LAMU COUNTY SPATIAL PLAN (2016 - 2026)

FINAL REPORT





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DEVELOPMENT PARTNERS

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THE CLIENT:

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IN PARTNERSHIP WITH:

World Wildlife Fund for Nature, Lamu-Kenya Office

THE MAKING OF THIS CSP ALSO BENEFITED FROM THE INPUT OFFERED BY AUTHORITIES SUCH AS:

The National Land Commission (NLC), Nairobi

The Kenya Wildlife Service (KWS) & The County Wildlife & Conservation Committee (CWCC), Lamu

The LAPSSET Authority as a flagship project of Vision 2030 being undertaken in Lamu County

Kenya Forest Service (KFS), Lamu

International Center for Research in Agroforestry

National Museums of Kenya, through the World Heritage Site Office in Lamu Island

Water Resources Management Authority, Kenya

CERTIFICATION

I Certify that the Lamu County Spatial Plan (2015-2025) has been prepared as per the requirements of the Physical Planning Act, CAP 286.

Certified

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……..

Clerk of the County Assembly, Zaccheous Mboche Wanyoike

Approval Number

……**APPROVED DEVELOPMENT PLAN No. 01**
PLAN REFERENCE No. LMU/CSP/1/2017 ……

FOREWORD



The Constitution of Kenya 2010 bestows the mandate of County Planning to County Governments. The Constitution further provides for the various rights and freedoms that can be fully realized through the preparation and implementation of County Spatial Plans.

The County Governments Act 2012 in section 110(1)(a) stipulates that the County Spatial Plans shall give effect to the principles and objects of county planning and development contained in section 102 and 103 of the same Act. Further, section 110 (2)(c)(iv) of the Act requires that the County Spatial Plans should set out basic guidelines for a Land Use management system in the County taking into account any guidelines, regulations or laws as provided for under Article 67(2) (h) of the Constitution.

In furtherance to this responsibility, the law obligates each County Government to prepare a ten-year GIS-based County Spatial Development Plan in respect of their area of jurisdiction. The plan is a broad framework for organizing and distributing population and activities in the county; This is to achieve both national and county development objectives. It also serves the purpose of enabling the county government to strengthen the coordination of sectoral projects, programmes and to mitigate duplication of efforts and waste of resources.

Lamu County is destined to be one of the new growth frontiers with a number of large-scale economic development and infrastructure investments. The Lamu Port, South Sudan and Ethiopia Transport (LAPSSET) corridor project among other projects that are expected to change the economic landscape of the County and thus the need for a spatial framework to provide a basis for planned investments.

The County also experiences a myriad of challenges related to land based resources such as human-wildlife conflicts, encroachment on fragile ecosystem, unplanned settlements and depletion of water sources. These challenges can best be addressed within a planned framework.

Whilst the expected developments could generate substantial economic and social benefits, they also pose significant environmental and social risks. They could lead to irreversible damage to the County's most important natural assets such as forests, mangroves, water sources, beaches, seagrass beds, coral reefs and fisheries. These natural assets provide a flow of goods and services that are vital to Lamu's economy and the wellbeing of the people). Lamu's natural environment also holds important cultural and spiritual values for many communities. However, many of these assets are already in decline due to human activities, and the losses would have profound implications for Lamu's future.

The Lamu County Spatial Plan (2016-2026) addresses the aforesaid challenges in order to improve the standards of living of the people through employment creation, reduction of poverty, and creation of wealth as well guide sustainable development. The plan also provides comprehensive strategies and policy guidelines to solve the problems of rural and urban development, industry, infrastructure and human settlement, ecotourism and sustainable environmental management. The implementation plan will be a major milestone towards securing biodiversity hotspots, sustainable management of natural resources and improvement of the quality of life and wellbeing of the residents of Lamu County.

Special thanks to our Key Partners World Wide Fund (WWF) led by Mr. Mohamed Awer (Chief Executive Officer), Mr. Kiunga Kareko (Coastal Program manager) and the entire WWF team for their invaluable financial and technical support. The County is also grateful to the County Assembly for their active role in plan preparation and approval. Lastly to the County team (National and County Departments), local community and other stakeholders to the timely preparation and completion of the plan. We look forward to the support of every stakeholder in the implementation of the plan.



Hon. Issa A. Timamy
The Governor
County Government of Lamu

PREFACE



Lamu County, forms part of the larger coast region that includes Kwale, Mombasa, Kilifi, Tana River and Taita/Taveta counties. This County has approximately 130 kilometres of sandy coastline characterized by some unique and environmentally sensitive ecosystems including sand dunes, mangrove swamps, coral reefs, coastal tropical forest and rangelands that are very important to the local communities. These ecosystems play a protective role against siltation and sea erosion.

The preparation of the County Spatial Plan is legal requirement under the County Government Act, 2012. Section 110 (1) which States that there shall be a ten-year GIS based database 'Spatial Plan' for the County. A GIS lab has been established with the support of WWF to capture all the data including property boundaries of all surveyed land parcel collected during the plan process.

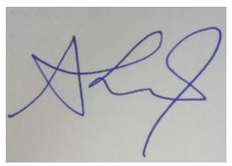
The ultimate aim of preparing Lamu County Spatial Plan has been to strategically guide sustainable development in Lamu County by providing a GIS database, an overall spatial framework and agreed land use plan including designated land use zones.

The Plan has depicted the spatial dimension of the social-economic, political and environmental development programmes of the County as articulated in the County Integrated Development Plan. It has also presented a clear statement of how it is linked to the Regional, National and other County Plans, clarified on the anticipated sustainable development outcomes of the Spatial Plan through controlling the order and nature of activities on land in the County. It is a strategic attempt to address spatial problems facing the county's geographical space made up of the unique land forms using spatial concepts. It has thus helped in interpreting and localizing strategic national and regional policies and strategies, identifying the natural assets within the County, outlining strategies to protect and where appropriate improve renewable natural assets, providing a basis for efficient and cost-effective delivery of infrastructure services through a long-term programme of investment and providing a framework for revitalizing industries, trade and commerce for sustainable economic development.

This Plan has ensured that pursuit of equity in resource allocation within the County has been promoted, and that short-term gains are not favoured above long-term sustainability. It provides a platform for unifying Planning, budgeting, financing, programme implementation and performance review.

This plan was developed through robust and all-inclusive stakeholder process including meetings held in all wards noting that the ward has become an important planning unit as per the County Government Act. Preparation of this Pro-Conservation Spatial Plan has benefited from the dedication and collaboration of the County Government of Lamu, Council of Governors, National Land Commission, Director of Physical Planning, Ministry of Lands and Physical Planning and the World-Wide Fund for Nature (WWF), The National Museums of Kenya, The LAPSSET Authority and the County Residents (Public) among others. The National Environment Management Authority (NEMA) and the World-Wide Fund for Nature (WWF) working in collaboration with County Government of Lamu and other Stakeholders recently completed the preparation of an Environmental Sensitivity Atlas for Lamu County which we hope if used together with this Spatial Plan will go a long way to guiding future development of the County. As an active partner in the preparation of this plan, WWF and their contribution in the logistical arrangements and expertise is highly appreciated.

Successful and effective implementation of this spatial plan will definitely transform the lives of the County residents as well as make Lamu County the destination of choice noting that the County is already attracting a lot of international, regional and local interest driven by the Vision 2030 LAPSSET project.



Hon. Amina R. Masoud
County Executive Committee Member
Lands, Physical Planning, Water, Infrastructure & Urban Development
County Government of Lamu

ACKNOWLEDGEMENT

The County Spatial Plan 2017-2018 (CSP) is as a result of a comprehensive participatory process that lasted for approximately 18 months under the guidance of the Consultant - Centre for Urban & Regional Planning (CURP). The approach was multi-disciplinary and multi-sectoral with the involvement of all the stakeholders including the community.

The process involved Participants from the ten wards of the County (Witu, Bahari, Hongwe, Mkunumbi, Hindi, Basuba, Shella-Manda, Amu, Faza and Kiunga), Planners from the County Government, Planners from the Centre for Urban and Regional Planning (CURP) and Technical Officers from various Ministries within the National and County Governments. Other participants involved in the process included: Directorate of Planning- National Land Commission; Department of Physical planning- Ministry of Lands and Physical Planning; Office of County Commissioner Lamu-Ministry of Interior and Coordination; Kenya Wildlife Service; Water Resource Management Authority; National Museums of Kenya; and Non-State actors which included World Wide Fund for Nature (WWF), World Agroforestry Research Centre and Local Conservation groups.

The CSP has been prepared with the institutional and financial support from the County Government of Lamu and the World Wildlife Fund (WWF) for Nature-Kenya Office. The Planning Team is particularly grateful to H.E. Hon. Issa Timamy - Governor of Lamu, Hon. Siyat Osman - the County Secretary, Hon. Amina R. Masoud - County Executive Member in charge of Land and Physical Planning and Mr. Mohamed Awer Mohamed - Chief Executive Officer-WWF for their guidance and support in preparation of this plan.

