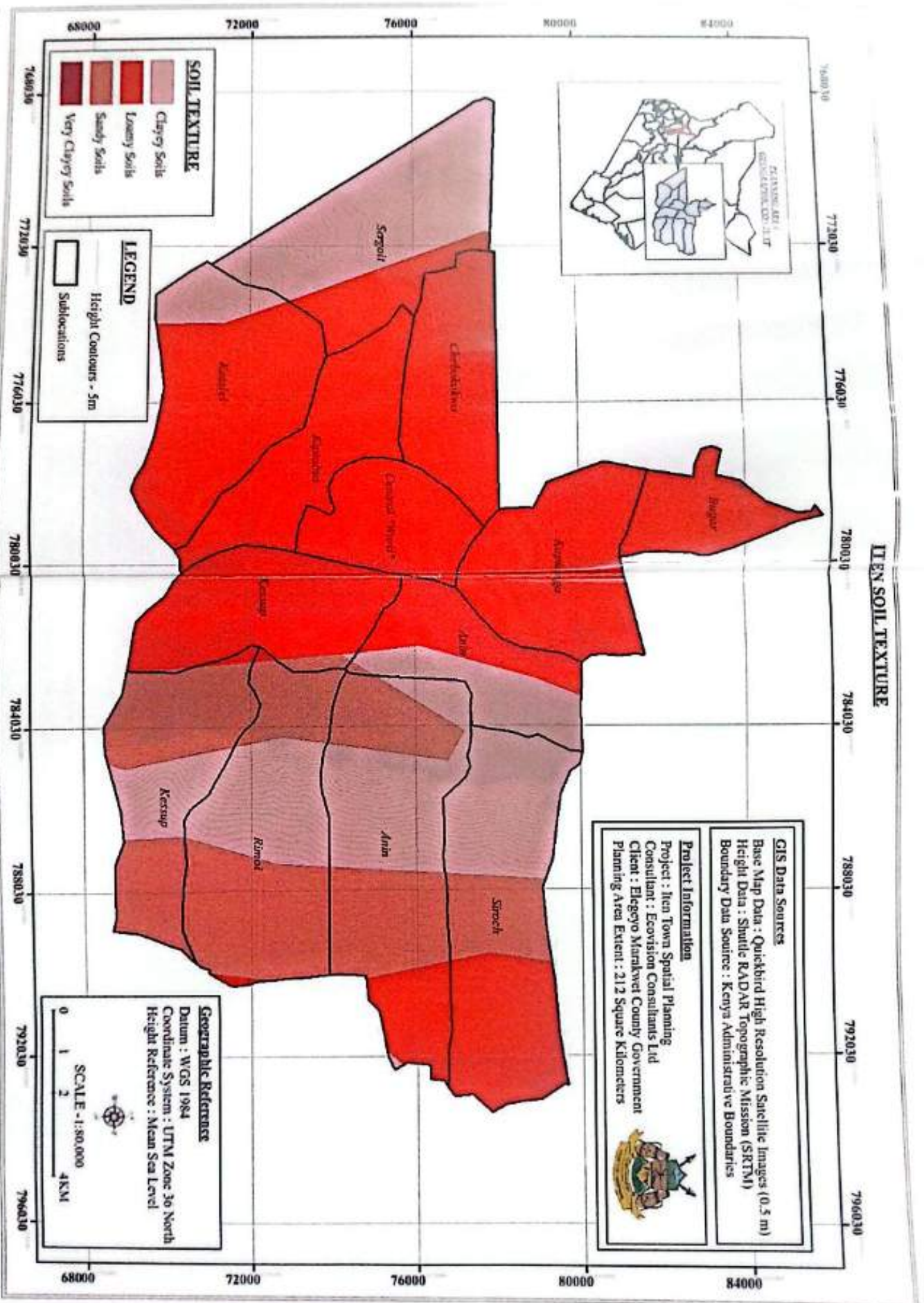
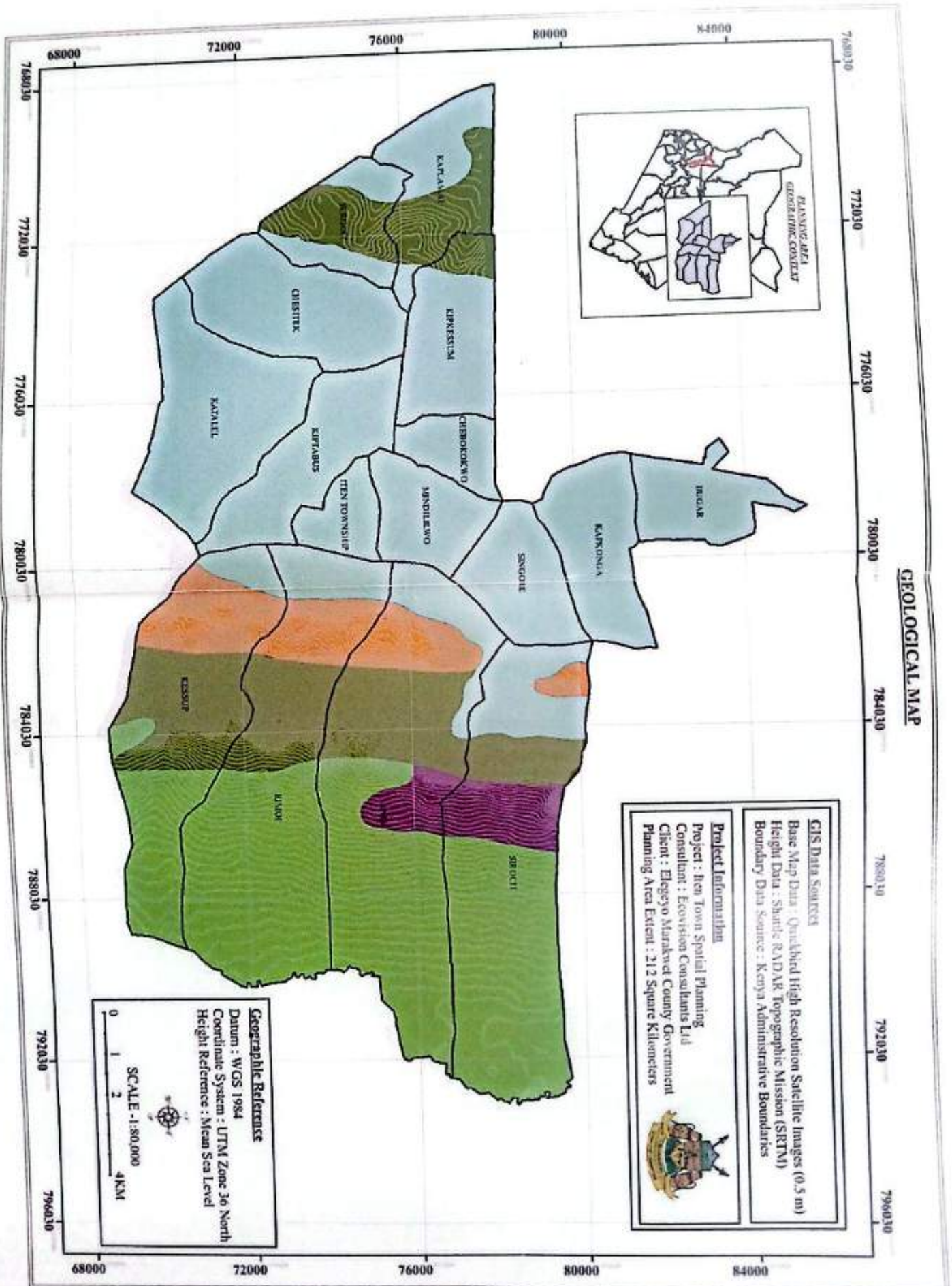


Figure 8: Soil structure of Iken town planning area

Figure 9: Geological structure of Iten town planning area



5.3.3. Geology and Soil

Iten town planning area geology comprises a succession of volcanic rocks and sedimentary rocks overlying basement metamorphics in the following stratigraphic succession (Figure 9):

- i. Volcanics, which comprise of *Upper Uasin Gishu phonolites* and *Lower Uasin Gishu phonolites*.
- ii. Sedimentary, which comprise of *Sandstones and conglomerates of the Tambach formation*.
- iii. Basement, which comprise of *Quartzites and Quartzo-feldspathic paragneisses*.

The volcanics form the plateau on which Iten stands, reaches a thickness of 300 metres. Tambach formation on which the phonolites lie has a maximum thickness of about 100 meters. In the western side of Iten (Sergoit area) the sandstone unit is absent and the volcanics overlie basement.

Several fault lines dissect the area as can be seen in the geological section (Figure 10) taken from GR 770000 E, 76001 N to 793578 E, 76001 N (WGS84). Iten town planning area is situated on two major faults and bounded on its eastern edge by a third.

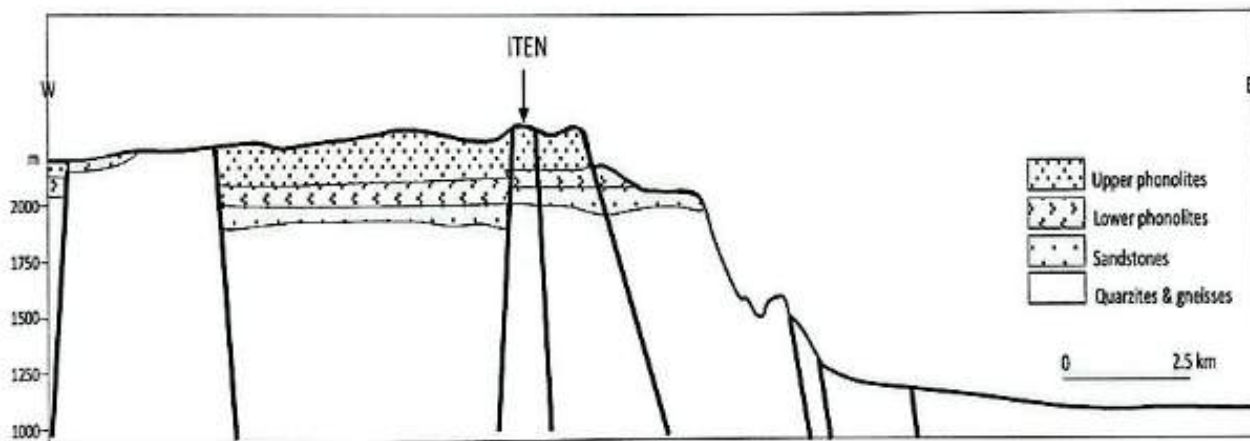


Figure 10: Geological section across Iten town, 1 kilometre north of Hospital Road junction

The two fault lines are barely 500 meters apart in the middle of the town. This implies that the current town area sits within the fault-zone, an area that is structurally weak due to disturbance in the rock caused by fracturing, slickensides, and probable shear movements, sliding and deep weathering. The phonolite rock on which the town sits is therefore likely to be fairly fractured and poor rock quality. Joints in the rock will probably be infilled with clay derived from the volcanic soil and weathering.

On the whole, the western side of the town stands on less disturbed ground, on a fault block that is 5km wide. This area is therefore more stable and suited for taller multi-level structures than the core of the town. At the town core structures that sit right on the fault lines are expected to be prone to instability, leading to structural cracks.

In terms of the bearing capacities and rock strength, the phonolite rock, if moderately hard will have an expected UCS of between 25-50 MPa. When fresh, the rock can have UCS of 100-250 MPa. In the fault zones the rock is expected to have much lower UCS of less than 10 MPa. Figure 5.5 shows relationship between UCS and friction angle that is useful for estimation of the bearing capacities⁵.

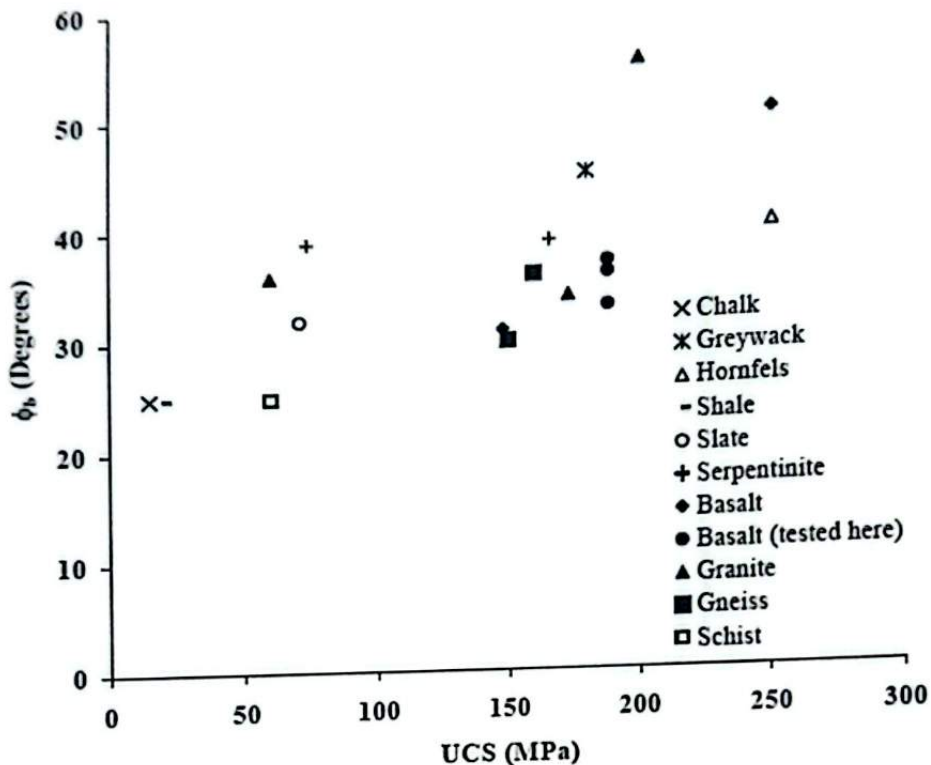


Figure 11: Basic friction angles as a function of UCS for various rock types (Waltham, 1994).

The rock formation in the town is influenced to a great extent by the formation of Rift Valley evidenced by the two Elgeyo escarpments, Kerio Valley floor and the land area spreading from the escarpment westwards. The rock structure determines the intensity of urban development. Phonolites, trachytes and olivine basalts are the dominant one covering over a half of the planned area stretching from Bugar to the North to Katalel to the South. This is the area where, high rise building would be permissible. The escarpments and Rift Valley floor places constraint on the scales of urban development permissible in the area. Other geological formations in the planned are: (1) Holocene, alluvium, evapoitic depression especially in Rimoi area; (2) quartzites and micaschists in Sergoit and Kessup; and (3) Miocene, marks, limestone and sands are also found in the planned area occupying parts of the area between the two escarpments; and (4) crystalline limestones rocks are also found in parts of Rimoi.

⁵ For Iten the basalt is comparable to phonolite

The soil type in the town is relatively varied (Figure 8). Loamy soil is the most dominant one covering over a half of the planned area. Other soils found in the area are clay and sandy soils. The soil types are important determinants in land use allocation. At the moment, most of the planned area is under agriculture (crops and livestock). As urbanization takes root, urban agriculture can be progressively paced out, except in areas designated for the same even in future.

5.3.4. Biodiversity and Tourism Resources

Biodiversity refers to the total variations of living organisms that exist on the planet comprising of genetic, species and ecosystem diversities (Stuart, Adams, & Jenkins, 1990). The town is home to rich biodiversity resources. There are two forests with huge swathe of indigenous tree species and other fauna and flora. In addition, Rimoi national reserve with unique wildlife resources is located in the town. Therefore, Iten town planning area is the only urban area after Nairobi City County with wildlife conservation area.

Key biodiversity resources found in the town area include *Acacia spp*, *Themeda triandra*, *Cynadon dactelon*, *Balanitis aegyptica* and fauna, i.e. Elephants, Monkeys, Baboons, Dikdiks, Warthogs, Civet Cats, Tortoise Hammer kops, Weaver birds, Pigeons, Bee Eaters, Ibis, Spurs Fowls (Keiyo District Environment Office, 2004). These biodiversity resources offer real opportunity for tourism, ecotourism and other nature based enterprises.

Rimoi Game Reserve is protected by Kenya Wildlife Service (KWS) and is located on the floor of Kerio Valley, along Iten-Kabarnet road, 30km away from the town. It provides beautiful scenery rich in biodiversity and is one of the few protected areas within the Kerio Valley. The main attraction in the reserve are herds of elephants, leap of leopards as well as, buffaloes, impalas, nocturnal mammals and hundreds of bird species. The rich culture of the local community offers opportunities for culture based eco-tourism.

5.3.5. Land Use Types, Trends and Patterns

The 1985 local physical development plan for Iten town is the only known plan for the town. The plan was prepared by Keiyo Marakwet County Council (Figure 12; Table 10). Educational facilities were the dominant land use accounting for 26.7% of the area. This may have been informed by the influence of Catholic Church Missionaries that established the educational institutions, for example St Patrick's Iten. Unlike typical urban plans in which residential land use accounts for a significant share of the land area, in Iten town residential land use account for 18.5% of the land area. Commercial land use accounted for the least share of the land area, i.e. 0.9%. The dominant role of administrative function in the town is exemplified by the area allocated to public purpose function standing at 10.4%. The town was the District Headquarters with District Hospital, St Patricks High School, Iten Polytechnic, and a host of primary schools; which are major sources of employment and thus drivers of economic activities.

Table 10: Iten town land use budget in 1985 and 2006

Land Use	Year 1985		Year 2006	
	Area (m ²)	Percentage	Area (m ²)	Percentage
Residential	146,226.00	18.5%	6,645,992.00	58.4%
Industrial	49,641.00	6.3%	138,432.00	1.2%
Educational	211,058.00	26.7%	435,685.00	3.8%
Recreational	33,155.00	4.2%	850,496.00	7.5%
Public Purpose	81,871.00	10.4%	463,275.00	4.1%
Commercial	7,309.00	0.9%	334,307.00	2.9%
Public Utility	32,735.00	4.1%	88,033.00	0.8%
Transport	168,167.00	21.3%	190,000.00	1.7%
Deferred/Agriculture	59,903.00	7.6%	2,232,673.00	19.6%
Total	790,065.00	100.0%	11,378,893.00	100.0%

After a 20-year period, the physical development plan was revised in 2006. The plan was revised to respond to the changing circumstances. The plan was meant to reinforce the town status of Iten. (Table 10; Figure 13). The 2006 physical development plan saw major changes in land use structure with residential development allocated with 58.4% of the total land area compared with 18.5% in 1985. Differed/agricultural land allocation was increased from 7.6% in 1985 to 19.6% in 2006, which may be attributed to township boundary extension to agricultural land. The increase in residential land use may be attributed to increase in administrative, health and education services and high number of athletes training in the town to take advantage of the high altitude training grounds (Bartoo, 2009). It is important to note the decrease in the provision of industrial use from 6.3% to 1.2% educational land use from 26.7% to 3.8% and transport from 21.3% to 1.7% in 1985 and 2006 respectively (Table 10). The changes in land use structure may be attributed to increasing focus on other land uses. Industrial development has literally failed to take off in the town, the town failed to effectively respond to the growing needs for education and transport. The decreasing share of educational function could be explained by increasing focus on residential development that initially accounted for a relatively small share of land.

