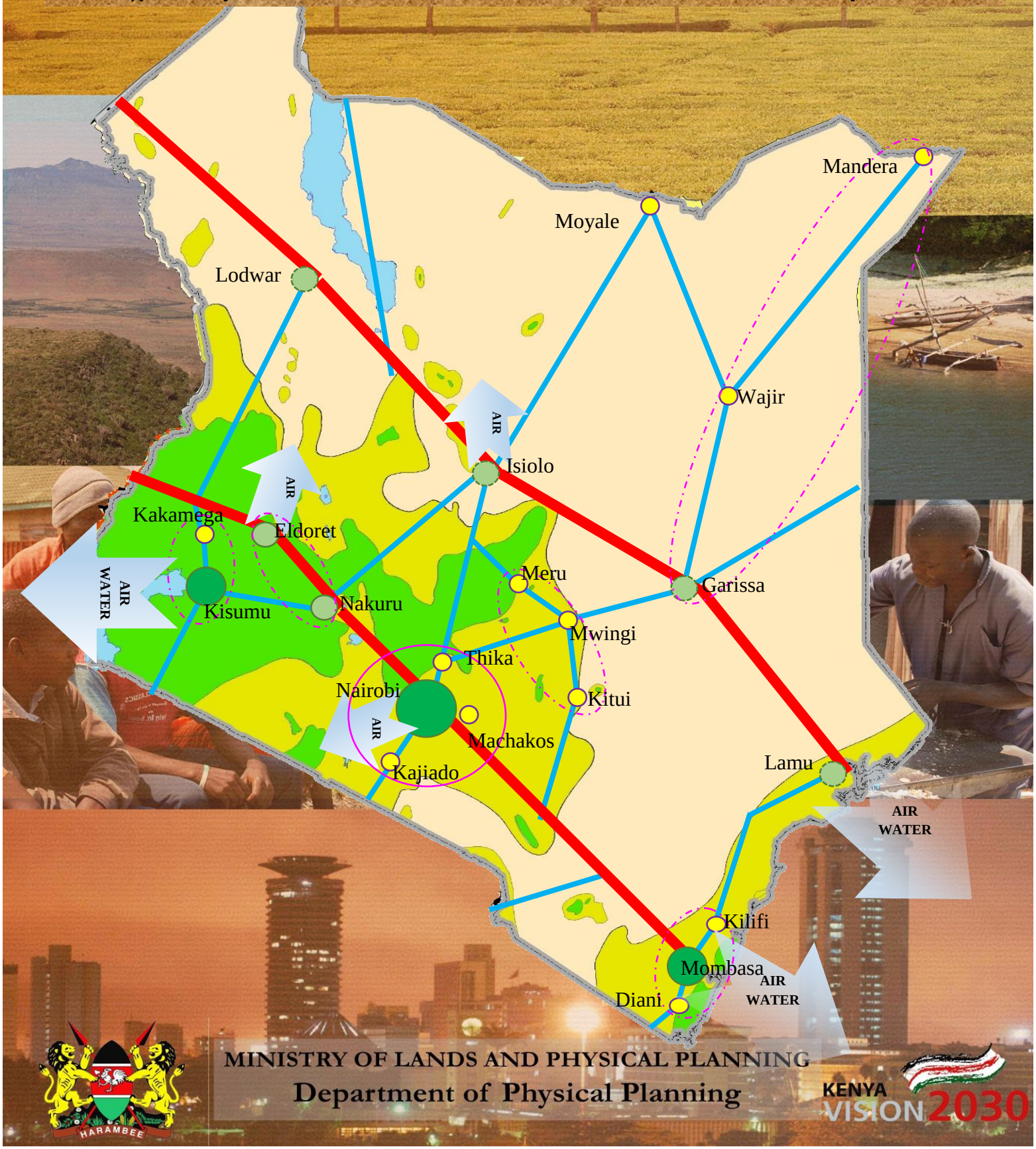
National Spatial Plan

2015-2045

An integrated Spatial Plan for Balanced and Sustainable National Development



MINISTRY OF LANDS AND PHYSICAL PLANNING

Department of Physical Planning

KENYA VISION 2030

APPROVAL

CERTIFIED

Director of Physical Planning

DATE_____

APPROVED

Cabinet Secretary for Lands and Physical Planning

DATE_____

APPROVED PLAN NO._____

FOREWORD

This National Spatial Plan has been prepared by the National Department of Physical Planning, in the Ministry of Lands and Physical Planning within its mandate of preparing national policies on physical planning. This is an important milestone not only for the Ministry but also for the country having been identified as a flagship project under Kenya Vision 2030. The Plan is timely coming at a time when the country is involved in many initiatives to transform into a globally competitive and prosperous nation.

The approval of the National Spatial Plan marks an important landmark in our country's development agenda. The Plan details the national spatial vision that will guide the long term spatial development of the country for a period of 30 years. It covers the entire territory of Kenya and defines the general trend and direction of spatial development for the country. It aims at achieving an organized, integrated, sustainable and balanced development of the country, hence informing the future use and distribution of activities by providing a framework for better national organization and linkages between different activities within the national space.

Land as we all know is inelastic yet it has many competing land uses. Land in Kenya has not been optimally utilized and its use has in some instances resulted into conflicts. The National Spatial Plan provides a framework for the efficient, productive and sustainable use of land as advocated for in both the Constitution and the National Land Policy. Further, it provides strategies and policies to facilitate sustainable exploitation of the huge potentials the country possesses for agriculture, tourism, energy, water, fishing and forestry. It is expected to reduce regional inequalities that have existed by ensuring that these regions are no longer perceived as low potential but as differently endowed.

The National Spatial Plan supports the implementation of strategic national projects specifically the flagship projects spelt out under Kenya Vision 2030 by indicating their spatial locations and providing a framework for absorbing the spatial impacts of these projects. It provides a coordinating framework for sectoral planning which has been lacking in the country and it aims to address the disconnect that has existed for a long time between physical and economic planning. This is expected to result in more prudent use of the country's scarce resources as the Plan provides a platform for prioritization of programmes and projects within the implementation mechanism.

The Plan is essential at this point when devolution is taking shape as it will provide a guide for development planning by the counties as they discharge their responsibility of preparing county and local plans. The National Spatial Plan provides physical planning policies which the plans at county level are expected to articulate and propagate. These policies include protection of rich agricultural land, conservation of identified environmentally sensitive areas, urban containment, and promotion of industrial development, among others.

Since independence, the country has grappled with a myriad of problems and challenges such as rapid and unregulated urbanization, environmental degradation of the country's diverse ecosystems, skewed/unbalanced development due to the implementation of policies in favor of high potential areas, poor economic performance in the areas of agriculture, tourism and industry due to sub-optimal use of land and underutilization of the rich natural resource endowment. Other challenges include inadequate and poor quality transport and infrastructure, sub-optimal utilization of land and other natural resources and an inadequate national policy framework for guiding spatial planning leading to uncoordinated development planning. The National Spatial Plan provides a framework for dealing with these challenges through the formulation of planning and development strategies, policies and measures under which projects and other priority programmes will be implemented for the next 30 years.

The approach adopted during the preparation of the Plan was highly participatory, collaborative and consultative and it brought on board participants from diverse backgrounds including ministries, departments, agencies, county governments, professionals, civil society, non-state actors among others. This is not only in conformity with the Constitutional requirements on public participation in policy making but it is hoped that this will provide the requisite basis for the implementation of the Plan.

Therefore as a nation, we must prioritize the implementation of this policy document so as promote equity and competitiveness within and across the 47 counties. For the country to be globally competitive, we need to balance development across the country and promote optimal utilization of land and land based resources as well as to cultivate an integrated approach to development in order to address the intertwined problems of regional imbalances, skewed development and unsustainable human settlements. Let us all individually and collectively commit ourselves to the realization of the development policies and strategies contained herein and continue working together in order to build a competitive, equitable and prosperous Nation.

CABINET SECRETARY
MINISTRY OF LANDS AND PHYSICAL PLANNING

PREFACE

Land is a finite resource that has to be properly managed in order to reap maximum benefits thus the need for a spatial framework to guide its utilization. The National Spatial Plan (**NSP**) is a national spatial vision that guides the long term spatial development of the country. The Plan is a flagship project identified under Kenya Vision 2030 as one of the foundations for socio-economic transformation. It aims at achieving an organized, integrated, sustainable and balanced development of the country. NSP will inform the future use and distribution of activities by providing a framework for better national organization and linkages between different activities within the national space.

The Plan has been prepared within the framework of the Constitution. It seeks to achieve promises Kenyans furnished themselves under the new Constitution like the right to economy; the need for balanced development across the country, the right to a clean and healthy environment and the right to property among others. It also lays a foundation on which Article 66, on regulation of land uses, Article 68, on maximum and minimum land holding sizes and Article 69 on Environment will be achieved. Other Acts include the Physical Planning Act (CAP 286), the NLC Act 2012 and the Land Act 2012 of the Laws of Kenya. The Plan covers the entire country and encompasses all the 47 counties. The Plan recognizes that Kenya as a country has various resources that require to be managed in a concerted effort.

The NSP methodological process commenced with the preparation of a concept paper. Benchmarking through desktop research was adopted in order to draw useful lessons from good global practices. Locally, experts drawn from various public and private sectors were brought on board to provide key technical inputs and to contribute their expertise and experiences. Stakeholders drawn from all the counties presented their views which were later incorporated in the document. An interpretative synthesis of this data was employed to formulate the strategies and policies for all the varied pertinent sectors.

The National Spatial Plan, which covers a long term period of thirty years (30) from 2015-2045, addresses land use, socio-economic and environmental issues to achieve balanced and sustainable spatial development and optimal land use across the country. The Plan provides comprehensive strategies and policy guidelines to deal with issues of rural and urban development, modernizing agriculture, infrastructure, energy production, mining and industry, and sustainable human settlements. It will provide a spatial framework for anchoring Vision 2030 flagship projects. The Plan is also a coordinating framework for various sectors involved in spatial planning and implementation. Last but not least the NSP forms the basis upon which lower level plans in the country shall be prepared which include Regional Plans, County Spatial Plans, Local Physical Development Plans and Urban Plans.

The Plan took a longer time than anticipated due to the challenges of gathering information due to lack of up-to-date national spatial data framework. This was resolved by engaging all the sectors in the plan preparation process. It is my expectation that the National Spatial Plan being the first to be prepared in the country and coming at a time when devolution is taking root will transform the country by giving guidelines on how best to utilize our national land and other resources.

MARIAMU EL MAAWY
PRINCIPAL SECRETARY
MINISTRY OF LANDS AND PHYSICAL PLANNING

ACKNOWLEDGMENTS

The preparation of Kenya's first National Spatial Plan (NSP) has been a success, which is attributable to the concerted efforts of various actors both in government and private sector. I take this opportunity to gratefully acknowledge their roles and contribution towards the completion of this important national initiative.

Deserving special mention is the administration of the Ministry of Lands and Physical Planning particularly the Cabinet Secretary for the unending support in the process of preparing the Plan and for ensuring that adequate resources were availed for the project. In addition the Principal Secretary provided technical guidance and oversight throughout the process. Many thanks to the various heads of Departments within the Ministry for collaborating with the Physical Planning Department and for availing requisite information, maps, statistics and expertise to the NSP team.

I wish to recognize the efforts of staff of the Department Physical Planning who tirelessly worked to ensure that the Plan was completed. We acknowledge the diligent efforts by the planners to come up with policies and strategies to guide the spatial development of the nation. We equally laud the technical team's invaluable efforts to illustrate the proposals and strategies in graphical form.

Immeasurable appreciation and deepest gratitude for the help and support are extended to the following persons and agencies who in one way or another have contributed in making the first NSP for Kenya a reality.

Experts from various sectors including Tourism, Housing, Agriculture, Energy, Industry and Trade who contributed their expertise and time in the plan-formulation process.

Organizations including KIPPRA, NESC, AWF, KENINVEST, ESRI, KR, GCD and RCMRD who offered invaluable data and technical expertise throughout the process.

Government Ministries and **Departments** within the Ministries including Devolution and Planning, Transport and Infrastructure, Environment, Water and Natural Resources, Agriculture, Livestock and Fisheries, Industrialization and Enterprise Development for their participation and collaboration in the process.

Institutions of higher learning including Maseno University, Moi University and the University of Nairobi whose staff were rigorously and faithfully committed to the process.

County governments and officers from various **County departments** who added their inputs to the Plan and hosted the NSP team during the numerous workshops held across the country.

Stakeholders from all the counties for their support, advice, comments and suggestions on matters that needed to be dealt with in the NSP.

Finally, I take this opportunity to thank the team from the University of Nairobi who provided the editorial work for the Plan, the publishing team and any other persons who collaborated in producing this Plan.

AUGUSTINE K. MASINDE, EBS
DIRECTOR OF PHYSICAL PLANNING

EXECUTIVE SUMMARY

This National Spatial Plan is the first of its kind in the history of Kenya. The Plan is a strategic vision that defines the general trend and direction of spatial development for the country, covering the entire forty seven counties and the Exclusive Economic Zone (EEZ). It is a long term Plan spanning a period of thirty (30) years with 10 year periodical reviews. The preparation of the National Spatial Plan is recommended under Kenya Vision 2030 as a flagship project. under the Infrastructure Services section it has been identified as one of the foundations for socio-economic transformation.

The purpose of the National Spatial Plan is to provide a national spatial structure that defines how the national space is utilized to ensure optimal and sustainable use of land. This is imperative as it will facilitate the achievement of the land policy principles of efficiency, equity, sustainability and productivity. The Plan is anticipated to promote the attainment of national, social, economic and environmental goals and objectives. Further, the Plan provides strategies and policies to deal with national challenges including urbanization, regional imbalances/inequalities, rural development, environmental degradation, transportation and underutilization of the massive resources available in the country.

In Kenya the emphasis has hitherto been on economic planning with little or no regard for spatial/physical planning. This major disconnect has led to uncoordinated and unguided development resulting not only in duplication of efforts but also in resource wastage and unbalanced development. The Plan will thus provide a spatial framework upon which the various sectoral plans and policies will be anchored. The Plan as a broad Physical Planning framework shall provide physical planning policies to support economic and sectoral planning and also guide the preparation of regional, county and local physical development plans.

The specific objectives of the National Spatial Plan are:-

- To create a spatial planning context that enhances economic efficiency and strengthens Kenya's global competitiveness.
- To promote balanced regional development for national integration and cohesion.
- To optimize utilization of land and natural resources for sustainable development.
- To create livable and functional Human Settlements in both urban and rural areas.
- To secure the natural environment for high quality of life.
- To establish an integrated national transportation network and infrastructure system

Further to these objectives, the Plan aims to promote the principles of effective public participation, compact cities which entail delineating urban boundaries, smart and green urban growth to promote health and aesthetics, sustainable development for posterity, livability and efficiency among others.

The NSP is organized into two sections. Part 1 (chapters 1, 2 and 3) provides the introduction, the planning context and the country's overall national development strategies. Part II (chapters 4 and 5) provides the national spatial policy thrusts and implementation framework for the National Spatial Plan.

Chapter 1 chronologically traces the historical perspectives of spatial planning efforts in Kenya. It also outlines the methodological approach; the extensive benchmarking that was carried out in order to draw useful lessons towards enriching the Plan; the broad stakeholder consultations that were held with representations drawn from public, private and Non State Actors; the rationale for preparing NSP; the strategic direction of NSP and its constitutional, legal and policy basis. Chapter 2 takes a sectoral approach to situational analysis of the country's spatial planning context. The chapter outlines a detailed review of the country's geographical position, population dynamics, economic trends, resource endowment, land use patterns and practices, sector policies and plans as well as the aspirations of Kenyans as expounded in the Constitution. Chapter 3 provides approaches and strategies for spatial growth and development of the country by addressing the inherent potentials and the factors that prevent the country from achieving the intended national goals and objectives. Thematic areas on global impacts, land use, regional balance, urbanization, environment, national transportation and infrastructure have been discussed and respective strategies formulated to address the identified issues.

In order to actualize the strategies identified in chapter 3 relevant policies, together with supporting measures, have been formulated in chapter 4. Chapter 4 outlines the policies and measures which are aimed at promoting the achievement of the goals and objectives of NSP. The policies are aimed at enhancing the country's competitiveness and economic efficiency, modernizing agriculture, diversifying tourism, supporting industrialization, creating functional and livable human settlements, conserving the environment, integrating the national transport network and providing quality infrastructure and services. The chapter proposes policies and measures which are aimed at leveraging opportunities available in the country and to address identified challenges that have hindered growth and development of the country to the desired level. Further, the chapter establishes the National Spatial Structure for purposes of setting the direction of spatial development of the country to achieve pre-determined national objectives.

Chapter 5 outlines the implementation framework for the Plan that will be employed in order to achieve the desired end state. The approaches for implementation include the preparation of spatial plans to integrate and conform to the proposals of NSP, assimilation of NSP policies to the sector plans and programmes, formulation of regulations and standards to guide development and incorporation into the five year Medium Term Plan (MTPs). An implementation matrix and institutional framework have been provided to link the proposed policies to the measures and the actors. The Plan proposes setting up of an Inter-Ministerial Committee to spearhead the process of implementation.

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ACRONYMS AND ABBREVIATIONS

ASAL	Arid and Semi-Arid Land
AWF	Africa Wildlife Foundation
DRSRS	Department of Resource Surveys and Remote Sensing
DDC	District Development Committees
DFRD	District Focus for Rural Development
GDC	Geothermal Development Company
KALRO	Kenya Agriculture and Livestock Research Organization
KENHA	Kenya National Highways Authority
KENINVEST	Kenya Investment Authority
KFS	Kenya Forest Services
KIPPRA	Kenya Institute of Public Policy Research and Analysis
KRC	Kenya Railways Corporation
KWS	Kenya Wildlife Services
MDAs	Ministries, Departments and Agencies
NDPs	National Development Plans
NEMA	National Environment Management Authority
NESC	National Economic and Social Council
NIB	National Irrigation Board
NLC	National Land Commission
NSP	National Spatial Plan
RCMRD	Regional Centre for Mapping of Resources for Development
RDAs	Regional Development Authorities
RPDP	Regional Physical Development Plans
SRDP	Special Rural Development Plans
WARMA	Water Resources Management Authority

CHAPTER ONE: INTRODUCTION

1.1 Overview

The National Spatial Plan (**NSP**) is a national spatial vision that guides the long term spatial development of the country. It covers the entire territory of Kenya and defines the general trend and direction of spatial development for the country. The Plan provides national physical planning policies aimed at guiding micro level physical development plans.

The Plan is a flagship project identified under Kenya Vision 2030 as one of the foundations for the country's socio-economic transformation. It aims at achieving an organized, integrated, sustainable and balanced development of the country. NSP will inform the future use and distribution of activities by providing a framework for better national organization and linkages between different activities, sectors and different parts of the national space.

The NSP promotes the attainment of predetermined national social, economic and environmental goals and objectives. The Plan will facilitate integration and the implementation of the Constitution and socio-economic blueprints such as Kenya Vision 2030, which aspires to transform Kenya into a globally competitive and prosperous country in a clean and secure environment with a high quality of life by the year 2030, which is comparable to standards of living enjoyed in middle-income industrialized nations.

The Plan supports the implementation of strategic national projects specifically the flagship projects spelt out under Vision 2030 by providing them with a spatial dimension and coordinating sectoral agencies by providing the spatial expression to sectoral policies.

1.2 Historical Background

1.2.1 Pre-Independence Planning

Kenya's national spatial organization efforts date back to the colonial era when the British administration established various Ordinances aimed at controlling land use in the East African protectorate. Key among these were the Town Land Ordinance of 1902, and the Crown Land Ordinance of 1915. The former declared all land in the protectorate as Crown Land while the latter reinforced it by declaring that all land, including that which was occupied by indigenous Africans, as being subject to the Governor's authority and power. The latter ordinance further provided for extension of land leases for the settlers from 99 to 999 years.

The consequent planning ordinances concentrated more on management of land in urban areas, with the 1919 ordinance delineating municipal boundaries of one (1) mile from the administrative headquarters of the municipality. In 1920 the territorial unit that now covers Kenya was declared a colony. The 1931 Planning Ordinance provided legislation on control of development in towns. The Ordinance further extended planning powers of the Governor to almost any type of land whether developed or undeveloped especially in towns. The ordinance

further extended planning powers of the Governor to almost any type of land whether developed or undeveloped especially in towns. Throughout this period, Africans were restricted to rural areas and were further restricted from occupying land that belonged to other tribes. The dual restrictive policy was marked by alienation and overcrowding of Africans in villages leading to agitation and struggle for better living conditions, the subsequent declaration of a state of emergency in Kenya in 1952 and attainment of independence in 1963.

The milestones in Kenya's colonial planning and land use planning and its development were the Swynnerton plan (1954) and the Development and Use of Land (Planning) Regulations, 1961, later repealed and enacted as part of the Land Planning Act, Cap. 303 of 1968.

The Swynnerton Plan of 1954 was a colonial agricultural policy to restructure land ownership in African areas. The policy provided for progressive African farmers to grow cash crops. It also saw the adoption of European-like land tenure systems where permanent land ownership was conferred to the indigenous Africans. The Plan promoted agricultural production through provision of infrastructure and inputs in the areas considered to be of high agricultural potential. The major failure of the Plan was the neglect and marginalization of Arid and Semi-arid areas (ASAL) which led to imbalances in development between different regions.

The Development and Use of Land (Planning) Regulations of 1961 were a subsidiary legislation of the Land Planning Act Cap 303. The purpose of the Act was to make provision for planning the use and development of land. It required that planning applications need to have regard to health, amenities and convenience of the community, generally and the proper planning and density of development and use of land in the area. The regulations were used in guiding land subdivision in former European farming areas, land use along major trunk roads and in the peri-urban areas. It also created a Central Authority to guide use and development of land.

1.2.2 Post-Independence Planning

Five Year National Development Plans:

The first ten years of independence was spent developing consensus on the country's political philosophy and planning doctrine.

The landmark in the country's planning efforts was the formulation of the **Sessional Paper No. 10 of 1965 African Socialism and its Application to Planning in Kenya.** The paper emphasized the role of planning in national development processes along with the African tradition of mutual social responsibility, political democracy and various forms of ownership. While the policy aptly identified the main development challenges of poverty, diseases and ignorance which were rampant in the country at the time, it adopted a development approach that

favoured "the development of high potential areas having abundant natural resources, good land and rainfall, transport and power facilities, and people receptive to and active in development". The policy assumed that through trickle-down processes the rest of the country could benefit from rapid development in high potential areas. Although this did not happen, a positive provision of the policy however was the proposal for formulation of a national land use policy and extension of physical planning from towns and cities to districts and rural areas. The policy proposed good planning initiatives, which were never fully implemented.

The subsequent five year National Development Plans (NDP) were used to articulate the country's economic and land use development policies. Soon after independence there was the **1964-1970 National Development Plan** (referred as the red plan) soon to be replaced by the **1966-1970 National Development Plan** (referred as the green plan). The Plan elaborated on Kenya's planning doctrine and set the path for the country's agrarian revolution by stressing on developing small-scale farming into a modern and productive economic activity. It launched programmes for land consolidation and registration to facilitate the agrarian revolution. The plan extended planning to the provincial level.

The plan recognized and defined the four important aspects of planning, namely physical, social, financial and economic. *"Physical planning deals with land use and layout, and locational, transport and design problems in both rural and urban areas; social planning is concerned with welfare and social services, cultural development, the modification of traditional attitudes, the alleviation of social problems, self-help and community development; financial planning involves the determination of government revenues, recurrent expenditure and capital budgeting and planning and creation of financial institutions; and economic planning has the task of organizing all of the national real and monetary resources into a concerted and coordinated development effort. None of these aspects of the planning can be carried out without close co-ordination with the others even on apparently routine matters"* (Republic of Kenya, NDP 1966-1970, pp. 1). The co-ordination was aptly demonstrated in the next **NDP 1970-1974** which was a truly integrated national development plan as it provided and harmonized all the four aspects of planning. However, in the subsequent years Kenya appears not to have adequately upheld the co-ordination and balance required in the four aspects of planning leading to uneven socio-spatial development.

The preparation of **Regional Physical Development Plans (RPDP)** was the first attempt at addressing physical planning at the national level (1968-1970). There were seven Regional Physical Development Plans which were prepared to cover all the provinces, except Nairobi. Nairobi was addressed in the period 1967-1973 during the preparation of the Metropolitan Growth Strategy where the concept of a comprehensive plan was mooted to enable the city chart its growth and development and to aim to respond to a series of sectoral pressures including but not limited to employment, housing, transportation and infrastructure services.

The RPDPs were integrated plans which were to be the basis within which all development agencies were to carry out their policies in order to have coordinated development. These plans were also to provide the framework for infrastructural provision including spatial distribution to facilitate utilization of the regions' resources and to identify urban areas for investment to take advantage of economies of scale. These early Plans recognized that due to population increase, it would no longer be possible to derive livelihoods from agriculture and they therefore advocated for diversification. There was also going to be marked migration to towns which would lead to an upsurge in urban growth. The plans were concerned with physical development to serve the social needs of the people including Administration, Education, Health and Transportation.

The **NDP 1970-1974** strategies were to grow the national economy steadily and rapidly and to enable provision of services to the people. The plan proposed measures to accelerate development of rural and urban areas through designation of urban and rural growth centres. The central theme of the plan was urban development and it emphasized the role of infrastructure in national development. The plan included a map and an appendix for long range urban development in Kenya. The plan encouraged active participation of all people in nation building as well as enjoyment of its fruits. The plan recognized and emphasized the dual role of economic and physical planning in national development processes. Chapter three of the plan was titled Economic and Physical Planning and emphasized coordination of both economic and physical planning for the country to achieve rapid and orderly economic and social development. Following a conference held in Kericho in 1966 fourteen areas were selected in 1968 and piloting of a **Special Rural Development Programme (SRDP)** launched in 1969/70 financial year in six selected areas of the country to increase rural incomes and employment. The NDP 1970-1974 established the mechanism for extension, financing and coordination of the programme (pp: 174-178).

The **NDP 1974-1978** and subsequent five-year NDPs focused on freeing Kenyans from disease, ignorance and poverty. The concept of Kenyanization of the economy was introduced. Chapter five was titled "Urban Development" and further elaborated on the country's urbanization policy and strategy of urban service centres and principal towns. Essentially, this was the growth and service centre strategy published in 1978 under the title, "**Human Settlements in Kenya: A Strategy for Urban and Rural Development**", popularly referred to as the 'Purple Book'.

The Human Settlements Strategy of 1978, which was captured in the Urban Development Framework of 1974-1978 NDP, was the first comprehensive attempt aimed at formulating a national framework for the management of future urban growth, and for the location of physical developments in urban and rural areas, so as to facilitate a coherent system of human settlements. It aimed at fostering coordination and integration of physical and socio-economic development

planning with a long term perspective. Further, it was intended to provide a viewpoint for preparing the five (5) year development plans for the country. It was formulated at a time when the country was experiencing a rapid population growth rate of 3.5% and when urban areas were viewed as parasitic towards the rural areas. Due to the inadequate implementation of the strategy, little was achieved and the human settlement problems have persistently increased. The NSP therefore seeks to build on this past planning effort and to redress most of the challenges that were aimed at being addressed by the Human Settlements Strategy.

The **NDP 1979-1983** adopted the theme of 'Alleviation of Poverty'. In chapters five and eight Basic Needs and Basic Infrastructure respectively, are discussed in line with the then current development doctrine on "Basic Needs Approach". Like the previous two NDPs the plan included schedules of service centres (hierarchy of urban areas) and guidelines for the location of infrastructural facilities at the various levels of centres.

The **NDP 1984-1988** had its theme as 'mobilization of domestic resources for equitable development'. The country faced a balance of payments crisis and serious debt service ratio. The government introduced cost sharing and development as Structural Adjustment Policy (SAPs). The policy shift was engineered through **Sessional Paper No. 1 of 1986: Economic Management for Renewed Growth**. The **District Focus for Rural Development (DFRD)** was introduced where responsibility for rural development was delegated to the districts. It was aimed at achieving regional balance in growth and in the provision of the infrastructure and basic needs services. Beginning 1987, the country prepared district development plans. These Plans were similar to the Regional Plans with the District Plans covering a sub-regional spatial area of a District. The purpose of these Plans was to guide development within a district by identifying opportunities, potentials and challenges within the district. The plans developed strategies of utilizing the opportunities and potentials of the district to bring about development and mitigate the challenges. These plans aimed at developing an urban hierarchy for the district by identifying the key centers that required to be developed to service the rural areas. These plans were also aimed at promoting agriculture which was the backbone of the economy and a source of livelihood for the majority of the rural population. The strategies were not anchored on a spatial framework and therefore led to haphazard location of projects. The lessons to draw from the District Development Plans is that there is a need for the coordination of various agencies involved in planning during the plan preparation process and implementation phase.

The **NDP 1989-1993** sought to follow an 'integrated approach' by calling upon the government ministries and other agencies to carry out their functions in ways that recognized and promoted complementarity and mutual supportiveness. Chapter five, which was titled 'Spatial Dimensions of Development' was in pursuance of the goal of rural-urban balance from which the government launched the Rural Trade and Production Centres (RTPC) programme to stimulate growth of small market centres and agricultural development of their immediate hinterlands. Another programme promoted during this plan period is the development of Arid and Semi-Arid Lands

(ASAL) which dealt with integrated area development projects in parts of the arid and semi-arid lands in Kenya. This period also saw the establishment of additional three resource based **Regional Development Authorities (RDAs)** making a total of six: Tana Athi Regional Development Authority (TARDA, 1981), Kerio Valley Development Authority (KVDA, 1979), Ewaro Nyiro North Development Authority (ENNDA, 1981), Coast Development Authority (CDA, 1990), Ewaso Nyiro South Development Authority (ESNDA, 1990) and Lake Basin Development Authority (LBDA, 1991).

RDAs were established based on the concept of a shared common natural resource, mainly the water catchment. The RDAs were to use the common resource to evolve a planning and management process across a terrain of varied ethnic populations and ecological systems. The six regional development authorities were established with the aim of controlling rural–urban migration by developing the rural areas. Their main objective was to ensure that Kenyans attain enhanced growth and sustained wealth creation through integrated water basin-based development programs through policy guidance and capacity building for sustainable use and the conservation of water and other natural resources. In addition RDAs developed core projects and activities that contributed towards the many social and economic goals of Vision 2030. NSP aims to build on these regional planning efforts in order to promote balanced and integrated regional development, nationally.

Throughout 1980 and 1990s, the Department of Physical Planning spearheaded preparation of **Local Physical Development Plans** for Kenya's towns at the district level. These plans were prepared for specific towns and entailed indicating the land uses within a selected urban centre. The main purpose of these plans was to guide development and a basis for development control to ensure compatibility and harmony of land uses. Some of the shortcomings of the local physical development plans was the heavy reliance on part development plans since they rarely addressed the global problems of towns. Due to human resource inadequacies in the department charged with preparation of these plans coupled with inadequate financial resources, few urban centres were planned and many more developed organically leading to sporadic, haphazard and chaotic urban development which is evident in many of our urban centres to date. In many instances physical development superseded the Plans with the plans being prepared when development had already taken place and therefore the plan would as much as possible try to accommodate and regularize the existing developments. This meant that little was achieved in the area of urban form and design as this was mostly dictated by the existing developments. There is therefore need for an integrated approach in the preparation and implementation of Local Physical Development Plans.

The tradition of five year National Development Plans has continued uninterrupted in Kenya to the present **NDP 2012/2016**, a total of 12 NDPs. The plans have succeeded in guiding the country on financial and economic planning under challenging global economic regimes. Prior to 1984 the NDPs explicit emphasis on integrated development management – aimed at achieving

rural –urban balance, reduction of regional disparities and coordination of national development. The NDPs after 1984 have very much ascribed to neo-liberal market based development policies with limited attention to spatial consequences. Table 1 shows the explicit spatial development strategies deployed by the country over the NDP planning periods.

Table 1: Spatial Development Strategies applied in Kenya - 1964-2015

Period	Spatial Development Strategies	Rationale
1966/1970	Special Rural Development Programme (SRDP)	Coordinated development aimed primarily at increasing job opportunities and raising the level of incomes
	7 Regional (Provincial) Physical Development Plans	Provided for physical development plans
1970-1974	Service and Growth Centres	Service centres to serve provision of administrative, social and trading services for the people in the rural areas; the growth centres strategically located to form the major administrative, commercial and industrial centres of the country in the future
1984-1988	Rural Trade and Production Centres (RTPCs)	To stimulate growth of small market centres and agricultural development of their hinterlands
	District Focus for Rural Development (DFRD)	Responsibility for rural development was delegated to the districts. It was aimed at achieving regional balance in growth and in the provision of infrastructure services and basic needs.
	Arid and Semi-Arid Lands Development Programme (ASAL)	Dealt with integrated area development projects in parts of the arid and semi-arid lands in Kenya.
1989-1993	Green Towns Development Programme (MoLG/GTZ)	Had an environmental focus to guide urban growth and spatial development and involved multiple stakeholders in

		secondary towns
	Regional Development Authorities (RDAs)	Six regional resource based development Authorities established to cover entire country.
1994- 1997	Secondary Towns Programme (WB)	The promotion of secondary cities that would relieve population pressure in the countryside, help to better integrate the country's rural and urban economies, help to reduce congestion and improve the quality of life in the metropolitan cities of Nairobi and Mombasa, and help to increase the modernization spin-off which urban centers provide to the surrounding rural areas
2001-2005	Economic Recovery Strategy for Wealth and Employment Creation 2003-2007 (ERSC)	The Economic Recovery Action Plan was the blueprint that guided the Government's economic policies in order to reverse decades of slow and stagnant economic growth that had adversely undermined the well-being of Kenyans. It included a section on Development of Arid and Semi-Arid lands (ASALs).
2006-2011	Vision 2030	Its objective was to help transform Kenya into a "newly industrializing, middle-income (income exceeding World's average currently at US$10,000) country, providing a high quality of life to all its citizens by 2030 in a clean and secure environment." It was developed through "an all-inclusive and participatory stakeholder consultative process, involving Kenyans from all parts of the country," the Vision was based on three "pillars": Economic, Social, and Political
	Kenya Municipal Program	The overall development objective of the

	(KMP)	Program was to strengthen local governance and improve service delivery in selected municipalities. It was revised "to improve planning and delivery of infrastructure services in urban areas in selected counties.
2012-2015	National Spatial Plan	The National Spatial Plan, covers a long term period of thirty years (30) from 2015-2045. It addresses land use, socio-economic and environmental issues to achieve balanced and sustainable development and optimal land use across the country.
	County Spatial Plans	Following the County Government Act 2012, most counties have prepared the County Spatial Plans along with the other plans identified in the County

1.3 Scope

The NSP covers the entire territory of Kenya measuring approximately 582,646 km^2 including 21km^2 of the Exclusive Economic Zone (EEZ). The map below shows the territorial extent of the country which comprises of forty seven (47) counties and the EEZ.

Geographical Scope of the NSP

Map 1: Geographical Scope of the National Spatial Plan

Source: Survey of Kenya, 2012

The NSP is a long term spatial planning framework spanning a period of thirty (30) years and shall be subjected to ten (10) year reviews in tandem with the Medium Term Plans (MTPs).

The NSP is a territorial strategy to guide physical development activities, it provides a spatial illustration of all national projects and it identifies a strategy for land development. The plan aims to address issues such as human settlement patterns including urban and rural development; economic development; the natural environment; regional balance; and transportation and infrastructure.

1.4 Purpose of NSP

The purpose of the National Spatial Plan is to provide a national spatial planning framework for integration of social, economic and political policies. It aims to:-

i. Strengthen national economic planning by anchoring/grounding national economic policies;

ii. Coordinate sectoral agencies by providing the spatial expression to sector policies; to mitigate duplication and reduce wastage of limited resources;

iii. Formulate Physical/Spatial Planning Policies to support socio-economic and sectoral planning;

iv. Guide the preparation of regional, county and local spatial plans.

1.5 Rationale for the National Spatial Plan

The Kenya Vision 2030 identifies the preparation of the first National Spatial Plan as a flagship project within infrastructure which was considered as a foundation for socio-economic transformation. The Sessional Paper No. 3 of 2009 on the National Land Policy also recognized that national land use planning is essential to the efficient and sustainable utilization and management of land and land based resources. Therefore, the preparation of NSP is in response to these policy directives and it is expected to facilitate national socio-economic transformation.

The preparation of NSP is mandated by Article 60 of the Constitution of Kenya (2010), the Physical Planning Act Cap 286 and Kenya Vision 2030. The NSP is important in realizing the Constitutional principles of equity, sustainable development and the principles of land policy of efficiency, productivity and sustainability. The NSP has taken cognizance of these Constitutional provisions as demonstrated in the strategies, policies and measures formulated.

In Kenya the focus has been on economic planning with little or no regard for spatial/physical Planning. This has led to a major disconnect between the two aspects leading to uncoordinated and unguided development. The sectoral approach to issues has aggravated the situation leading to duplication of efforts and the wastage of scarce resources as well as unbalanced development and overlaps in policy and programme implementation. The NSP is expected to strengthen

economic planning by providing a spatial expression to economic policies and coordinating sectors through illustration of sectoral policies.

The country is grappling with a myriad of problems and challenges among them:

1. Rapid and unregulated urbanization which has led to conversion of rich agricultural land to urban use thereby threatening the country's productive capacity and food security;
2. Environmental degradation of the country's diverse ecosystems including parks, lakes, catchment areas, forests, marine and coastal ecosystems and Arid and Semi-Arid Lands (ASALs) compromising on environmental sustainability;
3. Skewed/unbalanced development resulting from implementation of policies in favor of high potential areas, skewed population distribution, variation in resource endowment and underutilization of land and other resources and insecurity causing underdevelopment of some areas, particularly the Arid and Semi-Arid Lands (ASALs);
4. Overall poor economic performance in the areas of agriculture, tourism and industry due to sub-optimal use of land and underutilization of the rich natural resource endowment which has impacted negatively on the country's global competitiveness;
5. Inadequate and poor quality transport and infrastructure hindering optimal utilization of land and other natural resources;
6. Inadequate national policy framework for guiding spatial planning leading to uncoordinated development planning.

The National Spatial Plan aims at providing a framework for addressing the above challenges through the formulation of planning and development strategies, policies and measures.

1.6 Methodology

The National Spatial Planning Process was a deliberate, systematic and structured action to develop a document that sets out Kenya's vision for spatial development as well as the specific policies, strategies and measures for achieving the spatial vision. The preparation of the NSP entailed an all-inclusive, multidisciplinary, multi-sectoral and participatory approach involving views and expert opinions collected and collated through a structured and consultative process that brought together stakeholders drawn from the public, private and civil society organizations. The broad-based process of consultations was carried out around identified thematic areas that formed the basis of stakeholder engagement and consensus building conducted through workshops and seminars. This was in keeping with the Constitutional requirement that stakeholders should be an integral part of policy and plan-making process. Various sectoral policies and plans were reviewed to ensure that the NSP policy recommendations are relevant and in harmony with other related policies. The process also entailed an in-depth study and spatial analysis of key thematic areas to gain insights into the magnitude, extent, trend and impacts of the issues under investigation. The preparation of the plan was informed by the following processes.

Conceptualization – the rationale for NSP draws its justification from the fact that Kenya has not had a comprehensive national spatial planning framework to guide her current and future development. A concept paper was developed which entailed developing a rationale for the Plan, understanding its purpose and objectives, determining a methodology for its delivery and anticipating the resources required for its preparation. The concept paper was validated and adopted at a forum held in June 2010.

In shaping the strategic direction, the conceptualization of the future spatial planning framework was determined by taking into cognizance the country's situational analysis of the agro-climatic / agro-ecological zones; the present country's population distribution and historical human settlement growth patterns; the country's resource potential growth areas; the current and projected infrastructure; the emerging concentration growth areas identified in Kenya Vision 2030 flagship projects as selective monocentric nodes; and lastly the complimentary growth nodes as envisioned in Kenya's devolved governance system.

The National Spatial Vision of achieving the goals and objectives of a more balanced regional, urban and rural development is anchored in the concept of polycentric urban development. Firstly the spatial vision takes cognizance of the Human Settlements Strategy, which was based on the concept of a Hierarchical Polycentric Regions, which envisioned several urban centres organized in a hierarchical central place structure. In this structure several urban centres, such as Nairobi, Mombasa and Kisumu are dominant, while the smaller centres are dependent on the bigger centres for the supply of specialized goods and services.

Secondly, the national spatial vision takes cognizance of the emerging concentration growth areas identified in Kenya Vision 2030 flagship projects. The selective concentration nodes such as the Lamu Sea Port, Konza Techno City, Isiolo Tourist City, Turkana oil fields, Marsabit Wind farms and the emerging Nakuru-Naivasha industrial zone are based on the concept of monocentric polycentric regions, which envision several dominant urban centres that are geographically and functionally isolated from each other.

Lastly, the national spatial vision recognizes the aspirations of County Spatial Planning under the current system of devolved governance, which is based on the concept of complementary polycentric regions, which envision several dominant urban centres that have approximately the same size, are of equal importance, are equally spread out geographically and are more or less equally accessible. The emerging national spatial development model is thus a vision of integrated polycentric regions, which is aimed at achieving balanced and sustainable regional, urban and rural development, from which NSP policies, strategies and measures are derived (see figure 1 on the national spatial development strategy).

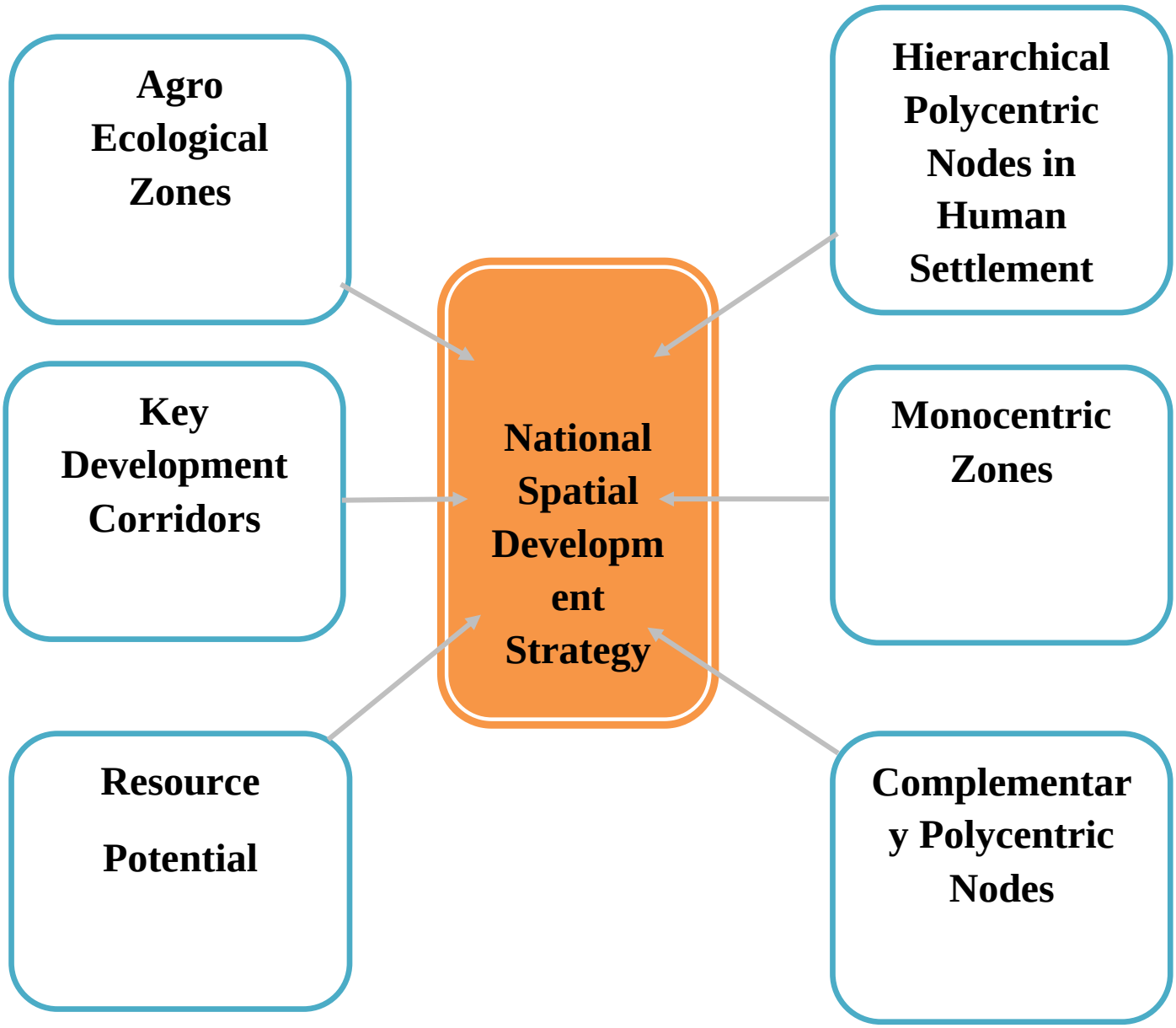
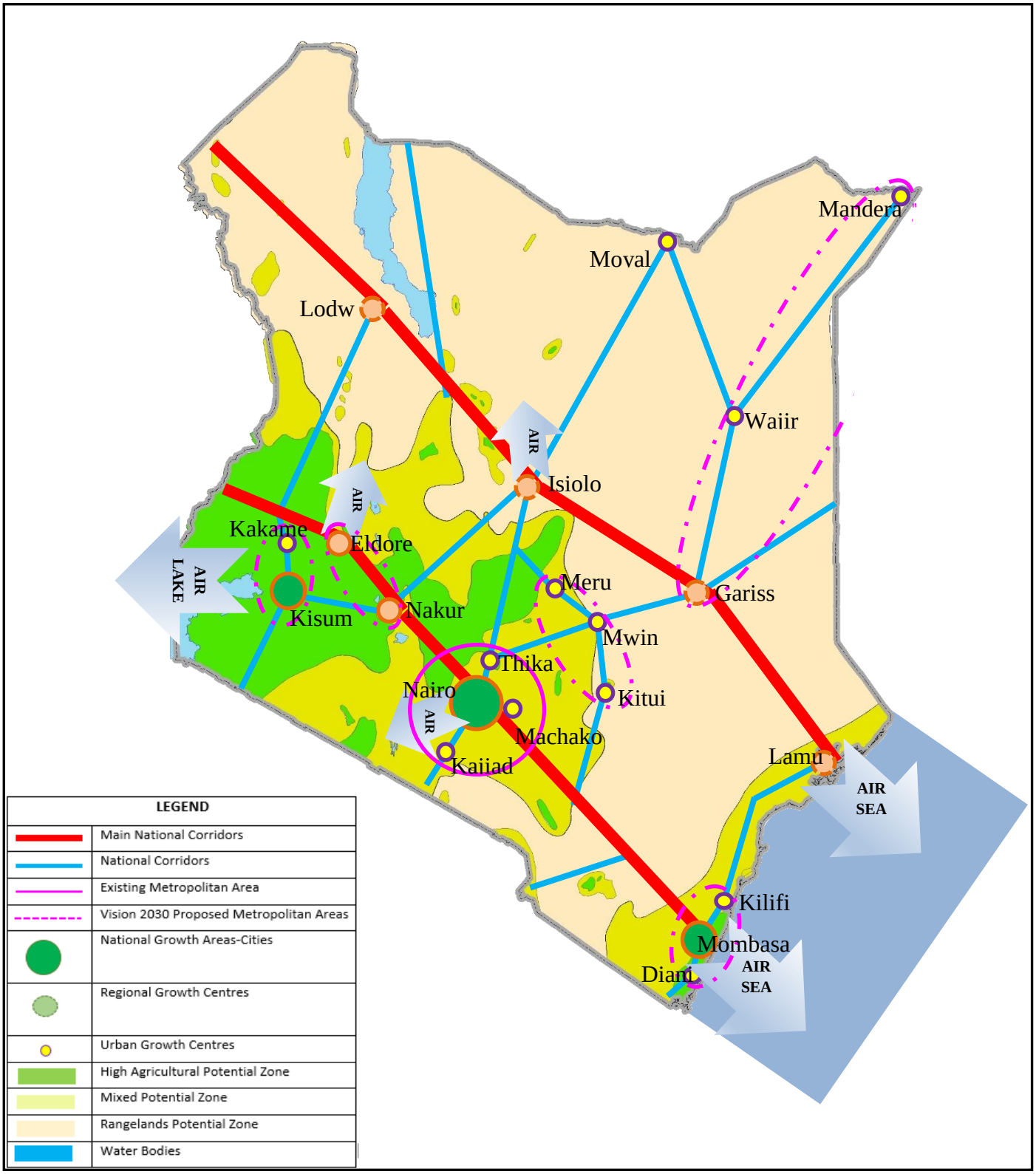


Figure 1: National Spatial Development Strategy

NATIONAL SPATIAL PLAN CONCEPTUAL FRAMEWORK



Consultations – A wide range of consultations including public participation forums, technical workshops for experts, and workshops with key line Ministries representing the following sectors: economy, environment, health, education, transport and infrastructure were held. Sensitization and public awareness meetings were also conducted including county specific workshops. Regional workshops were held in Kisumu, Eldoret, Nakuru, Nyeri, Embu and Mombasa bringing together clusters of counties within the regions to solicit input on the Plan and build consensus on the proposed strategies and policies.

Key Line Ministries, Departments and Agencies (MDAs) have participated through sector and experts workshops which were held to align sector policies to the NSP Policies and build consensus on how to integrate and provide the spatial dimension to sector policies. They include National Social and Economic Council (NESC) Kenya Institute of Public Policy and Research (KIPPRA), Kenya Forest Services (KFS), Kenya Wildlife Services (KWS), Africa Wildlife Foundation (AWF), Kenya Agricultural Research Institute (KARI), Kenya National Highways Authority (KENHA), Kenya Investment Authority (KENVEST), National Environmental Management Authority (NEMA), Geothermal Development Company (GDC), National Irrigation Board (NIB), Kenya Railways among others. The Ministries and Departments involved included those dealing with Tourism, Industrialization, Environment, Livestock, Fisheries, Housing, Nairobi Metropolitan, Urban Development, Information and Communication, Mining and Energy. The National Spatial Plan is therefore, a product of a wide range of collaborative consultations and consensus building.

Benchmarking

Benchmarking was undertaken to identify best practices from other countries which informed and shaped the formulation of the Plan. National spatial plans from other jurisdictions were reviewed and analyzed to learn lessons which informed the development of NSP. National Plans from Malaysia, Singapore, Germany, South Africa, Egypt, and Ireland among others were reviewed. At the conceptualization stage planning experts from Malaysia were invited to provide insights of the Malaysian experience in the preparation of their National Spatial Plan.

Projections and Scenario building

In order to capture the long term perspective of the NSP, projections and scenario building was undertaken. This entailed projections on population and scenarios on possible futures and impacts in relation to urbanization, rural development, use of land and natural resources, environment and global trends among others. Simulations were done to determine the trajectory of development in various sectors.

1.7 Strategic Direction

Strategic direction is a planned, calculated, intentional, deliberate course or route to a desired outcome. For the National Spatial Plan, the strategic direction is a key component as it defines

the desired path for spatial development of the country. This spatial aspect of development has been lacking and NSP is geared towards providing the framework for spatial development.

This section sets out the Vision of the Plan which defines the desired spatial end state and creates a sense of direction into the future. The goal of the Plan has been outlined to provide the desired outcome of the Plan. The objectives on the other hand forms part of the strategic direction and indicate what is intended to be achieved by the Plan. The principles set out within this chapter provide the anchor upon which the NSP is based and will guide all future planning at all levels.

The Vision, Goal, Objectives and the principles all contribute towards the establishment of the strategic direction. This implies that spatial development shall be determined and guided by NSP.

1.7.1 Vision

The NSP envisions spatial development of the country to promote the achievement of competitiveness, prosperity and high quality of life for the citizens in line with the aspirations of Vision 2030.

1.7.2 Goal

The country aspires to attain a consistent rate of economic growth at 10% from the year 2012 to the year 2030. This will elevate the country to a middle income economy. The Constitution of Kenya provides that sustainable development is a national principle and value. It further provides for sustainable and productive management of land resources. In order to comply with the Constitutional provisions on the management of land resources and attain the aspirations of **Kenya Vision 2030,** there is need for prudent utilization of the national space. The NSP will provide a framework for equitable development through a rational utilization of the national space

The goal of the National Spatial Plan is:

To develop a national spatial framework for efficient, effective and rational use of the national space to promote global competitiveness, optimal use of the land resource, balanced regional and rural development, environmental sustainability, and create functional and livable human settlements.

1.7.3 Objectives

The objectives of the National Spatial Plan are:

i. To create a spatial planning context to enhance economic efficiency and strengthen global competitiveness;

ii. To promote balanced regional development for national integration and cohesion;

iii. To optimize utilization of land and natural resources for sustainable development;.

iv. To create livable and functional Human Settlements both urban and rural;

v. To secure the natural environment for high quality of life;

1.7.4 Principles

The following principles guided the preparation of NSP and shall form the basis upon which all future spatial plans including Regional Spatial Development Plans, County Spatial Plans and Local Physical Development Plans shall be prepared.

1. **Effective Public participation/engagement**: All plans shall be prepared in a participatory and consultative manner with relevant stakeholders and sectoral actors.
2. **Urban containment/Compact cities**: Local plans shall strive to limit and control urban growth within the set urban boundaries to protect rich agricultural land, mitigate urban sprawl and reduce cost of infrastructural provision.
3. **Livability:** The planning of urban areas shall enhance the livability index in the area of housing, environment, transportation, health, and social engagement. The urban areas must be economically viable, socially inclusive and ecologically sustainable.
4. **Smart and green urban growth**: Plans shall promote sustainable use of energy, creation of green spaces, reduce the need for car travel, and promote use of local materials, support businesses, protection of heritage and creation of unique character.
5. **Sustainable development**: Balancing social, economic and environmental dimensions of development and catering for current and future generations.
6. **Promotion of ecological integrity:** Plans shall promote the protection and conservation of environmentally sensitive areas.
7. **Promote public transportation**: Favor public transportation over private transport to ensure efficiency and functionality of urban places.

1.8 Constitutional, Legal and Policy Basis

1.8.1 Constitutional Basis

The Constitution guides and governs the process and context of the National Spatial Plan. It defines the territory of Kenya (under Article 5 – territory and territorial waters) which in turn defines the geographical scope of NSP. The supreme law outlines national values and principles of governance (Article 10) that guides all activities including making and implementing public policy decisions. Key among the values and principles that impact on the NSP are social justice, inclusiveness, protection of marginalized and attainment of sustainable development.

The Constitution also outlines the principles of land policy (Article 60) implementable through the National Land Policy. Key among these principles is the sustainable and productive management of land resources which is a pointer to optimization of land as encapsulated in this Plan. The State is given powers to regulate use of any land and property (Article 66) in the interest of land use planning among others. This gives preparation of the NSP Constitutional grounding. NSP will be the principal instrument in regulating land uses and actualization of these principles.

The Constitution also establishes the requisite institutional framework to carry out the spatial planning function. The National Land Commission is established to oversee and monitor land use planning nationally. Through the objects of a devolved system of government, the Constitution further places planning functions both at the national and county levels.

1.8.2 Legal Basis

The following are key legislations that have significant implications for spatial planning and development in Kenya. In examining the Legal framework, an analysis of the legal environment under which planning occurs was done and this section briefly outlines the pieces of legislation that have potential impacts on spatial planning.

1. **The Physical Planning Act, 1996-**This is the primary statute that provides for administration, types, content, process and approval of various types of Plans.
2. **County Governments Act, 2012 -**This statute mandates County Governments to carry out the planning function at the county level.
3. **The Urban Areas and Cities Act, 2011-**The statute provides for classification of urban areas and cities, their governance and management, and for integrated development planning.
4. **Environmental Management and Coordination Act, (1999)** provides for a framework for environmental management.
5. **Agriculture, Fisheries and Food Authority Act,** (2013) provides the confines within which to make proposals on agriculture promotion and conservation of soils and fertility for sustainable agriculture and optimization of land use.
6. **Water Act (2002**) does provide guidelines on plan proposals touching on management, conservation, use and control of water resources, water supply, and sewerage services.

7. **National Land Commission Act, 2012,** creates County Land Management Boards which are critical in processing Development applications and allocation of public land.
8. **The Land Act, 2012** provides for sustainable administration and management of land and land based resources nationally.

1.8.3 Kenya Vision 2030

The Kenya Vision 2030 is the country's long term development blueprint covering the period from 2008 to 2030. It aims to transform Kenya into a globally competitive and newly industrializing "middle-income country by providing a high quality of life to all its citizens by the year 2030". Land reform is one of the foundations that anchor the three pillars of the Vision. Several flagship projects were identified under land reforms. Key among them and related to sustainable land use planning is the preparation of the first National Spatial Plan. The Plan is supposed to form the foundation for implementation of national projects by providing a spatial illustration of the projects and identifying a strategy for land development. The Vision is very clear that the Plan will form the basis on which development activities in support of its proposals will take place.

Under the Second MTP, 2013 (the Vision's rolling or successive implementation plan), NSP is listed as one of the flagship projects under programmes and projects for period 2013-2017. NSP is in this case regarded as a long term framework to guide the sectoral integration and rationalization of the social, economic and territorial development of the country. Closely related to NSP and also prioritized in the MTP, 2013 are the County Spatial Plans which are guidelines to ensure that all counties follow the same standards in implementing development projects in the country.

The NSP is therefore prepared against a backdrop of the implementation of the Vision 2030, which identifies it as a foundation for transformation and to anchor all the proposed flagship projects. The Plan culminates in a National Spatial Structure that provides a spatial illustration of all national projects and other socio-economic development policies measures.

NSP will provide the basis for anchoring Vision 2030 flagship projects spatially. It will also provide a platform of opportunities for planning of the LAPSSET corridor, metro cities, resort cities, Industrial zones, among others.

1.8.4 Sector Policies

The policy framework context describes the key national and sectoral policies that were put into consideration during preparation of NSP with a view to interpret, translate and ground them for implementation going forward. The purpose was to achieve coherence and avoid duplications.

1. **National Land Policy-**The NLP served largely as the precursor to Chapter Five of the Constitution on land matters. Besides coming up with land policy principles and guiding values, the policy sets out the goals and direction for the administration and management of land and sets out measures and guidelines to be adopted to achieve optimal utilization and management of land.
2. **Policy for Sustainable Development of Northern Kenya and other Arid Lands – Sessional Paper No. 8 of 2012-**The policy was prepared to align the development of these areas with the aspirations of Kenya Vision 2030. Its formulation was premised on the fact that in order to achieve the Vision and other international commitments such as the Millennium Development Goals (MDGs), there is need to deal with regional inequalities.
3. **Agricultural Sector Development Strategy 2009-2020-**This Strategy recognizes that the agricultural sector is not only the driver of Kenya's economy, but also the means of livelihood for the majority of the Kenyan people. The Strategy aims to position the agricultural sector strategically as a key driver for delivering the 10 percent annual economic growth rate envisaged under the economic pillar of Vision 2030.
4. **National Housing Policy for Kenya (2004)-**The goal of the housing policy is to facilitate the provision of adequate shelter and a healthy living environment, at an affordable cost to all socio-economic groups in Kenya in order to foster sustainable human settlements. The policy recognizes comprehensive land use planning as a major component of housing.
5. **ICT Policy-**The National Information & Communications Technology (ICT) policy seeks to improve the livelihoods of Kenyans by ensuring the availability of accessible, efficient, reliable and affordable ICT services. It envisions a prosperous ICT-driven Kenyan society. The policy seeks to facilitate sustained economic growth and poverty reduction; promote social justice and equity; mainstream gender in national development; empower the youth and disadvantaged groups; stimulate investment and innovation in ICT; and achieve universal access.
6. **Industrial Master Plan-**The Industrial Master Plan is aimed at providing a mechanism by which the government will leverage and catalyze the implementation of strategic actions to accelerate industrial development, and enhance industrial growth and competitiveness. Its overall goal is to promote the industrial development of Kenya with emphasis on the target sub sectors namely agro-processing, agro-machinery and electric, electronics/ICT.

7. **National Tourism Strategy 2013-2018-**The Strategy seeks to make Kenya the preferred destination of choice by developing, managing and marketing sustainable tourism in Kenya. This is due to the important role played by the sector in economic development. The Government therefore, earmarked tourism as one of the six key growth sectors of the economic pillar of Vision 2030, and charged the sector with the task of making Kenya one of the top ten long-haul tourist destinations globally.
8. **Integrated National Transport Policy Sessional Paper No. 2 of 2012-**The Integrated National Transport Policy aims to develop a world-class integrated transport system that is responsive to the needs of people and industry. The Government recognizes the transport sector as one of the critical enablers in achieving Vision 2030. The national transportation master plan is aimed at addressing existing local challenges and opportunities and to provide vital regional linkage with neighbouring countries.
9. **National Climate Change Response Strategy, 2010-**In response to the climate change, Kenya has developed the National Climate Change Response Strategy. The vision of the strategy is for a prosperous and climate change resilient Kenya. The mission is to strengthen and focus nationwide actions towards climate change adaptation and GHG emission mitigation'

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CHAPTER TWO: PLANNING CONTEXT

2.1 Overview

This chapter presents the different perspectives and trends of the country that informed the preparation of the National Spatial Plan.

- **The geographical context** - has been analyzed to provide an appreciation of the position and locational advantages that the country possesses including the physical structure which brings out the rich diversity of the country that the Plan seeks to leverage on to promote its global competitiveness. The position of Kenya gives a global reach through air and water transport around the globe.

- **Population growth and its dynamics** - have been evaluated to ensure that policies developed will be able to address not only the current population, but also the projected population. Population in 2009 was 38million and it currently stands at about 45.5milion. It is projected that Kenya's population will reach 71 million by the year 2030.

- **Economy growth trends and prospects** – The economic growth and development of the country have been reviewed to provide indications on the pattern and trends of economic development including the factors that have impeded faster growth to attain the desired 10% GDP.

- **Transport and Infrastructure** – being an enabler and foundation for development is critical to gauge the country's status as a precondition for propelling growth and better quality of life for the people of Kenya.

- **Human Settlements** – This is an important perspective which has implications on how land is used both in urban and rural areas and it is imperative to assess how the human settlement patterns have impacted on land use.

- **Land Use** - is mainly determined by economic, institutional and physical structure. The main land uses include Agricultural; Built up areas; and Conservation areas.

2.2 Geographical Perspective

2.2.1 Position and Location

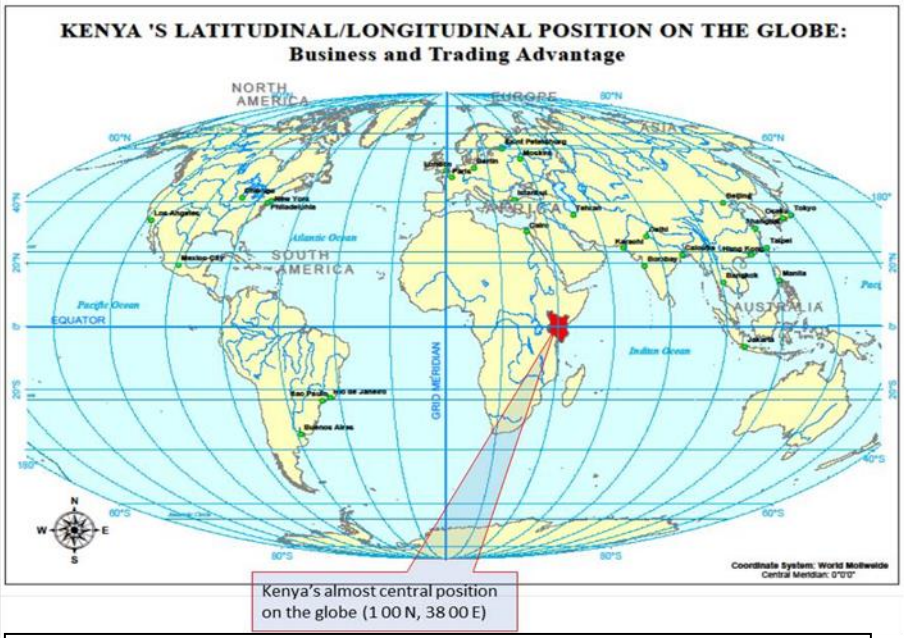
Kenya is located on the eastern part of Africa between latitudes 5^{o}N and 4^{o} 40' south. It is almost bisected by the Equator horizontally and vertically by 38^{o} East longitude. Longitudinally, it

extends from longitude 33^{o} 53’ East of Greenwich Meridian and the Pyramid Islands on Lake Victoria) to 41^{o} 55.5’ East. This gives the country a global reach through air and water transport around the globe. It shares boundaries with the republic of Uganda to the west, the Sudan and Ethiopia to the north, Tanzania to the south and Somalia to the East.

Kenya’s territory comprises a total area of 582,646 km^2 of which 2.3% of the area consists of water bodies. An important part of the inland water surface is covered by a portion of Lake Victoria (an area of 3,755km^2). Other inland water bodies are located on the floor of Rift Valley extending from the northern tip of Lake Natron to the Northern end of Lake Turkana.

Kenya's Indian Ocean coastline has a total length of 1420 km. Of this, 650 km, representing 45.7 percent, is found in Lamu County which, in addition to its irregular coastline, has several islands within its boundaries. Kenya sea territory extends to the Indian Ocean by 21km while her Exclusive Economic Zone (EEZ) in the Indian Ocean is approximately 111,999km^2. This serves the Republic as an important outlet and means of international maritime contact. Besides Kenya, the Sea Port of Mombasa serves Northern Tanzania, Uganda, Rwanda, Burundi, South Sudan and the Democratic Republic of Congo. This makes Kenya an international transportation hub in addition to being a regional trade, business and financial hub.

Contextual Map of Kenya



African Context

Kenya is one of the 54 countries that make up the African Continent, which is the world's second largest and second-most populous continent.

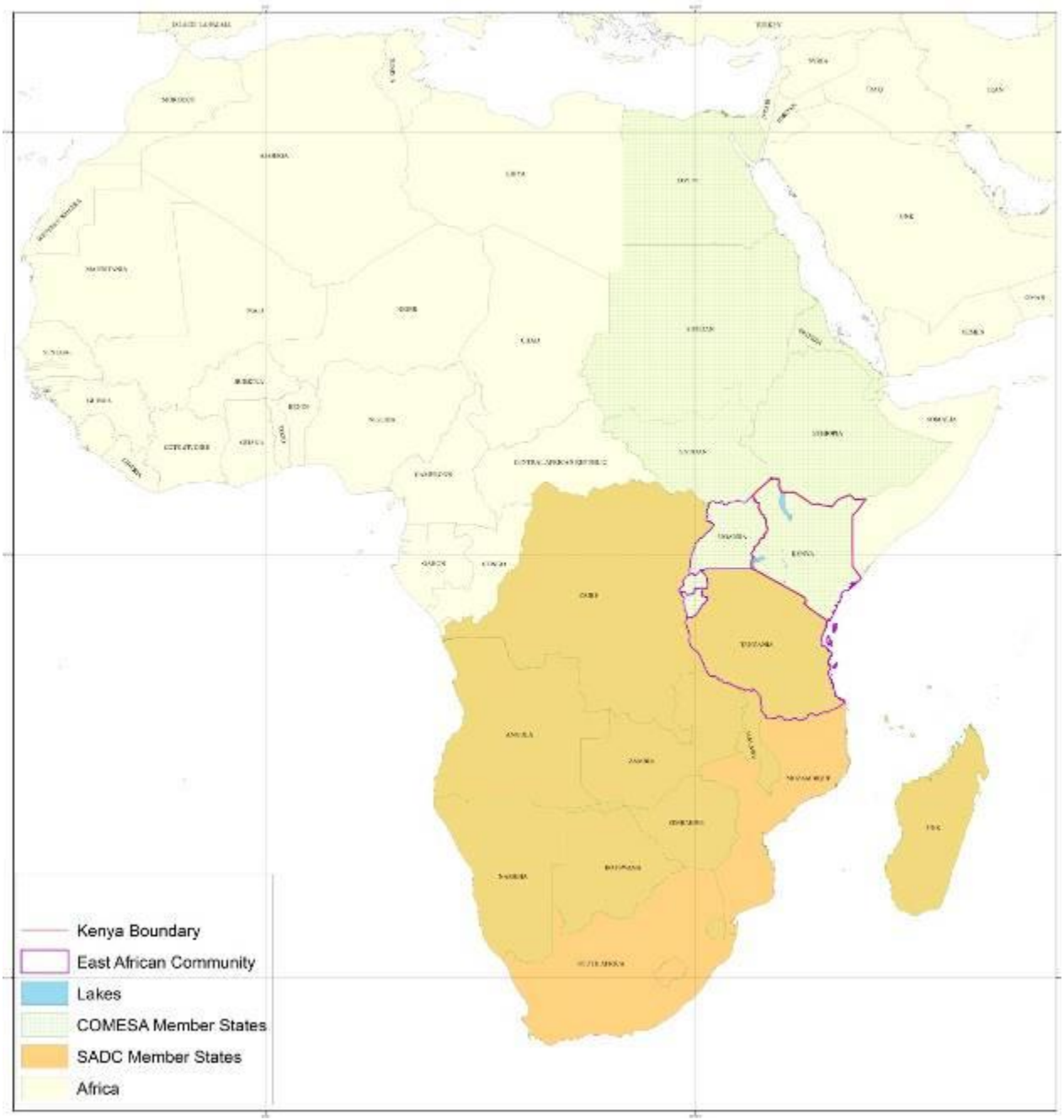
Position Strategic Advantages

Equator
Coastline – 1,420km
Exclusive Economic zone in the Indian Ocean - 111,999km$^{2.}$
Sea port serving landlocked countries of Uganda, S. Sudan, Rwanda and Burundi.