WWF-Kenya has supported the establishment of a fully-fledged GIS lab as per the standards set by the National Land Commission guidelines in preparation of County Spatial Plans. WWF-Kenya has also supported the CSP development process by supporting a participatory process where transect surveys, focus group discussions and validation workshops were conducted. Capacity building programmes in GIS and M&E have also been supported to enhance capacity in operation of the GIS laboratory and effective preparation and implementation of the plan.

We appreciate the support and goodwill of both the County Executive Committee Members from the County Government of Lamu, the County Assembly Members and the County Administration.

The County is also grateful to Dr. Stephen Holnes - a Conservation specialist from South Africa-courtesy of WWF.

This document could not also have been prepared without the invaluable input and guidance of the County Planning Team led by Eric Randu (Director of Lands & Physical Planning), Vincent Osewe (County Physical Planner), Swabra B. Mohamed (County GIS Analyst) and also the Chairman of the Technical Committee, Arnold Vidonyi. The Consultant's Team including: Planners R.K. Mbwagwa, Osengo Charles, Joakim Nyarangi, Samuel G. Mburu, John Nduru, and GIS specialist Peter D. Nyamai. The Planning Team from the National Land Commission Dr. H. Musoga; Planner R. Kitur; and C. Onyango.

The County Department of Lands further also acknowledges the support and mobilisation efforts of the WWF Lamu Office spearheaded by Kiunga Kareko (Coastal Project Manager, WWF) and Nathan Mutunga (Planner). Finally, as it is not possible to list the names of all the persons in this section of the report, a detailed list of all these contact persons has been attached as an appendix to this report.



Eric Randu
County Director of Lands & Physical Planning

EXECUTIVE SUMMARY

The Lamu County Spatial Plan (CSP) has been prepared taking cognisance of the Kenya constitution 2010 with specific reference to Article 60 (1) which states that land in Kenya shall be held, used and managed in a manner that is equitable, efficient, productive and sustainable. Further, Article 66 (1) on the regulation of land use and property, gives power to the State to regulate the use of any land or any interest in or right over any land in the interest of defence, public safety, order, morality, public health or land use Planning. The Constitution of Kenya further establishes the National Land Commission (NLC) and prescribe its function which include among others, the role to manage public land on behalf of the National and County Governments. It also gives the NLC the responsibility for monitoring and oversight over Land Use Planning throughout the Country.

The other important legislation relevant to the County Spatial Planning is the County Government Act 2012 which is the main legislation that empowers the County Governments in matters related to governance, spatial Planning and development. Section 104 of this act requires that every County Government prepare spatial Planning framework that shall form the basis for appropriation of public funds. Other key legislations and policies guiding the preparation of this CSP has been discussed in detail in later sections of this report.

The purpose for the Lamu County Spatial Plan is to provide a clear strategic direction for the development of the County over the next 10 years but with the flexibility to respond to change. The Plan is not cast on stone but it is flexible enough to allow for review every 5 years. With its focus on Spatial Planning, the Plan outlines how the County Government can use space and manage competing demands for space. The Plan will ensure that Lamu County Government can achieve a more sustainable, prosperous and equitable future if the proposals contained in this Plan are implemented in collaboration with all stakeholders.

The County has approximately 130 kilometres of sandy beach coastline, host to numerous wildlife biodiversity, diverse tourist attraction sites complimented by a rich heritage and cultural artefact. Additionally, the County has hosted numerous religion, Swahili and Arab cultural festivals which have now become well-known annual events drawing local as well as international tourists and scholars alike worldwide. In the past, insecurity has scared off possible visitor clientele, a situation that is made worse by the frequent travel advisories issued by countries overseas restricting their Nationals from visiting Lamu. The recent security improvements, however, have seen an upward trend in foreign visitors which is a great indication that the trajectory progress will continue to improve over time. The Spatial Plan makes an attempt to strengthen and reinforce this positive aspect of the County.

Furthermore, the Plan outlines a strategic direction that will help manage, change and provide for growth to achieve the social, environmental and economic sustainability of Lamu County. Its preparation was participatory involving residents of the County right from the ward level and including officials from various Departments of the County Government and National Government. The consultations held with the various stakeholders are attached as an appendix to the Plan. The Plan therefore reflects the community's aspirations for the future of the County.

Based on community aspirations and detailed Planning analysis, the Plan provides a County wide context within which resource specific and Ward based Planning policies can be set. The Plan maps a course of short, medium and long-term actions to support the strategic approach to key County wide issues facing Lamu County. It helps to improve understanding of and response to issues and implications that have geographical or physical and spatial dimensions. The Spatial Plan is intended to guide the County Government of Lamu in its allocation and use of resources such as environmental conservation, construction of capital works (roads, water reticulation, sewerage works, drainage, sea wall, recreational playing fields, Solid waste disposal sites, etc.)

Generally, the County has a gentle raising altitude from the sea shore to boundary with Garissa County raising from 0.0 meters at sea level to slightly over 50 meters above sea at a distance of 58 kilometres from Mokowe jetty to Bodhei. The County is characterized by poor surface hydrologic landscape with poorly drained landscape most of which is flooded during the rainy season. Most of the rivers in the Couty are seasonal with surface runoff during the rainy season. These rivers flow in a south easterly direction to drain in the ocean. The rainfall pattern is bimodal with rains occurring in March, to May and October to December with an average quantity of about 540mm annually. However, rainfall is highest along the immediate coastal plains with rainfall of upto a 1000mm in the areas of Witu, Mpeketoni and Lamu archipelago which decreases as one moves away from the shoreline towards the boundary with Garissa County.

The Population of the County has over the years shown remarkable increase fuelled by in- migration of people from upcountry who have moved to the County for land speculation given the anticipated development projects in the County. The average growth rate for the County is recorded at about 3.4% but this Plan adopted three justifiable scenarios for population growth in the County to which 4.8% was adopted as the more logical population growth rate for the County. This growth rate was mostly justified given the intended implementation of a major Transport and infrastructure project, the LAPSSET project, that forms the second transport corridor for the country. Using this growth rate, the Plan estimate the current population to be 140,976 and this will raise to 214,979 by the year 2025. This population increase impact on existing Lamu terrestrial and marine ecosystems that are fragile and sensitive to human activities and development. This Plan attempts to propose mitigative measures which if adopted will ensure sustainable utilization of the available and scarce resources despite the population growth.

Generally, the County has a serious challenge as far as fresh water is concerned and because of its sandy and limestone terrain, most households depend on hand-dug shallow wells which mostly do not produce fresh water because of the high salinity levels in the water quality. Lake Kenyatta and its overflow reservoir, Lake Amu-which is mostly dry, and Lake Moa in Witu are the only two main fresh water lakes in the County. The extension of farmlands and uncontrolled pastoralism around key wetlands and lakes in the County have resulted to continuous depletion of these resources to the extent that Lake Amu has virtually dried up and only collect limited quantity of water when it rains. Lake Kenyatta is facing more challenge from extensive human activities around it making it highly endangered in the recent times with various reports indicating continued loss of biodiversity that depends on the lake for sustainance. An Action Plan has been proposed in this Spatial Plan detailing the measures that can be taken to protect and conserve the Lake and other wetland ecosystems.

The study also made use of various consultative engagements where it established that matters to do with land and land use were of grave importance to the locals. Fraudulent land acquisition, self allocation of land and land invasion in the past and at the present have led to tension between immigrants and indigenous communities. This

uncontrolled access to land has often occasioned encroachment on fragile ecosystems including wetlands, forest ecosystems and private ranches. This has resulted to slow and continuous depletion of such resources over time which if not mitigated on time will be catastrophic in the future as it is already being experienced around the Lake Kenyatta ecosystem. It is estimated that 62.8% of the land is public land, 35.5% is private land and only 1.7% is community land. This gives the County Government an upper hand in the management of resources where most fall under public land which they and the National Land Commission have mandate over. In that regard, this CSP advances various land use regulation guidelines that the County and other responsible authorities may use and consider in the dispensation of their mandate over land and land use.

Ideally, the making of this CSP established that the County is well endowed by a rich natural capital that highly needs to be conserved and protected from unmitigated human activities. The large and expansive forest areas and rangelands of the County are home to various biodiversity, flora and fauna as well as a livelihood earner to most County residents. The Boni-Lungi forest ecosytems, the large tracts of Mangrove forests, the Witu Forest and the Dodori National reserves were identified as very key pristine ecosystems for the County that woud require high level protection from encroachment to promote their existence as **biodiversity hotspots.** The important role they play in maintaining nature balance, reduced climate change impacts and the economic benefits they stand to benefit the County in carbon trading are so immense and can only be realized through their protection and conservation.