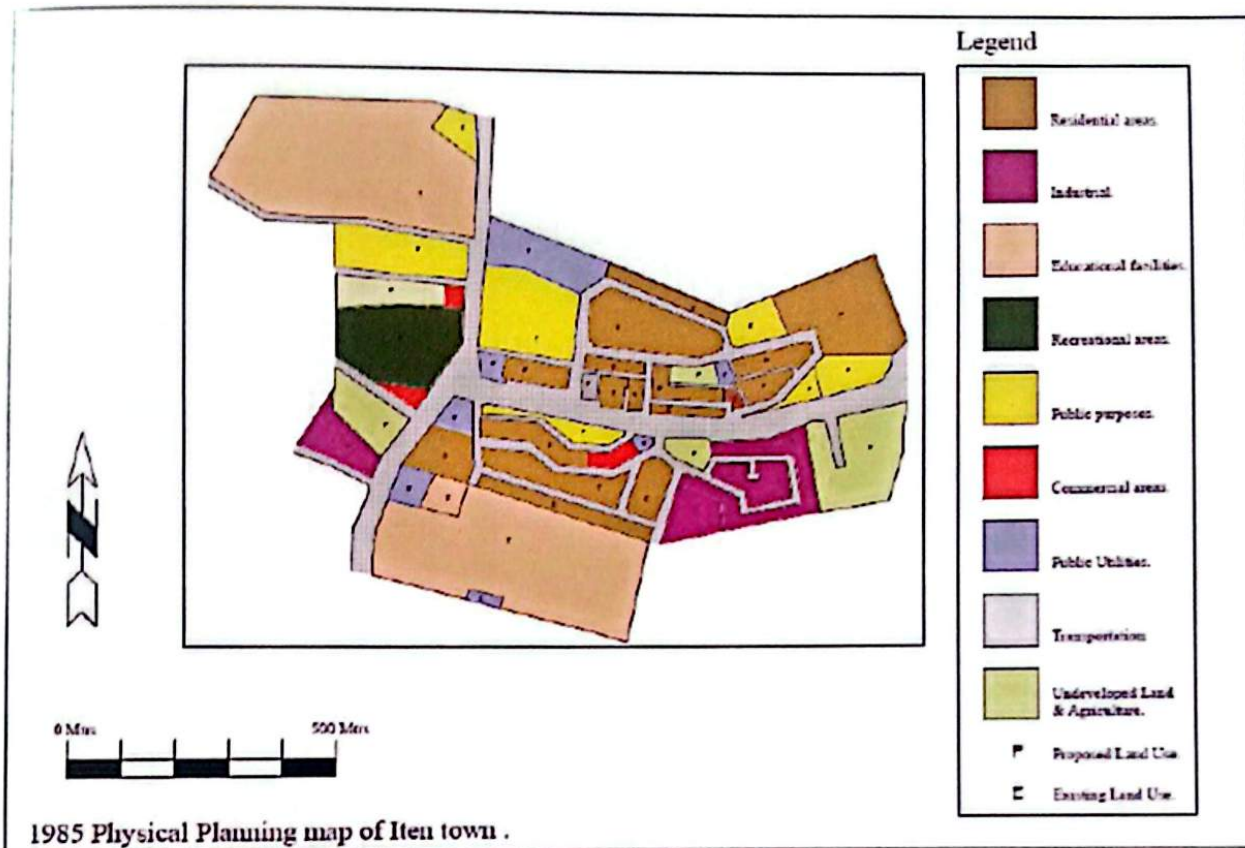


Figure 12: 1985 Iten Township Land Use Structure

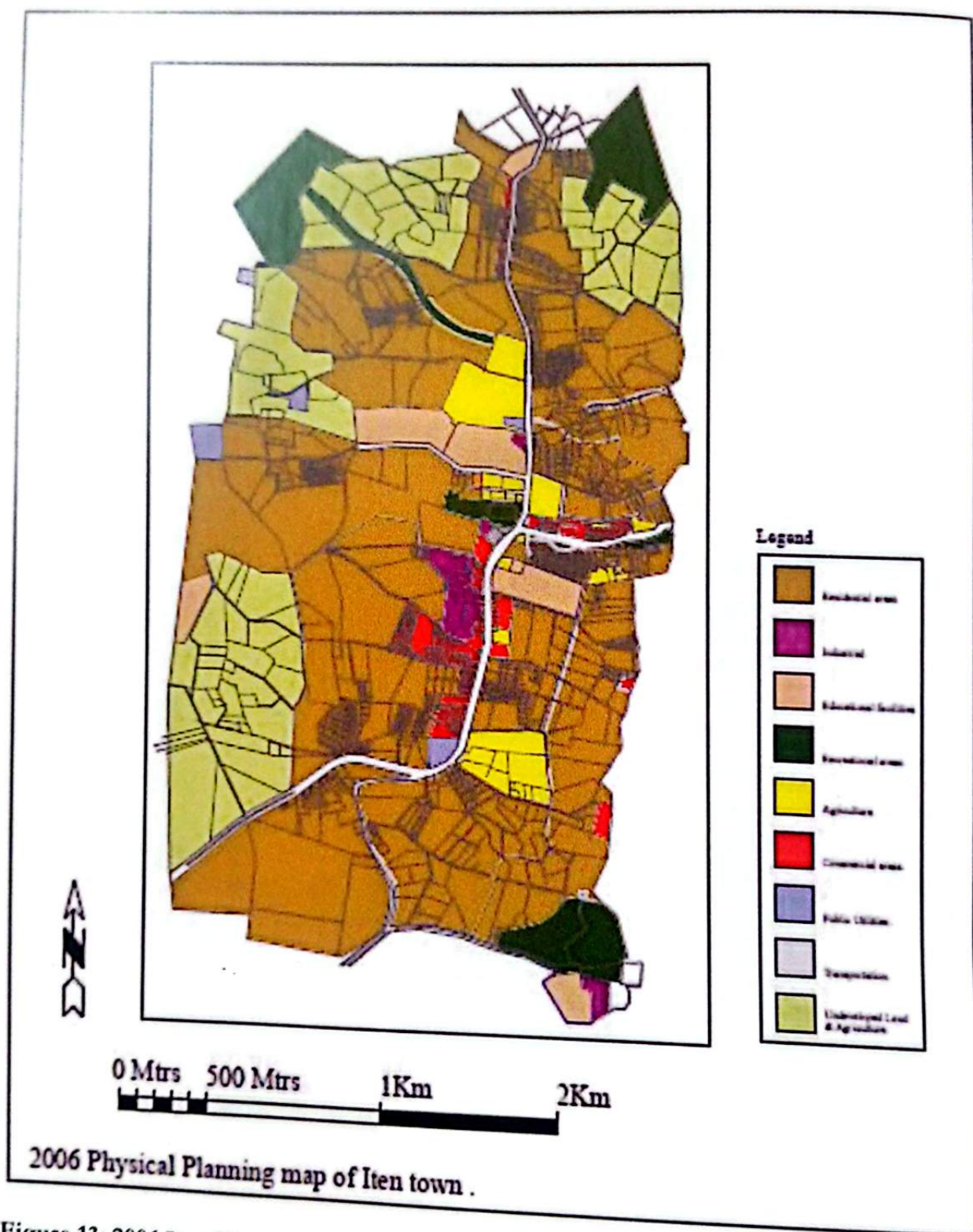


Figure 13: 2006 Iten Township Land Use Structure

Urban development in Iten Town took a linear form growing mainly along Iten-Eldoret road, Iten-Kabarnet road and Iten-Kapsowar road (Figure 12 & Figure 13). This is mainly because of poorly developed infrastructure away from these major growth corridors. The total land area occupied by the town was approximate 79 ha (0.79km²) in 1985 and in 2006 the town area was increased to 1140ha (11.4km²). The revision of the plan in 2006 saw increased sophistication in the town's land use system covering 11km² compared with just 0.79km² in 1985 plan.

Both 1985 and 2006 physical development plans failed to embrace comprehensive and integrated urban planning approaches. The plans did not adequately provide for all urban land uses. The plans are particularly weak on public open spaces, infrastructure, social amenities, commercial and industrial development. The town's land use structure today has seen organic growth occurring outside the planned area, which is evidence of ineffective planning and weak development control mechanisms. Furthermore, land is predominantly held in private hands with unique challenges on development control and acquisition for requisite infrastructure and public utilities. The development has occurred below the first escarpment and spread to agricultural hinterland towards Sergoit and Bugar. Thus, there is need for a more robust plan that is responsive to the changing circumstances, i.e. new constitutional order.

5.4. Land Use Planning Challenges

Iten town is facing a number of challenges, namely:

- **Ghost town**

The town has been considered a stopover town and administrative town attracting limited investment. The economy of the town is largely dependent on administrative function and limited commercial enterprises. Most of those working in the town actually live in Eldoret municipality. Locals prefer shopping in neighbouring Eldoret, which is 31km away. Apart from a few athletes other well-to-do residents have invested elsewhere and have only built residential houses in Iten town. The town lacks housing, social amenities and basic infrastructure, no wonder some of the workers reside in the well-developed Eldoret municipality.

- **Spatial planning**

The existing town plan is not comprehensive and integrated covering just 11km². There is evidence of organic growth, especially outside the planned area. Even in the planned area, development control remains weak. There are no existing planned industrial districts (PIDs) and survey plans. The survey plans for the town precincts are available but most of them are very old and dilapidated. About 60% of the town is surveyed and beaconed; but are mainly under private land. Trend of land subdivision in the Town indicate that most subdivisions are done in peri-urban areas. These are majorly the areas of Irong-Iten and Iron-Sergoit.

These subdivisions are not controlled by any planning standards and procedures. These uncontrolled subdivisions are mostly done traditionally and documentation is done later. There are no records of the subdivision schemes. Classified roads are generally within standards; but the local road reserves sizes in the town are mostly between 6 to 9m. There is rampant encroachment on the road reserves; which is attributed to weak development control mechanisms.

- Weak infrastructure

The town lacks basic infrastructure required for a well-functioning urban entity. Apart from Eldoret-Kabarnet road that traverses the town, the roads are not only poorly designed, but are seasonal. In addition, the town lacks water supply, sanitation and solid waste management, drainage and housing.

- Governance and management

The town lacks well defined and functioning governance and management structures. Commercial and residential activities are growing fast; but without due regard to the procedures and planning regulations. There is no development control and enforcement mechanism in place, especially zoning and development plans. The town lack adequate staff to monitor development, hence most development is done without any planning and approval. Action plans are non-existent. The former Iten-Tambach Town Council did not submit planning documents to County Offices in charge of Planning.

- Collapse of Kamariny Agricultural Show

The Kamariny Agricultural Show, which used to attract farmers and businessmen from all over the country as well as abroad collapsed in the 1990s; thus denying the town the much needed growth impetus.

- Lack of coordination among the players in the planning industry; thus no harmonized development.

Chapter Six: Infrastructure and Services

Infrastructure is a key component of investment climate. The principles of the spatial plan are good urban governance, competitiveness, connectivity, inclusivity, equity, liveability and environmental sustainability. Attainment of these principles require adequate, efficient and effective infrastructure. Infrastructure reduces costs of doing business and enables people to access local and regional markets; is crucial to advances in agriculture; is a key enabler of trade and integration and is fundamental to community's development. Infrastructure investments also represent an important untapped potential for the creation of productive employment for the unemployed youth.

The aspects covered under infrastructure and services in the spatial planning are water supply, sanitation, drainage, solid waste management, transport, communication, and energy.

6.1. Water Supply

Iten-Tambach Water and Sanitation Company (ITWASCO) is the licensed water service provider in Iten Town and its environs. ITWASCO is a corporate entity established in 2008 under the companies Act (Cap 486) of the laws of Kenya. It was issued with Service Provision Agreement (SPA) between it and the Rift Valley Water Services Board (RVWSB) to provide water and sanitation services in the approved areas. The approved supply areas are Kapkonga, Anin, Chebokokwa, Kptabus, Sergoit, Katalel, Kessup, Iten Township, Tambach and Kapterik. Figure 14 below shows current coverage of ITWASCO. Tambach and Kapterik are outside the planning area.

ITWASCO works under RVWSB and Water Services Regulatory Board (WSRB). RVWSB is mandated to contract, monitor and enforce agreements between the Board and ITWASCO in accordance with regulations set by the WSRB; ensure effective and economical provision of water services within its area of jurisdiction; monitor and acquire assets; plan, manage and develop water and sewerage services; and take custody of water services provision assets. Direct provision of water and sewerage services is undertaken by ITWASCO who are the RVWSB's agents. ITWASCO operates the schemes on daily basis and undertakes routine maintenance.

WSRB is mandated to oversee the implementation of policies and strategies relating to provision of water and sewerage services. Some of the key functions of WSRB in relation to water and sanitation service provision include development of guidelines for fixing of tariffs and issuing of licenses to RVWSB for the provision of water services.

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Table 11: Water sources, production capacities and coverage in Iten town planning area

No	Water Source	Area of Supply	Sub- location	Location	Production (M ³) /day	Coverage %	Current NRW %
1	Yokot Weir Reservoir	Iten Town & Environs	Iten Township Kiptabus Chebokokwa Mindililwo Rimoi	Irong Irong Chebaror Chebaror Kamogich	900	24	32
2	Kamariny Weir Reservoir	Kamariny towards Eldoret up to Katalel	Kiptabus Katalel Chesitek	Irong Irong Sergoit	120	3	38
3	Chebokokwa Borehole	St. Patricks MTC Hospital	& Iten CBD	Irong	20	1	5
4	Tambach Spring	Tambach Area	Kapterik Kipkaa	Kiptuilong	80	1	32

6.1.2. Water Losses

Production and billing volumes obtained from ITWASCO indicate that water losses in the system range from 5-38%. The maximum allowable loss of water in the system as per the water services regulatory body is 25%. The main causes of water losses in the supply area are dilapidated infrastructure, pipe bursts and leakages. Water losses in the distribution system require additional treatment of water to meet the demand, hence more energy and chemical inputs and subsequently loss of revenues and wastage of resources. Most of the water supply schemes are pumping systems and high percentage of NRW increases the operational costs considerably. This requires efforts to attain the allowable system losses. A well implemented water loss control program not only reduces revenue loss, but it can also protect public health by eliminating the threat of sanitary defects that may allow microbial or other contaminants to enter the finished water.

6.1.3. Water Storage

The current storage capacities for the four sources of water are 770m³. Due to the growing population, the storage capacities of the town have been overstretched. The water storage tanks are located in the compound of ITWASCO offices and in Iten Police Station. The storage consists of twin 225m³ and twin 150m³. The remaining 20m³ is distributed within the supply area.

To cushion water usage fluctuations, storage is normally estimated between 30-50% of the water demand. The current storage is about 22% of the demand, which is low.

6.1.4. Tariff Rates Vis a Vis National Water Tariff

From the analysis of water production and water billed, the estimated average tariff for water consumed within ITWASCO jurisdiction is Kshs 104/m³. This is considerably high compared to the normal range of residential consumption where the average rate is less than Kshs 100/m³.

6.1.5. Operation and Maintenance Costs

Operation and maintenance cost coverage is the extent to which internally generated funds cover the cost of running the water service provider. A water service provider is considered to have reached full cost coverage when it reaches at least 150% of its operation and maintenance cost coverage. The average monthly revenue collection for 2014 stood at Kshs 1,062,000 and the monthly production, operational and maintenance costs stood at Kshs 998,000. This implies that the net revenue is marginal. Cost of unit production of water is estimated at Kshs 11/m³ and operational and maintenance costs stands at Kshs 20/m³.

6.1.6. Future Water Sources

The Belgium Government is currently undertaking construction of Sabor water supply project. This is a gravity system and the ultimate production (2033 horizon) is 4,280m³/day. According to the design report, the supply area is categorized as Iten/Tambach and pipeline enroute areas. Enroute areas consume about 52% of the total ultimate water production while Iten/Tambach consumes about 48%. This implies that the ultimate supply from Sabor water project for the planning area is about 2,050m³/day. Proposed Sabor water supply will not cover the entire planning area, but part of it as illustrated in Table 12.

Table 12: Proposed Sabor water supply project coverage of Iten town planning area.

Division	Location	Sub location	Area (km ²)	Water supply coverage (%)	Coverage (km ²)
Kamariny	Irong	Iten Township	3.0	100	3
		Kaplamai	10.0	0	0
		Katalel	15.0	100	15
		Kiptabus	10.0	100	10
		Sergoit	7.0	0	0
		Chesiteck	12.0	100	12

Division	Location	Sub location	Area (km ²)	Water supply coverage (%)	Coverage (km ²)
Tambach	Chebarot	Chebokokwo	4.0	100	4
		Kapkessum	9.0	0	0
		Mindililwo	6.0	100	6
	Kamoi	Kapkonga	8.0	100	8
		Singore	7.0	100	7
	Kapchemutwa	Bugar	6.0	0	0
	Kiptulong	Setek	13	40	5.2
	Kamogich	Anin	33.0	17	5.61
		Kessup	22.0	23	5.06
		Rimoi	29.0	17	4.93
		Siroch	29.0	0	0

6.1.7. Current Water Demand and Supply Deficit

The current production for the planning area within the ITWASCO supply area is 1040m³/day. Based on projected population, the estimated water demand for normal design horizon and the current deficit is shown in Table 13.

Table 13: Current water demand and supply for Iten town planning area

Water supply planning horizon	2015
Water Demand Projections, m ³ /day	3203
Current water production, m ³ /day	1040
Projected Deficit, m ³ /day	2,515

6.1.8. Protection of Water Catchment

Main water sources in the planning area are weir reservoirs. Their capacity is easily reduced with uncontrolled cultivation upstream and clearing of the riverine forest reserve. During data collection, the management of ITWASCO indicated to the planning team that destruction of the riverine forest and uncontrolled cultivation of farms upstream was a great concern to the conservation of the water catchment. The following sources face extinction if protection of the catchment is not attended to with immediate concern.

1. Yokot (River Kessup) Water Supply
2. Kamariny Spring Intake Water Supply
3. Tambach Water Supply (Kabui)

4. Singore weir reservoir

6.1.9. Water Quality

Due to cultivation upstream the reservoirs, water supplied to the treatment plant is turbid, which overloads treatment processes. This affects the quality of water delivered to consumers. In 2014, RVWSB conducted water quality survey for existing water supply schemes. Spot check on the water quality is indicated in Table 14. Apart from turbidity, the water quality from the sources is treatable by normal treatment methods. Catchment conservation reduces turbidity to a great scale and should be encouraged.

Table 14: Water quality spot check for ITWASCO water supply services in Iten planning area.

Source	PH	Conductivity	Turbidity	Temperature	Residual chlorine
Iten Water treatment plant - treated water	7.71	59.1	3.95	17.18	0.1
Iten Water treatment plant - raw water	7.51	55	7.61	18.6	-
Kamariny scheme - treated water	5.65	82.5	9.93	21.4	1.0
Kamariny scheme - raw water	5.65	68.2	6.78	21.6	-

6.1.10. Water Supply Service Provision Challenges

There are a number of challenges in water supply provision:

- Encroachment of the way leaves by the public and thus difficulty in placement of service lines. This affects planning of water infrastructure and in most cases, areas where there is conflict of way leaves, pipe bursts have been reported.
- High cost of water production due to;
 - ✓ Electricity bills, which amounts to over 8million per annum
 - ✓ Water treatment chemicals. High turbidity of raw water during rainy season increases the use of chemicals
 - ✓ Operation and maintenance cost. Most of the systems are pumping systems and operation and maintenance of pumping machines is often costly.
- Siltation due to erosion from unprotected catchment and encroachment.
- Community perception that water is a free commodity hence willingness to pay for the service provision is sometimes low

- Dilapidated pipeline infrastructure, most of the existing network was inherited from former Ministry of Water and Irrigation and no effort has been made to undertake rehabilitation works.
- ITWASCO does not have a testing and analysis laboratory to monitor the quality of water provided to consumers
- Shortage of transport facilities, so water company has to hire vehicles to undertake repairs and maintenance
- Shortage of technical staff to manage the system and attend to system repairs
- Lack of proper acquisition of land for the establishment of water supply infrastructure such as water storage tanks.
- Illegal connections to the existing water pipeline network
- Lack of sewerage system to manage the wastewater generated from the use of clean water
- Water supply rationing hence interrupting operations of the supply area
- Strategic business and human resource manual for the company is not in place.
- Manual systems of operation within the company in the billing thus slow and inefficient in revenue collection.
- Lack of alternative source of power for pumping thus in case of outages or breakages, then water supply comes to an end.

6.2. Sanitation Services Provision

6.2.1. Status of Sanitation Provision

Iten town has no water borne sewerage system. Households, commercial premises and institutions rely on onsite sanitation facilities, predominantly septic tanks and pit latrines. Full septic tanks are disludged using exhauster from Eldoret Water and Sanitation Company (ELDOWAS) and disposed in one of the wastewater treatment plants for ELDOWAS. The arrangement for the exhauster is individual or institution based and therefore no cost per trip varies. On average, the one exhauster service costs about Kshs 12,000. At the moment there is no exhauster operating in Iten, but ITWASCO indicated to the team that plans are underway to acquire one exhauster through the County Government.