Source: National Department of Physical Planning 2015

Map 2: Global and Regional Location of Kenya

Location of Kenya in the Different African Blocks



Map 3: Location of Kenya in the East, Central and Southern Africa

Source: National Department of Physical Planning, 2015

By virtue of its location in the region, Kenya is a gateway to Eastern and Central Africa. Kenya is also a member of a number of trading blocks in Africa including COMESA, SADC, and IGAD

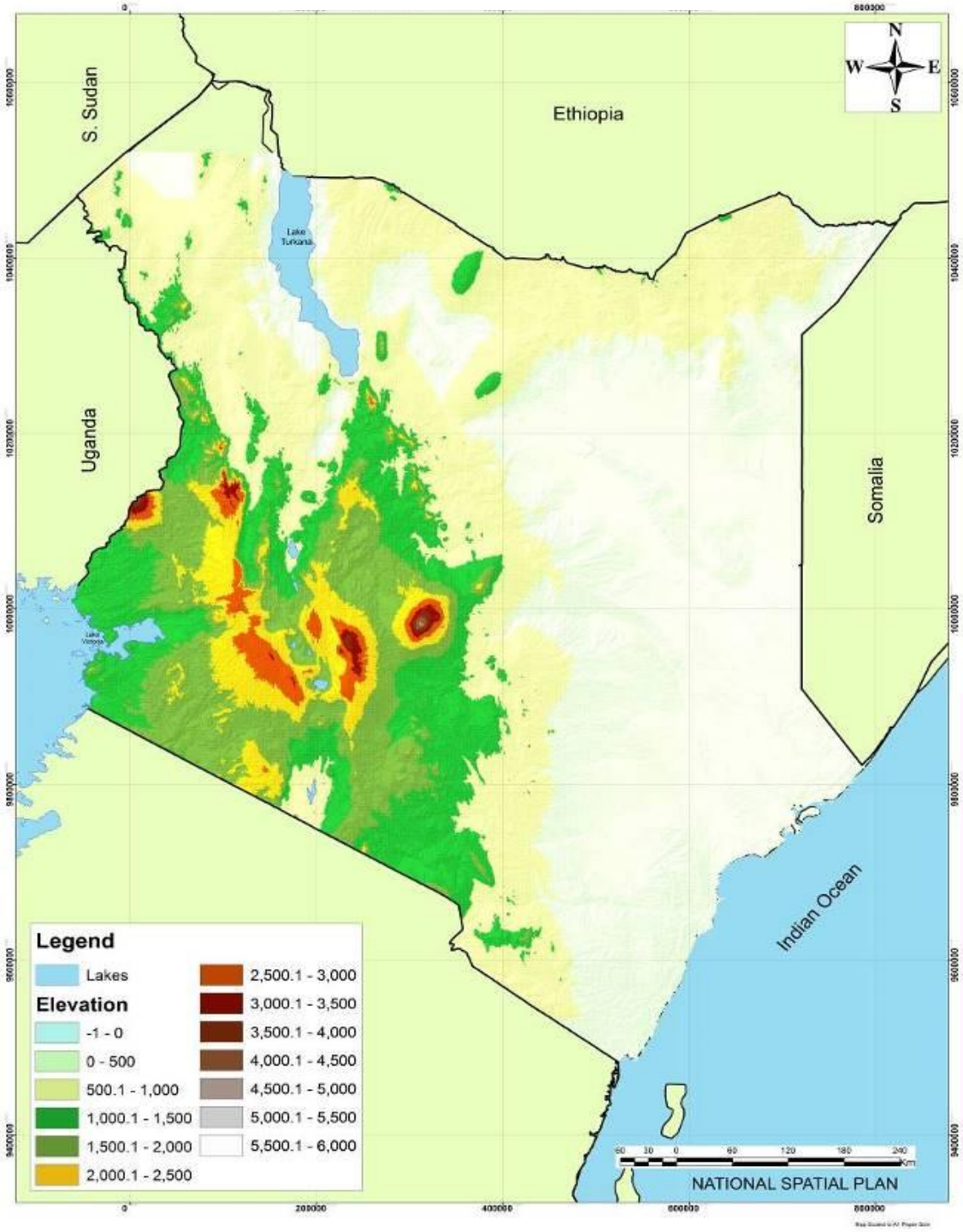
2.3 Physiography

2.3.1 Topography

Topography is described as both simple and diverse. The diversity and contrast ranges from plains, plateaus, hills, and mountains. One of the most spectacular features is the Great Rift Valley system that extends from the Middle East to Mozambique and bisects the country into the highlands west and east of Rift Valley that contains snowcapped Mt. Kenya, Mt. Elgon, Mau Escarpment, Cherangani Hills and Aberdare ranges. Within the Rift Valley there are many lakes (Turkana, Magadi, Naivasha, Nakuru, Baringo, Elementaita, Bogoria) and Victoria on the west of the Rift Valley.

The northern and south eastern parts of the country are generally plains punctuated with numerous mountains and hills. Chalbi is the only true desert in Kenya and is found to the east of L. Turkana. The coastal area contains coral reefs, mangroves and white sandy beaches of the Indian Ocean.

Kenya Topography



Map 5: Topographic Characteristics of Kenya

2.3.2 Soils

Kenya has numerous types of soils. The Main soil types include;

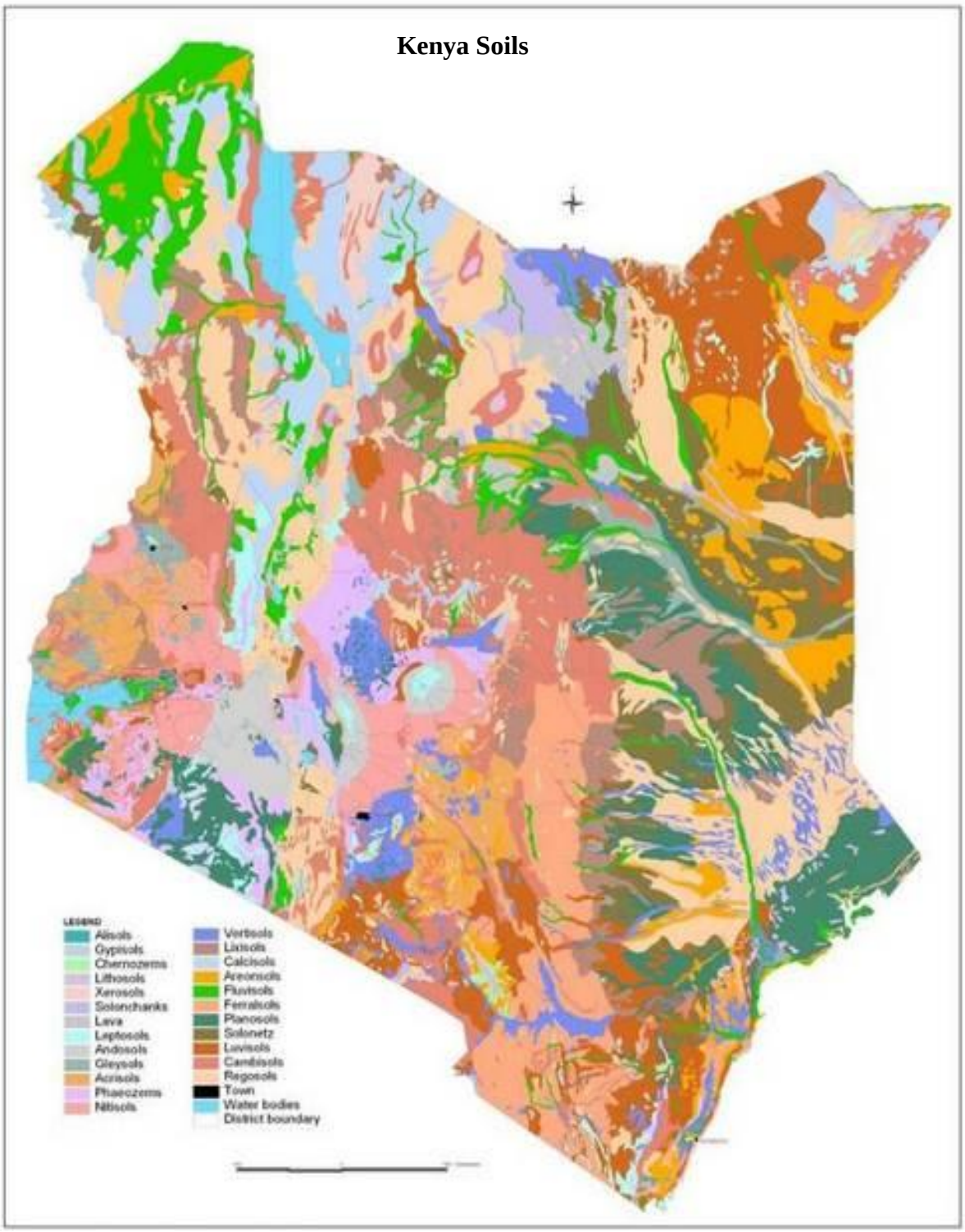
a) **Loamy -** Loam soil is primarily a mixture of clay and sand soil. In Kenya, loamy soil is mainly found in Western Kenya and parts of the Rift Valley

b) **Alluvial Soils -** Alluvial soils are also referred to as young soils. In Kenya, alluvial soils are in most cases found deposited in the valleys and mouths of large water sources e.g. rivers such as Ewaso Nyiro, Sondu, Tana among others. In Kenya, these soils are common in the southern parts of the Rift Valley. They are formed from volcanic lava

c) **Volcanic Soils** - Volcanic soils are also commonly referred to as red earth soils. They are commonly found in highland areas which have previously been affected by volcanic activities. In Kenya, these soils are in East and West of the Rift Valley. This soils are ideal for growing coffee, tea and pyrethrum

d) **Black Cotton Soils** - Black cotton soils are also referred to as clay soils. In Kenya, they are commonly found in Mwea, Athi, Kapiti, Kano and Trans Mara

e) **Sandy soils** - In Kenya, sandy soils are commonly found in arid and semi-arid areas of northern and north-eastern Kenya, the coastal regions and some river valleys. These soils support scanty vegetation and have very little humus



Map 6: Soils Map of Kenya

2.3.3 Kenya's Rock Formation

The geology of Kenya may generally be grouped into the following five major geological successions:

- Archean (Nyanzian and Kavirondian),
- Proterozoic (Mozambique Belt and Bukoban),
- Paleozoic/Mesozoic sediments,
- Tertiary/Quaternary volcanic and
- Tertiary/Quaternary sediments.
    - The Geological environments for the mineralization can be summarized as follows:

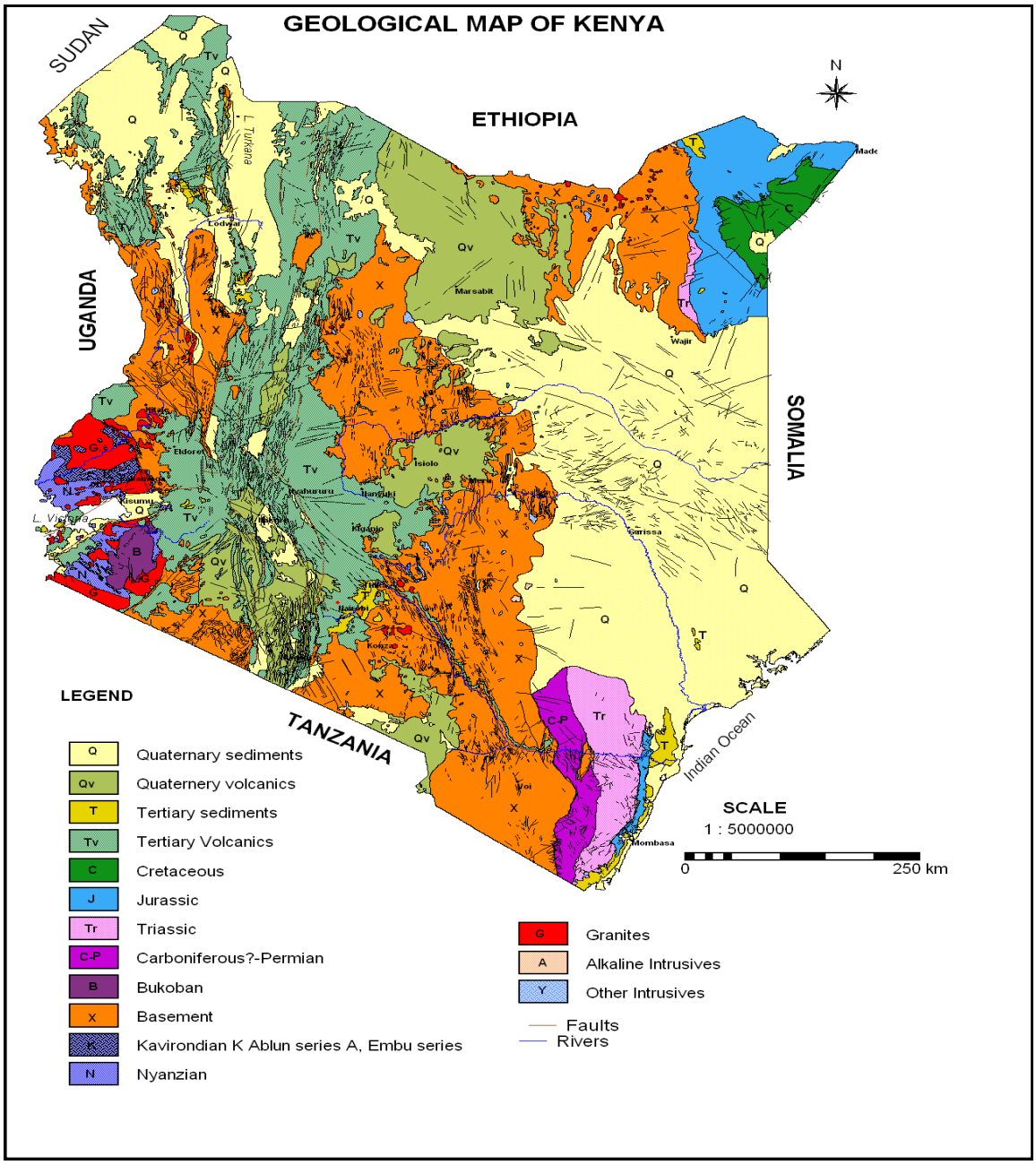
a) The Archean Nyanzian Craton area of Western Kenya where metallic mineralization of base and precious metals occur such as **gold**, **copper** and **silver.** They are also potential for ferrous and no-ferrous metals.

b) The Proterozoic Mozambique Belt that is most extensive in Central Kenya north to South in which minerals such as **kyanite, corundum, graphite, wollastonite, marble, asbestos, fluorspar, magnesite, kaolin** and a variety of **gemstones** are found.

c) The sedimentary rocks of Palaeozoic to Quaternary are widespread. These rocks are sources and hosts of limestone, **gypsum, clays, manganese** and construction materials. Heavy mineral sands also occur along the coastal beach sands and recent deposits of about 3.2 billion tons of titanium bearing have been discovered.

d) The volcanic rocks associated with the Rift System host a variety of minerals and construction materials. The volcano-sedimentary accumulations have deposits of **clays, evaporites, trona** (soda ash), **diatomite, natural carbon dioxide, kunkar** and **gypsum**. Gem quality **rubies** have recently been discovered[1].

[1] The Geology and Mineral Potential of Kenya



Map 7: Geology of Kenya *Source: Geology and Mineral Potential of Kenya, 2011*

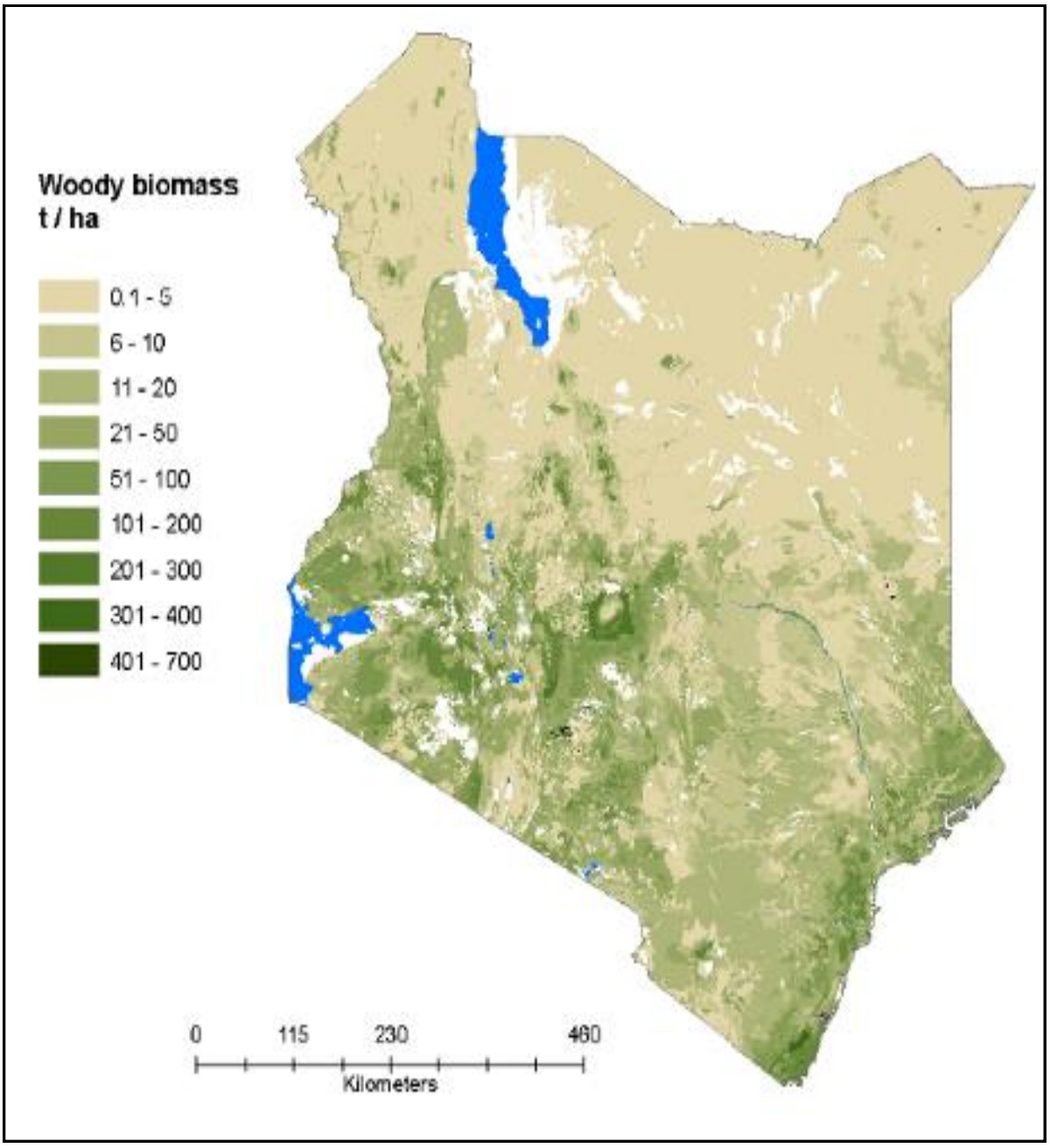
2.3.4 Vegetation

Kenyan forests are biologically rich and harbour high concentrations of endemic species. Forests contain lowland rainforest in western Kenya, and montane forest in the central and western highlands and on higher hills and mountains.

Forest classification done by describing dominant species and environmental features of different forest types summarizes these forests in six main blocks: the volcanic mountains, the western plateau, the northern mountains, the coastal forests, the southern hills and the riverine forests.

Since Kenyan forests are influenced by the farming and herding practices of the local inhabitants, many Kenyan forests are cultural rather than natural entities. However, they still support a forest cover of solely or mainly indigenous species. This is also why most forests are highly fragmented and under pressure – lowland forests are the first forests to be cleared for agriculture and present population pressure is making the forests more and more fragmented and degraded *(**Pelika P.J, 2004**, The Forest types of Kenya)*

Kenya Vegetation



Map 8: Kenya Vegetation Distribution

2.3.5 Rainfall and Temperature

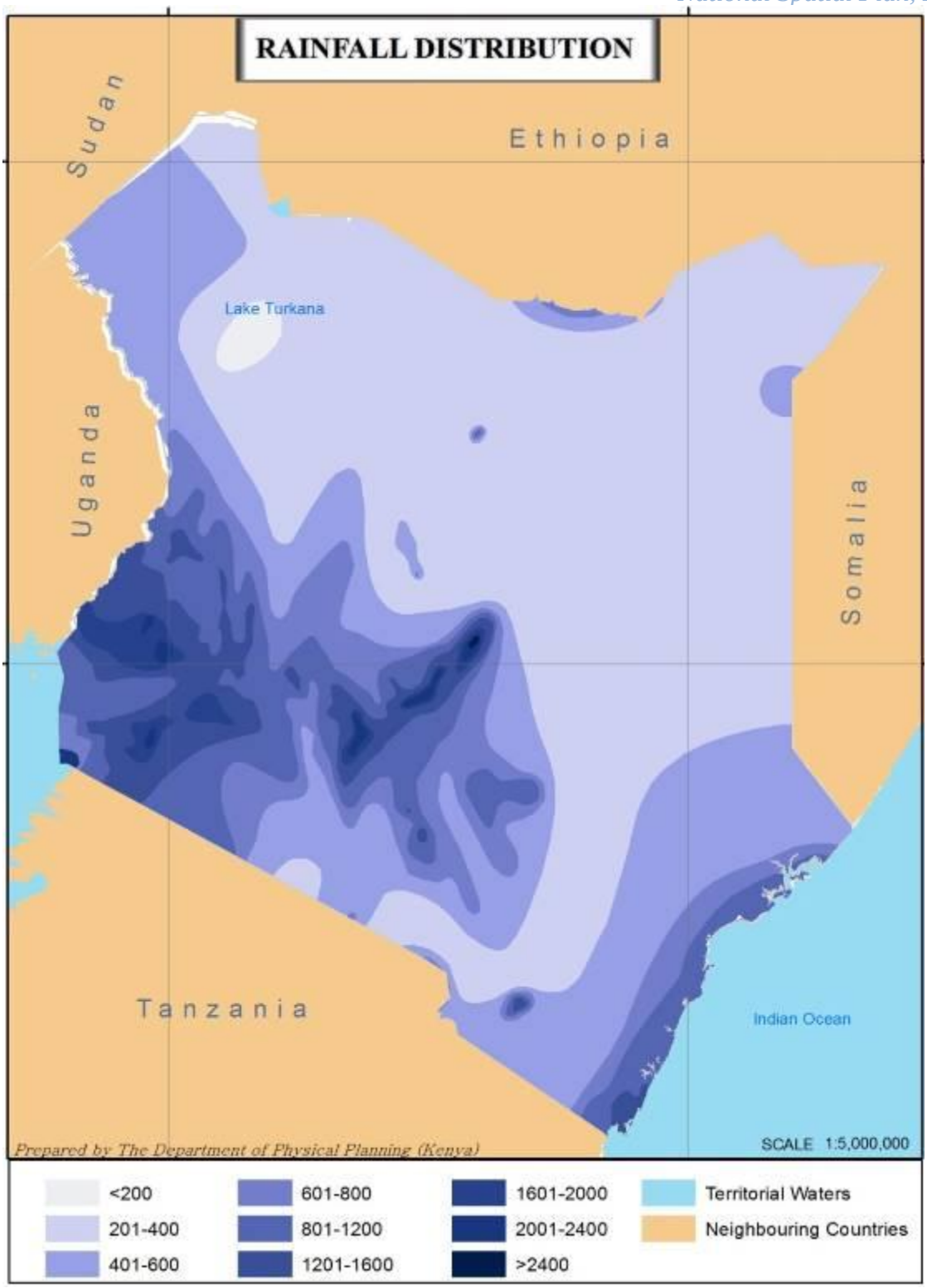
Kenya enjoys a tropical climate with sunshine all year round. It is usually cool at night and in the early morning. Kenya has four distinct weather zones:

1. ***Western Kenya:*** Experiences rainfall throughout the year, but heaviest in April (200 mm). An average of 40 mm may be recorded in January alone. Temperatures range from a minimum of 14-18 Degrees Celsius to a maximum of 30-36 Degrees Celsius.

2. ***Rift Valley and Central Highlands:*** Temperate climate with temperatures ranging from 10-28 Degrees Celsius. Rainfall varies from a minimum of 20 mm in July to 200 mm in April. Two different seasons of rainfall occur: (1) long rains, which last from March until the beginning of June, and (2) short rains, which last from October until the end of November.

3. ***Arid and Semi-arid lands:*** Located at the north and east of Kenya. Temperatures vary from 40 Degrees Celsius in the day to 20 Degrees Celsius at night. Violent storms occur due to the sparse rainfall. The average annual rainfall ranges between 250 and 500 mm.

4. ***Coastal regions:*** Always humid with average temperatures ranging from 22-30 Degrees Celsius and average monthly rainfall ranging from 20 mm in February to 300 mm in May. The rainfall is monsoon-dependent; this blows from the northeast from October-April, and from the southwest for the rest of the year.



Map 10: Rainfall Distribution Pattern of *Data Source: Kenya Meteorological Department*

2.3.6 Drainage

Drainage basins

Kenya shares international drainage basins which comprise of The Nile basin; Lotikipi; Lake Turkana; Juba-Shibeli and Lake Natron Basin as shown in the map 9.

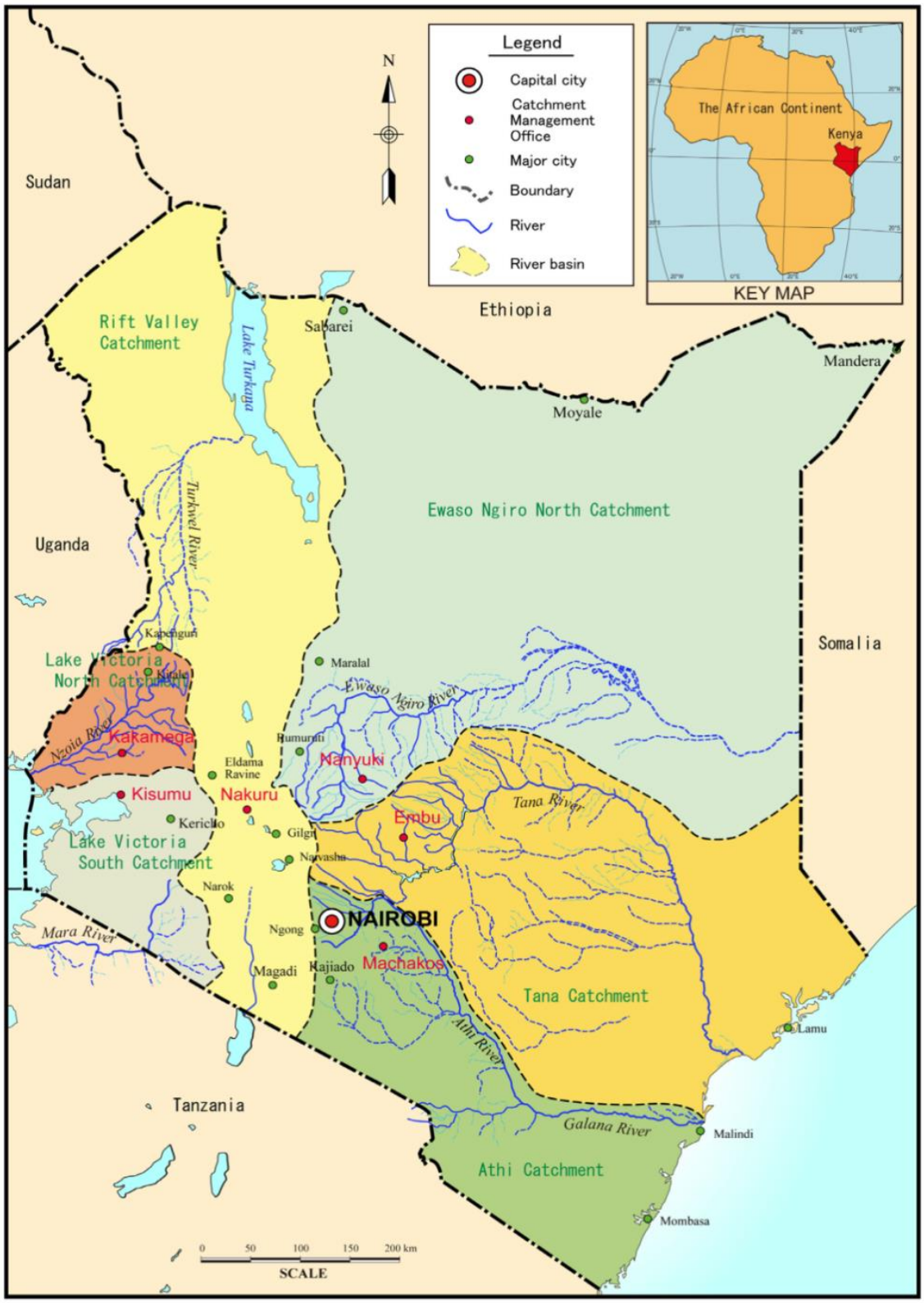
Water catchments

The catchments are classified into;

* Rift Valley
* Lake Victoria
* Ewaso Ng'iro North
* Ewaso Ng'iro South
* Tana

Lake Victoria is the world's second-largest freshwater lake and the largest lake in Africa while Lake Turkana is the largest lake in Kenya, and world's largest desert Lake. The map below illustrates the drainage pattern of Kenya.

Kenya Drainage



Map 11: Drainage Pattern of Kenya *Source: UNEP (2010)*

Emerging Issues

The diverse ecosystems and habitats are home to numerous biodiversity. This diversity is a result of unique topography, climate, geology, and drainage systems. Within this rich and diverse environment are over 40 communities with diverse cultural heritages and livelihoods. This offers Kenya diversity in socio-economic activities such as crop farming, pastoralism, tourism, mining, fishing, water transport, hydro and geothermal power generation and urban entrepreneurships. This has implications on spatial and economic planning. Kenya has great potential for renewable energy sources in the form of solar and wind energy resources which can be harnessed to complement the country's power supply.

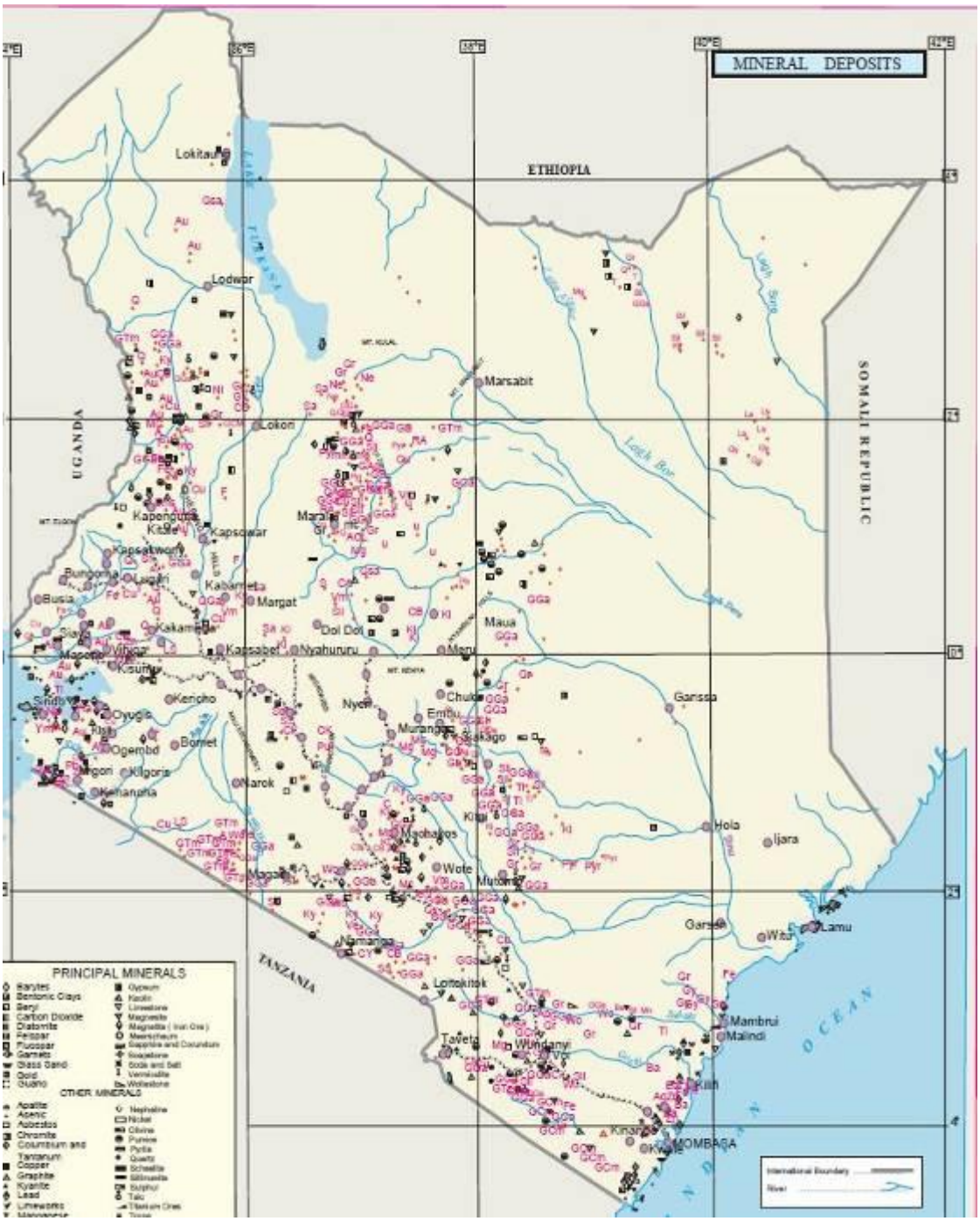
2.4 Rich and Diverse Natural Resource Endowment

i. Minerals

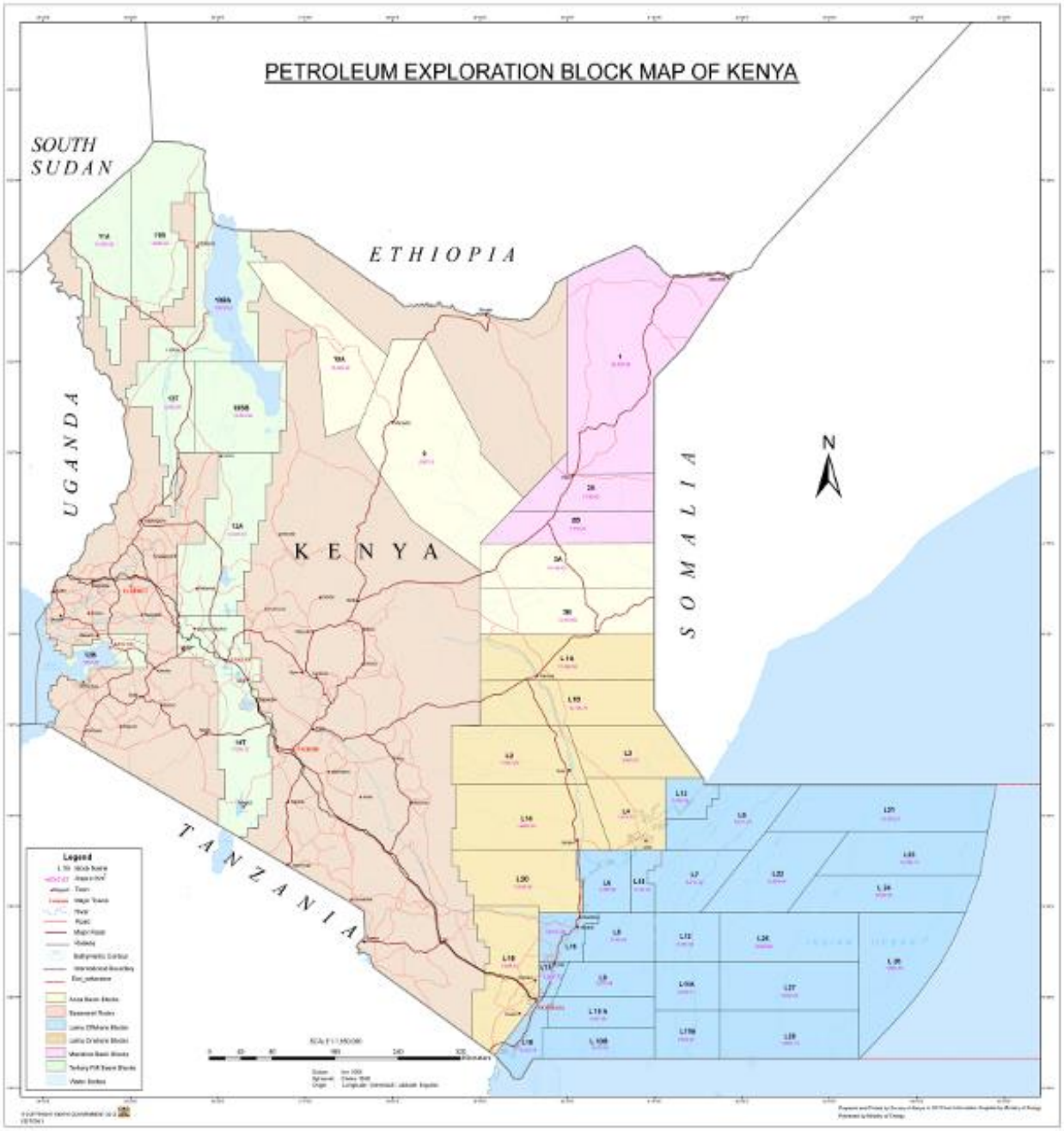
Kenya is well endowed with mineral resources, some of which are already being exploited and some yet to be prospected and exploited (Map 11). There is potential for discovery of other minerals as exploration is intensified. Minerals found in Kenya are classified into three categories namely energy minerals, metallic mineral and non-metallic minerals. The country's mining industry is dominated by production of non-metallic minerals encompassing industrial minerals such as soda ash, fluorspar, kaolin and gemstones. Other minerals include diatomite, limestone, barite, carbon dioxide, gold, iron ore, lead, copper, zinc, nickel, vermiculite, manganese, titanium, silica sands, soapstone, precious minerals, gypsum, dimension stone, kyanite, wollatonite, chromite, pyrite, phyrochore, chromite and crude oil. Gold is produced primarily by artisanal workers in the west and southwestern parts of the country on several small greenstone belts. Iron ore is mined from small-localized deposits for use in the domestic manufacture of cement.

Mining potential in the country has not been fully utilized due to lack of accurate geological information on the existence of the minerals and their commercial viability. Minerals occur in areas gazetted as game parks and forest reserves which make it difficult to access because of lack of an enabling framework. In some instances the minerals are found on privately owned land with Titanium in Kwale and coal in Kitui as good examples. Land tenure and ownership issues make acquisition of the land complex and it is encumbered by many challenges delaying the process of exploitation. The challenges of infrastructure and transport also impede the exploitation of mineral resources.

Mineral Distribution in Kenya



Map 12: Mineral Distribution in Keny *Source: Ministry of Environment, Water and Natural Resource, 2015*



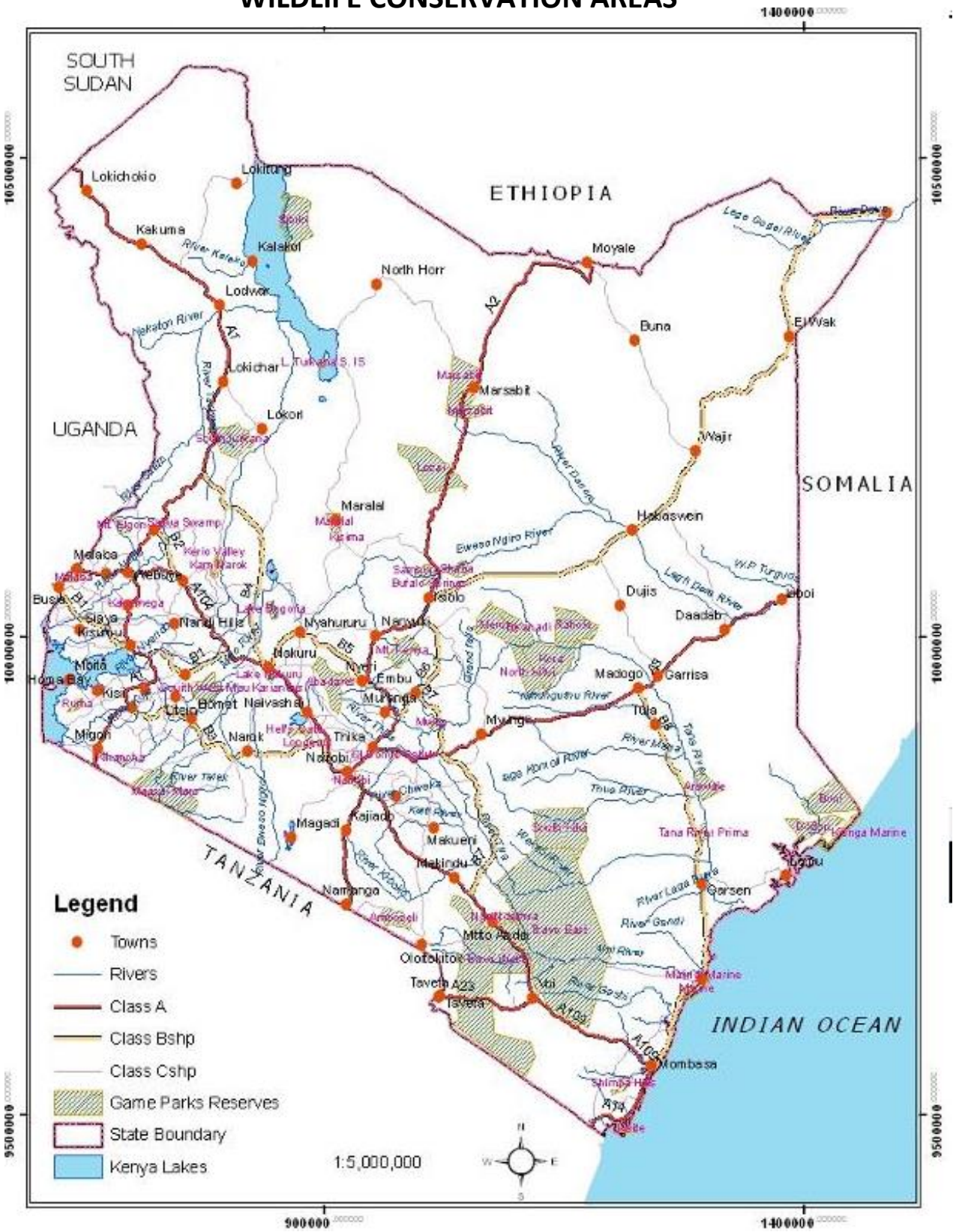
Map 13: Existing Industrial Production Are *Source: Survey of Kenya, 2013*

ii. Wildlife

Kenya is endowed with an enormous diversity of ecosystems and wildlife species which live in the terrestrial, aquatic and aerial environment. These biological resources are fundamental to national prosperity as a source of employment and foreign exchange. Kenya's tourism is mainly wildlife based, where wildlife remains the single most important tourist attraction. About 8% of the land area of Kenya is gazetted for wildlife conservation. However, more than 80% of the wildlife is found outside the protected areas (NEMA, 2009). Kenya has 23 National parks with a total area of 29,408.7 Km^2, 28 National reserves with covering 17 396.6 Km^2 , 4 marine parks with an area of 70.093 Km^2, 6 Marine reserves with an area of 871 Km^2, and 4 National sanctuaries with a total area of 71.84 Km^2.

The major challenges facing wildlife conservation include poaching, loss of habitats due to changes in land use, human encroachment into protected areas and wildlife migration corridors causing human wildlife conflict**.** The map below shows the Kenya wildlife conservation areas.

WILDLIFE CONSERVATION AREAS



Map 14: Wildlife Conservation Areas

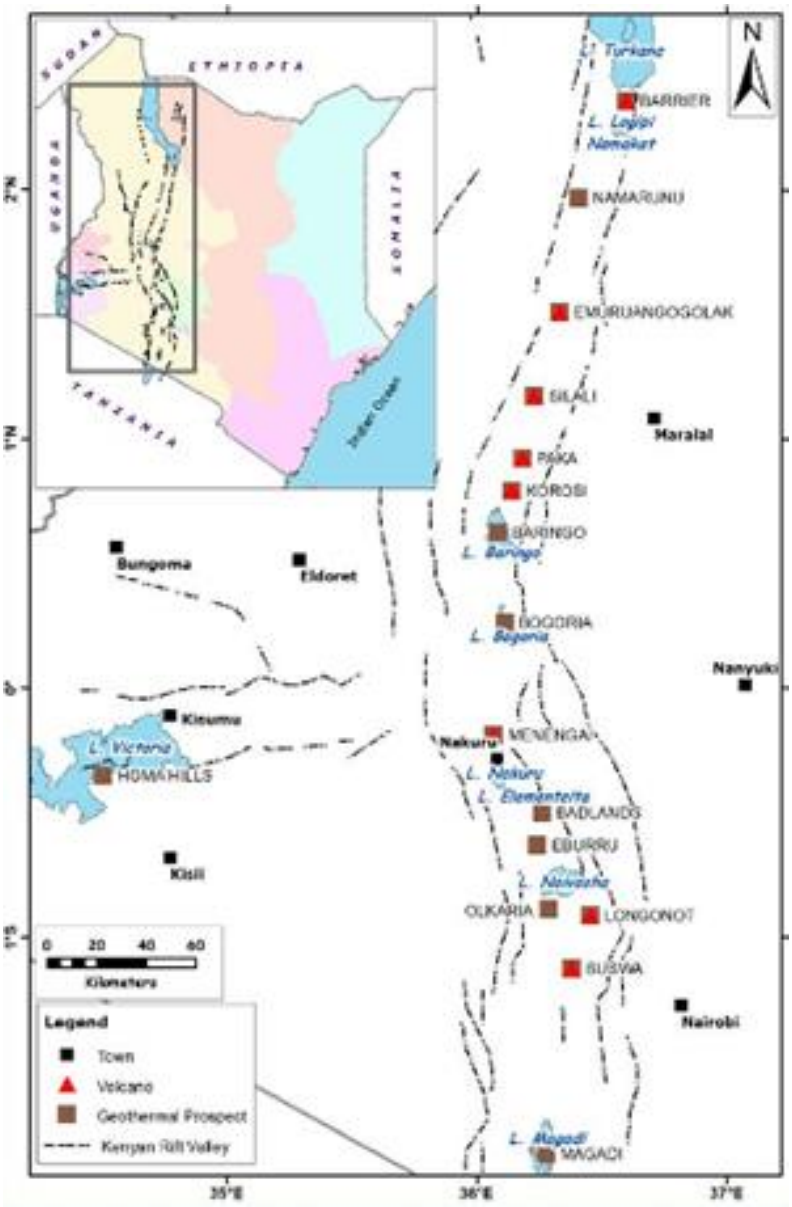
Energy

Energy is one of three macro-economic sectors on which the three pillars of Vision 2030 is anchored. The country has an abundant potential for energy production. The main types of energy are hydroelectric power, wind, geothermal, and solar energy. Distribution of energy potential by sources is identified by rivers, hot springs, wind fields, coal fields, crude oil, biomass, solar, and biogas which have varying potentials.

Kenya has a current hydroelectric power potential of 2,987MW along its major river basins; Lake Victoria basin, Rift Valley basin, Athi River basin, Tana River basin and Ewaso Ngiro North River basin. The Rift Valley has an estimated geothermal potential of between 7,000 MW to 10,000 MW spread over 16 prospective sites of hot springs and geysers (see map below). Other locations with undetermined capacity include Homa Hills in Nyanza, Mwananyamala at the Coast and Nyambene Ridges. Preliminary wind resource assessments in areas such as Marsabit, Turkana and the Coastal region shows that these areas can support commercial electricity generation as they enjoy wind speeds ranging from 8 to 14 metres per second (m/s).

The country discovered coal deposits at Mui basin in Mwingi district, which covers an area of 400km^2. The coal has been analyzed and found to range in ranking from lignite to sub-bituminous with calorific values ranging from 16 to 27 MJ/kg. In addition, Kenya recently joined the league of potential oil producers in the world by announcing discovery of massive oil deposits in the Turkana Basin.

Geothermal Exploration Sites

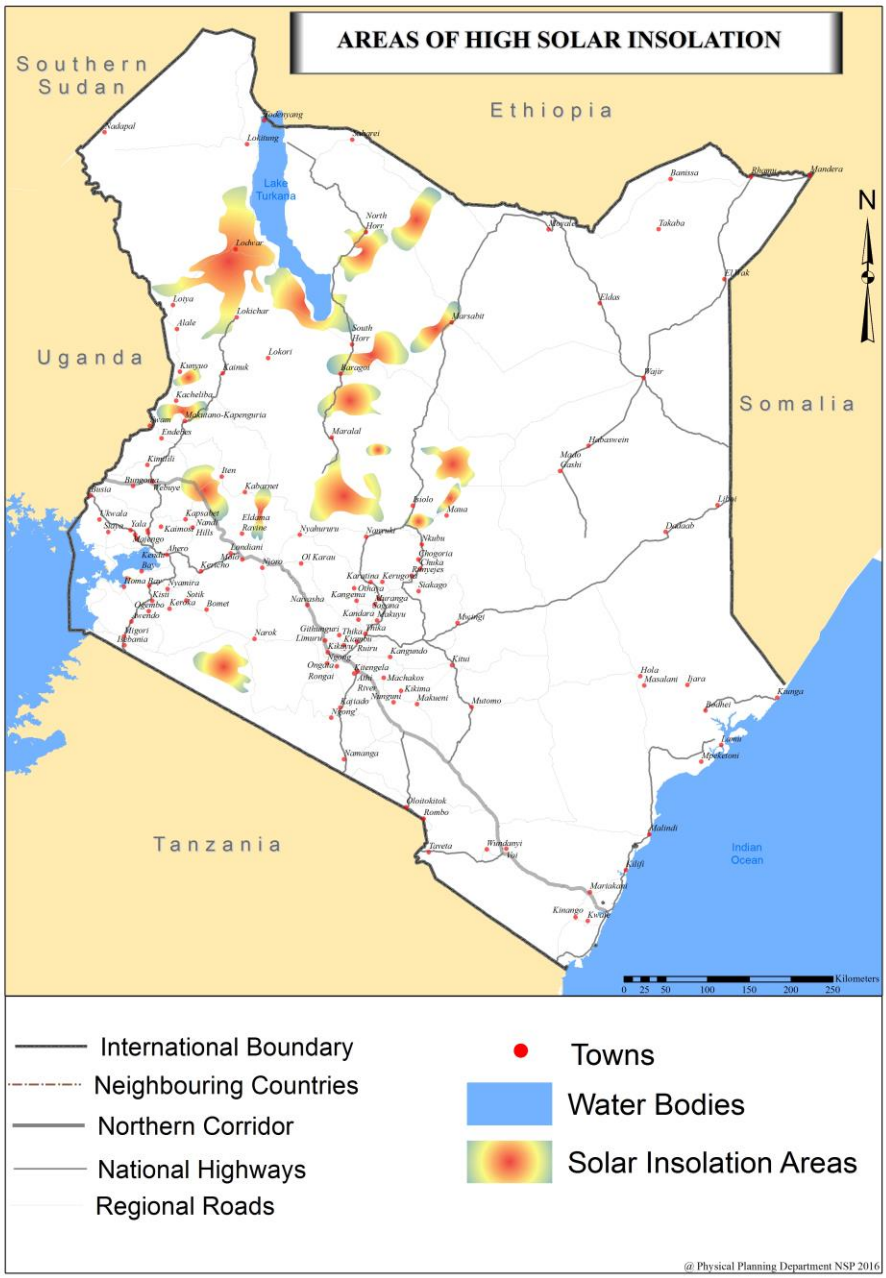


Map 15: Geothermal Potential in Keny *Source: KENGEN 2014*

Site	Potential (MW)
Lake Baringo	200
Korosi	450
Paka	500
Silali	800
Emuruangogolak	650
Namarunu	400
Barrier	450
Arus-Bogoria	400

ii. Solar Energy

Kenya being astride the equator and extending four degrees on either side receives a considerable amount of solar radiation and thus possesses an increased solar power potential. However, with all this potential, little has been done in relation to harnessing the potential and the country is still grappling with inadequate power and high costs. The map below depicts the areas of high solar insolation.



Map 16: Solar Energy Potential Areas

Source: Ministry of Energy (2013)

Wind Energy

The wind regimes in many parts of Kenya especially the northern and eastern regions such as Marsabit, Ngong and the Coastal region can support large scale utility electricity generation as these regions enjoy extremely good annual mean wind speeds in the range of 6-10 m/s throughout the year.

At 100m height, it is observed that Marsabit County has the largest potential area with a maximum of mean annual wind speed of 9.27m/s and minimum of mean annual wind speed of 5.32 m/s followed by similar wind speeds in Turkana County in Rift Valley province[2].

The Lake Turkana Wind Power Project

It aims to provide 310MW of reliable, low cost wind power to the Kenya national grid, equivalent to approximately 20% of the current installed electricity generating capacity. The wind farm site covers 162kms and is located in Loiyangalani, Marsabit County.

The project received the African Renewables Deal of the year 2014 at the IJ Global Awards 2014 Europe and Africa, which was held at the stunning National History Museum, London[3].

2.5 Population and Demographic Trends

2.5.1 Overview

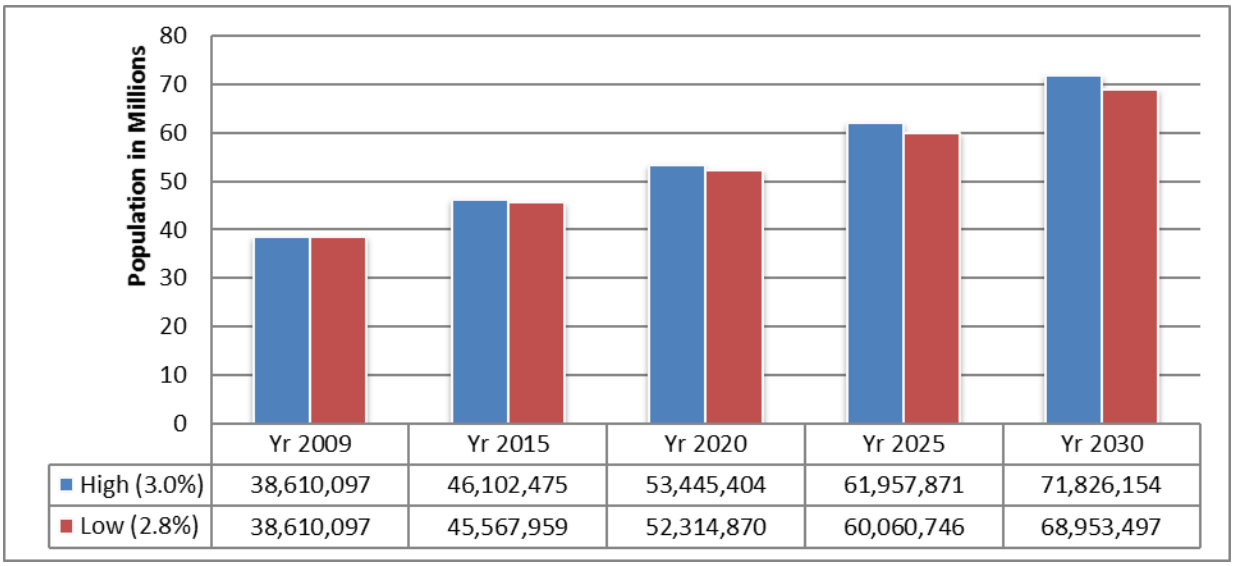
Population and demographic characteristics analysis is an integral part in planning. Planners are able to successfully implement plans if they can develop programs that meet the present and the future needs of the different segments of the population. Planners need to study the changes in composition of the population in order to plan for socio-economic development projects.

Population Size

Population growth in the country has been steadily growing from 10.9 million in 1969 to 38.6 according to 2009 census and was estimated to be approximately 40 million in 2014. The growth has been steadily rising despite a stagnant growth rate of 3.4 per cent in the inter-censual period of 1969-79 and 1979-89, and a reduction in the period 1989-99 at 2.9 per cent. The growth rate pattern is reflected in the different regions of the country apart from the North Eastern region where a peculiar phenomenon has been observed; the growth rate doubled in the inter-censual period of 1999-2009. In 2014, the population of Kenya was estimated at approximately 40 million with annual growth rate of 2.11%. By 2020, the projections show that the population will be approximately 53.4 million by the year 2020 and 71.8 million by the year 2030.

[2] Wind Sector Prospectus, Ministry of Energy
[3] L. Turkana Wind Power website, Kenya

Planning proposals aim at improving the quality of life hence it is important to understand the fundamentals and dynamics of the population being planned for. Vision 2030 envisages a country with "a high quality of life" which will be premised on the welfare of the populace; NSP is an integral part in achieving the vision.



	Yr 2009	Yr 2015	Yr 2020	Yr 2025	Yr 2030
High (3.0%)	38,610,097	46,102,475	53,445,404	61,957,871	71,826,154
Low (2.8%)	38,610,097	45,567,959	52,314,870	60,060,746	68,953,497

Figure 2: Population Projection

Source: National Department of Physical Planning, 2015

Population Distribution and Density

Distribution

Population in the country is unevenly distributed as some areas are densely populated than others. The largest population of Kenya is concentrated on the central and the western parts of the country. The most populated counties include; Nairobi, (3,138,369), Kakamega (1,660,651) and Kiambu (1,623,282) while less populated counties include; Lamu (101,184), Isiolo (143,294), Samburu (223,947), (KNBS, 2009). Other statistics of population in each County are provided in the annex. Age-wise the population under the age of 15 constitutes 40% of the total population. The percentage of individuals under the different age groups decreases as age increases as depicted in the pyramid below. This shows that the demand for facilities and services serving the young generation is high as compared to the aged.

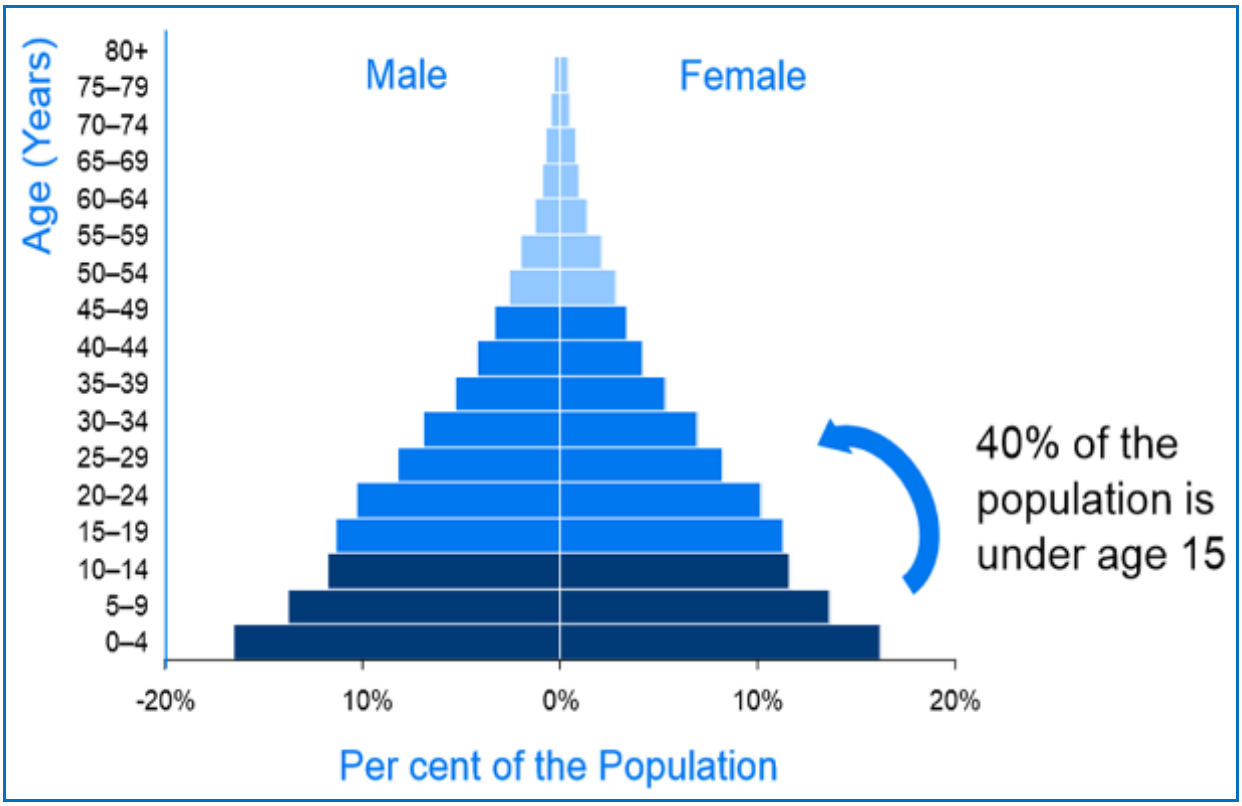
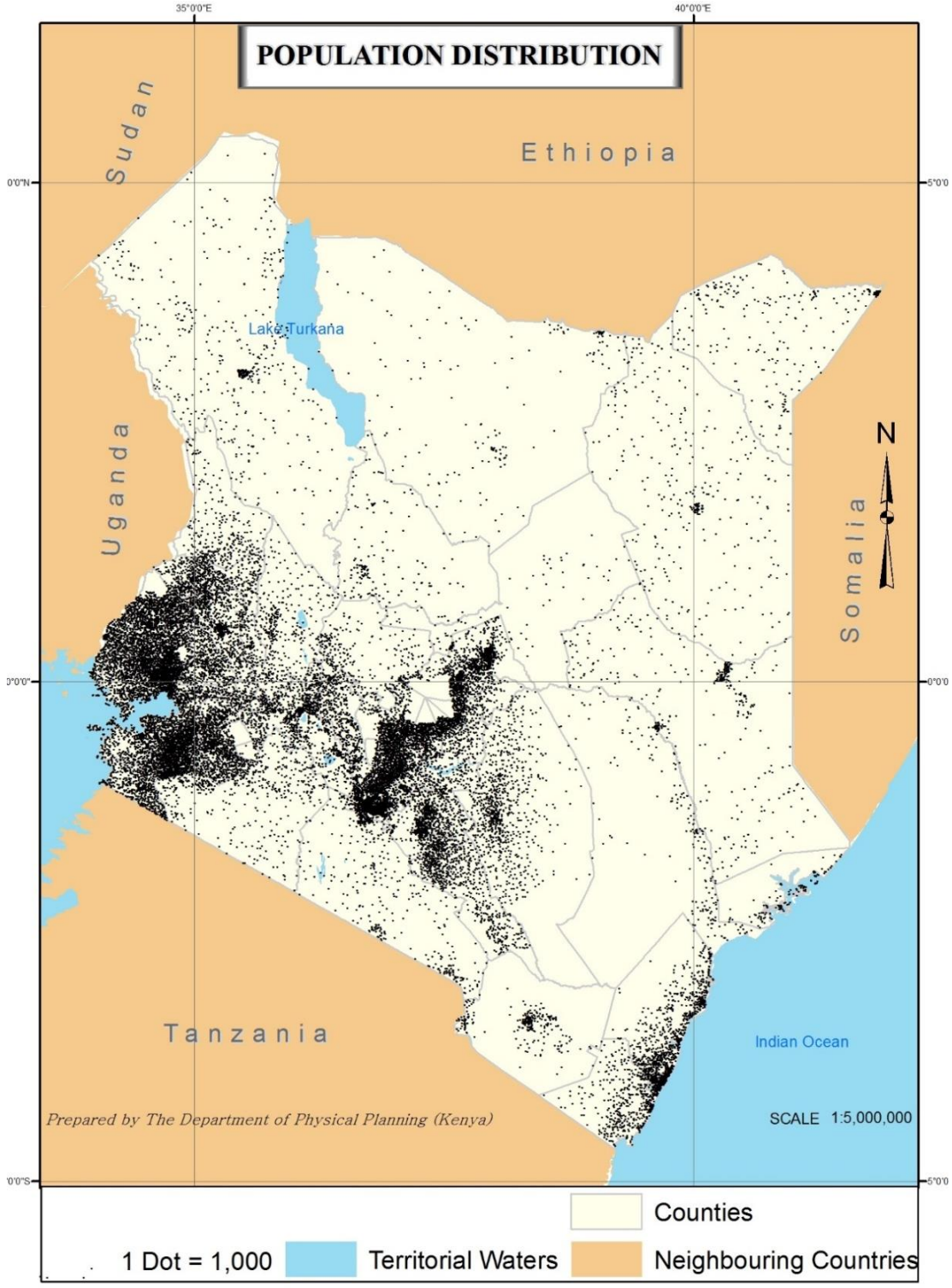


Figure 3: Kenya Population Pyramid

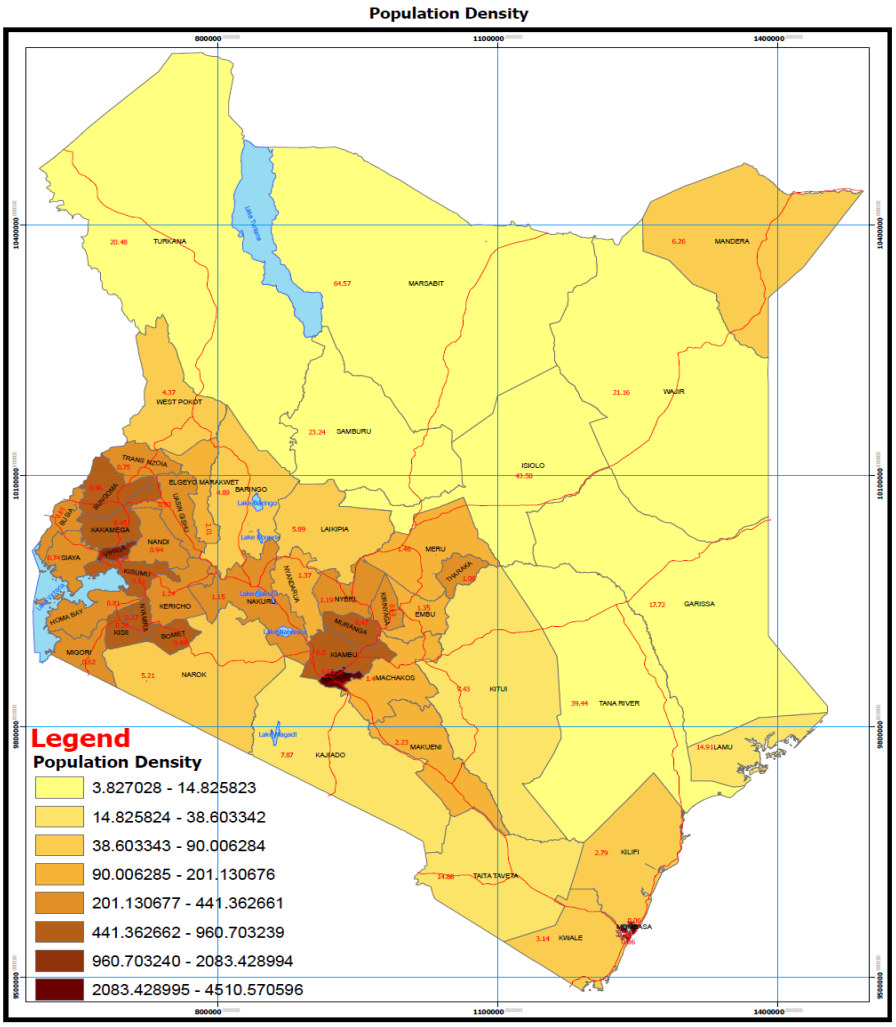
Source: National Coordinating Agency for Population and Development, 2011



Map 17: Population Distribution Pattern

Population Density

According to the Kenya Housing and Population Census 2009, Kenya's population density was at 66 persons per square kilometer. The figure is expected to have risen due to the increased population growth. Counties of high density include, Nairobi (4515), Mombasa (4292), Vihiga (1045) and Kisii (675) regions where else counties of low density include Isiolo (6), Tana River (6) and Marsabit (4). The increased population densities in the rich agricultural areas exert pressure on natural resources such as water and forests and catapult into negative land use practices such as land fragmentation and land degradation. The concentration of population in the high and medium potential zones has adversely affected, not only per capita land availability but also other natural resources and infrastructural facilities. These areas are also associated with high urbanization levels, such as Nairobi.



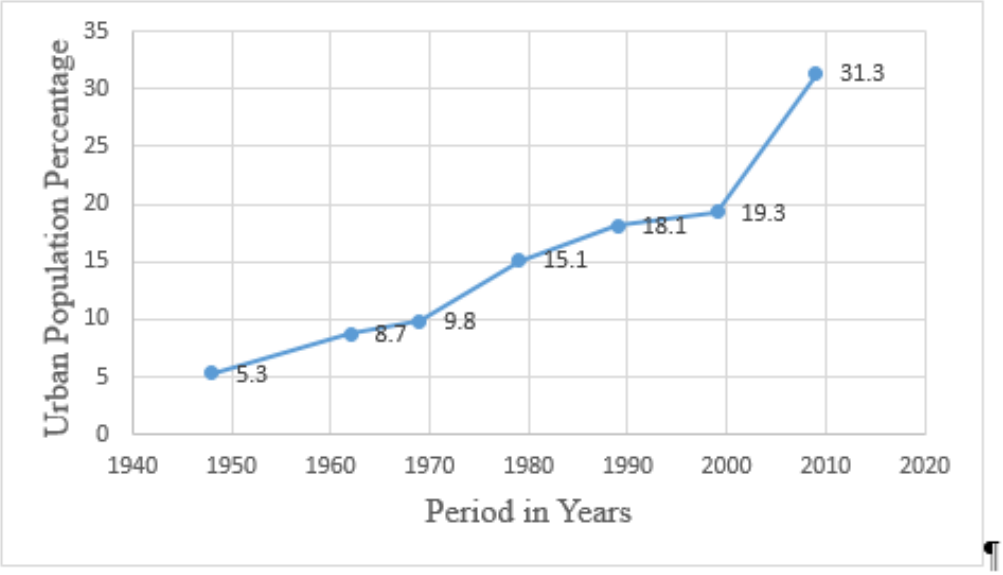
Map 18: Kenya Population Density

Source: National Department of Physical Planning, 2015

2.5.2 Urban Population

The Kenya urban population in 2009 stood at 31.3% and it has been steadily rising as reflected by a growth rate of 4.4%. In 2014 it was estimated to be at 40% of the total population. Kenya Vision 2030 estimates that over 50% of the total population will be living in urban areas by the year 2030. The urban areas should therefore be well planned and provided with the requisite infrastructure to take care of the rising urban population. The figure below illustrates the urban population trends in Kenya as from the year 1940.

Figure 4: Kenya Urban Population Trends



Source: World Bank, 2014

2.5.3 Demographic Trends

i. Literacy Rates

Reports indicate that Kenya has high literacy levels of up to 87%. However this has not translated to high employment rates partly due to limited (industrial needs) and unmatched skills. These statistics, coupled with other welfare indicators, paint grim signs on the road to an envisaged second world economy.

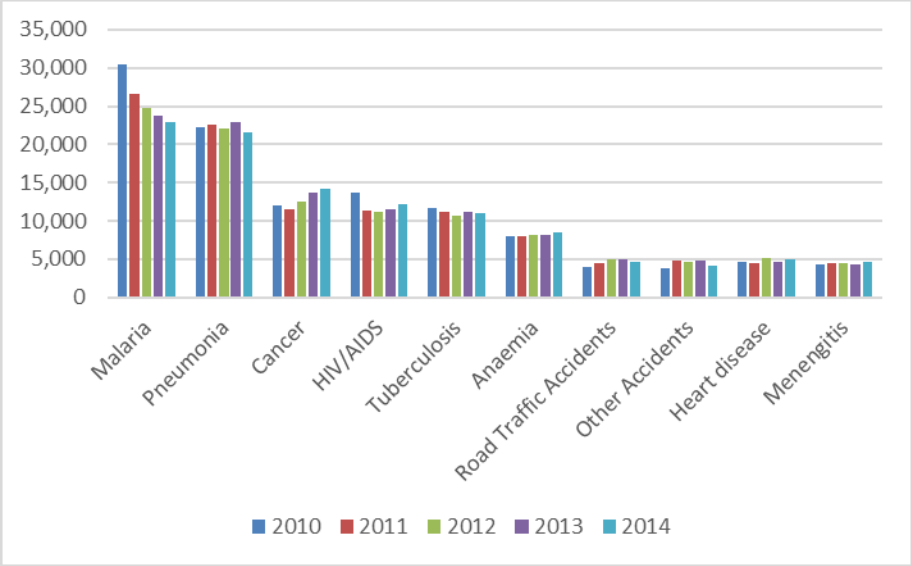
ii. Mortality Rates

The Kenya infant mortality rates have been on the decline. The mortality rates for the under 5 has been on the decline, declining from 80 to 71 in the year 2010 to 2013 respectively. This is due to the efforts by the government together with other agencies in raising campaigns to reduce the infant mortality rates. These initiatives among others include the establishment of millennium development goal number four by the United Nations and the establishment of more maternity facilities across the country increasing access to better health care.

iii. Morbidity Rates

During the year 2014 malaria and pneumonia was ranked highest as major causes of death with each accounting for 11.6 per cent and 10.9 per cent of all reported deaths respectively. Cancer and HIV/AIDS continued were ranked third and fourth in 2014.