Another major challenge ailing the County is the poorly developed transport infrastructure which is in dire need of improvement to enhance its connectivity and boost the economic potential the County holds. This cuts across all the modes of transport available to the County including water transport which is widely used by the County residents, majority of whom live in the Lamu Archipelago. This CSP has attempted to propose measures that would be adopted to improve transport from all modes available to the County and provide others where they are non-existent. Additionally, the County stands to benefit from the major National infrastructural project, the LAPSSET. The implementation of the project will see the County's access by both road, air and water improved by a great milestone where it is anticipated that tourism, energy and economic gains to the County will be immense. The making of this CSP appreciates that the project components will impact on land use variously and hence this has been incorporated fully in the report.

Further, the Study identified some of the key industries that would spur immediate growth of the County ranging from farming related industries, fishing, livestock, and tourism. These were independently identified and advanced by the Plan as program and project proposals that would be adopted by the County Government to boost the economic growth of the County and enhance its revenue generation and collection. Additionally, the report has discussed in detail a governance and institutional framework of the concerned and responsible authorities that will implement the proposals advanced by this Plan.

The Study further analysed the issues in the Sectoral perspectives which directly link to the existing situation, and provided an opportunity of detailing the planning issues, opportunities, objective, policy direction and specific action areas. The action identified links a sector to space and possible actors. This enabled the consultant to be able to carry out an in depth understanding of the linkages among emerging planning issues and opportunities. A clear outcome of this was the possibilities the space of Lamu provides for human settlement reorganisation. This outcome was further interpreted into spatial concepts to help the consultant understand the underlying county spatial template.

The identified spatial concepts linking the space, sectors and future needs from current realities are: the Economic Corridor (Economic nodes) on both land and sea; the Punctured Scapes (Highly sensitive ecological areas characterized by swamps and riverine systems); the Pristine Ecosystem on land and sea (The Boni-Lungi-Witu Forest ecosystem, Dodori & Kiunga Marine National Reserves); the Mangrove Ring (the coastline with huge mangrove forest growth); the Shielded Hinterland (sand dunes); the Lamu Gates (Entry towns to Lamu County) on land and sea; the Productive Scapes (Highly agro-productive and livestock zones) on land and sea; and the Lamu Archipelago (the Islands). A detailed analysis of the spatial concepts as presented in this plan illustrates a unique space with its characteristics and capabilities. It also presents a variety of planning implications and interventions open to the consultant. The planning interventions culminate into what is desirable for that space within the limits of its unique natural characteristics which would later be used in the formulation of zones making up the integrated County Spatial Plan.

It is the hope of the Consultant Planner that this Plan will be implemented and reviewed in the manner proposed as it reflects the current human activities and projected into the future in congruence with the vison of the people of Lamu. The Plan takes cognizance of all sectors that pertains the economy of the County and advances the most professionally logical and consultative proposals given the County's landscape template. Overall, with all sectors catered for, the Plan can be perceived as a **Pro-Conservation Plan** given the various programs and policies advanced for adoption by the concerned authorities.

R. K. Mbwagwa
Principal Consultant

ABBREVIATIONS & ACRONYMS

C.C. – County Commissioner

C.O. – Chief Officer

CBNRM – Community Based Natural Resource Management

CBO – Community Based Organizations

CCS – Comprehensive Community Strategy

CDF – Constituency Development Fund

CEC – County Executive Commissioner

CFA – Community Forest Association

CGL – County Government of Lamu

CGTR – County Government of Tana River

CIDP – County Integrated Development Plan

CIP – Capital Investment Plan

CSO – Civil Society Organization

CSP – County Spatial Plan

CURP – Center for Urban and Regional Planning

CWCC – County Wildlife & Conservation Committee

DNR – Dodori National Reserve

DPS – Development Partners

EEZ – Exclusive Economic Zone

EMCA – Environmental Management and Control Act

ESIA – Environmental and Social Impact Assessment

FBO – Faith Based Organization

FGD – Focused Group Discussion

FGM – Female Genital Mutilation

FPE – Free Primary Education

FSE – Free Secondary Education

FY – Financial Year

GASP – German Assisted Settlement Programmes

GIS – Geographical Information System

GoK – Government of Kenya

GTZ – German Organization for Technical Cooperation

HIMWA – Hindi Magongoni Water Association

IBA – Important Bird Areas

ICT – Information Communication and Technology

ISUDP – Integrated Strategic Urban Development Plan

JKUAT – Jomo Kenyatta University of Agriculture and Technology

K.D.F. – Kenya Defense Forces

K.P.R. – Kenya Police Reservists

KAA – Kenya Airports Authority

KENHA – Kenya National Highway Authority

KENTTEC - Kenya Tsetse fly and Trypanosomiasis Eradication Council

KeRRA – Kenya Rural Roads Authority

KETRACo - Kenya Electricity Transmission Company

KFS – Kenya Forest Service

KFS – Kenya Forest Service

KIP – Kenya Institute of Planners

KMA – Kenya Maritime Authority

KMNR – Kiunga National Marine Reserve

KNBS – Kenya National Bureau of Statistics

KPL Company

KPLC – Kenya Power and Lighting Company

KPR – Kenya Police Reservist

KU – Kenyatta University

KURA – Kenya Urban Roads Authority

KWS – Kenya Wildlife Service

LAKWA - Lake Kenyatta Water Association

LAPSSET – Lamu Southern Sudan Ethiopia Transport Corridor

LAWASCO - Lamu Water and Sewerage Company

MIPC – Manda Island Port City

MP – Member of Parliament

NCIC – National Cohesion and Integration Commission

NEM – Northeast Monsoon

NEMA- National Environmental Management Authority

NGO – Non-Governmental Organization

NLC – National Land Commission

NMK – National Museums of Kenya

NMT – Non-Motorized Transport

PPPS – Public Private Partnerships

RAP – Resettlement Action Plan

SEM - Southeast Monsoon

SEZ – Special Economic Zone

SoK – Survey of Kenya

TARDA – Tana Athi River Development Authority

TJRC – Truth Justice and Reconciliation Commission

UNESCO – United Nations Educational, Scientific and Cultural Organization

VCT – Voluntary Counseling and Testing

VIP – Ventilated Improved Pit

WFE – Witu Forest Ecosystem

WRM – Water Resource Management

WRUA – Water Resource Users Association

WWF – World Wildlife Fund

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CHAPTER 1: PREAMBLE & INTRODUCTION

1.1 PURPOSE OF THE PLAN

The preparation of the County Spatial Plan is a requirement in the County Government Act. Section 110 of the Act provides for the preparation of County Spatial Plans which will be 10 year Plans prepared by the County Executive Committee as a component of the County Integrated Development Plan, approved by the County assembly and reviewed every 5 years. These Plans are expected to be more of graphic and rich in illustrative maps and diagrams than the illustrative text. The Plan will be based on a geographic information system (GIS) and will give a spatial depiction of the social and economic development programme of the County.

The spatial Plan shall contain strategies and policies regarding the desired spatial form of the County as set out in Section 110 (2):

a) Indicate desired patterns of land use within the County;
b) Address the spatial construction or reconstruction of the County;
c) Provide strategic guidance in respect of the location and nature of development within the County;
d) Set out basic guidelines for a land use management system in the County taking into account any guidelines, regulations or laws as provided for under article 67(2) (h) of the constitution;
e) Set out a capital investment framework for the County's development programs;
f) Contain a strategic assessment of the environmental impact of the spatial development framework;
g) Identify programs and projects for the development of land within the County; and
h) Be aligned with the spatial frameworks reflected in development the integrated development Plans of neighbouring counties.

The Plan will indicate where public and private land development and infrastructure investment should take place. The Plan will also indicate desired utilization of space in particular areas and may delineate the urban edges of the municipalities within its jurisdiction. The Plan will be required to indicate areas requiring strategic intervention and those in need of priority spending.

In short, the spatial Plan will be one that clearly indicates the stock of the County's space, outlining the development areas of both public and private nature and designate land areas taking into consideration the social, environmental and economic impacts of the developments. The Plan will contextualize the County nationally and in relation to its surrounding region. In doing so, the Plan will aim at harmonizing the development in the County having understood its setting.

This Plan, being based on a GIS database platform that is accessible to the public will also increase public monitoring of the Planning process. The most profound thing about the Plan is that it will set out the policy for suitable development within the County and in presentation of the graphic Plans will give a better understanding of the contents and aspirations of the Government even to the lay men.

1.2 OBJECTIVES

The goal of the project is to prepare the Lamu County Spatial Plan covering the full extent of the County (including mainland and archipelago islands) to strategically guide development for a period of 10 years and facilitate the transformation of the lives of the citizens of the County through: providing an agreed and binding framework for development with designated land use zones, clear land use guidelines based on a strategic land use Planning process, interpreting national and regional policies, integrating sectoral policies into the land use Plan and providing policies on which to anchor lower level Plans. Whilst the Plan will have a 10-year time-horizon, the Plan will seek to provide a basis for long-term sustainable development within the County.