6.2.2. Sanitation Challenges

- Lack of data on the distribution of onsite sanitation such as septic tanks and pit latrines
- Crude disposal of sludge from septic tanks on the road drainage during night hours as was witnessed in Iten town recently
- Small coverage of individual water supply connections impedes development of offsite sewerage system and treatment
- No study had been done on the sewage and solid waste disposal in Iten town

- Lack of land for development of sewerage works.

6.3. Storm Water Drainage Management

Iten town does not have a designed drainage system. The existing drainage system is associated with roads connecting the town. Iten town is located almost at the peak of the mountain strip and surface runoff generated from the town flow towards the escarpment. There are few localised areas where storm water inundates for example the field near County Assembly Offices.

The County Government recently improved the drainage within the CBD by opening drainage ditches and directing storm water flow to the public road drainage systems. Representatives of the Ministry Roads and Public Works indicated that one of their main challenges in the management of storm water is the downstream residence residing down the escarpment.

Preliminary indications show that an existing drainage culvert could be enhanced to discharge storm water collected from the CBD to a natural drainage system proposed for canalisation. The outfall of the canalised natural drain shall be river Anin.

Using the existing river regimes, the area is categorized into three drainage blocks as shown in Table 15 and Figure 15.

Table 15: Drainage blocks as per the existing river regimes in Iten planning area.

Block No.	Description of the drainage block
1	Block 2
	The current CBD of Iten Town falls under this category and it slopes towards Anin and the lower Nyawa area all the way to Rimoi. Main river in this drainage block is Sitet river.
2	Block 3
	Kamariny and Kessup fall under this drainage block and the main river flowing through the block is Kamariny river
3	Block 4
	This block consists of Sing'ore river and other natural water course flowing through the area. The confluence of the river and the water course is located in Uasin Gishu County as shown in Figure 6.3.

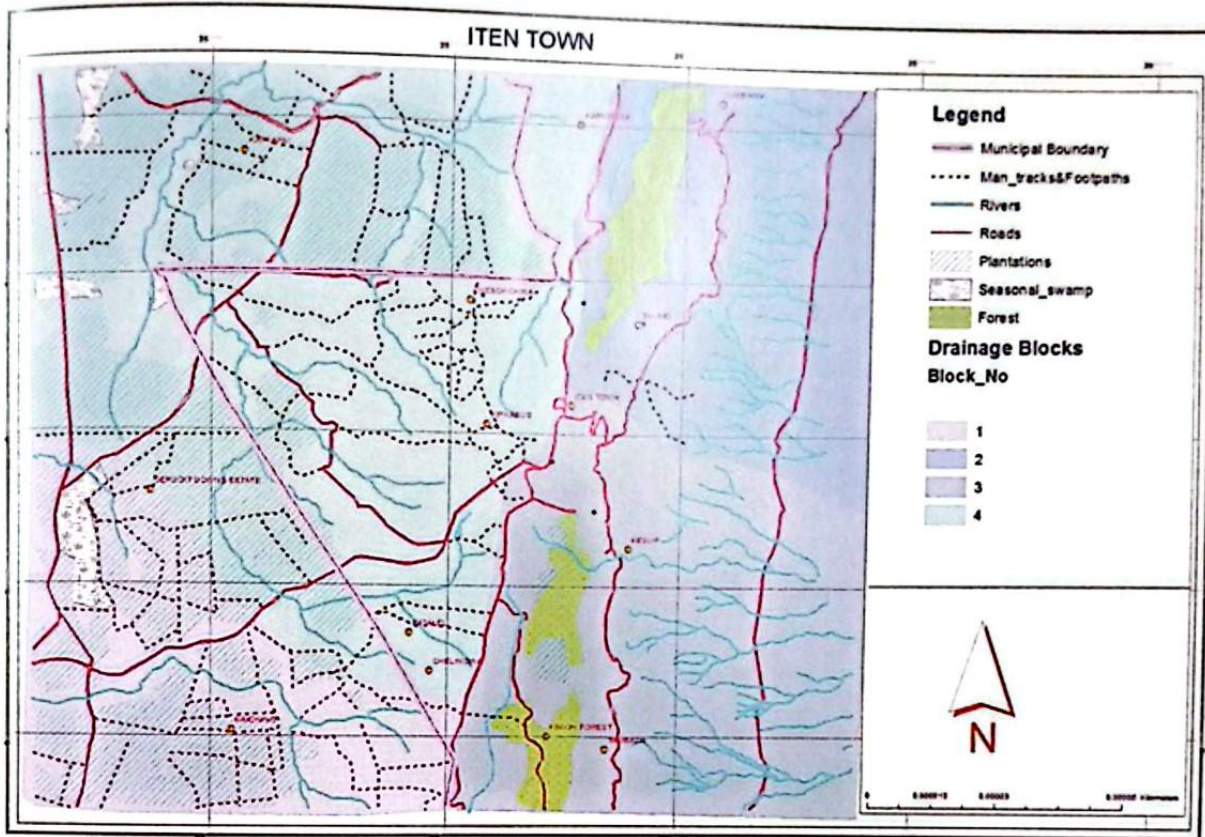


Figure 15: Iten town planning area drainage blocks.

6.3.1. Storm Water Drainage Challenges

- Lack of designed drainage systems. Current flow of surface runoff is uncoordinated and injurious to downstream residence
- Most of the drains in the town are not lined hence slope erosion and siltation is common and this affects the efficiency of the existing system
- Inundation of water on localised areas such as near the public stage hence causing water borne diseases

6.4. Solid Waste Management

6.4.1. Solid Waste Generation

Iten town is largely surrounded by agricultural activities. Solid waste generated in the outskirts of the town is largely unnoticed but solid waste generated in the CBD and surrounding settlements are collected twice or thrice a week. The generation rate at the CBD is estimated at 0.45kg per person per day. Iten town is currently estimated at 8,700 people; therefore, waste generated per day is in the order of 3,900kg/day.

6.4.2. Solid Waste Collection and Transportation

One tractor with trailer is used to collect solid waste on a daily basis within the town and 2-3 times a week outside the CBD area. The solid waste comprises of domestic and commercial waste. Collection equipment at the source are landlord operated while at the town centre, the County Government plans to acquire litter bins. The rate of solid waste collection is below 10%. The remaining percentage of solid waste is disposed either by burning, burying, composting and crude dumping in open areas. Figure 16 provides various ways of disposal of solid waste in Iten town

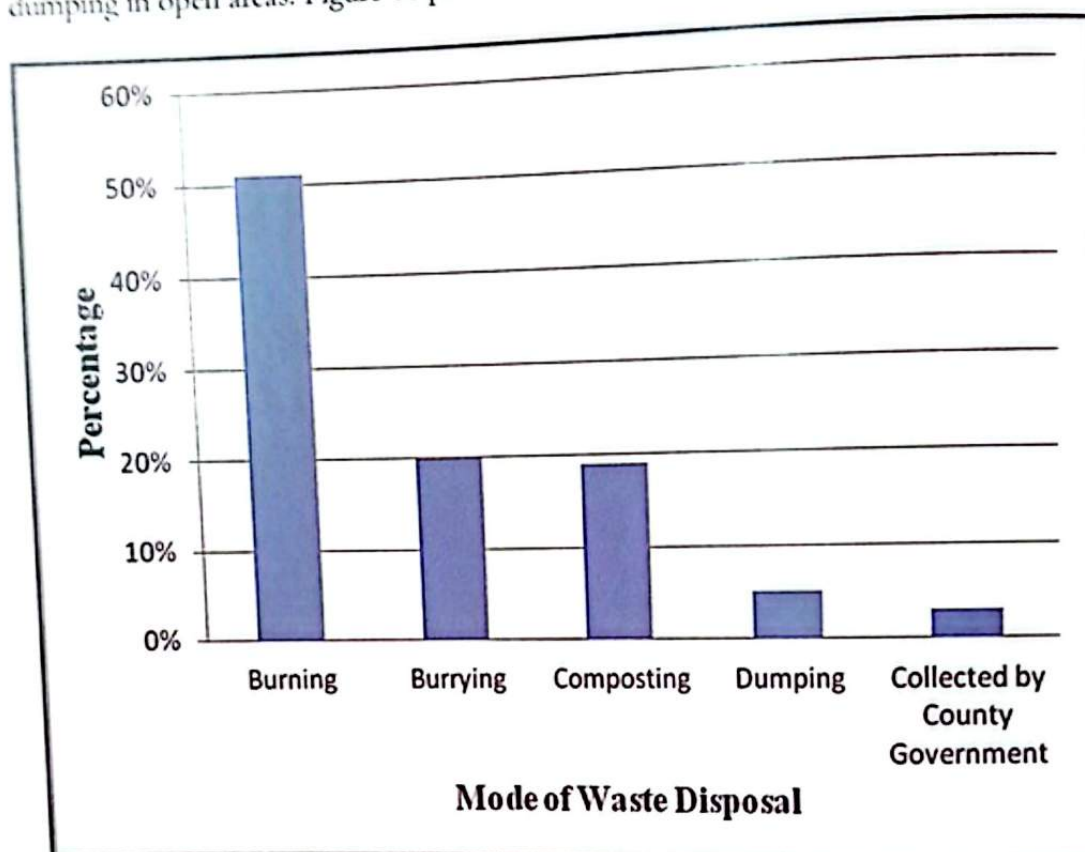


Figure 16: Modes of solid waste disposal in Iten town

6.4.3. Solid Waste Disposal

There is no designated dumping site for Iten town. Solid waste is dumped close to CBD beside the Iten-Kabarbet road. No study has been done to relocate the disposal site from the current location, which it is located in urban core. As shown in figure above, solid waste management remains a challenge in the town as burning and burying are most important disposal mechanisms. In a largely agro-based town better management options would see the town convert most of the organic waste into manure for use in the farms and kitchen gardens.

6.4.4. Solid Waste Management Challenges

- Lack of by-laws to regulate the collection and disposal of solid waste
- No designated dumping site for solid waste

- Lack of adequate collection and transportation equipment to effectively handle solid waste disposal.
- The current dumping site is not approved by NEMA and poses great environmental risks to the surrounding and downstream population.
- Collection and transportation vehicles do not meet NEMA requirements of being closed and licensed.

6.5. Transportation and Communication

6.5.1. Roads and Road Network

The transportation infrastructure and facilities in most parts of Iten town are both unplanned and under-developed. National classified roads passing through the town are C51 (Eldoret-Iten-Tambach-Kabarnet), C53 (Nyaru –Iten) and D329 (Iten-Sing’ore-Chebiemit-Bugar). Other roads into the town are rural unclassified roads. C51 is the only road that is in good condition, other roads are in poor state as confirmed by respondents in Table 16 below. Considering the approved planning area, road C52 is within it and currently in poor riding quality. The current road reserve width for class D329 is 25m while class C51, C52 and C53 is 40m.

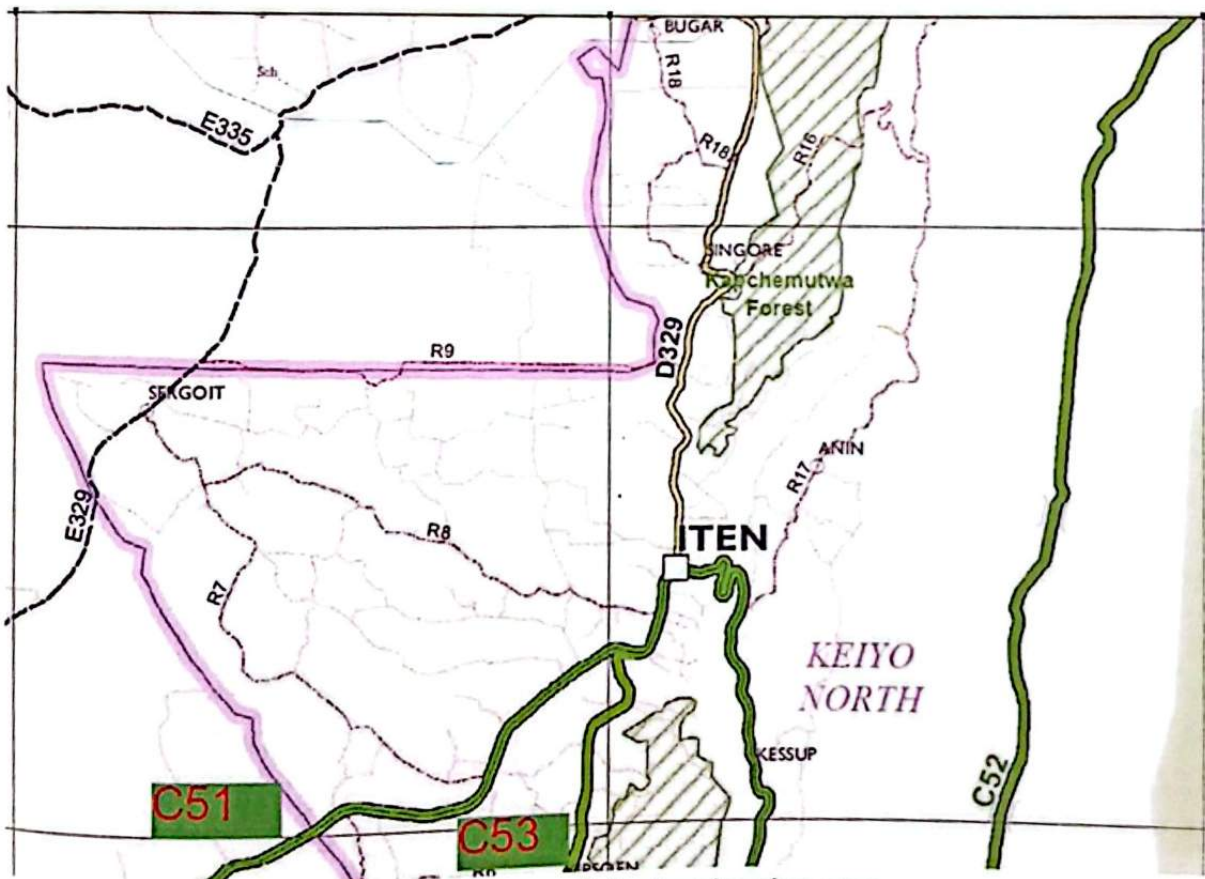


Figure 17: Existing major transport network in the planning area.

Table 16: Perception of the residents on the transport infrastructure challenges in Iten town

Issues/Problems	Frequency	Percentage
Poor road conditions - dusty, potholes, muddy, narrow, no footpaths, no drainage/flooded	113	89.7
Accident proneness	9	7.1
Poor crossing, junctions and pedestrian crossings	1	0.8
Poor terrain	1	0.8
Insecurity	1	0.8
Total	126	100.0

There is poor road network coverage in the town. Due to poor network connectivity, inadequate road network and poor conditions of the roads, there is low accessibility of some areas and zones within the town. Many roads in the planning area are narrow and lie within narrow road reserves; with the majority being poorly designed and engineered. Most roads sides are heavily eroded without shoulders. The roads have poor drainage system, and are flooded at some sections during rainy seasons. There is need for expansion of road network in a well-planned pattern. There is also need to expand the road reserves as the current reserves, which measure about 6m for most of intra-urban access roads, is much smaller than the recommended.

There seems to be heavy encroachment on road reserves. There is need to reclaim sufficient land for expansion of existing narrow roads and for new roads to open up other areas of the township. Sufficient land is required at this early stage for future expansion of roads and the network that will be sufficient to meet future maintenance requirements. Such land should be secured to avoid encroachment and land grabbing. There are a number of roads that use culverts whose capacity cannot allow proper drainage during rainy seasons. Such sections require bigger culverts or they need bridges at the sections crossed by streams.

The Kenya Roads Bill (2014) has categorized roads in the country under national trunk and county roads. This bill proposes reclassification of major roads and is yet to be passed by national assembly.

6.5.2. Other Road Transport Facilities

Iten town is characterized by lack of transport facilities such as adequate bus parks and loading and unloading points and street lights. These are critical facilities for the town given the current level of traffic and population growth in the town because of the rising significance as an athletics town, touristic attraction area and as the seat of the County Government of Elgeyo Marakwet.

The parking, alighting and boarding points for vehicles in the township are crude and haphazard. There are only unplanned and unsuitably located undesignated/makeshift bus stops that could soon result into congestion and obstruction of traffic.

Road signs and markings, and necessary road furniture are largely lacking within the township. Therefore, accidents and road crashes occur in the area, which could be avoided by simple traffic management mechanisms. There is need to erect and secure new roads signs with favourable and durable materials that are less prone to theft and destruction.

6.5.3. Faster Deterioration of Roads

The roads within the township and within the region are prone to fast deterioration in condition and state. The terrain in most parts of the township is severe and steep in certain areas that the roads are liable to weather out and erode much faster, especially when the roads are unpaved. The poor drainage system characterizing the area speeds this deterioration. The other causes also include poor workmanship and overloading by goods vehicles.

6.5.4. Lack of Routine Maintenance of Transportation Infrastructure and Facilities

Lack of routine maintenance and timely repair of facilities is another critical finding with respect to facilities and infrastructure. Kenya Urban Road Authority (KURA), which is responsible for urban roads, does not have offices in the town.

6.5.5. Poor Drainage along the Urban Roads

Generally, the central area and other parts of the township are poorly drained with difficult terrain. The poorly designed and constructed road drainage system has made matters worse for the roads and the transport system.

6.5.6. Facilities for Other Transport Modes

Iten town has limited transportation modes and their associated infrastructure and facilities. There is no railway facility that could expand opportunities for socio-economic development, hence need for proper linkage to Eldoret Municipality. There is no other alternative transport mode in case of a problem on the roads. The advantage Iten has is its proximity to Eldoret International Airport. However, there is need for a local airstrip that could cater for local air travel needs, tourists and high level athletic guests that may need to connect to Iten town. Currently, road transport dominates. Unfortunately, the roads are in poor state, except along the main three corridors with the town. There is need for a diversified and integrated transport system.

6.5.7. Facilities for Athletics and Tourism Sports, and Pedestrians

Iten town, which is the seat of Elgeyo Marakwet County, is also touted as the great athletics and tourism centre, where high altitude training is very appropriate. It should therefore have the requisite transport facilities for sports and athletics. Currently the athletes use the narrow eroded road shoulders for their training and practices; sometimes they utilize the hard road surface. Also, due to limited affordable transport modes in the area, most inhabitants walk to various destinations.

Therefore, there is need to develop running tracks and pedestrian paths along the roads. Cycling paths also should be incorporated in the development of roads.

There has been attempt to develop para-gliders and cable-cars for sports and tourism. Given the terrain in this area, these facilities are feasible for socio-economic development of the town and its environs. Development of vibrant paragliders and cable car can promote tourism and sports in Iten town.

6.5.8. Terrain and the Transport System

Although the terrain in the area is good in certain aspects for sport activities and tourism, it is indeed presenting a great challenge to develop transportation infrastructure and facilities. It is difficult to develop infrastructure in Iten town. The two escarpments and steep slopes in parts of Iten own makes it expensive and difficult to develop infrastructure in the town, i.e. expensive construction, longer alignments of roads and facilities to appropriately adapt to the terrain. Culverts and bridges are also some of the expensive components of roads, but are necessary to avoid flooding of and erosion adversely affecting roads and transportation infrastructure.

6.5.9. Availability of Land

Transportation infrastructure and facilities, whether newly constructed, improved or to be expanded, require adequate land. Currently, this is a challenge in Iten town as most of the land is in the hands of private citizens. This makes it not only expensive to acquire but also involve protracted negotiations. The county government must therefore move with speed to acquire adequate land for infrastructure and public utilities.

6.5.10. Public Transport System

The township has no formal public transport system within its jurisdiction. Public transport infrastructure is lacking in the town. The township is characterized by uncoordinated informal public transport system, i.e. *matatus* and motorcycles. Accidents are prevalent among the motorcyclists, but the residents have no options for travelling, especially into the hinterland. Non-motorized mode of transport dominates in the town, but the town lacks infrastructure and services for non-motorized transport. Many residents are pedestrians walking long distance.