Figure 5: Main Causes of Deaths in Kenya

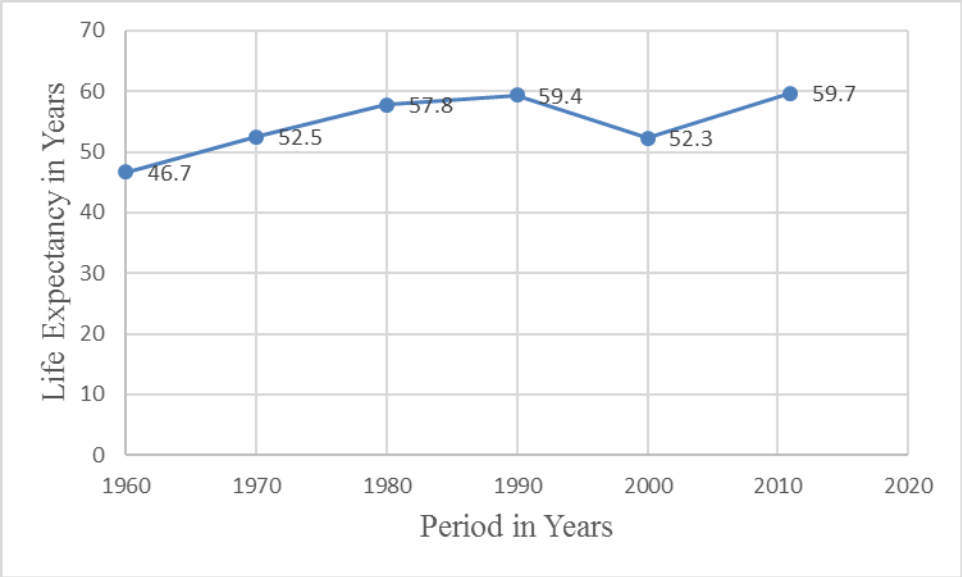


Source: Kenya Economic Survey, 2015

iv. Life Expectancy

The Kenya's life expectancy has been on the rise during the periods 1960 to 1990 rising from 46.7 to 59.4 respectively. However, it significantly dropped in the period 1990-2000 to 52.3, an aspect which could be attributed to the outbreak of HIV which severely hit the country. Since 2000 the life expectancy has been on the rise measured in 2011 at 59.7.

Figure 6: Kenya Life Expectancy Trend



Source: World Bank, 2013

v. Fertility and Crude death rates

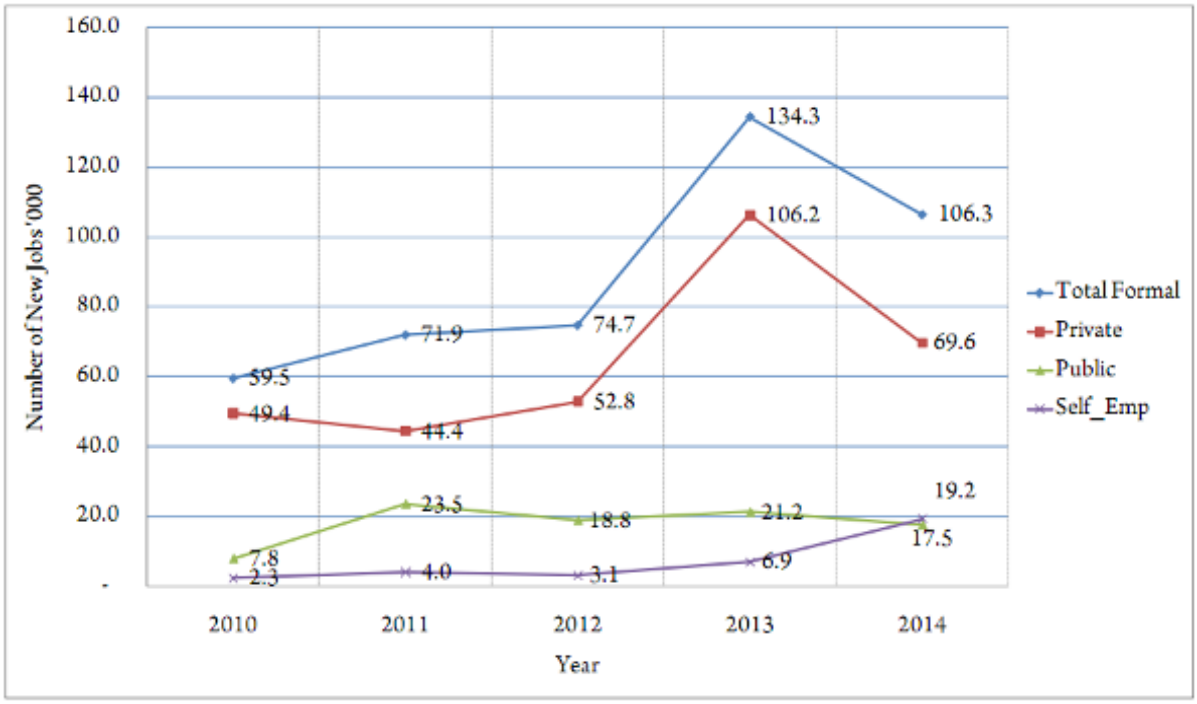
Fertility rate is a representative of the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with current age-specific fertility rates. In 2013 Kenya's fertility rate was 4.38 % as per the World Bank statistics.

Crude death rate indicates the number of deaths occurring in a year, per 1,000 people. The difference between crude death rate and birth rate provides the rate of natural increase, which is equal to the rate of population change in the absence of migration. Crude death rate in Kenya as per the World Bank was 8.19 %in 2013.

vi. Employment

According to the Kenya Economic Survey 2015, as at 2014, the number of employed persons was estimated at 14,316,700. This comprises of 2.3 million persons in the wage-employed sector, 0.1million in the self-employed sector and 11.8 million in the informal sector. By 2011 the unemployment rate was estimated at 40 per cent rising from 12 per cent in 2006.

Figure 7: Total Recorded Employment, 2010 – 2014



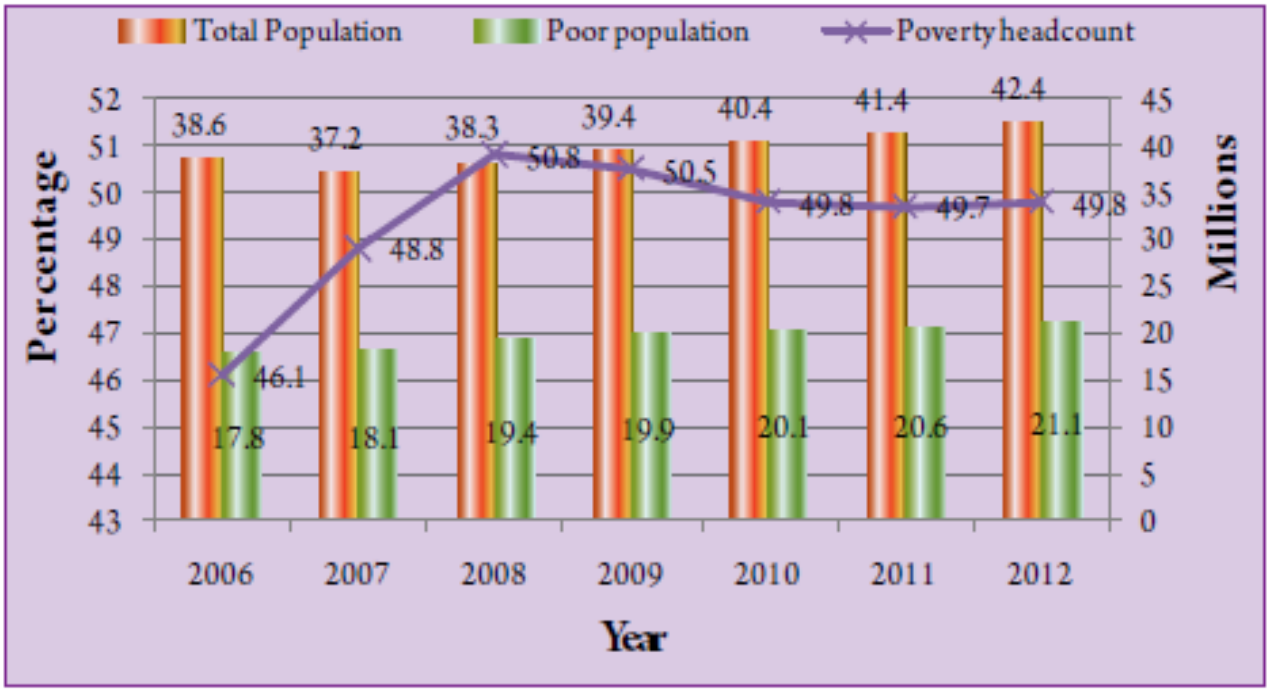
Source: Kenya Economic Survey, 2015

vii. Poverty Distribution

An examination of welfare indicators shows that Kenya is classified as a poor country. It is ranked position 26 among the poor countries. Approximately 45.9 % of population is below poverty line. Incidence of poverty is higher in rural areas than urban (49.1% and 33.7% respectively). The number of people falling into poverty in Kenya has increased annually. For instance, in 2007, the number of poor people was estimated at 18.2 million, rising to 19.5 million and later 20.1 million in 2008 and 2010, respectively (see figure below). This poverty trend could be attributed to the 2007/2008 post-election violence and low and un-redistributive economic growth.

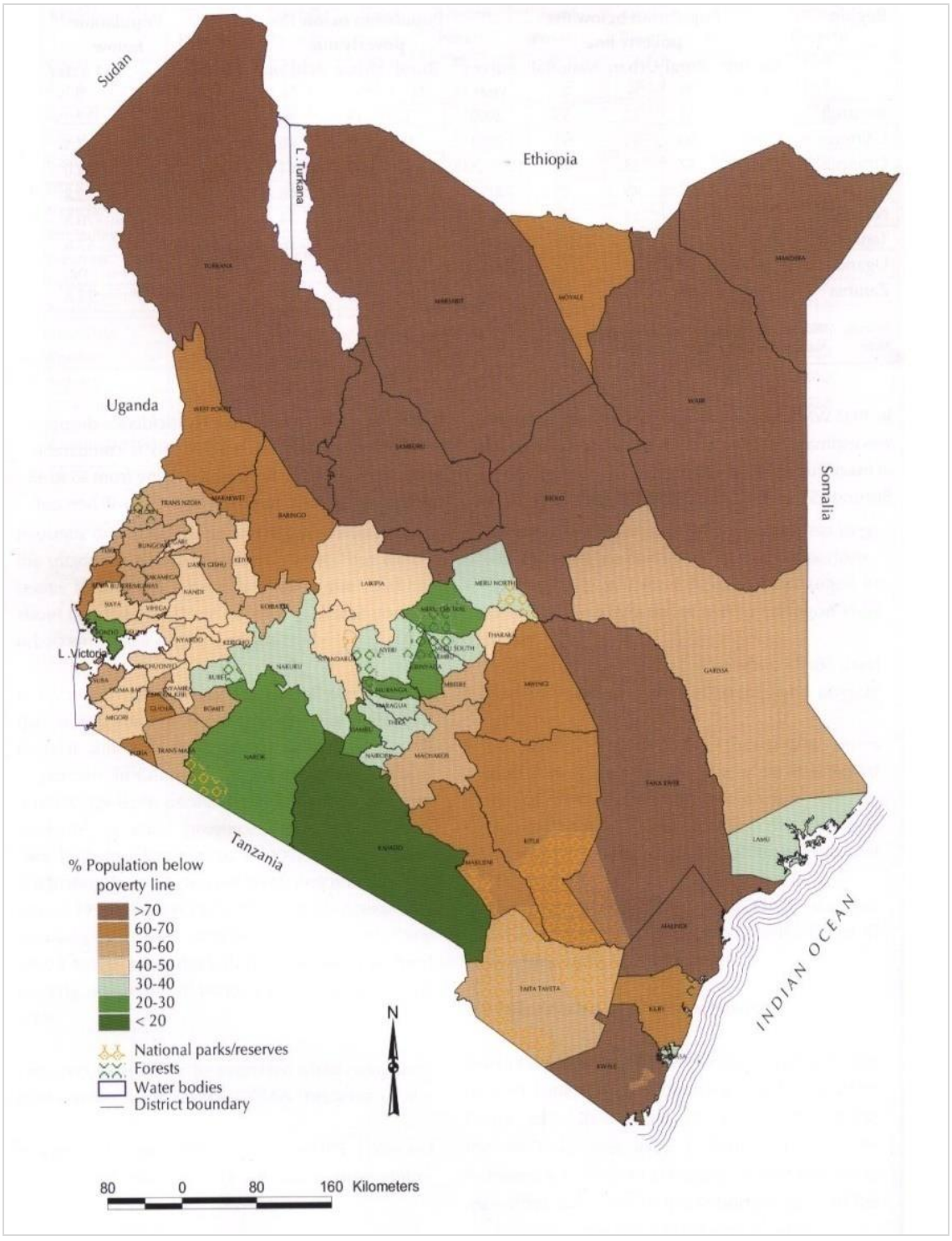
Poverty density 'hotspots' are distributed unevenly across the country but tend to concentrate in the ASAL and western regions of the country. With the country facing a rapidly urbanizing population at the rate of 32 per cent without attendant jobs and services in urban areas, this has led to the urbanization of poverty widely depicted in urban slums and informal settlements.

Figure 8: Population and Poverty Trends, 2006 - 2012



Source: Kenya Economic Survey, 2013

Poverty Distribution In Kenya



Map 19: Poverty Distribution in Kenya
Source KNBS, 2009

2.6 Economic Performance and Prospects

2.6.1 Overview

Under Vision 2030, Kenya aims to increase annual GDP growth rates to an average of 10% over the vision horizon. If this goal is achieved, Kenya will be the 5th country in the world to achieve such a high level of sustained economic growth, considering the current economic growth has been achieved primarily through rapid utilization of existing capacity, rather than efficiency gains or new investments. Achieving the 10% growth will require a dedicated campaign to alleviate existing constraints to future growth, and in particular to use our resources more efficiently. To achieve that ambition a policy framework to guide and coordinate socioeconomic and environmental development is fundamental.

The National Spatial Plan will enable all sectors of the economy to plan future investment in a better-informed way. This more articulate planning will ensure more balanced regional development, a high quality urban environment, as well as vibrant rural areas.

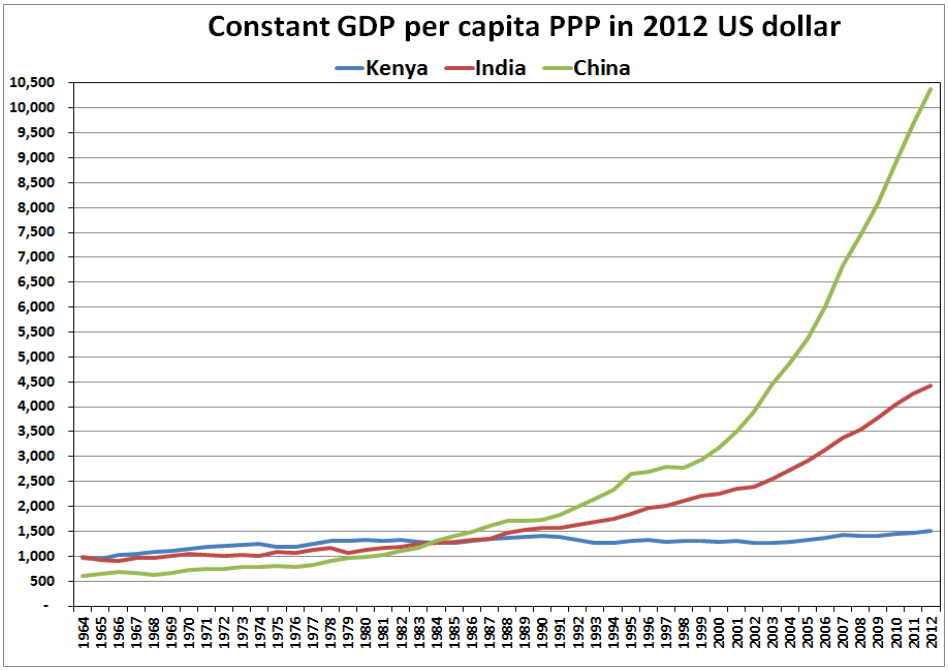
2.6.2 Economic Trends

i. International Scene

The global economy registered a growth of 3.3 per cent in 2014, a similar rate to 2013. Various major economies and regions however, reported divergent levels of economic growth. Global growth was supported by a fall in crude oil prices, lower inflation rates and increased internal demands in individual economies. Slowed growth in global trade reflects the reduction in import demand, especially in advanced economies. Growth in Sub-Sahara Africa (SSA) rose from 4.4 per cent reported in 2013 to 5.1 per cent in 2014. The highest growths in 2014 were recorded in West African Economic and Monetary Union (WAEMU) and the East African Community (EAC) at 6.6 per cent and 5.8 per cent, respectively. Tanzania and Rwanda recorded the highest growth rates of 7.2 per cent and 6.0 per cent, respectively (Kenya Economic Survey, 2015).

On overall scale and compared with other global economies, the Kenya's economy has largely stagnated and/or delayed reaching the crucial economic-takeoff stage. The figure below compares the country's GDP per capita growth since independence with that of China and India over the same period of time.

Figure 9: Kenya's Economic Performance compared to India and China



Source: Kenya Economic Survey, 2015

Since the start of economic reform in 1979, China has maintained a GDP growth rate of approximately 9 percent per year. The main factors that led to China's rapid economic growth are: cheap labour, agricultural reform leading to opening up the economy to foreign investors, government policy, foreign investment in technology, investments in education, particularly industrial methods teaching whereas in India, impressive economic growth is due to economic liberalization in mid-1980s which began opening up its market slowly. The policy played a huge impact on the economic development of India. The Indian economic development got a boost through its economic reform in 1991 and again through its renewal in the 2000s. Since then, the face of economic development of India has changed completely. Kenya has useful lessons to draw from these economic reforms, which are discussed next.

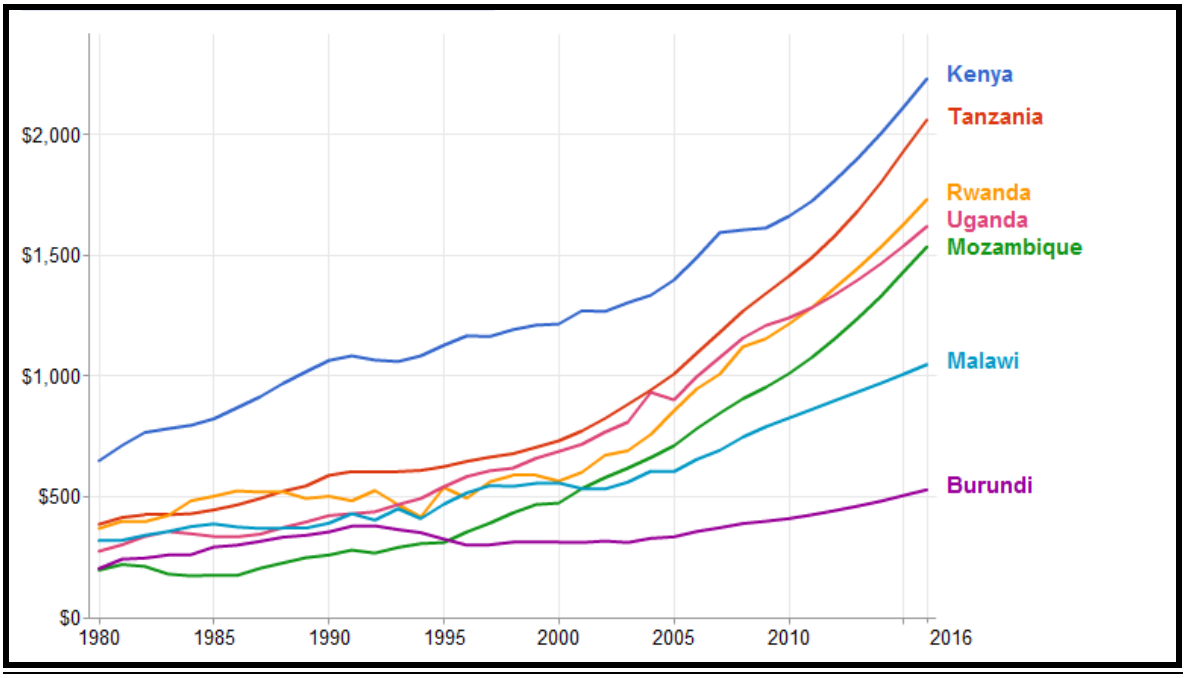
Kenya's economic performance in East and Southern Africa region

Within the EAC, the Kenyan economy is the anchor. The overall performance of the region will to a great extent depend on what happens in Kenya. Kenya's economy is the largest in the region and is much more dynamic than those of other member countries. The country's economy is much better linked to the other economies in terms of investment flows and trade. Thanks to its more advanced human capital base, its more diversified economy, and its role as a leader in the information communication revolution in the region, Kenya's economy is expected to remain

strong, creating salutary benefits to the other member countries. The prospects for a strong economy are boosted by recent institutional reforms that have culminated in the enactment of the constitution in 2010 that provides for a devolved governance system.

Kenya's economic dominance in the region is based on a strong private sector that has evolved under relatively market-friendly policies for most of the post-independence era. Kenya's record of relative political stability and its lack of dramatic ideological shifts over the same period have done much to cement its position as depicted in the graph below.

Figure 10: Kenya GDP Comparison with other countries



Source: IMF Forecast, 2014

ii. Domestic Economy

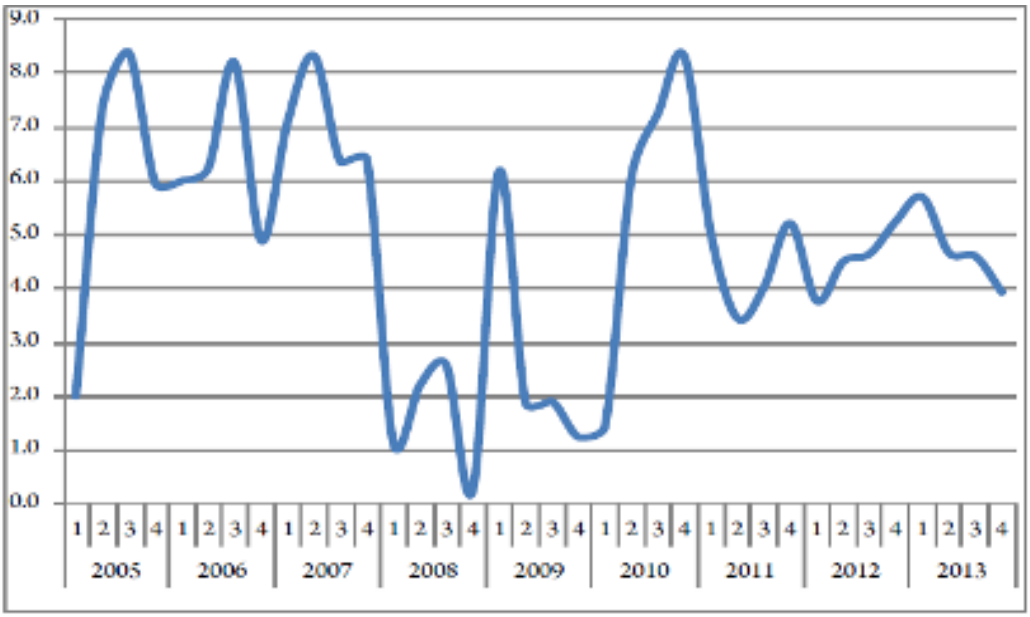
Kenya's economy is estimated to have expanded by 5.3 per cent in 2014, compared to a growth of 5.7 per cent in 2013. From the demand side, growth was mainly driven by an increase in private final consumption and a rapid growth in capital investment. From the supply side, the major drivers of the economy were agriculture, forestry and fishing; construction; wholesale and retail trade; education; and finance and insurance. However, accommodation and food services (hotels and restaurants) sector contracted for the second year in a row.

During the year, the main macroeconomic indicators remained relatively stable. The Kenya Shilling generally held firm against the major trading currencies despite its depreciation against the US dollar, Sterling pound and Euro, while weighted average commercial banks' leading rate remained relatively high but stable. Despite the drop in prices of fuel, electricity and some food commodities, inflation rose slightly but remained within the Central Bank (CBK) target. The

Balance of Payments position improved mainly on account of proceeds from the sale of the Eurobond. However, the current account deficit worsened due to deterioration in trade deficit. Government fiscal policies in the 2014/15 national budget, focused on increased revenue mobilization and containment of growth in recurrent expenditure. Consequently, the share of the development expenditure increased to 44 per cent of the total budget in 2014/15 fiscal year from 33 per cent in 2013/14.

Kenya's economic growth has been characterized by frequent episodes of stagnant and erratic growth. A study conducted by KIPPRA in 2012 on Kenya's economic transformation reveals that the pace has been comparatively slow and below potential. Corruption, poor economic policies, political instability and diseases are the major factors that have led to the low economic growth rate. In addition, Kenya's growth was disrupted by drought and the global financial crisis in 2008. Following an economic stimulus program coupled by recovering international market and improved rainfall, the economy turned around to grow at 2.6% in 2009 and 5.8% in 2010. GDP growth slowed to 4.4% in 2011 due to high international oil and food prices, depreciation of Kenya shilling and inflation (UNCTAD, 2013). Between 2011 and 2012, the GDP expanded by 2.2 to grow at 4.6 per cent (Kenya Economic Survey, 2013). The figure below illustrates the growth trend between 2006 and 2012 using annual average growth rates.

Figure 11: Kenya Quarterly GDP Growth Rate 2005 - 2013



Source:Kenya Economic Survey, 2013

2.6.3 Major Drivers of Economy in Kenya

The major drivers of economy in Kenya are: Agriculture; Forestry and Fishing, Construction; Wholesale; and retail trade, Transport and Storage, Hospitality (Hotel and catering), Manufacturing and Finance and Insurance. Other drivers are as shown in the table below.

Table 2: Percentage Growth Rate of Main Sectors Driving the Economy

Percentages									
Industry	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013***
Agriculture and forestry	23.8	23.4	21.6	23.4	23.5	23.7	7.4	19.5	13.1
Fishing	0.4	0.4	0.4	0.4	0.4	0.2	0.3	0.3	0.4
Mining and quarrying	0.5	0.5	0.7	0.7	0.5	0.7	0.7	0.4	0.7
Manufacturing	10.5	10.3	10.4	10.6	9.9	7.7	7.6	6.8	9.7
Electricity and water supply	2.0	1.8	1.5	1.5	2.4	3.6	-1.3	4.8	2.8
Construction	4.0	3.9	3.8	3.9	4.1	2.7	3.4	3.7	4.1
Wholesale and retail trade, repairs	9.2	9.3	9.7	10.0	9.8	14.2	17.2	21.3	18.1
Hotels and restaurants	1.4	1.5	1.6	1.1	1.7	1.0	1.5	0.8	-1.3
Transport and communication	10.3	10.6	10.6	10.2	9.8	12.6	13.9	12.9	15.9
Financial intermediation	3.5	4.0	4.7	4.7	5.5	6.2	7.2	6.1	6.6
Real estate, renting and business services	5.6	5.4	5.3	5.1	4.9	3.0	4.3	3.8	4.8
Public administration and defense	4.5	5.4	5.8	5.0	4.4	1.3	1.8	1.9	3.1
Education	7.4	7.0	6.8	6.3	5.7	4.6	6.4	7.0	6.3
Health and Social work	2.6	2.5	2.5	2.4	2.6	0.5	1.7	1.6	1.5
Other community, social and personal services	3.8	3.6	3.5	3.4	3.4	1.7	3.7	2.6	2.5
Private households with employed persons	0.4	0.4	0.4	0.4	0.4	0.1	0.1	0.1	0.1
Less: Financial services indirectly measured	-0.8	-0.9	-1.1	-0.9	-1.2	0.8	-0.9	0.2	-2.7
Taxes less subsidies on products	10.9	11.0	11.8	11.8	12.1	15.4	24.8	6.4	14.3
GDP at market prices	100.0	100.0	100.0	100.0	100	100.0	1000.0	100.0	100.0

Source: KNBS, 2014

2.6.4 Constraints to Economic Growth

On average Kenya's economic performance has been oscillating and unstable. This poses a serious challenge to realization of the targeted 10% growth rate per annum for a period of ten years (economic take-off) as per Kenya Vision 2030. Secondly the overreliance on agriculture (given that only approximately 20 per cent of land is arable) which also fluctuates depending on the weather patterns exacerbates the concern. NSP has to develop policies and measures that will spur a positive shift in the sector such as: establishment of fertilizer factories to reduce the cost of agricultural inputs, increase investment in irrigation to reduce dependency on rain fed agriculture and increase amount of land under crop production and to ensure that each county has at least one agricultural value addition processing plant.

In terms of balance of payments, Kenya imports more than it exports in terms of value therefore remaining in trade deficit. The main reason for this is that Kenya exports mainly agricultural products such as tea, coffee and horticulture and imports high-value products such as machinery and other capital equipment, fuel and lubricants and non-food industrial supplies. This justifies the NSP proposal to plan for export produce value-addition processing plants in all counties.

2.6.5 Opportunities and Potentials for Economic Growth

Historically, Kenya has performed dismally in attracting foreign direct investments (FDI) but the country started experiencing an increase in FDI inflow since 2006 due to advancement in ICT which contributed significantly to job creation. This indicates that there is a large unexploited potential for FDI in Kenya which can be tapped through setting aside land for the investment. NSP will endeavor to ground Vision 2030 proposals that support FDIs such as SEZs, EPZs and other free trade zones and parks.

Kenya is also taking advantage of its location – as it is increasingly considered as a regional hub for trade, communications and finance in East Africa. Policies geared towards developing functional human settlements, efficient and integrated transport and communication network to support regional financial hub(s) must be formulated. In addition, improving the logistics framework including the Port of Mombasa, the standard gauge railway and the transport corridor shall be incorporated in the national spatial framework including projection on implications on the land values and use.

2.7 Transport and Physical Infrastructure

2.7.1 Transport

Overview

Transportation is a key element in the economic growth of any nation. It improves the access into different regions through connectivity and thus easing the movement of goods and people. The transportation system in Kenya is classified into road, rail, air, water and pipeline transport. Of all these, road transport is the most commonly used mode of transport throughout the country.

Kenya's transport network however is disjointed (lack of intermodal interchange) hence each mode of transport operates independently which impacts negatively on her economic growth and hence the need to for an integrated national transport system (INTS). This need has been highlighted in Kenya's Vision 2030 and supported by the requirement for the preparation of a fifty (50) year National Transportation Master Plan as one of the identified flagship projects. INTS include the integration of the following:

i. The integration of public transport information;
ii. The physical integration of public transport services;
iii. The integration of infrastructure provision, management and pricing for public and private transport;
iv. The integration of passenger and freight transport;
v. The integration of (transport) authorities.
vi. The integration of supra-national, national, regional transport systems to foster and facilitate economic linkages with EAC, COMESA and IGAD member countries

Current National Transportation Situation

The transport network in Kenya consists of; road, rail, maritime and inland water, pipeline, and air transport in rural and urban areas. Currently, the transport network in Kenya lacks integration and faces several challenges which must be addressed before integration can be realized. Each network is managed and operated independently thus hampering efficiency, connectivity and functionality.

i. Road Transport

Road transport is the predominant mode of transport in Kenya. Approximately 93% of all cargo and passenger traffic in the country is transported using this mode. According to the Kenya Roads Board, the total road network for the country is estimated to be 178,000km, of which, 35% is classified. Approximately 15% of the total road stock is paved. In Kenya, roads are classified into six categories (Classes A to E) and Special Purpose Roads.

Table 3: Kenya road classification

Road Category	**Paved (Km)**	**Unpaved (Km)**	**Total (Km)**
A (International Trunk Routes)	2,772 (77%)	816 (23%)	**3,588**
B (National Trunk Routes)	1,489 (56%)	1,156 (44%)	**2,645**
C (Primary Routes)	2,693(34%)	5,164(66%)	**7,857**
D (Secondary Roads)	1,238(12%)	9,483 (88%)	**10,721**
E (Minor Roads)	577 (2%)	26,071 (98%)	**26,649**
SPR (Special purpose)	100 (1%)	10,376 (99%)	**10,476**
U (Unclassified)	2,318 (2%)	96,623 (98%)	**98,941**
TOTAL	**11,189 (7%)**	**149,689 (93%)**	**160, 886**

Source: KeNHA, 2014

International Trunk (Class A) roads are roads that link centres of international importance and cross international boundaries or terminate at international ports e.g. Mombasa port. This class comprises seven corridors with an approximate length of 3,755 km of which 2,886 km are paved and 869 km are unpaved (see the table below).

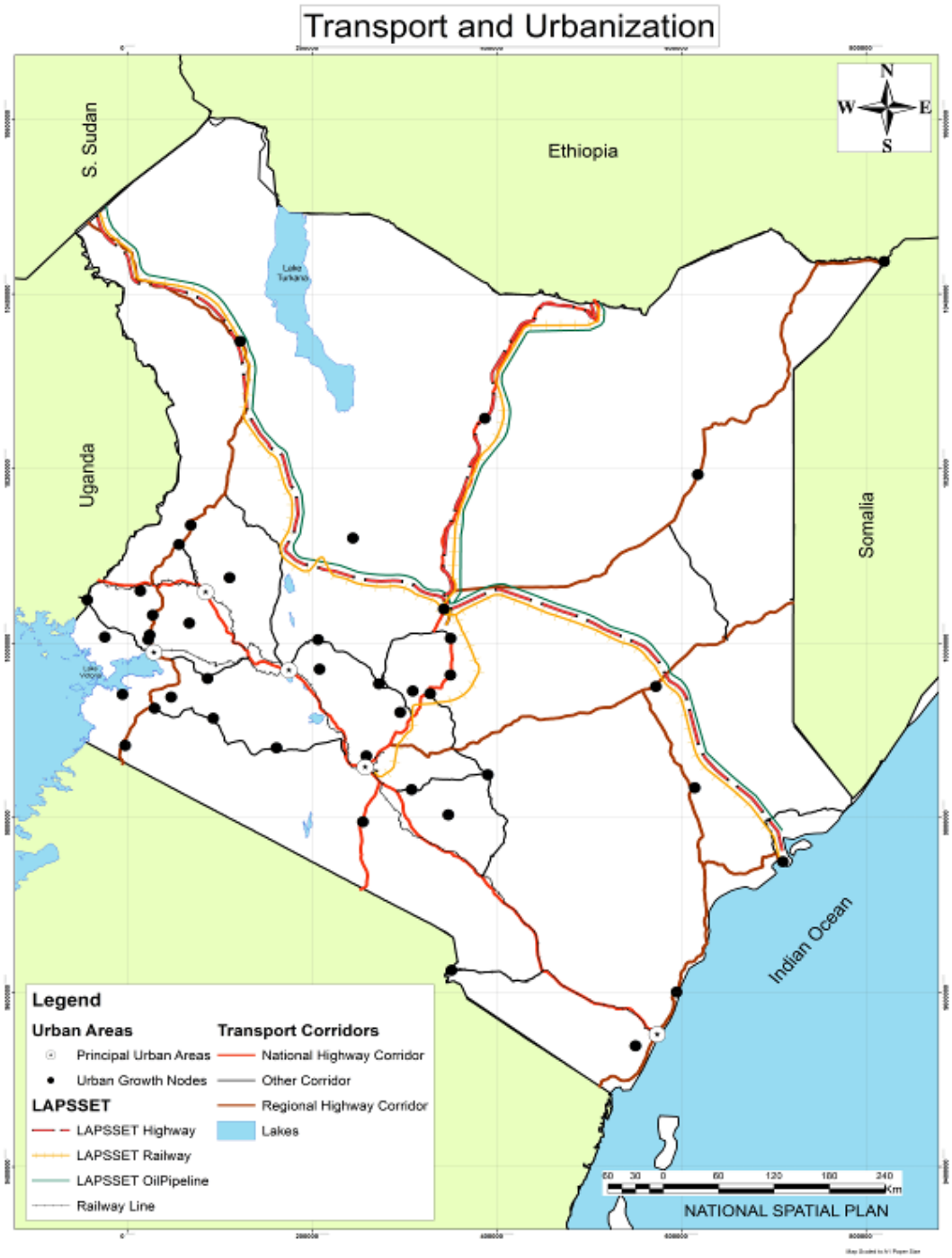
Table 4: International Trunk roads

Road Class	Length (Km)	Link	Surface Type
A1	886	Isebania-Kisumu-Kitale-Sudan Border (Lokichoggio)	Bitumen
A2	833	Nairobi-Thika-Isiolo-Moyale (Ethiopia border)	Bitumen (From Nairobi to Isiolo-(Merile))
			Under construction (from Isiolo to Moyale)
A3	556	Thika-Garissa-Somalia border (Liboi)	Bitumen (From Nairobi to Garissa)
			Gravel (From Garissa to Liboi)
A104	648	Uganda border(Malaba)-Nakuru-Nairobi-Athi River-Tanzania border (Namanga)	Bitumen
A109	473	Athi River Mombasa	Bitumen
A14	106	Mombasa-Tanzania border (LungaLunga)	Bitumen
A23	114	Voi-Tanzania border (Taveta)	Gravel

Source: KeNHA , 2014

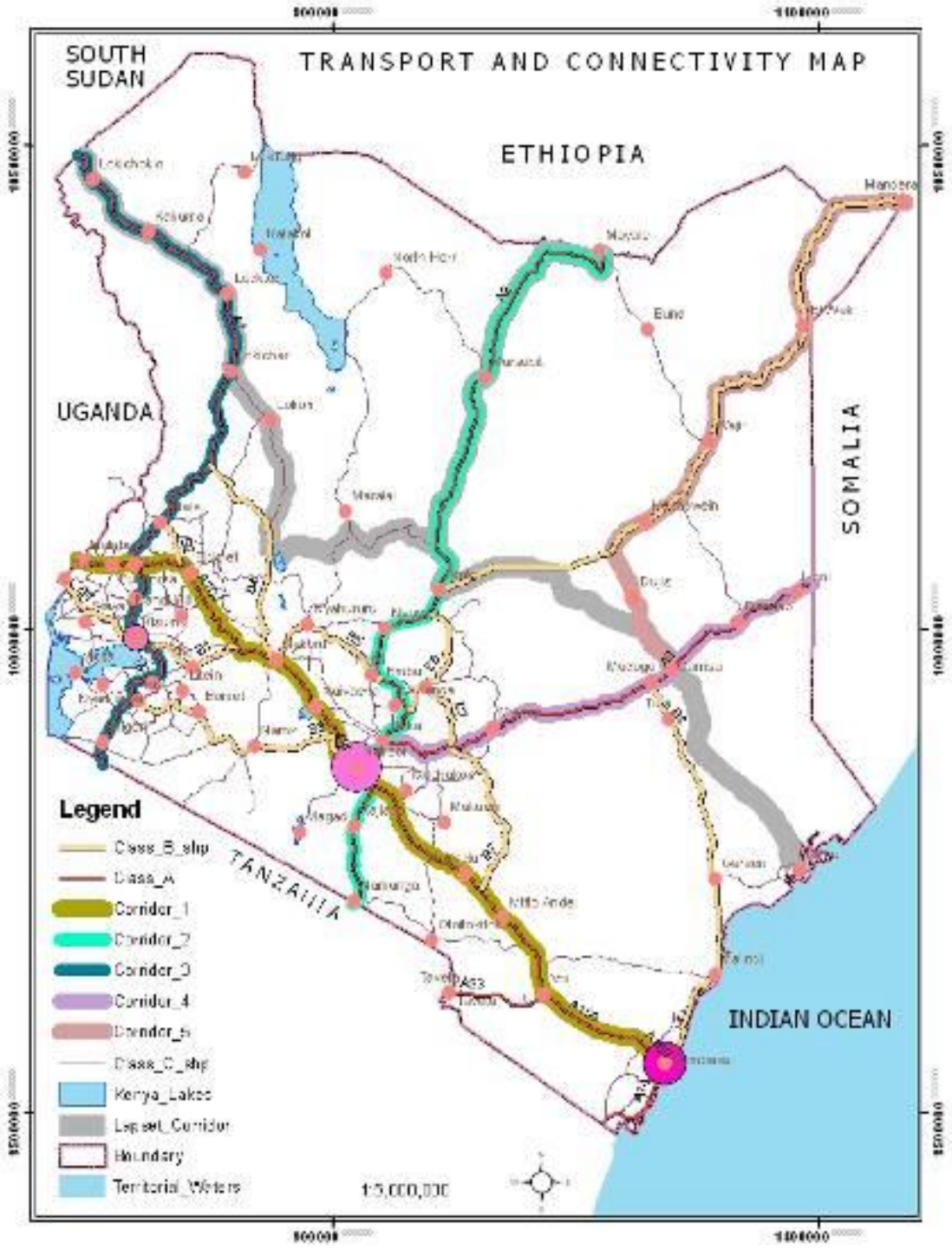
Only A104 and A109 have a prominent international or port-connecting function at present. Most transport activities are concentrated along the Northern Corridor which comprises of A109 and A104 terminating at Athi River which connects the seaport of Mombasa to Nairobi, Nakuru, Kisumu and Eldoret and the border town of Malaba. The southern segment of the A104 (Namanga to Athi River) links up with A2 within Nairobi and proceeds to the Ethiopian border at Moyale. This constitutes part of the Great North Road from Cairo to Gaborone.

National Trunk (Class B) Roads comprise roads linking centres of national importance. The network comprises of 10 defined links with a total length of 2,799 km of which 1,339 km are paved.



Map 20: Transportation and Urbanization in Kenya *Source: KeNHA and KURA*

Road: Total Length=160,886 Km – Paved = 11,189 Km and Unpaved =149,689 Km
Air Transport: Total number=181, Paved runways=16 and unpaved runways = 165
Railway Transport: Total Length=2,778km
Pipeline Transport: Total length=1,224.45km
Ports and Terminals: Mombasa Sea Port and Inland water terminal Port at Kisumu



Map 21: Transport and Connectivity

Data Source: Kenya National Highways Authority

Other categories are Primary (Class C) Roads that link regionally important centres to each other or to higher-class roads, Secondary (Class D) Roads that link locally important centres to each other, or to more important centres or to a higher class road, Minor (Class E) Roads that are any roads that link to a minor centre, Special *Purpose* (Class F) Roads that include tourist, township, agriculture and strategic purposes and Unclassified Roads (Class U) Roads that constitute all other public roads and streets.

Recent surveys indicate that about 50% of the road network is in good condition while the balance requires rehabilitation. Funds for development, rehabilitation and maintenance are inadequate. Though the sector accounts for over 93% of the total domestic freight and passenger traffic, only 30% of the total output per annum goes to roads. Other problems within the road transport sector include; Inefficient road transportation systems, inadequate and unevenly distributed road network, poor traffic management, lack of a public transport system, lack of bus-only, cycling, walkways lanes and dedicated emergency lanes.

ii. Rail Transport

Railway transport is the second most important mode of transport in Kenya after road transport for both freight and passenger services. Kenya has a railway network of 2,778 km comprising 1,083 km of mainline, 346 km of principle lines, 490 km of minor and branch lines and 859 km of private lines and sidings. Part of this is a concessioned 146km branch line between Magadi and Konza. The railway system has a design speed of 60 kph and 80 kph for freight and passenger trains respectively, with potential to handle cargo of up to 7 million tons per annum.

Plate 1: A platform at Nairobi Railway Station

Source: http://www.visualgeography.com

Plate 2: A section of the Standard Gauge Railway

Source: http://www.visualgeography.com

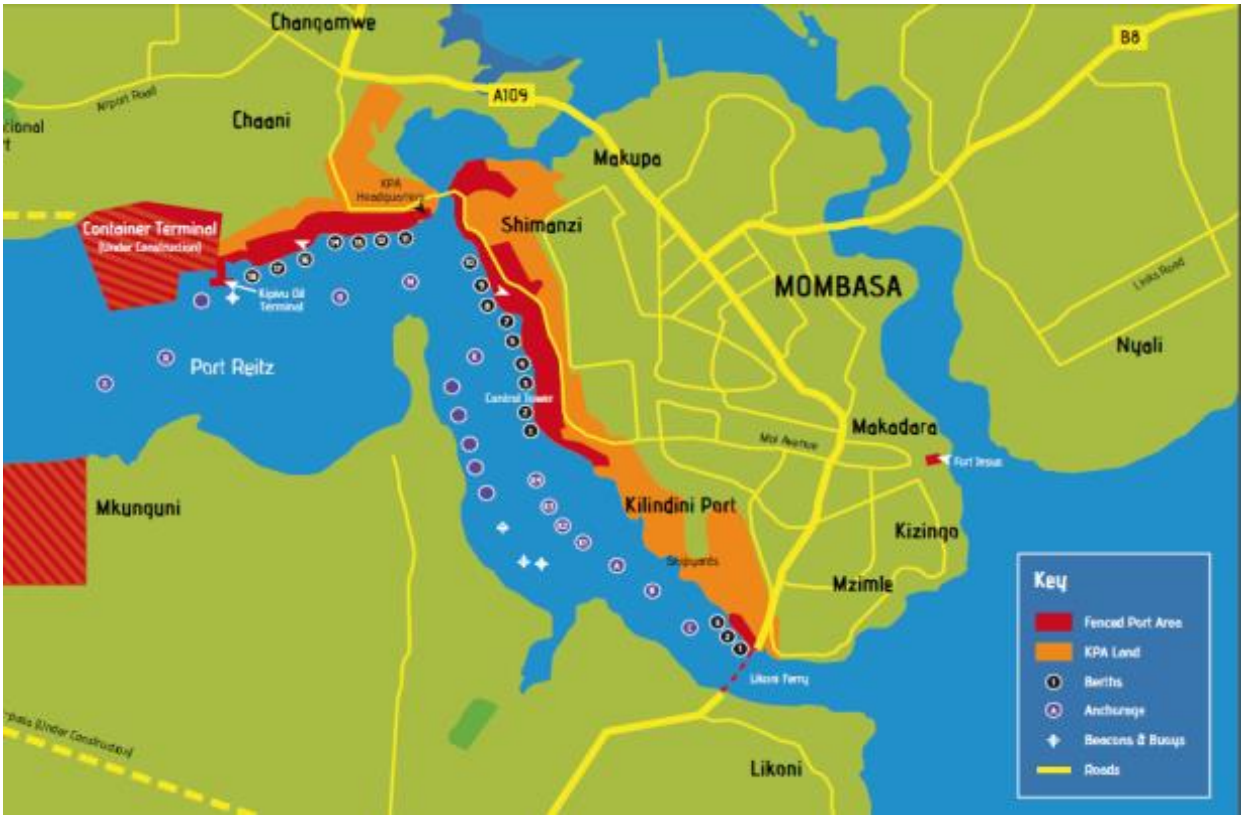
Currently, rail transport operations in Kenya are offered by Rift Valley Railways and Magadi Railways (MR) with MR operating the line between Konza and Magadi (146 km) on behalf of the Magadi Soda Company Ltd while Rift Valley Railways (RVR) operate the rest under concession based on leases of locomotives from Kenya Railway Corporation (KRC).

iii. Maritime and Inland Water Transport

Maritime Transport System

The maritime transport system in Kenya consists of one major seaport, Mombasa and other smaller scheduled ports along the Kenyan coastline (namely, Funzi, Vanga, Shimoni, Kilifi, Malindi, Lamu, Kiunga and Mtwapa). Mombasa Port provides direct connectivity to over 80 Ports worldwide and is linked to a vast hinterland comprising Uganda, Rwanda, Burundi, Eastern Democratic Republic of Congo, Northern Tanzania, Southern Sudan, Somalia and Ethiopia by road. A railway line also runs from the Mombasa Port to Uganda and Tanzania. Altogether, these countries account for 27 per cent of the annual total cargo throughput at the port. The port has 19 deep-water berths; three handle containers and 13 conventional cargos.

Figure 12: Maritime Transport System



Source: Kenya Maritime Authority, 2015

Plate 3: Mombasa Sea Port

Source: Kenya Society, 2015

The Port of Mombasa faces the challenge of attracting and handling increasing traffic within Kenya and from the neighboring countries as well as international traffic from outside the region. However, Northern Kenya is not linked to the Mombasa port. Lamu port, which is under construction, is expected to consist of 30 berths when complete. It will be connected to Southern Sudan and Ethiopia by rail, road and oil pipeline.

Inland Water Transport

Inland water transport - Kenya makes the least use of her portion of Lake Victoria, compared to Uganda and Tanzania despite considerable potential for the country to make use of the relatively low-cost inland water transport to promote trade with Uganda and Tanzania through the port of Kisumu.

Ferry services on Lake Victoria are currently provided by KRC. The services, both at the coast and on Lake Victoria, are governed by outdated laws, inappropriate institutional frameworks, inadequate capital, poor safety standards and lack of third party insurance.

iv. Pipeline Transport

Kenya Pipeline Corporation (KPC) operates a pipeline system for transportation of refined petroleum products from Mombasa to Nairobi and western Kenya towns of Nakuru, Kisumu and Eldoret. It is responsible for the three pipelines namely the 450 km Mombasa-Nairobi, 325 km Nairobi-Eldoret, and 121 km Sinendet-Kisumu that conveys Petroleum products for internal consumption and export to Uganda, Rwanda, and Democratic Republic of Congo (see the table below)

Table 5: Pipeline Lengths and Diameter

Total Length(MSA-NBI-NKU- SINENDET-KSM-ELD) 1,2 24.45 Km	
Section	**Length (Kms)**
Shimanzi Spur Line	3.45
Mombasa-Nairobi	450
Nairobi-Eldoret	325
Nairobi-Eldoret(Line IV)	325
Sinendet - Kisumu	121

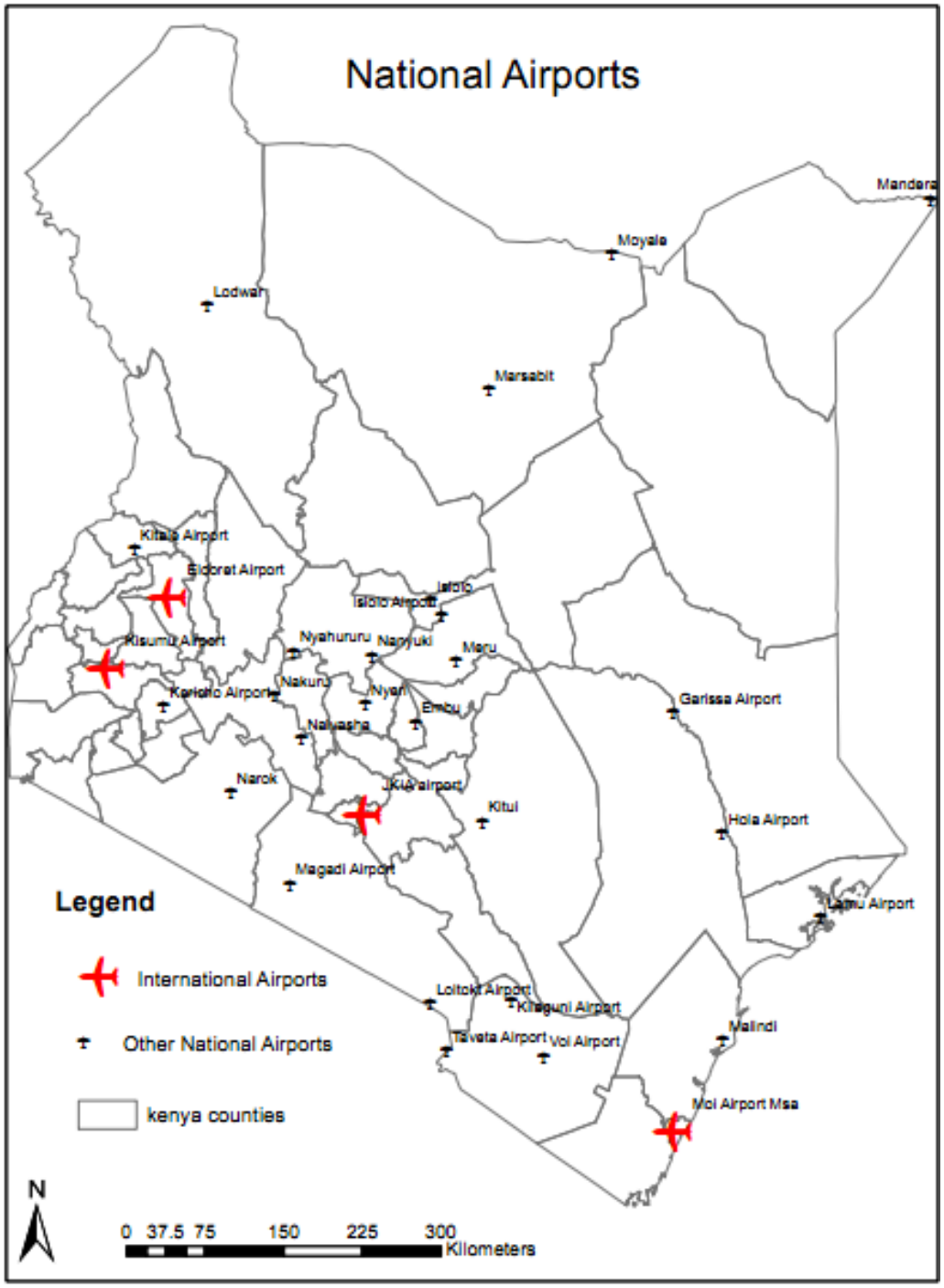
Source: Proposed National Transportation Master Plan, 2015

It has supportive infrastructure in form of five storage and distribution depots for petroleum products located in Eldoret, Kisumu, Mombasa, Nairobi and Nakuru, and two aviation fuel depots at Jomo Kenyatta International Airport, Nairobi, and Moi International Airport, Mombasa**.**

The pipeline was intended to reduce road deterioration of the Northern Corridor as a complementary mode of transport for transporting petroleum products within Kenya. Though the volume of petroleum products transported through the pipeline has been on an upward trend, it has faced stiff competition from road and rail modes of transportation.

v. Air Transport

Kenya has a thriving and viable aviation industry which is vital for the country's development through the provision of air transport services and hence facilitation of tourism, and promotion of trade and earning of foreign exchange. There are more than 200 airports and airfields in Kenya, which comprise 5 international airports (JKIA, Mombasa, Eldoret, Kisumu and Wajir), 35 airstrips and 160 airfields. Jomo Kenyatta International Airport in Nairobi is Kenya's largest airport. Kenya Airways, the national carrier, serves more than 58 world destinations.



Map 22: Airports Distribution in Kenya

Data Source: Kenya Airports Authority

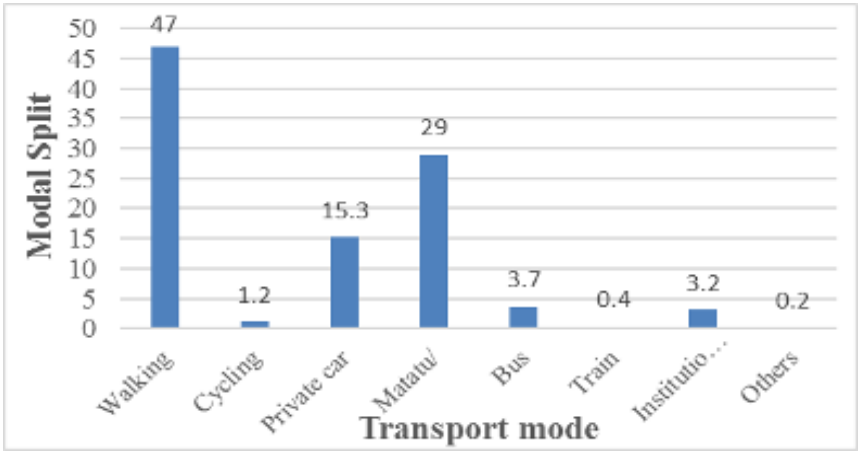
Plate 4: Jomo Kenyatta International Airport

Source: www.kaa.co.ke

vi. Non-Motorized and Intermediate Means of Transport (NMIMTs)

Beside vehicular transport, cycling and walking are other means of passenger transport in urban areas. Majority of the urban poor find public transport costly and financially inaccessible and hence meet their needs through walking and head loading. In addition, there is poor modal interchange in all urban areas including Nairobi prompting people to use NMIMTs to get to their destinations. It is estimated that over 40% of Nairobi residents walk to their places of work as shown in the table below.

Figure 13: Transport all modal Split in Nairobi



Source: King'ori, 2007

Bicycle taxis and motor cycle taxis - all popularly known as "*bodaboda*" are used to carry both goods and passengers in many towns because they are relatively cheaper to use than formal public transport vehicles. However, regardless of the growing number of demand and use *bodaboda* taxis transport, their infrastructure (cycle lanes and cycle-friendly crossing areas such as footbridges) have not been provided for. It lacks adequate designated areas for parking, unfavorable weather protection mechanisms and general facilitation of the mode. This has led to their operations near junctions, shoulders and road reserve among other inappropriate sites which is unsafe for all road users.

Use of human and animal drawn carts is also common in urban areas to transport goods, water among others. In some urban areas, there is use of rickshaws (*tuktuks*) for public transport. However due to their small size and instability, they are a major cause of accidents.

Kenya's rural areas that hold 65% of Kenya's population are major production regions where many national socio-economic activities are based, especially in agriculture, horticulture, livestock farming and fish farming. It is estimated that 98% of the rural population does not own motor vehicles. It is also estimated that 85% of the movements to support mobility needs in rural areas take place off the roads on tracks and paths. Trips are made through NMIMTs which include walking and head loading, on bicycles, motorcycles or animal transport. These journeys facilitate production of goods, their transportation to the market and supply to urban areas. They therefore comprise important and peculiar mobility and accessibility needs for the rural population that need to be addressed.

Table 6: Transport and Storage Indicators

Indicator	**Measure**	**2010**	**2011**	**2012**	**2013**
Air passengers handled	'000s	7,516	8,722	8,584	8,232
Air Freight handled	'000 tonnes	247	304	295	262
Pipeline throughout	'000 m^3	4,204	4,257	4,856	5,171
Freight handled by KR	'000 tonnes	1,572	1,596	1,394	1,214
Freight handled by KPA		18,977	19,953	21,920	22,307
Container Traffic at Sea Port	TEUs	695,600	770,804	903,463	894,000
Ships Docking	No.	1,579	1,684	1,763	1,768

Source: King'ori, 2007

National Transportation Challenges and Opportunities

Challenges

The main challenge facing road transport in Kenya is the poor condition of the road surface. The bad state of roads surfaces impact negatively on the efficiency of movement and seamless integration with other modes of transport. Most paved and unpaved roads have deteriorated significantly through a lack of maintenance and on the main paved network the overloading of heavy trucks has exacerbated conditions of the main transport corridor.

Other challenges include:

i. Poor transport infrastructure;
ii. Missing links (poor connectivity);
iii. Poor quality of transport services;
iv. Inappropriate modal split;
v. Unexploited regional role of the transport system;
vi. Transport system not fully integrated;
vii. Urban environmental pollution;
viii. Lack of an urban/rural transport policy;
ix. Inadequate human resource capacity.
x. Uncontrolled *bodaboda* outburst in both rural and urban;
xi. Parking is a major challenge in urban areas because parking spaces are not adequate for the current traffic flow and other demands;
xii. Encroachment and/or grabbing of road reserves;
xiii. Inadequate or lack of terminal facilities hence picking and dropping of passengers in undesignated areas;

Potentials that may emerge from the implementation of various projects in the transport sector:

i. Increased accessibility- The capability to access to a wider market base is a common economic benefit.
ii. Reduced travel time- The economic benefits of time improvements are multidimensional. First, passengers and freight will arrive at their destination faster, which at least is convenient, but in the majority of cases has an economic value. Second, time gains result in better levels of inventory management and a better utilization of transport assets
iii. Rapid urbanization: Transport developments will lead to development of urban areas in along the transport corridors.
iv. Increased trade and investments and increased revenue.
v. More employment opportunities-Transportation contributes to the economy by providing millions of jobs.
vi. Reduction of transport costs- transport developments are commonly associated with lower transport costs, implying that mobility becomes more affordable.
vii. Exploitation of untapped resources and opening up of undeveloped areas such the northern parts of Kenya-transport developments open up undeveloped regions in term of accessibility.
viii. There are many ongoing and planned projects, which if implemented will realize the above discussed potentials. They include:
    a. Mass Rapid Transit System (MTRS) - This is a project that has been proposed within the Nairobi Metropolitan Region (NMR) to ease the current gridlock on its

roads. It will incorporate a commuter rail network and a Bus Rapid Transit (BRT) along selected routes;

b. The on-going Standard Gauge Railway (SGR) project
c. Construction of bypasses and rings to divert traffic from urban areas in towns such as Eldoret, Bungoma, Dongo Kundu, Meru and Nairobi;
d. LAPSSET Project – Superhighway, Railway and Pipeline; Lamu Port, Planned Airports
e. Expansion of JKIA, construction of a new airports as well as upgrading of various airstrips and airfields.
f. Proposed construction of a new sea port in Kisumu and expansion of Port Victoria, Port Sio, Mbita and Sori (all in Lake Victoria) is expected to restore high economic activity in the town's maritime industry.
g. Draft Non-Motorised Transport Policy by UNEP seeks to address the promotion of NMT transport and its integration into the transport system. In addition, most of the ongoing and planned projects have factored in the use of NMIMT.

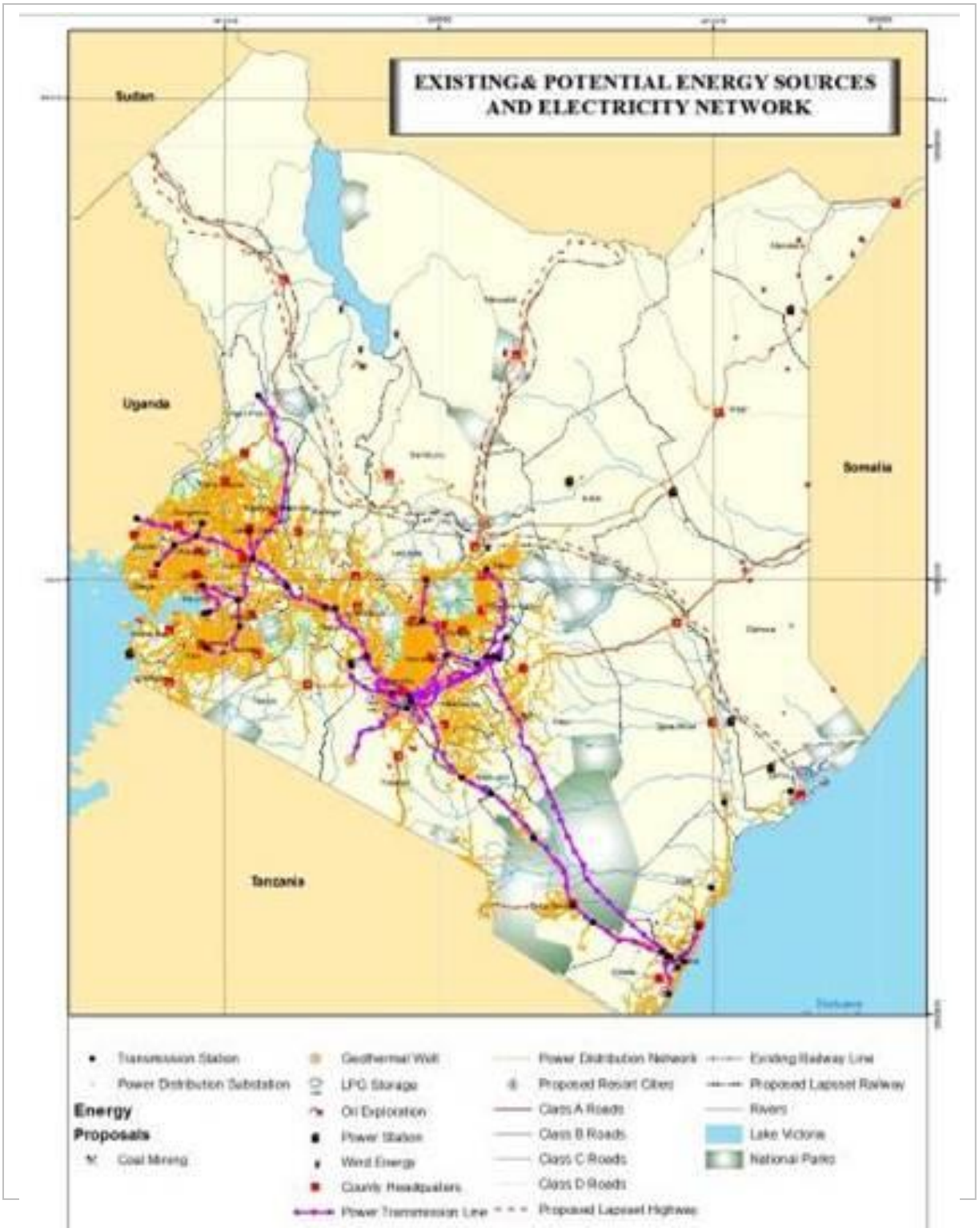
2.7.2 Physical Infrastructure

Infrastructure is key to the achievement of the National Spatial Plan objectives of global competitiveness, regional balance and optimal utilization of land and other resources. The Kenya Vision 2030 recognizes infrastructure as one of the six foundations on which the achievement of the economic, social and political pillars will be anchored. The vision aspires for a country where water and sanitation facilities are available to all.

i. Electricity

Kenya Installed Power Capacity stands at 1,533MW with a Peak Demand of 1,236MW leaving a marginal reserve of 297MW. Kenya is highly dependent on hydroelectricity with 75% of all electrical output. Demand for electricity in Kenya is projected to grow at 7% per annum over the next ten years.

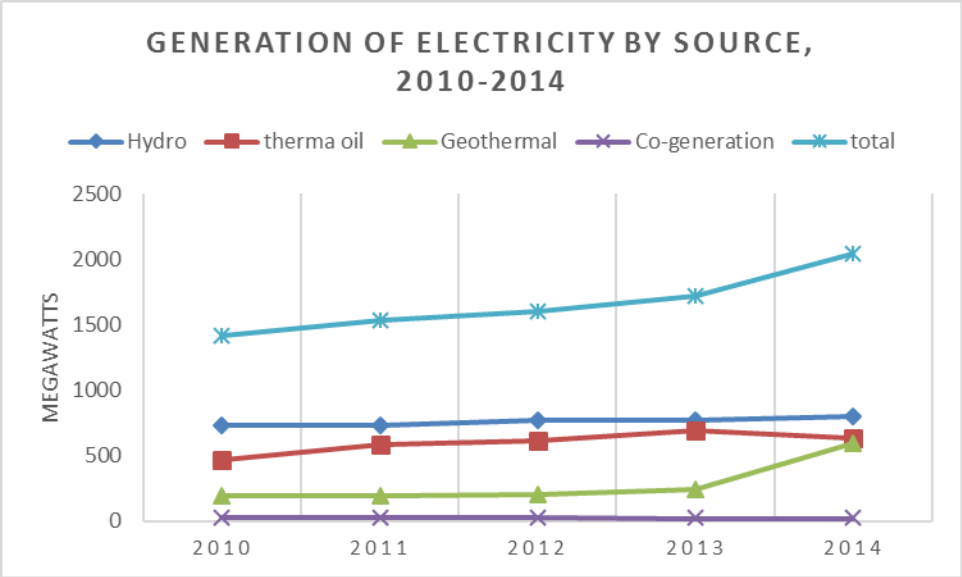
Kenya is highly dependent on hydroelectricity with 75% of all electrical output. Kindaruma, Gitaru, Kamburu, Masinga and Kiambere have a combined output of 403.2 MW. The Turkwel Gorge has a capacity of 106 MW. An additional 30 MW is drawn from the Owen Falls dam in Uganda. The demand for electricity in Kenya is projected to grow at 7% per annum over the next ten years. The natural endowment of varied natural sources (wind, solar and geothermal) is expected to help meet this demand. The national connectivity for electricity stands at 28%, the urban centres share of this total is 54% as compared to the 22% for rural areas.



Map 23: Energy Sources and Distribution in Kenya

Source: Ministry of Energy (2014)

Figure 14: Electricity Generation



Source: Kenya Economic Survey, 2015

Rural Electrification Programme

The national rural electrification programme is envisioned to empower rural population in education, health, lighting, modern farming, fish farming, employment creation, security enhancement, improvement in standard of living, among others. It is further envisioned to increase the national power generation and to provide the energy required to accelerate growth and mobilize private sector capital for generation of electricity from renewable energy.

Since its inception, the following facilities have been connected; 9,415 Trading Centers; 6,647 Public Secondary Schools and 3,276 Health Centers. This has increased the connectivity coverage from 12% to 22%.To achieve electricity connection for all citizens by 2030, renewable and green energy resources including solar, wind, geothermal and biomass should be tapped.

Table 7: Renewable Energy Sources, their Locations and Potentials

Renewable Energy	Potential	Areas
Geothermal	7000MW (Installed 200MW)	Rift Valley
Solar	4-6 kWh/m2/day	Over 80%of land area
Wind	346 W/m2	Parts of Nairobi, Eastern, North Eastern and Coast
Small hydro	3,000 MW	Five drainage basins
Biomass-Cogeneration	300 MW	Sugarcane growing belt
Other Biomass; Biogas, power Alcohol, biodiesel etc	300Mw	Medium and high potential areas

Source: Rural Electrification Authority, 2012

ii. Water

Kenya is a water-scarce country with renewable fresh water per capita at 647 m^3 against the United Nations recommended minimum of 1,000 $m^{3.}$ The water storage per capita in Kenya currently stands at 8m^3 which is far below the global standard of 16m^3water storage per capita. Individuals in urban areas have one and half times more access to improved water sources than their rural counterparts.

The Vision for the water and sanitation sector is "to ensure water and improved sanitation availability and access to all by 2030". Kenya is a water-scarce country with renewable fresh water per capita at 647 m^3 against the United Nations recommended minimum of 1,000 m^3 and way below the average for Africa which stands at 4,500m^3 per capita. This compares unfavourably with the neighbouring countries of Uganda and Tanzania, which have per capita levels of 2,940 m3 and 2,696 m^3 respectively.

For decades, water scarcity has been a major issue in Kenya, caused mainly by years of recurrent droughts, poor management of water supply, contamination of the available water, and a sharp increase in water demand resulting from relatively high population growth. (Global Majority E-Journal)

The most recent official estimates of access from the Government of Kenya put water supply coverage at 42 percent and sanitation coverage at 31 percent in 2006 (urban and rural areas combined). The government target is to achieve 76 percent in each case by 2015.