The specific objectives of the project are to:

- Provide an overall spatial framework for the County to guide sustainable development;
- Provide an agreed land use Plan for the County, which includes clearly designated land use zones. For each zone, a comprehensive set of compatible and incompatible land uses should be specified, as well as any additional land management guidelines;
- Develop a GIS database to support the Plan-making process (e.g. context/issues analysis, Plan scenario development / analysis, and Plan optimization and production) and to facilitate future land administration and management;
- Interpret and localize strategic national and regional policies and strategies;
- Identify the natural assets within the County, their status (quantity/quality/distribution), level of utilization, goods/services they provide and the value of benefits these generate (where possible), drivers/pressures affecting them, and associated risks/opportunities;
- Outline strategies/measures to protect and, where appropriate, improve renewable natural assets (ecosystems/habitats/species), including via designation of areas of particular value and/or sensitivity as "no-go" (no development) areas, and through zoning and regulation of development/activities; assessment and mitigation of cumulative or in-combination effects of activities.
- Provide a basis for efficient and cost-effective delivery of infrastructure services (manufactured and natural) through a long-term programme of investment;
- Identify opportunities for job creation and employment;
- Provide a framework for revitalizing industries, trade and commerce to spur sustainable economic development;
- Formulate strategies for improving transport/communication networks and linkages;
- Develop strategies to realize a system of urban centers for sustainable urban development.

1.3 SCOPE OF THE PLAN

The County Spatial Plan shall cover the entire area of the County measuring approximately 6,474.7 Km^2, 150 Km^2 of this land mass being the Islands while 4% is water. The Plan shall cover a period of ten (10yrs) years running from 2015 to 2025 and may be reviewed after this period for a further ten years (10yrs). The Plan shall address a wide range of issues, which can be categorized as spatial, economic, social and environmental. These issues may be further categorized as human settlement, economy (which comprises of agriculture, industry, tourism, service, knowledge etc.), integrated transportation (comprising of road, railway and air), infrastructure (consisting of water and sanitation, energy, ICT, education,

recreation and health), and environment (comprising of the built and natural environment, consisting of rivers, wetlands, swamps, forests, hills, open spaces, parks etc.).

- The Plan will build on the strategies, policies and objectives of the Lamu County Integrated Plan taking into account recent key proposed sectoral programmes and projects.
- The Plan will also consider the numerous Plans that have been prepared concerning the County as well as pertinent issues of climate change, environmental conservation, renewable energy and the need to support economic development.

1.4 STRUCTURE OF THE PLAN

The output presented by the Consultant shall be in the following format:

- A technical report on the conditions, resources and facilities in the County.
- A statement of policies and proposals with regard to the allocation of resources and the locations for development within the County.
- Description and analysis of the conditions of development in the County as may be necessary to explain and justify the statement of policies and proposals.
- Digital maps and Plans showing present and future land uses and development in the County.
- Any other information that may be necessary to explain or illustrate the Plan.

The situational analysis report comprises 18 chapters as follows:

1. **Chapter 1:** Preamble & Introduction
2. **Chapter 2:** The Planning context
3. **Chapter 3:** The Location Context
4. **Chapter 4:** The Physical, Natural Resources and Environment
5. **Chapter 5:** The People in Lamu County
6. **Chapter 6:** Land & Human Settlements
7. **Chapter 7:** Economic Base of Lamu County
8. **Chapter 8:** Transport, Infrastructural Services & Utilities
9. **Chapter 9:** Social Services & Infrastructure
10. **Chapter 10:** Governance & Institutions
11. **Chapter 11:** Summary of the Existing Situation
12. **Chapter 12:** Synthesis & Spatial Design Concepts
13. **Chapter 13:** The Sectoral Perspectives
14. **Chpater 14:** The Preferred Integrated County Spatial Plan Model & Land Use Zoning Framework
15. **Chapter 15:** Plan Implementation Strategy & the Capital Investment Plan
16. **Chapter 16:** The Capital Investment Plan (CIP)
17. **Chapter 17:** The Monitoring & Evaluation Framework
18. **Chapter 18:** References

CHAPTER 2: THE PLANNING CONTEXT

2.1 OVERVIEW

This chapter outlines the approach and legal context guiding the preparation of this County Spatial Plan.

2.2 APPROACH

2.2.1 THE STRATEGIC APPROACH

This involves envisioning and focusing on key issues; formulating broad spatial policies and strategies to be effected through the preparation of more specific regional and local physical development Plans.

2.2.2 PARTICIPATORY AND CONSULTATIVE APPROACH

The making of this Plan strongly made use of Stakeholder participation and consultation through the Plan formulation. The Planning team sought the concurrence of stakeholders at every stage through workshops, seminars, focus group discussions, electronic and print media. Expert opinion was sought on complex issues arising from the process. The key public and stakeholder engagements have been summarized in **appendix 1.**

2.2.3 EVIDENCE BASED

Ground truthing and fact finding of issues informing the proposals adopted for this Plan was also an integral part of the process as detailed out in **appendix 1.**

2.3 CONSTITUTIONAL CONTEXT

The Constitution of Kenya, 2010 raised the bar in the management of national affairs and placed higher demands on development Planning as a means of delivering on the Constitutional provisions. Article 66 provides that the Government may regulate the use of any land as long as it is in public interest in matters such as public safety, order, health and land use Planning. In Article 42 on the environment, it is stated that every person has the right to a clean and helathy environment; this is an environment protected for the benefit of present and future generations through legislative and other measures and to have obligations relating to the environment. The constitution in Chapter 5, Part 2 on Natural Resources and the Environment explicitily continues to say that the State shall: -

a) ensure sustainable exploitation, utilisation, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits;

b) work to achieve and maintain a tree cover of at least ten percent of the land area of Kenya;

c) protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities;

d) encourage public participation in the management, protection and conservation of the environment;

This Plan has endeavored as much as possible to enhance and corroborate these aspirations of the Constitution in the management, protection, and conservation of Natural resources and the environment in general.

Further the constitution provides a package of economic and social rights which need to be delivered through the contribution of all sectors of the national economy. Article 43(1) outlines these rights as: (a) attainment of the highest standard of health which include the right to health care services, including reproductive health care; (b) access to adequate housing and to reasonable standards of sanitation; (c) freedom from hunger and access to adequate food of acceptable quality; (d) access to clean and to safe water in adequate quantities; (e) access to social security; and (f) access to education.

Citizen rights as outlined in the Constitution are mandatory rather than optional. State organs are compelled to Plan and deliver on them. The undertaking of this Plan therefore set to achieve the aspirations of the constitution on citizen rights through the proposals made.

Citizen participation in social and economic development decision making is a theme that runs through the whole Constitution. Consequently, the consultant tried as much as possible to consult with all relevant stakeholders through the making of this Plan.

Article 176 states that there shall be a County Government for each County, consisting of a County assembly and a County executive and every County Government shall decentralise its functions and the provision of its services to the extent that it is efficient and practicable to do so. The formulation of this Plan therefore

Moreover, article 184 provides for the governance and management of urban areas and cities as well as criteria for identification and classification. This is quite crucial in as far as hierarchy of centres is concerned. Integrated Planning has been identified as one of the bulwarks of decision making at both national and County level with citizen participation being part of the process.

2.4 POLICY CONTEXT

2.4.1 VISION 2030

Kenya Vision 2030 is the Government's long-term development blueprint for the Country. The main aim is to realize *"a globally competitive and prosperous Country with a high quality of life by 2030."* This is geared towards transforming Kenya into *"a newly industrializing, middle income Country providing a high quality of life to all its citizens in a clean and secure environment"* to be achieved under three pillars namely Economic, Social, and Political Governance. On that premise, it continues to outline how all this could be achieved through improvement of key thematic sectores which are Infrastructure; Energy; Security; Tourism; Agriculture; Wholesale/Retail Trade; Manufacturing; Financial Services; and Business Process Outsourcing.

The main aspirations of this vision are that all development projects undertaken within the state across the thematic sectors should all aim to achieve the objectives set under the vision. Of importance to note is that the LAPSSET is a flagship project under the vision 2030 and hence the making of this Plan had to integrate it as part of the key structuring elements of the County. Furthermore, Lamu County has a lot of potential on most thematic sectors as outlined in the Vision

2030 including Toursim; Agriculture etc and hence aligning the Plan proposals with the thematic objectives made under the vision was quite important.