Absence of formal transport system within the municipality has brought about many motorcycle taxis (*bodabodas*) and is also attracting formal (car) taxis, which are usually costly to the inhabitants. This is likely to make travel even more expensive as there is no formal intra-urban mass public transport system. The more prohibitive the cost of transport to most residents, the more they travel by walking. Travelling on foot has also been made difficult due to lack of pedestrian facilities and dusty environment.

6.5.11. Key Issues in Transport Sector

The key issues in transport sector are:

- Road conditions: One of the key issues that were revealed when the sampled populace were asked what their dream need for the town with respect to transportation would be, 91.3% of them cited improvement and expansion of roads including tarmacking them (Table 6.7). This need includes increasing connectivity and accessibility of the transport system.
- Model split: The survey carried out shows that majority of town residents are pedestrians, however far their destination within the urban area is. This is due to lack of efficient public transport system resulting in expensive travel by taxis and “*bodabodas*”. The “*bodaboda*” public transport system, mainly constituting the use of motor cycles for long distance travel, is unregulated and prone to accidents. Table 17 presents modal split for the Township. A significant proportion of the respondents (76.2%) make their trips as pedestrians even without well designed and environmentally healthy pedestrian facilities, i.e. walkways, signage, etc.

Table 17: Modal split for Iten urban travel by urban households in Iten planning area

Modes of travel	Responses	
	Number	Percentage
Walking	96	76.2%
Private Car	3	2.4%
Matatu/Bus	3	2.4%
Bodaboda	13	10.3%
Personal motorcycle	11	8.8%
Total	126	100.0%

Table 18: Residents perceived solutions to walking challenges in Iten town planning area.

Perceived Needs	Frequency	Percentage
Improvement of roads, expansion and tarmacking	115	91.3
Construction of walkways / running tracks	3	2.4
Improvement of security	3	2.4
Street lighting	5	4.0
Total	126	100.0

6.5.12. Communication

Major modes of telecommunication in Iten town are by use of mobile phones. These mobile phones are subscribed to different service providers, i.e. Safaricom, Airtel, and Orange. The providers share telecommunication masts to provide services to their respective customers. The telecommunication mast is situated around the Kenya Commercial Bank. The town was previously connected by Telkom landline services which are currently out of service. Iten Town is served by one post office currently run by Posta Kenya. It is located opposite Iten Bus stage. The post office serves both Government institutions and the public. Iten has internet connections, which can be accessed from cyber cafes, personal and office computers. The internet service providers (ISP) within Iten Town are Kenya Data Networks, Zuku, and Orange Kenya. However, data on the available subscribers to these internet service providers is unavailable. The ISP offer internet communication by use of Routers. The internet bandwidth within Iten town is 3G. Apart from the three internet service providers, Safaricom and Airtel also have 3G internet accessible via mobile phone and modems. The town lacks integrated and well developed ICT infrastructure, for example fibre optics.

Iten town receive radio communication such as Changei FM, Sayare FM, and Kass FM that broadcast in local language. These stations are used to communicate information to locals within and out of Iten. Iten town has access to major television stations such as National Television (NTV), Kenya Television Network (KTN), Citizen TV and Kenya Broadcasting Corporation (KBC), Sayare TV, among others. These can be accessed using analogue television. Other stations such as KISS TV, DSTV can be accessed using satellite Dishes and Set top boxes.

At the moment, the town does not have an integrated ICT infrastructure. Disjointed ICT infrastructure in the town will not only affect the aesthetics, but will also compromise service delivery. To enhance efficiency in communication, there will be need for integrated ICT infrastructure in the town.

6.6. Energy

Going by the energy analysis carried out in 2007, the indicators depict the use of various sources of energy in Iten town. The town has an average population of 45,000 people. The majority of Iten town population relies on Biomass energy especially for domestic consumption e.g. cooking and small enterprises like hotels.

Main supply of energy for lighting and other commercial uses in Iten town is supplied by the national grid. Domestic supply of electricity has steadily been growing on average at 7.6%. The town is not a heavy commercial centre and the major economic activities are retail trade, banking, administration, farming and tourism. However, in the recent past it has emerged as one of the most prolific high altitude training ground for athletes both local and international. This prospect has seen

the town grow tremendously further stretching the limited available energy resources. The spatial plan being developed looks into the energy needs of the town and specific proposals are made to meet them.

There is potential for the development of renewable energy that needs to be exploited. For some reason, renewable sources, which is clean energy such as solar and wind energy has not been harnessed. This can be attributed to lack of hard data and information to support energy policies, planning and investment decision making. It is also due to lack of clear understanding of energy opportunities and the potential in the region.

6.6.1. Energy Situation in Iten Town

Iten town displays a mixed form of urban-rural residency. This was observed in terms of availability and sufficiency of energy needs. Iten town residents rely on various sources of energy (Figure 6.7) for their day to day activities such as business operations, cooking, lighting, and heavy machinery operation. The major energy types that Iten residents harness for their own use include electricity, firewood, charcoal, and liquefied Petroleum Gas (LPG).

Iten is supplied with electricity by Kenya Power. A power substation is within the town's border on the road to Kamariny. Electricity connectivity in the Central Business District (CBD) is good, but away from town core, the peri-urban and rural areas within Iten town boundary are not well connected to electric power despite these areas being within the town's boundary.

The business community of Iten is not satisfied with the inconsistency of power supply to their premises. Various owners of establishments such as hotels, guest houses, flour mills, jua kali, bars, and restaurants pointed out that the town experienced frequent power outages and high cost of electricity.

Kerosene is used by 19% of the surveyed households in Iten town. The kerosene is sourced from the petrol stations located in the town and local dealers. LPG is a source of energy for a few households (5%) in Iten town (Figure 18). Just 25% of the respondents use firewood as their preferred source of energy. This is because firewood is a cheap, convenient, reliable, easy-to-access source of energy compared to other forms and sources of energy. Charcoal as a source of energy is preferred by families, which is shown by 50% of households that use it in Iten town. The use of charcoal is preferred to firewood because it is easily available, cheap, takes up less space, and readily available from local dealers. Heavy reliance on biomass energy has negative environmental implication.

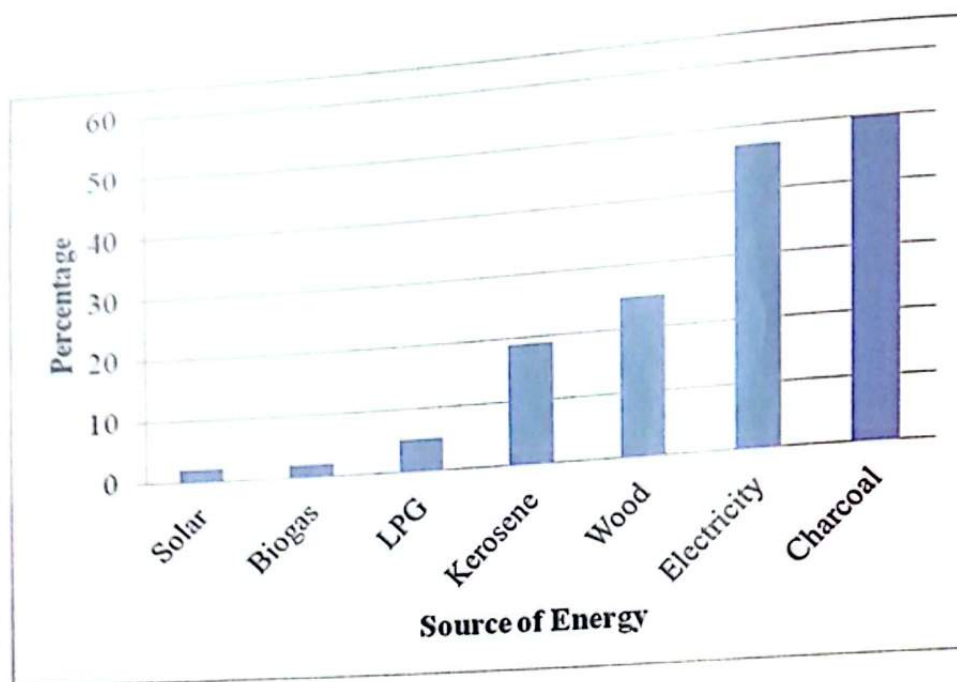


Figure 18: Percentage energy sources by respondents in Iten town planning area.

6.6.2. Solar Energy

Iten town and its environs have an average insolation considering the proximity to the equator where there is no much different lengths of day and night. The town is exposed to high radiation moderated by climatic conditions and high altitude. Annually, the town receives direct normal radiation (DNI) of 4.75-5.0. Annual average daily total sum of DNI for Kenya according to the report in kWh/m²/day is 4.5-4.75. This is hugely affected by acute weather conditions at different times of the year with the months of May, June, July and August being worst hit. This is the wet season and long rainfall and cloudy conditions is experienced. The rest of the months except for months of December, January, February march and April have average insolation. For instance, the month of January and February have average DNI of 6.5-7.0 kWh/m²/day. Based on these statistics, analysis of solar energy availability indicates that Iten having direct normal irradiance class of >5.25, can provide heat for institutions, households and small industries. Figure 19 provides direct normal radiation (DNI) for three-year average (2000, 2001, 2002), monthly variation for Kenya.

6.6.3. Wind Energy

Current wind data for the country indicate that Iten town has moderate wind class of approximately 5.5-6 m/s with a potential wind power density of 165-275 W/m². Wind speed at average height of 50 m is crucial in generating power densities. However, the two parameters are not enough for wind investment. The availability of other infrastructure is very necessary in determining the size of a wind power system. Nearness to national grid is an important factor to consider.

Iten town is already served by Kenya Power and Lighting Company (KPLC) lines, therefore connecting and conveying wind power produced may not be a major challenge. The town is strategically located on the western edge of Kerio Valley where wind flow has limited obstruction

and a very ideal site for wind farms. A detailed survey on the location to determine actual potential needs be carried out. Other thematic layers that need to be analysed for decision making are protected areas, water bodies, transmission lines and administrative boundaries. The data on wind speeds and their potentials is detailed in solar and wind energy resource assessment (SWERA), 2008. Figure 20 provides for the wind energy speeds in Kenya.

Direct normal radiation (DNI) Three Year Average 2000,2001,2002, Monthly Variation

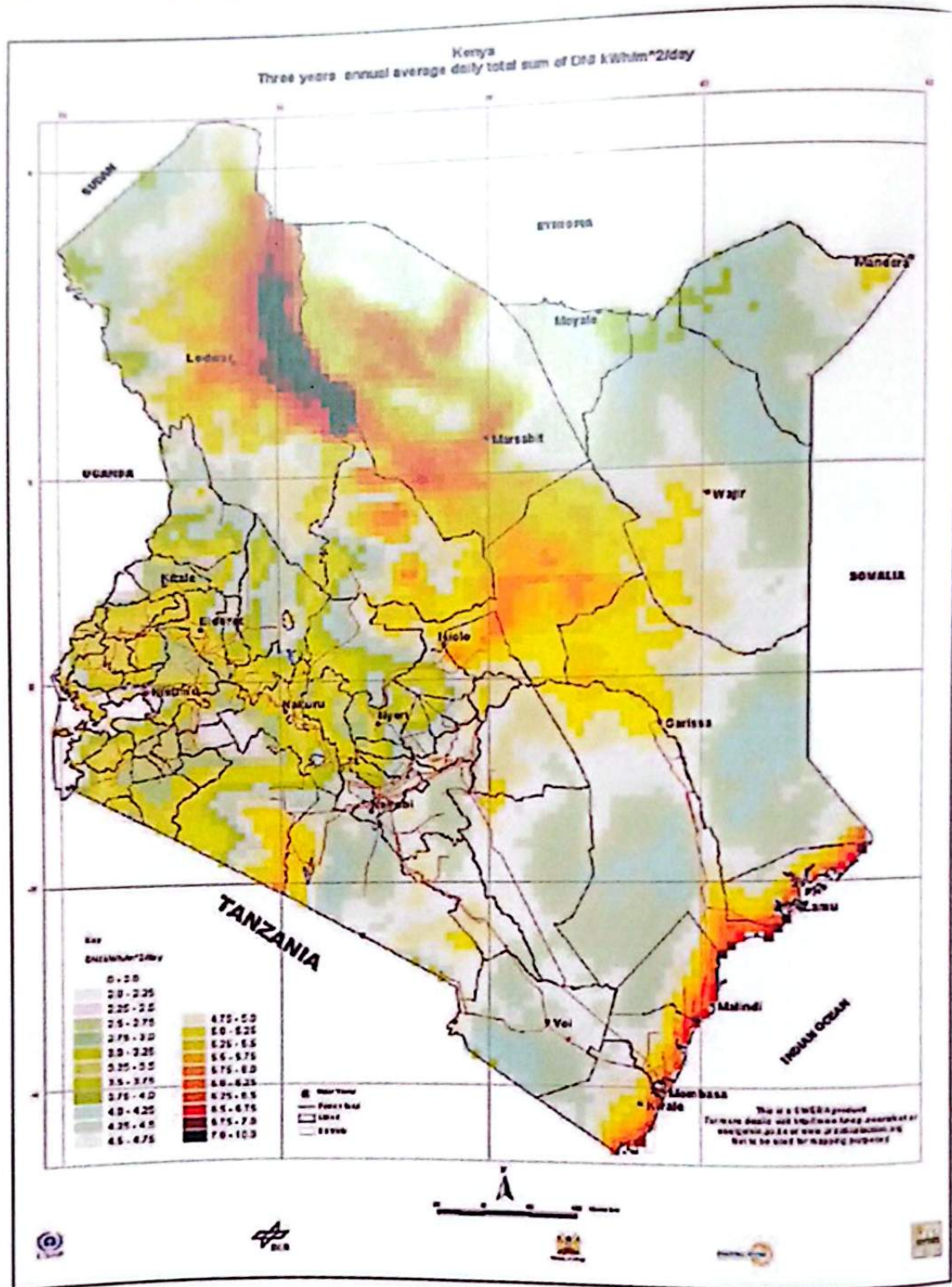


Figure 19: Direct normal radiation for the year 2000 to 2003 in Kenya

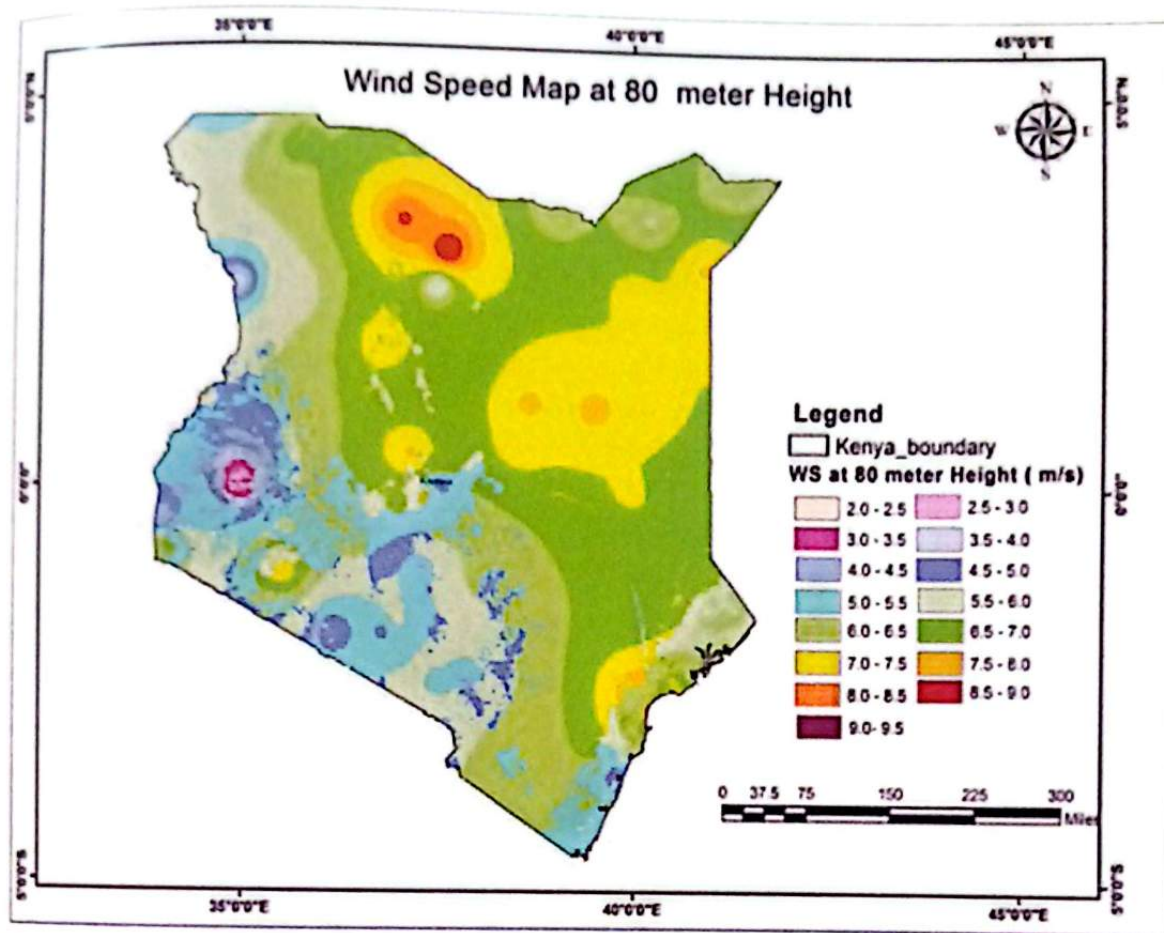


Figure 20: Kenya wind speed at 80m height

6.6.4. Biomass Energy

Biomass as indicated earlier dominates energy demand majorly for household cooking, small enterprises and small industrial application like tea curing. It is sourced mainly from farmlands and forests. The charcoal burning - biomass conversion, is one dominant economic activity in the region. The charcoal is supplied to the local town of Iten and the surplus is sold out to neighbouring towns. There is no known viable biomass material that can be harvested for co-generation in Iten town and neighbouring areas at the moment. Continued use of biomass will escalate the negative environmental impacts as well as climate change and serious deforestation.

6.6.5. Hydro Power

Hydropower is the most dominant source of power in Kenya and so is Iten. The area is mountainous and with good seasonal and permanent rivers. Iten and its environs is a highland town which is one main source of several rivers, which drains and runs along Kerio Valley. Along these rivers there are potential locations for small, mini and major hydropower stations. These can be developed for domestic, institutions and commercial, agricultural enterprises like irrigation within the County and also exported to other counties within the region.

Kerio Valley Development Authority (KVDA) has embarked on an ambitious investment in energy and agriculture to boost the economic activities of the region under its jurisdiction. KVDA is in the process of identifying investors in the hydropower sector for multipurpose development of dams under the design, build, operate and transfer arrangement. Some of the identified areas with potential hydropower investments within the county are:

- Aror River, with given statistics annual rainfall of 1390 mm and sediment yield of 1800t/km². The estimated power generation potential is 60MW.
- Embobut River where a feasibility study should be conducted for proposed construction of the multi-purpose dam with projected power supply of 45 MW.
- Kimwarer multipurpose dam with projected 20 MW hydropower plant.

With these proposed projects, the County Government is making a major stride in the contribution to the achievement of Kenya's Vision 2030 blue print.

6.6.6. Other Sources of Energy

Recently, Tullow Oil embarked on oil exploration in the Kerio Valley and has reported good prospects in Cheptuke well. Finer details of this investment are still not available.

Chapter Seven: Public Open Spaces and Conservation Areas

7.1. Introduction

Attainment of sustainable development in any urban area demands that environmental concerns are integrated into development planning. In urban planning, this is largely done by planning for public open spaces and conservation areas. To operationalize open space and conservation plans, Environmental Management Plan (EMP) has been prepared.

The objective of this EMP is first, to safeguard the state of environment and promote sustainable management of natural resources and secondly, ensure that proposed land uses sit harmoniously with the natural environment in Iten town planning area. This is necessary if the shared vision, mission and principles of the town are to be realized.

This chapter presents an overview of public open spaces and conservation areas, which gives environmental situation of Iten planning area.