Kenya is divided into five drainage basins which include; Lake Victoria, Rift Valley basin, Athi basin, Tana basin and Ewaso Ngiro North basin. The water distribution in the five basins is highly uneven with the highest water availability in the Lake Victoria Basin (more than 50%) and the lowest in the Athi Drainage system. Only the Tana and Lake Victoria Basins, have surplus water resources while the three other basins face deficits. Table 7 illustrates the annual renewable surface water resources by catchment from the five drainage basins.

Table 8: Annual Renewable Surface Water Resources by Catchment in m^3

Catchment	**CA (Km^2)**	**Period**		
		2010	**2030**	**2050**
L. Victoria North	18.374	4,626	4,969	5,455
L. Victoria South	31.734	4,773	5,749	7,005
Rift Valley	130.452	2,457	3,045	3,794
Athi	58.639	1,198	1,334	1,711
Tana	126.026	5,858	7,261	7,383
Ewaso Ng'iro North	210.226	1,725	2,536	1,361
Total	**575.451**	**20,637**	**24,894**	**26,709**

Majority of people living in rural areas rely on springs, rivers and streams as the main sources of water. During the wet season, most households harvest rainwater, though the water harvesting facilities and methods are rudimentary at best. It is estimated that only 23% of the population in the rural areas access drinking water from a tap, while 8% harvest rain. In times of scarcity, springs and wells account for up to 40% of source of drinking water.

The annual quantity of renewable fresh water resources is estimated at 20.2 billion m^3 comprising 19.59 m^3 of surface water and 0.62 billion m^3 of ground water. Water availability and water service provision is not developing with the pace of rapid growth in urbanization, industrial production, tourism and recreation services, agricultural and livestock production. Nearly 43% of people in arid areas take more than one hour to reach water in the dry season; 24% take more than two hours. Water scarcity does not only negatively affect peoples' life but has a negative impact on the county's overall development)

Harvesting Rain Water

Access to clean, running water is often taken for granted, but in many dry parts of Kenya people have to trek for hours every day to find small quantities of water for drinking, cleaning and agriculture.

One of the flagship projects and initiative under vision 2030 is to increase water storage and harvesting. Due to the critical importance of water harvesting and storage in increasing the area under irrigation and in flood control and water supply, the Government aims to develop two

multi-purpose dams with storage capacity of 2.4 billion m^3 along Rivers Nzoia and Nyando. Construction of 22 medium-sized multi-purpose dams with a total capacity of 2 billion m^3 will be undertaken to supply water for domestic, livestock and irrigation use in the ASAL areas (Vision 2030).

Water Accessibility Challenges

- Catchment degradation through de-forestation leading to erosion and high sediment loads in rivers
- Encroachment of riparian land and wetlands
- Inappropriate agricultural practices
- Water scarcity in semi-arid and arid areas
- Lack of awareness by the public, regarding
  - sustainable use of water
  - roles of WRMA and WRUA
  - legal requirements for water abstraction
- Increased competing water demands
- Endangered ecosystems (e.g. Tana delta)

Water Demand

Table 9: Future Water Demand (m3 /year)

Water Demand	**2030**
Domestic	2,556
Industrial	250
Irrigation	7,550
Livestock	715
Wildlife	8
Fisheries	26
Total	**11,105**

iii. Sanitation and Waste Management

Sanitation

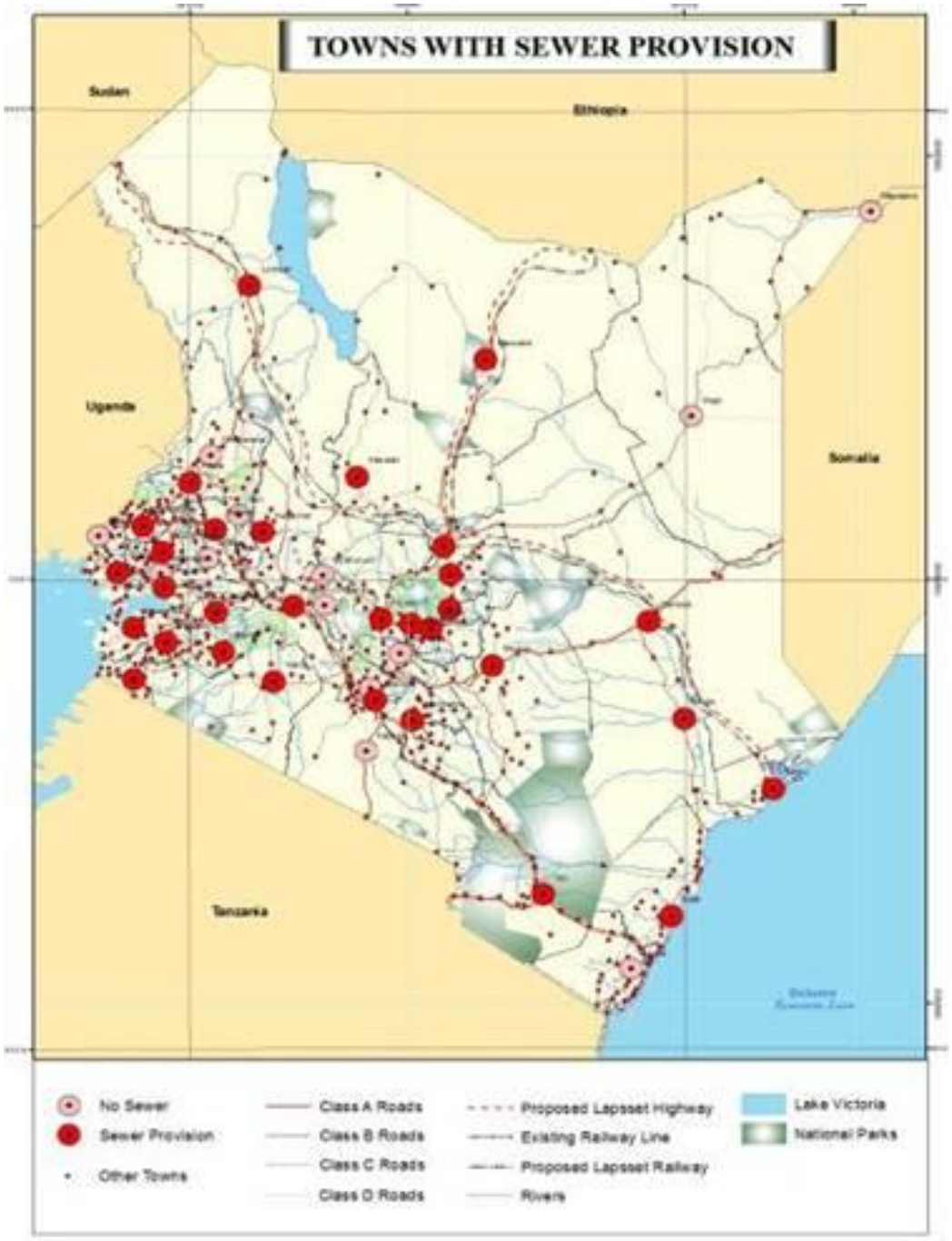
Access to safe human waste disposal methods is crucial for the health and wellbeing of a community. Lack of access to safe human waste disposal facilities leads to higher costs to the community through pollution of rivers, ground water and higher incidence of air and water borne disease[4].

Liquid waste management through sewerage is mainly used in urban areas and is characterized by low network coverage. Nairobi, which is the capital city, has network coverage of 47%,

[4] SDI-Society for International Development

Mombasa 20% and the rest of the regional urban areas at below 20%. Most of the other urban areas are not supported by a sewer network but depend on septic tanks and pit latrine modes which are not sustainable. Most of the sewerage treatment is undertaken by water management boards which rely heavily on the waste stabilization ponds. Kenya has been aiming to inch closer towards achieving the Millennium Development Goal for sanitation. The experience of neighboring countries in Africa, for example Ethiopia, shows that hygiene promotion can be very effective in reducing the practice of open defecation.

There are 43 sewerage systems in Kenya and waste water treatment plants in 15 towns serving a paltry 7.2% of the total urban population. The operation capacity of these wastewater treatment plants is estimated at around 16% of design capacity attributed to inadequate operation and maintenance, inadequate water supply and low connection rates to sewers. It is estimated at19% of the wastewater that enters the sewer network, only about 60% reaches the treatment plants. Kenya's position with respect to sanitation has been deteriorating. About 64 percent of Kenya's population relies on traditional latrines for sanitation, with a further 17 percent having access to improved modes of sanitation and the remaining 18 percent practicing open defecation.



Map 24: Urban Areas Sewer Connection

Solid Waste Management

Effective, efficient and cost economical waste management facilities are crucial if industrial and enterprise activity is to flourish and develop in a balanced way across various regions of Kenya.

Solid wastes in the major urban areas are a by-product of a broad spectrum of domestic, industrial, service and manufacturing processes. Most of the urban areas lack proper disposal sites and where they exist they are poorly sited or the capacity is exceeded.

iv. Information and Communication Technology

Kenyan ICT sector has registered substantial growth due to competition introduced in most market segments by the industry regulator, the Communications Commission of Kenya (CCK).

The ICT sector has been growing favourably in keeping with the rapidly changing global trends. The sector encompasses telephony, ICT parks, internet, print and electronic media. Prices for ICT services in Kenya are relatively high. The calling and internet charges are significantly higher in Kenya than in comparable African countries.

Kenya has a 5,500 KMs of Fibre Optic Cable network. The National Optic Fibre Backbone Infrastructure (NOFBI) connecting the rest of the country to the rest of the world from Mombasa is in place. The government is also developing External National Fibre Optic Network to all Cell sites in the country and so far 20,000 Km have been completed.

ICT sector has been recognized as critical in enhancing global competitiveness. The vision 2030 identified the creation of ICT parks to position the country for Business Process Outsourcing (BPO). Konza Techno City development will support the country to advance in ICT integration.

Table 10: Key Indicators of ICT

Indicator	Measure	2010	2011	2012	2013
Fixed telephone lines	per 100 inhabitants	1.2	1.0	0.6	0.5
Mobile –cellular subscription	per 100 inhabitants	64.9	68.2	74.9	74.9
Wireless internet	per 100 inhabitants	8.0	15.4	20.8	31.4
Wireless and Fixed	per 100 inhabitants	8.1	15.7	21.0	31.7
Bits per second	Bps/person	550.8	855.7	6,824.7	9,168.2
Wireless Broadband subscription	per 100 inhabitants	0.2	0.3	2.4	3.3
Wireless Broadband subscription	per 100 inhabitants	0.3	0.3	2.5	3.4
Mobile telephone Capacity	‘000	46,629	47,350	49,977	55,077

Source: Adopted from Draft ICT policy, 2013

Infrastructure sector therefore faces problems regarding poor connection, low coverage, unreliability, high costs, skewed distribution and low/surpassed design. To rectify this situation clear indicative policy, strategies and measures have to be developed and implemented to achieve overall efficiency. The line graph below illustrates the proportion of population that has access to some selected ICT services.

Table 11: Proportion of population that has access to selected ICT services

S/no.	Services	Numbers
1	Mobile Subscriptions	33.6 million
2	Fixed Network Subscriptions	251,576 lines
3	Internet Subscriptions and Internet	Internet Subscriptions and Internet
4	Broadband subscriptions (speeds greater or equal to 256kbps in or out)	1,002,701 million
5	Internet penetration	41.1%
6	international internet used bandwidth 328,641 Mbps	186 Mbps
7	International Internet Available Bandwidth	906, 186 Mbps
8	Broadcasting Radio Broadcasting Television Number of Postal Outlets	99 16 634

Source: Adopted from Draft ICT policy, 2013

Bandwidth speed

In 2012, Internet users in Kenya represented 32.1% of the country's population, growing 252.2% over the prior 5 years. Speed test results for 2013 showed an average of 0.80 Mbps download and 1.75 Mbps upload speeds across all mobile, tablet, and desktop devices tested. However, the speed has increased due to the replacement of most GSM platforms in the Country with first, second, third and in some places fourth generation communication platforms. Safaricom limited, Wananchi-ke, Communications Solutions and Kenya Education Network are among the many Internet Service Providers (ISPs) delivering broadband to Kenya.

Current ICT Initiatives and projects

There are a number of ICT Initiatives and projects ongoing in Kenya including the Laptop Programme for primary schools, Digital Inclusion Projects (Pasha Centers/Digital Villages,

Wezesha Initiative), Business Process Outsourcing (BPO), Local Content Programme (Tandaa .Digital Content Grants, Open Data Portal), Information Security and Other Initiatives (Konza Technology Park, zero-rated taxes on imported ICT hardware, E-Government and Skills Programmes) as part of digital inclusion initiative.

Table 12: Current ICT Initiatives and Projects

Initiative	**About**
Pasha Centers (Digital Villages)	To provide Internet access, e-government services and other e-services at the grassroots level via public-private partnerships
Wezesha	is a Laptop Initiative to provide a subsidy towards purchasing a laptop for registered university students funded by World Bank
Kenya Open Data	Site for source of information about Kenya
Konza technology Park	Aims to set up a technology park at Konza as part of the Vision 2030 Flagship Programmes. It connected in 2009 The main objective of developing an ICT park is to enable job creation as well as being an avenue for providing the necessary environment for attracting investments. It is anticipated that the first phase of Konza City will create over 17,000 direct and indirect jobs
E-Government	The e-Government Programme was launched in June 2004. Some of the key online services available through the e-government initiative among others include: Application of public service jobs online, Tacking statutes of ID and passports, submission of tax returns, custom services and business licensing e-registry.
Laptop Programme for Primary Schools	The Government of Kenya is set to roll-out a laptop programme for primary school children estimated to cost KES. 53 billion

ICT Compliant Sectors and Institution in Kenya

Information communication technology in Kenya plays a key role in everyday lives of the people. Kenya is one of the top 5 fastest growing nation in terms of telecommunications and ICT infrastructure. Many sectors and institutions have embraced the use of ICT in improving service delivery. Some of the sectors that are ICT compliant include telecommunication industry, health, agriculture, finance, education, and the Government. For instance, the government has adopted the use of ICT in finance by establishing an Integrated Financial Management Information Systems. Other ICT platforms established by the government include Huduma centres and E-

citizen among others. ICT has been used more in the private sector as compared to the government. Among others they include, the use of mobile money transfer systems like M-Pesa, Airtel money and Equitel.

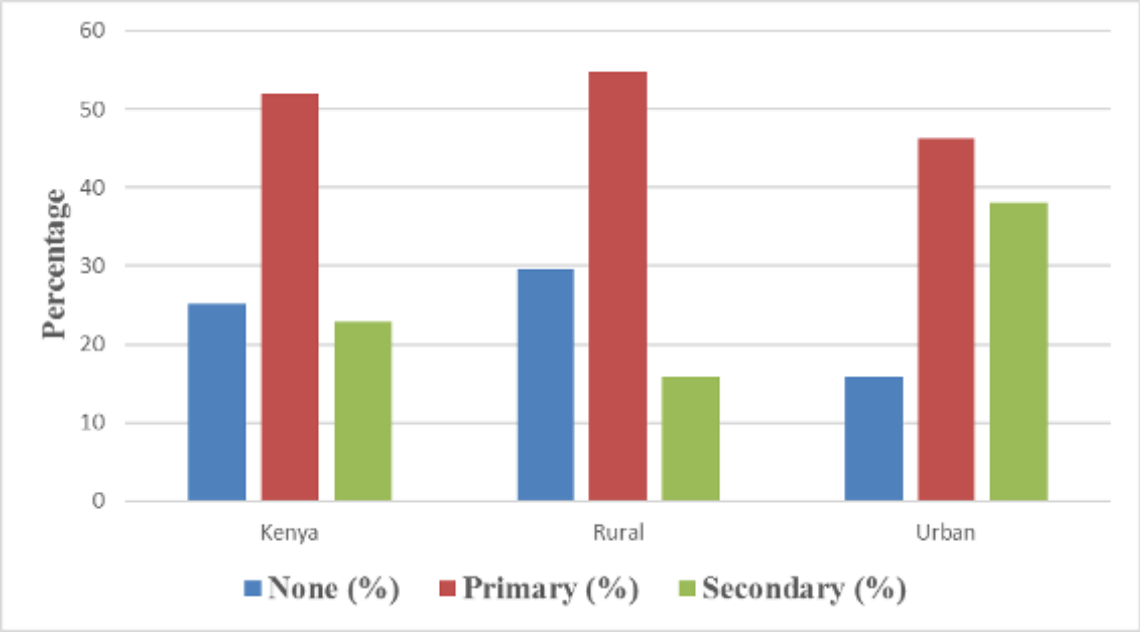
2.7.3 Social Infrastructure

i. Education

Higher education encompasses universities, technical, industrial, vocational and entrepreneurship training. These have been established without any rational criteria and therefore unevenly distributed with most of them located in the urban areas.

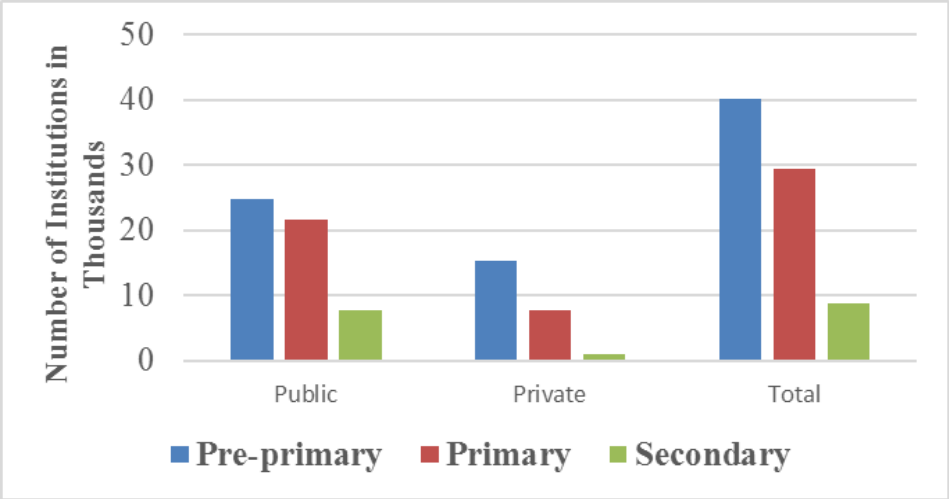
The first university was established in 1970 (The University of Nairobi). The higher education sector was liberalized in 1998 when the University of Nairobi admitted its first set of self-sponsored students. There are 22 chartered public universities and 9 public university constituent colleges. Some of the common courses and programmes offered in Kenyan Universities include; ICT and engineering programs in JKUAT University, teaching in Kenyatta University as well as medicine and business in The University of Nairobi.

Figure 15: Proportion of Population by Education Level



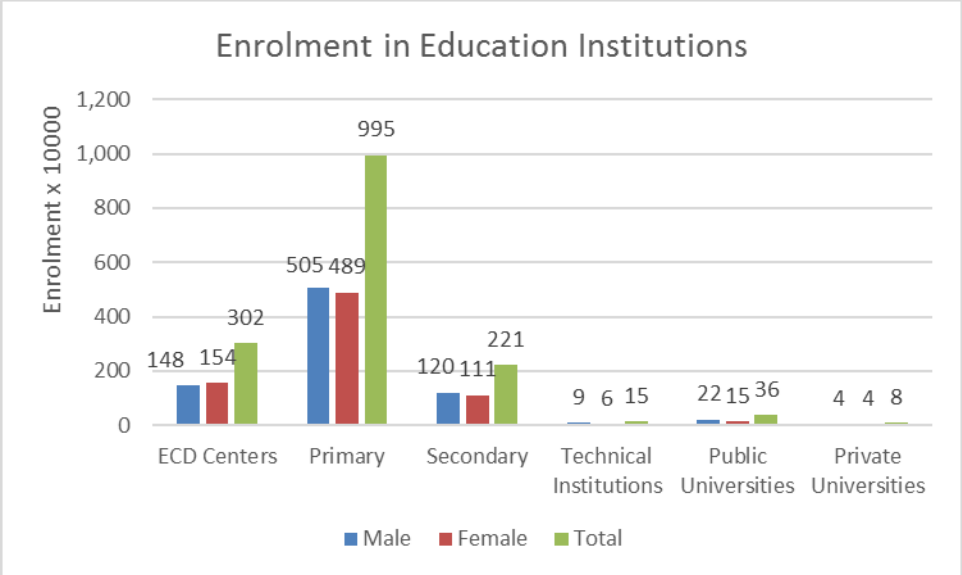
Source: 2009 Kenya Population Census, 2010

Figure 16: Number of Education Institutions in 2014



Source: Economic Survey, 2015

Figure 17: Enrollment in Educational Institutions



Source: Economic Survey, 2015

ii. Health Care

Health facilities are distributed regionally, with the most sophisticated services available in the major cities or only at the national level. At the top of the service spectrum are the National, Referral, and Teaching Hospitals (NRTH) i.e. Kenyatta National Hospital in Nairobi and Moi Teaching and Referral Hospital in Eldoret. The next best level of care is found in the provincial hospitals, followed by sub-district hospitals. Beneath the sub-district level, there are health centres, dispensaries, and at the bottom of the heap, community health organizations.

In 2008, there were 6,190 health facilities in Kenya, the equivalent of 16 facilities per 100,000 people, or 11 facilities per 1,000 km^2. On a regional level, Rift Valley and Western regions have the least number of hospital beds per 100,000 population, with only 13.6 and 15.4 beds per 100,000 population, respectively. The highest number of beds is found in Nyanza region, with 30.3 beds per 100,000. In Northeastern regions, there are only 16.1 beds per 100,000 population, while this region also has the lowest healthcare utilization rate, at only 63.4%.

The distribution of health care facilities in rural areas is uneven and people cover long distances to access health care. The service provision in most areas in rural Kenya is below standard where Public hospitals are always in short supply of drugs and personnel. The hospitals lack requisite facilities like ambulances and cold rooms.

Table 13: Health Facilities (Public and Private)

Type	**No**
National Referral Hospitals	3
Provincial General Hospitals	9
District Hospitals	138
Sub-District Hospitals	137
Health centers	107
Dispensaries	4,624
Dental Clinics	30
Eye center/clinics	13
Lab (Stand Alone)	57
Nursing Home	199
Regional Blood Transfusion	2
VCT Centre Stand alone	174
Medical centers	29
Medical Clinics	3,183
Maternity home	49

Source: E-health Kenya, 2015

Table 14: Number of Registered Medical Personnel, 2014

	No.	**No. per 100,000 population**
Doctors	9,149	21
Dentists	1,090	3
Pharmacists	2,355	5
Pharmaceutical Technologists	7,041	16
Registered Nurses	41,371	96
Clinical Officers	15,960	37
Public Health Officers	9,039	21
Public Health Technicians	5,969	14

Source: E-health Kenya, 2015

iii. Sporting Infrastructure

Kenya has two main international stadiums (Kasarani & Nyayo) both located in Nairobi. There are other grounds in urban areas across the country referred to as ‘stadiums’ but which are deficient in terms of land size and auxiliary facilities. These grounds were under the management of the respective local authorities. Due to financial and poor institutional linkages these grounds have remained undeveloped and in some instances have been encroached

2.8 Land Use Patterns

2.8.1 Land Cover

The land use pattern in Kenya is mainly determined by economic, institutional and physical structures hence it can be classified as:

i. Agricultural
ii. Built up areas
iii. Conservation

They are uneven across the country due to climatic conditions such as temperature, rainfall, humidity, slope, and other physical features as well as the level of development and technology.

Reason for changes in land use patterns also include

i. Increasing population
ii. Rising demand for food and other cash crops
iii. Increasing urbanization
iv. Rising standards of living

2.8.2 Agricultural Land

Land is a factor of production for agriculture sector enterprises, food security enabling the sector to contribute significantly to the economy; 24 % to the Gross Domestic Product and 60 percent of the export earnings.

Land is the most important resource from which the country generates goods and services for the people. The national economy is primarily agro-based 90% of the population living in rural areas derive its livelihood directly from land. Agriculture is determined by factors such as climate, hydrology and terrain.

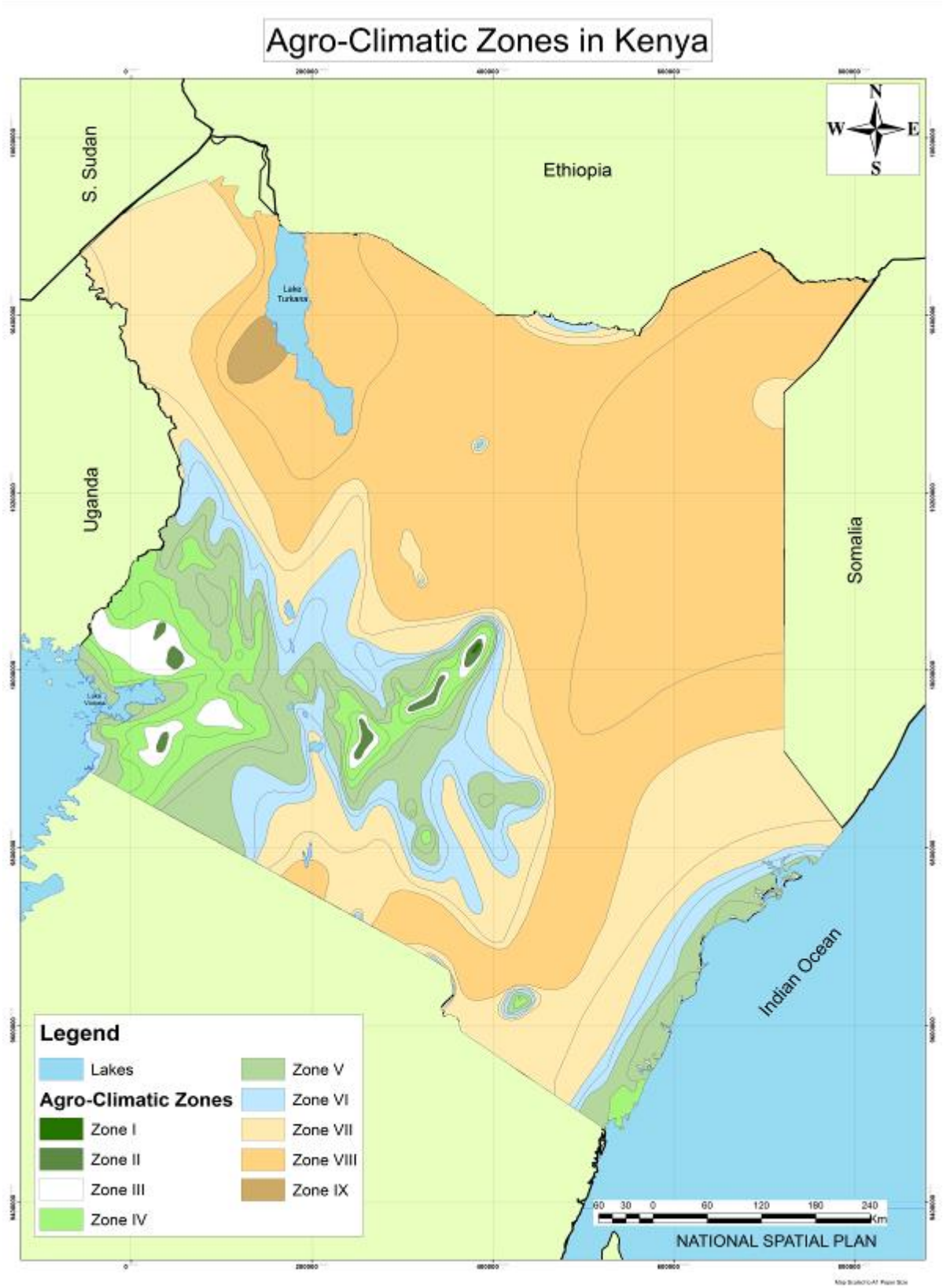
Agricultural land is classified into various agro-climatic zones which determine the suitability of an area for a particular land use as per the table below

Table 15: Distribution of Agro Climatic Potential in Kenya

Agro climatic zone	**Potential land use**	**Area in Ha**	**% of the total land**
i-iii	Medium to high: Agriculture, livestock (intensive), forestry and water catchment	8600	15%
iv-v	Marginal to medium: agriculture (drought tolerant crops), forestry, livestock (ranching) and wildlife conservation	11500	20%
vi-vii	Marginal, livestock (extensive pastoralism) and wildlife conservation	37,400	65%

The country is divided into seven agro-climatic zones based on a ratio between annual rainfall and potential evaporation, and temperatures as depicted in the map below. Crop and livestock production is practiced in all the agro-climatic zones depending on many other factors key among them being rainfall amount and its distribution, soils and other climatic factors, social cultural factors, market demand, cost of production, and availability of technologies to support the chosen enterprises.

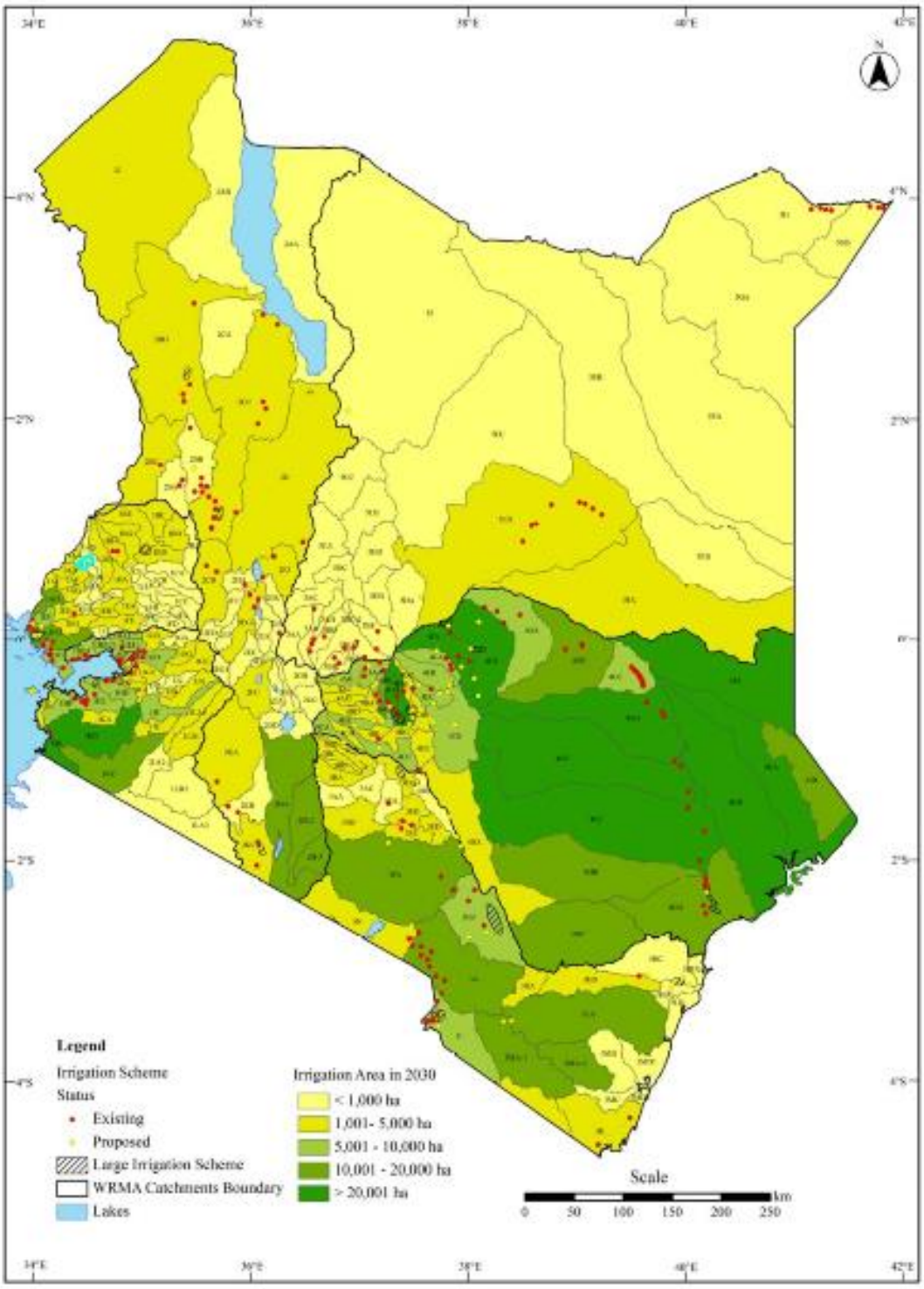
The biggest threat to agricultural land is fragmentation arising from high population growth rate and competing land uses such as urbanization. Land productivity also reduces due to underutilization of agricultural potential areas. Rich agricultural land has also been lost to real estate development and other urban development uses.



Map 25: Agro Climatic Zones in Kenya

Source: Kenya Agricultural and Livestock Research Organization, 2015

Irrigation Areas in Kenya



Map 26: Proposed Irrigation Areas
Source: National Water Master Plan, 2012

2.8.3 Urban land

Kenya's urban areas are centers of innovation, industrialization, education science and technology and culture. According to 2009 census one out of every three Kenyans lived in urban areas implying that out of the 38.6 million total population, 32.3% or 12.5 million Kenyans (70% of who live in informal settlements) lived in some 108 designated urban centers with population ranging between 20,000 and 3 million. Kenya's development blue print, vision 2030 estimates that by the year 2015 the level of urbanization will have reached 44.5% and eventually the percentage is set to reach 54% by 2030 with nearly 30 million people living in urban areas. The urban population generates over 65% of the national GDP.

Lack of policy framework to guide urban development thus a persistent characteristic of urban development in Kenya is the spontaneous growth and haphazard development of urban centres.

The ever-increasing population, advanced standards of living, and unemployment for the growing urban youthful population, coupled with irregular land allocation systems and land-grabbing have led to proliferation of slum dwellings which are homes to majority of urban population (low income). Slum dwellings are characterized by insecure tenure and inadequate access to basic services.

Urban land use patterns are also influenced by accessibility (lower transportation costs) and land rent which makes locations advantageous. This is characterized by concentration of development along both sides of major transportation routes such as roads, navigable rivers or other forms of transport networks.

Uncontrolled outward expansions of urban development from the urban center have led to urban sprawl. Urban and peri-urban areas have also experienced fragmentation of land into uneconomic units while large holdings of land remain underutilized. This has resulted in changes in land use patterns, depletion of agricultural land and land use conflicts. In addition, there is a notable shift from horizontal to vertical developments

2.8.4 Environmental Conservation Areas

i. Forests

Forests cover only about 5.9% of Kenya's land area. About 10 per cent of the population lives within five km of Kenya's indigenous closed-canopy forests and derive direct benefits from them, and in some areas, as much as 70 per cent of the income in households adjacent to forests comes from forest activities.

Forest cover has been reducing as a result of encroachment by the land less, pressure for agricultural land (Settlement), intense traditional activities and climate change. Deforestation and

removal of vegetation cover has led to noticeable reduction of productivity of water sheds, erosion and increase in flood risks.

ii. Wetlands

Wetlands cover about 3 to 4 per cent of the land and include deltas, creeks, lake shores, rivers, marshes, ponds, dams, and mountain bogs. Wetlands provide ecosystem services such as filtering and storing water, protecting coastlines from erosion, and as wildlife habitats. They could be natural or artificial and the water is permanent or temporary.

The benefits of wetland include ground water recharge, flood control, shoreline stabilization, erosion control, sediment and toxicant retention, nutrient retention, biomas export, wind breaks and recreational and tourism spot. They are also habitats for fish spawning, forage reserves for livestock, provide agricultural land supply water and are biodiversity reserves

The major threat is reclamation into farm land and pollution

iii. Water bodies

Surface waters cover about 2% of Kenya's land surface this includes both saline fresh water bodies in form of Ocean, lakes, rivers, and dams. Majority of Kenya's lakes are in the Great East African Rift Valley and include closed and open basin systems. Most of the lakes are saline with the exception of Victoria, Naivasha, and Baringo. The major rivers are Tana, Yala, Athi, Nzoia, Nyando and Ewaso-Ng'iro. Surface water bodies are fed by five "water towers" representing the country's major drainage areas in the highland's forested catchments.

Water bodies faces pollution due to urban and industrial waste disposal which reduces water quality leading to loss of biodiversity through deaths of aquatic plants and animals. Most of the affected rivers are those that flow within the commercial and residential areas. Water bodies also face a constant danger of siltation following increased soil erosion especially during rainy seasons. Uncontrolled sinking of boreholes diminishes underground water.

Diversion of water mainly for agricultural purposes either upstream, or downstream, reduces the flow and level of water leading to water use conflict.

iv. Wildlife

Wildlife is a valuable resource to our country's economy through the tourism sector. Research shows that over 70% of the country's national parks, national and game reserves are found in the ASALs which also hold two-thirds of the livestock population. Although wildlife is presently protected from poaching, they still compete with livestock for water and forage. Only 8% of the land area is gazetted for wildlife conservation and include some of the gazetted forests and marine parks.

Kenya has diverse and abundant wildlife resources. They include national parks, reserves and other protected areas. Categories of conflict include, damage of wildlife on human beings, crops

and livestock on one hand and human causing damage to wildlife through poaching and destruction of their habitat. These are intense where crop land border national parks

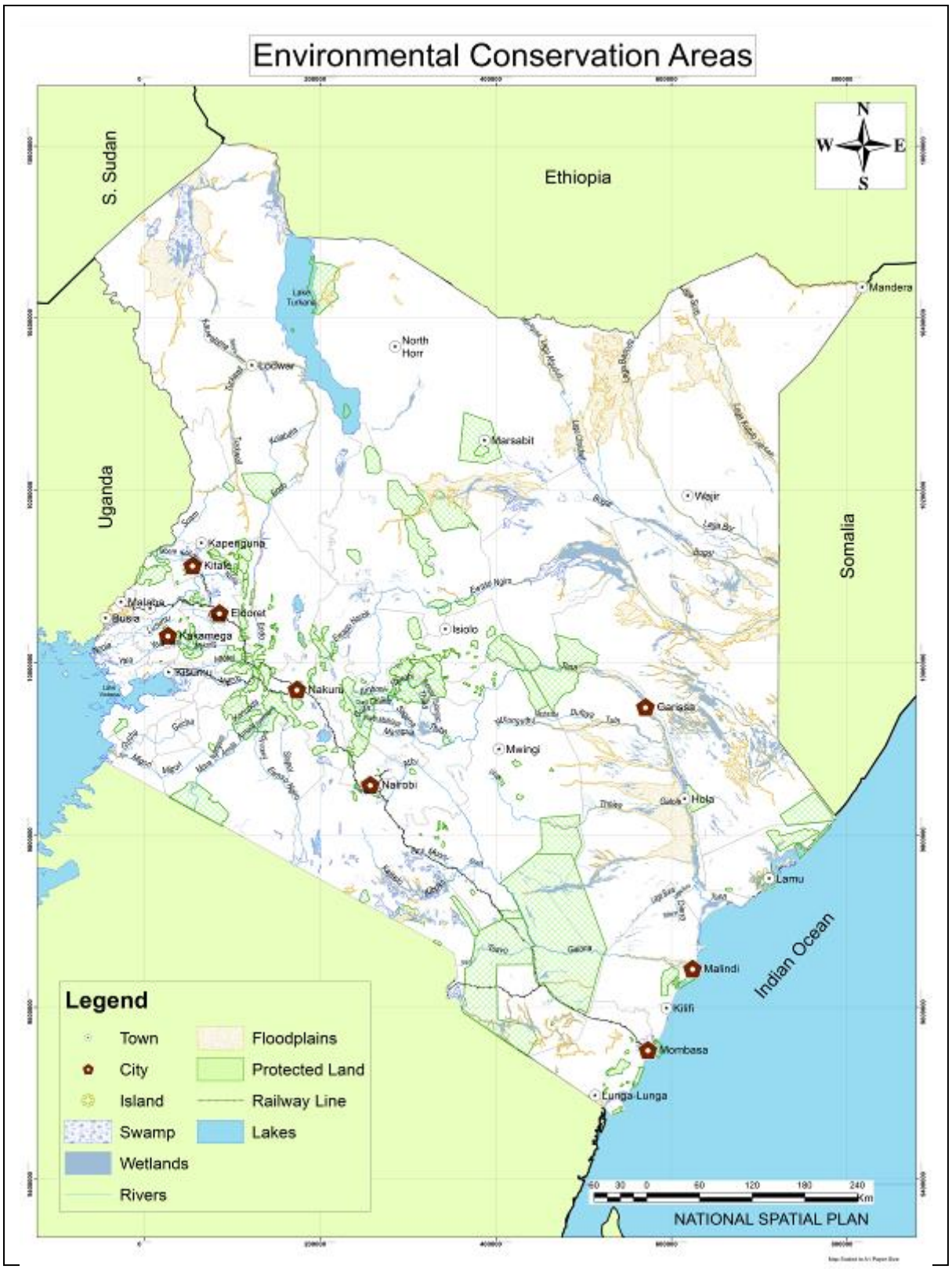
v. Rangelands

About 80% of Kenya's land is classified as rangelands, which are characterized by low and unreliable rainfall. Rangeland resources are enormous but the ecosystems are fragile requiring appropriate management strategies to ensure sustainable productivity. Animal production through pastoralism and wildlife management are the main form of rangeland use with little agro-pastoralism. Overstocking and overgrazing are the main challenges facing rangelands in Kenya. The table below shows the percentage changes in the land use patterns.

Table 16: Land Use Patterns in Kenya

Total Areas	**2000 Ha**	**2010 Ha**	**% of Change**
Agriculture	7,242,066	7,408,341	2.3
Range land	36,518,205	36,517,633	0.0
Trees	10,601,906	10,464,454	-1.3
Forest Plantation	108,461	98,870	-8.8
Urban Areas	82,710	89,294	8.0
Water	1,463,815	1,440,852	-1.6

Source: Kenya Department of Resource Surveys and Remote Sensing (2013)



Map 27: Environmental Conservation Areas

2.9 Human Settlement

2.9.1 Overview

Human settlements are concentrations of activities and people, whether they are the smallest village or the largest metropolis. To be productive, economic growth requires some degree of concentration of activities and people to secure some degree of economic and technical efficiency. Human settlements therefore play an essential role as agents of economic growth by providing favorable locations for productive investment. Consequently, the development of human settlements is a critical process in the transformation of traditional/rural societies into the modern/urban state. It is worth noting that it is in urban areas that most activities and processes which are usually associated with modern economic and social progress most immediately present themselves, but it is also here that the problems of degradation of the environment and human qualities of life are most acute[5]. The changes necessitate planning for human settlements as part of the National Spatial Plan.

2.9.2 Functions of Human Settlements

Human settlements are considered as focal points for commercial, industrial, administrative, infrastructure utilities and services required by the population. They perform three main functions which include, Service, Economic and Residential functions.

Figure 18: Functions of Human Settlements

[5] Human Settlements in Kenya, 1978

2.9.3 Human Settlement Patterns in Kenya

Human settlement patterns in Kenya can be classified as:

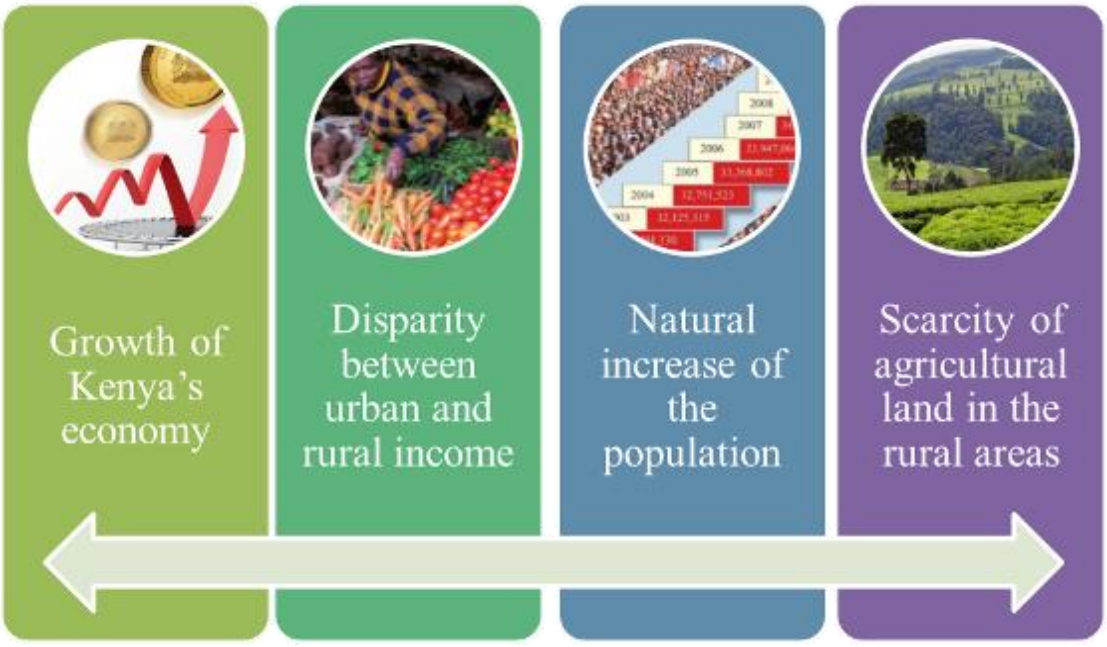
i. Nucleated – urban settlements come to existence because of rural-urban and inter-urban migration.
ii. Dispersed and Clustered – this refer to the traditional rural settlements and those grouped homesteads arising from the nomadic nature of the various pastoral communities. Clustered settlements are those that are concentrated at some places and they are brought together by culture among other reasons. For example, most pastoral communities such as the Maasai, Samburu, Turkana live in Manyattas
iii. Linear – these are settlements along transport corridors or along rivers.

Most of these settlement patterns are structured mainly by

- Climate
- Topography
- Transport corridors
- Resources in particular regions

Urban settlements will expand because of the increasing rate of urbanization. The following factors will continue to determine the rate at which the proportion of people living in urban areas will increase

Figure 19: Factors Impacting on Urbanization



Source*: Adopted from Human Settlement Strategy, 1978*

2.9.4 Urban Settlement

Urban areas have been branded as "engines of development and centers of innovation, technology and catalysts for economic development. In 2014 the urban population was estimated at 40%. Kenya's Vision 2030 envision that by 2030 the level of urbanization in the country will be more than half of the total population.

In Kenya, urban population generates over 65% of the National Gross Domestic Product (GDP) and Nairobi alone contributes 50% of the GDP to the National economy (World Bank, 2010)

Role of Urban Areas

Urbanization is a population shift from rural to urban areas. It is the gradual increase in the proportion of people living in urban areas and includes the ways in which each society adapts to the change. It predominantly results in the physical growth of urban areas, be it horizontal or vertical.

The functionality and livability of an urban area includes an array of issues that are underpinned by a common set of guiding principles: accessibility, equity, and Livability is defined as 'quality of life' experienced by the residents within a city or region. The quality of life experienced by citizens living in a city is tied to their ability to access infrastructure (transportation, communication, water, and sanitation); food; clean air; affordable housing; meaningful employment; and green spaces and parks. The differential access of people within a city to the infrastructure and amenities highlights questions of equity. The livability of a city is also determined by the access that its residents have to participate in decision-making to meet their needs.

The importance of urban areas cannot be gainsaid as they have been branded as "engines of development" since they create an enabling business environment that encourages industrialization, commercialization, innovation, education, science and technology and all forms of desirable elements of development. In Kenya, urban population generates over 65% of the National Gross Domestic Product (GDP) and Nairobi alone contributes 60% of the GDP to the National economy (World Bank, 2010). The NSP seeks to catalyze the growth of more urban centres to increase their contribution to GDP and collectively contribute towards the achievement of the desired annual 10% GDP growth rate for the country.

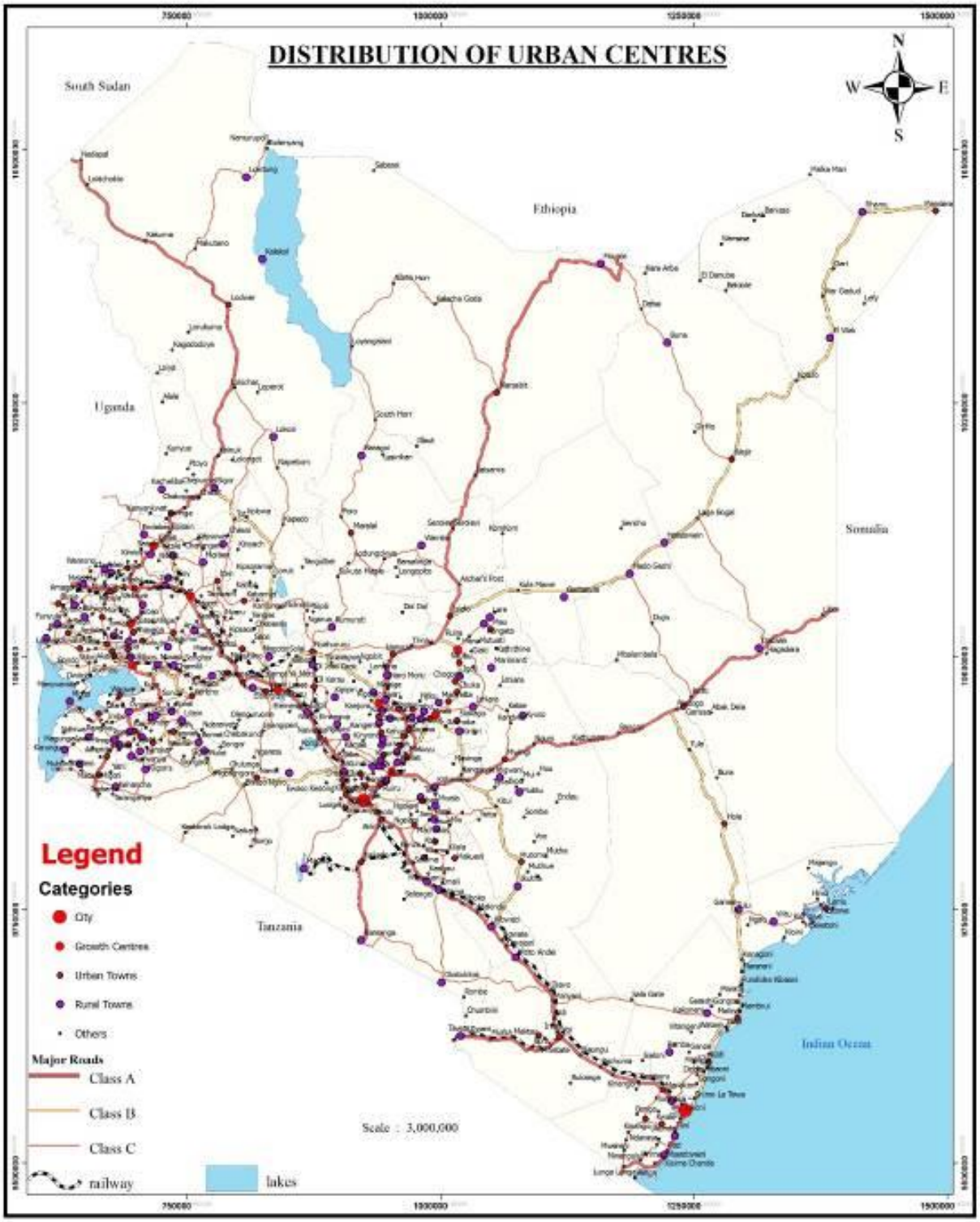
Kenya does not have an urban development policy and the growth of towns has been occurring spontaneously and randomly which has created many challenges. The NSP provides strategies and policies to guide future growth of towns and assignment of roles to different urban areas. It is however, important that an urban development policy be formulated to complement the NSP.

Nature and Pattern of Urban Development

The first attempt at creating an urban structure was through the ***Human Settlement Strategy of 1978*** which advocated for the development of two types of centres; the development of service centres and growth centres. The service centres were further grouped into designated local, market, rural and urban centres. The Growth Centres identified in this strategy were thirteen in number but immediate attention was to be concentrated and diverted to nine growth centres distributed evenly across the country's territorial space. These were Nakuru, Kisumu, Thika, Eldoret, Kitale, Kakamega, Meru, Embu and Nyeri. The Growth centres were to act as magnetic poles of development aimed to *"counter excessive urbanization of Nairobi and Mombasa*" and "counteract *the dualistic nature of the economy by tapping development potential in hitherto neglected areas*"(Human Settlements Strategy 1978). Nairobi and Mombasa were identified as the two major cities in this strategy and they have maintained their position as the major cities of the country.

The main role of service centres was to provide services to the rural hinterlands thus balancing development at the local level. This model of urban structure was ideal and has since been borrowed, replicated and implemented in many countries with great success. However, in Kenya, the strategy was implemented in as far as establishing clear administrative centres which have lacked a competitive economic edge. The strategy was also not supported by clear infrastructural investments in these towns and has been responsible for the persistent deficit of basic urban services in the country's towns.

Development of urban areas has mainly been shaped by the development of the Northern corridor which runs from Mombasa to Malaba. This was further strengthened by post-colonial government policies which concentrated development within the high potential areas of the country. This led to the concentration of towns within the central part of the country with the northern parts having very few and under developed towns as demonstrated in the map below.



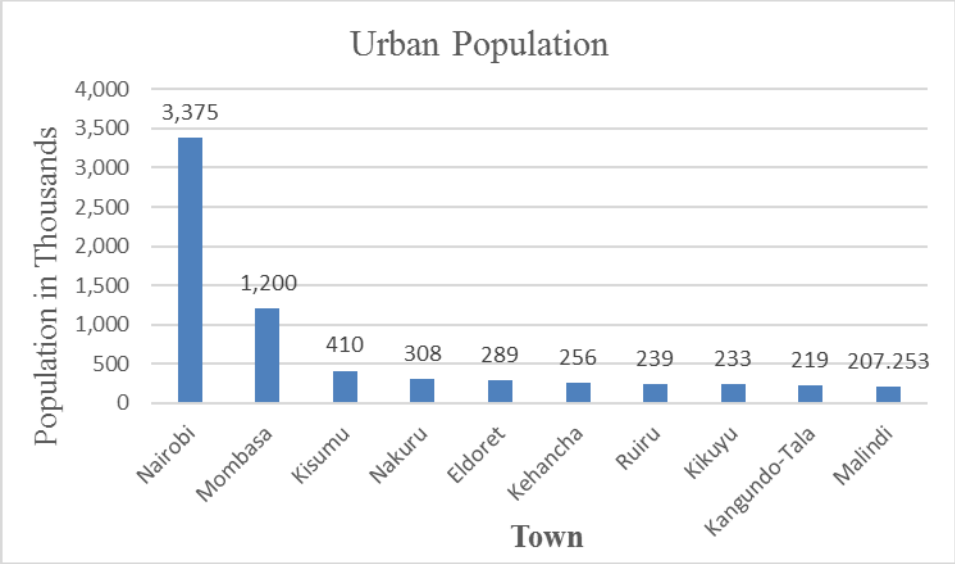
Map 28: Urban Centers in Kenya

Data Source:Survey of Kenya

2.9.5 Urbanization Trends in Kenya

Currently, 32.5% of Kenya's population lives in urban areas. Kenya's development blueprint (Vision 2030) envisions that by 2030 54% of the country's population will be residing in urban areas. This trend calls for urban containment so as to release land for agriculture and other activities such as tourism, conservation and rural settlements. However, the urban areas are characterized by non-functional transportation systems, deteriorating urban ecology and urban decay, insecurity, governance issues such as mismanagement of resources and poor service delivery among other challenges. This means that most cities and urban centres in Kenya are not functional and livable.

Table 17: Population of the 10 most Populous Towns in Kenya



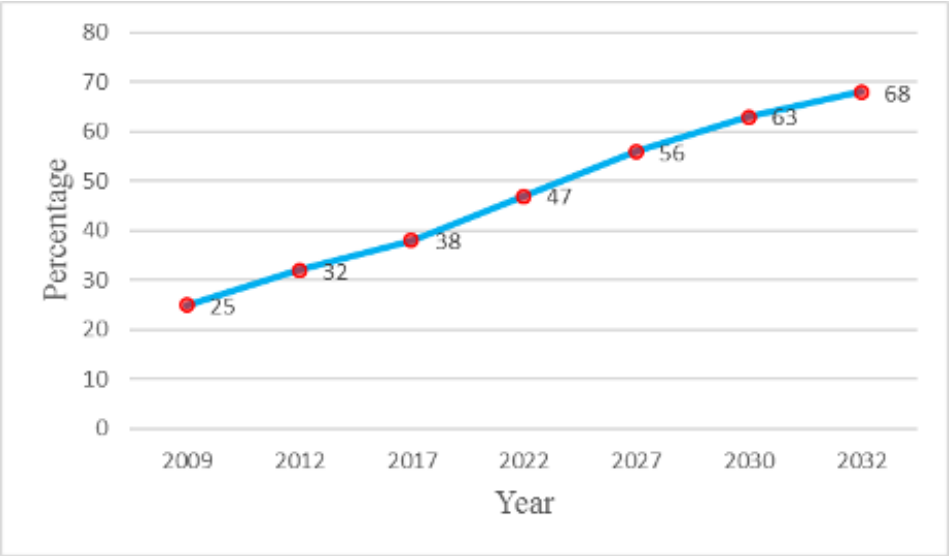
Source: World Bank, 2010

Table 18: Trends of Urban Growth in Kenya

YEAR	TOTAL POULATION	NO. OF URBAN CENTERS	URBAN POPULATION	% OF URBAN TO TOTAL POPULATION	INTERCENSAL GROWTH RATE (%)
1948	5407599	17	285, 000	5.3	-
1962	8646263	34	747, 651	8.7	6.3
1969	10956501	47	1,076,908	9.8	7.1
1979	15327061	91	2,315,696	15.1	7.7
1989	21448774	139	3,878,697	18.1	5.2
1999	28159922	180	5,429,790	19.3	3.4
2009	38412088	230	12,023,570	31.3	8.3

Source: Adopted from KNBS, 2009

Figure 20: Urban Population Projections in Kenya



Source: Adopted from Kenya Vision 2030

Nairobi City

Nairobi is the capital and largest city in Kenya with an estimated population of 3.36 million people as at 2011 World Bank estimates. Apart from being the seat of the national government, it is the headquarters of Nairobi County. The city plays various roles and is the major business hub in Kenya and East Africa in general. It is a financial hub as well as a manufacturing city for products like building materials, processed foods, clothing and textiles, beverages and cigarettes among others. It is the regional and national headquarters of various business organizations such as Google, Coca Cola, and Airtel among others. Its importance is further demonstrated by the fact that its home to many embassies, international organizations, multi-national organizations and businesses including being one of the few countries in the world to host the United Nations headquarters.

The City of Nairobi has therefore grown in importance and requires to be strengthened as an international city of world class status. The NSP re-affirms that the city is the main gateway to the country and envisions it as an avenue with opportunities to leverage Kenya's global and regional competitiveness.

Cities of Mombasa and Kisumu

With a long history similar to Nairobi's, these cities have not kept pace with Nairobi's phenomenal growth but are currently the second and third biggest cities respectively. Mombasa,

the second largest city in Kenya, isa prominent business hub due to the presence of the port on the Indian Ocean coast. The city is an industrial and cultural centre and has an estimated population of 1 million people. The city is considered a gateway to the country and its growth and development is expected to continue being fueled by the port. Kisumu city on the other hand is the third largest city and boasts of an inland port.

Regional Hubs

These are former principal towns identified in the 1978 Human Settlement Strategy. They act as regional and county growth centres and include Nakuru, Kisii, Eldoret, Nyeri, Embu, Meru, Kakamega, Kitale, Thika and Kisumu. Kisumu has since grown to city status while Embu, Kakamega and Kitale have registered stagnation. Among them, the fastest growing centres are Nakuru, Eldoret and Thika. Nakuru has surpassed Kisumu in terms of population growth.

Metropolitan Regions

The six metropolitan regions identified under the Vision 2030 particularly towns along the 2nd transport corridor together with the special economic zones, techno cities will be game changers in developing a desirable hierarchy of towns across the country.

Under the vision 2030 six (6) metropolitan regions will be established to spread development and achieve regional balance. Major towns will be merged with smaller adjoining ones to spur growth. The metropolis are; Nairobi, Mombasa, Kisumu/Kakamega, Wajir-Garissa-Mandera and Kitui-Mwingi-Meru.

Border Towns

Towns in this category are the entry points into the country. To promote regional integration and cross border trade, critical infrastructural development such as roads and rail network shall be prioritized. The ongoing construction of one stop border posts at several crossing points will scale up regional trade. Border towns including Taveta, Lokichogio, Liboi, Busia, Lunga Lunga, Namanga, Mandera, Malaba, Isebania, Busia, Lwakhaha Moyale, Lokichogio, Vanga, Elwak and Loitokitok have to be planned and provided with the requisite infrastructure and services to make them more functional as border towns.

Gateway Towns

Gateway towns form a special cluster of urban centres in Kenya. Their functionality and livability need to be enhanced to make them attractive and competitive since most of them lack basic infrastructure and services such as roads, health institutions, clean and safe environments. Major gateway towns with international airports and sea ports are Nairobi, Mombasa, Kisumu, Eldoret, Wajir, Isiolo and Lamu. Others include; Bungoma, Migori, Kajiado, Garissa, Voi, Diani and Lodwar.

Principle towns of Nakuru, Eldoret, Kakamega, Meru, Nyeri and Embu which are former provincial headquarters and located in high potential areas which have attracted investments in industry, infrastructure, education, real estate among other sectors. These towns will continue to grow as regional growth centres serving their different regions.

County Headquarters

All the forty seven county headquarters have gained new impetus for growth and investment given their role as administrative and commercial centres of their respective counties. This is due to their new status as the capital towns of the counties. The towns have experienced renewed investments in real estate developments, education and commerce. With enhanced investments, these towns are likely to experience increased migrations as people move in search of employment and other opportunities. This category of emerging town's needs to be guided through proper planning and setting of growth limits. The counties require to be guided in terms of priority areas for infrastructural investments to ensure that they reap the greatest benefits in terms of positioning the towns for investment.

2.9.6 The Urban Challenge in Kenya

i. Skewed Spatial Distribution of Urban Centres

The distribution of urban centres is not balanced across the country. Urban centres have tended to be concentrated along major transport corridors, south and north rift, western central and upper eastern. The distribution is sparse in northern Kenya, lower eastern and parts of coast province. This is indicative of infrastructure provision and deliberate policies to develop the former white highlands. The scenario is bound to change once the second corridor is completed and resources are fully devolved to counties. A deliberate distributive policy is required to promote urbanization in hitherto marginalized regions (See Figure 1- National Spatial Development Strategy).

Primacy of Nairobi

Nairobi has remained the primate city in the country with a population of 3,375,000 persons more than the population of the two other major cities combined (1,609,928). This gives it dominance over all urban areas thus deliberate mechanisms are needed to spur growth in other urban areas.

ii. Urban Sprawl and Informal Settlements in Peri-Urban Fringes

Kenya's urban centres have tended to grow inorganically, sporadically and spill over the jurisdictional boundaries to the periphery mainly along the transport lines and only a desirable urban form character is recognizable within the Central Business District. The areas experiencing this spill over mostly have an inadequate urban planning framework/policy or development plans. As a result these areas develop haphazardly confining urban planning to being re-active

rather than being pro-active. Urban area boundaries have continued to extend resulting to blurred distinctions between the urban and rural areas. As land values in the periphery continue to increase more subdivisions are undertaken resulting to uneconomical plot sizes. This scenario makes provision of services such as water, sewer and electricity very expensive. A strategy to contain urban sprawl and delineate urban boundaries is urgently required.

iii. Inadequacy in Functional/Role Specialization of Urban Centres

Urban places are characterized by absence of role specialization. Most towns are administrative and service centres. Potentials in the hinterland such as agriculture, tourism, sports, mining, trade and industry, value addition and rangelands are fully unutilized. The linkage between the centres and the hinterland is not well defined. Rural populations are not fully empowered to gainfully engage in productive activities to promote the urban centres. There is evidence of ghost towns in central Kenya which have collapsed due to decline of agricultural activities which earlier triggered and supported the growth of urban centres. In Kenya, there is opportunity to develop tourist towns, industrial towns, border towns, administrative towns by undertaking an analysis of the strengths of each town and leveraging on their competitive advantages. This will require investment in infrastructure to support the identified function/role.

iv. Informal Settlements

A combination of inadequate and need for planning including other dynamic urban processes have led to proliferation of squatter and informal settlements as common features of urban centers in Kenya. They are characterized by inadequate housing, insecure tenure, environmental degradation and inadequate access to basic services. These are caused by myriad factors including lack of proper planning and poor implementation of plans where they exist, poor policies on land use and failure to enforce development control regulations. Whereas informality may need to be recognized as mode of urbanization in the production of urban space, a deliberate policy for prevention of squatter and informal settlements including other mechanisms may need to be developed to address the general inadequate and need for planning in Kenya.

v. Unreliable transport systems

The urban centres in Kenya lack functional and integrated transport systems leading to traffic jams and long commuting hours. This is especially true for the cities of Nairobi and Mombasa. The major towns on the other hand feature poor road conditions, poor linkages and connectivity with the hinterland and a low accessibility index. The collapse of public transport in urban areas has led to increased use of private cars which compromise the principle of social equity and inclusion. An increase in the use of private cars adds to air pollution, congestion and overstretched road capacities. There is poor modal interchange among the various modes and over reliance on road transport.

vi. Poor implementation of development plans and planning policies

In Kenya, there has been a challenge of development plan implementation which in many instances has been attributed to the lack of financial resources, political good will, lack of plan ownership and inadequate human resource capacity for plan implementation. Poor plan implementation manifests in haphazard and chaotic location of industries, residential and commercial facilities. This coupled with lack of strong instruments for plan implementation relegate the function of urban planning to that of being re-active rather than pro-active.

vii. Land and Governance Issues

Urban Governance issues have dominated the urban scene in Kenya and include land tenure issues, insecurity, corruption, poor institutional structures and poor service delivery. Land for development is not readily available and even where it is available it is encumbered with lengthy and unclear registration procedures. There has been no deliberate attempt at land reservation for investment. Allocation of land for speculative purposes is evidenced by large parcels of land lying idle in urban centres.

Poorly serviced land or lack of any services makes land not readily available for development and therefore discourages investors. Strategies, policies and measures are therefore required to avail serviced land for development in urban areas.

viii. Inequality in urban areas

Inequality in Kenyan urban areas is manifested by the gap between the rich and the poor in terms of income, education, Health care etc. Policy makers and development strategies need to aim at improving living conditions as well as reducing the inequalities in urban areas and enhance inclusivity in urban areas.

Loss of Public Spaces and Land - Urban areas in the country have lost their public spaces to private hands (through land grabbing), car parking's or other urban activities. The meeting places have been lost and children play grounds are no more.

Opportunities

The formulation of a national spatial planning framework, as implicitly conceptualized in the introductory chapter, provides the best opportunity to redress the aforementioned problems. In particular the proposed second largest transport corridor (LAPPSET) is expected to spur growth of urban centres particularly in the northern parts of the country which were hitherto least urbanized. These centres include Lamu, Garissa, Isiolo, Lokichar, Lodwar and Marsabit. A deliberate effort of NSP is to direct infrastructural developments in these towns to spur their growth and that of their hinterland areas.

The devolved government structure and resources of 47 counties creates an opportunity for development of 47 strong administrative centres. These centres will act as poles of growth and offer an opportunity for implementation of a new hierarchy in each county. These centres will be critical in not only servicing rural areas but also in absorbing populations from the rural areas once opportunities for employment are created. NSP aims to have these towns to be developed to be able to attract investment.

Policy backing under Kenya Vision 2030 advocates for development of six metropolitan regions. This gives further backing to the need to develop the urban areas due to their recognized role in national development.

- The emergence of the ICT sector that gives urban centres a new dynamism.
- Increased participation of private sector in urban development initiatives
- Other policy led initiatives for special feature towns like the techno city, Special Economic Zones, resort cities among other initiatives.
- Enhanced investment in infrastructural projects such as the Standard Gauge Railway (SGR), the renewal and redevelopment of the Northern Corridor, expansion of the airports all these are expected to catalyze the growth of towns.
- Emphasis on plan development with counties required to allocate budgetary provisions only on the basis of a plan. This is further strengthened by adoption of integrated development model.
- Promote Conference tourism in other urban areas in the country

2.9.7 Rural Settlements

In the context of the National Spatial Plan, rural development is conceived as the process of improving the quality of life and economic wellbeing of people living in rural areas through the improvement of agriculture and allied activities; village and cottage industries, crafts, socio-economic infrastructure, community services and facilities, tourism, and human resources in rural areas.

Nature and Pattern of Rural Development

According to the National Land Policy, 2009 the National land surface can be classified into four distinct geographical and ecological regions or zones with different patterns of land use, namely; the coastal plain, the arid low plateau, the highlands and the Lake Victoria basin. Analysis of these regions reveals the following socio-economic dynamics.

There exists two distinct patterns that are closely linked to the pattern of population distribution and density, physiographic conditions and access to infrastructure.

a) Clustered settlements.

This pattern of settlement is widespread in the northern, eastern, north eastern (the arid low potential plateau) and some parts of coastal regions. This pattern is also as a result of majority leaving the rural areas for urban areas for jobs and other services. These areas were initially considered to be resource poor and of lower agricultural potential compared to regions found around the central part of the country. Although this region is the major supplier of beef products in the country, providing services in the scattered settlements has remained a major challenge due to the distances between them and owing to their temporary settlement nature. Hence they are characterized by low service provision and poor condition of physical infrastructure.

b) Dispersed settlements.

This pattern of settlement is found mainly around the highlands and Victoria Basin which stretch along the central, western and some parts of the Rift Valley regions. These areas are synonymous with the high and medium agricultural potential zones. The areas are characterized by adequate provision of infrastructure and services in comparison to their "marginal" counterparts. Favoring service provision in these regions has led to high demand of land for settlement and agricultural production hence rapid land fragmentation to uneconomic holdings and increased environmental degradation. These areas support both crop and livestock production.

Activities in rural settlements

- Crop farming
- Livestock keeping
- Fishing

Supporting rural development pays dividends, not just for rural people but for everyone. Investment in agriculture is five times more effective in reducing poverty than investment in any other sector. It helps sustain rural communities and transform them into places where a new generation of farmers, fishers and small business owners want to live. Rural development can also address the unequal access to resources that holds back women, who make up almost half of the developing world's farmers.

Constraints

a) Lack of research on production systems under unfavorable ecological conditions and in areas which are less well endowed with natural resources. One of the dilemmas is whether keeping fewer high producing animals is desirable or keeping more low producing animals is appropriate (to cover the risks).