2.4.2 NATIONAL URBAN DEVELOPMENT POLICY

According to the draft National Urban Development Policy "The statutes that provide the legal framework for urban Planning and development, the Local Government Act Cap 265 and the Physical Planning Act Cap 286, have not adequately addressed the current urban development realities. As a result, urban areas face numerous challenges which are a threat to sustainable urbanization and urban Planning: unbalanced urbanization and haphazard designation of urban centres, uneven and skewed distribution of infrastructure, urban sprawl and decay, high costs of provision of infrastructure and services, degradation of the environment and heritage sites, non-compliance with approved Plans and mushrooming of informal settlements, and insecurity" (GoK, 2011 C: 4).

Whilst the importance of sustainable urban Planning and development has been captured in the Urban Areas and Cities Act No 3 of 2011, the national and County Governments face a complex and varied Planning agenda". As clearly articulated above; there is a need to recognise urban Planning as an integrated process that seeks to address the numerous challenges facing our urban areas.

2.4.3 NATIONAL LAND POLICY

The National Land Policy has its objectives clearly spelled out as follows:

- All citizens, particularly the poor, be provided with the opportunity to access and benefit from the use of land.
- The allocation and use of land be economically, socially equitable and environmentally sustainable.
- The operation of land should be efficient, effective and economical.

The National Land Policy also seeks to protect community interest over land based natural resources and facilitate benefit sharing. This can be made possible if:

a) A legal framework is established for recognizing community and private rights over natural resources.
b) A participatory mechanism for compensation for loss of lives and damage to property occasioned by wild animals is devised and implemented.
c) The communities are involved in the conservation and development of the resource
d) A mechanism is provided for resolving grievances of communities arising from human-wildlife conflict

It is also stated that all natural resources shall be vested in the citizens of Kenya through legally established structures and where such ownership is vested in any other person or corporation; they shall only hold such natural resources as managers in trust for the people of Kenya (concerned communities).The Government shall encourage preparation of participatory environmental action Plans by communities living near environmentally sensitive areas to preserve cultural and social economic resources.Fragile ecosystems shall be managed and protected using the following measures:

a) Development of a comprehensive and integrated land use policy with regard to fragile areas that considers the needs of neighbouring communities in such areas;
b) Zoning of all forest land and preserve it in order to protect water catchment areas from further degradation;
c) Development of procedures for co-management and rehabilitation of forest resources, recognizing traditional management systems and sharing of benefits with contiguous communities.

2.4.4 THE WILDLIFE POLICY

Lamu County is endowed with a variety of wild animals including African Buffalos, Topi, Common Zebras, and Warthogs among others; but due to rapid population growth, urban development and land use changes, the wildlife habitats are rapidly diminishing leading to loss of biodiversity. Poaching of elephants, buffalos and rhinos for trophies and skin has aggravated the problem.

The Wildlife Policy provides guidelines that will help in the management and conservation of wildlife in the County. Under policy guideline 3.3: The Policy provides a framework for conserving, in perpetuity, Kenya's rich diversity of species, habitats and ecosystems for the well national heritage of common concern being and benefit of its people and the global community. The policy guideline provides for the following guiding principles as to the use and conservation of wildlife resources:

a) Wildlife is an important public asset at local, regional, and global levels.
b) An integrated 'ecosystem' approach to conserving wildlife resources will be adopted and enhanced to ensure that wildlife conservation initiatives are based on large geographical scales.
c) Wildlife conservation will be recognized and promoted as a land use option, especially outside protected areas within the broad national and regional land use and development Plans, respectively.
d) Wildlife will be utilized in a manner that does not impinge on cultural values, compromise the quality and value of the resource, or degrade the carrying capacity of supporting ecosystems, in accordance with the principle of sustainable use.
e) Benefits accruing from wildlife will be shared equitably among stakeholders, especially paying due regard to communities living within wildlife areas.
f) Positive attitudes and perceptions towards wildlife among Kenyans will be cultivated in order to enhance effective wildlife conservation and management
g) The conservation and management of wildlife will be based on long term view where present generations make choices that will benefit future generations, in accordance with the principles of inter- and intra-generational equity.

2.5 LEGAL CONTEXT

2.5.1 COUNTY GOVERNMENT ACT, 2012

The County Government Act 2012 guides governance, Planning and development of Counties. Section 104 of this Act requires that every County Government prepares Planning frameworks that should form the basis for appropriation of public funds.

The Planning frameworks shall be developed by the County Executive Committee and approved by the County Assembly. The County Planning framework is required to integrate economic, physical, social, environmental and spatial Planning. Section 103 provides the objectives of County Planning.

2.5.2 URBAN AREAS AND CITIES ACT, 2011

This Act has been formulated in pursuit of Article 184 of the Constitution that calls for a national legislation to provide for classification, governance and management of urban areas and cities.

The Act became operational after the first elections held under the new Constitution on March 4th 2013.

The Act covers among others the following: classification and establishment of urban areas and cities; governance and management of urban areas and cities; delivery of services; Integrated Development Planning; financial provisions; miscellaneous and transitional provisions. There are also important provisions within the schedules including: Classification of cities and towns by services; Rights of, and participation by residents in affairs of their city or urban area; and Preparation of an Integrated Plan.

Under governance and management of towns, in Article 31, it is stated that there shall be an administrator for every town established under the Act. The functions of the town administrator will be determined by a committee which is appointed by the County governor and approved by the County assembly. In article 20, it is stated that the functions of the board of a city or municipality will be performed by the mentioned committee, in the case of a town.

These boards have however not yet been instituted in most counties and this undermines the effectiveness of the County Government. There is need for this challenge to be addressed.

2.5.3 NATIONAL LAND COMMISSION ACT

The object of the Act is to provide for:

(a) the management and administration of land in accordance with the principles of land policy set out in Article 60 of the Constitution and the national land policy;
(b) the operations, powers, responsibilities and additional functions of the Commission pursuant to Article 67(3) of the Constitution;
(c) a legal framework for the identification and appointment of the chairperson, members and the secretary of the Commission pursuant to Article 250(2) and (12) (a) of the Constitution; and
(d) for a linkage between the Commission, County Governments and other institutions dealing with land and land related resources.

The functions of the Commision shall be:

(a) to manage public land on behalf of the national and County Governments;
(b) to recommend a national land policy to the national Government;
(c) to advise the national Government on a comprehensive programme for the registration of title in land throughout Kenya;
(d) to conduct research related to land and the use of natural resources, and make recommendations to appropriate authorities;
(e) to initiate investigations, on its own initiative or on a complaint, into present or historical land injustices, and recommend appropriate redress;
(f) to encourage the application of traditional dispute resolution mechanisms in land conflicts;
(g) to assess tax on land and premiums on immovable property in any
(h) area designated by law; and
(i) to monitor and have oversight responsibilities over land use Planning throughout the Country.

2.5.4 ENVIRONMENTAL MANAGEMENT AND COORDINATION ACT

Lamu County is well endowed with highly fragile ecosystems and their protection and conservation is highly paramount. EMCA mainly facilitates the following functions:

1. To protect and conserve the environment
2. To establish institutions for the purpose of environmental conservation
3. To come up with an action Plan for environmental Planning and conservation

The document provides for the protection of rivers, wetlands, hilltops, hill slopes and forests. It also ensures re-afforestation and afforestation of hilltops, hill slopes and mountainous areas; conservation of energy and Planting of trees, biological diversity and protection of environmental significant areas. The Act states that environmental conservation order may be imposed on burdened land, being the vicinity of the benefited environment so as to:

a) Preserve flora and fauna
b) Preserve the quality and flow of water in rivers
c) Preserve scenic view
d) Preserve open space
e) Create or maintain migration corridors for wildlife {section 112(4)}

This Plan has been formulated in a way that achieves the set objectives by EMCA where the conservations of the Natural Environment has been a key priority.

2.5.5 WATER ACT, 2002 (REVISED EDITION, 2012)

The Act states that every water resource within the state's boundaries is owned by the state and controlled by the Ministry of Water and Irrigation. The Act has key provisions on the management, conservation and sustainable use of water resources mandated under the Water Resources Management Authority which has the functions to: -

a) to develop principles, guidelines and procedures for the allocation of water resources;
b) to monitor, and from time to time re-assess, the national water resources management strategy;
c) to receive and determine applications for permits for water use;
d) to monitor and enforce conditions attached to permits for water use;
e) to regulate and protect water resources quality from adverse impacts;
f) to manage and protect water catchments; in accordance with guidelines in the national water resources management strategy, to determine charges to be imposed for the use of water from any water resource;
g) to gather and maintain information on water resources and from time to time publish forecasts, projections and information on water resources;
h) to liaise with other bodies for the better regulation and management of water resources; and
i) to advise the Minister concerning any matter in connection with water resources.

In essence, the Act is very crucial as a legal basis for the management and protection of key water resources against any adverse impacts to the environment. As so, the proposed Plan made sure that all key water resource areas are protected by buffer zones or legislation to enhance the same and ease their management.