7.2. Public Open Spaces

According to the First Schedule of Urban Areas and Cities Act (2011), provision of recreational parks including residential playgrounds, stadia, arboretum, and botanical gardens among others, is mandatory. However, Iten town have inadequate provision for this need. Iten currently has three open spaces:

▪ *Kamariny Stadium*

This is one of the oldest public recreational areas, which was formerly used as a venue for Agricultural Trade Fairs since 1952. Unfortunately, this facility is currently in a poor state which does not even befit the stature of a stadium. The facility is poorly maintained with invasion of buses especially in the side overlooking the escarpment. The monuments, trees planted by the former president, are in a state of neglect. Kamariny still attracts most athletes despite the poor condition. The facility lacks accompanying facilities such as gym, swimming pool, restaurants, and standard track.

▪ *Lornah Kiplagat Stadium*

This is a modern privately-owned athletics facility located along Iten-Eldoret Road. This facility is mostly used especially when athletes are just about to participate in competitions since it is considered expensive for regular training. This stadium has caught the attention of the First Lady, Mrs Margaret Kenyatta, who usually trains here just before her Beyond Zero Campaigns. The underside of this facility, however, is that most athletes must pay for its use. Consequently, cost becomes an impediment to access thereby necessitating a public stadium of this calibre. As such, more of similar stadiums need to be put up in Iten if the County is to live by its motto of *County of Champions*.

- **Iten Grounds**
This is an existing open space situated close to the current County Government offices. This is a well-known open space besides Kamariny Stadium. The open space serves a number of purposes including being a venue for public meetings such as political rallies, public participation meetings, welcoming athletic champions back to the county, and venue for recruitment of security officers. The open space is however not developed. This space floods during rainy season. There were also indications of encroachment in the north western part.

- **Other Open Spaces**
Besides the three, other open spaces identified in Iten town by sampled households are shown in Figure 19.

Table 19: Perception of open spaces in Iten town planning area

Name of Open Space	Frequency	Percent
I don't know of any open space	110	87.3
Compounds within homes	1	0.8
Residential Estate	1	0.8
Farmlands	5	4.0
Iten centre	1	0.8
Iten grounds	1	0.8
Iten stadium	1	0.8
Kamariny stadium	2	1.6
Kessup forest	1	0.8
School play grounds	3	2.4
Total	126	100.0

From Figure 19, it is evident that there are no botanical gardens and arboretum in Iten town. Based on the above assessment as regarding open spaces and recreational areas, therefore, Iten town lacks adequate and properly developed open spaces. Thus this plan should address this inadequacy.

The area of the proposed Iten town and by extension the larger Elgeyo Marakwet County is endowed with abundant natural resources. These resources need to be used prudently to power the growth of the proposed town while conserving them for the benefit of the future generation.

7.3. Conservation Areas

Iten town planning area is endowed with many conservation areas. Critical conservation areas include forests, wetlands, and Elgeyo Escarpments.

7.3.1. Forests

Draft Forest Bill (2011) notes that forest resources are anything of practical, commercial, social, religious, spiritual, recreational, educational, scientific, subsistence, or other potential use to humans that exists in the forest environment, including but not limited to flora, fauna, and microorganisms. Article 16 of the Bill classifies forests as Government Forests, Community Forests or Private Forests. The Draft Bill reiterates that every classified forest is to be managed to achieve the greatest combination of benefits in the form of forest production, forest protection and non-forest uses that is compatible with the primary objective of the forest.

In the vicinity of urban areas, forests play a central role as carbon sinks, climate stabilizers besides being biodiversity havens. As such, the forestry sub-sector in any urban context presents enormous environmental opportunities for sustainable development. Forest resources are significant in the following ways:

- Acting as a key source of energy, firewood and charcoal
- Provision of timber
- Wind breaking, especially that the town is on the escarpment
- Provision of fodder for livestock
- Promotion of soil and water conservation
- Mitigation of effects of global warming and climate change
- Habitat to species of flora and fauna

Iten town planning area is found in a county with the one of largest forest cover in Kenya at approximately 37.5% (CGEM, 2013). A number of forests are found within or abutting the urban planning area (Table 20). These Forests include Sing'ore and Kessup forests. A huge portion of the forests consist on natural vegetation, which portends a more diverse biological resource that is key pillar for environmental stability.

Table 20: Nature and sizes of forests in Iten town planning area

Forest Station	Natural Forest Area (Ha)	Plantation Forest Area (Ha)	Total
Elgeyo	3906.2	2504.6	6410.8
Kessup	1703.92	643.3	2347.22
Total	5610.12	3147.9	8758.02

Source: Elgeyo Marakwet Ecosystem Conservator (2014)

Forests around Iten town face a number of challenges including:

- Encroachment especially in the Kessup forest

- High dependency on charcoal especially in area including Iten, Tambach, Anin and Rimoi hence threatening adjacent forests and ASAL vegetation
- Competition among land uses i.e., preference of crop production as opposed to tree production
- Poverty that has the potential of enhancing illegal logging especially in Kessup and Sing'ore forests.
- Institutional challenges including inadequate manpower, both skilled and unskilled, security facilitation and enforcement difficulties
- Complaints from local community that licensed loggers originate from beyond the county yet the locals also have the capacity
- Pressure from legitimate lumbering business, illegal logging and illegal charcoal burning precipitated by charcoal transportation licensing.
- The forestry sub-sector management is not a devolved function. Kenya Forest Service (KFS) manages them on behalf of the national government. This has created friction between the devolved and national government.
- All stakeholders like schools and the private sector are not incorporated in conservation measures, especially tree planting and communities crucial for on-farm and community forestry.

7.3.2. Rivers

Unlike other major towns in Kenya which have bigger rivers passing through them or near them, Iten does not have a big river passing through it. This is due to the fact that Iten is in itself found at an elevation of about 2400 (7900 feet) a.s.l, the highest altitude as compared to other towns of Kenya. The other unique feature is that Iten forms an axis between two drainage zones namely Lake Victoria North Drainage Basin and Rift Valley Drainage Basin. These basins slope to the West and East directions of the town respectively. Consequently, water supply to the town is currently a challenge.

The major rivers flowing in Iten planning area include River Kamariny, Sing'ore and Sitet Spring. However, these rivers cannot meet water supply to Iten planning area.

7.3.3. Wetlands

Satellite images maps and geographic contours suggest that many wetlands exist in Iten. However, most wetlands areas have been converted into agricultural lands. This implies that most of the wetlands in Iten have been encroached upon by agriculture. Consequently, this needs to be reversed by reclaiming such wetlands and maintaining it as provided for in the NEMA National Integrated Land Use Guidelines, 2011 (NEMA, 2011).

7.3.4. Elgeyo Escarpment

Among the natural resources that make Iten one of the most beautiful towns in Kenya are its beautiful escarpments that not only offer a unique, but also a breath-taking view of Kerio Valley as can be seen in Plate 1.



Plate 1: A view of the escarpment from Kerio View Hotel

Tourists from across the world visit this escarpment every year to view the spectacular Rift Valley landscape regarded locally as a nature's gift. In addition, para-gliders visit Iten every year since they find this natural resource a perfect location to enjoy their sport. Local residents have also been attracted to the areas over-hanging the escarpment and many have established homes and hotels. Already, there exist developed points along the escarpment including the Kamariny Stadium, the Kerio View Hotel and Iten viewpoint.

Unfortunately, the escarpment is currently not under any conservation measures. In the past, there used to be a demarcation locally known as 'Spencer Line' that was used to govern its conservation. However, no one knows where Spencer Line is currently situated. In addition, the area has neither been gazetted as conservation area nor management plans developed; yet it is an environmentally fragile area. Thus, there is a need for new land use control that incorporates conservation for sustainable escarpment development.

7.3.5. Other Environmental Concerns

Besides the environmental issues already raised, there are other concerns that must be addressed in the plan. There include:

- Environmental Pollution. Iten township experiences environmental pollution that can be subdivided into the following:
- Water Pollution: Water pollution was mainly observed on Sitet spring which emanated from solid waste disposals and car washing along the road. Others are

non-point sources from agricultural activities and this mainly afflicts River Kamariny and Sing'ore.

- Noise Pollution: The main sources of noise pollution in Iten town include vehicular traffic, Jua Kali sheds, bars and churches.
- Air Pollution: Although not very significant, air pollution existed in Iten. The main source of air pollution include stench from the solid wastes especially around the current waste disposal site and dust from road construction (Iten- Kapsowar Road).
- Land Pollution: This is also another form of pollution which was visible in Iten town. The main pollutant was solid waste and effluent discharge from hotels and some residential areas.
- Provision of environmental infrastructure. Closely linked to environmental pollution is absence of environmental infrastructure, especially sewerage system and proper sanitary landfill. Absence of this infrastructure enhances the magnitude of environmental pollution.
- Management of hazards, disasters and risks. Although Iten planning area has never experienced a major disaster except occasional flooding in Lily's area and Iten field and landslides in Anin area, there is need for disaster preparedness. However, Iten town currently has no provision of disaster preparedness facilities such as fire stations, fire engines or skilled staff. The only arrangement for management of disasters is presence of a County Referral Hospital and Ambulances that transport victims to neighbouring bigger medical facilities. As such, this plan should adequately provide for this necessity that is important requirement for a town of Iten's stature.
- The town will expand into areas that are currently rural. These areas have got substantial tree cover both indogenous and exotic. Most of these tree stock will be preserved when land uses are transformed from rural to urban.

Chapter Eight: Planning Issues and Strategies

8.1. Analysis of Planning Issues

From the foregoing analysis, it is evident Iten town is a sleeping giant, i.e. a town with huge but untapped potential. The town has since independence registered sluggish growth, despite being an administrative centre, located at the edge of Elgeyo Escarpment with all the beauty and rich hinterland. The town has over the years been associated with top athletics in this country, which has christened the town as an ideal place for high altitude training. Most of the top athletics either come from the area or train there. Therefore, promotion of the town as the centre for high altitude training would be an important selling point for the town. The town has been known for yet another unique type of sport, i.e. para-gliders, because of the high altitude and unique location.

The planning of Iten town must be looked at in its relationship with Eldoret municipality, which was declared a growth centre by the Government as per 1970/74 National Development Plan. Eldoret municipality has consolidated its position as the undisputed most important urban centre in the North Rift. The development of Iten town must be seen in the context of a satellite town of Eldoret municipality offering unique functions it enjoys comparative advantage. The promotion of Iten town as a unique tourist town located at the edge of Elgeyo Escarpment and optimal location for high altitude athletics. In addition, Iten town must be seen as offering alternative frontier for high end urban development, i.e. especially tapping into the beautiful landscape characterizing the two levels of escarpment.

The hinterland of Iten town is rich in agriculture and livestock. Livestock from the floor of Rift Valley, ideal climatic condition for dairy farming, and horticulture, i.e. passion fruits, all offer opportunities for agro-processing industries. The town is ideally located to support agriculture and livestock development, by offering backward and forward linkages to these critical sectors for the benefit of the town and the hinterland as well.

The other important opportunity for urban development is the devolution of governance in Kenya. Constitution of Kenya 2010 created 47 County Governments and Iten town happens to be the headquarters of Elgeyo Marakwet County. Devolution will see county headquarters emerge as important urban centres. Therefore, planning of Iten town will make it possible to harness urbanization potential presented by devolution. Through planning and development, it will be possible to prevent emergence of informality in the town because the town is still young.

Despite all these great attributes of Iten town, its growth is hampered by many factors. The town remains rural although the urban formation is taking place particularly along the major roads. The town lacks a comprehensive plan, basic infrastructure (roads, water, sewerage system), lack of desired urban form. There are already signs informality is taking shape in the town. Given its unique location at the edge of the escarpment, urbanization may trigger unprecedented environmental

degradation. Therefore, necessary measures must be taken to not only conserve the environment, but also harness the beautiful landscape.

8.2. Service Demand Projections

8.2.1. Water Demand Projections

The current water supply area is 1,040m³/day. The current and future water demand is estimated based on the project population. The rate of population growth is dependent on the rate of inter-censal growth of Kenya, the region, district and the normal range of population growth of urban areas. The inter-censal growth rates for Kenya, the region (former Rift Valley Province) and Keiyo district between 1969 and 2009 is shown in Table 21.

Table 21: Inter-censal growth rates for Kenya, region and district between 1969 and 2009

Indicator	1969	1979	1989	1999	2009
National population	10,942,705	15,327,061	21,443,836	28,686,607	39,423,264
Inter-censal growth rate, %	-	3.4	3.4	3.0	3.2
Provincial population	2,210,045	3,240,402	4,917,551	6,987,036	10,006,805
Inter-censal growth rate, %	-	3.9	4.3	3.6	3.7
Keiyo Districts (N&S)	-	-	-	143,865	182,875
Inter-censal growth rate, %	-	-	-	-	2.4

Looking at the inter-censal growth rates of the country, region, district and the planning area, a growth rate of 3.5% would be adopted (Table 22). However, due to positive effects of planning and also movement of people to the county headquarters, a population growth rate of 3.5% is adopted for infrastructure planning for the plan period.

Table 22: Inter-censal growth rate of Iten town Planning area

Sub-Location	1999 Population	2009 Population	Inter-Censal Growth, %
Anin	1,692	2,358	3
Kessup	2,279	3,233	4
Rimoi	1,552	2,099	3
Siroch	874	1,128	3
Kamoigon	9	30	1.3
Setek	2	2	2
Kibendo	45	51	1
Iten Township	4811	6,974	4
Kaplamai	1689	2,231	3
Katalel	2752	2,366	(2)
Kiptabus	2486	3,579	4
Sergoit	1447	2,547	6
Chesitek	1735	3,004	6
Chebokokwa	773	1,154	4
Kapkessum	1586	1,614	1
Mindililwo	2016	2,883	4
Kapkonga	1538	1,821	2
Singore	914	1,011	1
Bugar	1826	2,168	2
Kapkatui	72	83	1
Kendur	4	4	0.02
Kipsoen	269	344	0.02

Using a growth rate of 3.5%, the projected population for the planning period is shown in Table 23.

Table 23: Projected population of Iten town planning area, 2015-2040

Horizon	2015	2020	2025	2030	2035	2040
Projected population	48,023	55,672	64,538	74,818	86,734	100,549

Based on projected population and water consumption rates as stipulated in Water Design Manual (MW&I, 2005), the estimated water demand for the design horizon and the deficit is shown in Table 24.

Table 24: Projected water demand and supply for Iten town planning area, 2015-2040

Water supply planning horizon	2015	2020	2025	2030	2035	2040
Water demand projections, m ³ /day	3,555	4,951	5,740	7,185	8,329	9,655
Current water production, m ³ /day	1,040	1,040	1,040	1,040	1,040	1,040
Projected deficit, m ³ /day	2,515	3,911	4,700	6,145	7,289	8,615

The deficit is partially met by seasonal streams and small weirs running through and across the planning area respectively. The completion and operation of Sabor Water Supply Project will inject 2,050m³/day into the system. The surplus or deficit is depicted in Table 25.

Table 25: Future water supply and demand for Iten town planning area, 2015-2040

Water supply planning horizon	2015	2020	2025	2030	2035	2040
Water demand projections, m ³ /day	3,555	4,951	5,740	7,185	8,329	9,655
Current water production + Sabor, m ³ /day	3,090	3,090	3,090	3,090	3,090	3,090
Projected deficit, m ³ /day	465	1,861	2,650	4,095	5,239	6,565

It can be deduced from Table 25 that the water supplied from the sources will only meet 50% of water demand will be by 2020. This implies that the County Government needs to start planning for addition water source. An initial analysis indicates that reliable water sources would be development of reservoir storage in Kipkunar Forest for ultimate water supply to Iten town, enroute areas and the surrounding areas.

8.2.2. Wastewater Generation Projection and Sewerage Works

Except Iten Township, the planning area is largely rural. Water supply system in the largely rural areas range from public stand pipe to yard taps. As the town grows, the percentage of household with individual connections will increase. The rate of urbanisation of the planning area, which is directly proportional to individual connections, is estimated in Table 26.

Table 26: Rate of conversion of population from rural to urban in Iten town planning area

Category	Percentage distribution of population					
	2015	2020	2025	2030	2035	2040
Urban Population	0.3	0.5	0.5	0.6	0.6	0.6
Peri-urban	0.3	0.3	0.3	0.2	0.2	0.2
Rural	0.4	0.2	0.2	0.2	0.2	0.2
Total	1	1	1	1	1	1

From Table 26, projections indicate that about 60% or more of the planning area will have individual connections. Currently, Iten town has a projected population of 8,700 people. The township area consists of main commercial premises, government institutions, main health facility for the county and educational institutions. Water demand in Iten town is in the order of 1000m³/day and an estimated sewage generation of 850m³/day. By 2020, the projected urbanisation of the planning area will be about 50%, and therefore, plans for sewerage service provision should commence immediately with the implementation of this plan.

Based on population projection of the planning area and a conversion rate of 85% of the water demand, projected wastewater generated is indicated in Table 27.

Table 27: Projected waste water generation in Iten town planning area.

Water supply planning horizon	2015	2020	2025	2030	2035	2040
Water demand projections, m ³ /day	3,555	4,951	5,740	7,185	8,329	9,655
Wastewater generation, m ³ /day	3,022	4,208	4,879	6,107	7,080	8,207

The planning area falls under tropical climate and suitable for wastewater stabilization ponds as a method of wastewater treatment. The nature of the natural drainage system of the planning area favours the establishment of at least two wastewater treatment plants (Table 28). Considering other unforeseen factors, area requirement for lower Anin is estimated at 40Ha, while lower Sergoit is estimated at 30 Ha.

Table 28: Land requirement for wastewater stabilization ponds for Iten town planning area

Proposed Site	Proposed areas to be served	Ultimate population	Area/per son, m ²	Area, m ²	Area, Ha
Lower Anin	Anin, Kessup, Rimoi, Iten Township, Bugar, Singore, Kapkonga, Mindililwo	57,173	6	343,038	34
Lower Sergoit	Kaplamai, Kiptabus, Sergoit, Chebokokwa, Kapkessum	36,854	6	221,125	22

8.2.3. Solid Waste Generation, Transportation, Transfer and Disposal Projections

- **Solid Waste Generation**

As Iten town grows, the urbanisation of the planning area increases hence generation of municipal solid waste. Table 29 gives estimated solid waste generation using 0.45kg/person/day for the urbanized parts of the planning area.

Table 29: Solid waste generation projection for Iten town planning area

Horizon	2015	2020	2025	2030	2035	2040
Projected population	48,023	55,672	64,538	74,818	86,734	100,549
Percentage of urban population	0.3	0.4	0.5	0.6	0.6	0.6
Fully urbanized population	14,407	22,269	32,269	44,891	52,040	60,329
Waste generation	6,483	10,021	14,521	20,201	23,418	27,148

It can be deduced from Table 29 that solid waste generated in Iten planning area is substantial, and thus, NEMA approved solid waste transfer station and landfill is a prerequisite.

- **Solid Waste Disposal**

According to Environmental Protection Division, Government of British Columbia, 1993, a solid waste landfill is required for an urban area with a population of at least 5,000 people. Current projected population of Iten Township is 8,700, which necessitates a landfill for solid waste management.

Sanitary landfill is the best practice and NEMA requirement as a solution to solid waste final disposal. However, the county should embrace integrated solid waste management (ISWM) to reduce quantity of waste on final disposal point, which increases the lifespan of the landfill.

An estimate of the future land area required for solid waste disposal site is made on the basis of projected solid waste generation in Table 29. From the estimated waste generation, the required land area is calculated based on:

- Dumping height with compaction to refusal
- Solid waste density
- Composting of solid waste
- Recycling of inorganic waste

The allowable dumping height is normally estimated at 10m. The proposed location of the solid waste site is near Rimoi escarpment and therefore 6m dumping height is preferred. The density of solid waste varies with its composition, its moisture content and its degree of compaction. A well

compacted municipal solid waste normally has a density of between 200 to 500kg/m³, with a moisture content of 15-40% (Tchobanoglous *et al.*, 1993).

This report has assumed in the estimation a density of 500kg/m³ (0.5ton /m³), a dumping height of 6m and collection efficiency of 70%.