There is precious little research on ways of augmenting feed and fodder resources in arid and semi-arid areas or areas with problematic soils (saline and alkaline soils with brackish water). More research is needed on traditional systems and indigenous knowledge of the farmers, which would enhance their capacity to survive under unfavorable conditions.

b) Climatic change/Variation. The effect of climate change has been felt mostly by the farmers especially due to dependence on rain fed agriculture. The changing and unpredictable raining seasons has greatly affected their ability to plan their farming activities. Areas which receive adequate rainfall now receive insufficient rainfall reducing the land that can support agriculture. This brings the need for more exploitation of irrigation farming especially in ASALs .It is estimated that intensified irrigation can increase agricultural productivity fourfold and, depending on crops, incomes can be multiplied 10 times

c) Extension services- The agricultural sector services plays a key role in disseminating knowledge, technologies, and agricultural information, and in linking farmers with other actors in the economy. The extension service is one of the critical change agents required in transforming subsistence farming to a modern and commercial agriculture to promote household food security, improve income and reduce poverty. However there is limited access to extension services

Other constraints include;

- Land fragmentation into uneconomical land holdings
- Urban sprawl which has resulted into rich agricultural land converted into urban land uses
- Land degradation due to poor agricultural practices
- Low level of value addition to agricultural produces
- Wastage of produce due to inadequate storage facilities
- High cost of farm input.
- Over dependency of rain fed agriculture
- Drought in the arid and semi-arid areas which lead to loss of pasture, and livestock
- Inadequate credit facilities
- Insecurity
- Inadequate research-

Rural Development Potentials

- Productive land for rain-fed agricultural production
- Ample labour force for intensive agriculture
- Favorable climate for various forms of production
- Expansive land for irrigation agriculture, settlement and conservation

- Available land for zero grazing, tethering and intensive grazing
- Rich resource endowment- potential for renewable energy, minerals, oil, underground water, recreation, tourism
- Cultural Diversity
- Setting up agro-industries in rural areas for value-addition of agricultural produce

Opportunities for Rural development

- Established institutions such as Kenya Agricultural and Livestock Research Organization (KALRO) International Livestock Research Institute. These promote research both on crops and livestock.
- Available market for agricultural produce
- Improving transport infrastructure; both in terms of internal connectivity and regionally.
- Various economic empowerment programs –
- Implementation of the National Poverty Eradication Programme (NPEP) which mandates the Government to create adequate employment opportunities by increasing domestic investments and savings to levels sufficient to support desired rates of economic growth and improve livelihoods. This would in turn raise the literacy levels and empower communities to manage their local resources.

CHAPTER 3: DEVELOPMENT STRATEGIES

3.1 Overview

This section seeks to provide approaches/strategies for spatial growth and development of the country by addressing factors that prevent the country from achieving the intended national goals and objectives. The strategies are aimed at providing a spatial expression to Vision 2030 and other sector policies. The development strategies discussed, are aimed at managing global impacts, optimizing the use of land and natural resources, promoting functional and livable human settlements, creating regional balance, transforming rural areas by modernizing agriculture, integrating national transportation, ensuring efficient and adequate infrastructure and conserving the environment.

The NSP has adopted a strategy of making the country more competitive by ensuring easier access to land for investment and providing high quality of infrastructure. This will be supported by an integrated transport system to ensure efficient and faster movement of people, goods and services.

The Urban system in Kenya is not well defined and the development of the urban areas has been spontaneous leading to many challenges including urban sprawl, congestion, lack of infrastructure and services and informality. The NSP proposes a strategy of selective concentration which will be based on role specialization in an endeavor to make the urban areas functional and livable.

In Kenya, a greater proportion of the population (67%) is still resident in the rural areas and derives their livelihood from agriculture. There is therefore need to develop a strategy for enhancing productivity through modernizing agriculture and increasing rural incomes. The strategy of optimizing land and natural resources has been adopted to ensure that the country's resources are identified and harnessed sustainably.

The environment is our heritage and must be conserved and protected for posterity. The NSP promotes the strategy of environmental conservation based on Environmental Sensitivity Analysis (ESA). The country has a rich diversity of environmental assets which require to be conserved and used sustainably.

The NSP formulates strategies in the following areas:

i. Managing impacts global competitiveness
ii. Optimal use of land and other resources
iii. Balanced Regional Development
iv. Rural Development
v. Urbanization

3.2 Managing Impacts of Global Trends

3.2.1 Overview

The principle aim of Kenya Vision 2030 is to make the country globally competitive and a choice destination for investment in the emerging service sector; Information Communication and Technology (ICT), niche tourism, knowledge industry and increase the share of manufacturing and industry in the Gross Domestic Product (GDP).

To actualize this aim vision 2030 has proposed a number of projects namely. Among the flagship projects proposed include developing of resort cities in Diani, Kilifi, Lamu Turkana and Isiolo, construction of Lamu Port Southern Sudan Ethiopia transport corridor (LAPSSET); improving the existing airports (especially JKIA and Moi International Mombasa) in order to meet international standards and to enhance their strategic position as international travel hubs; and as the gateways to Africa International Financial Centres such as the Eastern and Southern trade and Development Bank regional office in Nairobi. These projects are aimed as strategies of positioning Kenya as the premier service location in Africa, and thereby also encouraging foreign direct investments.

The purpose of this strategy is to support the aim of vision 2030 by assessing the advantages of the country, to attract and retain investment and formulate a strategy to provide the conducive environment that will enhance the objective of being globally competitive. The criteria for choosing the right locations shall be the locations that are already playing this role, and those with the potential to play this role. The attribute of such areas will include ease of connectivity/accessibility, have higher index of the infrastructure, relatively conducive environment for housing and recreation, availability of human capital, relatively efficient telecommunication and ICT facilities, availability of space to allow growth and expand whether vertically or horizontally and resource endowment,.

3.2.2 Emerging Global Trends

The in-depth analyses of the globalization processes indicate that the following trends are likely to emerge and which the country should embrace to be globally competitive.

i. Open market for goods and services

The opening up of global markets for goods and services means that only those countries which produce quality goods and at low costs compete favorably. Integration into the world economy has proven a powerful means for countries to promote economic growth, development and poverty reduction. Import liberalization provides competitions from imports which improve efficiency, quality and technology. It will also promote international quality for capital, goods and inputs available to our export industries and increase their competitive strength in the international markets.

Kenya faces several constrictions that limit its ability to harness the benefits of open markets for goods and services. The country's cost of production is high which is occasioned by energy, inefficient systems and outdated technology. This results to low quality of products and services. The country also faces the challenge of excessive debt levels which may discourage new investments.

These constraints can be managed through different measures. Production cost can be reduced by harnessing the diverse sources of energy including green and renewable sources. To capitalize on the open markets for goods and services, the country must produce efficiently in all economic sectors of manufacturing and industry, service industry, tourism and agriculture.

The NSP strategy for the country to benefit from open market for goods and services is to harness the renewable and green energy sources to increase the energy capacity and reduce the cost of production and improve quality of goods. Currently, the country has specific locations which can be utilized to produce solar power, wind power, bio energy, and geothermal energy. Kenya should also promote major economic reforms that include relaxing international trade and foreign investment restrictions, private ownership of businesses and property and relaxing state control over many aspects of the economy.

ii. Open Movement for Capital

This refers to the opening up of international capital markets to afford the country the opportunity to attract and retain increasing Foreign Direct Investments (FDI) in the different economic sectors. Kenya requires positioning herself as a low investment – high return destination to cope with this trend.

Currently, Kenya has a number of restraints to its ability to be a high returns destination on investment. High costs of production, inefficiency and outdated technology makes the country a low return destination. Capital flows expose the country to external disturbances and can have a destabilizing effect. Capital inflows may create difficulties for monetary policy management and inflation control and as well as for exchange rate stability and export competitiveness.

The country has several opportunities it can tap on in order to benefit from open movement for capital. Kenya needs to aim to identify and optimize locations and investment destinations which offer high return on investment at relatively low costs such as Nairobi metropolitan area, Mombasa, Nakuru, Kisumu and Eldoret. Resource based industrial activities should be located at the source of the resources to lower the cost of transporting the raw materials to the location of the industries.

To harness the benefits of open movement of capital, the country should locate export oriented industrial and manufacturing activities primarily in Nairobi and Mombasa so as to leverage on their already existing functional urban systems. The country should also allow location of such

activities in other selected urban areas such as Nakuru, Kisumu and Eldoret because they are emerging as high potential urban centres. Kenya needs to also encourage location of resource based industries where resources are located to cut down the costs of transportation of finished products.

iii. Increased reliance on knowledge workers to drive the economy.

The global economy is increasingly relying on knowledge workers to drive the economies. Knowledge is now recognized as the driver of productivity and economic growth. Knowledge workers are moving just like the global capital to attractive destinations that provide employment opportunities for themselves and their families. In the knowledge-based economy, the governance system contributes to the key functions of: knowledge production, knowledge transmission and knowledge transfer.

Kenya faces several constraints that it must work on to start attracting knowledge workers and retaining them. These challenges include lack of a conducive environment for knowledge workers and their families in the form of payments, facilities, housing, transport, safety.

The country has a number of opportunities that it can utilize to attract these knowledge workers. Kenya has locations and destinations which already offer a favourable atmosphere for knowledge workers such as Nairobi and Mombasa. To attract knowledge workers there is need for creation of opportunities and provide the conducive environment for this class of workers in these specific areas.

Kenya has to implement several strategies to attract and retain knowledge workers. The country has to address challenges of housing, urban facilities, transportation and safety to encourage knowledge workers and their families to work and live comfortably. This can be achieved by optimizing existing urban areas which are already offering these services such as Nairobi and Mombasa primarily. The country should also develop effective national ICT policies that support new regulatory frameworks, promote the selected knowledge production, and use of ICTs and harness its organizational changes. Kenya should also develop the required ICT strategies and policies for institutions and regulations taking into account the need to be responsive to the issues of convergence.

iv. Economic integration and specialization

Globalization of product and financial markets will be very significant for Kenya as it seeks global competitiveness. An increased economic integration in specialization and economies of scale will result in greater trade in financial services through both capital flows and cross-border entry activity. Economic integration will result to lower cost of capital which will allow Kenya to undertake profitable projects that they may not have been able to with a higher cost of capital pre-liberalization, leading to higher growth rates.

Kenya's constraint on economic integration and specialization is its insufficient economic integration in the current economic blocks which it is a member including East African community and COMESA. Kenya also has insufficient specialization in areas where it has comparative advantages.
However, Kenya has an opportunity to tap on this trend by increasing specialization in horticulture and service industries such as tourism to achieve comparative advantage in the region.

To harness the benefits of economic integration, the Kenya must encourage cooperation in planning in COMESA and East Africa community to leverage on economies of scale arising from integration and facing completion as an economic block rather than as a single economy. The country should also strengthen horticultural and service industries especially tourism to leverage on comparative advantages it has in these sectors.

v. Tendency of FDIs to be attracted to countries with steady economic growth

The GDP of a country serves as a significant indicator of overall economic output of the country. Kenya should maintain a steady and sustainable economic growth to act as a magnet for foreign Direct Investment.

Kenya is currently not attracting enough FDIs because it faces constraints in terms of instances of fluctuating economic growth occasioned by both local and international factors. These factors include political instability, volatile international petroleum prices and unsteady currency exchange rates. Bureaucracy and red tape has also complicated the ease of doing business in Kenya hence making the country unattractive to investors.

The country has an opportunity in manufacturing and services industries that should be promoted as engines of growth for the Kenyan economy to diversify our dependence beyond any single industry, sector or market, thereby reducing vulnerability and providing a broader economic base.

The strategy to achieve a steady and stable economy is by optimizing the existing potentials in the country. This could include optimization of resource exploitation especially in marginalized regions

vi. Emergence of knowledge, technology and innovation driven economies

Kenya needs to develop its ability to leverage on science, technology and innovation effectively as competitive tools that will enable us to upgrade our existing industry and business clusters, and shift to activities with higher innovation and technology content. With increasing globalization, greater competition and the shift towards a knowledge economy, human and intellectual capital has become the key competitive factor. There is a need to upgrade the capabilities and optimize the contributions of both the local and foreign workforce in Kenya.

Kenya has to develop a world class workforce hence have a cost-competitive workforce with outstanding capabilities.

The country's main constraint in deriving benefits of technology driven economy is its inability to sufficiently embrace the transition to knowledge, technology and innovation based economies. Telecommunication and information availability facilitates remote delivery and provides new access and distribution channels, while revamping industrial structures for services industries.

Kenya has an opportunity to tap on technology and innovation in its economy because it has a rich human resource base and location and destinations such as Nairobi. There are some sectors that are already embracing/transiting towards a knowledge-based economy. The country has institutions training in technology/innovation which can be used to train knowledge workers.

The strategy to harness the benefits of this trend is through encouraging the emergence of ICT locations, Research oriented institutions in the country. Encourage the location of universities in outlying areas in the country to stimulate migration towards knowledge based economies.

Table 19: Summary on Managing Global Competitiveness

Global trends	Constraint	Opportunity	Strategy
Trade liberalization and open global market for goods and services	High cost of production occasioned by high cost of energy, inefficient system, outdated technology and bureaucracy. Low quality of products and services	Reduced energy cost by harnessing the diverse sources of energy including green and renewable sources	Harness the renewable and green energy source to increase the energy capacity and reduce the cost
Open movement for capital	Low return destination on investment due to high costs of production, inefficiency and outdated technology.	Location and investment destinations which offer high return on investment at relatively low costs i.e Nairobi metropolitan area, Mombasa, alternatively Nakuru, Kisumu, Eldoret	Locate export oriented industrial and manufacturing activities in Nairobi and Mombasa to leverage on their transportation Encourage locations of resource based industries where resources are located
Increased reliance on knowledge workers to drive the economy.	Lack of a conducive environment for the workers and their families in the form of payments, facilities, housing, transport, safety	Location and destinations which already offers a favourable atmosphere for knowledge workers i.e Nairobi, Mombasa	address housing, urban facilities, transportation., safety challenges to encourage knowledge workers and their families to locate in Nairobi and Mombasa primarily and other complementary growth nodes at county level
Economic integration and specialization	Insufficient economic integration in the existing block. Insufficient specialization in areas where we have comparative advantages	Membership in economic blocks of East African community and COMESA. Horticulture and service i.e tourism.	Encourage cooperation in planning within COMESA and East Africa community to leverage on economies of scale arising from integration. Strengthen horticultural and service industries especially tourism to leverage on comparative advantage
Tendency of FDIs to be attracted to countries with steady economic growth	Fluctuating economic growth occasioned by local and international factors.	Optimize the existing potential in the country	Optimize resource exploitation especially in marginalized regions
Emergence of knowledge, technology and innovation driven economies	Insufficient embrace and transition to knowledge, technology and innovation based economies	Rich human resource base Location and destinations i.e Nairobi Some sectors that are already embracing ICT and innovation	Encourage the emergence of ICT locations, Research oriented institutions in the country Encourage the location of universities in outlying areas in the country to stimulate balanced growth

3.3 Optimizing Land and Natural Resources

3.3.1 Overview

The constitution of Kenya 2010 under Article 60 calls for efficient, productive and sustainable use of land. It also, under Article 260, defines land broadly to mean the surface of the earth and the subsurface rock; any body of water on or under the surface; marine waters in the territorial sea and exclusive economic zone; natural resources completely contained on or under the surface; and the air space above the surface.

Sessional Paper No. 3 of 2009 on The National Land Policy aims at optimizing the use of land resources by ensuring that all land is put into productive use on a sustainable basis by facilitating the implementation of key principles of land use, productivity targets and guidelines as well as conservation. It encourages a multi-sectoral approach to land use, provision of social, economic and other incentives and putting into place an enabling environment for investment in agriculture, livestock development, and exploitation of natural resources.

This is also in line with Kenya Vision 2030, which recognizes the need to organize and manage space or land in order to be globally and regionally competitive and realize the status of a newly industrialized country.

Sectoral Policies of Agriculture, tourism, environment, energy all support the realization of the objective of optimizing use of land and natural resources.

The purpose of this strategy is to optimize the utilization of the national territory by: reorganizing and adjusting the way land is used to achieve overall efficiency and sustainability. The strategy allocates land to different activities rationally by putting into consideration the land capabilities and potentials and by addressing concerns arising from the need to protect and conserve the environment.

The strategy apportions land to various land-based needs including: protecting prime agricultural land, prioritizing grain basket and export crop production areas, tapping the capabilities and potentials of the ASALs, accommodating urban growth and providing a strategy for provision of adequate land for future development of infrastructure and utilities.

The assessment undertaken includes:

i. Land Capability Assessment
ii. Agriculture Capability Assessment
iii. Environmental Conservation and Protection Areas
iv. Assessment of Natural Resource Potential
v. Assessment of Industrial Potential
vi. Assessment of tourism potential

vii. Assessment of Transport and Public Utilities
viii. Assessment of Impacts of Human Settlements
ix. Assessment of Land requirement

Criteria of assessment

i. Population projections
ii. Existing land use pattern
iii. Agro-ecological zones
iv. Agro-climatic zones
v. The known natural resource potential

Land Capability Assessment

The land capability assessment indicates that virtually, the entire Kenyan territory is capable of supporting livelihoods. However, the capability of land to support livelihoods varies across the country. The ASAL areas which constitute approximately 56.34% of the country have the capability to support large scale livestock production as well as other economic activities related to the same. The transition areas have the ability to support both livestock farming and crop farming albeit limitations of rainfall scarcity and unreliability. The prime agricultural areas that constitute approximately 15.78% have the capability to support different types of mixed farming. Environmentally sensitive areas which constitute approximately 27.62% afford the country huge opportunity to conserve the environment. These areas are also capable of supporting low environmental impact activities such as tourism. The areas with physical limitations which constitute are unsuitable for human settlement but may be utilized for economic activities such as tourism, film making and research.

This analysis depicts that there is no land in Kenya that can regarded as useless or low potential. This means that all land must be put into economic use.

Agriculture Capability Assessment

The agricultural capability assessment indicates that the country has a vast and varied agricultural capability due to different agro-climatic, and agro-ecological zones as well as presence of natural resources such as rivers, lakes, mountains among others.

The capabilities include grain basket areas whose main function is the production of maize and wheat which are the Country's staple food. The transition areas can play the function of producing both livestock and crops. The areas with irrigation potential provide an opportunity to expand the agricultural potential and can also play the function of supplementing agricultural production and producing high value agricultural crops. The ASALS areas provide the function of large scale livestock production and act as a "meat basket" for the country and for exporting

livestock and livestock products. The areas with aquaculture and marine-culture potential provide the function of supporting fish farming. The areas with lake and river fishing potential have the function of producing fish under natural conditions while the areas with ocean and sea fishing potential can support large scale fishing industry.

Competition for the land resource between human settlement and agriculture in the high potential areas that are also grain basket areas is a major constraint to increasing production and productivity in agriculture. The outward expansion of the human settlement concentrated in high potential areas and the fragmentation of agricultural land to accommodate rural settlement is progressively reducing the acreage of land available for agricultural activities and in the process reducing the agricultural potential of the country.

Water scarcity is a major constraint in the transition and ASAL areas hence reducing the ability of those areas to function optimally. Generally, all the agriculturally functional areas face the challenges of inadequate transportation infrastructure, agricultural support infrastructure and inadequate adaptation of modern methods and technology necessary to enhance productivity.

The NSP strategy for optimizing agricultural potential is to address the problem of diminishing agricultural land occasioned by human settlements by strictly regulating the expansion of urban areas and fragmentation of agricultural land. The NSP strategy proposes that urban growth limits be strictly applied in grain basket areas particularly. Similar regulations should be applied in the other high potential areas. Urban growth of Nairobi for instance should be diverted to the less agriculturally potential areas within the metropolitan growth area.

Development application for change of user in the high potential areas should be required to present a rigorous justification for the intention. The NSP shall also support the intensification of the use of land within the urban areas other than outward growth including the development and renewal of the existing housing stock.

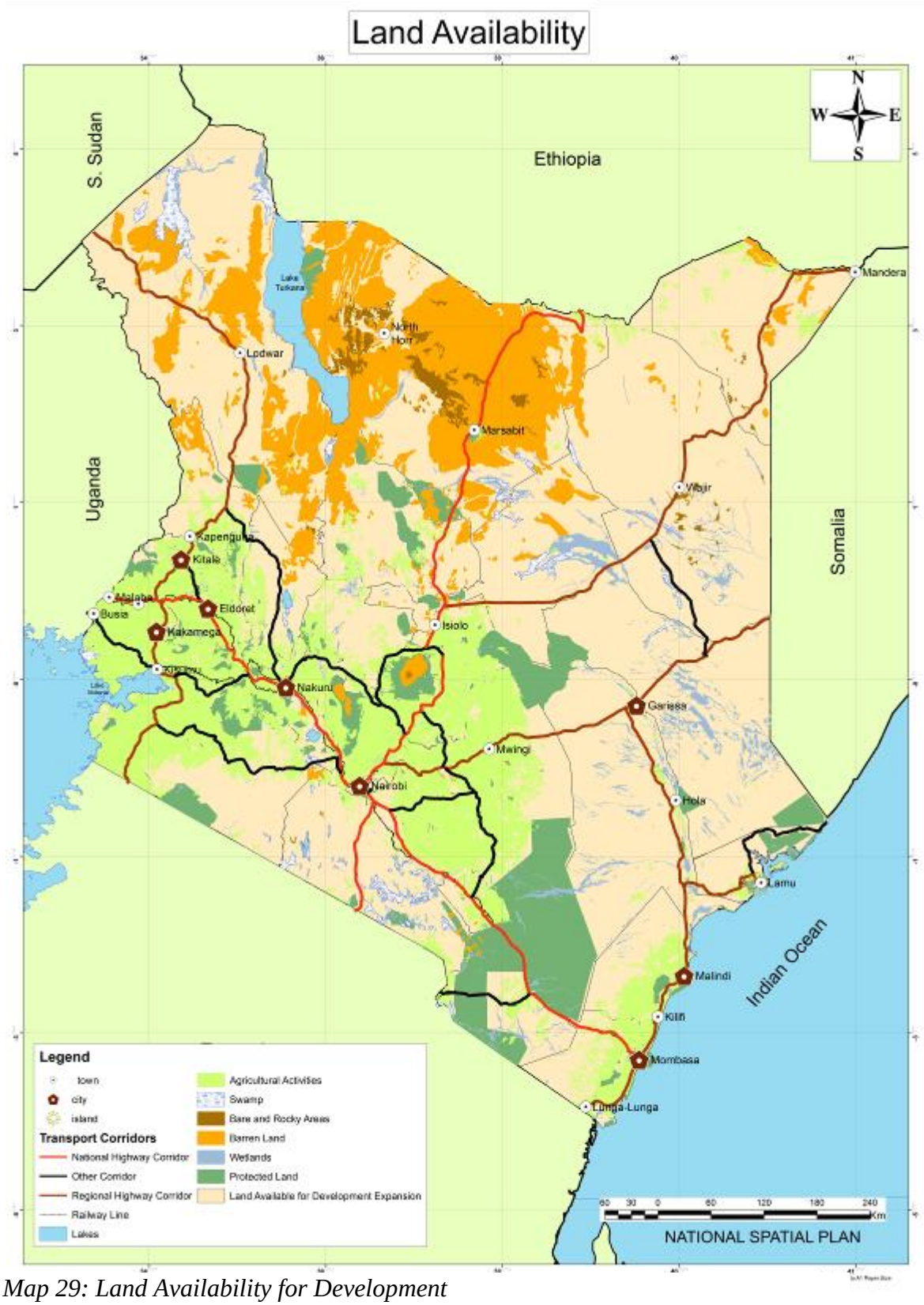
Transportation infrastructure in agricultural areas needs to be improved to connect those areas to the markets. In addition, agricultural support infrastructure needs to be provided to match the function that the agricultural area is playing. The farmers need to be encouraged and supported to adopt modern methods and practices as well as technology in the whole range of agricultural capabilities that the country has.

The agricultural potential in the transition areas and livestock production areas is negatively impacted by the problem of water scarcity which needs to be addressed by exploitation of underground water potential, rainwater harvesting and optimally harness the existing surface water. Encouraging dry land farming methods and planting of drought resistant crops is another strategy that can increase crop productivity.

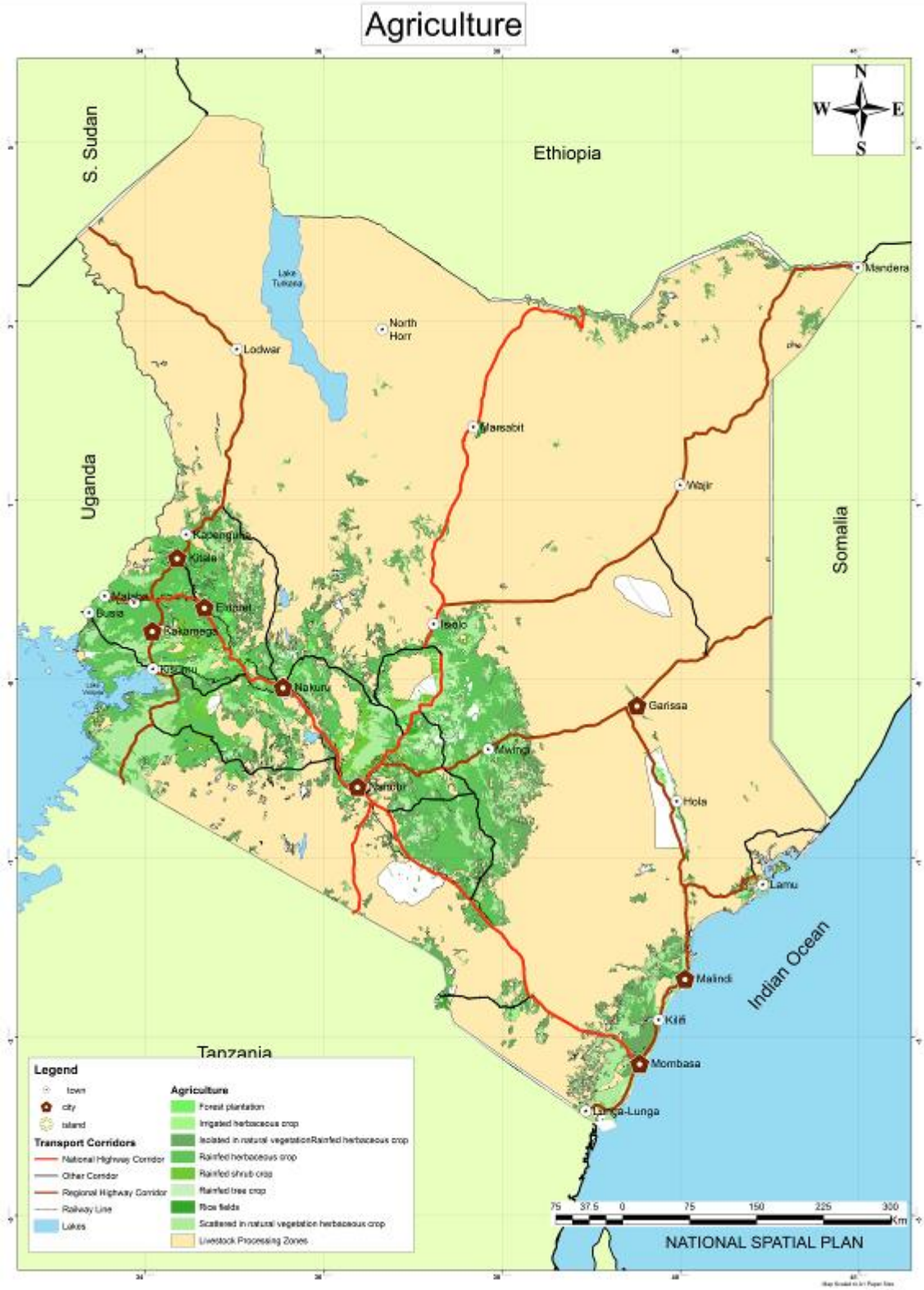
Table 20: Summary of Agricultural Land Capability Assessment

Area	Constraints	Strategies
i. Grain baskets (Export crop areas, other prime agricultural areas)	- Uneconomical fragmentation of land parcels due to human settlements; - Inadequate agricultural support infrastructure - Use of inappropriate farm inputs and technology;	- Strictly regulating the expansion of urban areas and fragmentation of agricultural land - urban growth limits be strictly applied in grain basket areas as well as other high potential areas - Urban growth should be diverted to the less agriculturally potential - Presentation of a rigorous justification for the intention to change use in prime agricultural areas. - Transportation infrastructure in agricultural areas should be improved - Agricultural support infrastructure should be provided to match the function - Adopt modern methods and practices as well as technology in the whole range of agricultural capabilities that the country has.
ii. Transition areas	- Use of inappropriate farm inputs and technology; - Water scarcity; - Poor agricultural support infrastructure;	- Provide subsidies to promote the use of appropriate farm inputs and technology - Transport infrastructure in agricultural areas should be improved - Agricultural support infrastructure should be provided to match the function - Exploit/harness potential water resources (underground, surface and rainwater)
iii. Irrigation potential areas	- Reduced soil fertility and depth; --Poor agricultural support infrastructure	- Promote the use of appropriate farm inputs and technology by providing subsidies and incentives - Transportation infrastructure in agricultural areas should be improved - Agricultural support infrastructure should be provided to match the function
iv. Large scale livestock areas	- Overstocking; - Insufficient water resources - Poor agricultural support infrastructure	- Formulate policy to control the carrying capacity of livestock - Transportation infrastructure in agricultural areas should be improved - Agricultural support infrastructure should be provided to match the function

v. Aquaculture and marine-culture potential areas	-Lack of adequate equipment and technology to tap fishing potential.	- Provides subsidies on fishing equipment and undertake research on best fishing practices
vi. Lake and river fishing areas	-Pollution of water bodies and unsustainable over-abstraction of water from the water bodies	- Enforce existing regulations on water pollution and restrict abstraction of water from water bodies
vii. Ocean and deep sea fishing potential areas	-Lack of adequate equipment and technology to tap fishing potential. -Climatic change -International and national regulations -Water pollution	- Provides subsidies on fishing equipment and undertake research on best fishing practices -Control of fishing territories in the country -control water pollution



Map 29: Land Availability for Development



Map 30: Agricultural Development Land

3.3.2 Environmental Conservation and Protection Areas

The destruction of the environment is already having serious negative impacts on livelihoods in the country due to the functions that the environmentally fragile as well as sensitive areas play in supporting these livelihoods. The country can be divided into different conservation and protection areas. The conservation areas are ASALs, Lowlands, Highlands and the Coastal areas while the protection areas include water towers, forests, water bodies, wetlands, mountains, parks and conservancies.

The environmental threats in these areas are mainly as a result of human activities in the form of land use practices. In the ASALs, livestock keeping practices are likely to have the greatest negative impacts on the environment. In the other areas, agricultural practices of crop farming and human settlement have profound negative impacts. These impacts are more pronounced and on environmentally sensitive areas such as water bodies, water towers, wetlands, forests, mountainous areas, parks and conservancies. These sensitive areas are scattered all over the conservation areas. The implication, therefore, is that these areas ought to be prioritized and protected.

Reduction of soil fertility, deforestation, pollution, drying up of water sources, desertification and soil erosion are some of the impacts that are arising from the weak environmental protection and conservation regime. As a result, this will impact negatively on the livelihoods of communities and quality of life in the country generally.

In effect, the country as a whole is a fragile ecosystem. However, within it, there are areas which present different environmental challenges and call for different conservation measures/strategies. In addition to this, there are specific areas which must be ranked and protected by regulation.

The NSP environment strategy for conservation is multi-pronged. On one hand, it encourages conservation of highlands, lowlands, ASALs and coastal areas which constitute the whole national territory. On the other hand, it needs to formulate a policy pertaining to the use and protection of environmentally fragile areas such as water towers, natural forests, water reservoirs (lakes and rivers), wetlands and swamps, mountains, parks and conservancies.

The NSP strategy is discussed along highlands, lowlands, ASALs and coastal areas. In the highlands, strict soil erosion regulation and control measures as well as increased forest cover through afforestation and agro-forestry shall be applied. In the low lands, human settlement will be discouraged and flood mitigation measures put in place. In ASALS, sensitization and public awareness in matters of carrying capacity will be enhanced. In addition, modern ranching methods will be encouraged and adapted. In the coastal region, strict regulation of the exploitation of coastal resources will be formulated and enforced. Moreover, coastal management plans will be prepared and implemented.

The NSP strategy for environmental protection areas is based on multi-ranking criteria of function and severity of impacts. Rank 1 consists of water towers, wetlands and natural forests. No development is permitted in these areas except for the purpose of eco-tourism and research. Rank 2 comprises of water bodies, parks, mountains and conservancies. In parks and conservancies, controlled development of hotels is permitted. However, change to any other use is not permitted except for conservation purposes. In mountains and steep areas, human settlement is not allowed beyond certain altitudes. Tourism related activities such as mountain climbing and nature trails are permitted.

Table 21: Conservation and Protection Areas

Area		**Function**	**Constraints**	**Strategies**
Conservation areas	ASALs	Large scale livestock production	Soil erosion Overstocking	Strict soil erosion control measures
	Lowlands (lake region)	Crop farming; Human settlement	Soil erosion; Deforestation; flooding	-Strict soil erosion control measures. -Human settlement will be discouraged -Flood mitigation measures put in place
	Highlands	Prime agricultural areas Human settlement	De-vegetation, Soil erosion	Intense forest cover through afforestation and agroforestry.
	Coastal areas : depletion of marine resources	Agriculture, fishing	Destruction of coastal eco-systems	Strict regulation of marine resources; Preparation of coastal management plan
Protection Area	**Rank 1** Water towers, Wetlands Natural forests	Recharge water systems Carbon sinks and biodiversity	Deforestation; Encroachment by human settlement and activities; Pollution;	No development is permitted in these areas except for the purpose of eco-tourism and research.
	Rank 2 Water bodies (lakes and rivers), Mountains, parks and conservancies.	Sources of fish Habitants for animals	Drying up of water sources; Pollution; Encroachment by human settlement and activities Unstainable abstraction of water	Control water abstraction Mountain areas: Human settlement is not allowed beyond certain altitudes; Tourism related activities are allowed. Parks and conservancies: controlled development of hotels is permitted; No change of use is permitted except for conservation purpose.

3.3.3 Assessment of Natural Resource Potential

The country can be divided into two natural resources potential areas: high agricultural potential and ASALs areas. The high agricultural potential region has abundant natural resource potential in the form of rich agricultural soils, wildlife (flora and fauna), mineral deposits (like salt, soda ash, oil and coal), energy resources, surface and underground water. On the other hand, an assessment also indicates that the ASAL areas which have been previously perceived as low potential have abundant natural resources (mineral deposits, green energy resources, underground and surface and underground water), irrigation potential among others that are yet to be exploited optimally. While some of these natural resources have been exploited optimally, others have either been underexploited or overexploited.

The natural resources potentials offer the country numerous opportunities: increased electricity capacity, reduced energy costs, reliable energy sources, transition to green energy sources and diversification of the economy. Underground water on the other hand augments surface water hence increases the water stock; expands economic opportunities in different sectors of the economy such as irrigation; production of hydroelectric power and increase in per capita water supply for human and animal consumption.

Energy and mineral resources have not been fully exploited due to inadequate technology and exploration infrastructure. In addition, underground water potential in both ASAL and high potential areas is untapped except for high potential areas where underground water abstraction is uncoordinated and unsustainable.

Regulations to control the exploitation of natural resources will be formulated to spur economic growth while ensuring sustainability. Furthermore, appropriate technology and transportation infrastructure will be provided to enable continued exploration of these resources.

To harness the potential of underground water exploitation, appropriate regulations will be adopted to control the abstraction and use of this resource. Underground water exploitation will especially be promoted in dry areas to realize the irrigation potential. In addition, appropriate technology and exploration infrastructure will be provided to advance the utilization of underground water.

Table 22: Natural Resource Assessment

Type of natural resource	Level of utilization	Opportunities	Constraints to optimal utilization	Strategies
Energy – wind, solar, geothermal and hydroelectric power	Under utilized	-Increased electricity capacity; -Reduced energy costs; -Reliable energy sources; -Transition to green energy sources	-Inadequate technology and exploration infrastructure; -High costs of exploiting available natural resources	-Optimal utilization of the available natural resource potential; -Invest in appropriate technology and infrastructure; -Undertake further exploration of the available natural resources.
Minerals - oil, soda ash, coal, diatomite, copper, titanium, gold among others		-Support of diversification of the economy (manufacturing, processing etc.)		
Underground water	Untapped accept in Nairobi	-Augments surface water hence increase of water stock; -Expansion of economic possibilities such as irrigation, production of hydroelectric power; -Increase in per capita water supply for human and animal consumption	-Uncoordinated and unsustainable exploitation of underground water in major urban areas especially Nairobi; -Inadequate technology and exploration infrastructure	-Regulate the exploitation of underground water potential and; -Optimize the use of underground water for irrigation in dry areas. -Invest in appropriate technology and infrastructure;

3.3.4 Assessment of Industrial Potential

The drivers of industrial potential are: availability of raw materials in form of minerals; agricultural produce that include industrial crops, food crops and livestock products; availability of technology; skilled human resources; availability and quality of physical infrastructure that attract investment and availability of markets (local or external). Industrial potential is also influenced by availability of internal and external markets and the ability to attract Foreign and Direct Investment in industrial activity.

Broadly, industries in the country can be classified as urban-based industries, rural based industries, agro-based industries, mineral-based industries and cottage industries and crafts. In respect of urban-based industries, the main industrial towns are Nairobi, Mombasa, Eldoret, Nakuru and Kisumu.

The assessment of industrial potential reveals the following distribution: mineral and livestock driven industrial potential concentrated in the ASAL areas; crop and mixed farming-driven industrial potential in the high agricultural potential areas; urban-based industrial potential concentrated in the urban areas along the Northern corridor, from Mombasa to Kisumu and Eldoret.

Rural and agro-based industries are located mainly in the high agricultural potential areas while mineral-based industries are located in situ; where the minerals are found. Cottage industries are based on intrinsic cultures and local knowledge.

The future scenario is the strengthening of the existing urban based and agro-based industrial activity along the Northern corridor and the emergence of the ASAL areas as potential industrial development areas, supported by the development of the LAPSSET corridor.

Urban based industries are located in major urban areas, Nairobi and Mombasa growth areas and as a result face the constraint of inadequate supply of land for expansion and development. Inadequate transport infrastructure, low investments and high energy costs are also major impediments in industrial operations and growth. While these industries have not lagged far much behind in terms of adaption of appropriate technology for production, the standards are lower than those of 1st and 2nd world countries.

Rural based, agro-based and cottage industries have poor linkage to the markets due to poor transportation and support infrastructure. Low technological adaptation for value addition and price fluctuation are also common problems experienced in these industries.

The growth of mineral-based industries has been by lack of appropriate sophisticated equipment and technology for exploration and exploitation. This leads repatriation of profits and jobs to countries that provide the technical knowhow and equipment.

To overcome the above stated obstacles, the NSP strategy proposes that all external market oriented industries to be directed to Nairobi growth area and Mombasa. The material oriented industries on the other hand should be directed to rural growth centres and high agro-potential areas. Generally, other measures that should be undertaken are: provide adequate transport and support infrastructure, diversify energy production sources to reduce costs of production and enhance its reliability, adapt appropriate technology and promote the formation of cooperatives and Saccos to advance marketing in small urban centres.

Table 23: Assessment of Industrial Potential

Type of industry	Potential	Constraints	Strategies
- Urban-based industries;	- Nairobi growth area, Mombasa and Kisumu	- Inadequate supply of land for industrialization; - Low investments in industry; - High energy costs; - Inadequate transport infrastructure	- Direct external market oriented industries to Nairobi growth area and Mombasa. - Direct material oriented industries to rural growth centres and high agro-potential areas - Diversify energy production sources to reduce costs of production and enhance reliability - Provide adequate infrastructure and utilities, skilled labor and favorable government policies;
- Rural based industries;	- Rural growth centres;	- Low adoption of technology for value addition. - Poor linkage to markets	- Provide adequate, supportive transport and infrastructure - Diversify energy production sources to reduce costs of production and enhance its reliability
- Agro-based industries;	- High agro-potential areas, large scale livestock production areas;	- Low adoption of technology - Inadequate transport infrastructure - Price fluctuations - Value addition constraints	- Provide appropriate technology to enhance value addition. - Provide adequate, supportive transport and infrastructure - Diversify energy production sources to reduce costs of production and enhance its reliability - Promote the formation of cooperatives and Saccos to advance marketing
- Mineral-based industries and	- In situ	- Low adoption of technology for exploration and exploitation. - Inadequate transport infrastructure - High energy costs	- Provide adequate, supportive transport and infrastructure - Diversify energy production sources to reduce costs of production and enhance its reliability - Invest in exploration of potential mineral reserves
- Cottage industries and crafts.	- Rural areas	- Insufficient market for finished products - Lack of frameworks to safeguard intellectual property rights	- Sensitize players in the sector on the aspect of IPR and enforce regulations on the same - Promote assertive marketing campaigns for products both domestically and internationally

3.3.5 Assessment of Tourism Potential

Tourism potential in Kenya was assessed per circuit based on the tourism types and activities. There are 5 tourism circuits in Kenya: Central highlands and Rift Valley Region, Western, Northern, Southern and Coastal circuits. The major types of tourism are Safari, Urban-based, eco-tourism, cultural, historical/heritage, rural-based, film induced industry among others.

The assessment indicates that Kenya has high tourism potential given Kenya's physical features, culture/heritage, agriculture, wildlife just to mention a few. However, this potential has not been fully exploited as most of the tourism types, except safari tourism, have not been fully established. Furthermore, the sector has seen a downward spiral mostly stemming from insecurity challenges.

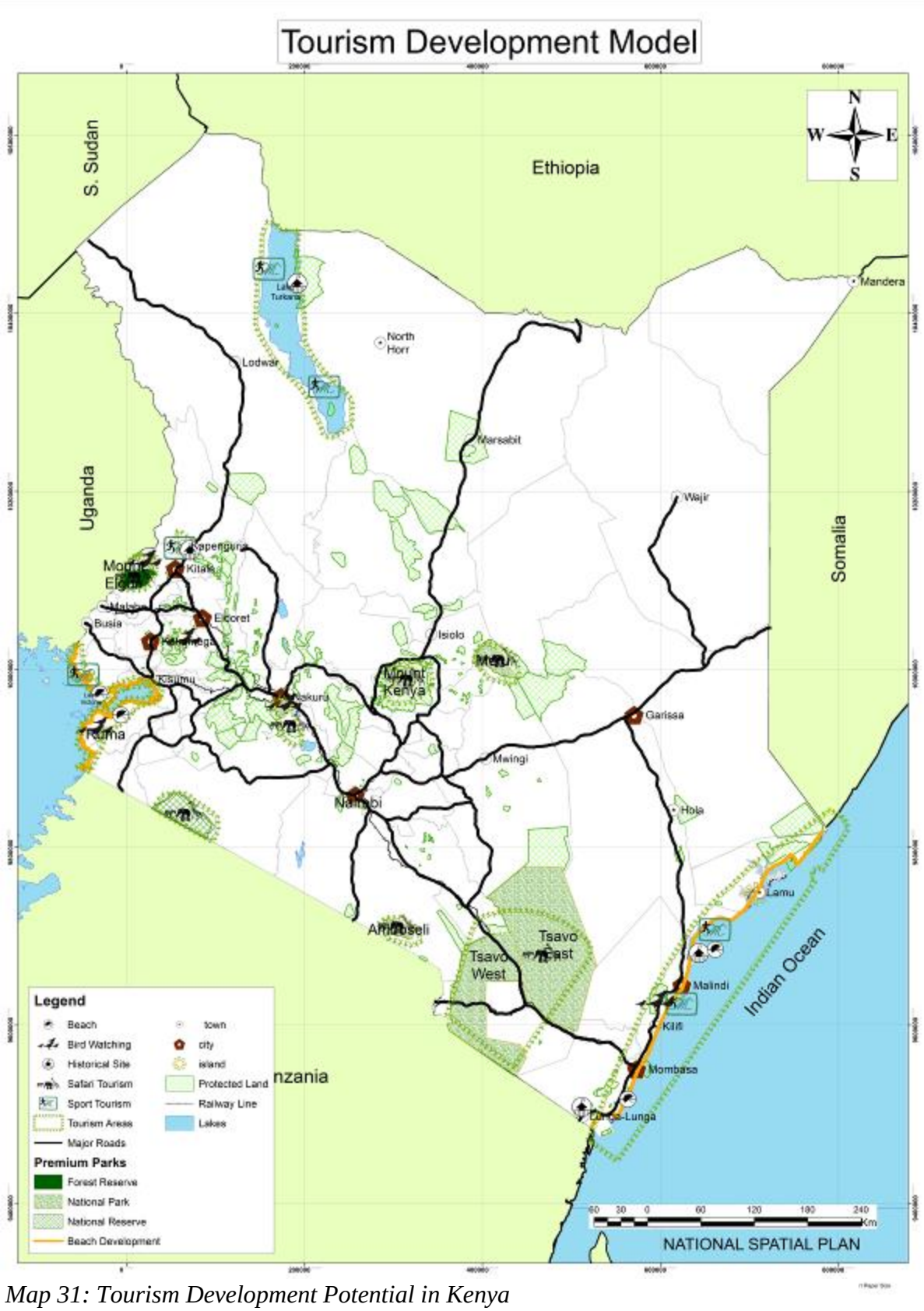
Poor quality and sometimes nonexistent infrastructure has led to little exploitation of the tourism potential in areas far away from Nairobi and Mombasa. In effect, this has had the impact that the Coastal, Southern and Central Highland circuits are more advanced and receive more assertive marketing compared to the Western and Northern circuits. Encroachment of human activities into the protected areas, weak integration of ICT in the development and management of the tourism value chain, over reliance on foreign tourism and few marketing ventures targeting non-traditional tourists are other impediments to optimal exploitation of tourism potential.

To fully harness the potential of tourism presented by the entire country, it is paramount to enhance the country's security, improve transportation infrastructure and enforce strict regulations safeguarding protected areas and wildlife. Moreover, to ensure stability in the demand for tourism products throughout the year, domestic tourism shall be promoted through incentives and subsidies. Marketing strategies will also lay emphasis on internationally non-traditional visitor sources.

Table 24: Assessment of Tourism Potential

Circuits	Potential	Existing situation	Constraints	Strategy
Western	•Safari Tourism (Mt. Elgon National Reserve, Saiwa Swamp National Park)	Number of visitors to the country and the circuit Most- sold product segments Length of the stay Well established	•Poor land and airstrips infrastructural facilities •Encroachment of human activities into the parks •Over-reliance on safari and animal tourism •Human-wildlife conflicts •Limited safety and security measures •Poor marketing strategies to promote tourism •Weak integration of ICT in the development and management of the tourism value chain •Underdeveloped tourism sites and products	Identify tourist roads and improve them Improve and revive airstrips connecting the circuits Strict enforcement of the existing regulation safeguarding protection areas. Promote domestic tourism by providing incentives and subsidies Invest in ICT infrastructure and capitalize on online marketing Increase our tourism market segment
	•Urban Tourism (Kisumu) •Cultural Tourism •Rural /Agri-Tourism •Film induced tourism •Historical tourism	Under-utilized		
Northern	•Safari Tourism (Lewa Conservancy, Meru National Park) Samburu National Reserve)	Well established		
	•Urban tourism (Lodwar) •Cultural Tourism (Turkana) •Rural /Agri-Tourism •Film induced tourism •Historical tourism (Loyangalani)	Not well established		
Coastal	•Safari Tourism (Shimba Hills National Reserve, Arabuko Sokoke Forests) •Cultural Tourism (Mombasa, Malindi and Lamu) •Beach Tourism (Mombasa) •Urban Tourism (Mombasa, Lamu) •Eco- Tourism (green tourism)			

	• MICE Tourism (Mombasa) • Historical tourism (Mombasa, Lamu)			
Southern	• Safari Tourism(Tsavo and Amboseli National parks) • Urban Tourism (Voi) • Eco- Tourism (green tourism • Community tourism • Historical tourism (Ologo Saille)			
Central highlands and Great Rift Valley	• Urban Tourism (Nairobi, Naivasha, Nakuru) • Safari Tourism (Nairobi National park, Nakuru National Park, Maasai Mara National park) • Sports Tourism (Athletics-Uasin Gishu) • Medical Tourism (Nairobi) • MICE Tourism(Nairobi, Naivasha) • Eco- Tourism (green tourism)			



Map 31: Tourism Development Potential in Kenya

3.3.6 Land Requirement Assessment

The intention of this assessment is to establish the future land requirements and ascertain optimal use of the available land by supplying as much land as is required for urbanization. This is in recognition of the profound impact that urban expansion is having on prime agricultural land in the high agricultural potential and environmentally sensitive areas as identified in the land capability assessment.

Uncontrolled development leading to wastage of land in informal settlement and incompatible developments; Inadequate infrastructure and utilities in the outer core of the urban areas hence centralization of most activities in the Central Business Districts hence occupation of prime land for commercial activities; The urban land requirement assessment reveals that the existing urban land is adequate, however, it has not been used optimally as evidenced by: low skyline, undeveloped areas, urban over- hangs, old derelict and decaying inner cores in Nairobi, Kisumu and Eldoret among others.

Strategy

The NSP strategy proposes that the existing urban land be used optimally by adapting mixed developments (mixed-use compactness), which allows for locally embedded institutional and commercial activity. In addition, infill development and redevelopment as well as intensification of development shall be promoted. Urban growth limits will be created subject to review given the demand for urban land. Moreover, agglomeration of urban areas will be controlled by maintaining green buffer zones as urbanization will be diverted to less agricultural potential areas and outward expansion controlled. Finally, change of urban land use will be strictly controlled and rigorous justification will be required.

Assessing land requirement Capability

i. Assessment of Housing requirements in urban areas

Housing is a major urban land consumer which influences the location of developments. In addition, well-planned housing and infrastructure of acceptable standards and affordable cost when combined with essential services affords dignity, security and privacy to the individual, the family and the community as a whole. Adequate shelter also prevents social unrest occasioned by depravity and frustrations of people living in slums and informal settlements. Besides this social function, housing is also an investment good contributing both directly and indirectly towards poverty reduction through employment generation, raising of incomes, improved health and increased productivity of the labour force hence increasing global competitiveness. Good quality housing also adds to the aesthetics of the environment.

Access to decent, affordable housing is a fundamental right in the Constitution of Kenya. Nevertheless, the country continues to face serious shortfalls in quality housing provision in both

rural and urban areas. With an estimated population growth rate of 4.2% per annum and the rate of rural-urban migration, Kenya needs an annual provision of 206,000; of these 82,000 is needed in urban areas.

In 2011, it was estimated by the Ministry of Housing, that the supply of houses reached 50,000; which was still 156,000 units below the annual demand. This shortfall added to the already existing 2 million units. Another shortfall of 85,000 units was added to this backlog in the following year, 2012 (African Development Bank Group, 2013).

It is in the urban areas where the worst housing challenges are manifest a scenario which grew over time when the rate of supply of medium and low cost housing could not keep up with the massive rate at which rural households were migrating into urban areas. This deficit has largely been contributed to by the lackluster involvement of the government in the provision of low and middle income housing leaving it to the private developers. The result of this scenario is that private developers have focused largely on the more profitable market segments; provision of high and upper middle income housing units which are not affordable to the majority of urban dwellers with low incomes. Moreover, the existing institutional housing structures have seen massive decay over the years owing to non-existent repair and maintenance policies.

Housing problems are further compounded by high density populations of people residing in relatively spatially limited areas hence compromising provision of social amenities and services like education and health care as well as clean water supply and waste disposal. This problem has mostly arisen from increasing cost of acquiring land in urban areas, high cost of building materials and high level of urban poverty.

In essence, the proliferation of informal settlements to fill the supply gap is a challenge that has in itself caused other critical planning issues including unhygienic living conditions, spread of water and airborne diseases, moral decay and general feeling of disillusionment and apathy among the residents. According to the Kenyan 2009 population census, over 30% of the country's population lives in slums. In Nairobi alone, it was estimated that over 1 million out of a city population of 3.2 million lived in slums, with only 3% living in a house with permanent walls, water and electricity.

There is unavailability of land for housing because of land ownership for speculative purposes, uncoordinated and disjointed manner in which land is availed for development. Moreover, restrictive land tenure security laws which make acquisition of land on which informal settlements sprawl have further contributed to the increase in slum dwellings.

Nevertheless, housing challenges are also experienced in rural areas with the difference being that people are capable of putting up traditional dwelling units using affordable materials. The quality of most of these houses however is almost always wanting.

To overcome the above discussed obstacles in providing housing, NSP strategy proposes stricter enforcement and a regular review of the existing legislative and regulatory instruments governing land-use planning, administration and management. This way, development control will be upheld and intensified to avoid illegal developments and construction.

The government needs to aim to provide serviced land (infrastructure and utilities) for housing development. This guides development direction and at the same time cuts down on development costs thus making housing more affordable. Where possible however, settlement patterns need to be encouraged to minimize the cost of providing infrastructure and other services.

Table 25: Assessment of Housing Potential

Issues	**Opportunities**	**Strategy**
Lack of enforcement of existing legislation on housing development and land use	Adequate land for housing There is room for public-private partnerships in the provision of housing; Availability of local building materials and technology that are more affordable; Availability of infrastructure in some decaying estates; National land reforms established a GIS based National Land Information Management System (NLIMS) for land management;	Enforce, harmonize and regularly review the existing legislative and regulatory instruments; alleviate the wastage of land in informal settlement and encourage infill and mixed development
Housing demand outstrips supply hence deficit in good quality housing supply		Bridge the Gap between housing demand and supply by: government returning to provision of rental housing schemes, promote public-private partnership; offer incentives, tax rebates and subsidies to lower construction materials; promote the use locally available building material and indigenous knowledge;
Little government involvement in housing provision which has left in the hands of private developers		
Slum proliferation		Inventorize all the slums and upgrade them; Incentives can be provided to squatters to buy the land they occupy at subsidized rates
Appropriate transport infrastructure and utilities		Provide adequate and appropriate infrastructure; Government and/or PPP to provide site and serviced properties; Vigorous land readjustment and provide infrastructure in informal settlements or in agricultural areas.

Insecurity of tenure, land ownership for speculative purposes and unregulated land acquisition for housing developments		Impose a progressive tax over and above the current land rents and rates on vacant urban land; Operationalize sectional titling to provide shelter other than land. Encourage pooling of land for bulky housing.

The government needs to establish a land bank for public housing through purchase or compulsory acquisition of land that is not fully optimized for future developments. In addition, the government shall provide incentives to developers or prospective home owners who wish to add to the housing stock of middle and low income cadres by lowering the cost of building materials, cutting down tax on rental houses among others.

Undertake inventory of all the existing informal settlements in urban areas to establish the insufficient services and infrastructure for purposes of upgrading them to more habitable dwelling areas. Moreover, incentives can be provided to squatters to buy the land they occupy at subsidized rates for shelter development through waiver of fees on surveying, subdivision, change of user and transfer.

The government needs to impose a progressive tax over and above the current land rents and rates on undeveloped urban land to help curb speculative activities hence slum proliferation and release land for development. Finally, the existing housing estates that do not provide a permissible and best use of land need to be re-planned and redeveloped. The re-planning and re-development of the existing housing estates that do not provide for maximum permissible or highest and best use of land however need to well-planned in order to safeguard the socio-economic lifestyles of low-income households, wherever they are affected.

ii. Assessment of Land Requirements for Transportation and Public Utilities

Transportation Network

The transport sector plays a pivotal role in the growth of Kenya's economy. Vision 2030 aspires for a country firmly interconnected through a network of roads, railways, ports, airports, water ways, and telecommunications. The National Transport Policy aims at achieving a world-class integrated transport system responsive to the needs of people and industry by developing, operating and maintaining an efficient, cost effective, safe, secure and integrated transport system that links the transport policy with other sectoral policies.

Vision 2030 highlights the following flagship projects in a bid to make transport more efficient and reliable: A 50-year Integrated National Transport Master Plan; Dredging and /deepening of

Mombasa Port to14.5 meters; Nairobi metropolitan region bus rapid transit; Development of light rail for Nairobi and its suburbs; Development of a new transport corridor to Southern Sudan and Ethiopia (LAPSSET Corridor); National road safety program to fast-track implementation of the National Road Safety Action Plan; Computerized information maintenance management systems program to manage our roads, bridges and pavements; Rehabilitation and maintenance of airstrips and airport expansion and modernization.

The transport network in Kenya consists of: road, rail, maritime and inland water, pipeline, and air transport in rural and urban areas.

Kenya Modes of Transport and their Coverage

Road	**Total length of Road**	**160,886 Km**
	Paved Roads	11,189 Km
	Unpaved Roads	149,689 Km
Airports and airstrips	Total number	181
	With paved runways	16
	With unpaved Runways	165
Railways	Total Length	2,778 Km
	Gauge	1.0 m (Metre/Narrow)
Pipelines	1224.45 Km	
Ports and Terminals	Mombasa Sea Port and IWT Port at Kisumu	

Currently, the transport network in Kenya lacks inter-modal integration as each network is managed and operated independently thus hampering efficiency, connectivity and functionality. Moreover, good transport networks are concentrated on the Southern part of the country while the Northern part lacks adequate connectivity.

Availing land for transport is a challenge in Kenya due to the private ownership of land and the expenses that can be incurred in compensation. As the development of the country accelerates as is envisaged, there will be need to avail land for transport infrastructure and public utilities in the urban and rural areas as well as the emerging development areas along transport corridors. Moreover, land set aside for transport infrastructure development such as road reserves have been encroached into by human activities.

The main challenge facing transport in Kenya is the poor condition of the infrastructure due to lack of maintenance. This potentially impacts negatively on the efficiency of movement and seamless integration between various modes of transport.

Transportation infrastructure tends to have adverse environmental impacts in terms of emission of GHG, oil spills into water bodies, leaking pipelines and noise pollution. In some instances, transport networks pass through environmentally sensitive areas such as National parks and reserves.

The sector is managed by many institutions charged with maintenance, rehabilitation and development which make it difficult to coordinate the activities of the various agencies in determining their financial requirements and address the problems in a synchronized manner.

The NSP strategy proposes Development and maintenance of an integrated, safe and efficient road, rail, water, pipeline and air transport network in the country, prioritizing the development of transport corridors linking Kenya to the rest of the region. Additionally, the existing transport infrastructure needs to be optimized and leveraged on the committed infrastructure that is already programed to be delivered.
The government shall repossess the encroached land as well as establish a land bank for future transport infrastructure development through purchase or compulsory acquisition of land that is not fully optimized. Moreover, the government shall take appropriate measures to enhance private sector participation in infrastructure development, such as the provision of incentives in sectors such as transport and communication.

Use of green transport such as walking and cycling shall be promoted through provision of designated pedestrian walkways and cycle lanes to curb environmental pollution and improve aesthetics especially in urban areas.

To achieve better coordination in the management and development of transport infrastructure, a policy will be formulated to harmonize the functions of institutions and bodies currently charged with the same; KERA, KURA, KENHA, NTSA and the Ministry in charge.

Urban Transport

Urbanization has been one of the dominant contemporary processes as a share of the growing global population lives in cities. Considering this trend, urban transportation issues are of foremost importance to support the passengers and freight mobility requirements of large urban agglomerations. Transportation in urban areas is highly complex because of the modes involved, the multitude of origins and destinations, and the amount and variety of traffic.

The main roles of transport: Efficient and reliable urban transport systems are crucial to sustain a high growth rate and alleviate poverty; Services and manufacturing industries particularly

concentrate around major urban areas, and require efficient and reliable urban transport systems to move workers and connect production facilities to the logistics chain.

In major cities and urban areas, especially in Nairobi, Mombasa, Nakuru, Kisumu and Eldoret, urban transport is largely controlled by the private sector (mostly buses and matatus). Intercity passenger transport services are mainly provided by buses, matatus, and cars and to a lesser extent by air and rail transport.

Besides vehicular transport, cycling and walking are other means of passenger transport in urban areas. Majority of the urban poor find public transport costly and financially inaccessible and hence meet their needs through walking and head loading.

The defining trait of urban transportation is the ability to cope with density (of people, activities, and structures) while moving people and goods. Density creates challenges for urban transportation because of crowding and the expense of providing infrastructure in built-up areas. It also creates certain advantages because of economies of scale: some transportation activities are cheaper when carried out in large volumes. These characteristics mean that two of the most important phenomena in urban transportation are traffic congestion and mass transit.

Urban areas experience inefficient public transport system as the transport sector is characterized by high and fluctuating costs for passengers and freight transport, poor safety standards, and unreliability of public transport.

Major urban areas have inadequate capacity to accommodate the growing number of traffic volumes resulting to congestion. This is caused by poorly designed interchanges, through traffic, narrow roads and poor traffic management systems. Inadequate parking spaces and terminal facilities also aggravate the situation since motorists have to pick and drop passengers on undesignated areas causing more traffic snarl-ups.

Plate 5: Traffic Congestion on the Thika Super Highway-Nairobi

Source: National Department of Physical Planning, 2015

Generally, urban transport infrastructure in Kenya is in pathetic condition due to insufficient allocation of financial resources for maintenance of transport infrastructure. Most roads (both paved and unpaved) have potholes and become impassable during rainy seasons. The railway line serving the Nairobi Metropolitan as well as other towns such as Nakuru and Mombasa is dilapidated and mostly used for freight transport.

Non-Motorized transport (pedestrians, cyclists and carts) infrastructure is not adequately provided for in urban areas evidence to preference of MT to NMT. Furthermore, there is lack of modal integration within the urban areas and this gap can be closed by using NMT. However, people prefer using their private cars which are more convenient since no modal transfer will be required.

Encroachment and illegal land allocation along urban transport corridors constrains the use of the network and expansion reducing the capacity of the networks. The sector is managed by many institutions charged with road maintenance, rehabilitation and development which make it difficult to coordinate the activities of the various road agencies in determining their financial requirements and address the problems in a synchronized manner. Finally, transport is a major contributor in environmental pollution through oil spills, emission of GHGs among others.

The urban transportation strategy will focus on the development of an integrated, efficient and reliable urban transportation system in all major urban centres of Kenya. To achieve a fully integrated network system, NSP proposes the creation of one single multimodal/multifunction transportation authority to oversee public transportation including rail systems, bus routing and other para-transit modes.

The Mass Rapid Transit System (MRTS) which incorporates a Bus Rapid Transit (BRT) and a commuter rail shall be introduced on major highways within the major urban centers. In addition

all the feeder roads, railway lines, airports and airstrips shall be upgraded and maintained to uphold the quality.
The use of Intelligent Transport Systems (ITS) will complement the development of modern urban public transport facilities. This system, which relys upon advanced electronics communications and IT for monitoring and tracking real time information on traffic flows and volumes, is to better manage limited road space.

Detailed conurbation studies will be required to prioritize provision of infrastructure to achieve the desired modal split and to coordinate the location of fixed track networks in areas of greatest demand.

All the illegally acquired land for roads infrastructure shall be reposed and reverted to the responsible agency. Moreover adequate land for future transport infrastructure development shall be preserved and secured.

The purchase and use of high occupancy public transport vehicles shall be promoted and the use of private vehicles shall be discouraged once public transport is efficient in urban areas.

To curb congestion in the city centres, bypasses and ring roads shall be constructed to divert traffic. Proper traffic management system for urban areas can also help in reduction of traffic jams as well as accidents.

Use of green transport in urban areas shall be encouraged because it is environmentally friendly, cheap and does not cause congestion.

An Urban transport policy shall be developed and urban transport planning and management integrated.

Table 26: Summary of Transport Constraints and Strategies

Mode of transport	Issues and challenges	Potentials	Projects	Strategy
Road	• Most roads are in poor condition; • Lack of coordination of activities by various agencies in charge of the sector; • Lack of NMIMT infrastructure; • Congestion and on street trading in urban areas; • Uncontrolled bodaboda outburst in both rural and urban; • Inadequate parking space especially in urban areas • Encroachment and/or grabbing of road reserves; • Inadequate or lack of terminal facilities hence picking and dropping of passengers in undesignated areas. • Congestion and on street trading in urban areas; • Poor transport infrastructure; • Missing links (poor connectivity); • Poor quality of transport services; • Inappropriate modal split; • Unexploited regional role of the transport system; • Transport system not	• Rapid urbanization; • increased accessibility; • Increased trade and investments; • Increased revenue; • Exploitation of untapped resources; • Reduction of transport costs; • Opening up of undeveloped areas such the northern parts of Kenya;	• Introduction of a Bus Rapid Transit (BRT) along selected routes within NMR as a project within Mass Rapid Transit System (MRTS) • The ongoing construction of bypasses and rings to divert traffic from urban areas in towns such as Eldoret, Meru and Nairobi; • Construction of LAPSSET corridor which will result to urbanization along it; • Upgrading and construction of roads in various part of the country is ongoing; • Draft Non-Motorized Transport Policy by UNED seeks to address the promotion of NMT transport and its integration into the transport system.	• Integrate transport corridor planning; • Undertake a national transport survey to develop guidelines and a framework of principles for rural, inter-county and inter-city transport policy; • Repossess and revert all illegally acquired land for roads infrastructure; • Preserve and secure adequate land for future transport infrastructure development; • Promote the purchase and use of high occupancy public transport vehicles and discourage the use of private vehicles; • Create linkages to agricultural, tourist and urban areas; • Enforce a regulatory standard requirement for all public transport service operators; • Encourage private sector participation; • Implement the proposed LAPSSET Corridor; • upgrading of all the roads • Construction of bypasses and ring roads to divert traffic from city centres; • Proper traffic management system for

	fully integrated; • Urban environmental pollution • Lack of an urban/rural transport policy; • Inadequate human resource capacity.			urban areas; • Encouragement of use green transport; • Consolidate and explore new funding sources.
Rail	• Poor condition of the existing railway line • Poor institutional management ; • Lack of cargo handling equipments; • Unreliability of the railway transport ;	• Rapid urbanization; • increased accessibility; • Increased trade and investments; • Increased revenue; • Exploitation of untapped resources; • Reduction of transport costs; • Opening up of undeveloped areas such the northern parts of Kenya;	• The on-going Standard Gauge Railway (SGR) will offer faster services to both passengers and freight; • Introduction of a commuter rail network within NMR as a project within MRTS	Adopt rail car transport in urban areas; Implement construction phase 2 of the standard gauge railway (SGR); Improve institutional management of railway transport; Develop and expand the railway line across the country and make it the core national mode of transport.
Air	• Insufficient and ineffective linkages between airports and other transport modes; • High maintenance cost; • Poor condition of most airports and airstrips; • Lack of demand as most businesses arelocated in Nairobi; • Encroachment/grabbing of airports influence area;	• Rapid urbanization; • increased accessibility; • Increased trade and investments; • Increased revenue; • Exploitation of untapped resources; • Reduction of transport costs; • Opening up of undeveloped areas such the northern parts of Kenya;	• Expansion of JKIA, construction of a new airport near Thika as well as upgrading of various airstrips and airfields.	Improve and expand existing airports and airstrips; Improve linkages between airports and the city centres; Enforce development control measures within and around airports.
Pipeline	• The pipeline's interface with other transport modes such as roads, rail and marine transport is not planned and integrated efficiently;	• Rapid urbanization; • Increased trade and investments; • Increased revenue; • Reduction of transport costs; • Opening up of	• N/A	Integrate the pipeline transport with other modes of transport; Expand the pipeline to enhance regional integration

		undeveloped areas such the northern parts of Kenya;		
Marine and Inland Water	• Delays In Cargo Handling; • Bureaucracy; • Low storage capacity; • Non-operation icds (safe for those in Kisumu and Nairobi); • Inadequate harmonization and overlap in the many legislations that govern its activities; • Lack of institutional capacity; • Stiff competition from private developers and other countries.	• Increased trade and investments; • Increased revenue; • Reduction of transport costs;	• Construction of Lamu Port project will open up Lamu and other surrounding towns as there will be a more efficient connectivity; • Planned expansion of the Port by adding the number of berths.	Restructure management of ports and inland water transport; Expand ports to handle more cargo; Maximize use of inland water transport; Develop and maintain ICDs; Ensure construction and completion of the Lamu port; Provide adequate infrastructure to ports; Optimize the split of cargo between road, rail and pipeline.

3.3.7 Public Utilities

To achieve a spatial and balanced regional development and to meet the demands of the growing population there is need to develop and enhance economic infrastructure such as water services, waste management, energy and ICT to provide foundation for economic development.

Water and Sanitation

The vision for the water and sanitation sector is "to ensure water and improved sanitation availability and access to all by 2030".Water is essential for domestic, industrial and agricultural purposes. Unreliable access to clean, sufficient water has often hampered the advancement of agriculture and industries across the country. Moreover, outbreaks of waterborne diseases like cholera have been reported severally owing to water scarcity and inappropriate sanitation provision.

Provision of clean water and proper sanitation facilities in urban areas ought to be given immense emphasis owing to the rapid rate at which rural populations are moving into urban setups, straining the already insufficient resources. In most rural areas, people fetch water for domestic use directly from the sources due to lack of infrastructure, a scenario which compromises conservation efforts and the ultimate quality of water.

Currently, Kenya is a water-scarce country with renewable fresh water per capita of 647 m^3 against the United Nations recommended minimum of 1,000 m^3. This compares unfavourably with the neighbouring countries of Uganda and Tanzania, which have per capita levels of 2,940 m3 and 2,696 m^3 respectively. In Kenya's ASAL areas, the problem is more pronounced. It is estimated that nearly 43% of the residents take about one hour to reach water points during dry seasons. Furthermore, inter-clan conflicts in the area are often attributed to scarcity of water.

Kenya is divided into five drainage basins which include; Lake Victoria, Rift Valley basin, Athi basin, Tana basin and Ewaso Ngiro North basin. The water distribution in the five basins is highly uneven with the highest water availability in the Lake Victoria Basin (more than 50%) and the lowest in the Athi Drainage system. Only the Tana and Lake Victoria Basins, have surplus water resources while the three other basins face deficits.

For decades, water scarcity has been a major issue in Kenya, caused mainly by years of recurrent droughts, poor management of water supply, contamination of the available water, and a sharp increase in water demand resulting from relatively high population growth.

Additionally, Sewerage system coverage in urban areas is low and stands at 20% with Nairobi and Mombasa a network coverage of 47% and 20% respectively. Most of the other urban areas are not supported by a sewer network but depend on septic tanks and pit latrine modes which are not sustainable.

There are 43 sewerage systems in Kenya and waste water treatment plants in 15 towns serving a paltry 7.2% of the total urban population. The operation capacity of these wastewater treatment plants is estimated at around 16% of design capacity attributed to inadequate operation and maintenance, inadequate water supply and low connection rates to sewers. It is estimated that 19% of the wastewater that enters the sewer network, only about 60% reaches the treatment plants.

To close the gap of water and sanitation needs of the growing population in the Country, NSP proposes that waters sources and catchments areas such as aquifers, dams, and water recharge areas should be protected. Existing water bodies and wetlands should be protected and rehabilitated by creating appropriate buffers between these sources and other non-compatible land uses

There is need to invest in water harvesting technologies and storage facilities in areas classified as water stressed areas such as ASALs. In addition suitable technologies should be used to exploit potential underground water to increase the total supply of water in the country.

Appropriate water reticulation network should be developed to promote equitable water distribution throughout the country

The NSP strategy also proposes that appropriate sanitation infrastructure including collection, disposal and treatment system be developed and upgraded to cover all urban areas and meet the growing demands of urban population.

Solid waste management

Effective, efficient and cost economical waste management facilities are crucial if industrial and enterprise activity is to flourish and develop in a balanced way across various regions of Kenya

Kenya is urbanizing fast and the amount of solid waste generated is escalating posing serious solid waste management challenges. As the rate of urbanization increases it's estimated that the amount of municipal waste generated will increase from 2,000 tons per day in 2012 to approximately 10,000 tons per day by 2025.The bulk of these waste is generated in major urban areas with Nairobi producing 3,200 tons, Mombasa 750 tons and Kisumu 400 tons per day respectively .