2.5.6 FORESTRY ACT

In Article 13 of the Act, it provides that the Board shall establish forest conservancy areas for the proper and efficient management of forests

and may divide such conservancy areas into forest divisions and stations. There shall be established a forest conservation committee in respect of each conservancy area. All forests in Kenya other than private and local authority forests, are vested in the State, as indicated in Article 21. Any unalienated Government land and any land purchased or otherwise acquired by the Government can be declared a state forest by the Minister on recommendation of the Forest Board.

Article 30 states that every local authority shall establish and maintain arboreta, mini forests or recreational parks for the non-consumptive use of persons residing within its area of jurisdiction. Every market centre is required to have a recreational park. Article 35 indicates that every state forest, local authority forest and provisional forest shall be managed in accordance with a management Plan that complies with the requirements prescribed by rules made under the Act.

2.6 VISION AND MISSION STATEMENTS

Visionioning was conducted at Ward level with key stakeholders from various backgrounds in each of the 10 wards sensitized and guided on the need for a Vision for Lamu County. The stakeholders then came up with a negotiated Vison for the County respective in each Ward. The people of Lamu are very optimistic and desire a bright future for their County as described in the respective ward level vision statements highlighted below: -

1. **Witu Ward –** "Lamu County with clean water; good infrastructure linkage; with a healthy literate population, which is economically empowered";
2. **Faza Ward –** "To have modern instruments in schools; modern agricultural techniques (including fishing) so as to lead to a better economy; good use of resources; environmental conservation; good provision of services; better infrastructure and community involvement";
3. **Kiunga Ward –** "To have Industrialization; proper land use Planning; improved tourism and conservation";
4. **Basuba Ward –** "Improved livelihood through sustainable use of natural resources, diversified economic options, security, peace, improved infrastructure and preservation of culture";
5. **Bahari Ward –** "To have good facilities; a properly Planned town; rotational markets; good provision of services, controlled digging of shallow wells; upscaled security; elimination of drugs; maintenance of historical sites; opportunities for people with disabilities; environmental conservation and improved infrastructure by 2025";
6. **Hongwe Ward –** "To have well-trained staff for schools; upscaled security; better health services; industrialization (farming, trade and commerce) and settling of squatters";
7. **Mkunumbi Ward – "**To have industrialization; well-developed infrastructure; proper land use Planning; beautification of the town; improved health centres; better services delivery and well established agro processing Plant";
8. **Hindi Ward –** "To have proper Planning; better education; clean water; modern fishing equipment; good roads; economic vibrance and environmental conservation";
9. **Mkomani Ward –** "To be a cosmopolitan and balanced society with both historical and advanced way of life; a leading County in tourism and a well-educated community with preserved cultural heritage"; and
10. **Shela Ward –** "A proper Plan for Mararani, Manda & Kihobe; proper land ownership; a well-educated society and a healthy society with sustainable food".

The **Mission Statement** for the Lamu County Spatial Plan is: -

"To provide a basis for contolled urbanisation that improves the welfare of people of Lamu and guide investment and sustainable utilisation of natural assets while guaranteeing gainful utilisation of community resourcefulness and implementation of sustainable development".

The shared **Vision Statement** for Lamu County is: -

"A Planned, well governed, secure and healthy County that is economically vibrant and affords a high quality of life for its citizens through Sustainable use of its Natural resources, promotion of local culture and livelihoods and conservation of its unique heritage and biodiversity.



Local residents



Improved Healthcare & Education Provision



Sustainable food security & Mechanized Agriculture



Improved Road Infrastructure



Wildlife Conservation & promotion of Tourism



Vibrant growth of planned settlement areas



Diversified & improved Revenue Growth

CHAPTER 3: THE LOCATIONAL CONTEXT

3.1 OVERVIEW

This Chapter outlines the locational and administrative context of Lamu County in detail.

3.2 LOCATION

Lamu County lies between 1˚ 39' 10.85" S, 40˚ 11' 47" E; 1˚ 39' 23.39" S, 41˚ 37' 18.31" E; 2˚ 27' 42.24" S, 41˚ 37' 20.15" E and 2˚ 27' 36.43" S, 40˚11'26.76" with most of the land at an altitude of less than 50m above sea level. The Planning area borders the Republic of Somalia to the North East, Garissa and Ijara to the North, the Indian Ocean to the South and South East, and Tana River to the South West and West.

3.2.1 NATIONAL AND INTERNATIONAL CONTEXT

Lamu County covers a strip of North Eastern coastal mainland and the Lamu Archipelago, which consists of numerous islands. It is bound by Garissa County to the North; Tana River County to the West; and the Republic of Somalia to the North East. ***See Maps 3.1 on the next page***.

The County has shared resources with the neighboring Counties and Country (Somalia) including the vast Boni-Lungi forest ecosystem and the Tana Delta footprint where concerted and shared management efforts of the resources should be upheld.

Internationally, the County is put in context or linked to other regions of the world by air (Manda Airport) and by water especially now that the anticipated Lamu Port under LAPSSET is about to commence activities in the near future after completion of the first 3 berths expected to be complete by 2018.

The World Heritage Site (Lamu Old Town) duly gazette by UNESCO also put the County on a global map. The Old Town is a key point of tourism attraction in the County and the preservation of Swahili culture.

3.2.2 REGIONAL CONTEXT

Lamu County is one of the Counties located along the Kenyan coast- ***See Maps 3.1***. Other Counties which form part of the older recognized Coastal region include Taita Taveta, Kwale, Mombasa, Kilifi, and Tana River. The Kenya Coast forms a distinct region of the Country (Dick Foeken, Jan Hoorweg & RA Obudho,) in a geographical sense. The region is divided from the rest of the Country by an extended and dry zone, the Taru desert. It borders Indian Ocean to the south, Tana River to the South West and Ijara to the North.

Regionally, Lamu County stands in prominence and holds great economic potential as compared to the immediate Counties bordering it. The shared resources between the Counties will require that County Development pacts are fostered to assist in their management.

3.2.3 NATURAL ENVIRONMENT CONTEXT

The County features a diverse marine environment including estuaries, mangroves, seagrass beds and intertidal reef platforms and coral reefs, which are vital for the diversity and reproduction of marine organisms. Some of these ecosystems are regarded as some of Kenya's most valuable marine ecosystems.

The presence of these ecosystems like the mangrove forests for instance ultimately put Lamu County in a National context considering the mangrove forests in Lamu occupy more than 70% of the country's total mangrove forests.

For the sake of posterity many of these features are located in gazetted areas within National Reserves and Parks. Within the boundaries of Lamu County are found the nationally important Dodori National Reserve and Kiunga Marine National Reserve which host various vegetation, bird, animal and marine life species. Owing to its strategic positioning, Lamu County could be the culmination or starting point for the combination of the Coastal and Southern tourism circuits encompassing different areas of interest.

3.2.4 COUNTY (LOCAL) CONTEXT

The County comprises of the Islands of Lamu, Pate, Manda, Ndau and Kiwayu and the settlements of Mpeketoni and Witu. It constitutes of two constituencies/sub counties; Lamu East and Lamu West. The wards under these sub counties include Mkomani, Shella, Faza, Kiunga, Basuba, Hindi, Mkunumbi, Witu, Hongwe and Bahari.

Tale 3.1 below shows the administrative wards in Lamu, their respective areas and the consitituencies they are within as a reference point for ***Map 3.2 - overleaf***.