Land requirement is calculated as follows:

$$\text{Volume disposed at landfill (m}^3\text{/year)} = \frac{\text{Projected waste generation (ton/year)} * \text{Collection efficiency}}{\text{Compacted waste density (ton/m}^3\text{)}}$$

Considering the ultimate horizon, (2040), the projected solid waste for the planning area,

$$\begin{aligned} \text{Volume of solid waste disposed at landfill, m}^3\text{/year} &= 27,148 * 365 * 0.7 / (0.5 * 1000) \\ &= 13,863 \text{m}^3\text{/year} \end{aligned}$$

Then,

$$\begin{aligned} \text{Landfilling area required (m}^2\text{/year)} &= \text{Volume disposed at landfill (m}^3\text{/year)} / \text{dumping height, m} \\ &= 13,863 / 6 \\ &= 2,312 \text{m}^2\text{/year (0.23 Ha per year)} \end{aligned}$$

Considering buffer zone and working area, a factor of 1.5 is used to estimate the total area required for the solid waste landfill.

For the planning period, we require about 10ha but for a period of 50 years and above, we require about 20Ha. However, an effective option would be to reduce the volume of solid waste before disposal by composting of organic wastes, along with recycling of inorganic wastes. This spatial plan does not consider other techniques along the chain, as this will be subject of detailed study during feasibility study for sanitary landfill development. Such studies should consider all waste management scenarios, collection, transportation, recovery, recycling, and disposal.

• **Solid Waste Transfer Station**

Considering the location of the proposed landfill, transportation costs may be significant in the short term. The plan proposes that small and medium size solid waste vehicles will not travel the full distance to the landfill and therefore the suitability of a solid waste transfer station is ideal. Depending on the type and tonnage of the solid waste collection machines to be acquired by the County Government, the plan proposes that vehicles of about 3-7 tonnes to deposit the waste at the transfer station and 7 to 15 tonnes to transport the waste to the landfill. On average 0.5 acre of land is required for a solid waste transfer station. The transfer stations will be located in all the commercial nodes and the major industrial area.

8.2.4. Energy Requirement Projections

On average, power requirement for rural and urban areas is estimated based on the number of households with a factor to take care of commercial and institutional power needs. For rural areas 1kW is used while urban is 3kW. Significant part of the planning area is largely rural, but due to the positive effects of planning, these areas will slowly be urbanized including the industrial establishment. To avoid underestimation of the energy requirement of the planning area, the average energy requirement can be taken as 2.5 kW per household between the years 2015 to 2020 after which a 3kW per household is used to cater for industries and large commercial energy users. Table 30 gives projections of energy requirements for the planning period.

Table 30: Energy requirement projections for Iten town planning area

Planning Horizon	Households	Energy/Household (kW)	Energy Requirement (kW)
2015	10,660	2.5	26,650
2020	12,661	2.5	31,651
2025	15,037	3	45,111
2030	18,060	3	54,181
2035	21,658.2	3	64,974
2040	25,973	3	77,918

Under normal circumstances, one substation covers a radius of 12km for electricity supply. Our planning area is unique in that it has high and low lands separated by rare escarpments. Though one substation would cover the entire planning area, it is prudent to provide land for the two unique platforms. The average land requirement is a minimum of 2 acres per substation. This plan proposes acquisition of 5 acres for the highland and 5 acres for the lowland. The substation will have dedicated lines for residential, commercial, institutional and industrial use. The existing substation is small and thus requires expansion.

If Arror multi-purpose project is developed within the plan period, it would be important to provide a dedicated line from the station to the substation in Iten.

Figure 22 shows that two sewerage treatments works are proposed, one in the highland and another in the middle-valley. Slaughter house is located in the middle valley, close to sewerage treatment works to ease treatment of leachate and wastewater respectively. The plan proposes three water supply storage reservoirs are located on the highest grounds. Three power substations as well as two telecommunication installations are proposed at the highest points in the town.

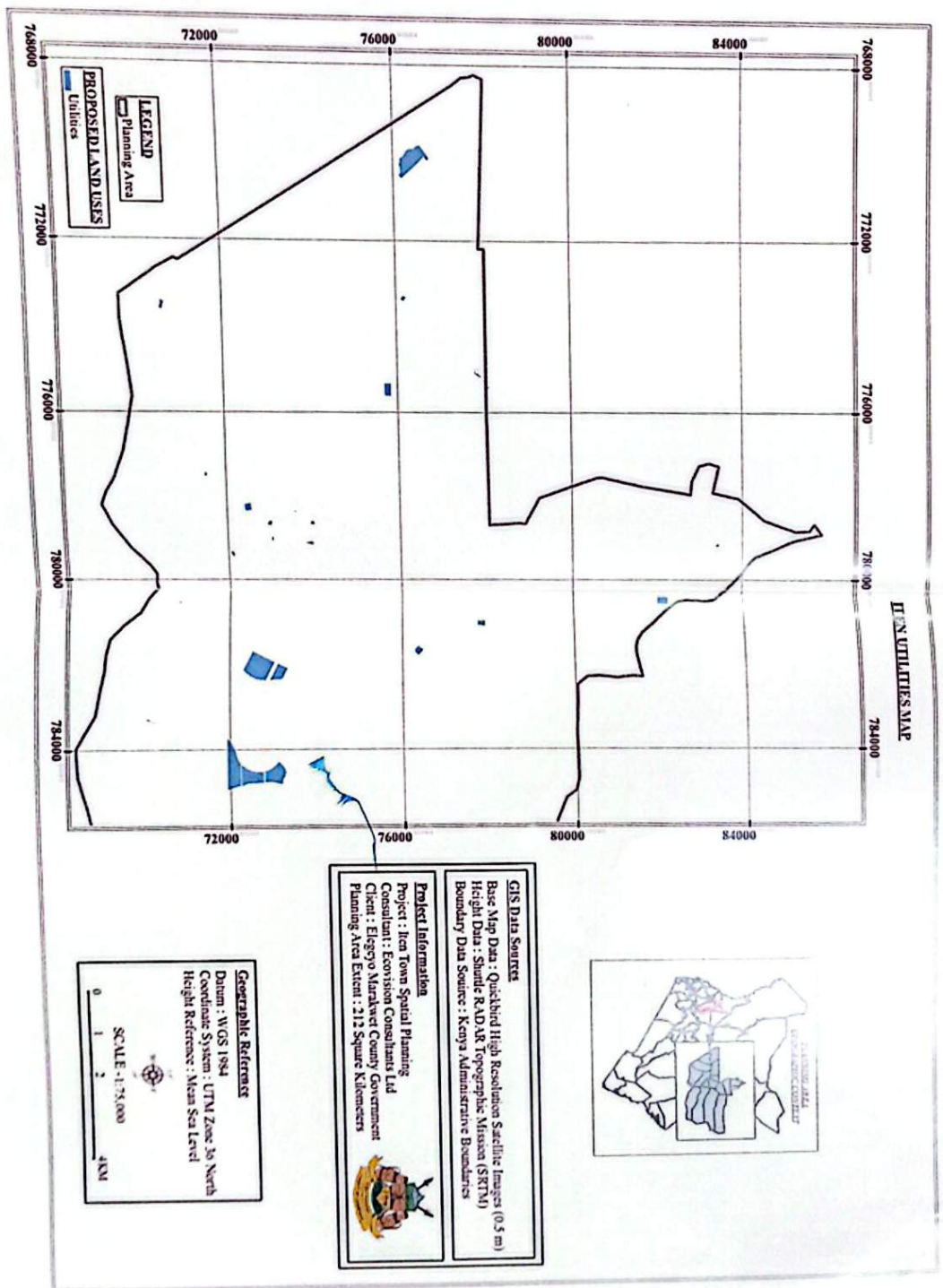


Figure 21: Proposed public utilities

8.2.5. Early Childhood Development Education Projections

According to the Early Childhood Development Service Standards Guidelines, children who are six months olds are categorised as play group and may need the services of a day care centre. Those children who are three year olds are supposed to be in baby class, four year olds are meant to be in Pre Primary I, while the five year olds are supposed to be in Pre-Primary II. The guidelines further indicate that children aged 6 years is supposed to be in class one, 7 year olds in class two and 8 years old in class three. However, those in class one to three have been integrated in primary schools and the national government provide teachers and teaching and learning materials.

Using the results of population projections for children 0-4 years, and a minimum class size of 25 children, the results in Table 31 indicate that currently the town needs a minimum of 305 classrooms for efficient delivery of ECDE services. The town will require nearly double this by 2025. Table 32, the classroom demand per sub-location will vary depending on the population density. Using the minimum requirement of classrooms per school to be three then the least number of ECDE centres required will be in Sing'ore which currently needs at least three while the highest requirement is within Iten Township that will need a minimum of 18 centres. Overall, the town currently needs a minimum of 101 ECDE centres and double this by 2035.

Table 31: Projections of classrooms for ECDE services for children 0-4 years in Iten planning area

Sub-Location	2014	2019	2024	2029	2034	2039
Bugar	17	20	23	27	31	36
Singore	8	9	11	12	14	17
Kapkonga	14	16	19	22	25	29
Mindililwo	22	26	30	35	40	47
Iten Township	53	62	72	83	96	111
Kapkessum	12	14	17	19	22	26
Sergoit	19	23	26	30	35	41
Kaplamai	18	21	24	28	33	38
Kiptabus	28	33	38	44	51	59
Katalel	19	22	25	29	34	39
Chesitek	23	27	31	36	42	49
Anin	18	21	25	29	33	39
Rimoi	16	19	22	25	29	34
Kessup	26	30	34	40	46	54
Total	305	354	410	476	552	639

Source: Projections based on CBS, 1999 & KNBS, 2009

8.2.6. Projections for Required Primary Schools

In order to absorb all children eligible for primary school education, the town currently requires a total of 44 single stream schools (22 for double stream and 14 for three streams), and double this number by 2039 (Table 32). In terms of regional distribution, Sing'ore sub-location will require the least number of schools (by 2015 only one school) while Iten town requires the highest number (in 2015 it needed 8 schools). Therefore, adequate land should be provided to take care of these needs.

Table 32: Projected classroom required sub-location for the 5-14 years in Iten town planning area

Sub-Location	2014	2019	2024	2029	2034	2039
Bugar	20	23	27	31	36	41
Singore	9	10	12	14	16	19
Kapkonga	16	18	21	25	29	33
Mindililwo	26	30	34	40	46	53
Chebokokwo	12	13	15	18	21	24
Kapkessum	14	16	19	22	26	30
Sergoit	22	26	30	35	40	46
Kaplamai	21	24	28	32	38	44
Kiptabus	32	37	43	50	58	67
Katalel	21	25	29	33	39	45
Chesitek	27	31	36	42	48	56
Iten Township	61	70	82	95	110	127
Anin	21	24	28	33	38	44
Rimoi	18	21	25	29	33	39
Kessup	29	34	39	46	53	61
Total	349	404	469	544	630	730

8.2.7. Projections for Required Secondary Schools

In order to take care of the potential demand for secondary education the town currently needs 130 classrooms or 33 single stream secondary schools, these streams and 8 four streams. As is indicated in Table 33, this will double by 2035.

Table 33: Projected classroom required for 15-19 years in Iten town planning area

Sub-Location	2014	2019	2024	2029	2034	2039
Bugar	7	9	10	11	13	15
Singore	3	4	5	5	6	7
Kapkongga	6	7	8	9	11	12
Mindilwo	9	11	13	15	17	20
Iten Township	23	26	30	35	41	47
Chebokokwo	4	5	6	7	8	9
Kapkesum	5	6	7	8	10	11
Sergoit	8	10	11	13	15	17
Kaplamai	8	9	10	12	14	16
Kiptabus	12	14	16	19	22	25
Katalel	8	9	11	12	14	17
Chesitek	10	12	13	15	18	21
Anin	8	9	10	12	14	16
Rimoi	7	8	9	11	12	14
Kessup	11	13	15	17	20	23
Total	130	150	174	202	234	272

8.2.8. Projections for Required Policing Services

Table 34 provides the projected staffing for the town from 2014 to 2039. As is indicated, using the international standards for policing, the town currently requires in excess of 103 police officers and more than doubles this number by 2039. Nonetheless, using the current available police officers in Kenya, the town deserves an allocation of 38 police officers which will also double by 2039. The current staffing levels, however, shows low levels of policing within the town environments. This means, therefore, that the planning process must adopt approaches that enhance community policing, resident involvement in their security arrangements, and more deployment of police officers. In addition, public private partnership will be encouraged, community policing.

Table 34: Projected police staffing for the Iten town planning area

Year	2014	2019	2024	2029	2034	2039
Minimum Police staffing/UN Standards	103	119	138	160	186	216
Minimum police staffing/current staffing levels	38	44	51	59	68	79

Table 35 indicates the possible police staff needs by sub-location. However, the actual demand of police staff will be determined by the proposed land use patterns and a raft of other factors including police workloads and the level of crimes in every part of the built area.

Table 35: Projected police staffing for the town by international standards and the current staffing levels in Kenya

Sub-Location	2014		2019		2024		2029		2034		2039	
	UN	Local	UN	Local	UN	Local	UN	Local	UN	Local	UN	Local
Bugar	6	2	7	3	8	3	9	3	10	4	12	4
Singore	3	1	3	1	3	1	4	2	5	2	6	2
Kapkonga	5	2	5	2	6	2	7	3	9	3	10	4
Mindililwo	8	3	9	3	10	4	12	4	14	5	16	6
Chebokokwo	3	1	4	2	5	2	5	2	6	2	7	3
Kapkessum	4	2	5	2	6	2	7	2	7	3	9	3
Sergoit	7	2	8	3	9	3	10	4	12	4	14	5
Kaplamai	6	2	7	2	8	3	10	4	11	4	13	5
Kiptabus	9	4	11	4	13	5	15	5	17	6	20	7
Katalel	6	2	7	3	9	3	10	4	12	4	13	5
Chesitek	8	3	9	3	10	4	12	4	14	5	17	6
Iten Township	18	7	21	8	24	9	28	10	32	12	37	14
Anin	6	2	7	2	8	3	10	3	11	4	13	5
Rimoi	5	2	6	2	7	3	8	4	10	4	11	4
Kessup	9	3	10	4	12	4	13	5	16	6	18	6
Total	103	38	119	44	138	51	160	59	186	68	216	79

8.3. Transportation Policy and Strategy

8.3.1. Key Areas of Concern and Policy Implications

The key areas of concern in the transport sector in Iten town are summarised as follows:

- Poor road network and poor condition of all roads, most of which are unpaved, apart from Eldoret-Iten-Kabarnet (Road C51), the entire road network in the town is in a poor state with heavy dust in dry and muddy in wet seasons, respectively.

Policy implication: Special funding strategy through Kenya Urban Roads Authority (KURA); KURA should have a strong presence in Iten town and the region.

- Poor drainage along the urban roads

Policy implication: Establishment of flood management mechanism using suitable facilities while protecting low areas near the rivers (riparian areas) from development and reserving them for recreation.

- Absence of key road infrastructure and facilities such as NMT facilities, bridges, road signs, well designed drainages, bus parks, bus stops, street lights and other facilities. Most roads are served with culverts of insufficient capacity. Thus, there is need for culverts of adequate capacity and well-designed raised bridges suited to overflows and flooded streams or rivers during overflow.

Policy implication: This is the seat of County Government and key regional town, with potential for tourism.

It is recommended that the level of transport facilities and services be superior meeting international standards, to serve international guests in this proposed sports tourist town that can attract private sector investment.

- The hierarchy of the road network system composed of strategic arterials, principal arterials, secondary arterials, collectors and local streets should be efficiently developed, in line with the new urban road classification - *Classification Guidelines Report*, December 2008, Ministry of Roads.
- Full integration of all roads and transport facilities with well designed and developed NMT facilities, especially for pedestrian and cycling, and gaming tracks for athletes.
- Fast deterioration of roads due to various reasons such as poor construction, poor workmanship, lack of routine maintenance of transportation infrastructure and facilities and poor drainage system causing erosion and deterioration of roads.

Policy implication: budgets for infrastructure development should of essence include the budget for maintenance and identification of sources of funds for sustainable infrastructure development and maintenance. The contracts for development/construction of infrastructure and facilities should be strictly based on performance criteria to stem quick deterioration and failure of the transport facilities before the end of their design life.

- Limited transportation modes; there are no rail, air and cable facilities that could expand opportunities for socio-economic development in the area.

Policy implication: To be a sports and tourism town, Iten Town should have an airstrip/mini airport within its planning area, which will link the town with the other airports'. The airstrip should be designed having implication on safety, security and environmental dimensions in mind. Such an airstrip will connect the town to Eldoret International Airport and other local airstrips within the county. The development and improvement of local air transport facilities: Chepsireyiat Fluorspar, Tot - which require repair and expansion, Kruga, and Rimoi National Park will spur economic and township growth.

- The town lacks well designed and developed public transport system within the township resulting in high cost of travel, mushrooming of informal 'boda' transport system that is both

insecure and prone to accidents. There is very poor modal split underlying this lack of formal public transport.

Policy implications: Promotion of urban bus public transport system of high quality services is crucial in solving urban transport issues and offering services to the poor. The County Government should meet their obligation in planning and development of public transport system, preferably through PPP in which the township is an active key partner.

8.3.2. Proposed Transportation Strategy

Since the main focus of Iten town is sports tourism, the plan has envisaged wide road corridors that will allow development of athletics track along the road. Major road lengths are proposed for the planning area (Table 36; Figure 22).

Table 36: Road reserves for different functional class in Iten town

Functional Class	Road Width (M)	Road Length (M)
Major Arterial	60	35
Minor Arterial	40	43
Major Collector	30	59
Major Collector	25	27

The major arterial roads will consist of three levels of bypasses, one Northern bypass and two southern bypasses (Figure 22).

To diversify transportation and enhance variety of transportation systems, the following is recommended:

- Development of cable car from Kamariny to Rimoi Game Reserved. This is aimed at shortening the distance to Rimoi Game reserve from Iten Town via two escarpments and two valleys. Development of cable car will enhance township tourism potential. The planning area is composed of two unique escarpments, which can utilize the cable car technology not as a major transportation system, but for tourist attractions. Cable car in Iten town will require 3 stations at first escarpment, second escarpment and Rimoi Game reserve, with facilities and leisure linkages.
- Development of mini airport within Iten planning area.
- Multi-mode road infrastructure development integrating non-motorized transport.
- Bus stations, bus parks and trailer park. A trailer park is proposed to be at Bugar, which is designated as an industrial zone, thus compatible with proposed land use.

Due to power fluctuations in Kenya, investment in cable car will require heavy generator of about 1000KVA. However, detailed study is required to determine the suitability of the cable car in Iten.