Most of the urban areas are devoid of solid waste management facilities. Dumping sites are almost nonexistent and where they exist they are poorly sited, capacity has been exceeded and are poorly managed.

The NSP strategy Proposes the construction and upgrading of integrated solid waste facilities to enable the proper collection, treatment and disposal of solid waste.

Energy

Energy is one of the infrastructural enablers of the three pillars of Vision 2030. The level and intensity of commercial energy use in a country is a key indicator of the degree of economic growth and development. Kenya is therefore expected to use more energy in the commercial sector on the road to 2030. As incomes increase and urbanization intensifies, household demand for energy will also rise.

The various source of energy in the country include Hydro, geothermal, wind, solar and Biomass Cogeneration. Hydropower is the single largest generation source for grid electricity in Kenya providing approximately 761MW corresponding to 50% of the total installed grid capacity with estimated potential of 3000MW.

Kenya Installed Power Capacity stands at 1,533MW with a Peak Demand of 1,236MW leaving a marginal reserve of 297MW. Kenya is highly dependent on hydroelectricity with 75% of all electrical output. Demand for electricity in Kenya is projected to grow at 7% per annum over the next ten years. Kenya Power & Lighting Company (KPLC) is responsible for transmission, distribution and supply of electricity to consumers.

The national connectivity for electricity stands at 28%, the urban centres share of this total is 54% as compared to the 22% for rural areas. To meet the electricity demand for domestic and

industrial use the government put in place the Rural Electrification Programme which is envisioned to empower rural population in education, health, lighting, modern farming, fish farming, employment creation, security enhancement and general improvement in standard of living, of the people among as well as increasing national power generation.

Since its inception, the project has increased the connectivity coverage from 12% to 22% connecting Trading Centers, Public Secondary Schools and Health Centers.

Demand for electricity in Kenya is projected to grow at 7% per annum over the next ten years and there is need to exploit the natural endowment of varied natural sources such as wind, solar and geothermal in the country. This will help meet growing energy demand. Deliberate measures have therefore to be taken to develop these potential energy sources. The map below depicts the potential green energy sources in the country.

The country is facing serious energy challenges which are impediments to realization of economic development and improvement in people's standard of living. The overreliance on hydropower which contributes about 50% to the national grid has resulted to power rationing and constant power outages due to extreme weather conditions that result in drought. In addition, there is lack of adequate technological infrastructure to undertake exploration and exploitation of renewable and clean energy potentials such as wind, solar and geothermal in the country.

Due to lack of proper assessment and research there is unsustainable exploitation of green energy potentials in the country leading to adverse environmental effects such as land degradation and desertification. This is exacerbated by lack of relevant policy framework that guide the use and tapping of these resources. Development of power infrastructure because building of power generation, transmission and distribution network is capital intensive and therefore the high cost is transmitted to the consumers making access a challenge.

The NSP Strategy proposes potential renewable energy such as solar, wind, biomass and Geothermal harnessed and transmission and distribution infrastructure developed including building and installations of power plants in all prospective areas.

Similarly, a policy framework needs to be developed to guide and regulate the use and exploitation of potential green energy sources by developing standards and promotion of research and planning.
Energy Efficiency systems and Energy Demand Management systems will also be implemented through promotion and use of most appropriate energy-consuming equipment to ensure efficient and productive use of energy. The government should also caution energy producing firms and organizations from volatile global oil prices through the provision of subsidies to increase the access of power and reduce the cost of consumption.

3.3.8 Information and Communication Technology (ICT)

The ICT sector has been growing favourably in keeping with the rapidly changing global trends. The sector encompasses telephony, ICT parks, internet, print and electronic media. Prices for ICT services in Kenya are relatively high. Charges for fixed-line, mobile, and international calling, and for Internet access, are significantly higher in Kenya than in comparable African countries.

Kenya has emerged as an African ICT hub in the last decade. The ICT and innovation sector has grown in leaps and bounds as evidenced by the growth of M-pesa and other mobile money transfer service provided by Safaricom which have put Kenya on the global map. CT plays a strategic role in the economic and social development and the realization of vision 2030 which underscores universal access of ICT related infrastructure as a major objective to its achievement.

The expansion and growth of ICT contributes enormously in reduction of transaction cost and general business efficiency providing a conducive business environment and improvement of the education sector as well as ensuring accountability in governance.

Although the sector has registered substantial growth, the disparity in internet access between urban and rural areas continues to increase. In most urban areas, the rate of access is above 15 percent, whereas penetration is less than 3 percent in some rural areas. The impediments to ICT infrastructural development partly explain the disproportionately high concentration of internet subscribers in Kenya's two largest cities, Nairobi and Mombasa.

Kenya has a 5,500 KMs of Fibre Optic Cable connecting Fujeira, UAE with Port of Mombasa. The National Optic Fibre Backbone Infrastructure (NOFBI) connecting the rest of the country to the rest of the world from Mombasa is in place. The government is also developing External National Fibre Optic Network to all Cell sites in the country and so far 20,000 Km have been completed.

Health, education stadia and ICT sub sectors are faced with the problem of disparity in location. This makes ICT inaccessible to majority of Kenyans. There is need to make deliberate efforts to arrive at a logical way of locating these facilities.

Infrastructure sector therefore faces problems regarding poor connection, low coverage, un-reliability, high costs, skewed distribution and low/surpassed design. To rectify this situation clear indicative policy, strategies and measures have to be developed and implemented to achieve overall efficiency. The table below illustrates the proportion of population that has access to some selected ICT services.

Table 27: Proportion of population with access to ICT services

	Services	Numbers
1.	Mobile Subscriptions	33.6 million
2.	Fixed Network Subscriptions	251,576 lines
3.	Broadband subscriptions (speeds greater or equal to 256kbps in or out)	1,002,701 million
4.	Internet penetration	41.1%
5.	international internet used bandwidth 328,641 Mbps	186 Mbps
6.	International Internet Available Bandwidth	906, 186 Mbps
7.	Broadcasting Radio Broadcasting Television Number of Postal Outlets	99 16 634

Notwithstanding the bottlenecks slowing down the growth of the ICT sector, great strides have been made in recent years which have improved the country's region and global competitiveness. ICT initiatives have been undertaken that have positively impacted on the livelihoods and improved service delivery to the people. Huduma centres, E-Government services, Kenya Open Data and the Laptop programme for primary schools are some of the projects facilitating better and efficient information delivery besides promoting productivity.

To bridge the gap of supply and demand of ICT related infrastructure and harness potentials, the NSP strategy proposes promotion of Kenya as an ICT hub in East Africa, Africa and globally by building relevant ICT infrastructure and expansion of the existing network to all major urban areas and rural growth centres and nodes; Mainstream ICT at all sectors to promote service, increase efficiency and productivity and improve on existing platforms such as Huduma centre, BPO services and E-government; and Expand the fiber optic network to all urban areas to increase the coverage and data connectivity and increase access for rural population.

3.3.9 Social Infrastructure

i. Higher Education

Kenya's higher education sector is expected to provide globally competitive, quality education, training and research for sustainable development to position the country as a regional centre for research and development of new technologies in the drive towards meeting the country's Vision 2030.

Higher education encompasses universities, technical, industrial, vocational and entrepreneurship training. These institutions play the crucial role of building human capital to serve in various capacities, thereby contributing immensely to economic, social and political development of the country. These institutions are centres for research, making them a source of creativity and innovation which increase Kenya's overall global competitiveness. Tertiary education institutions are a source of employment for many tutors who impart knowledge as well as several

subordinate staff who facilitate their functioning. Currently, there are 22 public universities, 24 private universities of which 14 are fully chartered institutions as well as 12 universities with Letters of Interim Authority. There are numerous middle level and technical training colleges scattered throughout the country, mostly in favour of urban areas.

Access to high quality tertiary education has been hampered by numerous challenges mainly stemming from high levels of poverty and insufficient quality control mechanisms by the government. Since the country's first university was established in 1970 (The University of Nairobi), the country still faces a transition rate from secondary to higher education institutions of below 50%. The survival rate from Class One to institutions of higher learning is even much less at below 20%. Nevertheless, there has been a steady increase yearly in the overall enrollment of students into tertiary education institutions.

High levels of poverty in the country have led to poor absorption of well qualified students from high school to pursue different courses in colleges and universities leading to disillusionment and contributing to crime. In addition, there is a widespread preference for middle level colleges and universities over technical training institutes which further constrain the overall number of students that is enrolled to pursue further education. Moreover due to limited capacity of the most sought after public universities, many students who score the minimum required mark are locked out of placement while those who get chances face the constraint of learning under strained resources. Challenges in acquisition of land for expansion of government-run colleges and universities has proven to be a hindrance to development of these institutions, further dimming the vision for effectively increasing the high school to college transition rates without compromising the quality of education offered.

Additionally, the government has not strictly regulated or effectively monitored the quality of infrastructure and of courses offered by many institutions of higher learning before allowing them to operate, which compromises the quality of resultant graduates. Many university and college graduates exhibit little competence and preparedness for the job market leading to costly incompetency in their various fields and reducing their ability to contribute to the general development of the country.

Furthermore, due to budgetary constraints, many public colleges and universities and even private institutions put little emphasis on research and innovation thereby forcing the country to expatriate revenue in search of skills and technologies which could easily be generated in the country.

The NSP proposes to enhance the country's higher education sector by increasing enrollment capacity, ensuring strict regulation of the quality of courses and learning infrastructure offered and encouraging more students to opt for technical courses. The government will strictly enforce regulations governing the establishment of colleges and private universities with thorough vetting done to content of courses to be offered plus the infrastructure to facilitate the same while

encouraging institutions to provide training necessary for Kenya's advancement with regards to Vision 2030. Moreover, there will be an evaluation of all the courses currently being offered by all higher education institutions and appropriate recommendations made depending on their different outcomes.

The government will encourage innovation and research to be fused into the content of various courses offered by these institutions to spur invention of indigenous technologies and skills to advance the country's economic and social growth.

To increase the enrollment capacity of these institutions, there shall be physical, infrastructural and personnel upgrade and expansion of the existent public institutions of higher learning including village polytechnics and vocational training centres. This will be achieved through acquisition of land to construct new campuses or expand the existing ones through maximum optimization of available spaces owned by the institutions. Further, the government will encourage the establishment of higher learning institutions in Northern Kenya by making requisite budgetary allocations and giving incentives to private universities to expand their campuses into these areas as well as other parts of the country. Government funding to students joining both public and private middle level colleges and universities will be increased to give more chances to students from poor backgrounds.

ii. Sporting Infrastructure

Kenya's Vision 2030 aims at investing in the people of Kenya in order to improve their overall quality of life. Sport is a major entertainment and employment sector in the country with the most popular being athletics, football, rugby, motorsports, volleyball, boxing, basketball, swimming and cricket. The country has gained much international glory for its successes in athletics, rugby and swimming. Sport also enhances the overall wellness of those who participate in it by helping to keep them fit and lowering stress levels.

In spite of the noteworthy successes that the country has made in this sector, sporting infrastructure remains non-existent in many parts of the country and poorly maintained, underutilized and neglected in major towns.

Kenya has two main international stadiums (Kasarani & Nyayo) both located in Nairobi. There are other grounds in urban areas across the country referred to as 'stadiums' but which are deficient in terms of land size and auxiliary facilities. These grounds were under the management of the respective local authorities.

Little budgetary allocation (by the national and today by the county governments) to sporting infrastructure has seen it remain largely underdeveloped and unmaintained. In addition, there is little security given to stadia to guard against vandalism and misuse owing to inexistent or inefficient institutional organization for management. Little promotion of sport as a decent,

income earner has also contributed to these trends. In some scenarios, difficulty to access land for establishment or expansion of sporting infrastructure has led to absence of much-needed sporting grounds. In many places, land set aside for sporting infrastructure has not been utilized, creating room for grabbing. All of these scenarios have denied Kenya the chance to host several, high profile regional sporting competitions.

To develop the country's sporting infrastructure, the national and county governments will set aside decent budgetary allocations for acquisition of land for construction of new stadia as determined by thorough Needs' Assessment strategies. To revamp and upgrade the existing sporting infrastructure, both county and national governments will avail sufficient funds to provide all the necessary stadia facilities and auxiliary utilities. Moreover, stadia management boards will be established for each major sporting facility to oversee repairs, upgrades, maintenance and general management of the infrastructure. The government will also spearhead the formation of sporting academies to nurture sporting talent and thus, increase the use of sports facilities.

For lower-level stadia, the responsible local authorities will provide competent management. In addition, the government will encourage private companies to take part in management of national stadia with the county governments being encouraged to do the same for infrastructure under their control.

Table 28: Summary of Social Infrastructure

Infrastructure	Issues	Opportunities	Strategies
Sporting Infrastructure	Poor management of existent infrastructure Skewed distribution Lack of proper repair and maintenance structures Little modernization and upgrade of sporting infrastructure targeting Underutilization stemming from little promotion of sports as a potential income earner	Immense, untapped sporting talent in the country Existence of many regional and national tournaments that need to be hosted in good quality stadia; sports tourism Availability of land for infrastructure development in various parts of the country	Address imbalances in distribution of sporting infrastructure by establishing modern stadia in areas away from major urban areas including the North Establish and properly constitute stadia management boards Develop sound stadia repair, upgrade and maintenance policies Encourage private entities to take part in the development and management of sporting infrastructure Set up talent academies to harness sporting talent throughout the country and increase utilization of the infrastructure
Higher	High levels of poverty resulting	Increasing	Strictly regulate the content and

Learning Education Institutions	into low rates of transition from high school into tertiary institutions Little emphasis on innovation and research in courses offered Insufficient government monitoring of content offered by universities and colleges Little enthusiasm for technical courses offered by several institutions Skewed distribution of institutions in favour of urban areas Budgetary constraints resulting in little establishment of necessary institutions	globalization which can make Kenya an education hub in East and Central Africa High numbers of students seeking affordable, higher education both from within and outside Kenya Advancement of Kenya's economy which implies that the county will need more professionals	educational infrastructure offered by institutions Provide more government funding for needy students seeking enrollment Expand the capacity of existing public universities both in terms of infrastructure and personnel to increase access Encourage the active fusion of innovation and research into coursework taught by colleges and universities Establish more campuses in marginalized areas to promote regional balance

iii. Health Care

Kenya's Vision 2030 for the health sector aims at providing an efficient, integrated and high quality affordable health care to all citizens with priority being given to preventive care at community and household levels, through a decentralized national health-care system. The Constitution of Kenya also recognizes access to high quality, basic healthcare as a fundamental right.

The health sector plays the important roles of providing healthcare to Kenyans, educating people on various health issues as well as providing employment to thousands of healthcare givers. Currently, management of much of healthcare provision is a devolved function under county governments with the national government remaining in charge of policy and research issues.

Access to decent and affordable healthcare is a huge challenge in almost all parts of the country especially for more than 50% of Kenyans who live below the poverty line and cannot afford services offered in private hospitals. Moreover, there exist stark disparities between different regions in terms of access to proper healthcare and the general health that people enjoy.

In 2008, there were 6,190 health facilities in Kenya, the equivalent of 16 facilities per 100,000 people, or 11 facilities per 1,000 km^2. On a regional level, Rift Valley and Western regions have the least number of hospital beds per 100,000 population, with only 13.6 and 15.4 beds per 100,000 population, respectively. The highest number of beds is found in Nyanza region, with 30.3 beds per 100,000. In Northeastern regions, there are only 16.1 beds per 100,000 population, while this region also has the lowest healthcare utilization rate, at only 63.4%. The most sophisticated healthcare services are available in the major towns and cities and at the national level. At the top of the service spectrum are the National, Referral, and Teaching Hospitals

(NRTH) i.e. Kenyatta National Hospital in Nairobi and Moi Teaching and Referral Hospital in Eldoret. The next best level of care is found in the provincial hospitals, followed by district and sub-district hospitals. Beneath the sub-district level, there are health centres, dispensaries, and community health organizations. Rural areas face the most crucial healthcare challenges with scarce distribution of facilities, lack of equipment, personnel and basic supplies as well as poor transport infrastructural networks to ease access to these facilities.

Evidently, in several parts of the country, existence of health infrastructure does not necessarily correspond to access, good quality and general wellness of the resident population. Nevertheless, the country has made commendable strides in some aspects of healthcare provision. Positive trends have been noted in the drive towards prevention of child mortality, utilization of contraception and adoption of use of mosquito nets in preventing malaria. On the contrary, prevention of maternal morality and early detection and treatment of cancer are still a long way off.

Several challenges are inherent in the country's healthcare system that ultimately compromise Kenya's ability to ensure that every person has access to good quality and affordable services. Lack of crucial facilities and medical supplies in public hospitals often compromises the dissemination of services, sometimes leading to loss of life. Also, inadequate numbers of healthcare personnel compromises the quality of services due to apathy and exhaustion in the professionals. Moreover, poor working conditions for personnel continues to lead to brain drain whereby professionals choose to look for greener pastures out of the country or abandon the public sector in favour of private hospitals. Consequently, many public hospitals and healthcare centres lack specialized care providers like oncologists, cardiologists, dentists and dermatologists, thereby increasing the costs and distances that patients have to cover in search of these services.

Moreover, healthcare fees are out of reach for poor people who cannot afford charges levied in both public and private hospitals for specialized services such as cancer screening and kidney dialysis. Many times, Kenyatta National Hospital and the other referral and provincial hospitals with the capacity to offer such services are characterized by long queues thereby reducing the efficacy and effectiveness of care offered.

To meet Kenya's Vision 2030 ambition of ensuring integration, high quality, affordability and efficient access to health services, the NSP proposes a hierarchical approach towards enhancement of the country's healthcare infrastructure. All of the country's health facilities will be evaluated (based on their level in the hierarchy) to determine the existent gaps in terms of equipment and facilities, personnel, bed capacity and space for expansion and these gaps will be duly filled. There will be special focus on a systematic upgrade of all sub-district hospitals to enable them offer all the services available in district hospitals, albeit at a smaller scope. Frequent evaluation of conditions of infrastructure and equipment, replacement, repair and

maintenance will be emphasized in all public facilities. In addition, there will be emphasis on construction of multi-storied buildings to eliminate wastages of land in public healthcare facilities and acquisition of new land to enable expansion of provincial, district and sub-district facilities which receive a lot of patients.

To achieve integration in healthcare provision and ensure timely, efficient referral processes, sufficient infrastructure including ambulances and effective communication lines will be established between the lower level health centres and the higher level national and county hospitals.

To boost the capacity of healthcare providers to offer good quality care, their working conditions will be improved in striving towards meeting the WHO standards. This will involve training and employment of more professionals, review of their working hours and occupational safety issues, as well as timely refresher courses to keep them abreast of any emerging international trends in provision of quality healthcare.

To establish a sustainable health tourism sector in the country, the level of service offered in national and county hospitals will be upgraded to internationally acceptable standards to target East and Central Africa patients, with the private sector playing a vital role as well. The pressure that national hospitals face in terms of provision of highly specialized services will be eased by improving the capacity of county hospitals to offer the same. Moreover, these services will be subsidized to make them easily accessible by people who live below the poverty line. The national government will, together with private players, provide low cost health insurance schemes targeting low income earners to improve their access to quality healthcare.

Table 29: Summary of Health Facilities

Health Facility Type	Challenges	Opportunities	Strategies
National and County Hospitals	Extremely high numbers of patients, straining the available infrastructure and resources Disproportionate healthcare professionals to patients ratio Inadequate medical supplies Little adoption of new technologies relevant to provision of modern healthcare Unaffordability of specialized care and advanced medical procedures Inappropriate working conditions for personnel and subordinate staff	Increasing population both in Kenya and neighboring countries meaning more people will need healthcare Increasing integration between Kenya and East/Central African Countries provides an opportunity for health tourism Continued technological advances in the field of medicine in the form of invention of more efficient equipment and therapies Advances in training of niche-specialized healthcare professionals in the country	Increase the number of beds in hospitals by building and furnishing more wards as may be necessary Strive towards reaching the WHO recommended professional to patient ratio by training employing more qualified staffs Carry out frequent refresher courses for medical professionals to make them knowledgeable on new, globally accepted trends in healthcare provision Determine the annual budgetary allocation necessary for ample provision of medical supplies to each hospital, and make the requisite apportionment Improve working conditions for personnel by hiring new staff to augment the existent workforce, review working hours and safety concerns of personnel Subsidize the cost of specialized services to increase accessibility by low income earners Increase the capacity of provincial and district hospitals to offer high quality curative care to reduce the pressure on national hospitals
Nursing Homes	Insufficient numbers of qualified personnel to offer quality services Inadequate medical supplies Frequent power and water outages stalling service provision	Increased number of women choosing to seek reproductive and child care from hospitals High rate of population growth	Train and employ more service providers to these facilities Maintain ample supply of required medical supplies Provide efficient repair, replacement and maintenance of equipment and general infrastructure
Health Centers & County hospitals	Inadequate number of professional and support personnel Outages of utilities like power and water supply Little, inappropriate or inexistent infrastructure to	Greater drive by both county and national governments to upgrade these facilities Interest by foreign	Train and employ more service providers to these facilities Maintain ample supply of required medical supplies Provide efficient repair, replacement and maintenance of equipment and general infrastructure

	facilitate referrals in case of emergencies e.g ambulances Insufficient medical supplies	and internal research agencies to conduct research in these facilities	Provide proper referral infrastructure in case of emergencies
Private Clinics	High costs of operation leading to outages of utilities like electricity and water High cost of medical supplies Limited number of employed healthcare professionals	High rate of population growth Government encouragement of PPP in provision of healthcare Preference of private healthcare by the general population	Offer government incentives to providers like tax rebates to enable them reduce the costs of their services Reduce medical supplies, energy and water supply costs to lower their expenditure
Dispensaries/ Rural Health Centres	Inadequate number of qualified personnel Inexistent or insufficient facilities necessary to dispense healthcare Poor linkages with district and provincial hospitals in case of referrals Poor infrastructure compromising access to health centres by resident populations Poor or inexistent water and electricity utility infrastructure	Increase in numbers of student taking up community medical-related courses Improving transport infrastructure easing access to these institutions	Encourage partnership between traditional healthcare providers with conventional healthcare providers Enhance transport infrastructure to ease access to these centres and emergency referrals to larger facilities Provide medical supplies and properly maintain utility infrastructure necessary for proper service delivery Increase number of qualified personnel working in these institutions

3.4 Promoting Balanced Regional Development

3.4.1 Overview

The Kenya Vision 2030 includes equity as a recurrent principle in economic, social and political programmes. It gives special attention to investment in Arid and Semi-arid (ASAL) areas. The Vision 2030 Development Strategy for Northern Kenya and other Arid Lands aim at achieving a secure, just and prosperous Northern Kenya and other arid lands, where people achieve their full potential and enjoy a high quality of life. Constitution 2010 also provides for the devolved system of governance which ensure participation of communities and equitable national resource distribution to address socio-economic disparities. These strategies set out the foundations for enhancing development within those regions. Among them includes; development of the infrastructure; Improving security, peace building and conflict management; Human resource development, labour and employment; Public sector reforms; Natural resource management and land reforms; Drought management and climate change; Science, technology and innovation

The strategy of promoting balanced regional development has been adopted in the NSP due to the evident disparities existing among the various regions in Kenya. It aims at progressively reducing disparities between regions and enhancing equity in development for purposes of national unity and global competitiveness through efficient and sustainable use of resources.

3.4.2 Existing Situation

Regional imbalance has been a major issue in Kenya since independence. An analysis of the situation reveals massive disparities between regions. These disparities may be divided into the North-South divides with other pockets of divides which are characterized as urban rural, rural-rural and urban-urban divides. The Northern region is less developed in terms of transport (road network), energy, water, information and communication while the southern part is better developed.

Major factors that have contributed to the regional imbalance may be attributable to the colonial policies, governance and geographical determinism. The colonial government concentrated development only in a number of selected regions such as Central Kenya (Kiambu, Nyeri and Murang'a), Eastern (Machakos and Meru); Western (Kakamega and Bungoma); Nyanza (Kisumu and Kisii); and a few urban areas, namely, Nairobi, Mombasa, Kisumu and Nakuru. This left vast areas in the Rift Valley, Coast and North Eastern provinces undeveloped. These areas lagged behind in education, infrastructure and agricultural development, despite many of them being ideal for agriculture. Thus, at independence, some parts of Kenya were "highly economically developed and modern, while others were still using indigenous modes of production" (Fredrich, 2012).

Other colonial policies included segregation in terms of settlements. The white settlement areas which were of high potential were occupied mainly by the Europeans and other colonial administrators and they were better developed as opposed to other areas referred to as native reserves or the low potential areas. Not much changed in respect of underperforming areas immediately after independence, particularly for the northern areas of the country in spite of developments that were undertaken in the area. Presently, the disequilibrium in national development is still very wide and apparent.

Geography including climate (Rainfall) and remote location has also played a significant role in contributing to the pattern of development in the country. Geographical determinism seems to have played a role in the sense that areas not amenable to arable farming due to rainfall vagaries were perceived as low potential. Those that presented stable and reliable rainfall were perceived to be high potential. These perceptions have influenced both policy and action of government and have in turn influenced the pattern of national development

Other factors that have contributed to imbalanced regional development include under-exploitation of the natural resource potential and locational opportunities, cultural, ethinicized

governance system, insecurity and Inadequate use of knowledge and innovation. The potential of the divides are as indicated in the table below

Table 30: Regional Divides and their Potentials

REGION	COUNTIES	POTENTIAL
NORTH	Garissa, Wajir, mandera, Turkana, Marsabit, Samburu, Tana River,Kwale, Isiolo, Baringo, Kitui, Laikipia, Baringo, West Pokot, Narok, Makueni, Machakos, Kajiado, Lamu, Tharaka Nithi, Elgeyo Marakwet,Kilifi	• Minerals • Tourism sites • Large scale livestock production • Fishing • Renewable energy • Filming
SOUTH	Kiambu, Kirinyaga, Nakuru, Nyeri,Kericho, Bungoma, Uasin Gishu, Siaya, Migori, Homabay, Busia, Kakamega, Trans Nzoia, Meru, Kisii, Nyamira, Kisumu,Nyandarua, Muranga ,Vihiga,Nairobi, Nandi	• Rain fed and irrigated agriculture • Fishing • Tourism • Urbanization,

3.4.3 Past efforts to Promote Balanced Regional and Rural Development

The Government has in the past made various efforts to address this challenge although little appears to have been achieved. Efforts which include publication of Sessional Paper no 10 of 1965 which recommended that development money be invested where it will yield a large increase in net output. This approach clearly favored development of areas with abundant natural resources, good land and rainfall, and other infrastructures and people receptive to and active in development this was followed by sessional paper no. 1 of 1986 on economic management and renewed economic growth which was to address the income gaps by raising the productivity and income of farmers and workers in the informal sector.

As discussed in chapter 1, six regional development authorities were established. They included Tana and Athi Rivers, Kerio Valley, Lake Basin, Ewaso Ng'iro North, Ewaso Ng'iro South, and Coast with the aim of controlling rural –urban migration by developing the rural areas. The main objective for their establishment was to ensure that Kenyans attained enhanced growth and sustained wealth creation through integrated water basin-based development programs through policy guidance and capacity building for sustainable use and the conservation of water and other natural resources. In addition RDAs developed core projects and activities that contributed

towards the many social and economic goals of Vision 2030. For instance, its first medium-term plan - covering the period 2008 to 2012 – had the objective of enhancing integrated regional development and improvement of institutional capacity.

3.4.4 Challenges of Balanced Regional Development

i. Inadequate infrastructural facilities and services

Provision of physical and social infrastructure across the regions is uneven. Key infrastructure and services are provided mainly in major urban centres and in regions perceived to be resource rich. As a result, faster growth, development and urbanization have been occurring in these regions while the regions perceived to be resource poor have lagged behind. Where infrastructure is provided in areas perceived to be resource poor, the standards in terms of quality, quantity and conditions are way below those perceived as resource rich regions. Maintenance and upgrading of infrastructure in resource poor regions is not prioritized.

ii. Under-exploitation of resources

Kenya is well endowed with both natural and human resources. They range from minerals, tourism based resources, energy and mineral deposits among others. However, the resources have either been under-exploited or not exploited. This is attributed to the slow adoption of modern mining technologies and inadequate geological information on the existence of the minerals and their commercial viability.

iii. Weak linkages

Rural areas are normally characterized by poor accessibility to the urban centres where the rural population is almost totally dependent on marketing farm produce and income. Lack of technological innovation and support also results into low productivity and low incomes. Poverty in the initial stages of development is often associated with smallholding agricultural activities in rural areas. Establishing strong urban-rural linkages is crucial in ensuring sustainable development of the rural areas.

Opportunities

i. Resource endowment

Kenya is endowed with various resources which among them are exploited, under or not exploited. They are distributed in different regions within the country. These include; forest-based activities, tourism based resources, agriculture based activities (rain-fed and irrigated) oil and mineral deposits and industries. The exploitation of these resources would lead to increased income generation, foreign exchange and creation of employment opportunities in different regions thus spurring development.

ii. Enabling policy framework

Different developments have been proposed in different regions across the country with the aim of reducing regional imbalance. For instance, Vision 2030 proposes the development of LAPSSET corridor and construction of SGR which are envisaged to open up the Northern region and ease transportation. The Vision also proposes the development of metropolitan cities in different regions in a bid to open and spur development within the regions.

The Kenya Constitution, 2010 introduced Devolution and Equalization Funds in an effort to address regional imbalance. The devolved funds deployed in a more efficient and transparent manner, is expected to play a key and enhanced role in correcting existing economic and social inequalities.

3.4.5 Strategies

i. Establish economic zones in the Northern region according to the potential of every region to promote processing and value addition of the various products.
ii. Encourage equitable exploitation and sound management of mineral resources while ensuring local participation for improved economic development
iii. Promote investment in sustainable tourism including eco-tourism
iv. Promote Irrigation activities for improved productivity in quantity and quality of yield within the potential regions.
v. Promote industrialization and value addition through the provision of support infrastructure in the less developed regions as well as strengthening the better developed regions.

3.5 Promoting Rural Development

3.5.1 Overview

Kenya Vision 2030 goal for equity and poverty elimination is to reduce the number of people living in absolute poverty to the tiniest proportion of the total population. Kenya will aim at a society that guarantees equality of opportunity in accessing public services and providing income-generating activities as widely as possible. That will be achieved by placing the citizens at a level of income sufficient to cater for basic requirements of a healthy, productive life. Through allocation of devolved funds to the communities and expansion of access across different social and political dimensions.

Rural development aims at improving the quality of life and economic wellbeing of people living in rural areas through the improvement of agriculture and allied activities; rural production units, socio-economic infrastructure, community services and facilities, tourism, and human resources in rural areas. To make the region productive and competitive.

3.5.2 Existing Situation

The largest population in Kenya lives in the rural areas. According to the World Bank 2015 report last measured Kenya's rural population was 33,362,846 in 2013. This represented 75.19% of the total population with an increase of 4.0% rural population growth from the year 2010.

Rural areas are mainly characterized by poverty and subsistence agriculture. Poverty is exemplified by increased unemployment rates, inadequate opportunities for income and access to services and infrastructure. However the rural areas are not uniform in terms of development. and the level of rural poverty also varies from one county to another. Certain areas are better developed with strong potential for development while others are less developed with less potential for development. In addition there are other rural areas that transit between the better and the less developed. The table below illustrates the different clusters in which the different Counties belong.

Table 31: Rural Development Clusters and Their Potentials

CLUSTER	COUNTIES	POTENTIAL
BETTER DEVELOPED *(Poverty level below 50%)*	Kajiado, Kiambu, Kirinyaga, Narok, Nyeri, Murang'a, Lamu, Meru, Siaya, Tharaka, Kericho, Embu, Vihiga, Nakuru, Homa Bay Uasin Gishu, Kisumu, Migori, Nyamira, Nandi, Laikipia, Nyandarua	• Agriculture • Tourism • Irrigation • Dairy production • Urbanization
LESS DEVELOPED *(Poverty level above 70%)*	West Pokot, Kitui, Mandera, Wajir, Marsabit, Samburu, Tana River, Kwale	• Large scale livestock • Tourism • Mining • Irrigation
TRANSITIONAL *(Poverty level below 50-70%)*	Marsabit, Mandera, Samburu, Tana River, Turkana, Kilifi, Busia, Makueni, Isiolo, Kisii, Baringo, Machakos, Elgeiyo Marakwet, Taita taveta, Bungoma, Garissa, Kakamega, Bomet, Trans Nzoia	• Mixed agriculture and commercial livestock production • Urbanization

3.5.3 Past Efforts to Promote Balanced Regional and Rural Development

The Government has in the past made various efforts to address this challenge although the achievement may be regarded as dismal. Initial efforts in the 1960s and 1970s revolved around injecting funds to specific programmes in regions considered less developed. The 1980s was characterized by creation of regional development authorities and the adoption of the District Focus for Rural Development (DFRD) strategy. From mid-1990s, the focus has been on higher development allocations to marginal areas through line ministries and devolved funds such as the Constituency Development Fund (CDF), Local Authorities Transfer Fund (LATF), Road Maintenance Levy Fund (RMLF) and Rural Electrification Fund (REF). The government with the assistance of the private sector also developed both the Poverty Reduction Strategy paper

(PRSP) and the Kenya rural development Strategy (KRDS). The objectives of these two initiatives was to have a blue print for development through which resources from the government, development partners and from the civil societies would be mobilized to meet the twin objectives of poverty reduction and economic growth In 2003, the government introduced the Economic Recovery Strategy which recognized the important contribution the ASALs can make to national development, by fast tracking and facilitating sustainable development in the regions.

3.54 Challenges of Rural Development

i. Under-exploitation of resources

Kenya is well endowed with both natural and human resources. These includes but not limited to resources such as oil and water in Turkana, coal in Kitui and geothermal in Nakuru among others which have not been fully exploited due to inadequate geological information on the existence of the minerals and their commercial viability. Minerals occur in areas gazetted as game parks, forest reserves communal land and privately owned land which makes it difficult to access because of lack of an enabling framework. Land tenure and ownership issues make acquisition of the land complex delaying the process of exploitation. The challenges of infrastructure and transport also impede the exploitation of mineral resources.

ii. Weak rural-urban linkages

Rural–urban linkages play a crucial role in the generation of income, employment and wealth. Yet, for various reasons the importance of such linkages is not recognized and thus ignored in national economic and trade policies. These include; infrastructure problems, institutional constraints and trade barriers that tend to discourage linkages between rural and urban regions and thus prevent a process of rural empowerment and economic development.

iii. Inefficient and dilapidated infrastructure facilities and services

Kenya's inefficient and dilapidated infrastructure discourages new investments and significantly reduces productivity and the profitability of the existing farms and business. The rural areas suffer from inadequate physical infrastructure that therefore hampers growth in the rural economy. Poor infrastructure hinders rural development because poor road network adversely influence agricultural productivity. Most roads in agricultural areas are impassable, especially during the rainy season. As a result, the potential in a number of high rainfall areas remain untapped. It also results in heavy losses due to wastage in the farms and deterioration of quality of the produce during transportation to the market. Furthermore, poor road network increases transportation costs for inputs and the produce thereby reducing the margins to farmers. Besides leading to wide regional price variations within the country, poor road network adversely affects the competitiveness of Kenyan produce in both the local and the international market. Telecommunication services also are inadequate, expensive and unreliable. This has hampered

quick and efficient flow of information to farmers, traders, and other investors in the rural areas. Even where this is in place, it is out of order most of the time rendering it useless to investors. Similarly, electricity supply in the rural areas is inadequate thus limiting agro-processing in these areas.

iv. Slow adoption of technology and innovation

Rural areas are also characterized by low adoption of knowledge and innovation and use of traditional methods as well as loss of local knowledge on resource use. Traditional or modern agricultural methods are largely responsible for under-performance of some rural areas both in livestock keeping and farming areas.

v. Low productivity

Rural areas have continued to depend on agriculture as a source of income with low venture on other non-farm income generating activities. Most farming methods in the rural areas are poorly mechanized and are mainly subsistence. Farming in the rural areas is mainly for subsistence consumption. Characterized by poor farming methods, overreliance on rain-fed agriculture, fragmentation into uneconomical land holdings and urban sprawl has led to reduced productivity. In addition, inadequate value addition and climate change which has led to reduced rainfall amounts has also contributed to reduced quality and quantity of farm produce. The rural areas are also affected by the poor infrastructural facilities impeding the transportation of the surplus produce to the markets.

Opportunities

i. Resource endowment

Kenya is endowed with various resources which among them are exploited, under-exploited or not exploited. They are distributed in different regions within the country. These include; forest-based activities, tourism-based resources, agriculture-based activities (rain-fed and irrigated) oil and mineral deposits and industries. The exploitation of these resources would lead to increased income generation, foreign exchange and creation of employment opportunities in different regions thus spurring development.

a) Agriculture

Agriculture contributes a substantial amount of export earnings to the economy providing the much-needed foreign exchange. Rural populations heavily rely on agriculture as a source of livelihood. The potential components of agriculture vary within the rural areas. They include crops, livestock, fishing and forestry which have been either under-utilized or not utilized. In addition, some of the rural areas have the irrigation potential which can be harnessed to increase the productivity. However, some of these agriculturally potential areas are experiencing increased pressure by urban sprawl which has spread into the agricultural land. There has also

been increased subdivision of the rich agricultural land into small uneconomic units. All these among others have contributed to the reduced production.

b) Large scale livestock production

Different counties have different livestock production potentials. The counties that are weak and within transitional clusters have the highest potential for large scale livestock production. However, this potential has not been fully utilized due to a number of challenges. These would include, inadequate support services, inadequate infrastructural facilities, lack of training and knowledge, poor marketing strategies among others.

c) Tourism

The rural areas can offer different types of tourism products if the existing resources are well harnessed. They include; safari, sports, urban, eco, agro, cultural, medical, MICE and historical tourism products. They can be used for both foreign and domestic tourism thus earning the rural areas foreign exchange and thus improved living standards.

d) Urbanization

Urbanization and growth of urban centers have been some of the key factors that spur development. They provide employment opportunities in the off-farm sectors to a large rural population. This in turn reduces the over-dependence on agriculture based income thus diversifying the income generating activities. The urban areas also present increased opportunities for marketing the agricultural produce by the rural dwellers.

ii. Human resource

Kenya rural areas population amounts to three-quarters of the total population. This consists of both skilled and non-skilled labour. However, due to lack of opportunities, much of this resource has not been fully utilized.

iii. Enabling policy framework

Supportive rural development policies have been formulated to enhance rural productivity. These include policies on subsidization of farm inputs, resource allocation in prioritized enterprises in different rural areas and protection of production against competition imposed by imports. However, misappropriation of funds and corruption has been a major hindrance in the full implementation of the policies.

iv. Existing infrastructure

Kenya is fairly developed in terms of infrastructure. This includes transport, physical and social infrastructure. Though most of these infrastructural facilities are not well maintained, they have a potential of economically empowering the rural and the less developed regions. In addition, they have a high potential of attracting private investors if well maintained.

v. Agricultural science and technology indicators

Kenya has a number of indicators of agricultural science and technology indicators. They mainly consist of research institutions and institutions of higher learning. The institutions research on different sectors with some specializing on agriculture while others research on livestock production. These include institutions like KARLO, KEMFRI and KEFRI In addition, there are institutions that research on specific crops of prioritization. They include; KESREF, CRF and TRFK. The other category of institutions deals with industrial research on the production of veterinary vaccines like KEVEVAPI while KIRDI conduct industrial Research on the use of the locally available resources including the agricultural produce. Kenya is also a home to ILRI which is an international research institution that conducts research on livestock production. These institutions can be used to promote increased quality and quantity production of agricultural produce in the rural areas. The agricultural sector has also been decentralized following the devolved system. Agricultural extension officers have been deployed in the counties to train and educate farmers on the best agricultural production practices.

3.5.5 Strategies

vi. Develop appropriate transport and infrastructural facilities and services to support the exploitation of the natural resources in the rural areas as well as the opportunities they present to spur economic development.

vii. Promote rural industrialization which includes, rural tourism, mining and agro-based industries through establishment of production units in different rural areas in relation to their potential.

viii. Promote commercial and large scale livestock production practices in the weak and transitional cluster of rural areas through provision of education and training by the established institutions, adoption of modern technology, provision of extension services and incentives to the farmers as well as strengthening the better developed cluster.

ix. Promote urban containment to reduce effects of urban sprawl into rich agricultural land as well as encouraging eco-villages in the rural areas.

3.6 Urbanization Strategy

3.6.1 Overview

Kenya is one of the countries in Africa that are experiencing increased urbanization. It is predicted that by the year 2030 more than half of the country's population will be staying in urban areas. With respect to the social pillar Kenya vision 2030 identifies urbanization as one of the social sectors that forms the basis for the transformation of the society. One of its flagship projects is the Metropolitan and Investment Plans Initiative which advocates for preparation of

metropolitan investment plans for eleven (11) regions. In addition, Kenya Vision 2030 flags out installation of physical and social infrastructure in slums in 20 urban centres as key to their functionality and livability. Urban Areas and Cities Act has been formulated to provide a criteria for classifying and managing urban areas.

This strategy aims at balancing and controlling the pattern and scale of urbanization in Kenya. It also aims at development of a planned network of designated service centres at different levels of urban areas throughout the country to improve the living conditions of the urbanites and accommodate the incoming population. Furthermore, the strategy is geared towards guiding human settlements development in both rural and urban areas. The strategy is built on opportunities inherent in the urban areas to enhance global competitiveness and balanced regional development throughout the country.

3.6.2 Existing situation

The number of towns in Kenya, size and location have historical origins. Before the establishment of the colonial administration, there were no towns of recognizable sense in the interior of Kenya. There was no economic basis for urban settlement as the prevailing existence agriculture and stock herding did not give rise to any permanent trading center. The social organization also lacked those paramount rulers who elsewhere in Africa had gathered courts around their residence. In 1962 only 7.8 percent at the population of Kenya was living in towns which were also evenly distributed with Indigenous towns confined to coastal areas. Colonial governments established administrative settlements which attracted traders, and settlers in the white highlands introduced small towns for economic and social reasons. Following the introduction of cash crops in some areas of peasant farming commercial centers started growing such as in Kikuyu land.

In the last housing and population census conducted in 2009, the Kenya urban population was reported as 12,487,375 persons. This accounted for 31.3 % of Kenya's population. The annual urban population growth rate was lastly measured in 2013 at 4.37% (World Bank, 2015). It is envisioned that by 2030 more than half of the nation's population is likely to be residing in urban areas (Vision 2030). However, urban population is unevenly distributed. It is concentrated within the three main cities i.e. Nairobi, Mombasa and Kisumu. In the year 2009, Nairobi had the

highest number of urban population housing approximately 25.12% while Mombasa housed 7.3%. As a result of the increased urbanization the number of urban centers has increased from 17 in 1948 to 230 in 2009.

Past efforts to contain urbanization

Kenya has witnessed rapid growth of urbanization since independence. This was due to guaranteed freedom of movement which spurred a high rate of rural-urban migration. The growth center policy has been part of National development of Kenya since 1970.This was first reflected in the national plan of 1970/74.the policy aimed at promoting development of small and medium size urban centers with potential for growth and redirecting urban development away from Nairobi and Mombasa. The government intended to invest in infrastructure of the designated growth centers to make them attractive for investment and human settlement. This would in turn promote development of their hinterlands and absorb rural urban migrants that would otherwise be attracted to Nairobi and Mombasa. The first phase of the implementation of the policy covered Kisumu, Kakamega Nakuru, Eldoret, Nyeri, Thika and Embu. The second phase covered Meru, Bungoma, Kericho and Kisii. However the growth centers in arid and semi-arid regions were in-effective in promoting development because of excessive numbers of designated centers and lack of financial and technical resources. The failure of the policy was as a result of:

- Lack of explicit selection criteria to identify centers with best growth potential
- Lack of appropriate database on the urban centers and the hinterlands
- Haphazard change of boundaries of urban centers

3.6.3 The Urban Challenge in Kenya

i. Skewed Spatial Distribution of Urban Centres

The distribution of urban centres is not balanced across the country. Urban centres have tended to be concentrated along major transport corridors, south and north rift, western central and upper eastern. The distribution is sparse in northern Kenya, lower eastern and parts of coast province. This is indicative of infrastructure provision and deliberate policies to develop the former white highlands. The scenario is bound to change once the second corridor is completed and resources are fully devolved to counties. A deliberate distributive policy is required to

promote urbanization in hitherto marginalized regions. (Refer to the map on distribution of urban areas).

Concentration of urban centres in high potential agricultural areas has created an aggressive competition between urban, agriculture and conservation land uses. This form of urbanization if not controlled will have negative impacts on agricultural land and food insecurity in the long run. Approximately 85% of all urban centres of over 100,000 population and above are located in the high potential agricultural land and include centres such as Nakuru, Eldoret, Vihiga, Kericho, Kisii, and Limuru among others (KNBS, 2009).

Dispersal of urban centres in remote areas such as North Eastern Kenya is visible in the distances between major urban centres in this vast area. This implies that provision of services and distribution of commodities becomes inefficient and communities in these areas do not benefit from positive effects of urbanization.

Road bias development is evident both at national and local levels. At national level, it is along the country's major transport corridor of Mombasa-Nairobi-Malaba and has strong historical roots. Urbanization sprung from this corridor and major urban centres are aligned to this corridor as well. Such centres include Nairobi, Naivasha, Nakuru, Eldoret, Kericho, Kisumu, Busia and Bungoma. At the local level, development along major transport routes, commonly referred to as ribbon development, is common in every major centre.

The sum total of these phenomena is unbalanced urbanization with the central Kenya and Kenya-Uganda railway Corridor exhibiting high number of urban centers while other parts of the country register low levels of urbanization.

Primacy of Nairobi

Nairobi has remained the primate city in the country with a population of 3,375,000 persons, which accounts for more than the combined population of 1,609,928 of the two other major cities of Mombasa and Kisumu. This gives it dominance over all urban areas thus deliberate mechanisms are needed to spur growth in other urban areas.

ii. Urban Sprawl and Informality in Peri-Urban fringe

Kenya's urban centres have tended to grow inorganically and spill over the jurisdictional boundaries to the periphery mainly along the transport lines and urban form only left within the Central Business District. The areas experiencing this spill-over mostly lack an urban planning framework/policy or development plans. As result these areas develop haphazardly confining urban planning to being reactive rather than being pro-active. Urban area boundaries has continued to extend resulting to blurred distinction between the urban and rural areas. As land values in the periphery continue to increase more subdivisions are undertaken resulting to uneconomical plot sizes. This scenario makes provision of services such as water, sewer and

electricity very expensive. A strategy to contain urban sprawl and delineate urban boundaries is urgently required.

iii. Lack of Functional/role Specialization

Urban places are characterized by absence of role specialization. Most towns are administrative and service centres. Potentials in the hinterland such as agriculture, tourism, sports, mining, trade and industry, value addition and rangelands are fully unutilized. The linkage between the centres and the hinterland is not well defined. Rural populations are not fully empowered to gainfully engage in productive activities to promote the urban centres. There is evidence of ghost towns in central Kenya which have collapsed due to decline of agricultural activities which earlier triggered and supported the growth of urban centres. In Kenya, there is opportunity to develop tourist towns, industrial towns, border towns, administrative towns by undertaking an analysis of the strengths of each town and leveraging on their competitive advantages. This will require investment in infrastructure to support the identified function/role.

iv. Informal Settlements

Urbanization has led to overpopulation in the urban towns especially in the three main cities in Kenya (Nairobi, Mombasa and Kisumu). Informality, lack of appropriate and adequate housing, insecure tenure, environmental degradation, inadequate access to basic services and proliferation of slums are common features of urban centers in Kenya. These are caused by myriad factors including lack of proper planning and poor implementation of plans where they exist, poor policies on land use and failure to enforce development control regulations. Previously, there have been slum upgrading programmes in the Kenyan slums which aimed at improving the livelihoods of people living and working within informal settlements. However, the programmes have failed to achieve their objectives as the targeted population rarely benefits.

v. Inadequate and inefficient transport and infrastructure

The urban centres in Kenya lack functional and integrated transport systems leading to traffic jams and long commuting hours. This is especially true for the cities of Nairobi and Mombasa. The major towns on the other hand feature poor road conditions, poor linkages and connectivity with the hinterland and a low accessibility index. The collapse of public transport in urban areas has led to increased use of private cars which compromise the principle of social equity and inclusion. An increase in the use of private cars adds to air pollution, congestion and overstretched road capacities. There is poor modal interchanges among the various modes and over reliance on road transport.

vi. Inefficient Governance

Urban Governance issues have dominated the urban scene in Kenya and include land tenure issues, insecurity, corruption, poor institutional structures and poor service delivery. Land for development is not readily available and even where it is available it is encumbered with lengthy and unclear registration procedures. There has been no deliberate attempt at land reservation for investment. Allocation of land for speculative purposes is evidenced by large parcels of land lying idle in urban centres.

Poorly serviced land or lack of any services makes land not readily available for development and therefore discourages investors. Urban areas in the country have also lost their public spaces to private hands (through land grabbing), car parking's or other urban activities. Strategies, policies and measures are therefore required to avail serviced land for development in urban areas.

Implementation of development plans and policies has also been a challenge in Kenya as a result of poor governance. This has been attributed to the lack of financial resources, political good will, lack of plan ownership and inadequate human resource capacity for plan implementation. Poor plan implementation manifests in haphazard and chaotic location of industries, residential and commercial facilities. This coupled with lack of strong instruments for plan implementation relegate the function of urban planning to that of reactive planning.

vii. Urban poverty

Urban population is growing very fast while the economic growth and development transformation necessary to support it and enhance quality of life are not occurring at the same rate. This has led to increased unemployment mainly in the youth population hence crime and other related social vices. There also exists inequality between the rich and the urban poor manifested through income, education, Health care among others. Policy makers and development strategies should be aimed at improving living conditions as well as reducing the inequalities in urban areas and enhance inclusivity in urban areas.

Opportunities

i. Existing and proposed developments

Existing infrastructural developments within the urban areas provides better economy through higher income jobs and education to the urban population. Various industrial sectors like cement iron and steel and textile are helping in the economic growth of the country. Commercially, urban areas provide markets required in the conversion from subsistence to a cash economy. This provides better income to support the rural population. Urban areas facilitate the provision of schools, hospitals, electricity, water, sanitation, law and order. Often major high ranked schools and universities with well trained teachers and facilities are also located within the cities.

The proposed second largest transport corridor (LAPPSET) is expected to spur growth of urban centres particularly in the northern parts of the country which were hitherto least urbanized. These centres include Lamu, Garissa, Isiolo, Lokichar, Lodwar and Marsabit. There needs to be a deliberate effort to direct infrastructural developments in these towns to spur their growth and that of their hinterland areas.

ii. Devolution

The devolved government structure and resources of 47 counties creates an opportunity for development of 47 strong administrative centres. These centres will act as poles of growth and offer an opportunity for implementation of a new hierarchy in each county. The spatial growth model, which was implicitly discussed in chapter 1, envisions these centres as not only being critical in servicing rural areas but also in absorbing populations from the rural areas once opportunities for employment are created. These towns need to be developed to be able to attract investment.

iii. Support policies

Policy backing under the Kenya Vision 2030 which advocates for development of six metropolitan regions. This gives further backing to the need to develop the urban areas due to their recognized role in national development.

- The emergence of the ICT sector that gives urban centres a new dynamism.
- Increased participation of private sector in urban development initiatives
- Other policy-led initiatives for special feature towns like the techno-city, Special Economic Zones, resort cities among other initiatives.
- Enhanced investment in infrastructural projects such as the Standard Gauge Railway (SGR), the renewal and redevelopment of the Northern Corridor, expansion of the airports all these are expected to catalyze the growth of towns.
- Emphasis on planned development with counties required to expend money only on the basis of a plan. This is further strengthened by adoption of integrated development model.
- Promote Conference tourism in other urban areas in the country

3.6.4 Strategies

i. Promote the development of centers as per their potential and population as local, market, rural, urban centers and growth centers.

ii. Create an enabling environment for commercial and industrial developers to activate potential development within the urban areas hence increased employment opportunities for improved livelihoods of urban dwellers.

iii. Provide alternative areas for development of urban centers by provision of services and infrastructure closer to the rural areas thus urban containment and stimulating rural growth.

iv. Strengthen urban-rural linkages through provision of integrated transportation and communication system to reduce the rate of urbanization and improve the rural economy.

CHAPTER FOUR: NSP POLICIES AND MEASURES

4.1 Overview

The Policies are aimed at promoting the achievement of the objectives of the National Spatial Plan. The Policies are aimed at enhancing global competitiveness and economic efficiency, optimizing the use of land and natural resources, promoting balanced regional development and conserving the environment. The NSP policies are supported by a wide range of measures which spell out specific actions to be undertaken to actualize the policy intentions.

The purpose of the policies is to provide a firm base or foundation upon which to anchor the strategies enumerated in the Plan. The primary aim is to inculcate discipline in the use of land and natural resources of the country. At the same time it seeks to stem duplication and wastage of scarce national resources. In addition, the policies provide a framework for the implementation of large scale national projects enunciated in Kenya Vision 2030.

Cumulatively, the policies shall ensure that the country is globally competitive as an investment destination particularly in emerging sectors of ICT, knowledge and innovation-based industries such as biotechnology, electronics, and health as well as niche tourism products including conferencing. To achieve this, the NSP shall provide efficient transport and quality infrastructure to support development of the emerging sectors. The NSP shall support the development of the regions of the country that have the highest potential for attracting such investments and have a competitive edge over similar regions in countries with whom the country is in competition.

Without prejudice to supporting areas of highest potential, the NSP shall simultaneously support the development of the less developed regions of the country in order to buttress further the country's global competitiveness. This policy will be based on the sustainable utilization of such regions abundant natural resources and potentials in the areas of agriculture; minerals, tourism and cross border trade.

The policies shall be implemented by both the national and county government agencies responsible for planning and development control as well as those responsible for land administration. The sectoral agencies within the aforementioned governments shall implement the policies through their sector policies, plans and programmes. The Medium Term Plan (MTP) and the National budget shall take into account the policy provisions of the NSP. Private developers shall be guided by the NSP in making investment decisions given that the Plan points at the general direction that development in the country shall take.

The NSP provides the national structure plan within a broad framework that gives the general direction of national spatial development. This framework is divided and detailed along the following thematic areas: Enhancing national competitiveness, managing human settlements, modernizing agriculture, strengthening industrialization, diversifying the tourism product,

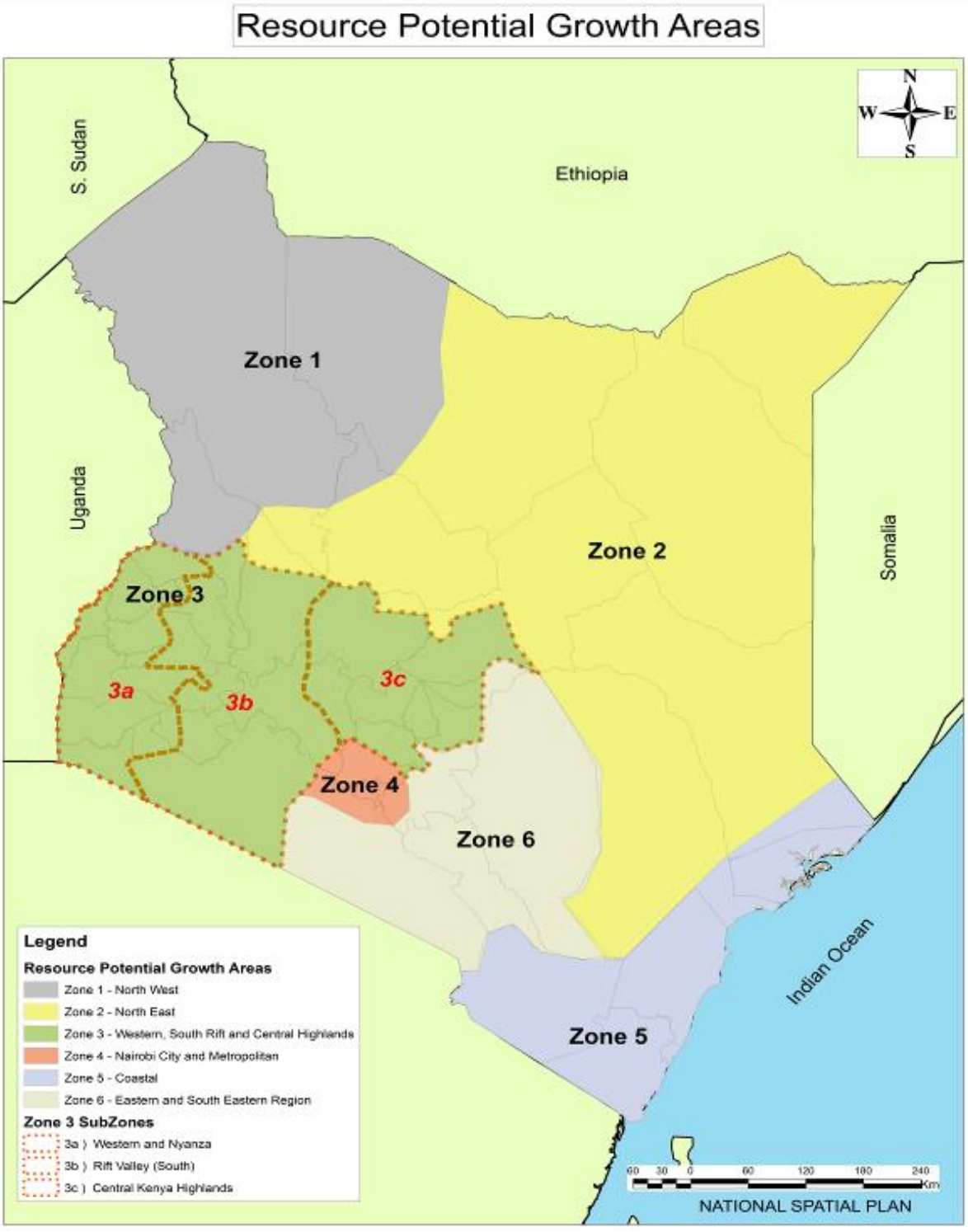
integrating the national transportation network, providing appropriate infrastructure and promoting industrialization.

4.2 Resource Potential Growth Regions

This section outlines how the national spatial structure relates to each region, including its urban and rural areas. The Strategy further elaborates the suggested approach through regional planning guidelines, county/city development plans and development strategies. These guidelines, plans and strategies will need to take account of the fact that different areas have characteristics and interests in common and share inter-relationships in the way they function economically and socially.

The physical nature of the regions, agro-ecological and location of roads and communications links, suggests that there are five broad areas to be considered in a more detailed manner within the national spatial structure. These three broad areas are;

- The North West Region,
- The North East Region,
- The Western, Rift Valley and Central Highlands,
- Nairobi City and Metropolitan Environs,
- The Coastal Region,
- The Eastern and South Eastern Region.



Map 32: Resource Potential Growth Areas

Table 32: Framework for Development of Spatial Growth Zones

Zone 1: North West **Key Urban Centres:** Lodwar, Kakuma, Lokichokio, Lokitaung, Lokichar, Loiyangalani, Marsabit, North Horr, Loiyangalani	**Potential:** • Energy Generation • Livestock Production • Water Resources • Fisheries • Culture and Tourism	**Policies:** – Sustainable use and exploitation of natural resources – Environmental Conservation – Balanced growth – Increased investment in social and physical infrastructure **Strategies** – Selective development concentration – Construction of key infrastructure to support resource exploitation and development – Mineral mapping and exploitation – Environmental protection of sensitive areas and mining zones – Utilization of water resources for agriculture and food production
Zone 2: North East **Key Urban Centres:** Mandera, Wajir, Moyale, El Wak, Dadaab, Isiolo, Garissa, Hola, Bura	**Potential:** • Livestock Production • Mineral Resources • Agriculture (Irrigated)	**Policies:** – Sustainable use and exploitation of natural resources – Balanced growth – Increased investment in social and physical infrastructure – Environmental conservation **Strategies** – Selective development concentration – Construction of key infrastructure to support resource exploitation and urban development – Resource mapping and exploitation – Urban development around key human settlement and investment hubs such as Garissa, Mandera, Wajir – Enhanced agriculture and food production along Tana River

Zone 3: Highlands (Western, Central and Rift Valley) **Key Urban Centres:** Kakamega, Kisumu, Kisii, Kericho, Eldoret, Kitale, Nakuru, Naivasha, Narok, Nyeri, Murang'a, Nanyuki, Nyahururu, Embu, Meru	**Potential:** • Agricultural production • Water catchment • Forestry • Tourism and Culture • Mineral Resources • Energy Resources	**Policies** – Enhanced agricultural production and value addition – Investment in social and physical infrastructure – Environmental conservation – Intensive land use **Strategies** – Infrastructure provision to support value addition initiatives and human settlement – Small and medium urban Centres development – Conservation of water towers and resources – Rural development through provision of infrastructure, agricultural sector development and related economic activities – Small and medium urban Centres development
Zone 4 **Key Urban Centres:** Nairobi, Thika, Mavoko, Ruiru, Kiambu, Ngong, Kiserian, Kitengela, Tala, Konza Techno City	**Potential** • Administrative hub • Finance and capital hub • Trade and Commerce • Industry and value addition • Transportation hub	**Policies** – Sustainable urban land use and growth – Balanced growth – Densification of built-up areas – Development of key social and physical infrastructure – **Strategies** – Development and rehabilitation of key infrastructure in underserviced locations – Services to under-served populations – Environmental protection – Conservation of wildlife and forest resources

Zone 5: Coastal Region **Key Urban Centres:** Mombasa, Malindi, Lamu, Kilifi, Kwale, Lunga Lunga, Mtwapa, Watamu, Ganze, Kaloleni, Msabweni, Ukunda	**Potential** • Port city and gateway to East Africa • Tourism and culture • Industrial development • Trade and commerce • Fisheries	**Policies** – Development of tourism infrastructure – Investment in physical and social infrastructure – Sustainable use and exploitation of natural resources – Concentrated development especially around key urban areas – Resource conservation and cultural preservation **Strategies** – Selective development concentration – Infrastructure provision in key urban and human settlement zones – Environmental protection of parks including marine reserves and forests – Conservation of unique cultural landscape and resources – Small and medium urban Centres development – Rural development through provision of infrastructure, agricultural sector development and related economic activities
Zone 6: Eastern and South Eastern Region **Key Urban Centres:** Machakos, Matuu, Wote, Kibwezi, Mtito Andei, Kitui, Mwingi, Kajiado, Loitokitok, Magadi, Voi, Taveta, Tharaka,	**Potential** • Agricultural (irrigated) potential • Tourism and Culture • Mineral resources • Water resources • Wildlife resources	**Policies** – Enhanced agricultural and food production – Investment in physical and social infrastructure – Development of tourism infrastructure – Mineral mapping and exploitation – Environmental protection and conservation **Strategies** – Infrastructure provision to support value addition initiatives and human settlement – Small and medium urban Centres development – Rural development through provision of infrastructure, agricultural sector development and related economic activities – Small and medium urban Centres development

4.3 National Spatial Structure

The National Spatial Plan establishes the National Spatial Structure for the primary purposes of achieving national competitiveness. The Plan sets the general direction of spatial or physical development of the country and indicates the distribution and organization of population and activities in the whole country. The Plan ensures that land and natural resources of the country are used optimally. In addition, the Plan promotes balanced development and conservation of the environment.

The National Spatial Structure forms a basis for the preparation of lower tier development plans prepared at both the national and county levels of government. These plans include regional development plans, county spatial plans and local physical development plans. It also forms a basis for the preparation of sectoral policies and plans in the areas of agriculture, industry, tourism, transportation and infrastructure. The plans shall adhere generally and specifically to the set of objectives and policies espoused in the National Spatial Plan. The Plan complements the national economic plan by providing a spatial perspective to the economic policies. To achieve this purpose the Plan shall be subjected to five year reviews in tandem with the economic plan (MTP).

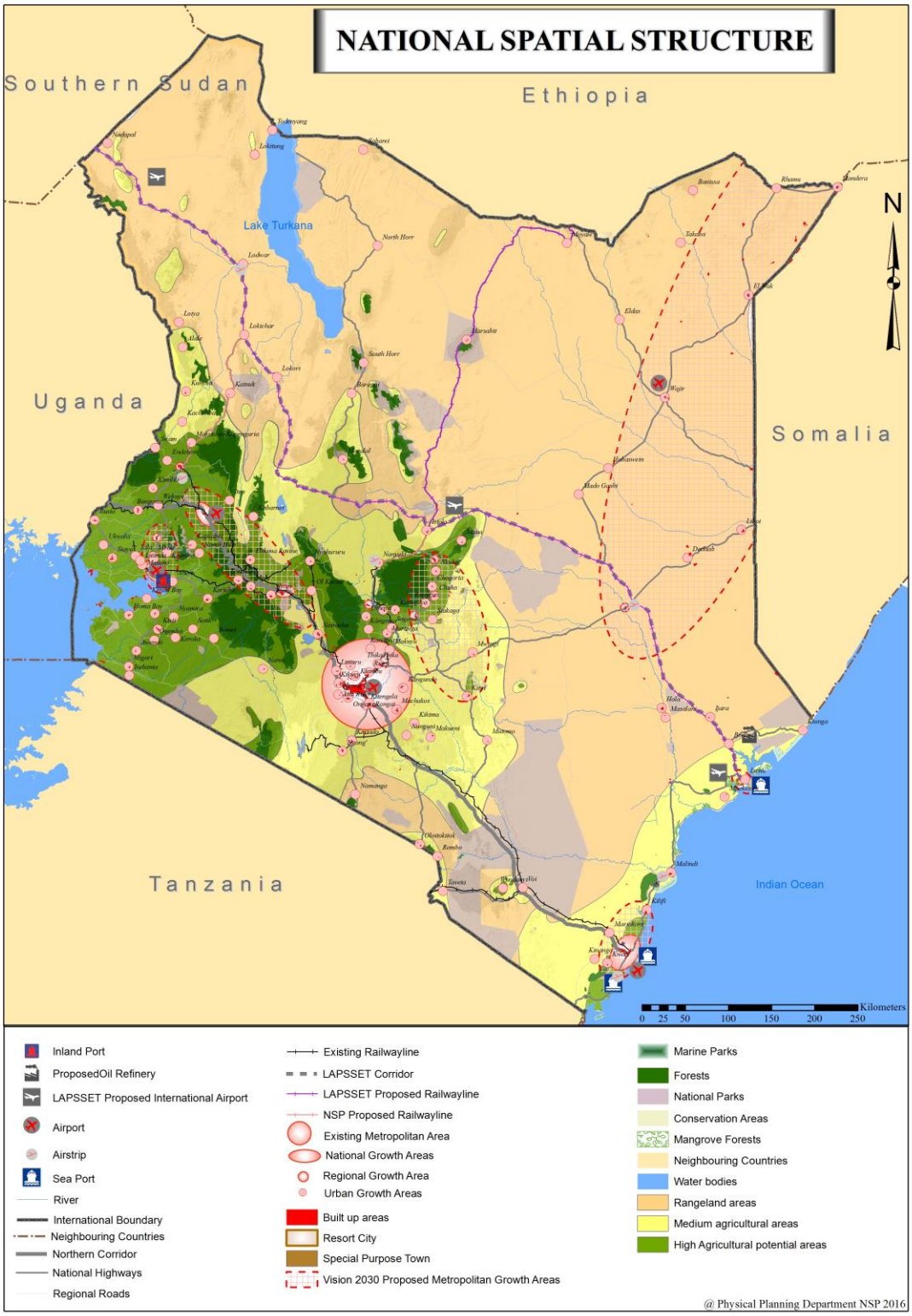
Policy Statements

1. **The National Spatial Plan establishes the National spatial structure as a framework to achieve integrated and sustainable spatial development of the country.**

2. **The National Spatial Plan shall be the basis for preparation of lower tier development plans to achieve integrated and sustainable land use planning and to promote harmony and mutual cooperation in planning in the country.**

Measures

(i). All Regional, County and Local spatial plans shall be guided by the objectives and policies of the NSP.
(ii). Existing spatial plans shall be reviewed to conform to the objectives and policies of NSP.
(iii). All sectoral policies shall take cognizance of the objectives and policies of NSP
(iv). The review of the 4 year economic plan (MTP's) shall take into account provisions of the NSP.
(v). The planning authorities at national and county levels shall be supported with adequate human, financial and technical resources to promote sustainable spatial planning and development.



Map 33: National Spatial Structure

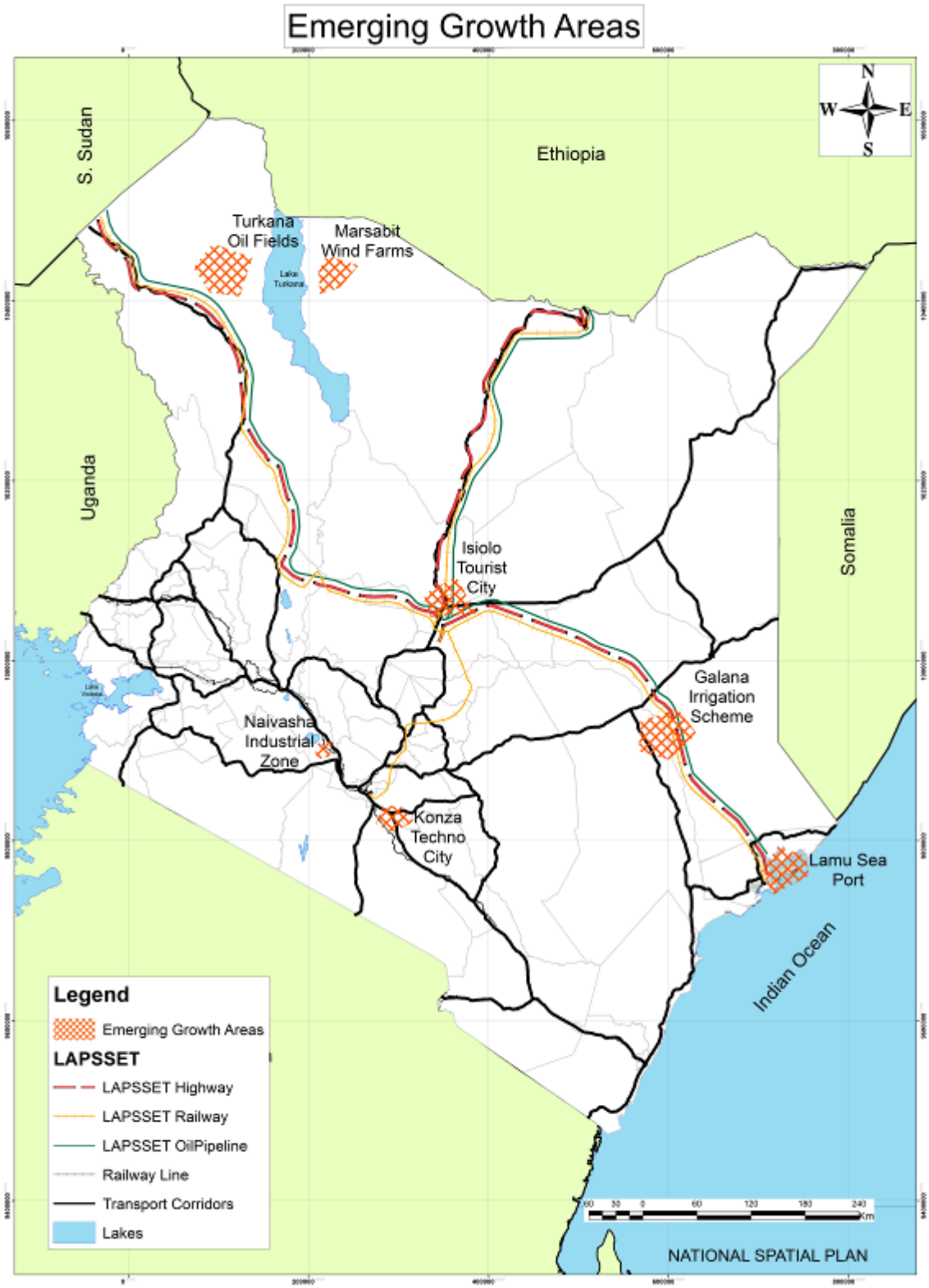
4.4 Enhancing National Competitiveness

4.4.1 Overview

Enhancing national competitiveness is the primary objective of both the National Economic Plan (Kenya Vision 2030) and the National Spatial Plan (NSP). Economic globalization presents both opportunities and challenges to the development of the country. The opportunities present in the form of open markets, increased inflow of investment and job opportunities. However, economic globalization presents a serious challenge to the country in the form of cut throat competition in the global markets. Kenya has traditionally been a power house in the East Africa Region, but its dominant economic position is being increasingly challenged by neighboring countries such as Uganda, Tanzania, Rwanda, Ethiopia and Sudan. These economies are threatening to catch up and even surpass Kenya's economic dominance. In the wider Africa perspective South Africa, Nigeria and Egypt for instance, are performing better than Kenya in the global market.