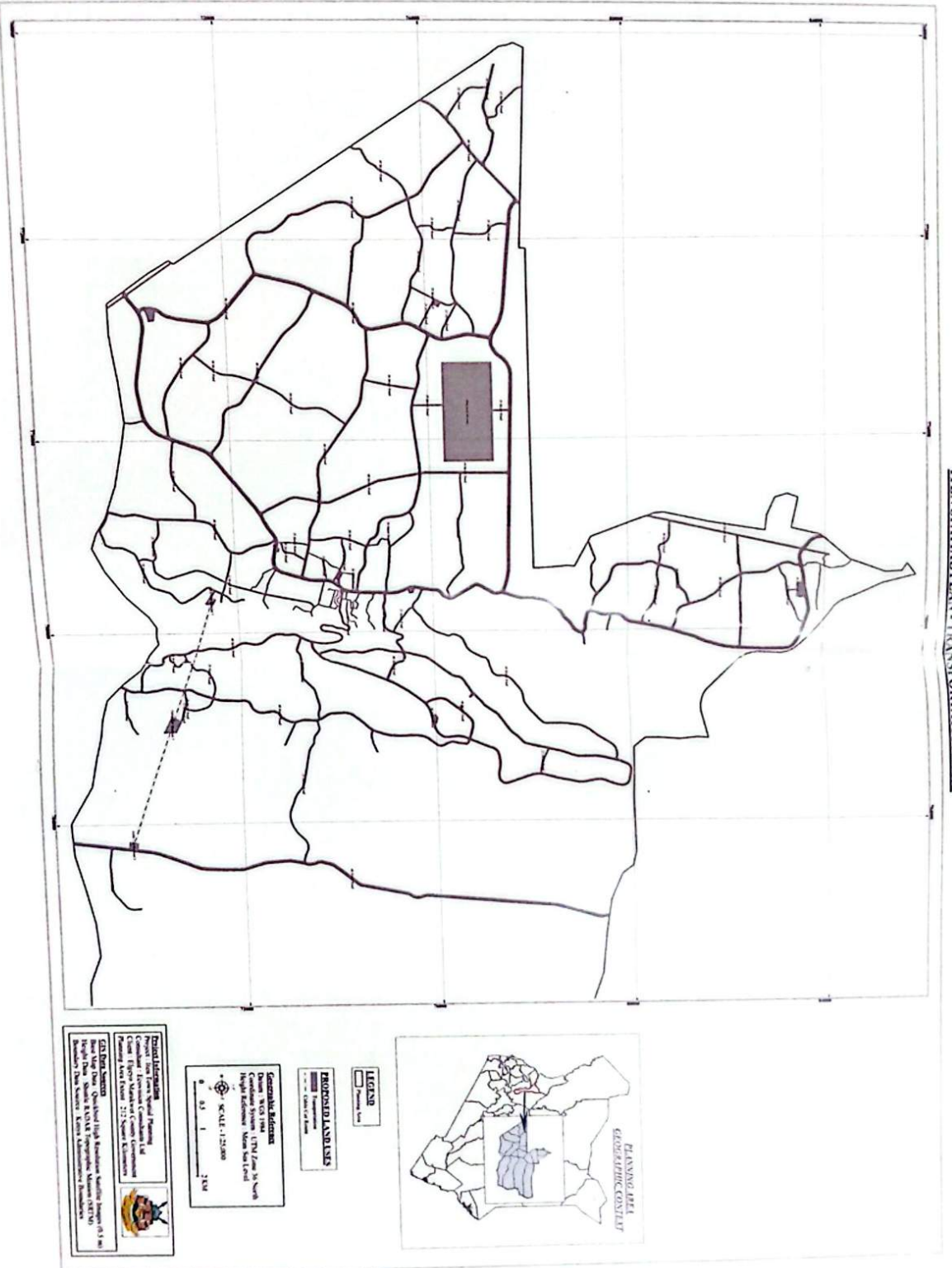


Figure 22: Proposed Transportation network

8.4. Environmental Management Strategy

The objectives of this Environmental Management Strategy are:

- i) To conserve all wetlands, rivers, forests, escarpment and network of green spaces in Iten town
- ii) To provide world-class recreation facilities
- iii) Promote sustainable urban environmental management

Strategy 1: Develop and Rehabilitate Stadia

The existing stadia in Iten town are poorly developed despite the significant role they play such as providing training grounds for local and international athletes. In that regard, therefore, the following specific strategies are recommended for implementation:

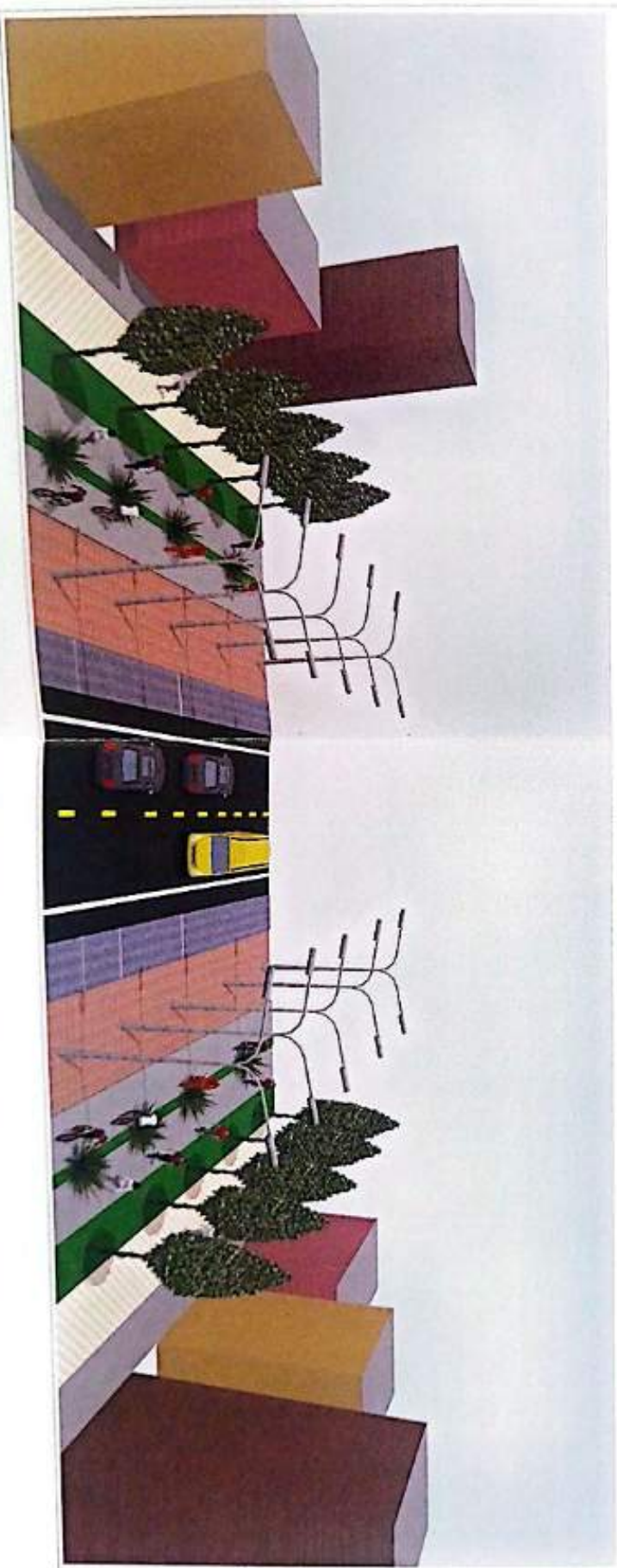
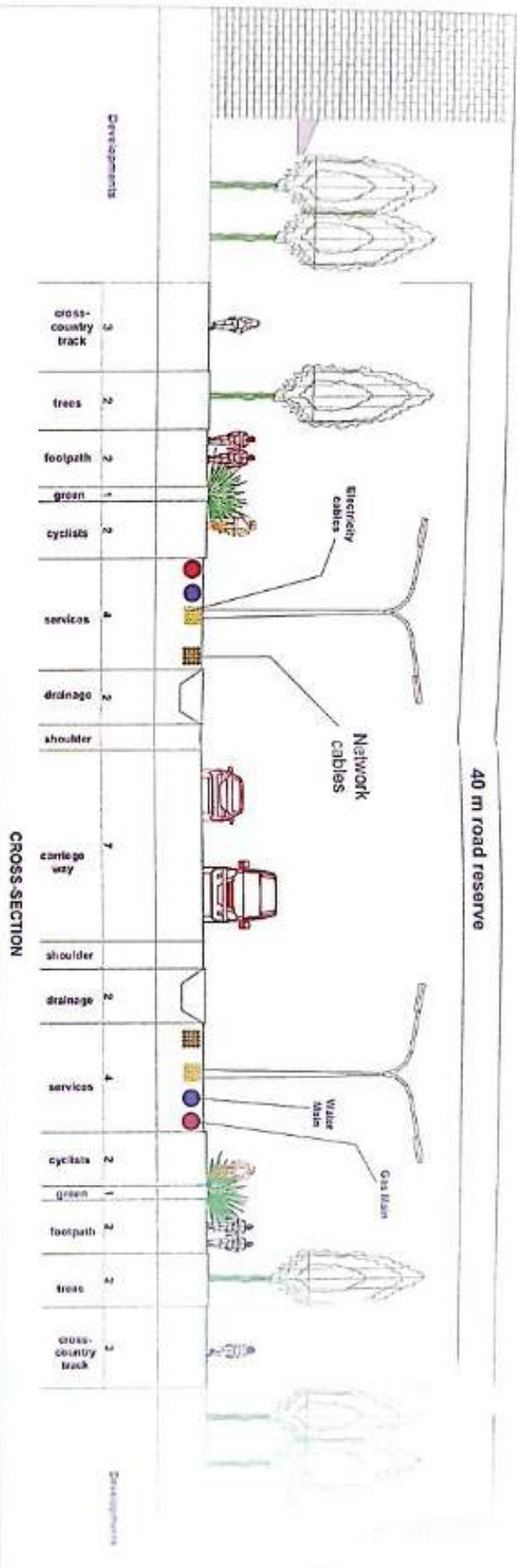
1. Implement the Kamariny Stadium master plan. This will be the centre of high altitude training.
2. Acquire land in Anin and develop Low Altitude Athletics Stadium Partner with stakeholders such as athletes and professionals in developing such facilities to attain the recommended standards for a stadium
3. Designate and develop high altitude sports academy with all required facilities befitting that stature

Strategy 2: Develop Cross-Country Track

In the year 2013/2014, the county created an athletics track along Iten-Eldoret route which is currently used by local and international athletes. During morning and evening hours, the traffic on the track is huge and it requires expansion and extension. In view of this, the plan has recommended the following:

1. 42km high altitude cross-country track.
2. 21km low altitude cross-country track
3. Interconnection of the high and low altitude cross-country tracks through the escarpment and linking the low and high altitude stadia,

40 m road reserve



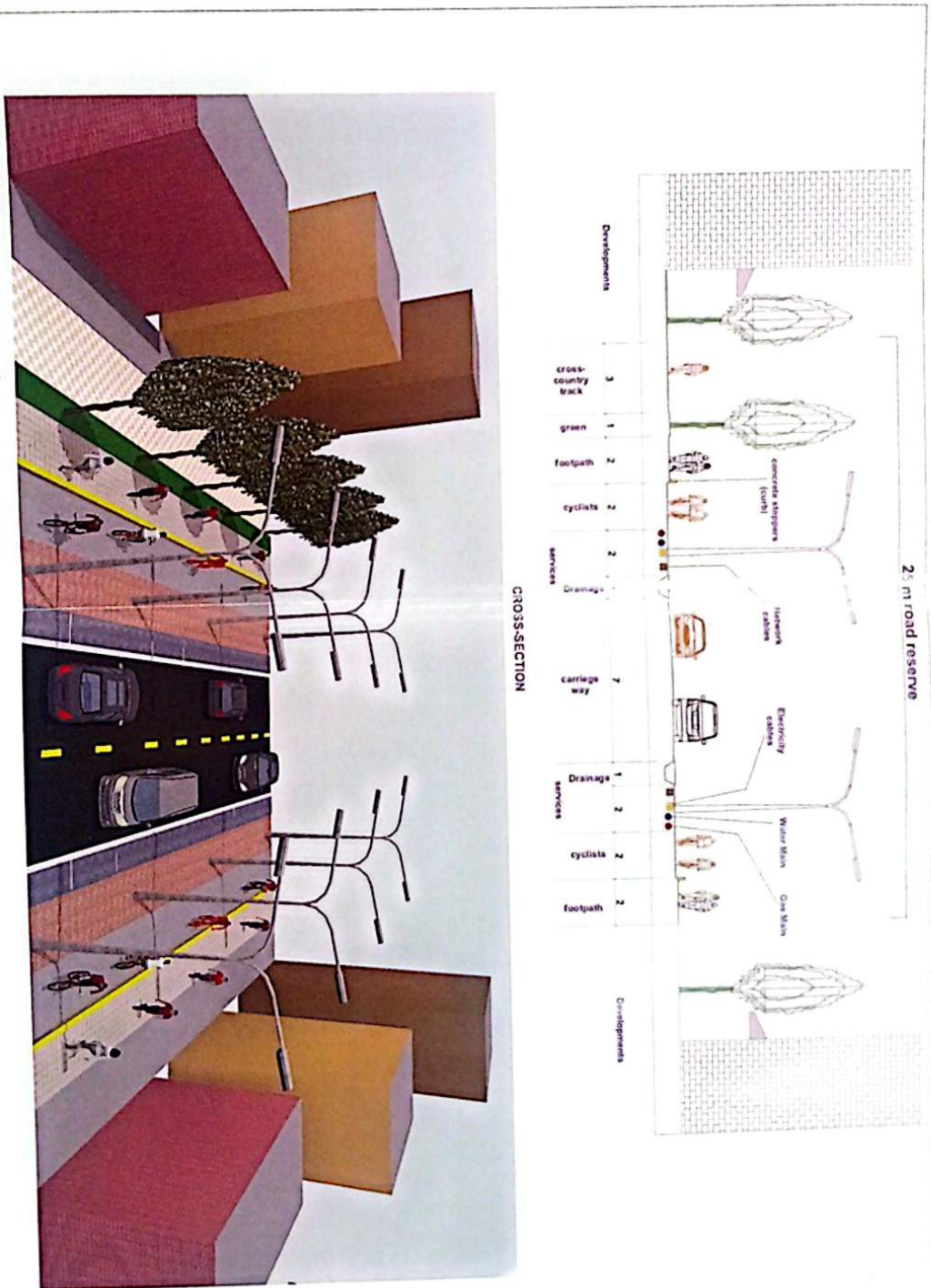


Figure 25: Typical 25-meter road cross section

Strategy 3: Develop Open Spaces and Heritage Sites in the Town

The following strategies are proposed to enhance the network of open and green spaces:

1. Design and develop Iten grounds as a green public park for leisure, recreation and public functions
2. Develop a botanical garden near the proposed County Headquarters in Kapkessum
3. Acquire land adjacent to Kessup forest and develop an arboretum
4. Develop a monuments site in Kamariny stadium where the former President Moi planted trees during Agricultural Trade Fairs held in Kamariny. Acquire land near the View Point and develop a historical site and a museum called Hill Ten

Strategy 4: Conserve Rivers and Wetlands

1. Map, designate and gazette all wetlands and rivers around Iten Town
2. Reclaim and rehabilitate all wetlands
3. Enforce riparian reserve regulations as provided for in National Integrated Land Use Guidelines (2011) by NEMA
4. Work with WRMA to conserve all water catchments in the town

Strategy 5: Develop Storm Water Management

To control disasters related to flooding in the town, the following strategies are proposed:

- Encourage rainwater harvesting in the town
- Develop storm water drainages to cover the entire town
- Develop a network of retention ponds on the lower parts of the town to control storm water flow rates
- Enforce riparian reserve regulations on all wetlands

Strategy 6: Conserve the Elgeyo Escarpment

To conserve the escarpments, the following strategies are proposed:

1. Zone the area along the escarpment for low density developments
2. Partner with land owners to re-afforest the escarpment
3. Re-introduce the Spencer Line along the escarpment

Strategy 7: Develop Disaster Management Centre

1. Acquire land adjacent to the current County public works yard and develop a County Disaster Management Centre encompassing office, fire station and rescue equipment
2. Enforce zoning regulations to reduce disaster risks
3. Make and enforce laws that require all buildings to have fire-fighting equipment

4. Facilitate organization and holding regular disaster preparedness drills in all departments of the County Administration and encourage private entities in the urban area to do the same
5. Require that all commercial entities in the urban area invest in appropriate firefighting equipment
6. Organize first aid training opportunities for public servants and facilitate the same for private entities

Strategy 8: Improve Urban Environmental Aesthetics

1. Encourage planting of appropriate indigenous trees along streets and in open areas
2. Regulate felling of trees in the urban centre
3. Develop and enforce landscaping guidelines for developers in the town
4. Regulate outdoor advertising through proper planning
5. Enforce development control to prevent emergence of illegal structures and other forms of informality

Strategy 9: Develop a Cemetery

1. Acquire land in Rimoi and develop a cemetery

Strategy 10: Mitigation against Global Warming and Adaptation to Climate Change

Besides greening the Town, forest will play a key role in mitigation of climate change and global warming effects. Consequently, the following strategies are proposed:

1. Maintain the area under green vegetation (especially forests)
2. Develop landscaping regulations that advocates for greening of residences
3. Promote Community Forestry as guided by Forest Act 2005: urban tree planting and rehabilitation of the two forests in the town

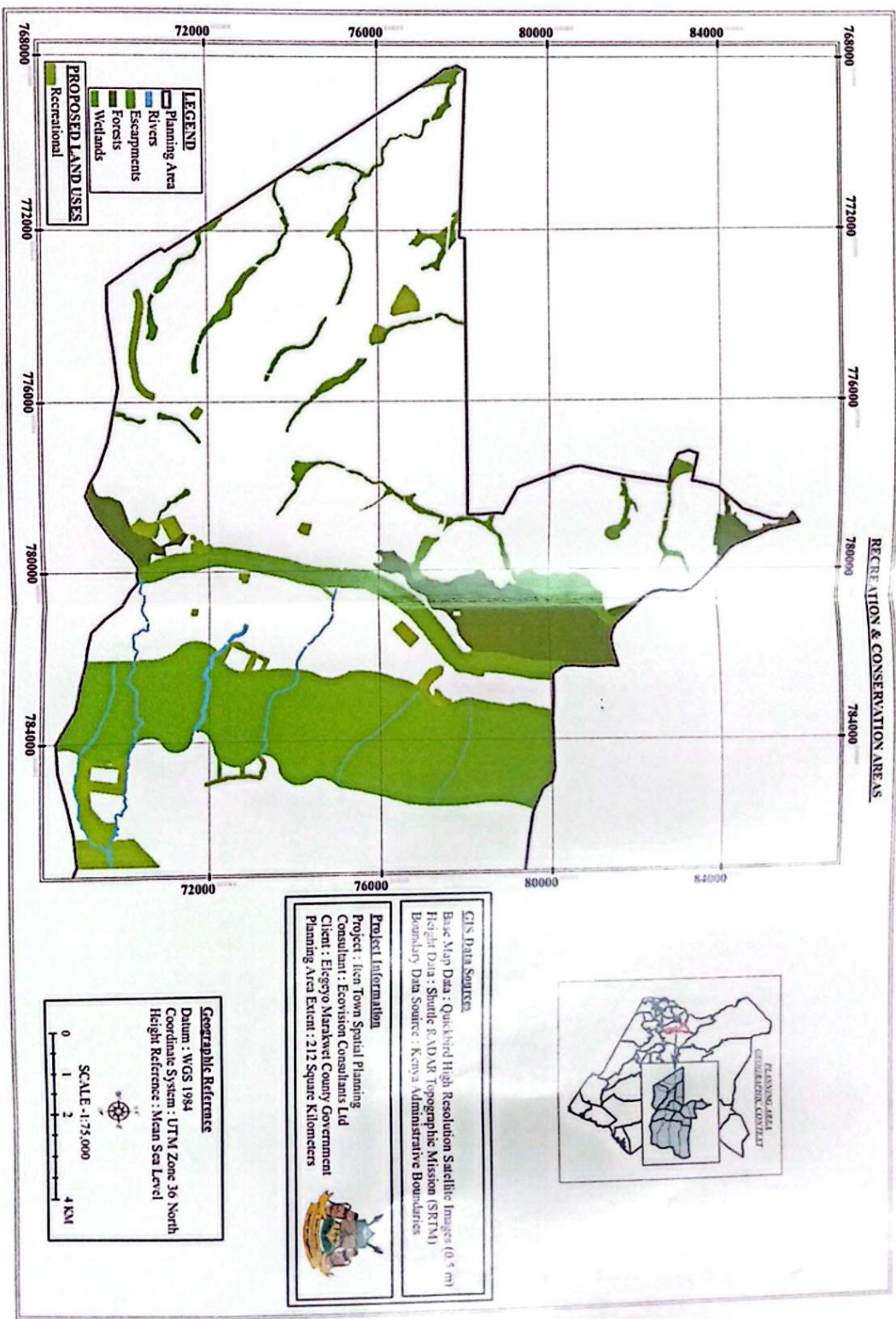


Figure 26: Iten town open spaces and conservation areas spatial structure

8.5. Land Use Development Strategy

8.5.1. Spatial Planning Framework

In an effort to shape the growth and development of Iten town, this plan is informed by a number of approaches:

1. Smart Growth Planning and Principles

Smart growth planning has been employed in planning Iten town. Smart growth principles as elaborated below will ensure that the town optimizes on its comparative advantage and conserve available resources especially the two levels of escarpment and rich agricultural hinterland. This will be achieved by developing compact mixed use urban development. Mixed use zoning sets standards for the blending of residential, commercial, cultural, institutional, and where appropriate, industrial uses. A compact town promotes relatively high residential density with mixed land uses. It is based on an efficient public transport system and has an urban layout which encourages walking and cycling, low energy consumption and reduced pollution. A large resident population provides opportunities for social interaction as well as a feeling of safety in numbers and eyes on the street.