4.4.2 Opportunities

To enhance the country's competitiveness Kenya needs to leverage on its strengths and opportunities that include; its city regions which include Nairobi, Mombasa and Kisumu that have shown capacity to compete with similar regions in the global arena; its geographical location as a gateway country to the East and Central Africa Region; its relatively strong tertiary and industrial sector; its emerging ICT and knowledge based sectors such as biotechnology, health, education; its pool of well-trained and skilled human capital; its abundant natural resources in the form of land, minerals, energy, water, forests, flora and fauna; its existing and proposed infrastructure in the form of the northern corridor which comprises of road, rail and oil pipeline, the proposed LAPSSET corridor which shall also comprise of similar infrastructure facilities, seaports and airports. The country shall also leverage its competitiveness by acting together with countries in the shared economic blocs of East African Community (EAC) and Common Market for East and Southern Africa (COMESA) to face the global market to enhance her bargaining power.



Map 34: Emerging Growth Areas

4.4.3 Policy Thrust

In view of the opportunities, the National Spatial Plan shall adopt selective concentration concept for urban based activities to leverage national competitiveness. This strategy proposes a stratified approach for location of urban based economic activities. Nairobi and Mombasa shall be the first destination for outward looking investment because they are strong players in the global arena in terms of commerce, international transport and strong locational advantages. Kisumu shall be developed as a regional economic and transportation hub in the great lakes region due to its location on Lake Victoria that provides it with the reach to Uganda and Tanzania and the other landlocked countries such as Rwanda, Burundi, and the Democratic Republic of Congo. Nakuru and Eldoret shall be developed as alternative investment destinations due to their locational advantages on the northern corridor and existing infrastructural provisions. Lamu, Garissa, Isiolo, Lodwar, Maralal, Wajir and Marsabit are proposed urban conurbations due to their locational advantages to act as alternative growth areas.

The city regions shall be planned and provided with requisite and appropriate housing, transportation and infrastructure to improve efficiency and livability index to attract and retain investment as well as local and international skilled human capital. In addition, urban areas shall also be developed according to their advantages and opportunities. Emerging sectors such as ICT, biotechnology shall be located in city regions that have the advantage of competing globally namely Nairobi and Mombasa. Land and attendant specialized infrastructure to support the emerging sectors shall be provided. Land banks shall be established to provide required land for investment in the emerging sectors. The county's abundant land and natural resources shall be used optimally and sustainably to enhance national competitiveness. The focus of the policy shall be to attract investments towards the underperforming regions which have immense resource potential. Infrastructure shall be provided to attract investment and support their exploitation.

To take advantage of the geographic and location advantage as a gateway country the existing northern transport corridor shall be improved and modernized to enhance efficiency and to renew both rural and urban economies. The proposed LAPSSET corridor shall be developed to spur economic growth by establishing new economies in the hinterlands. The other major corridors shall be developed to provide connectivity between the two main corridors mentioned above and to integrate the economy. Industrial and manufacturing activities with strong external linkages shall be located in the existing main industrial centres of Nairobi and Mombasa as well as Kisumu to take advantage of existing infrastructure and for ease of connectivity to the market. In addition the seaport of Mombasa and the inland port of Kisumu shall be improved to enhance their efficiency in handling international and regional goods respectively. The Lamu seaport shall be developed to support the existing port of Mombasa and to improve the country's competitiveness as a transportation hub. Further to these the Jomo Kenyatta International Airport

(JKIA) shall be improved and modernized to enhance Nairobi's and the country's status as a gateway to East and Central Africa.

The National Spatial Plan encourages enhanced cooperation in spatial and economic planning with other members of East African Community (EAC) and Common Markets of East and Southern Africa (COMESA) to face the global market as a large economic unit and to increase the chances of drawing the opportunities of globalization and agglomeration.

4.4.4 Policy Statements

Selective concentration concept shall be adopted for the planning and location of urban based economic activities in all counties throughout the country to leverage on national competitiveness.

- Concentrate urban based economic activities such as industrial and manufacturing sector, ICT, knowledge based services and biotechnology targeting global/ international markets in Nairobi and Mombasa.
- Concentrate urban based economic activities targeting the great lakes region in Kisumu, Nakuru or Eldoret
- Concentrate urban based economic activities in selected urban areas of Lamu, Garissa, Isiolo, Lodwar, Marsabit to spur economic development and to exploit the natural resource endowments in those regions
- The preparation of Spatial Development Plans to guide development in the selected national growth areas shall be prioritized.

The major urban areas shall be planned and provided with appropriate infrastructure to enhance efficiency and quality of life.

- Enhance the Livability Index for urban areas by providing quality and affordable housing, efficient public transportation, improving neighborhood characteristics, conserve and improve the quality of the environment, quality healthcare, create opportunities, and promote civic and social engagement.
- Establish an efficient public transportation system comprising of Bus Rapid Transit (BRT), Commuter Rail and non-motorized transport (NMT) for Nairobi and Mombasa.
- Provide appropriate trunk infrastructure in the form of reliable energy, water, sanitation and ICT.
- Improve the road infrastructure by providing for modal split, linkages and interchanges.

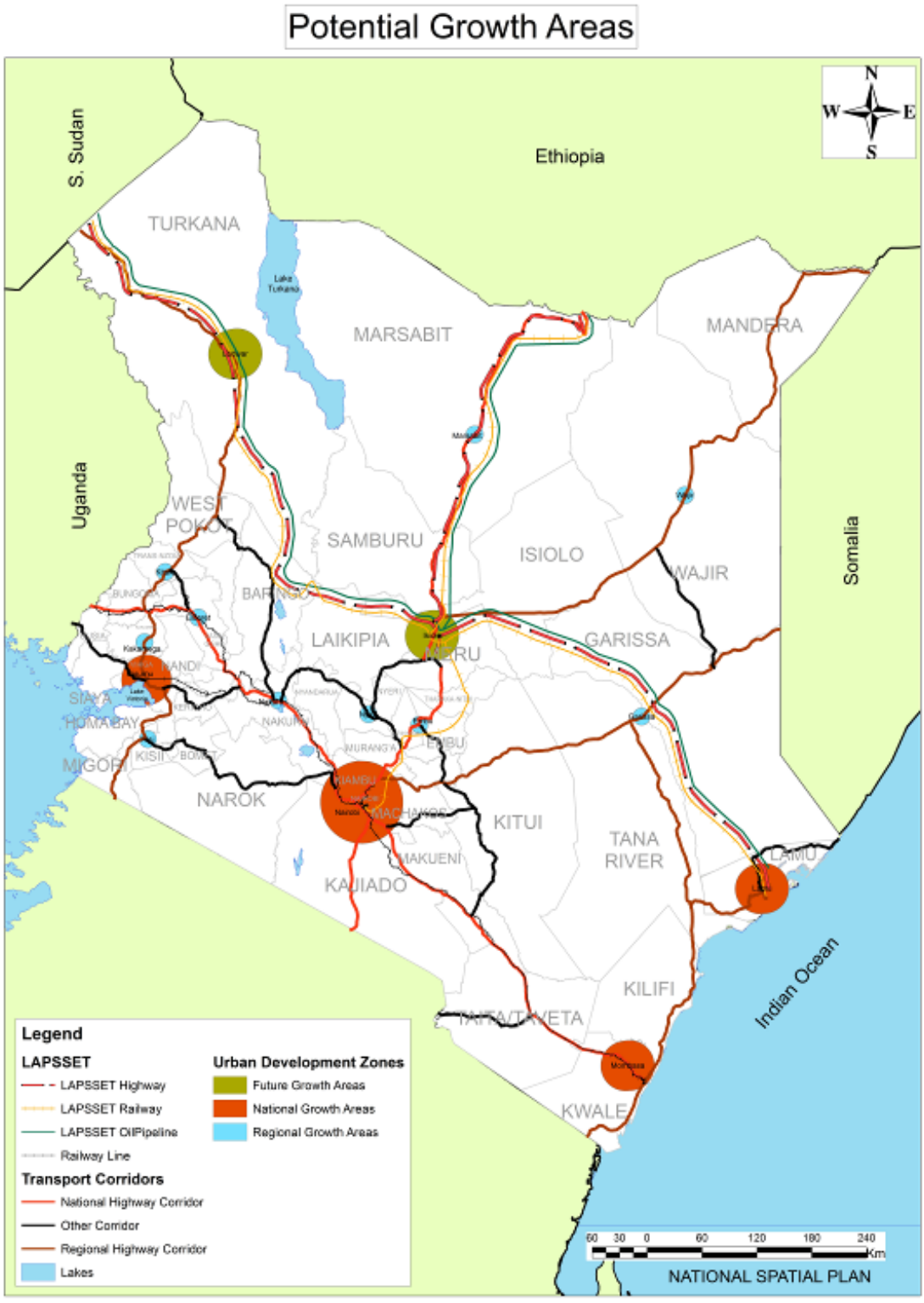
Land and natural resources of the less developed areas shall be utilized optimally and sustainably to enhance national competitiveness.

- Encouraging the transformation from traditional farming and livestock keeping methods to modern practices.
- The economic base of the less developed regions and places shall be widened through strengthening of agricultural downstream processing of agricultural products.
- Identify and develop the tourism potential within the northern circuit.
- Explore and exploit the mineral, energy and water potentials.
- Provide transportation network and other infrastructure necessary to support exploitation of land and other natural resources.
- Provision of educational technical training and social development programmes to enhance integration of the communities in these areas into the modern economy.
- Support development of urban areas in the less developed areas to catalyze development.

The efficiency of the transportation network shall be enhanced to take advantage of the strategic location and position of the country.

- Renew and modernize the existing northern corridor to spur economic development in the southern region and improve the linkages to East and Central African region.
- Develop the LAPSSET corridor to spur economic development in the northern region and improve linkage to Northern Africa region.
- The existing port of Mombasa shall be upgraded and modernized to facilitate the efficient handling of cargo.
- The Lamu port shall be developed to provide support to the existing port of Mombasa, catalyze development and handle cargo from the Northern Africa region.
- Revitalize the inland port of Kisumu for domestic and regional travel.
- Upgrade and modernize the existing railway facilities from Mombasa to Malaba and Kisumu.
- Develop the railway facilities from Lamu to Sudan and Ethiopia
- Spatial development plans shall be prepared for the main transportation corridors to guide the planning and development of the corridors for sustainable economic development and transportation

The National Spatial Plan encourages enhanced cooperation in spatial and economic planning with member states of East African Community (EAC) and Common Markets of East and Southern Africa (COMESA). The planning of trans-boundary resources, transport corridors and infrastructure as well as border urban areas shall be undertaken jointly



Map 35: Selective Development Potential Growth Areas

4.5 Modernizing Agriculture

4.5.1 Overview

The Kenya Vision 2030 identifies agriculture as one of the key sectors in the delivery of the 10% annual economic growth rate envisaged under the economic pillar. This will be achieved through an innovative, commercially oriented and modern agriculture, livestock and fisheries sector. The agriculture sector development strategy aims at transforming agriculture into a modern and commercially viable sector.

The agriculture sector in Kenya contributes 25 % to the Gross Domestic Product and a further 27% through manufacturing, distribution and service sectors and accounts for 65% of the export earnings. The crops, livestock and fisheries sub-sectors are the main components of the agricultural sector contributing 77.6%, 19.6% and 2.0% of the agricultural GDP respectively. The sector employs over 80% of Kenya's rural workforce and provides more than 18% of formal employment. The sector provides food to the population, raw materials for industries and generates foreign exchange earnings.

Steady reduction of agricultural land, low agricultural production and productivity, poor marketing, market uncertainties and low value additions to agricultural products, high cost harvest losses and unfavorable taxation and tax regimes, ineffective and inefficient inter-sectoral linkages, high cost of credit for investment in agriculture, poor governance in farmer organizations and farmer cooperatives, fewer adherences to demand driven research for agricultural development, ineffective research- extension farmer linkages, inadequate insurance facilities to cushion farmers and fisher folk from production uncertainties have been identified in the proposed agricultural policy as the main challenges to agricultural development.

However, the agricultural sector has major potentials and opportunities in the form of agro ecological zones that afford the country an opportunity to diversify agriculture; irrigation potential; fishing potential; existing agricultural production practices that can be built upon; agricultural technology and innovation being adopted; research institutions and extension services and local knowledge that can be leveraged upon to improve the sector. In addition to these, local and international markets are available for agricultural products.

4.5.2 Policy Thrust

The NSP proposes a land development strategy that shall safeguard the high potential agricultural land by setting the urban growth limits, divert urbanization from the high potential areas, and regulate the subdivision of this land. It shall also promote the intensification of the use of the land and the optimization of the irrigation potential by expanding the acreage of land under irrigation and fishing potential by adopting aqua culture and marine-culture and safeguarding the main inland water bodies from pollution. The NSP promotes the optimization of marine fishing potential particularly within the Exclusive Economic Zone (EEZ) and the

Continental Shelf. In addition, NSP proposes to link agricultural production to the agro ecological potentials to increase livestock production in the low potential areas by introducing dry land farming in the medium potential areas and intensifying productivity in the high potential areas.

To achieve this, the NSP shall simultaneously; support the adoption of modern methods of production and technology; enhance value addition; improve infrastructural facilities that links production market centers; improving production and packaging standards to international standards; reduce the cost of production by making farm inputs cheaper; producing in bulk, provide on and off farm storage facilities; improve coordination by establishing cross sectoral frameworks; create favorable credit regimes to subsidize farmers; strengthen the farmer organizations and cooperatives; improve the extension services and provide insurance facilities to cushion farmers.

4.5.3 Policy Statements

Agro climatic zones I, II, III shall be safeguarded against the threat of urbanization and land subdivision

Measures

- Urban spatial development plans prepared in respect of urban areas in the identified zones shall set urban growth limits
- High potential agricultural land falling between urban areas in the identified zones shall be designated for agriculture production purposes
- Subdivision of land within zones I, II, III shall be strictly regulated
- New urban developments shall be encouraged to be located in low potential and less urbanized areas

Agro climatic zones IV, V and VI shall be developed and used optimally for large scale commercial production of livestock to support downstream processing of livestock products and promote balanced regional development

Measures

- County spatial plans prepared by counties within the identified zones shall guide and promote the development of large scale livestock productions.
- Prioritize provision of requisite infrastructure (water pans, dams, cold storage facilities and laboratories) to support ranching in respect to ASALs of Northern, Eastern, Coastal and South Western areas of the country.
- Modernize livestock keeping through appropriate animal husbandry (high-yielding breeds, extension services, and research and disease control), product processing and timely marketing.

- Appropriate rangelands management practices shall be adopted including observance of carrying capacity, conservation of the natural vegetation and adaptation and mitigation against climate change and its impacts.
- Early warning systems, prompt response and recovery systems shall be taken to cushion communities and make them more resilient to the perennial drought cycles

Grain basket areas shall be prioritized and protected to ensure food security

Measures

- The grain producing areas of Trans Nzoia, Nandi, Narok, Kericho, Uasin Gishu, Nakuru, Lugari, Laikipia and Bungoma shall be designated as grain baskets
- Restrict the conversion of land into these areas for any other use apart from agriculture
- Divert urban development from these areas and strictly regulate the subdivision of land
- Formulate fiscal measures to support farmers in grain basket areas
- Provide appropriate infrastructure to support production, drying and storage of grains

The agricultural use of land in high potential areas shall be intensified to increase productivity

Measures

- Adopt modern agricultural production methods and practices
- Upscale the adoption of technology in agricultural production
- Encourage mixed farming
- Promote agri-business
- Provide appropriate infrastructure to support the exploitation of the high potential areas

The irrigation potential of the country shall be optimized by promoting investment in irrigation agriculture for high value crops

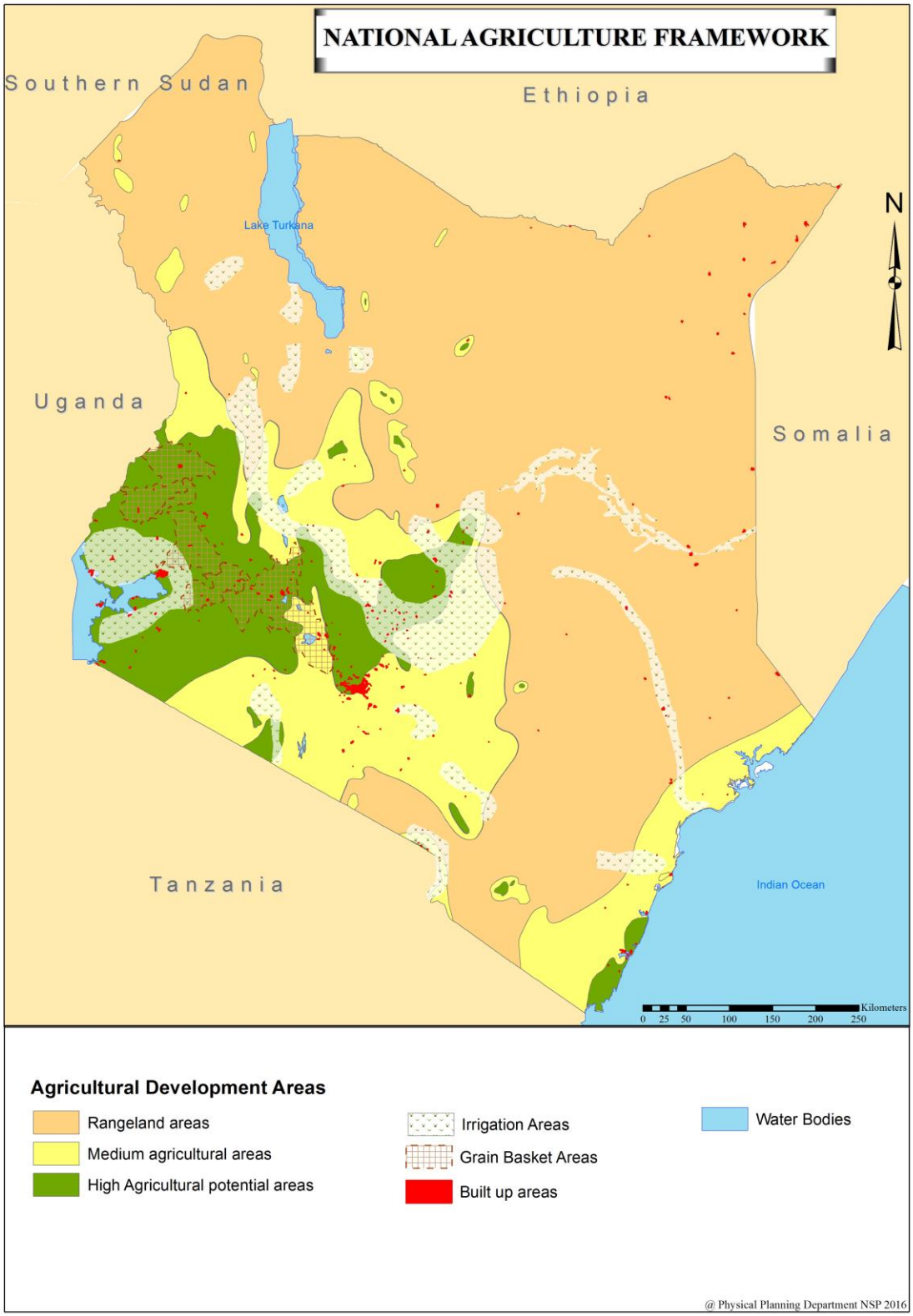
Measures

- Existing irrigations schemes shall be rehabilitated and expanded.
- New irrigation schemes shall be established in areas with irrigation potential
- Small holder irrigation schemes shall be encouraged through sensitization campaigns and reducing the cost of irrigation equipment
- Research shall be undertaken to identify the irrigation potential in all counties throughout the country

The fishing potential of the country shall be optimized to increase the food stock and export earnings

Measures

- Protect the inland fishing resources from over fishing, pollution and destruction of the breeding grounds
- Support the sustainable exploitation of sea fishing resource in the EEZ and Continental shelf
- Encourage small holder farmers to establish fish farms in areas with potential throughout the country
- Undertake research to identify the areas with potential for fish farming
- Provide appropriate infrastructure to support the fishing industry
- Increase access to fishing equipment by making them affordable through reduced taxation



Map 36: National Agriculture Potential Areas

4.6 Diversifying Tourism

4.6.1 Overview

Kenya Vision 2030 identifies six priority sectors with high potential of spurring the country's economic growth and development. The sectors are: tourism, agriculture and livestock, wholesale and retail trade, manufacturing, business process outsourcing/IT Enabled Services (ITES) and financial services. Oil and mineral resources has been introduced as seventh sector in the Second MTP. These sectors will drive achievement of 10 percent GDP growth by 2017.

The tourism sector remains vital for the continued growth of the Kenyan economy. In recent times, tourism has maintained its position as one of the leading foreign exchange earners. The sector is based on a wide array of natural assets particularly: the abundant wildlife living in their natural eco-systems in game-parks and reserves across the country, over 500 km long all-year warm sandy coastal beaches, a rich and diverse cultural heritage and products and a robust and thriving business hub that attracts most of regional and international business travelers.

During the First MTP, significant progress was made in implementing the flagship programmes and projects. Land for Isiolo and Lake Turkana resort cities was identified and prefeasibility studies completed. The marketing of Kenya's tourism both internationally and domestically was undertaken under the Tourism Markets Recovery Programme. Through these marketing efforts, tourism volumes from emerging markets such as India, China and Russia increased. The government developed a Cultural and Heritage Tourism strategy and an Agro-Tourism strategy, and a Cradle of Mankind Tourist Circuit that incorporates Sibiloi National Park, Central Island National Park and Southern Island Park around Lake Turkana region to promote niche products. In addition, the government surveyed, gazetted and rehabilitated several national monuments and historical sites for tourists' attraction. A National Strategy on Meetings Incentives Conventions and Exhibitions (MICE) was developed. The sector finalized the development of a new legal and policy framework, namely, Tourism Act 2011 and a Sessional Paper, to guide the development of the sector.

Kenya's tourism industry is divided into five circuits namely Northern, Western, central highlands and the Great Rift Valley, southern and Kenya coast. The sector offers packages that satisfies a wide range of customers in terms of budget, lifestyles and social grouping and comprises a complex value chain and network of services catering to visitors and domestic travelers. The industry is comprised of various private and public players in various sub-sectors, including: accommodations, tourist attractions, food and beverage facilities, ground transport, in-bond shopping, crafts, and tour services that link the various components of a trip, including national parks and city tours.

The airline and 21 cruise shipping companies are integral to the operations of the tourism sector, and there are numerous linkages with other sectors in the domestic economy. The tourism

industry is based on a diverse range of natural, social, human and physical resources which include sun, sea and sand for resort tourism and reefs for snorkeling and diving; wildlife for safari tourism; mountains, lakes, rivers, forests and valleys for nature, scenic and adventure tourism; and cultural assets in the form of the built environment (monuments, old cities), a living heritage expressed in distinctive local customs and song, dance, cuisine, history, art and handicrafts, etc., and museums that reflect the local cultural heritage or a wider global heritage.

4.6.2 Challenges Facing the Sector

The Second Medium Term Plan and the National Tourism Strategy identifies a number of challenges affecting the sector. These include, untapped and declining product diversity and the continued over reliance on a narrow product range, lack of investment incentives to spur new developments leading to inadequate bed capacity and poor distribution of facilities across regions and weak development control and regulatory frameworks in the industry resulting in poaching and human wildlife conflicts. In addition, inadequate physical Infrastructure and weak integration of ICT in the development and management of the tourism value chain continues to negatively affect the sector.

Other challenges affecting the sector include poor marketing strategies, overreliance on traditional source markets, inadequate research as well as lack of harmonization between national policies on land use, wildlife and tourism and inadequate community participation in the tourism economy. All these coupled with security concerns, negative travel advisories and effects from global economic performance with regard to key source markets have led to stagnation of the tourism sector.

4.6.3 Policy Thrust

The NSP proposes a tourism development strategy that shall increase contribution of tourism to the GDP through FDI earnings, develop and leverage on the existing diverse potential to give the visitors a rich tourism experience, increase and maintain the number of visitors in the country and also increase the bed and tourist facility capacity. The NSP also aims at improving the value chain and supporting the completion of Vision 2030 flagship projects as well as supporting the penetration into non-traditional markets. It further aims at Promoting niche products to increase earnings per capita, prioritize MICE products and promote the whole country as a tourist destination through the different circuits that offer unique characteristics and expansion of land and chartered air transportation networks. In addition, the NSP promotes creative packaging and branding of the tourist products. Further, the NSP aims at increasing community participation in the form of distinctive local customs and song, dance, cuisine, history, art and handicrafts, etc. and conservation and sustainable exploitation of the rich natural resource diversity.

4.6.4 Policy Statements

The NSP shall promote diversification of tourism by offering diverse products in the different tourist circuits throughout the country.

Measures

- The **Northern circuit** shall be planned and developed to offer safari and wildlife, cultural and heritage, archeological and historical, filming ecotourism and adventure tourism.
- The **Western Circuit** shall be planned and developed to offer; Ecotourism, Ecology/study tourism, sports and cultural tourism, adventure tourism, medical tourism, MICE, cultural and heritage, agro tourism.
- **Central and Great Rift Valley circuit** shall be developed to offer Eco-tourism, sport tourism, cultural tourism, adventure tourism, medical tourism, MICE, and heritage, agro tourism, safari and wildlife, archeological and historical, filming, and urban tourism, high yield tourism segment through development of international-branded facilities.
- **Southern Circuit** shall be developed to offer - Safari and wildlife, cultural and heritage, ecological, archeological and historical, filming, ecotourism and adventure tourism.
- **Kenya Coast Circuit** shall be developed to offer – Beach and adventure tourism, Ecotourism, sport tourism, cultural tourism, adventure tourism, medical tourism, MICE, cultural and heritage, agro tourism, safari and wildlife, cultural and heritage, ecological, archeological and historical, , adventure tourism and urban tourism

Appropriate Infrastructure shall be provided and facilities upgraded

- Adopt low carbon and green tourism infrastructure options
- Increase bed capacity in tourist attraction areas and towns throughout the country
- Formulate planning regulations and standards to guide tourist specific infrastructure and facilities.
- Upgrade the existing tourist facilities and infrastructure.
- Provide and upgrade the ICT infrastructure.

Tourist attraction areas and sites shall be conserved and protected

- Wildlife migratory corridors shall be protected.
- Location of incompatible land use activities shall be prohibited.
- Developments within the tourist attraction sites shall be strictly regulated.
- Protection of wildlife watering points

Appropriate Transport infrastructure shall be provided to link the different tourist circuits, attraction areas and sites

- Prepare an integrated tourism transportation master plan
- Upgrade the existing land transportation facilities
- Upgrade the air transportation facilities.
- Application of low carbon options in transport infrastructure shall be encouraged

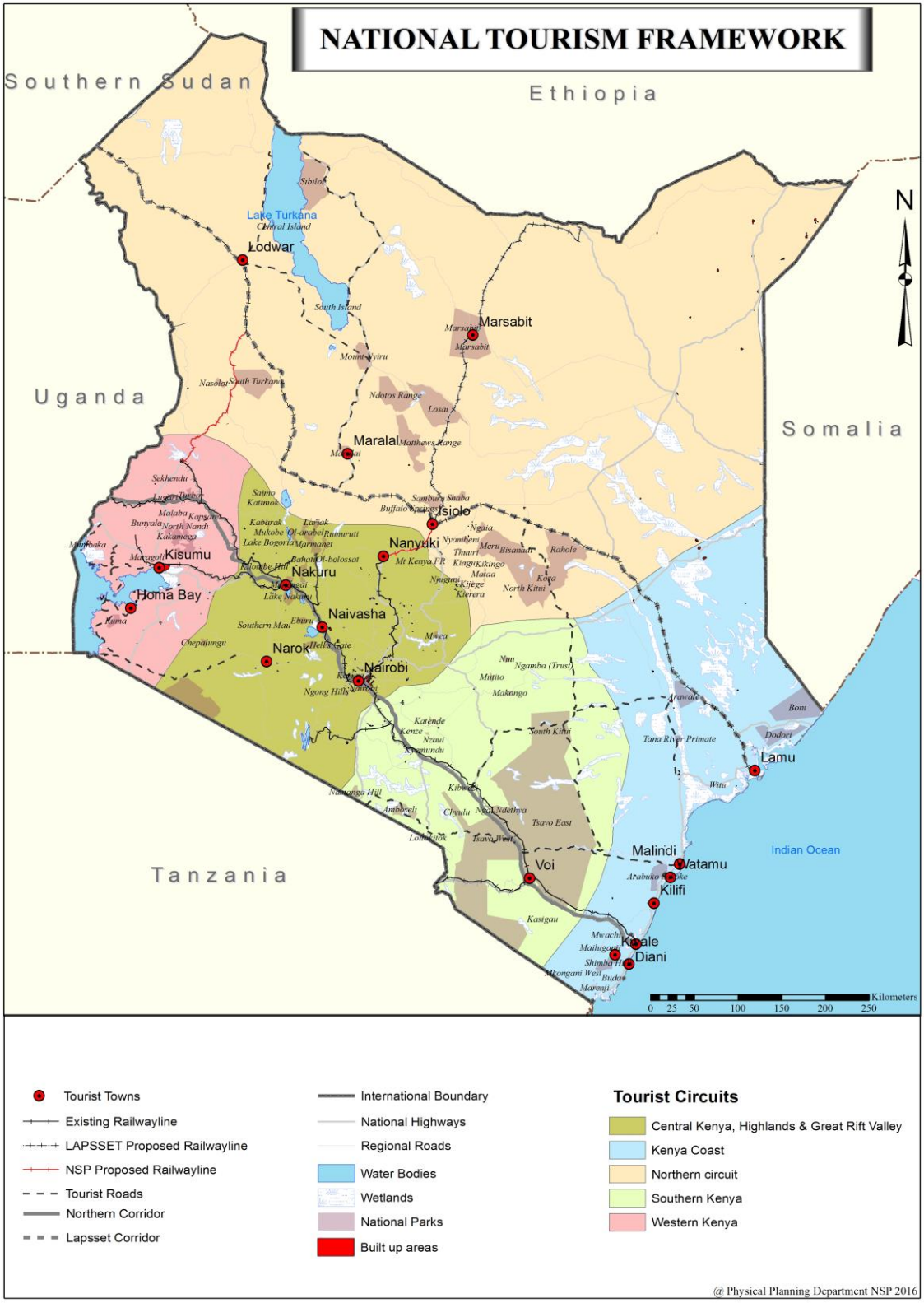
The Governance of the tourism sector shall be enhanced.

- Prepare integrated spatial plans to guide development of the tourism sector.
- National policies on land use, wildlife and tourism;
- Address security issues at national level and enhance tourism dedicated security to the tourism sector.
- Undertake research to identify more tourist attraction areas and sites, inventorize Agro-tourism sites in potential areas of tea, coffee estates, and food festivals.
- Improve the capacity to address poaching of wildlife
- Identify and map potential eco-tourism development sites;
- Undertake awareness campaigns on the value of eco-tourism to the industry players;
- Develop standards for eco-tourism establishments;
- Facilitate access to eco-tourism development incentives
- Market eco-tourism facilities.

Spatial Development plans shall be prepared to guide implementation of the flagship projects for the tourism sector

Measures

- Preparation of the Lamu, Isiolo and Lake Turkana Resort Cities local physical development plans
- Preparation of the Coastal Beach Ecosystem Management plans
- Preparation of local physical development plans to actualize the Premium Parks Initiative
- Preparation of the Mara Ecosystem area plan in conjunction with the County government of Narok to address problems of unplanned development of lodges and poor access roads.
- Prepare a local development plan to actualize the two phases of the Eden Cradle of Humankind project to position the Lake Turkana Basin as the renowned place for human origins internationally, in effect boost economic growth and alleviate poverty.
- Prepare plans for three cultural heritage sites of Fort Jesus in Mombasa, Lamu old town and the sacred Mijikenda Kaya Forests and the three Natural heritage sites of Great Rift Valley lakes - Lake Elementaita, Lake Bogoria and Lake Nakuru to actualize the Niche Products Programme.



Map 37: National Tourism Development Model

4.7 Managing Human Settlements

4.7.1 Overview

The United Nations Conference on Environment and Development's Agenda 21, addresses how urban settlements are to be managed in the future since urban centers are the fastest growing type of human settlements. It identifies eight major areas of effort with associated objectives, programs and activities, and financial information. These are: Adequate Shelter, Land Use Planning, Urban Environmental Infrastructure, Energy and Transportation, Disaster Prone Areas, Settlement Management, Construction Industry and Human Resources.

The Kenya Vision 2030 anticipates that more than half of our nation's population is likely to be residing in urban areas following the current population trends. Thus, Kenya will need to plan for decent and high quality urban livelihoods for her population. The vision's goal for housing and urbanization is for Kenya's population to be adequately and decently housed in a sustainable environment. The medium-term goal for 2012 is to increase the production of housing units from the current 35,000 to over 200,000 units annually. There is an acute need, therefore, for an effective capacity for regional and urban development planning starting with adequate housing for those living in major cities, towns and the populations living in slums. In addition, there will be better development of and access to affordable and adequate housing for the rest of the population, enhanced access to adequate finance for developers and buyers, and targeted key reforms to unlock the potential of the housing sector as well as rural settlements through private public partnerships.

Some of the initiatives the Government has purposed to undertake include; the Housing Development Initiative which calls for an increase in annual development of adequate housing with an emphasis on equity in access, beginning with low-income housing and the Mortgage Financing Initiative which seeks to establish a secondary mortgage finance corporation as well as a national housing fund while also introduces the concept of housing and infrastructure bonds.

However, cities offer economies of scale with regard to provision of civic amenities such as energy, clean and fresh water, mobility, sewage and waste handling. They also play a fundamental role in national development which may include, locus of commercial, foreign and international activities, magnet for the national population, points of contact with the outside world, locus of power, agency and diffusion point of social change, receptacle of talent and manpower and places of investment.

In addition human settlements also play the role of provision of shelter to the nation's population, opportunity for development of pooled economies, opportunity for national integration. Specifically urban areas may afford the country an opportunity to improve its global competitiveness being the first point of interaction between the country and the outside world. They also afford the country an opportunity to service a great number of populations at fewer

costs. By enabling activities to be put agglomerated, urban areas afford the country the opportunity to enjoy economies of scale. Urban areas are also centers of innovation. On the other hand, rural areas play the role of residential, agricultural production of food and raw materials as well as providing market for manufactured goods from the urban areas. Other than farm activities other off and on-farm activities that take place in rural areas include, production of energy, mining and tourism among others.

4.7.2 Challenges of Human Settlements

The country faces the challenges of an increasing population moving towards urban areas and stretching the ability of urban areas to provide appropriate infrastructure and other services, underutilization of existing rural service provision facilities due to declining rural population, the rural urban migration leaves an ageing population in the rural areas hence decline in supply of labour and oversupply in urban areas leading to shortage of gainful employment. In addition, imbalanced distribution of human settlements, dispersed and unregulated metamorphosis of rural settlements have compromised on the ability of the government to provide infrastructure and other services to the population.

Further, inadequate and poor housing conditions, inadequate and deteriorating infrastructure, proliferation of slums and urban decay of the inner core and deteriorating natural environment in the form of pollution of rivers, air, noise within the urban areas together with inadequate service provision in rural areas and degradation of natural environment of rural areas makes service provision difficult. The problems of inefficiency in travel time, unsustainable modal split, unreliable and unscheduled transport modes, lack of standards and regulations poor road conditions inadequate pedestrian infrastructure and poor conditions of rural transport makes movement within human settlements unfavorable.

The above challenges coupled with governance and management issues of institutional incapacities, gentrification, weak and uncoordinated development control and enforcement systems and inadequate human resource in specialized areas of housing, settlement management, land management, infrastructure, construction, energy, disaster planning continues to negatively affect the quality of human settlements in the country.

4.7.3 Policy Thrust

The NSP pushes for modification of the Human Settlement Strategy of 1978 and tackle the emerging realities in the form of population increase and accelerated urbanization; changing lifestyle patterns; deterioration of the urban fabric as well as accelerated mutation of agricultural land. The policy is also driven by the need to strengthen the major conurbations to attract investment and cushion the country from globalization impacts, the need to improve the living standards of the population, need to use land in a more rational way and sustainably, the need to spread the benefits of development more evenly and the need to restructure the economy towards industrial development. Belatedly, the NSP aims to localize agenda 21 due to its relevance to

Kenya's local situation and actualize the visions and aspirations of an adequately and decently housed nation in a sustainable environment. It also aims at realizing the second MTP which calls for a sound policy framework for rational planning, a suitable legal framework and development and management using the requisite technology to promote sustainable urbanization in the realization of the Kenya Vision 2030.

4.7.4 Policy Statements

The expected increase in population in urban areas shall be anticipated and accommodated particularly for the main growth areas.

Measures

- Increase the housing stock by planning and redeveloping existing housing areas and by planning and developing new housing schemes.
- Plan and designate land for housing and improve standards of the existing housing stock
- Upgrade the existing and provide additional infrastructure and facilities to support housing development in the urban areas
- Formulate enabling local policy frameworks to support employment and income generation.
- Locate industrial and service development activities with the global reach in the main urban areas
- Provide efficient transportation and quality infrastructure in human settlements to support industrial and service sectors.
- Promote adoption of technology and fiscal incentives and market support for the informal sector.

The Nairobi, Mombasa and Kisumu, growth areas shall be supported to enhance global competitiveness.

Measures

- The growth areas shall be planned and developed as single economic development areas
- The plans shall address the spatial and aesthetic quality of the urban areas; provision of housing, protection of the natural environment; efficient transportation and quality infrastructure and urban facilities; safety and security
- The different towns and urban developments shall be separated by green belts that shall act as buffer zones and carbon sinks
- The developments in the buffer zones shall be regulated to prohibit the change of user for urban purposes
- Less intensive agricultural practices such as market gardening and bee keeping shall be promoted

Alternative urban areas shall be developed and supported to promote balanced regional development and spur growth.

Measures

- Principal towns such as Embu, Garissa, Nakuru, Isiolo, Eldoret, Lodwar, Wajir, Marsabit Nyeri, shall be developed in accordance to their regional potential and promoted as alternatives to the main conurbations.
- Urban centres shall be developed as intermediate centres between the rural and the principal towns
- The principal towns and urban centres shall be provided with the requisite infrastructure to support their growth and development
- Local plans shall define the urban growth limits for the principal urban centres
- Strict regulations and justifications on development control processes
- Intensify the supply of urban infrastructure within the area contained to make it attractive for investment

Rural growth centres shall be rationalized and supported to act as central places and settlements clustered to free the rich agricultural land

Measures

- Basic services such as extension services, health facilities, markets, sanitation, water, power, education shall be provided to improve the quality of rural life
- Sensitization and awareness campaigns on the need to conserve agricultural land by discouraging land fragmentation
- The growth centres should be progressively linked by means of secondary roads as a minimum.
- Promote the sectors such as agriculture that have potential to stimulate rural development

Human settlements shall be developed in line with environmental and natural resources conservation to improve living conditions

- Map out and prohibit development in environmental sensitive areas
- Plan and provide an integrated waste management system.
- Prepare and implement zoning guidelines to ensure compatibility of land uses in human settlement areas
- Promote social organization and environmental awareness through the participation of local communities in the identification of public service needs
- Strengthen the capacity of the local governing bodies to effectively deal with environmental challenges associated with rapid and sound urban growth

- Empower community groups, non-governmental organizations and individuals to assume responsibility and authority for managing and enhancing their environment
- Deliberate provision of adequate and functional open spaces in urban places
- Prescribe planning standards for open/green space on private development
- Encourage non-motorized transport and re-introduction of public transport in major cities and centres
- Aim for zero carbon building standards by 2032 and ensure all buildings meet energy efficiency criteria

The NSP shall advocate for the provision of an efficient, reliable and effective transport system for human settlement

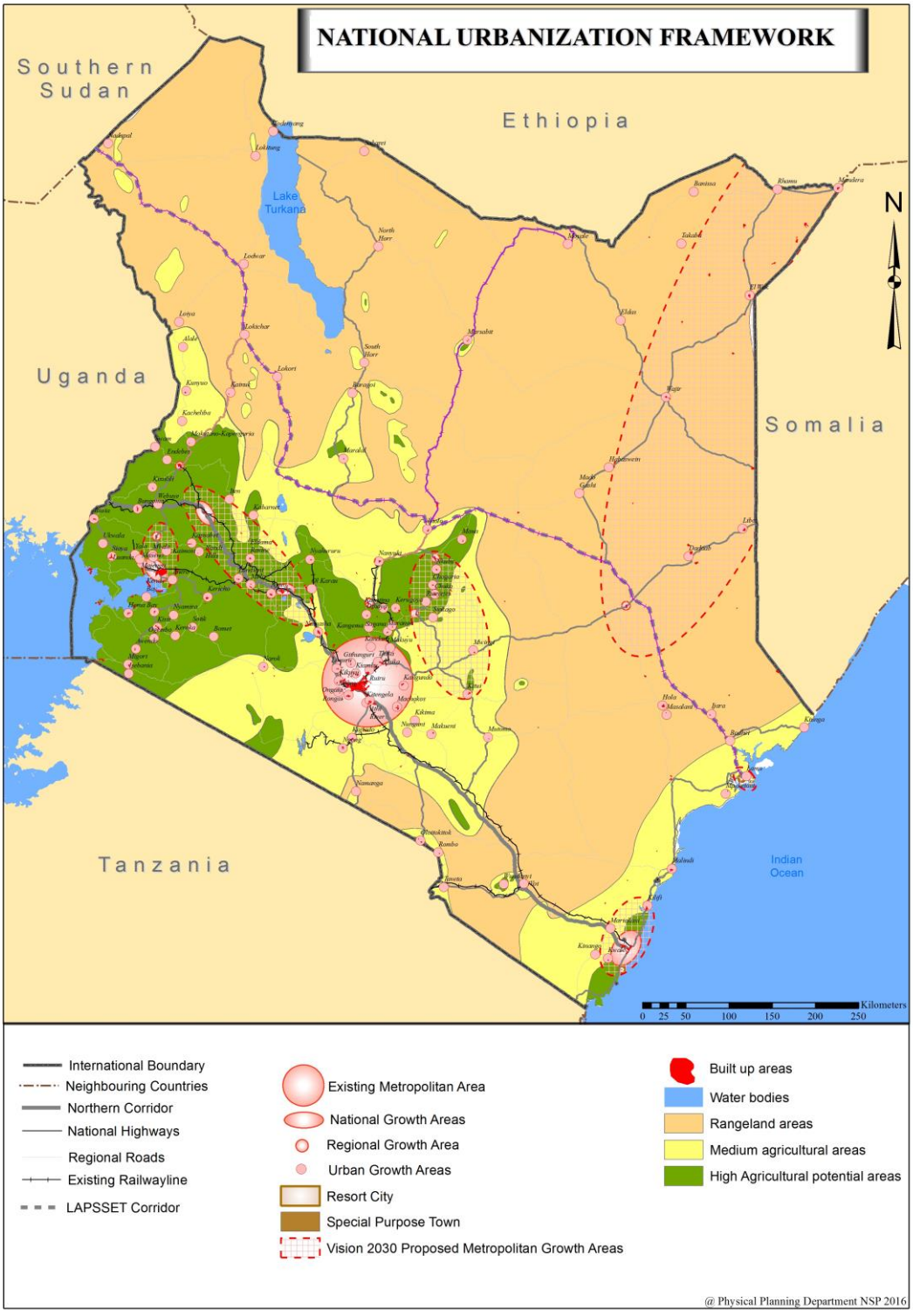
Measures

- Plan and develop an integrated urban transport system to enhance provision of relevant modal split.
- Integrate land use and transportation planning to encourage development patterns which reduce transport demands
- Establish an efficient mass transit public transportation system for Nairobi and Mombasa and plan the same for Kisumu, Embu, Garissa, Nakuru, Isiolo Eldoret, Lodwar, Wajir, Marsabit and Nyeri.
- Establish an effective transport management system that enhances the reliability and efficiency of the transport system
- Improve the road conditions and expand the linkages to human settlements
- Integrate NMT with existing transport infrastructure.
- Incorporate the concept of green energy in transport systems planning and redevelopment.
- Each urban area or city, as part of the integrated urban development plan required under the Urban Areas and Cities Act 2011, will prepare a transportation strategy for its area of jurisdiction, in collaboration with the National Government. The strategy will include non-motorized transport
- The National Government will establish a comprehensive transportation management information system for all transportation modes.

The management and governance of Human Settlements particularly the urban areas shall be improved.

Measures.

- Build institutional capacities of the urban areas management boards
- Integrate technology in management of human settlements to strengthen urban data systems.
- Coordinate and strengthen development control mechanisms
- Provide adequate human resource and improve their capacity in management of human settlements in the sectors of; housing, settlement, land, infrastructure, construction, energy and disaster management
- Conduct research into migration trends to inform effective planning and provision of human settlements.
- Enable public private partnerships in the provision of housing.



Map 38: Main Urban Areas in Kenya

4.8 Conserving the Natural Environment

4.8.1 Overview

Environment is a broad term representing the totality of the surrounding such as plants, animals microorganisms, socio economic and cultural factors. It includes the physical factors of the surroundings of human beings such as land, water, atmosphere, sound, odour, taste, the biological factors of animals and plants and the social factors of aesthetics and includes both the natural and the built environment

The Constitution of Kenya, Article 42 states that every person has the right to a clean and healthy environment, which includes the right to have the environment protected for the benefit of present and future generations through legislative and other measures. Article 69 further provides that the State shall ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits; work to achieve and maintain a tree cover of at least ten per cent of the land area of Kenya; protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities; encourage public participation in the management, protection and conservation of the environment; protect genetic resources and biological diversity; establish systems of environmental impact assessment, environmental audit and monitoring of the environment; eliminate processes and activities that are likely to endanger the environment; and utilize the environment and natural resources for the benefit of the people of Kenya. Article 60 also states that Land in Kenya shall be held, used and managed in a manner that is equitable, efficient, productive and sustainable, and in accordance with the principles of sustainable and productive management of land resources and sound conservation and protection of ecologically sensitive areas

Kenya aims to be a nation that has a clean, secure and sustainable environment by 2030. Specific strategies will involve promoting environmental conservation in order to provide better support to the economic pillar flagship projects and for the purposes of achieving the Millennium Development Goals (MDGs); improving pollution and waste management through the design and application of economic incentives; and the commissioning of public-private partnerships (PPPs) for improved efficiency in water and sanitation delivery. Kenya will also enhance disaster preparedness in all disaster-prone areas and improve the capacity for adaptation to global climatic change. In addition, the country will harmonize environment-related laws for better environmental planning and governance. It is important that the country ensures that sustainable exploitation, utilization and management of its natural resources is strengthened and that the benefits are shared equitably.

The survival and socio-economic wellbeing of Kenyans is ultimately intertwined with the environment. Most Kenyan citizens depend directly or indirectly on environmental goods and services. In addition, Kenya’s environmental resources contribute directly and indirectly to the

local and national economy through revenue generation and wealth creation in productive sectors such as agriculture, fisheries, livestock, water, energy, forestry, trade, tourism and industry.

4.8.2 Analytical framework

Kenya has witnessed unprecedented political and socio-economic transformation since independence. High population growth, shrinking productive land and technological changes are some of the significant changes. These interlinked components provide the backdrop against which to view changes in the state of the country's environment. This is because they serve a dual purpose as some of the most forceful drivers of environmental change. The main human activities contributing to environmental degradation in Kenya include unsustainable land use practices, poor soil and water management practices, deforestation, overgrazing and pollution.
These activities contribute a great deal to degradation of the country's scarce natural resources such as land, fresh and marine waters and biodiversity thereby threatening the livelihoods of many people. They also undermine the sink function of the environment which operates through such processes as nutrient recycling, decomposition and the natural purification and filtering of air and water. Environmental degradation in Kenya directly contributes to impacts of climate change as is witnessed in the rising costs of water treatment, food imports and health services. These are not only increasing human vulnerability and health insecurity but also draining the country's economic resources. The expansion of human activities into marginal areas leading to clearance of natural habitats such as forests and wetlands has been a major driving force behind land degradation throughout the country. The continuous loss of biological resources translates into loss of economic potential and options for commercial development.

The environment in Kenya comprises of ecosystems which include forests, freshwaters, wetlands, coastal and marine, mountains, arid, semi-arid and spectacularly diverse wildlife populations. Within these ecosystems are key natural and cultural heritage resources which support diverse biodiversity and provide natural capital for economic development and support livelihoods.

ASALs occupy 89% of the country and are home to about 14 million people and approximately 70% of the national livestock herd. ASALs are fragile but very resilient ecosystems that receive annual rainfall of between 150mm and 550mm per year, and in semi-arid areas between 550mm and 850mm per year. Temperatures in arid areas are high throughout the year, with high rates of evapotranspiration. The ASALs provide critical habitats for wildlife and ecosystem diversity, including grasslands and wetlands for migratory species. The main form of land use in ASALs is livestock grazing which constitutes approximately 70% accounting for a large proportion of the total livestock population in the country

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Fragile Ecosystems

ASALs

The main threats to **ASALs** include expanding agriculture, charcoal burning and fuel wood collection, uncontrolled fires, human settlements, land degradation, deforestation and overgrazing. Climate change influences the ability of ASALs to cope with these challenges. Their opportunities include: ASALs host about 70% of the national livestock herd with an estimated value of Ksh. 70 billion; They are home to more than 90% of the wild game that supports the tourist industry, and contain most of the protected areas such as game reserves and national parks; they have enormous potential for renewable energy, from both solar and wind. Other natural resources include sand and gravel for construction, soda ash, gums, resins, gemstones, medicinal plants, and potentially oil and gas and the pastoralists' experience of managing climate variability.

Highlands Ecosystems are particularly fragile and highly susceptible to erosion and landslides. They are especially important for biodiversity conservation since many harbor unique assemblages of plants and animals, including high levels of endemic species. Highlands are an important source of water. For example, Mt Kenya, Mt Elgon, Aberdare Ranges, Mau Complex and Cherangani Hills are Kenya's major water towers. These ecosystems have been subjected to a variety of uses and in the process have been exposed to degradation. The main drivers of such ecosystems degradation are deforestation, illegal logging, poaching of wild plants and animals, fires and mining, uncontrolled grazing, encroachment and the effects of climate change.

Lowlands

The lowlands in Kenya consist of the coastal and Lake Victoria basin ecosystems. Coastal ecosystems are composed of multiple interacting systems – maritime, terrestrial and aquatic and include the islands and the 200 nautical miles exclusive economic zone (EEZ). Coastal ecosystems provide a wide range of important goods and services. The services include storing and cycling nutrients, regulating water balances, buffering land and protecting it against erosion from storms and waves, and filtering pollutants. On a larger scale, the oceans also play an important role in regulating planetary balances in hydrology and climate. The major threats to these ecosystems include urbanization, poor waste management, shoreline modification, pollution from land-based activities and other sources, over-exploitation and destruction of marine living resources such as mangroves, oil and gas exploration, use of unsustainable fishing methods, invasive and alien species and adverse effects of climate change. The incremental loss of natural habitat has reduced vegetation cover exposing soils to both wind and water erosion. Most of the land has either fragile ecosystems that need to be protected, soils with low fertility and poor texture, biotic constraints such as tsetse fly, or is prone to natural disasters such as floods.

Environmentally Sensitive Areas

Forest ecosystems are important in conservation of soil, water and biodiversity as well as in moderation of climate. They are the richest terrestrial habitats for biodiversity. Maintaining forest biodiversity safeguards the economic potential of future opportunities for new non-timber products such as food and medicine as well as social sustainability by offering aesthetic, spiritual and recreational settings for people.

The challenges facing the ecosystem include; overwhelming pressure from competing land uses like agriculture, industry, human settlement and development of infrastructure; extraction of forest products, illegal logging, cutting trees for fuel wood and charcoal and grazing of livestock have also contributed to the degradation of forests. These competing land uses have adverse environmental effects on long-term sustainability of forest ecosystems. Large scale loss of forests would lead to catastrophic, permanent change in the country's ecology with consequent loss of agricultural productivity, industrial potential development, living conditions and aggravated natural disasters such as floods and drought. It would also endanger the country's water supplies since the five major water towers are located in forested lands.

Wetland ecosystems form an important part of Kenya's natural resources with considerable provisioning, regulatory and supporting services. Their provisioning services include the storage and retention of water for domestic, agricultural and industrial use. Their regulating services include modifying water flows, recharging and discharging groundwater resources and diluting or removing pollutants. Their supporting services are important for soil formation and retention as well as nutrient cycling. These ecosystems also provide habitats for a great number of plant and animal species. The ecosystems face numerous threats from human population pressure and land use changes. Some of them have been converted for agricultural use, settlements and commercial developments. Other threats include pollution, sedimentation and over-exploitation of wetland resources, introduction of alien species and encroachment of riparian reserves and adverse effects of climate variability. These have caused extensive degradation, reduction in water quality and quantity and loss of freshwater and wetland ecosystem goods and services.

Marine Ecosystem

Kenya's marine ecosystems range from mangroves and coastal wetlands to lagoons, coral reefs and Open Ocean; the country has national reserves designed specifically to protect its marine environments. These include, Watamu Marine Park and Reserve, Kiunga Marine National Reserve, Malindi Marine Park and Reserve, Diani/ Chale Marine National Park and Reserve, Kisite Marine National Park.

The greatest threats to the country's marine ecosystems are unsustainable levels of fishing and the impacts of global climate change, both of which have wrought havoc on the Indian Ocean's coral reefs. Use of motorized fishing vessels and sophisticated fishing gear, which are more destructive and economic growth, also erodes cultural restrictions on overfishing. Increased

development and urbanization along the coastline generates runoff, impacts water flows, and causes sedimentation in Kenya's coastal waters. In addition, pollution, poor waste management, shoreline modification, over-exploitation and destruction of marine living resources such as mangroves, use of unsustainable fishing methods, invasive and alien species and adverse effects of climate change.

4.8.3 Policy Thrust

The NSP looks at Kenya as a whole as environmentally fragile and seeks to prioritize the protection and conservation of environmentally sensitive areas. The National Spatial Plan supports the realization of a clean, secure and sustainable natural environment for high quality of life by strengthening environmental governance; waste management and pollution control; rehabilitation of environmentally fragile ecosystems; adaptation to and mitigation against the effects of climate change; improvement of the land management practices; reduce human-wildlife conflicts and curb poaching. Further the NSP aims at reducing conflicts over natural resources; promote the use of renewable energy sources; sensitization on the economic value of environmental resources and encourage local community participation in biodiversity conservation and development. This coupled with further investments in research and development shall ultimately facilitate a better quality of life for present and future generations through sustainable management and use of the environment and natural resources.

4.8.4 Policy Statements

All environmentally sensitive areas shall be protected and utilized in a sustainable manner

Measures for Wetlands

- Prepare integrated wetland resource management plans to promote sustainable use of freshwater and wetland resources
- Develop and implement catchment-based wetland management plans for all Ramsar sites through a participatory process.
- Rehabilitate and restore the degraded wetlands, river banks and lake shores and promote and support establishment of constructed wetlands.
- Involve and empower communities in the management of fresh water and wetland ecosystems
- Promote and institutionalize payment for environmental utility services to support catchment protection and conservation.

Measures for Marine Ecosystems

- Prepare integrated marine resource management plans to promote sustainable use of marine resources

- Undertake and support research and training in the conservation and management of coastal and marine ecosystems and resources.
- Promote closer regional and international cooperation in the conservation and management of marine migratory species.
- Harmonize and coordinate the roles of various regulatory agencies charged with the management of coastal and marine resources.
- Involve and empower communities in the management of coastal and marine ecosystems
- Implement the Integrated Coastal Zone Management (ICZM) Policy and Integrated Ocean Management Policy, Strategy and Action Plan.

Measures for Forest Ecosystems

- Prepare integrated forest resource management plans to promote sustainable use of forest resources
- Develop and implement a national strategy for rehabilitation and restoration of degraded natural and indigenous forests and protect water catchment areas with active community involvement/participation
- Support effective implementation of the forest and other related policies and laws.
- Develop and implement national standards, principles and criteria of sustainable forest management
- Encourage development and implementation of appropriate forestry-based investment programmes and projects
- Involve and empower communities in the management of forest ecosystems
- Determine potential areas for farm/agro and dry land forestry
- County Governments to promote a forestation and agro-forestry through County Spatial Plans
- Map out potential areas for commercial plantation forestry
- Delineate mangrove forest areas and formulate regulations for sustainable utilization
- Gazette, protect and rehabilitate degraded forests through re-afforestation by replanting trees on land that were previously forests.
- Enforce legal and regulatory provisions for forest management and protection.
- Indigenous forests shall be identified and protected from logging.
- Involve and empower communities in the management of forest ecosystems through Controlled logging, agro forestry re forestation, and natural generation
- Encourage development and implementation of appropriate forestry-based Investment programmes and projects.

Measures for Mountain Ecosystems

- Generate and strengthen knowledge about the ecology and sustainable management of mountain ecosystems.
- Develop and implement strategies and action plans for sustainable management of mountain ecosystems.
- Promote integrated watershed management and alternative livelihood opportunities to enhance community participation and empowerment in the conservation and management of mountain ecosystems.
- Adopt appropriate land use planning and watershed management practices for sustainable development of mountain ecosystems.
- Ensure all water catchment areas are zoned and managed as protected areas and free from excision.
- Involve and empower communities in the management of mountain ecosystems.

All environmentally fragile areas shall be conserved and utilized in a sustainable manner

ASALs

Measures

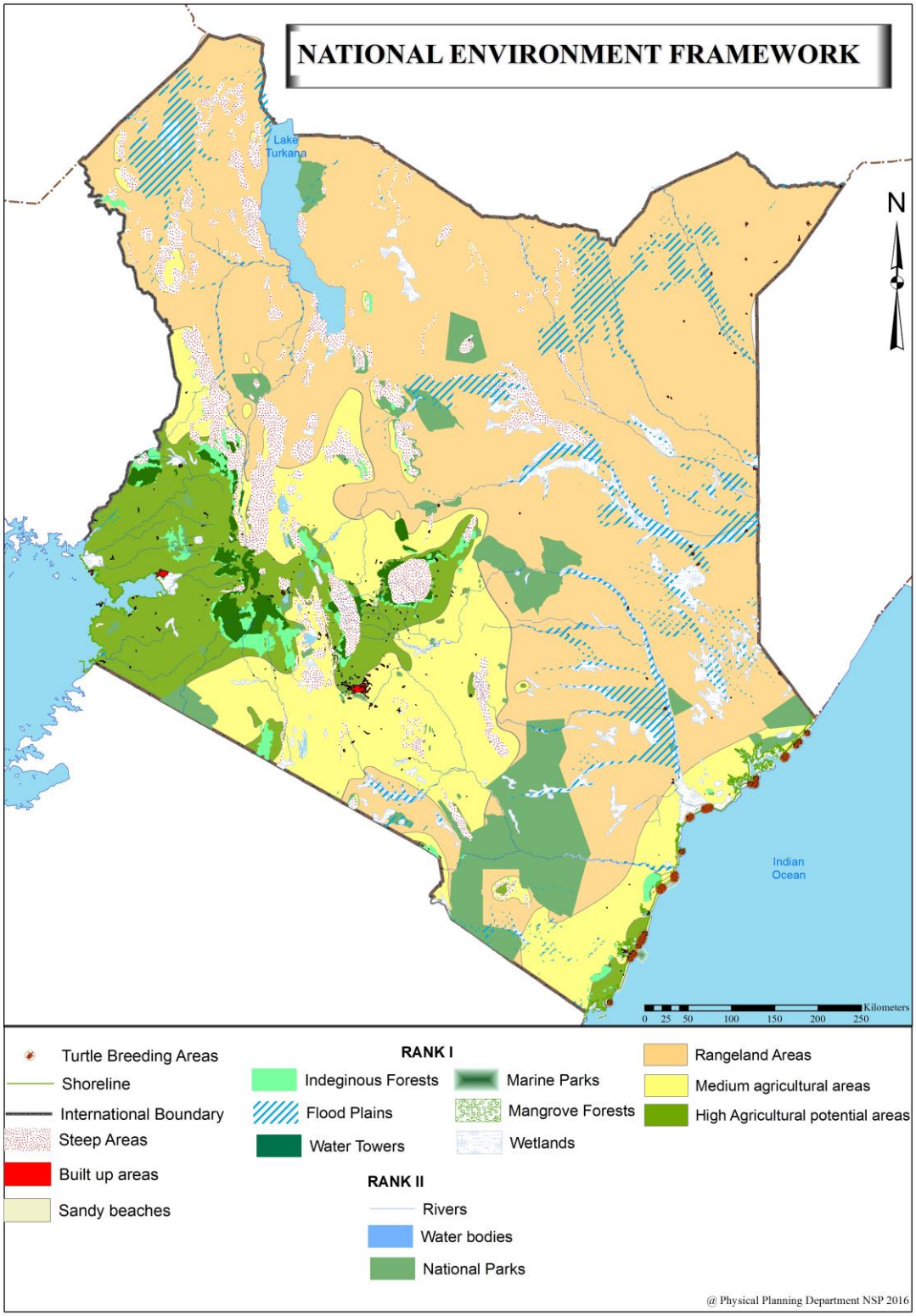
- Develop and implement an Integrated Land Use Master (Development) Plan for the ASALs.
- Promote integrated natural resource management in ASALs.
- Ensure application of Integrated Water Resources Management (IWRM) in ASALs with a view to harvesting flood and river water.
- Promote efficient adaptation measures for productive and sustainable resource management in the ASALs.
- Mainstream dryland issues into all national development plans and policies.
- Involve and empower communities in the management of ASAL ecosystems and promote environmental education and awareness
- Gazette and manage emergency drought reserve areas and encourage the development of buffer areas of crop and forage production as part of contingency planning.
- Mainstream climate foresight and climate adaptation into planning at all levels by strengthening the climate resilience of communities in the ASALs and promoting sustainable livelihoods
- Explore opportunities and develop appropriate mechanisms through which communities can benefit from bio-carbon initiatives
- Protect and increase forest cover, riverine vegetation and critical water catchment areas in the ASALs, including special ecosystems such as Mts. Marsabit and Kulal

All government agencies shall integrate environmental concerns in policy formulation, resource planning and development processes.

- Waste Management and Pollution Control: This will involve research, legislation, viable technologies and enforcement of statutory mechanisms for the disposal of human and industrial waste, elimination of harmful emissions including those from factories and motor vehicles.
- Develop and maintain an inventory of all vital habitats in the country, and create a biodiversity information data base of all plant and animal species, indicating their potential use,
- Identify species which are rare and endangered with a view to protecting them from extinction through the establishment , where necessary, of more biosphere reserves, national parks and reserves, botanical gardens, arboreta, and through their propagation and captive breeding;
- Encourage the participation and of local communities in conservation and management of the environment by giving incentives for effective conservation of the environment by local communities.
- Jointly develop and implement harmonized regional approaches for sustainable management of trans-boundary resources
- Devise means to measure the value of unexploited natural resources, especially biodiversity, in economic terms.
- Translate into practical conservation actions the provisions of international conventions and agreements relating to conservation of biodiversity to which Kenya is a party.
- Implement the National Action Plan (NAP) to combat desertification and revitalize the Desertification Trust Fund and National Drought and Disaster Contingency Fund.
- Implement the National Climate Change Strategy and the National Climate Change Action plan.
- Strengthen Environmental Governance and harmonize sectoral policies, legislation and regulations.

The National Spatial Plan supports the mainstreaming of climate change into the national and county planning processes.

- Build and strengthen research capacity on climate change and related environmental issues.
- Increasing geothermal capacity by encouraging private sector investment.
- Mainstreaming of climate change into all water resource management plans and actions.
- Promoting water conservation including reversal of degradation of the main water towers and rehabilitation and restoration of all water catchments.
- Promoting growing of drought tolerant traditional high value crops.
- Supporting sustainable livelihoods in drought prone ASAL.
- Develop and promote the use of green energy.



Map 40: Environmentally sensitive areas in Kenya

4.9 Integrating the National Transportation Network

4.9.1 Overview

Kenya Vision 2030 is built on three pillars which are anchored on six foundations that include infrastructure; science, technology and innovation; land reform; human resources development; security and public service reform. Under infrastructure, it aspires for the country to be firmly interconnected through a network of roads, railways, ports and airports.

The **Vision's Second MTP** envisages the sustenance and expansion of our physical infrastructure to ensure that it can support a rapidly-growing economy, the demands imposed on it by higher rural and urban incomes, and by new economic activities. Air transport facilities will be expanded within the country, and Kenya will strengthen its position as the air transport hub in our region. Priority will also be given to improving the efficiency of our ports, and the implementation of the single window clearance system. With the construction of the standard gauge railway line from Mombasa to Malaba, rail transport will be expected to handle 50 per cent of the freight cargo throughput, thus easing the pressure on our roads, lowering the cost of doing business, and enhancing trade and regional integration in Eastern Africa. The new Lamu port and the LAPSSET corridor will be implemented as part of upgrading our national transport framework in collaboration with other countries in Eastern Africa. To relieve congestion in our main urban areas, planned mass rapid transit systems will be constructed. Expansion of roads will be continued, aiming at achieving a road network with 75-80 per cent of the classified roads in good condition and construction or rehabilitation of 5,500 km of roads.

In addition, the country will maximize its geographical comparative advantage through implementation of the LAPSSET corridor project, modernization of the Port of Mombasa, construction of a standard gauge railway from Mombasa to Malaba, and expansion of Jomo Kenyatta International Airport to serve as the regional airport hub. The construction and building sector will benefit from continued infrastructure spending with expansion of roads, ports, rail and power plants. Kenya will also continue to aggressively exploit market opportunities through regional integration, and exploit export opportunities in African states outside the East African Community (EAC), Common Markets for Eastern and Southern Africa (COMESA) and in the global market.

4.9.2 Role of the Transport Network

The transport sector plays a pivotal role in the growth of Kenya's economy. Vision 2030 aspires for a country firmly interconnected through a network of roads, railways, ports, airports, water ways, and telecommunications. The National Transport Policy aims at achieving a world-class integrated transport system responsive to the needs of people and industry by developing, operating and maintaining an efficient, cost effective, safe, secure and integrated transport system that links the transport policy with other sectoral policies. For the economy to achieve a sustained growth rate of 10% as per the aspirations of Vision 2030, the transport sector will be expected to play a great role in all key sectors of the economy. Unfortunately, the transport

network is currently highly disintegrated and therefore inefficient for the county's competitiveness.

The NSP acknowledges the importance of an integrated transport network in actualizing Vision 2030 and in improving the overall economy of the country. The policies in the national integrated transport system seek to compliment and facilitate the realization of each objectives of the NSP to make Kenya globally competitive.

The transport network in Kenya consists of; road, rail, maritime and inland water, pipeline, and air transport in rural and urban areas. Currently, the transport network in Kenya lacks integration and faces several challenges which must be addressed before integration can be realized. Each network is managed and operated independently thus hampering efficiency, connectivity and functionality.

Table 33: Function of the Various Modes of Transport:

Mode	Function
Road	
International trunk roads	International and regional connectivity Provide for flow of goods and human capital Spurs urbanization along international trunk roads Provides site for provision of pipeline transport, electric cables, ICT cables among others
National Trunk roads	Provide for flow of goods and human capital Spurs urbanization along national trunk roads Provides site for provision of pipeline transport, electric cables, ICT cables among others Supports/links to international trunk roads Links national and regional growth centers
Regional roads	Provide for flow of goods and human capital Spurs urbanization along regional trunk roads Provide site for provision of pipeline transport, electric cables, ICT cables among others

	Support/link to national trunk roads Link regional and urban growth centers
Air Transport	
International Airports	Spurs development of national growth centers Provides for international movement of goods and human capital Encourages international tourism Promotes international trade Revenue generation
National airports	Spurs development of regional growth centers Provides for local movement of goods and human capital Encourages domestic tourism Promotes international trade Revenue generation
Aerodromes	Spurs development of rural growth centers Provides for local movement of goods and people Encourages domestic tourism Promotes international trade Revenue generation
Rail Transport	
Train	Provides for movement of goods and people Reduced distribution cost and congestion Integrates global transport Spurs urbanization Revenue generation

Maritime and inland water transport	
Seaport and inland ports	Promotes international trade (imports and exports) Spurs urbanization Convergence of inland and coastal transportation systems Revenue generation Stimulate innovations in various functional areas
Pipeline transport	
Pipeline	Movement of bulky and huge quantities of petroleum based products Reduced distribution cost and congestion Revenue generation
Urban Transport	
NMIMT	Movement of goods and people within urban areas Modal integration Alternative means of transportation in urban areas
MT	Provides inter and intra connectivity between and within urban areas

NSP will aim to improve management, operation and maintenance of the Transport Network for greater efficiency, effectiveness and functionality in order to aim to propel the country into a medium income country and assert its global competitiveness.

4.9.3 Challenges Facing the Sector

The National Spatial Plan identifies Imbalanced or uneven transport infrastructural development where some parts of the country have poor transport infrastructure particularly the northern parts and rural areas of the country as a key challenge. The other challenges include; poor quality of transport services characterized by high costs for passengers and freight and low levels of investment, the rail infrastructure is old and dilapidated and the port faces delays and low capacity in handling cargo and inland water transport is underutilized; encroachment and illegal land allocation along transport corridors which constrains the use of the network and expansion reducing the capacity of the networks and environmental pollution. Further, inadequate and distorted modal split whereby the road network carries more than its fair share of traffic and lack

of inter-modal integration which hinders provision of a seamless interchange between the various modes has created delays particularly in respect to air and water transport and therefore affects the country's competitiveness; poor traffic management largely operated by the private sector majorly in urban areas characterized by heavy traffic congestion during peak hours and stiff competition for road space among motorists, pedestrians and cyclists. These coupled with weak institutional and legal framework and lack of Funds for Development and Maintenance has led to lack of harmony in the transportation network, poor safety standards and the continued degradation of the transport sector in the country.

4.9.4 Opportunities

In spite of the above challenges the sector has a number of opportunities including, the continued improvement of airports, with JKIA seeing the expansion of its terminals, Kisumu International airport witnessing the extension of its runway and both Mombasa and Eldoret airports increasing their capacity to accommodate larger planes and establishment of an Autonomous National Aircraft Accident Investigation agency will help boost air travel as a whole. The recent discovery of huge oil and gas reserves in the country and ongoing efforts to increase intra-regional trade, through the strengthening of the East Africa Community (EAC) regional trading bloc, have attracted the attention of private investors and international lenders, whicj is anticipated to trigger a higher demand for efficient and sustainable transport systems. Existing and proposed infrastructure; railway network, road network, central railway station and modernizing and expansion of the rail network along with the establishment of strong institutional frameworks offers a platform for improvement in efficiency, safety and enhanced coordination of the transport sector.

4.9.5 Policy Thrust

The NSP proposes an integrated national and urban transport system that seeks to maximize efficiency and sustainability of the transport sector. It also envisions a balanced transport infrastructural development through provision of the missing links and improvement of the quality of transport services to enhance regional balance in the country. These will be achieved through provision of adequate and appropriate interchanges to improve the modal split and intermodal integration. Further, elimination of delays at the port and improvement of the capacity to handle cargo and inland water transport will be exploited. This shall be achieved through the strengthening of the institutional framework for transport infrastructure development and operationalizing the Public Private Partnership (PPP) legislation to encourage private investment in public projects.

4.9.6 Policy Statements

An integration of national transport and Land use planning shall be adopted.

Measures

- A hierarchy of transportation systems comprising rail, road, water (lake and sea) and air services to link all major economic production areas in the country shall be established.
- A comprehensive road management information system shall be established by the Ministry responsible for Roads for reference and compliance by all transport network providers.
- The National Transport and Safety Authority shall be restructured as a single agency to coordinate integration of the nation's public and private transportation systems and to facilitate public transportation services in major urban areas
- Needs of persons with disability shall be factored in all the planning, development and construction and management of the transport network
- All illegally acquired land for transport infrastructure shall be repossessed and revert to the Ministry responsible for Transport.
- Urban based activities shall be configured to support mass transit systems and reduce the need for travel.
- Transport investments shall be guided by land use patterns to reduce travel time, increase regional accessibility, and encourage NMIMT (Non-Motorized and Intermediate Means of Transport) travel and encourage social cohesion.
- All land use changes need to aim to have traffic impact studies carried out as part of development control within a broader framework of environmental impact assessment as a tool of land use planning and control of development in urban and rural areas. This will be useful in fostering best practices of integrating transport and land use planning.

The NSP shall support the development of an integrated and functional transport system for the national and urban areas.

Measures

- A National Transportation Master Plan shall be prepared to incorporate the role and function of road, rail, sea, air and pipeline transport.

Air Transport

- JKIA shall be modernized and expanded to function as the main international gateway and the regional hub of east and central Africa
- Moi international airport Mombasa shall be modernized and expanded as a major hub to complement the port, serve tourism needs as well as industrial and commercial needs of the coast region.

- Kisumu international airport shall function as a regional gateway to serve the Great Lakes Region and complement the inland port and as the major hub of the western region.
- Eldoret international airport shall function to support agricultural export and industrial needs in the western and north rift region.
- The proposed Isiolo Airport shall be developed to support the tourism and livestock industrial activities in the northern Kenya region.
- The proposed Lamu international airport shall be developed to support the proposed port commercial and industrial activities of the northern and coastal regions.
- Wilson, Malindi, Wajir and Lokichoggio airports and Ukunda and Manda airstrip shall be expanded.

Water Transport

- Mombasa sea port shall be modernized and expanded for international and national export and import cargo.
- Lamu sea port shall be developed to serve Southern Sudan and Ethiopia.
- Kisumu inland port shall be rehabilitated and modernized to serve domestic needs and the Great Lakes Region
- Other coastal sea ports of Vanga, old Mombasa port, Shimoni, Kilifi and Malindi shall be developed to serve passenger travel, fishing industry, tourism, other commercial activities and regional needs
- Other inland ports of Homabay, Kendu bay and Asembo bay shall be developed to support the passenger travel, fishing industry, tourism and other commercial activities

Rail Transport

- The railway network shall be expanded and developed as the core mode of transportation in the country to optimize on land use, limit pollution, reduce road degradation, maximize on freight and passage carriage and improve efficiency and facilitate the trans-shipment of heavy and hazardous goods.
- All major urban centres within the railway corridor shall be linked via modern railway network with the rail stations acting as focal points for community and transportation activities.
- The priority routes for implementation of the modern railway system shall be Mombasa-Nairobi link, Nairobi-Malaba and Nakuru-Kisumu with connectivity to Uganda and Rwanda
- The other priority route for implementation of the modern railway system shall be Lamu-Lodwar, followed by Isiolo-Moyale and Namanga-Isiolo

Road Transport

- The national transportation corridors consisting of road and rail shall be extended to:

i) Connect the northern corridor to the LAPSSET corridor, Namanga to Isiolo, Migori to Lokichar, Thika to Garissa, Lunga Lunga to Lamu, Lamu to Kiunga.
ii) Provide links between Marsabit and Lodwar, Marsabit and Wajir.

- The national transportation corridors shall be supported and complemented by lower hierarchy roads providing access and linkage, between county headquarters; county headquarters and sub-county headquarters and for local access.
- All roads connecting county headquarters shall be expanded to 60m and developed to bitumen standard (tarmac).
- All roads connecting county headquarters to sub-county headquarters shall be expanded to 30m and developed to bitumen standard.
- Roads connecting infrastructure installations of national importance and resource areas shall be developed to bitumen standard.

The NSP shall support development of an efficient and affordable Mass Public Transport for all urban areas in the country

Measures

- Transit oriented development shall be adopted in the planning, design and development of all public urban transport.
- Integrate land use with urban transport planning for all urban areas.
- Transport networks to be systematically designed in an integrated manner that considers all different modes of transport.
- Planning for urban transportation shall favour public over private transport and shall progressively promote a modal split of 50:50
- Research on the optimal modal split for various categories of urban centres shall be undertaken.
- An integrated mass rapid transit system (Commuter rail service and bus rapid transit) shall be developed for Nairobi,
- Mombasa and Kisumu shall be prepared for BRT
- Public transport system based on bus rapid transport system shall be provided for the principal towns of Embu, Garissa, Nakuru, Isiolo Eldoret, Lodwar, Wajir, Marsabit Nyeri.
- Terminal, interchange and pick-up and drop-off facilities shall be designated, regulated and harmonized and travel schedules and routes shall be digitized in all such facilities
- Bypasses and ring roads shall be constructed in main urban centres to divert through traffic from the CBDs (Central Business Districts);
- The following bus traffic management measures shall be adopted in planning and design of the public transport system:
    - Dedicated bus lanes
    - Specified bus type, design, capacity and speed
    - Defined bus routes and time schedules

  - Cashless fare system
  - Designated bus lay bays
  - Introduce bus trams for Nairobi
- Urban based activities shall be configured to support mass transit systems and reduce the need for travel
- Establish a comprehensive transport management information system for all transport modes.

An urban transport policy that aims at developing an integrated, balanced and environmentally sound urban transport system in which all modes efficiently play their roles shall be developed

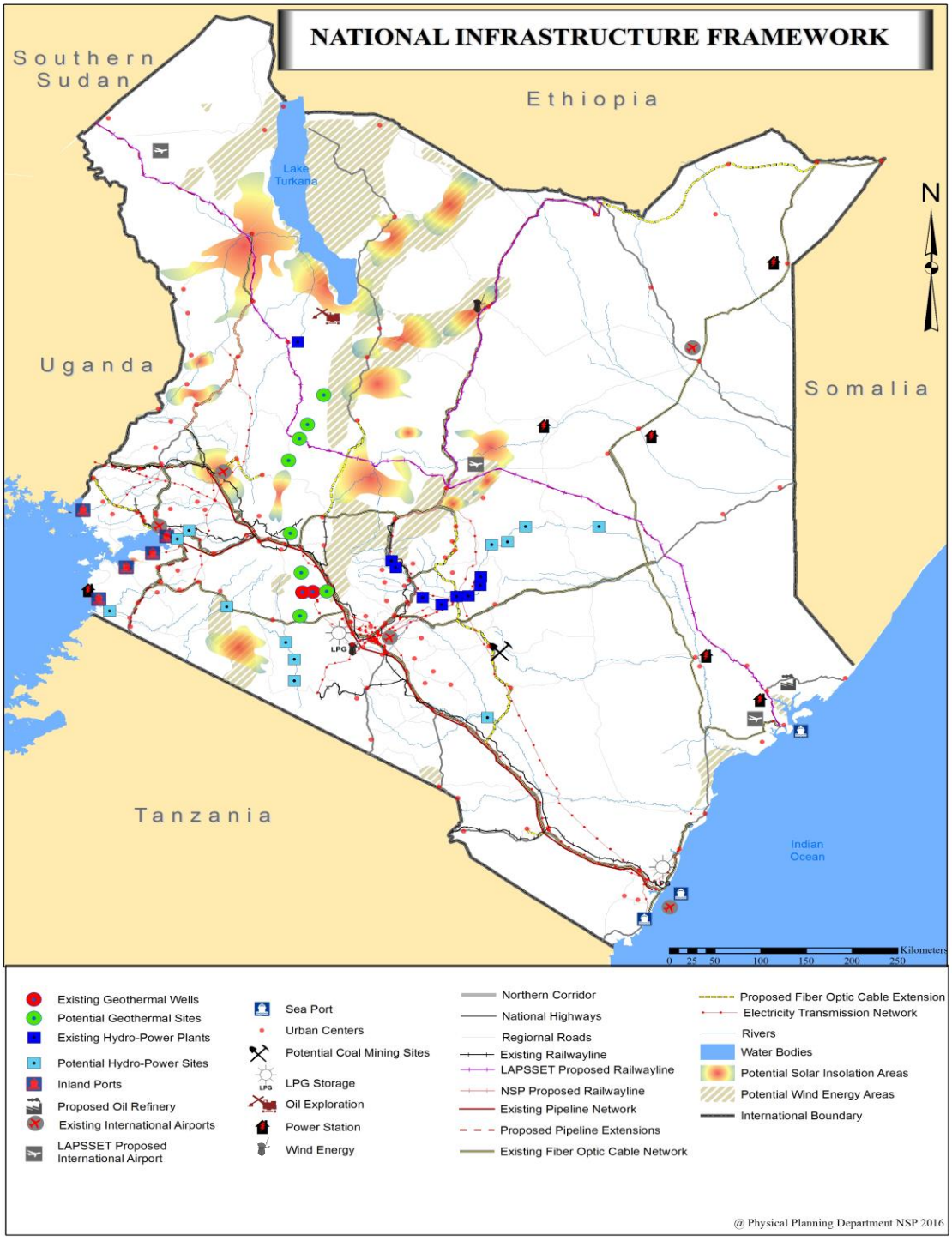
- A public transport policy shall be developed to regulate planning and management of public transport
- Each county government shall develop policies to limit use of private transport and maximize on public transport
- A main public transport termini shall be developed in all metropolitan, major urban areas and county headquarters to cater for all the various transport modes, including NMIMTs(Non-Motorized and Intermediate Means of Transport) to enhance efficiency and connectivity between transport modes
- County governments, urban areas and cities shall provide a framework for development and management of public service termini by the private sector through public private participation
- Entry of private vehicles into the CBDs (Central Business District) of cities and major urban areas shall be restricted and park and ride terminal facilities constructed at designated entry points to absorb traffic into public transport.
- The designated terminal facilities in the periphery of the urban areas shall be planned, constructed and managed to accommodate parking spaces for the private vehicles and interchange to the public transport system
- Satellite towns shall be planned and developed to complement and decongest major urban areas
- All county, city and urban plans development plans shall incorporate an integrated transport network
- A 24-hour economy shall be implemented to distribute traffic flows on urban roads, alter working shifts and save on cost of travel time
- County governments shall identify, plan and control developments in the satellite towns
- Cities, County governments, and major towns shall identify, designate, close and regulate roads to be used by hawkers to display their wares on chosen days and times to decongest the CBDs (Central Business District).

- Strategic areas will be planned and designated for taxis in all cities and urban areas and their operations shall be regulated to enhance safety and order

Environmental conservation shall be upheld in the planning, development and management of the transportation network

Measures

- Construction and management of the transport network shall be bound by environmental regulations and standards.
- The integrated transport master plan, regional, county and local spatial plans shall provide guidelines to regulate environmental conservation in the development and maintenance of the transport network
- All transport network providers to implement international environmental legislation/agreements e.g. the Clean Air Initiative resolutions that commit African countries to adopt less polluting fuels
- Enforce emission testing in all transport modes and set standards and guidelines for decommissioning of vehicles.
- Promote the use of green energy in all transportation systems.



Map 41: Integrated National Transport Network

4.10 Providing Appropriate Infrastructure

4.10.1 Overview

The level and quality of infrastructure in a country is a reflection of its socio-economic development. The Millennium Development Goals support infrastructural development to aid in the realization of universal primary education, reducing child mortality; improving maternal health and combatting HIV/AIDS and Malaria. Vision 2030 desires for a country firmly serviced through a network of water, energy, ICT, health, education, sanitation facilities, and telecommunications. To achieve this, the Vision lays emphasis on: the generation and distribution of more energy at a lower cost and increase efficiency in energy consumption; improving access and efficiency in water and sanitation; providing globally competitive quality education, training and research for sustainable development and enhanced individual well-being; providing an efficient and high quality healthcare system; promoting sports development as a source of employment for the youth and increasing investment in expansion, access and development of ICT

However, infrastructure has the following benefits: provision of services that are part of the consumption bundle of residents, provision of impetus to urbanization, supporting other industries and improving the quality of life. Thus, in order to stimulate growth and reduce poverty, it is essential to improve the supply, quality and affordability of infrastructure services.

The challenges facing the sector are: skewed distribution and inaccessibility of infrastructural facilities; high rate of urbanization and population growth; loss of land for infrastructural development; high cost of infrastructural services, development and maintenance; mismanagement of the infrastructure facilities; over reliance on hydroelectric power; destruction and encroachment of water sources; under exploited energy and water potentials; poor ICT infrastructure, reliability, flexibility, availability and integration; poor waste management; frequent water shortages and unaccounted water loss and poor quality of higher education.

4.10.2 Existing Situation

Energy: The National population under access to electricity is approximated at 28.9%. The main sources of the energy are geothermal which is estimated at 10,000 MW yet 198 MW is generated; hydro which has a potential of 3000MW while producing 743MW which accounts for 49% of the installed capacity; solar energy is also abundant because Kenya receives daily insolation of 4-6kWh/m2;wind installed capacity is 5.1 MW against a potential to produce over 1,000 MW of wind power for sale to the national grid; biogas which has a total installed electric capacity of all sources ranging from 29-131MW, which is about 3.2 to 16.4% of the total electricity production with a potential of 1000MW and biomass which generates 35MW and a potential of 300MW. NSP shall support the increase in access to electricity through upgrading and expansion of the national power generation by 5000MW, transmission and distribution network to improve supply and reliability, reduce losses and increase connectivity.

Water: The 2030 vision for water and sanitation is to ensure that improved water and sanitation are available and accessible. In order for this to be realized it shall be critical to identify the country's water resources in terms of sources, conservation, storage and application as well as the various technologies available for sound and sustained management as water availability and quality will have a significant bearing to support the envisaged industrial, agricultural and social development.

Nationally piped water coverage lies between 42% and 59%. In rural areas, where 78% of the national population lives, only 38% to 52% have easy access to safe water in urban areas 59% to 83%have easy access to safe water (World Bank, 2009) while access to improved sanitation stood at 50%.

Education: Kenya has a number of universities and other institutions of higher learning. There are 22 Public universities, 14 Chartered Private universities and 12 universities with a Letter of Interim Authority (LIA) with an enrolment of 100,649 students. With 40,000 to 60,000 students qualifying for admission to public universities, they only absorb 10% and only 3% being absorbed by Private Universities. Kenya further has 50 Technical/Vocational/trade schools.

ICT: Kenya's internet connectivity is provided by submarine cables connecting her to the rest of the world. All major towns in the country are now connected through the National Optic Fiber Backbone Infrastructure (NOFBI) and Government Common Core Network (GCCN). Kenya is the regional hub for technology incubation and has a regional techno-city. ICT is further characterized by increased mobile use and mobile networks, Expansion of Kenya's IXP regionally and Global mobile money transfer services. By June 2014 the total number of mobile subscriptions was recorded as 32.2 million up from 31.8 million posted in the previous quarter.

The Government of Kenya has implemented electronic systems in various State Departments and other state-owned institutions and functions, including: the re-engineered Integrated Financial Management Information System (IFMIS), County Revenue Collection System, application of public service jobs online, status tracking of ID and passports, public examination results and candidate selection into secondary schools, digitized education content in 12 subjects in secondary school level; online custom declaration, electronic reporting of corruption, and a business licensing e-registry.

Health

A National referral health facility is the highest level of health care which provides highly specialized health care services. It links up with other national and international health care providers. National referral hospitals are at the apex of the health care system, providing sophisticated diagnostic, therapeutic, and rehabilitative services. Comprises of all tertiary (level 6) referral hospitals, National reference laboratories and services, Government owned entities, Blood transfusion services, Research and training institutions providing highly specialized services .

Kenya has 2 National Referral and Teaching Hospitals (NRTH) of Kenyatta National Hospital (KNH) and Moi Teaching and Referral Hospital (MTRH), Mathari Mental Hospital and Nairobi Womens' are other specialized facilities which offer specialized services. The equivalent private referral hospitals are Nairobi Hospital and Aga Khan Hospital in Nairobi.

Sports: Kenya has two principal Sporting Complexes; that is Moi International Sports Centre, Kasarani and Nyayo National Stadium both in Nairobi City County. The government will undertake a number of programs to promote sports development as a source of employment for the youth.

In addition, Kenya aims to capitalize on her international reputation as an "athletic superpower" by opening up the country for top global sports events, encouraged by corporate sponsorship. Investment will be made to position creative arts, cultural heritage and sports as major sources of employment and income earning opportunities especially for the youth. The strategy will be to identify and nurture talents, support its commercialization and provide necessary infrastructure at national and county levels.

4.10.3 Policy Thrust

The NSP supports the development of a firmly interconnected, efficient, reliable, adequate, accessible, safe, sustainable and environmentally friendly systems of infrastructure of high quality. To achieve this NSP shall: promote acceleration of ongoing infrastructural developments, focusing on quality, aesthetics and functionality of the infrastructure services developed; support development of infrastructure flagship projects to ensure contribution to the economic growth and social equity and uphold efficiency and effectiveness of the infrastructure development process at all planning levels. In addition, the NSP shall encourage the provision a utility sector (water, sewerage and electricity) that is modern, customer-oriented and technologically-enabled while protecting the environment as a national asset and conserve it for the benefit of future generations and the wider international community.

4.10.4 Policy Statements

The NSP shall facilitate the provision of safe, adequate, reliable and affordable electricity for both urban and rural settlements.

Measures

- Tap into solar for large scale production in northern Kenya and other arid lands have strong reliable sunshine throughout the year for sale to the national grid
- Tap into 630 MW wind energy in areas with high speed of Ngong, Isiolo, Marsabit, Lamu, Kinangop, Laisamis, Samburu, Kipeto and Prunus.
- FastTrack construction of the 700 MW Liquefied Natural Gas (LNG) factory at **Dongo Kundu**

- Provide safe connections for all informal settlements in urban areas for safety. Policy models need to be developed that aim to be pro-poor by increasing sensitivity to low-income urban residents
- Green energy shall be mainstreamed and enforced in the design of buildings
- Support the flagship projects that are geared towards increasing electricity supply from both renewable and non-renewable sources which include: 250 MW (Diesel Plants); 24 MW (Hydropower – Kindaruma and import from Ethiopia); 1,646MW (Geothermal Resources: Orpower 4;at Olkaria I,II,IV and V; Eburu geothermal project; new wellheads; Menengai; and Silali-Bogoria Phase I); 1,920 MW Coal include two coal plants of up to 1,000MW each in Lamu and Kitui counties and natural gas fired power plants of up to 1,050MW and 18 MW co-generation
- Increase access to electricity through upgrading and expansion of the national power transmission and distribution network.

NSP shall encourage the expansion, and improvement of water reticulation systems to facilitate the access to clean, safe, adequate, reliable and affordable water in human settlements

Measures

- Constructing and rehabilitating nine water supply systems in the ASAL counties;
- Incorporate water provision in all physical development plans
- Restoration of the five water towers. This shall entail rehabilitation and protection of the Aberdares, Cherangany, Mau, Mt. Kenya and Mt. Elgon. Other smaller significant water towers and catchment areas in the country such as the hills in Machakos and Kitui, the Chyulu, Igembe, Manga, Maragoli, Ngong, Shimba and Taita Hills, and Mt. Kulal, Marsabit, Ndoto, Nyiru and Shella Dunes of Lamu, and oases in the arid areas such as Loiyangalani in Marsabit shall be rehabilitated
- Construct two multipurpose dams in Nzoia and Nyando; development of national rainwater harvesting strategy and water storage investment plans for all the villages and urban centres; and revision of building by-laws to require all new development to have rain water harvesting.
- Improve water supplies in the major urban towns of Nairobi, Mombasa Kisumu, Nakuru and their surrounding satellite towns.
- Expand water supply in the proposed resort cities of Isiolo and Lodwar; expand water supply for the new port at Lamu under Lamu Port Southern Sudan and Ethiopia Transport (LAPSSET) corridor; and expand water supply in 15 medium sized towns (Chuka, Maua, Chogoria, Homabay, Runyenjes, Murang'a, Naivasha, Narok, Ol kalao, Maralal, Moyale, Machakos, Wote, Kitui, Mavoko, Matuu, Wajir, Lamu, Hola, Moi's Bridge, Matunda, Malava, Nyahururu, Kajiado, Kirinyaga, Marsabit and Nanyuki).

- Construct and rehabilitate 150 rural water schemes annually, drill an average of 70 boreholes annually in areas lacking adequate surface water and construct 160 small dams/pans in ASALs.
- Build water kiosks and yard taps, develop water supply pipeline systems and sewers, and a comprehensive mapping of all water supplies systems in the informal settlements

A globally competitive, accessible and affordable higher education training and research facilities shall be promoted

Measures

- Encourage universities to invest in research, technology & innovation
- Expand access and equity, improve quality and relevance and invest in human resource by enhancing institutionalization of excellence and increasing the level of research funding.
- Higher Education institutions shall be restructured to offer courses based on regional endowment to promote competitiveness and regional balance
- ICT shall be mainstreamed in higher education and training to provide online content to increase access.
- Physical infrastructure shall be developed and upgraded in all higher education institutions to increase their capacity.
- Promote the delivery of University E&T system that is internationally competitive.

A network of functional, efficient, safe, accessible and sustainable national health referral infrastructure shall be established.

Measures

- Increase the utilization of services at lower levels of the health services and reduce self-referral to the higher levels of care;
- Develop the service provider's capacity to offer services and appropriately refer at each level of the healthcare system;
- Improve the system's ability to transfer clients and specimens between the different levels of the health care system;
- Improve reverse referral and feedback information systems;
- Improve preparedness and response to emergencies and disasters;
- Strengthen outreach systems for provision of health services to marginalized and vulnerable population;
- Provision of quality emergency health services at the point of need;
- Establish fully fledged low – cost diagnostic centres and provide adequate screening and treatment facilities for persons with chronic or terminal conditions, including cancer, diabetes and kidney failure in every county

- Modernize Kenyatta National Hospital through the implementation of the ICT master plan, constructing and equipping a fully-fledged 300 bed private wing, 2,000 accommodation units and conference facilities for health tourism.
- Modernize Moi Teaching and Referral Hospital by developing a Heart and Cancer Management Centre, constructing a children hospital and modernization of infrastructure and hospital equipment.

The NSP shall promote access to appropriate, quality, efficient and cost effective ICT infrastructure in both rural and urban areas.

Measures

- Integrated e-youth ICT platforms. The sub-sector will establish a youth portal to enhance information access to the youth
- Upgrading ICT Infrastructure.
- Establishment of Konza Technology City
- ICT infrastructure shall be extended to cover all the rural and local growth centres.
- Use of ICT shall be mainstreamed in all levels of government and the private sector (e-government).

The expansion of sewerage systems and waste management facilities shall be promoted to improve sanitation in human settlements

Measures

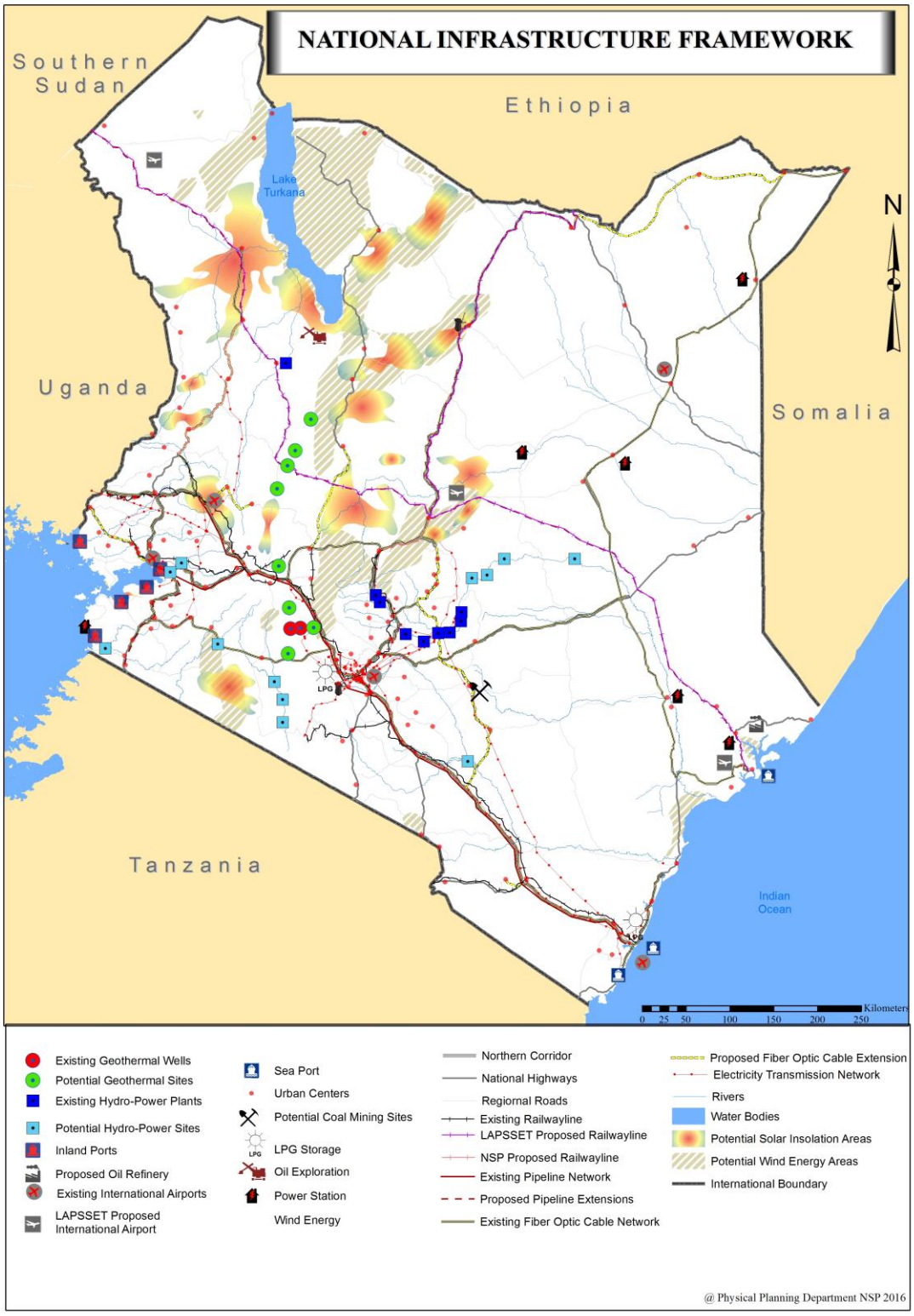
- All urban settlements shall be serviced by a centralized sewerage treatment system and solid waste disposal facilities.
- Expand the sewerage coverage and capacity for the major urban areas of Nairobi, Mombasa and Kisumu.
- Provide centralized sewer networks and treatment systems and solid waste management for the Principal towns of Nakuru, Eldoret, Embu, Garissa, Isiolo, Lodwar, Wajir, Marsabit and Nyeri.
- Expand sanitation in the proposed resort cities of Isiolo and Lodwar (LAPSSET) corridor; and in 15 medium sized towns (Chuka, Maua, Chogoria, Homabay, Runyenjes, Murang'a, Naivasha, Narok, Ol Kalao, Maralal, Moyale, Machakos, Wote, Kitui, Mavoko, Matuu, Wajir, Lamu, Hola, Moi's Bridge, Matunda, Malava, Nyahururu, Kajiado, Kirinyaga, Marsabit and Nanyuki).
- Based on initiatives by KISIP Informal settlements need to be provided with basic infrastructure services in order to improve the quality of life of low-income urban residents
- Appropriate technology solutions to sewerage treatment shall be applied in rural and low density housing areas.

- All spatial plans shall make provision for development of sewer systems and treatment works and solid waste disposal sites.
- Expansion of urban boundaries to be guided by investment in infrastructural services.
- Enactment of laws at National and County levels to incorporate private public partnerships in infrastructure investments.
- Adopt appropriate technology to facilitate reduction, recycle and reuse of waste (3R's).
- Undertake rehabilitation of storm water drainage systems in all urban areas.
- Construct waste water treatment plants and solid waste management projects in well-established permanent settlements in the arid region.

Sporting infrastructure shall be planned, developed, maintained and the existing rehabilitated to promote sports development.

Measures

- Set up an International Academy of Sports at Moi International Sports Centre Kasarani to serve as an international centre for excellence in sports
- County Sports Talent Centers will be established to act as feeds to the international centre to scout, nurture and develop sports talents at the sub-national levels.
- Five national stadia will be built in Mombasa, Kisumu, Nakuru, Eldoret and Garissa and existing sporting facilities at the county level upgraded to accommodate swimming, tennis, basketball and rugby.
- Rehabilitation of 47 county stadia to international standards to enable the youth to actively develop and tap the immense talent in sports will be undertaken.
- Upscale the establishment of 'Kenya Houses" in international sports competitions specifically Olympic Games, Commonwealth Games, all Africa Games and world championships.



- *Map 42: National Energy Framework*

4.11 Towards a Rapidly Industrializing Nation

4.11.1 Overview

Kenya Vision 2030 aims to transform Kenya into an industrializing; "middle-income country, providing a high quality life to all its citizens by the year 2030" and have Kenya develop into a rapidly industrializing nation. Vision 2030 proposes intensified application of Science, Technology and Innovation to raise productivity and efficiency levels across the three pillars. It recognizes the critical role played by research and development (R&D) in accelerating economic development in the entire newly industrializing countries of the world. More resources will be devoted to scientific research, technical capabilities of the workforce, and in raising the quality of teaching mathematics, science and technology in schools, polytechnics and universities.

The industrial sector comprises of the manufacturing, quarrying and mining and construction activities out of which the manufacturing sector accounts for approximately two-thirds of the sector. According to the 2015 Economic survey, the contribution of the industrial sector to GDP in 2014 was 10% - Manufacturing; 4.8% - Construction; and 0.8% - Mining and Quarrying. The manufacturing activities account for the greatest share of industrial production output and form the core of the industrial sector.

Kenya aims to become the provider of choice for basic manufactured goods in Eastern and Central Africa, before breaking into other markets by targeting "niche" products e.g. organic foods and beverages.

This will be done through improved efficiency and competitiveness at firm level. The government will also support local entrepreneurs to increase their share in local and external markets through better supply chain and making local enterprises more price-competitive in order to serve a growing local, regional and continental market.

The Second Medium Term Plan raises focus on an export-led growth strategy through the establishment of Special Economic Zones (SEZs), industrial clusters and SME parks. In addition, it also supports growth in the mining industry by creating an enabling policy, legal, and institutional framework for investment and maximization of benefits from exploitation of Kenya's natural resources especially oil, natural gas, coal, and other minerals. The construction and building sector shall benefit from continued infrastructure spending with expansion of roads, ports, rail and power plants. The country will also continue to aggressively exploit market opportunities through regional integration, and exploit export opportunities in African states outside the East African Community (EAC), Common Markets for Eastern and Southern Africa (COMESA) and in the global market.

The industrial sector is best-positioned as a potential growth driver because it: enjoys strong forward and backward linkages with other important economic sectors such as agriculture and

services; offers high prospects for employment creation especially in labor-intensive industries; acts as a catalyst for technology transfer and attraction of Foreign Direct Investments; offers high prospects for deepening Kenya's drive to integrate further into the regional and global economy; and provides significant foreign exchange earnings to the Kenya Economy. Thus the NSP aspires to spur economic growth in Kenya through industrialization.

The sector has been inward-looking with limited technological progress and reflects past import-substitution and export-led policy orientations; The factors that have contributed to the high cost of doing business include; the poor state of physical infrastructure, limited access to finance, limited research and development, poor institutional framework, and inadequate managerial, technical and entrepreneurial skills. The high cost of doing business has also contributed to the limited local and Foreign Direct investment (FDI) in the country and the high outflow of investment to the neighboring countries. Other challenges include: lack of industrial land; limited market access due to non-compliance to international standards and non-tariff barriers; inadequate, unstable and costly supply of energy; global recession and climate change.

4.11.2 Policy Thrust

Potential for industrial development is spread throughout the country. Therefore, the NSP proposes a framework that aims to distribute industries according to the country's different potentials to serve the far flung markets, to build potential and to steer the country's economic growth. This will be achieved through: provision of requisite physical infrastructure, adequate, reliable and affordable energy supply; technological innovations; provision of land for industrial development; improving the quality of industrial products through value addition; strengthen local production capacity to increase domestically-manufactured goods and thereby generating sufficient employment opportunities and foster Kenya's integration into the global economy.

4.11.3 Policy Statements

The cluster development strategy shall be promoted to focus on proximity to raw materials and markets of region specific products

Measures

- Urban-based industries shall be concentrated in the urban areas of Kisumu, Eldoret, Nakuru, Nyeri, Embu, Meru, Kakamega, Garissa, Marsabit, Mandera, Kitui, Mandera, Voi
- Agro-based industries shall be located in agro climatic zones I, II and III
- Mineral-based industries- located in situ; where the minerals are found
- Cottage industries and crafts shall be located in situ
- Livestock produce industries shall be concentrated in the ASAL areas of Isiolo, Garissa. Moyale, Mandera, Taita Taveta, Tana River, Narok, Kajiado, Kwale, Kilifi, Samburu, Turkana and West Pokot

- Promote value addition in processing of local produce.

Specific sites for industrial development shall be identified, planned and serviced with the appropriate infrastructure

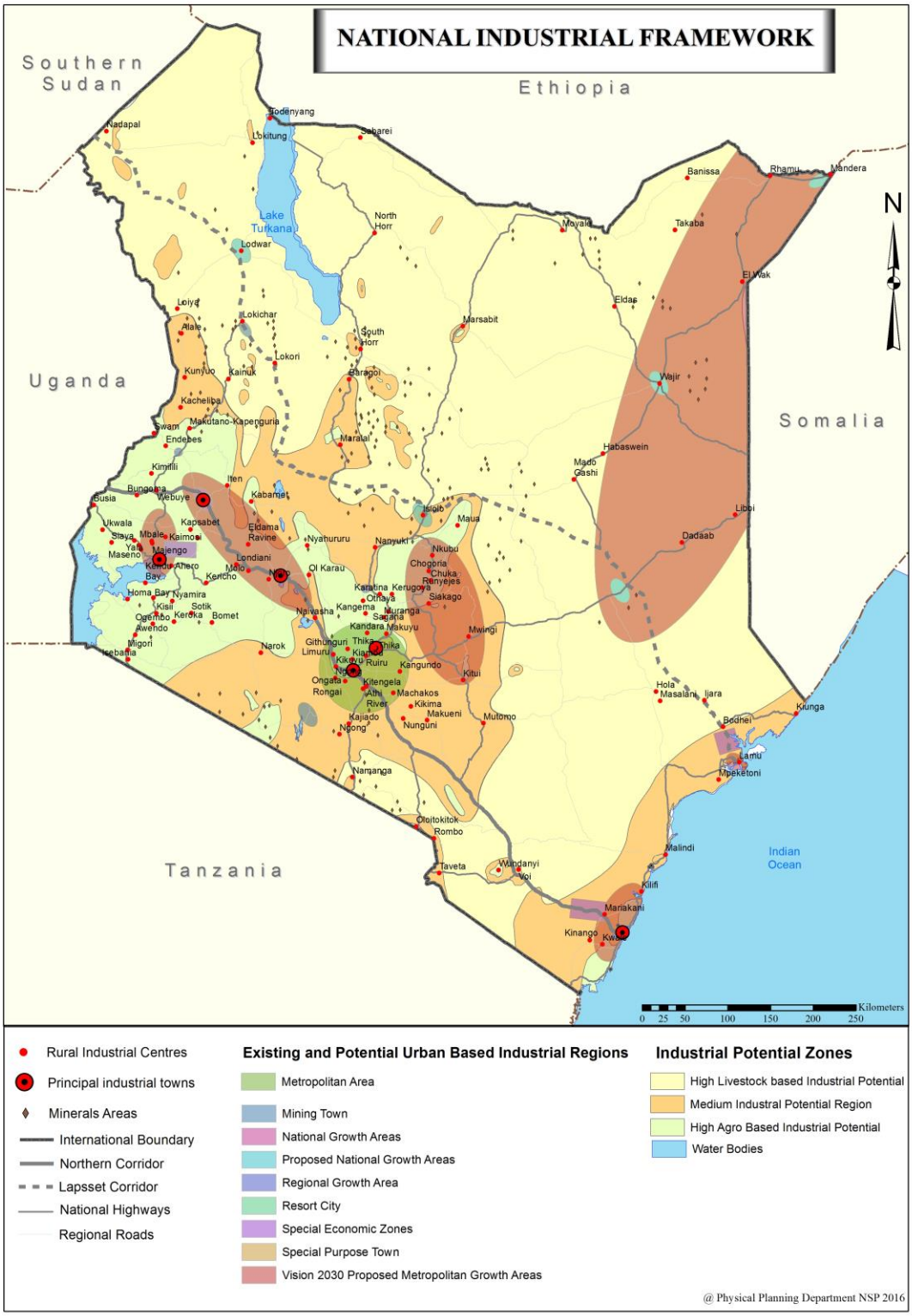
Measures

- Plan and set aside land for industrial development in every county
- Establish Special Economic Zones in Mombasa, Lamu and Kisumu
- Develop SME and Industrial Parks in all counties
- Integrate the industrialization process and environment conservation
- Provide an integrated, efficient, reliable and sustainable road transport infrastructure
- Provide efficient railway network for bulk haulages
- Provide efficient airport facilities to facilitate quick delivery of produce and perishable products
- Modernize the port of Mombasa and develop of additional sea port at Lamu
- Increase availability of clean water and improve sanitation
- Discharge of safe/ clean industrial waste into water bodies shall be encouraged
- Encourage adoption and utilization of ICT

The NSP shall enhance the provision of adequate and affordable energy supply for the industrial sector

Measures

- Provide reliable energy infrastructure by extending the national grid network
- Expand, modernize and upgrade electricity generation and supply
- Adoption of renewable energy generation programmes by provision of incentives and enforcement of building laws requiring utilization of renewable energy
- Incentives to large industries to promote co-generation of power
- Promote the adoption of Energy efficient technologies to lower the demand for energy



Map 43: National Industrial Framework

CHAPTER 5: IMPLEMENTATION FRAMEWORK

5.1 Overview

Plan implementation in the context of NSP refers to the method/means by which the plan will be actualized and executed in order to achieve the desired end state.

It constitutes a deliberately established method, means or system of ensuring that the measures outlined in the plan are continuously and consistently executed in order to achieve the objectives of the plan within a predetermined timeframe.

The implementation mechanism is a comprehensive outline that defines the purpose and objectives, scope and goals, resources required scheduled activities, scheduled activity durations, expected challenges and measures to be put in place to mitigate the constraints.

5.2 Rationale for Plan Implementation

Implementation of the National Spatial Plan will be a key step towards optimal use of the national space, making the country globally competitive and prosperous as envisaged under Kenya Vision 2030. It will provide a coordinating framework for the sectors to operate.

The purpose of the implementation mechanism is to provide a guide on the implementation of the National Spatial Plan to ensure achievement of the NSP objectives of global competitiveness and economic efficiency, optimal use of land and natural resources, creation of functional and livable urban areas, balancing regional development, establishing an integrated national transport network and conservation of the natural environment are achieved.

The implementation framework identifies activities associated with implementation of the plan to ensure adequate preparation has taken place and adequate contingencies are in place and further ties the activities with responsible actors, resources and timeframes adequate for their execution.

It is expected that NSP will influence the spatial aspects of public sector planning, policies and programs, including future decisions on investment priorities. In addition, the mechanism establishes the institutional framework for implementation of the plan and defines how the institutions involved will be coordinated.

In the absence of an implementation mechanism the preparation of the NSP may end up being an exercise in futility. Planning without action is fruitless, whereas action without planning is aimless.

Objectives

To achieve the principle/broad objectives of NSP namely:

i. To create a spatial planning context to enhance economic efficiency and strengthen global competitiveness;
ii. To promote balanced regional development for national integration and cohesion;
iii. To optimize utilization of land and natural resources for sustainable development;
iv. To create livable and functional human settlements;
v. To secure the natural environment for high quality of life;
vi. To establish an integrated national transportation network and infrastructure system;
vii. Specific sectoral objectives of NSP relating to coordination of sectors such as :
    a) Urban development
    b) Agriculture
    c) Tourism
    d) Industry
    e) Environment
    f) Transport and infrastructure
viii. To address national challenges of food insecurity, urbanization, environmental degradation etc; and
ix. To support the national development objectives espoused in Vision 2030 relating to transforming the country into a newly industrialized status and improving the livelihoods of the citizens.

5.3 Key Challenges in Implementation of Plans

In the past many spatial plans/frameworks have been prepared including the Human Settlements Strategy, Provincial and District Regional Development Plans and a range of other local physical development plans. However, a review of the implementation status of the plans indicates that none of the plans were implemented in its entirety and only a few aspects of the plans were implemented.

There have been varied explanations for this state of affairs which include:

i. Weak institutional structures to execute the implementation of plans in their entirety;
ii. A disconnect between planning and sound implementation mechanisms manifested through constraints like little budgetary support for implementation of plans;
iii. Little involvement of the private sector in planning and implementation hence loss of the capital and skills they are capable of contributing towards the same;
iv. Failure to connect spatial planning and economic planning initiatives;
v. Inadequate research on issues pertinent to planning including plan implementation, prioritization and resource availability;

vi. Inadequate public participation and consultation in plan preparation and implementation. This led to misuse of resources on plans not considered to be a priority by the intended beneficiaries;
vii. A comparatively low profile accorded to spatial planning as a profession and a development-oriented practice. Much emphasis was laid on economic planning without focus on the spatial dimensions of these plans; and
viii. Insufficient Monitoring and Evaluation provisions.

5.4 Opportunities for NSP Implementation

Kenya has seen a number of changes in its approach to planning which present a huge opportunity for the full implementation of the NSP. These changes largely arise from the promulgation of the new constitution which brought with it the devolved system of governance. Nevertheless, there are several other elements that could be exploited as opportunities for implementation of the NSP:

i. The implementation of the devolved system of governance which decentralized the powers to prepare plans and implement them. This comes with the advantage of preparing and implementing plans which resonate with the direct needs of the people;
ii. Devolved funding which ensures that all regions of the country can benefit from planning initiatives;
iii. The presence of a willing human capital motivated to improve their lives. This enriches the aspect of participatory planning and implementation;
iv. A number of legal frameworks that support economy-targeted spatial plans have been passed;
v. More comprehensive definition of land, spatial planning and its role in overall national development; and
vi. Increasing globalization which has opened up Kenya to numerous world opportunities which it can take advantage of through careful planning.

Linkages with Other Sector Policies on Institutions

The crafting of NSP was done in full consideration and reference to other existing sector policies. Consultations were continuously held between the planning team and experts from relevant sectors.

The importance of various sectoral agencies in implementing the NSP is emphasized and to uphold the linkages; the following actions should be taken:

i. Consideration of NSP policies and inclusion of NSP measures in sector policies, plans, projects and programs.
ii. Inclusion of experts from sectors. Constant consultations and collaboration with sectors in preparation and review of plans at various levels.

5.5 Methods/ Approaches of Implementing NSP

The proposals in the NSP will be implemented through various approaches which include:

i. Preparation of spatial plans to integrate and conform to the proposals of the National Spatial Plan. These plans include:

- Regional Physical Development Plans for Metropolitan regions, conservation zones, river basins, water towers, coastal ecosystems, trans-boundary resource areas and transport corridors
- County Spatial Plans
- Cities, Urban plans and special function town plans
- County Integrated Development Plans (CIDPs)

ii. Assimilation of NSP policies to the sector plans and programmes. Ministries, Departments and Agencies (MDAs) identified in the plan to administer the policies and measures are required to translate them into action plans, programmes and projects and to include such programmes and projects in their subsequent sector plans. These sectors include:

- Government ministries and departments
- Government agencies
- Research and Training Institutions including Regional Development Authorities
- Private sector

iii. Incorporation into the five year Medium Term Plan (MTPs)

iv. Formulation of regulations and standards to guide development control

5.6 Time Frame for Implementation of Key Actions

Implementation of the National Spatial Plan will be undertaken in phases and therefore calls for proper prioritization of activities. The main action areas for implementation include:

A. Preparation of Plans

Table 34: Time Frame for Plan Implementation

	Type of Plan	**Time Frame (Years)**
1.	National Physical Development Plan	30
2.	Regional Physical Development Plans	20
3.	County Physical Development Plans	10
4.	Local Physical Development Plans	5
5.	Special Areas Plans	5

B. Formulation of regulations and standards for development control

C. Sectoral actions

5.7 Institutional Framework for Implementation of the NSP

The implementation of NSP will be undertaken by a multiplicity of actors and hence the need for a coordinated approach. The lead agency will be the Ministry concerned with physical planning with the Cabinet Secretary leading the strategy's implementation. The National Director of Physical Planning will exercise technical leadership and ensure that physical planning is coordinated between the other agencies and ministries involved in physical planning.

Ministries, Departments and Agencies (MDAs) identified in the plan to administer the policies and measures are required to translate them into action plans, programmes and projects and to include such programmes and projects in their subsequent sector plans.

Partnerships between national and county governments and the private sector should be established to facilitate planning of identified regions and towns of national importance including resort cities, techno cities, special economic zones and other special feature towns. They must arrange for the timely preparation and implementation of regional guidelines, development plans and integrated spatial planning frameworks that are consistent with the NSP.

The NSP has implications for the general public particularly with reference to optimization of land. An extensive public sensitization and awareness programme shall be developed to ensure that the public is sensitized on the requirements of NSP.

i. Inter-ministerial Committee on Implementation of NSP

The Inter-ministerial Committee for the implementation of the NSP shall play the overall coordination function on the implementation of the Plan. Its composition shall consist of Cabinet Secretaries of relevant ministries involved in NSP implementation including those responsible for Economic planning, Devolution, Agriculture, Industrialization, Tourism, Environment, Transport and Infrastructure. It shall be chaired by the Cabinet secretary for the time being in charge of Physical Planning.
The functions of the sub-committee shall include:

- To ensure that the NSP policies and measures are mainstreamed in the sector policies and plans of respective sectors
- To monitor the implementation of the National Spatial Plan
- Update cabinet on a regular basis on the implementation status of NSP
- To mobilize resources for implementation of the Plan

ii. National Physical Planning Council

A National Physical Planning Council chaired by the Cabinet Secretary in charge of physical planning shall be established and its key functions shall be

i. To promote effective integration between physical, economic and sectoral planning within the framework of national and county development policies.

ii. To provide policy guidance for the implementation of strategic spatial projects of national importance relating to security, trans-boundary development, environment and geopolitical interests.

iii. National Technical Committee

It shall consist of the National Director of Physical Planning, County Directors of Physical Planning as well as Directors from the various relevant departments. The Technical Committee shall provide technical support to the various implementing agencies and departments on issues relating to physical planning.

The National Director of Physical Planning shall exercise technical leadership and ensure coordination between the other agencies and ministries involved in physical planning.

iv. County Physical Planning Units

The role of the County Planning Department shall be to ensure that the aspirations of the NSP are articulated by the County and Local Physical Development Plans. The County Director of Physical Planning shall prepare an annual state of planning report which shall among other things appraise the status of implementation of the NSP at the County Level.

v. Ministries, Departments and Agencies

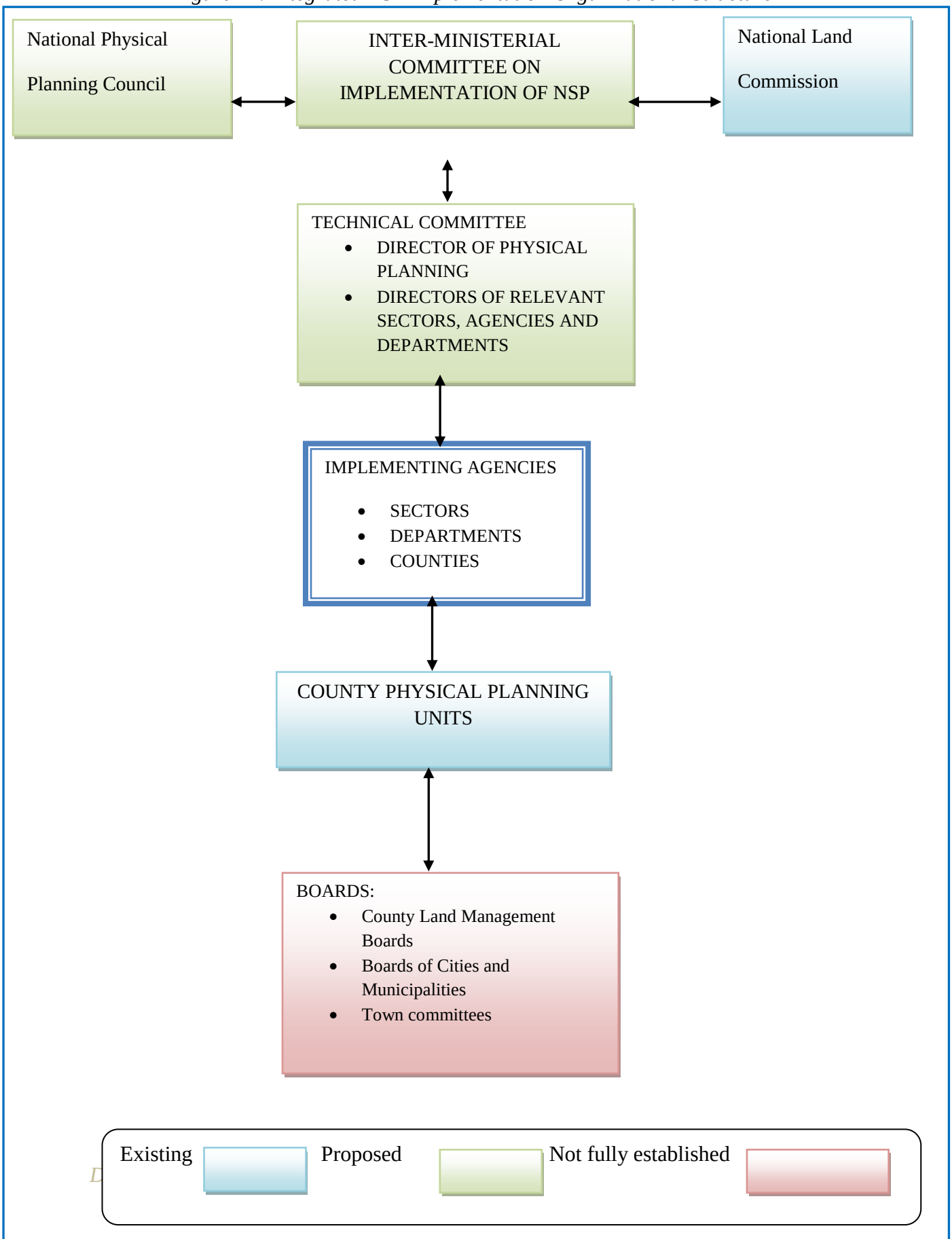
NSP policies shall be embedded in the sectoral policies and shall guide the preparation of sector programmes, projects and plans.

vi. National Land Commission

The National Land Commission shall play its oversight role in land use planning to ensure efficient implementation of the NSP. Other functions of the Commission in the implementation of the NSP include:

- Formulate mechanisms and parameters for monitoring and overseeing land use planning
- Ensure that relevant planning authorities carry out their functions as required by law
- Make recommendations for improvements of the planning systems in the country
- Mobilize resources to support physical/land use planning

Figure 21: Integrated NSP Implementation Organizational Structure



5.8 Resource Mobilization

The government shall ensure that adequate resources in terms of finances and human resource are availed for the timely and effective implementation of the NSP.

5.9 Training and Capacity Building

Training and capacity building shall be undertaken to build capacity of sectoral staff, national and county level institutions that will be involved in implementation of the strategies and policies outlined in NSP. Special attention will be given to the capacity development of the physical planning units within the county government as they will be expected to provide technical expertise in the implementation of the spatial planning policies.

Action Areas

i. Establishment of an inter-ministerial committee on National Spatial Planning to spearhead the implementation of NSP
ii. The National Department of Spatial Planning will establish a Technical Committee representing Directors of all relevant departments to support the implementation of the Plan.
iii. The Department of National Planning will develop a communication strategy to facilitate smooth flow and access of information to other departments, agencies and the private sector.
iv. Articulating NSP policies in the programmes of all relevant Ministries, Departments and Agencies (MDAs)
v. Preparation of Regional, County and Local Physical Development Plans
vi. The National Department of Physical Planning will co-ordinate and pursue the cross-border spatial aspects by coordinating preparation of regional development plans.
vii. Preparation of regulations and standards to facilitate development control
viii. Public sensitization and awareness creation
ix. Capacity building of the counties to enable them anchor the county physical plans on the NSP planning policies
x. NSP will be used to inform the subsequent Medium Term Plan
xi. Resource mobilization to support implementation of the Plan

Communication

A communications strategy to promote support for the NSP, provide information on progress in its implementation and promote participation by public bodies, private sector, interest groups and the general public in achieving the objectives of the NSP will be developed and implemented by the National Department of Spatial/Physical Planning.

5.10 Monitoring and Evaluation

Implementation of NSP will be monitored and evaluated to measure both outputs and outcomes of the Plan and ensure that the intended actions are implemented in a timely manner to facilitate attainment of the Plan objectives. Performance indicators will be developed by the National Department of Spatial Planning to facilitate monitoring of the Plan. Periodic reports to Government will be prepared in relation to progress being made in the implementation of NSP.

5.11 Plan Review

The National Spatial Plan has been prepared and will be implemented in a very dynamic environment. There may also be uncertainties and unforeseen circumstances which the Plan may not have anticipated and which may make it difficult to implement. The NSP will therefore be subject to periodic reviews which will allow for flexibility.

The Plan will be reviewed every five years in line with the development of the economic plan (Medium Term Plan) which it seeks to support.

Table 35: Implementation Matrix

POLICY	INITIATIVE	ACTORS	TIME FRAME
The National Spatial Plan shall be the basis for preparation of other spatial plans to achieve integrated and sustainable land use planning and to promote harmony and mutual cooperation in planning in the country.	Prepare: - Regional - County - Local - Special areas - Corridor - Riverine/River Basin Plans	• National government ministries and • County government ministries and agencies	1- 3 years
Selective concentration concept shall be adopted for the location of urban based economic activities across the country to take advantage of the primate city of Nairobi & other urban areas of Mombasa and Kisumu specifically and other main urban areas generally	Urban-based activities such as: ○ industrial enterprises ○ privatized educational and training institutions ○ techno cities and main infrastructure facilities, to be located in strategic urban areas	• National government ministries and • County government and agencies	5 years

The major urban areas shall be planned and provided with appropriate infrastructure to enhance efficiency and quality of life.	Provide quality and affordable housing, efficient public transportation, improve neighborhood characteristics, conserve and improve the quality of the environment, quality healthcare, trunk infrastructure in the form of reliable energy, water, sanitation and ICT.	• National government ministries and • County government and agencies	15
Land and natural resources of the less developed areas shall be utilized optimally and sustainably to enhance national competitiveness.	Harness green energy and exploit mineral resources while strengthening rural economic activities through transforming traditional means to modern practices.	• Ministry of Land, Housing and Urban Development • Ministry of Environment and Natural Resources • Ministry of Energy and Petroleum • Ministry of Mining • Ministry of Agriculture, Livestock and Fisheries	5 years
The efficiency of the transportation network shall be enhanced to take advantage of the strategic location and position of the country.	Develop a new port in Lamu, upgrade the existing port of Mombasa , upgrade the existing support infrastructure and prepare spatial plans for main transport corridors for sustainable economic growth	• Ministry of Transport and Infrastructure • Kenya Ports Authority • Ministry of Land, Housing and Urban Development	10 years
The National Spatial Plan encourages enhanced cooperation in spatial and economic planning with member states of East African Community (EAC) and Common Markets of East and Southern Africa (COMESA)	Plan trans-boundary resources, transport corridors, infrastructure and boarder urban areas jointly	• Ministry of Land, Housing and Urban Development • County government • Regional planning authorities	5 years
Agro climatic zones IV, V and VI shall be developed and used optimally for large	Prepare county spatial plans in the areas for large scale livestock productions	• Ministry agriculture and livestock • Ministry of Land, Housing and Urban Development	5 years

scale commercial production of livestock to support downstream processing of livestock products and promote balanced regional development	Provide requisite infrastructure. Modernize livestock keeping	• County government	
Grain basket areas shall be prioritized and protected to ensure food security	Zone and designate grain basket areas Divert urban development and provide appropriate infrastructure	• County government • Ministry of Land, Housing and Urban Development • Ministry of transport and infrastructure	2 years 7 years
The agricultural use of land in high potential area shall be intensified to increase productivity	Adopt modern agricultural methods	• Ministry of agriculture • Ministry of ICT	1 year
The fishing potential of the country shall be optimized to increase the food stock and export earnings	Protect inland fishing resources and enhance sustainable exploitation of sea fishing	• Ministry of fisheries •	10 years
The NSP shall promote diversification of tourism by offering diverse products in the different tourist circuits throughout the country.	Plan and develop all the tourism circuits. Identify and prioritize potential touristic projects in consultation with the local communities. Improve infrastructure that supports tourism. Prepare a tourism development master plan which will focus on tourism zoning, product development and quality standard of tourism services.	• Ministry of land, • Ministry of tourism • Country Governments • Ministry of transport and infrastructure	5 years

Appropriate Infrastructure shall be provided and facilities upgraded	Upgrade the existing tourist facilities Provide and upgrade the ICT infrastructure	• Ministry ICT • Ministry tourism • Ministry infrastructure	5 years
Tourist attraction areas and sites shall be conserved and protected	Protect Wildlife migratory corridors Zone tourist attraction areas Protect wildlife watering points	• Ministry environment • Ministry tourism • Ministry land	3 years
Appropriate Transport infrastructure shall be provided to link the different tourist circuits, attraction areas and sites	Prepare an integrated tourism transportation master plan	• Ministry infrastructure • Ministry of land • Ministry of tourism	7 years
The Governance of the tourism sector shall be enhanced.	National policies on land use Identify and map potential eco-tourism development sites Undertake research to identify more tourist attraction areas	• Ministry of tourism • County Government	5 years
Spatial Development plans shall be prepared to guide implementation of the flagship projects	Prepare physical development Plans for Lamu, Isiolo and Lake Turkana Resort Cities, Coastal Beach Ecosystem Management plan, Mara Ecosystem area plan, Eden Cradle of Humankind project plan, three cultural heritage sites of Fort Jesus in Mombasa, Lamu old town and the sacred Mijikenda Kaya Forests and the three Natural heritage sites of Great Rift Valley lakes	• Ministry of lands • County governments	5 years
The expected increase in population in urban areas shall be anticipated and accommodated particularly for the main growth areas.	Plan and designate land for housing Upgrade the existing and provide additional infrastructure and facilities Provide efficient transportation	• Ministry of housing • Ministry transport • Ict • Health • Energy • Education • Water and sanitation	5 years

The Nairobi, Mombasa and Kisumu, growth areas shall be supported to enhance global competitiveness.	Plan and control development in the urban growth areas	• Ministry of land, • County government	3 years
Alternative urban areas shall be developed and supported to promote balanced regional development and spur growth.	Plan and develop principal towns	• Ministry of land, • County government	3 years
Rural growth centres shall be rationalized and supported to act as central places and settlements clustered to free the rich agricultural land	Plan for and provide agriculture related infrastructure Conserve agriculture land	• Ministry agriculture • county government • ministry infrastructure • ministry land,	7 years
Human settlements shall be developed in line with environmental and natural resources conservation to improve living conditions	Prepare and implement zoning guidelines for environmental and natural resource conservation	• county government • ministry infrastructure • ministry environment • ministry land,	3 years
The NSP shall advocate for the provision of an efficient, reliable and effective transport system for human settlement	Plan and develop an appropriate integrated urban transport system for all urban areas	• county government • ministry infrastructure •	6 years
The management and	Establish institutions and	• Ministry housing	5 years

governance of Human Settlements particularly the urban areas shall be improved.	structures to manage human settlements	• County government	
All environmentally sensitive areas shall be protected and utilized in a sustainable manner	Prepare integrated wetland resource, marine resource, forest resource and Mountain Ecosystems management plans	• Ministry environment • Ministry land, • County government	3 years
All environmentally fragile areas shall be conserved and utilized in a sustainable manner	Develop and implement an Integrated Land Use Master (Development) Plan for the ASALs.	• Ministry land, • Ministry environment • County government	5 years
All government agencies shall integrate environmental concerns in policy formulation, resource planning and development processes.	Integrate Waste Management and Pollution Control in all policies	• Ministry land, • Ministry environment • County government	3 years
The National Spatial Plan supports the mainstreaming of climate change into the national and county planning processes.	Mainstream climate change, water management, green energy generation and agriculture into the national and county planning processes.	• Ministry of energy • Ministry of Environment • Ministry of water • Ministry of land • County government	7 years
An integration of national transport and Land use planning shall be adopted.	Establish a comprehensive road management information system Regulate and control the use of land reserved for transportation infrastructure	• Ministry land, • Ministry ICT • Ministry transport	5 years

The NSP shall support the development of an integrated and functional transport system for the national and urban areas.	Prepare a National Transportation Master Plan that incorporates road, rail, sea, air and pipeline transport. Upgrade existing transportation infrastructure Develop Lamu and Isiolo Airports, Lamu sea port and LAPSSET corridor	• Ministry infrastructure and transport • County governments • Ministry of land,	3 years 7 years 12 years
The NSP shall support development of an efficient and affordable Mass Public Transport for all urban areas in the country	Plan and develop an appropriate integrated mass rapid transit system for all urban areas Establish a comprehensive transport management information system for all transport modes	• Ministry infrastructure and transport • County governments • Ministry of land,	12 years
An urban transport policy that aims at developing an integrated, balanced and environmentally sound urban transport system in which all modes efficiently play their roles shall be developed	Prepare a national and county public transport policy	• Ministry infrastructure and transport • County governments • Ministry of land,	3 years
Environmental conservation shall be upheld in the planning, development and management of the transportation network	Develop and operationalize environmental regulations and standards for transportation infrastructure development Adopt the use of green energy in transportation system.	• Ministry infrastructure and transport • Ministry of energy • Ministry of environment	3 years
The NSP shall facilitate the provision of safe, adequate,	Construct solar, wind and geothermal energy generation	• Ministry energy	7 years

reliable and affordable electricity for both urban and rural settlements.	plants in the identified areas Upgrade and expand national power transmission and distribution network.		
NSP shall encourage the expansion, and improvement of water reticulation systems to facilitate the access to clean, safe, adequate, reliable and affordable water in human settlements	Restore the five water towers Provide water infrastructure for harvesting and storage in ASAL counties expand national water supply network	• Ministry of water	7 years
A globally competitive, accessible and affordable higher education training and research facilities shall be promoted	Expand infrastructure in higher education facilities to enhance access and quality	• Ministry of education	7 years
A network of functional, efficient, safe, accessible and sustainable national health referral infrastructure shall be established.	Expand in infrastructure and personnel in national health referral facilities	• Ministry of health	10 years
The NSP shall promote access to appropriate, quality, efficient and cost effective ICT infrastructure in both rural and urban areas.	Upgrade ICT Infrastructure Establishment of Konza Technology City	• Ministry of ICT	7 years
The expansion of sewerage systems and waste management facilities shall be	Provide and expand the sewerage coverage and capacity for all urban areas	• Ministry of environment • Ministry of water	5 years

promoted to improve sanitation in human settlements	Rehabilitate water drainage systems		
Sporting infrastructure shall be planned, developed, maintained and the existing rehabilitated to promote sports development.	Set up an International Academy of Sports to serve as an international centre for excellence in sports County Sports Talent Centers Establish the 'Kenya Houses" in international sports competitions Construct the five national stadia in the selected area	• Ministry sports • County government	3 years
The cluster development strategy shall be promoted to focus on proximity to raw materials and markets of region specific products	Concentrate urban-based industries in the selected urban areas. Concentrate livestock produce industries in the ASAL areas.	• Ministry industry • Ministry of livestock	7 years
Specific sites for industrial development shall be identified, planned and serviced with the appropriate infrastructure	Plan and set aside land for industrial development in every county Develop the appropriate infrastructure to support industrial developments	• Ministry of industrialization • Ministry of infrastructure	3 years 7 years
The NSP shall enhance the provision of adequate and affordable energy supply for the industrial sector	Expand, modernize and upgrade electricity generation and supply with focus on green energy sources	• Ministry energy	7 years

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APPENDICES

Appendix 1: List of Institutions that Participated in the Formulation of NSP

1. Government Ministries, Departments and Agencies (MDAs)
2. Kenya Railways Corporation (KRC)
3. ESRI Eastern Africa
4. Water Resources Management Authority (WARMA)
5. National Economic & Social Council (NESC)
6. Kenya Agricultural and Livestock Research Institute (KALRI)
7. Kenya Wildlife Services (KWS)
8. Kenya National Highways Authority (KENHA)
9. Kenya Institute of Public Policy Research and Analysis (KIPPRA)
10. Department of Resource Surveys and Remote Sensing (DRSRS)
11. Kenya Forest Service (KFS)
12. Africa Wildlife Foundation (AWF)
13. Regional Centre for Mapping of Resources for Development (RCMRD)
14. Geothermal Development Company (GDC)
15. Kenya Investment Authority (KENINVEST)

Appendix 2: Population Size per County

COUNTY	MALE	FEMALE	TOTAL	No. HHs	Land Area (KM2)	Density
KENYA	19,192,458	19,471,639	38,610,097	8,767,954	581,313.2	66
NAIROBI	1,605,230	1,533,139	3,138,369	985,016	695.1	4,515
KAKAMEGA	800,989	859,662	1,660,651	355,679	3,051.2	544
KIAMBU	802,609	820,673	1,623,282	469,244	2,543.4	638
NAKURU	804,582	798,743	1,603,325	409,836	7,495.1	214
BUNGOMA	671,548	703,515	1,375,063	270,824	3,032.2	453
MERU	670,656	685,645	1,356,301	319,616	6,936.2	196
KISII	550,464	601,818	1,152,282	245,029	1,317.5	875
KILIFI	535,526	574,209	1,109,735	199,764	12,609.7	88
MACHAKOS	543,139	555,445	1,098,584	264,500	6,206.2	177
MANDERA	559,943	465,813	1,025,756	125,497	25,991.5	39
KITUI	481,282	531,427	1,012,709	205,491	30,496.5	33
KISUMU	474,760	494,149	968,909	226,719	2,085.9	465
HOMA BAY	462,454	501,340	963,794	206,255	3,183.3	303
MURANGA	457,864	484,717	942,581	255,696	2,558.8	368
MOMBASA	486,924	452,446	939,370	268,700	218.9	4,292
MIGORI	444,356	472,814	917,170	180,211	2,596.4	353
UASIN GISHU	448,994	445,185	894,179	202,291	3,345.2	267
UASIN GISHU	448,994	445,185	894,179	202,291	3,345.2	267
MAKUENI	430,710	453,817	884,527	186,478	8,008.8	110
TURKANA	445,069	410,330	855,399	123,191	68,680.3	12
NAROK	429,026	421,894	850,920	169,220	17,933.1	47
SIAYA	398,652	443,652	842,304	199,034	2,530.4	333
TRAN-NZOIA	407,172	411,585	818,757	170,117	2,495.5	328
KERICHO	381,980	376,359	758,339	160,134	2,479.0	306
NANDI	376,788	376,477	752,965	154,073	2,884.2	261
NANDI	376,488	376,477	752,965	154,073	2,884.2	261
BUSIA	356,122	387,824	743,948	154,225	1,695.0	439
BOMET	359,727	364,459	724,186	142,361	2,471.3	293
NYERI	339,725	353,833	693,558	201,703	3,337.1	208
KAJIADO	345,146	342,166	687,312	173,464	21,901.0	31
WAJIR	363,766	298,175	661,941	88,574	56,685.8	12
KWALE	315,997	333,934	649,931	122,047	8,270.2	79
GARISSA	334,939	288,121	623,060	98,590	44,175.0	14
NYAMIRA	287,048	311,204	598,252	131,039	899.3	665
NYANDARUA	292,155	304,113	596,268	143,879	3,245.3	184
BARINGO	279,081	276,480	555,561	110,649	11,015.3	50
VIHIGA	262,716	291,906	554,662	123,347	530.9	1,045
KIRINYAGA	260,630	267,424	528,054	154,220	1,479.1	357
EMBU	254,303	261,909	516,212	131,683	2,818.0	183
WEST POKOT	254,827	257,863	512,690	93,777	9,169.4	56
LAIKIPIA	198,602	200,602	399,227	103,114	9,461.9	42
ELGEYO MARAKWET	183,738	186,260	369,998	77,555	3,029.8	122
ELGEYO MARAKWET	183,738	186,260	369,998	77,555	3,029.8	122
THARAKA NITHI	178,451	186,879	365,330	88,803	2,638.8	138
MARSABIT	151,112	140,054	291,166	56,941	70,961.2	4
TAITA TAVETA	145,334	139,323	284,657	71,090	17,084.0	17
TANA RIVER	119,853	120,222	240,075	47,414	38,436.9	6
SAMBURU	112,007	111,940	223,947	47,354	21,022.2	11
ISIOLO	73,694	69,600	143,294	31,326	25,336.1	6
LAMU	53,045	48,494	101,539	22,184	6,273.1	16