The smart growth principles applied in planning of Iten town are:

- Mixed land uses. Each neighbourhood has a mixture of homes, retail, business, and recreational opportunities.
- Build well-designed compact neighbourhoods. Residents can choose to live, work, shop and play in close proximity. People can easily access daily activities, transit is viable, and local businesses are supported.
- Provide a variety of transportation choices. Neighbourhoods are attractive and have safe infrastructure for walking, cycling and transit, in addition to driving.
- Create diverse housing opportunities. People in different family types, life stages and income levels can afford a home in the neighbourhood of their choice.
- Encourage growth in existing communities. Investments in infrastructure (such as roads and schools) are used efficiently, and development does not unnecessarily take new land. Preserve open spaces, natural beauty, and environmentally sensitive areas. Development respects natural landscape features and has higher aesthetic, environmental, and financial value.
- Protect and enhance agricultural lands. A secure and productive land base, provides food security, employment, and habitat, and is maintained as an urban containment boundary.
- Utilize smarter and cheaper infrastructure and green buildings. Green buildings and other systems can save both money and the environment in the long run.
- Foster a unique neighbourhood identity. Each community is unique, vibrant, diverse, and inclusive.

- Nurture engaged citizens. Places belong to those who live, work, and play there. Engaged citizens participate in community life and decision-making.

2. Polycentric Urban Development

Most of urban centres in Kenya have one commercial centre, an urban form that concentrates economic activities in one centre, leading to traffic congestion. Iten town will be characterized with no less than five commercial centres, which will act as growth nodes. Therefore, in addition to the current commercial centre, four others are proposed to promote balanced commercial development in the town.

3. Selective Application of Grid Iron Planning

Grid iron planning has been used to establish the major roads within the town. This is important to ensure efficient flow of traffic within the town and optimizing land use functions in the town.

4. Neighbourhood and Green Places

Neighbourhood concept has been used as a structuring element in the town, by ensuring that neighbourhoods are created with basic facilities and services. Green spaces are important elements in the urban spaces as they are carbon sinks, moderate micro – climate and promote aesthetics.

8.5.2. Strategic Growth Drivers

Iten town will continue developing mainly as:

- An administrative centre. The town has been the District Headquarters since 1976; and is currently the County Headquarters. Coupled with being Keiyo North District headquarters, Iten town remain a key administrative centre, which offers employment in public service and support services.
- Educational and health centre. The presence of St. Patricks High School, Iten Youth Polytechnic, primary schools, District Hospital (Level 5 Hospital) have also helped in the growth of the town.
- Sporting centre. Iten is known mainly for athletics and the town is being referred to as the Home of Champions. During peak season the town hosts about 1,000 promising athletes training and with some of them residing in the Iten town.
- Tourism. The town is also the gateway to attractive tourism sites in the Kerio Valley and beyond, i.e. Lake Baringo, Bogoria, and Kapnarok; and the Rimoi Game Reserve. Its location on top of a hill also makes it more attractive, giving visitors a spectacular and breath-taking view of the scenic Kerio Valley. There are several viewpoints where visitors can pitch tent and camp as they view God's wonders while enjoying the cool breeze. Tourism potential has led to some

investment in hotels and camp sites. However, the huge sports tourism potential in the town has not been harnessed.

- Sports training, tourism and competition. The town has in the past attracted over 2000 foreign visitors who take part in paragliding sport in a season.
- Agricultural centre. The town acts as a service centre for the rich agricultural hinterlands.

8.5.3. Iten Town Integrated Spatial Development Plan

Iten Town Integrated Spatial Development Plan (Figure 28) attempts to:

- Address Missing land uses that were omitted in the 1985 and 2007 physical development plans,
- Enhance land uses through land use acquisitions, zoning and development control,
- Ensure land use and development compatibility, public health, safety, and amenity.

Chapter Nine: Investment Plans and Planning Matrix

9.1. Costing Infrastructure Development in Iten Town Planning Area

9.1.1. Roads

Tarmac road construction cost per km varies from Kshs. 20 million per km used in Machakos County roads to over Kshs. 300 million per km used in Thika Road super highway and Southern Bypass roads in Nairobi⁶. The thickness of the tarmac/top layer/asphaltic concrete is determined by the traffic envisaged. For heavy traffic e.g. super highways, the tarmac is thicker. Machakos Government used Kshs. 650 million to tarmac 33 km of road. Thika road, designed for heavier traffic, costed Kshs. 31 billion for 50 km of road. This translates to Kshs. 620 million per km which can be broken into 2 since it has 4 lanes hence around Kshs. 300 million per km.

The Southern bypass road, also designed for heavier traffic, with 28km of main carriageway and 22km of service roads, totals 50km at a cost of Kshs. 17 billion. This works out to Kshs. 300 million per km. Machakos county used British standard as compared to the American/Chinese Standard of road construction where the base and sub base are made of stabilized soil has managed to achieve full construction at a very low cost, though the bitumen cover will need to be increased over time to at least 50mm thick compared to what looks like 20mm thick cover from the pictures.

9.1.2. Cable Car Infrastructure

The population of Iten town will increase and there will be many tourists to enjoy the scenery. As the population grows, and the economy expands, there will be an increase in vehicles on the road leading to congestion. One way in which congestion can be reduced, or at least avoided by those not wishing to waste hours in traffic, is to build subways; however, subways are expensive to develop. A surprisingly cheap alternative and one that is being currently proposed is the use of cable cars.

The cable car project including infrastructure is estimated to cost US\$ 3.7 Million⁷ equivalent to Kshs.350 Million with the following specifications for a unit:

⁶(<http://www.a4architect.com>)

⁷ Based on the current cost of upgrading the infrastructure including a cable car in Switzerland

- Cabins: 2, 30 passengers each
- Capacity: 690 passengers per hour
- Elevation Valley Station: 497 m
- Elevation Mountain Station: 804 m
- Horizontal Length: 1048 m
- Height difference: 307 m
- Average inclination: 34,1 0%
- Maximum inclination: 80,5 0%
- Number of Towers: 1
- Tower height: 45 m
- Maximum height from the ground: 60 m
- Largest span field: 552 m
- Average speed: 6 m/s
- Diameter suspension rope: 39 mm
- Diameter pushing rope: 62 mm
- Drive: DC engine, 100 kW (max 185 kW)

9.1.3. Airports and Terminal Buildings

There will be need for a mini airport in Iten town. Airports, Terminals, Stations and Government Institutional Building projects require multiple estimates to be created during the life of a project. The projects require separate estimates for design and construction activities. When the Project is first conceived, conceptual estimates are prepared based on space and use requirements only. As the project evolves, the conceptual bid can be replaced with detailed estimates or proposals from subcontractors and suppliers.

The work breakdown structure incorporates airport construction including Terminal & Service Buildings, Airside Paving & Infrastructure, Landside Infrastructure and General Site Improvements:

- Buildings
 - Terminal Buildings
 - General Aviation Buildings
 - Control Tower
 - Fire Station
 - Ground Services
 - Domestic Cargo
 - International Cargo
 - Catering
 - Maintenance Hangers
- Utilities

- Storm Sewer
- Sanitary Sewer
- Water Supply & Treatment
- Water Distribution
- Airside Infrastructure
 - Earthworks
 - Drainage
 - Runway Pavement
 - Apron Pavement
 - Runway Lighting
- Landside Infrastructure
 - Bridge Structures
 - Perimeter Roads
 - Service Roads
 - Parking
- Site Improvements
 - Fencing
 - Landscaping

Costs were defined as capital costs for runway and taxiway construction, capital costs for instrument landing equipment, and ongoing maintenance costs. Annual maintenance costs varied over time.

9.2. Financing Models

The County Government can finance the development of infrastructure through different models. It can use tax revenues or involve the private sector through implementation of Public Private Partnerships (PPPs). Different models fit within the broad PPP concept but, in line with international best practices, the operation of the asset is always the responsibility of the private sector. Each of these models allocates different levels of risk to the private sector. The models are:

- i. **Build–Develop–Operate.** The private sector party buys or leases an existing asset from a public agency, invests capital to enhance and develop the infrastructure, and then operates it according to the terms of a contract with a public agency.
- ii. **Build–Own–Operate.** The public agency awards a single contract that bundles the construction and operation of the infrastructure to a private entity. The public agency is responsible for specifying the design of the project, but ownership of the asset remains with the private agency once it is built.
- iii. **Build–Operate–Transfer.** The private entity is responsible for the construction of the infrastructure according to the design specifications agreed on by the public agency and subsequently operates the infrastructure for a specified period of time under a contract or

franchise agreement with the agency. At the conclusion of the contract, ownership and operation of the infrastructure is transferred to the public agency.

Table 37: Implementation matrix with indicative timelines

Sector	Project	Time Line									
		Sept 2015	2015 to 2017	2017 to 2019	2019 to 2021	2022 to 2024	2025 to 2027	2028 to 2030	2031 to 2033		
Energy	Solar Electricity Generation										
	Wind Electricity Generation										
Transport	Road network within the town										
	Cable Cars (including infrastructure)										
ICT	International Airport										
	Fiber optic cable										
Water and Sewerage service	Upgrade dams, distribution and storage including maintenance of sewerage systems										
	Integrated Solid Waste Management										
Solid waste management											
	Technical training college										
Education	University										
Governor's Residence											
	Deputy Governor's Residence										
Speaker's Residence											
	Dispensaries, health centres, level 4 hospital,										
Health	Tourist hotels including paragliding (5 Star facility)										
	Sports facility that can accommodate 70,000 people										
Tourism	Stadia										
	Arboretum										
Golf course	Greenery with trees, nice lawns										
	Standard Golf club as per the Kenya Golf Union Standards										
Urban Park	For urban greenery and members of the public can go there for recreation										
County Assembly											
	County Administration Block										

Table 38: Planning Matrix

Aspect	Planning issues	Strategies	Activities	Timeframe			Responsible person
				S T	M T	L T	
1. Governance and management	Lack of urban governance and management	1. To streamline urban governance and management in Iten 2. To promote good urban governance and management in the town	1) To establish town planning department with requisite personnel, equipment, and regularly updated data base 2) To prepare laws and bylaws governing planning and development control 3) To design and implement education and awareness creation on the importance of planning and development control 4) To train recruited personnel to equip them with the skills and knowledge of modern methods of participatory planning and development control	√	√	√	CEC member in charge of planning
2. Infrastructure and services	Poor infrastructure and services	1. To enhance connectivity in the town	1. To design and develop town-wide road	√	√	√	CEC in charge of infrastructure

		tourism in the town lodges 3. Marketing	3. Design and develop three integrated para-gliding training centres in the town 4. Zone specific areas for tourist hotels, lodges and camp sites, especially along the two escarpments 5. Design and develop a network of cable cars to support tourism				
4. Environment	Poor management of beautiful environmental resources	To ensure sustainable management of the environment	1. To design and implement ISWM 2. Secure and develop existing public open spaces 3. To design and develop a network of public open spaces in the whole town 4. To secure and rehabilitate the existing forest cover 5. To support tree planting in the town 6. To design and develop social amenities in every neighbourhood	√ √ √ √	√ √ √ √	√	CEC in charge of Environment
5. Agriculture and livestock	Underdeveloped agriculture	To support the	1. Designate and develop agro-	√	√		CEC in charge of

	and livestock potential for agri-business and employment creation	development of agro-processing in the town	processing infrastructure in the town 2. Prepare and enact laws and bylaws supportive agribusiness 3. Zone areas for urban agriculture in the town 4. Identify and market agro-processing opportunities in the town	√ √ √	√ √		agriculture and livestock
6. Housing	Lack of housing	To facilitate housing development through planning, development of infrastructure and private sector investment	1) To make adequate provision for inclusive housing in the town's land use zoning 2) Support development of housing infrastructure 3) Create laws and bylaws that attracts and retains private sector investment in housing development	√ √ √	√ √ √	√ √ √	CEC in charge of housing
7. Commerce and industry	Poorly developed commercial and industrial development	To support the development of an integrated commercial and industrial development	1) To develop the existing commercial centre 2) To create and develop four additional commercial centres 3) To zone industrial area	√ √ √	√ √ √	√	CEC in charge of Commerce and Industry

			and develop its infrastructure and services				
8. Education	Inadequate education facilities	To promote the development of educational facilities right from ECD, primary and technical training	<ol style="list-style-type: none"> 1) Design and develop a network of educational facilities across the town 2) To support the development of Polytechnic in the town 3) To encourage private sector participation in the delivery of education services 	√	√	√	CEC in charge of education
9. County administration and Governor's/County house	Lack of County Administrative centre and Governor's House	To ensure planning and development of a system of County Administration centres	<ol style="list-style-type: none"> 1. To designate and develop County Headquarters 2. To designate and develop Governor's/County House 3. Designate ward administration centres in each ward 				County Secretary

Chapter Ten: Development Control Framework

10.1. Development Control Mechanisms

Development control in Iten Town will be undertaken in conformity with the Constitution of Kenya 2010, applicable laws (County Government Act, Urban Areas & Cities Act, Physical Planning Act, Building Code, etc.) and other guidelines (i.e. Draft Physical Planning Handbook). Creating framework for development control in the town will require preparation of bylaws detailing standards, regulations and guidelines that will operationalize the above legislations at the local level.

Principles of Planning and Development Facilitation

Development control in Iten Town will be guided by the principles of planning and development facilitation stated in County Government Act (2012). The principles of planning and development facilitation in a county shall:

- integrate national values in all processes and concepts;
- protect the right to self-fulfilment within the county communities and with responsibility to future generations;
- protect and integrate rights and interest of minorities and marginalized groups and communities;
- protect and develop natural resources in a manner that aligns national and county governments policies;
- align county financial and institutional resources to agreed policy objectives and programmes;
- engender effective resource mobilization for sustainable development;
- promote the pursuit of equity in resource allocation within the county;
- provide a platform for unifying planning, budgeting, financing, programme implementation and performance review; and
- Serve as a basis for engagement between county government and the citizenry, other stakeholders and interest groups.

Objectives of Development Control

As stated in the County Government Act, development control in Iten town will seek to achieve the following objectives:

- ensure harmony between national, county and sub-county spatial planning requirements;

- facilitate the development of a well-balanced system of settlements and ensure productive use of scarce land, water and other resources for economic, social, ecological and other functions across a county;
- maintain a viable system of green and open spaces for a functioning eco-system;
- harmonize the development of county communication system, infrastructure and related services;
- develop urban and rural areas as integrated areas of economic and social activity;
- provide the preconditions for integrating under-developed and marginalized areas to bring them to the level generally enjoyed by the rest of the county;
- protect the historical and cultural heritage, artefacts and sites within the county; and
- make reservations for public security and other critical national infrastructure and other utilities and services;
- work towards the achievement and maintenance of a tree cover of at least ten per cent of the land area of Kenya as provided in Article of the Constitution; and
- develop the human resource capacity of the county.

Key Issues

- Iten Town is strategically located at the edge of Elgeyo Escarpment, i.e. beautiful landscape, fragile geological & ecological system, which this plan seeks to tap for the development of the town;
- The town is the County headquarters of the County;
- The town is famous for high altitude sports, i.e. athletics and para-gliding, which this plan seeks to harness for the development of the town; and
- The town is at its early stages lacking defined form, basic infrastructure and services.

Major Land Uses in Iten Town

Major land uses in Iten Town fall within the standard land use classifications and they are as follows:

- Residential;
- Commercial;
- Industrial;
- Physical and social infrastructure and services;
- Public purposes;
- Recreational;
- Open spaces and conservation areas; and
- Urban agriculture.

Planning Authority

According to the Constitution of Kenya 2010, planning is a devolved function, so the planning authority is the County Government of Elgeyo Marakwet. According to Urban Areas & Cities Act,

Town Administrator is to be recruited by the County Government to manage a town. Therefore, Iten Town Administrator will exercise powers of town planning authority on behalf of the County Government.

Planning Permission

Planning permission will be obtained by potential developers (new buildings, change of use, extension of use, extension of lease, rehabilitation of old building, etc.) from the Town Administrator following prescribed procedure as will be defined in the bylaws. Planning permission from the Planning Authority will be sought for any development within the town, i.e. Iten Town Administrator. Relevant department and committees as constituted by the County Government will process development permission. No development will be implemented without requisite planning permission. Approved development shall be implemented as such and for any modification approval is required. Development permission will be granted based on standards, regulations and guidelines prepared or adopted by the Country Government.

- **Iten Town Bylaws**

The County Government will facilitate the preparation and passage of town planning bylaws to put into effect national legislations and Iten Town spatial plan. The bylaws will consolidate provisions of County Government Act, Urban Areas and Cities Act, Physical Planning Act, Building Code and Physical Planning Handbook. The bylaws will provide standards, regulations and guidelines appropriate to the local conditions.

10.2. Building Control Strategies

Table 39: Zoning regulations in Iten planning area.

Zone	Sub Zone	Description	% PC	%PR	Plot Size (Ha)	Permissible Activities
0	60-76	• Low Density residential neighbourhoods	25	25	0.2	<ul style="list-style-type: none"> • 50m building line from escarpment • Bungalows • Maisonettes
		• High-end hotels	50	75	0.4-1.0	<ul style="list-style-type: none"> • 50m building line from escarpment • High-end low density tourist hotels • Eco-lodges/resorts
	25; 40-42	• Medium Density residential neighbourhoods	60	150	0.1	<ul style="list-style-type: none"> • Bungalows • Maisonettes
	25-43	Medium Density residential neighbourhoods	65	200	0.05	<ul style="list-style-type: none"> • Bungalows • Maisonettes • Double storey buildings
	18-24	High Density residential neighbourhoods	70	350	0.05	<ul style="list-style-type: none"> • Residential
	1-6	High Density industrial residential neighbourhoods	70	350	0.05-0.1	<ul style="list-style-type: none"> • Industrial residential houses
	8-16	High Density residential neighbourhoods	70	200	0.05	<ul style="list-style-type: none"> • Town Houses
	79	Gated community	60	150	-	<ul style="list-style-type: none"> • Mix of bungalows, maisonettes and town houses; with amenities and services
1	1-2	Medium industry	50	50	0.1-0.5	<ul style="list-style-type: none"> • Medium Industry
	3-4	Light industry	50	75	0.1	<ul style="list-style-type: none"> • Cottage (<i>Jua Kali</i>) industry
	5	Light industry	50	100	0.1	<ul style="list-style-type: none"> • Light agro-processing industry
3	12 ⁸	Conservation cum agroforestry practices	-	-	0.5	<ul style="list-style-type: none"> • Conservation on lower part

⁸ Although this area has been designated as conservation area, however, the community is claiming the land to be communal land; with families doing farming on the upper side. However, farming and heavy settlement in this area has a potential of landslides; thus disaster occurrence. Therefore, this plan proposes that:

- Survey and risk assessment be done to ascertain up to what level is suitable for low density habitation
- Profiling of people settling in this area
- Resettlement of people living in disaster prone areas
- Establishing the conservation line and zone
- Preservation of conservation zone.

						<ul style="list-style-type: none"> • Agro-forestry practices on upper part
4	1	County Headquarters	<ul style="list-style-type: none"> • Design based • 50 	500		<ul style="list-style-type: none"> • Tailor made designs meeting best standards for County Executive Office block, County Assembly block, Grand Church with cloak tower, Fire station, Imposing County Monument, Hotel, Grand County Park. • These developments should be separated by adequate green spaces based on concept of a cross • Line setback of 15 m from the road • No entry directly from the main road
5	1-4	Main CBD	75	300	0.05	<ul style="list-style-type: none"> • Commercial cum residential
	6	County CBD	75	750	0.05-1.0	<ul style="list-style-type: none"> • Commercial
			25%	250		<ul style="list-style-type: none"> • Offices
	5,7,8	Sub-CBDs	75	300	0.05	<ul style="list-style-type: none"> • Commercial cum residential

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