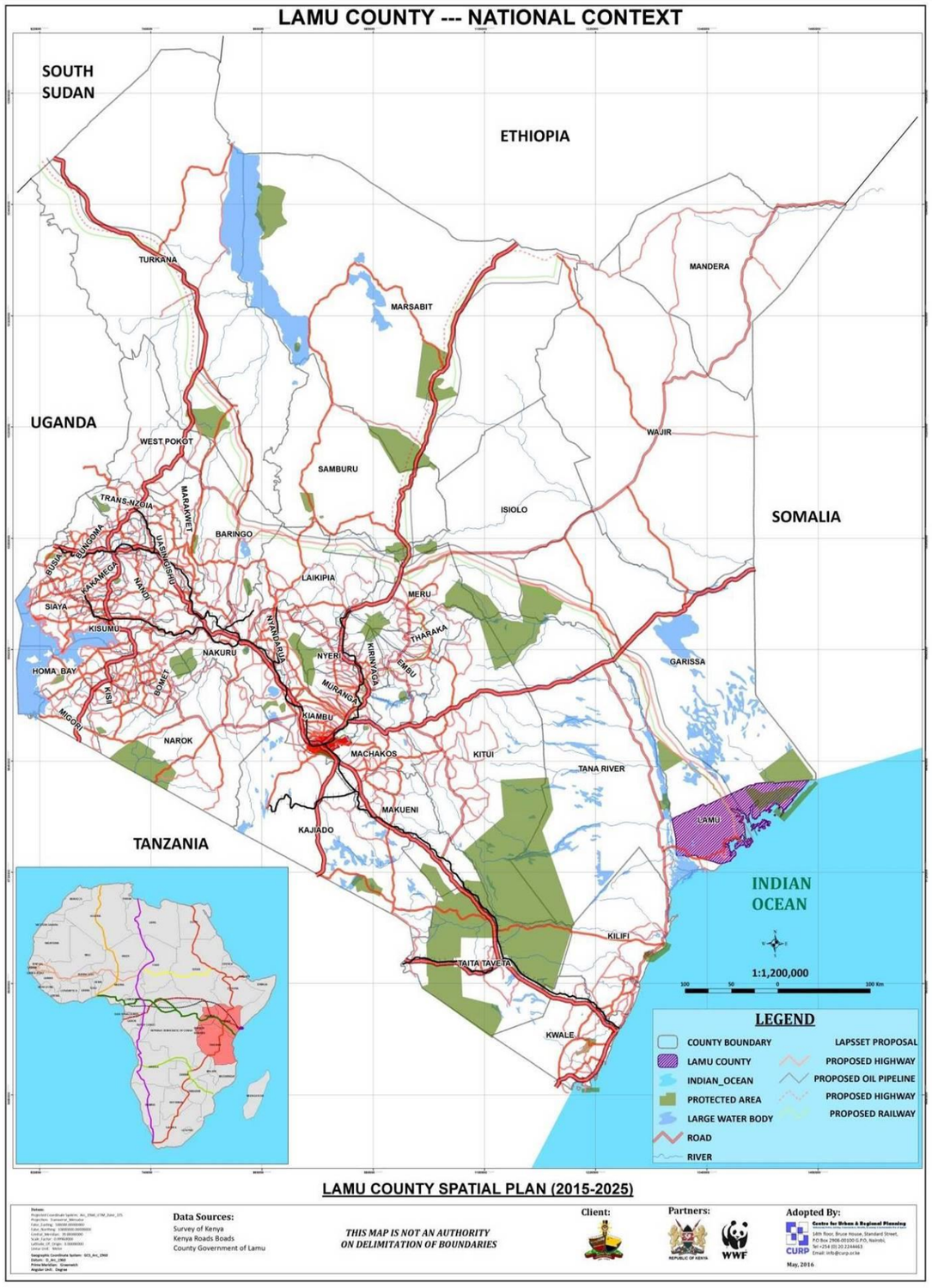
Table 3.1: Lamu County Wards

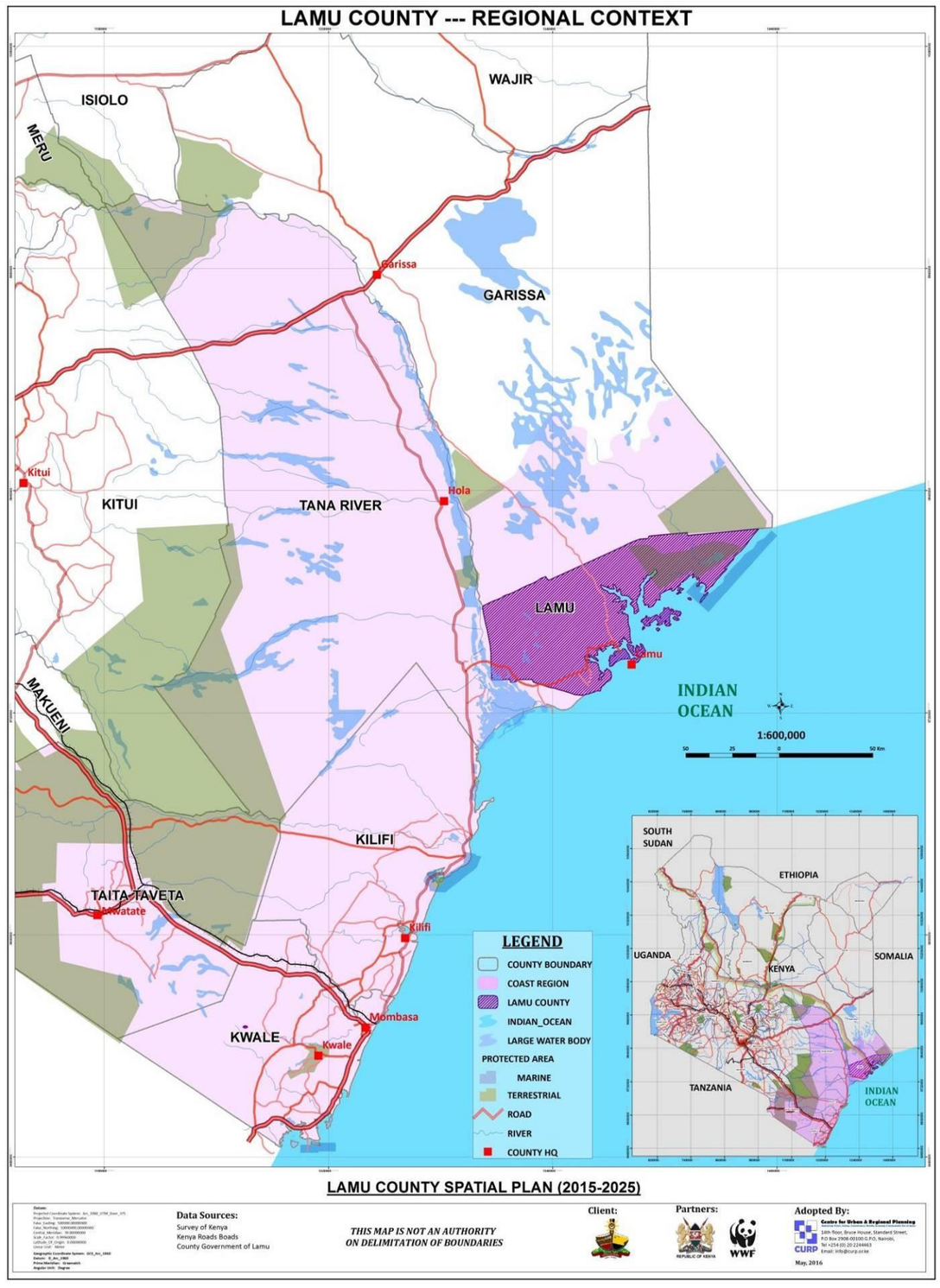
SUB COUNTY	COUNTY WARD	AREA (Km^2)
Lamu East	Basuba	1708.7
	Kiunga	513.9
	Faza	79.2
Lamu West	Mkunumbi	1366.1
	Hindi	1150.8
	Witu	975.4
	Mkomani	172.5
	Hongwe	128.5
	Bahari	123.3
	Shella	54.7

Source: Lamu County CIDP 2013-2017

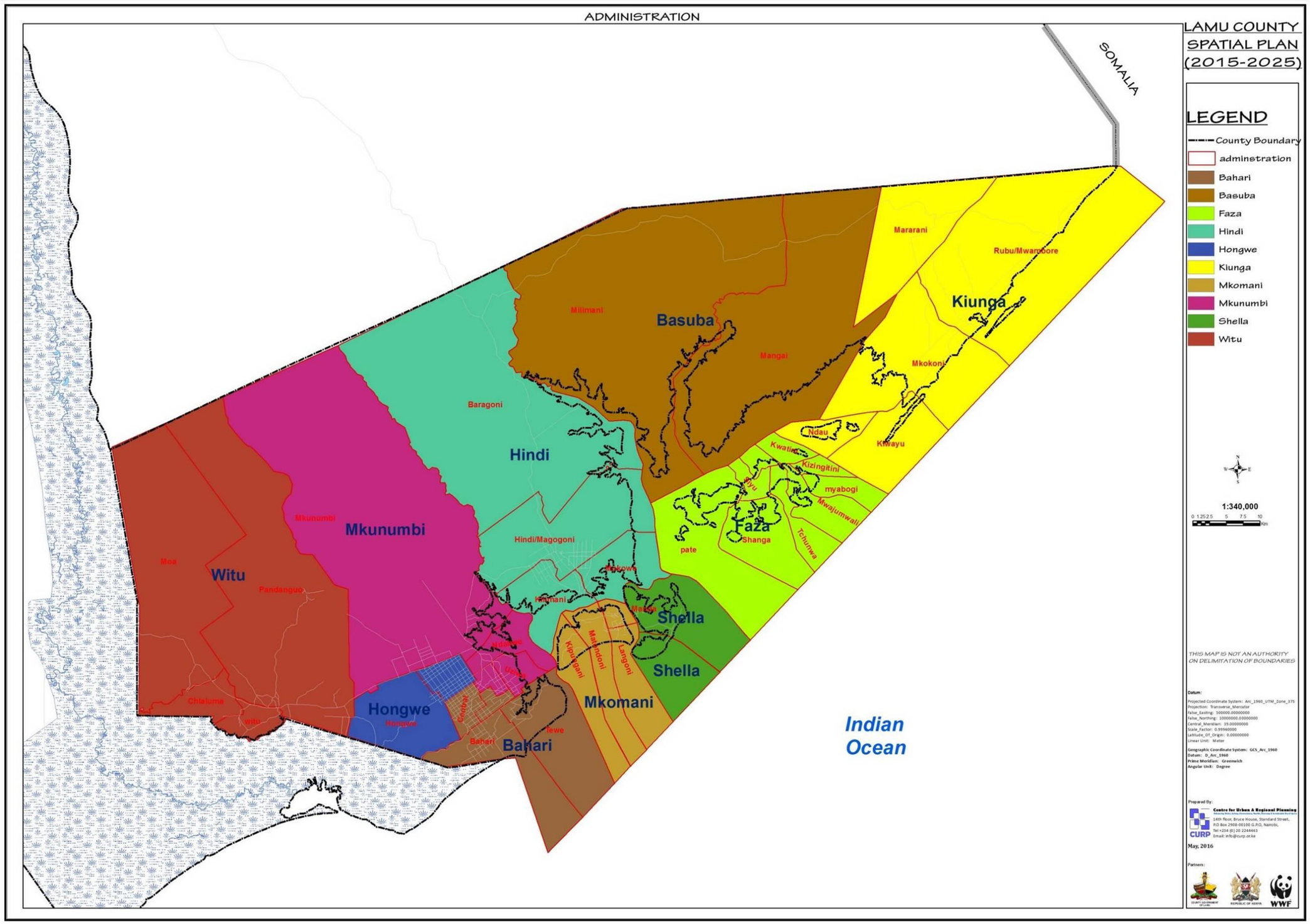
The National and Regional Contexts of Lamu County are as shown below:

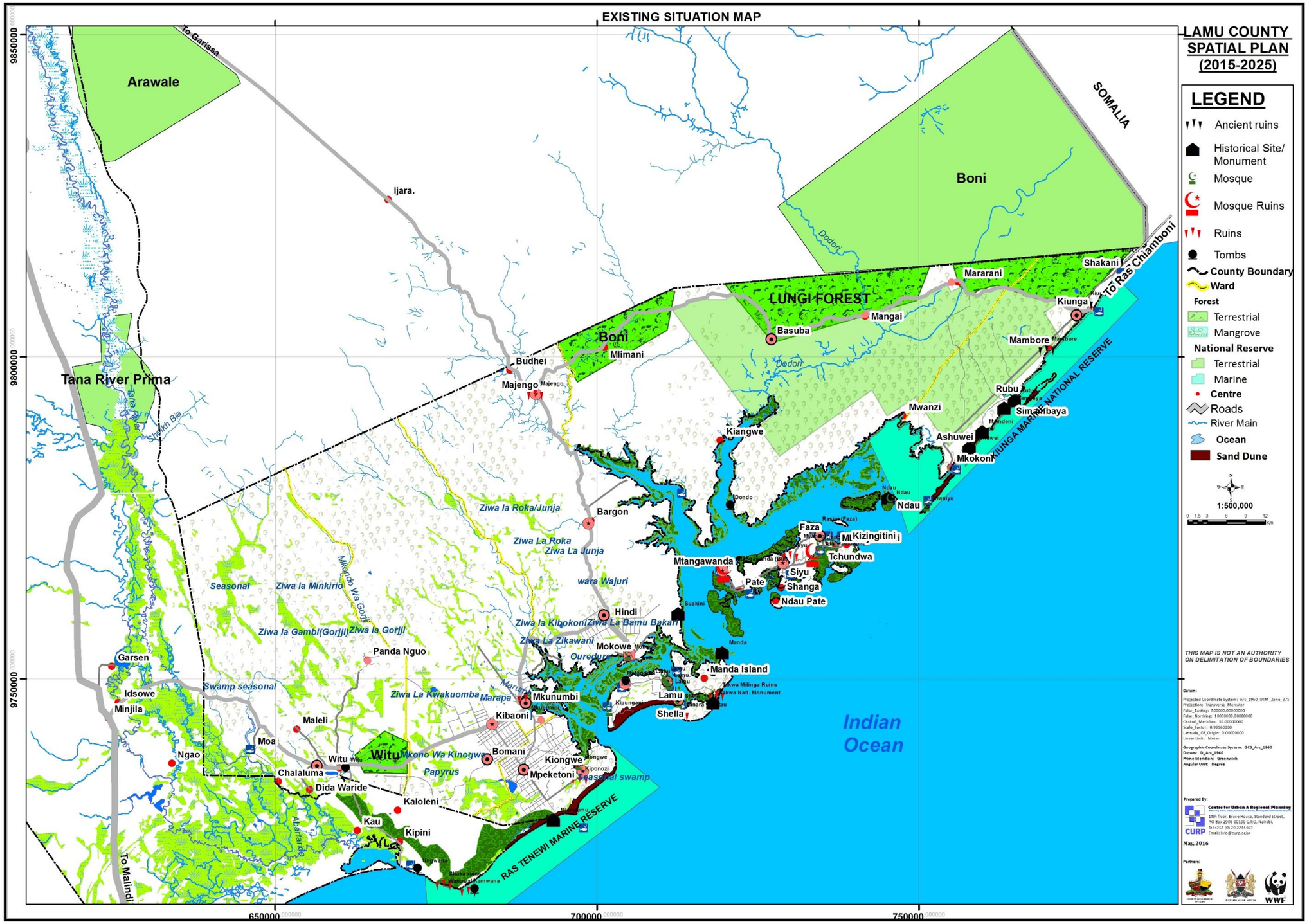
Map 1: National and Regional Contexts of Lamu County





Map 2: Lamu County Administrative Boundaries Map





Map 3: Lamu County Base Map



CHAPTER 4: THE PHYSICAL, NATURAL RESOURCES AND ENVIRONMENT

4.1 OVERVIEW

Lamu County has unique physiographic features that influence the County's rich natural resources. The natural conditions experienced within the County favour a wide array of activities ranging from agriculture, livestock keeping, fishing (both fresh water and marine), to tourism and biodiversity conservation. The County's environmental profile depicts rich and diverse ecologically sensitive natural resources that are being impacted by climate change and development. Changes in the natural environment of the County affects community livelihoods and culture, biodiversity habitats and ecosystems and consequently the economic wellbeing of Lamu County, Kenya's Coast region and the nation at large.

This chapter analyses the physiographic and natural conditions in Lamu County relating it to the County's natural resource base. It also analyses the environmental profile of the County highlighting issues of environmental concern on climate change, natural resource exploitation, urbanization and human settlement.

4.2 PHYSICAL FEATURES

4.2.1 TOPOGRAPHY AND DRAINAGE

Lamu County is generally flat, and mostly lies between altitude zero and 50m above sea level. This is with the exception of the coastal sand dunes and the Mundane sand hills which also hardly exceed 50 m above sea level and few of them exceed a gradient of 5^0 (GoK, 1985). The highest areas of Lamu County are around Samburu Sand Hills (GoK, 1985) and the Boni-Lungi Forest ecosystem. Some areas of the County's mainland such as Mokowe, are below the sea level as a result of the areas being a limestone karst terrain (NEMA, 2015). The County's flat topography makes it prone to flooding during the rainy seasons and periods of high tides (CGL, 2013). The flood prone areas include areas around Lake Kenyatta (Mkungunya) in Bahari Ward, along Tana River delta especially around Moa and Chalaluma areas in Witu, archipelago islands such as Pate and Manda and areas along the coastal line.

The main topographic features in the County are the Inland Plain, the Coastal plain, island plains, the sand dune system, the Tana River Delta, the Dodori River plain, Coastal islands and the Indian Ocean (CGL, 2013). See *Map 4.1* Overleaf. The most extensive terrain in Lamu County is the Inland Plain which occupies the northern and western-most part of the County. The inland plain is punctured with seasonal water bodies being mostly large swampy areas and lake wetlands such as Lake Mkungunya, Lake Amu and Lake Moa. The County's coastal plain covers most of the coastline but is interrupted in some areas by the coastal sand dunes (GoK, 1985).

The Sand dune system is found mainly in the North-Eastern part of the County and in Southern most coastal areas. The Mundane sand hills known as Samburu Hills are the highest in the County reaching a height of nearly 100 m above sea level. The system is very important because it is a source of freshwater (GoK, 1985). The Tana Delta is found on the South-western part of the County in Witu and is characterized by the presence of several seasonal meandering channels, with only one being permanent, and ox-bow lakes. The Dodori River Plain is a riverine terrain found mainly within the Dodori National Reserve.

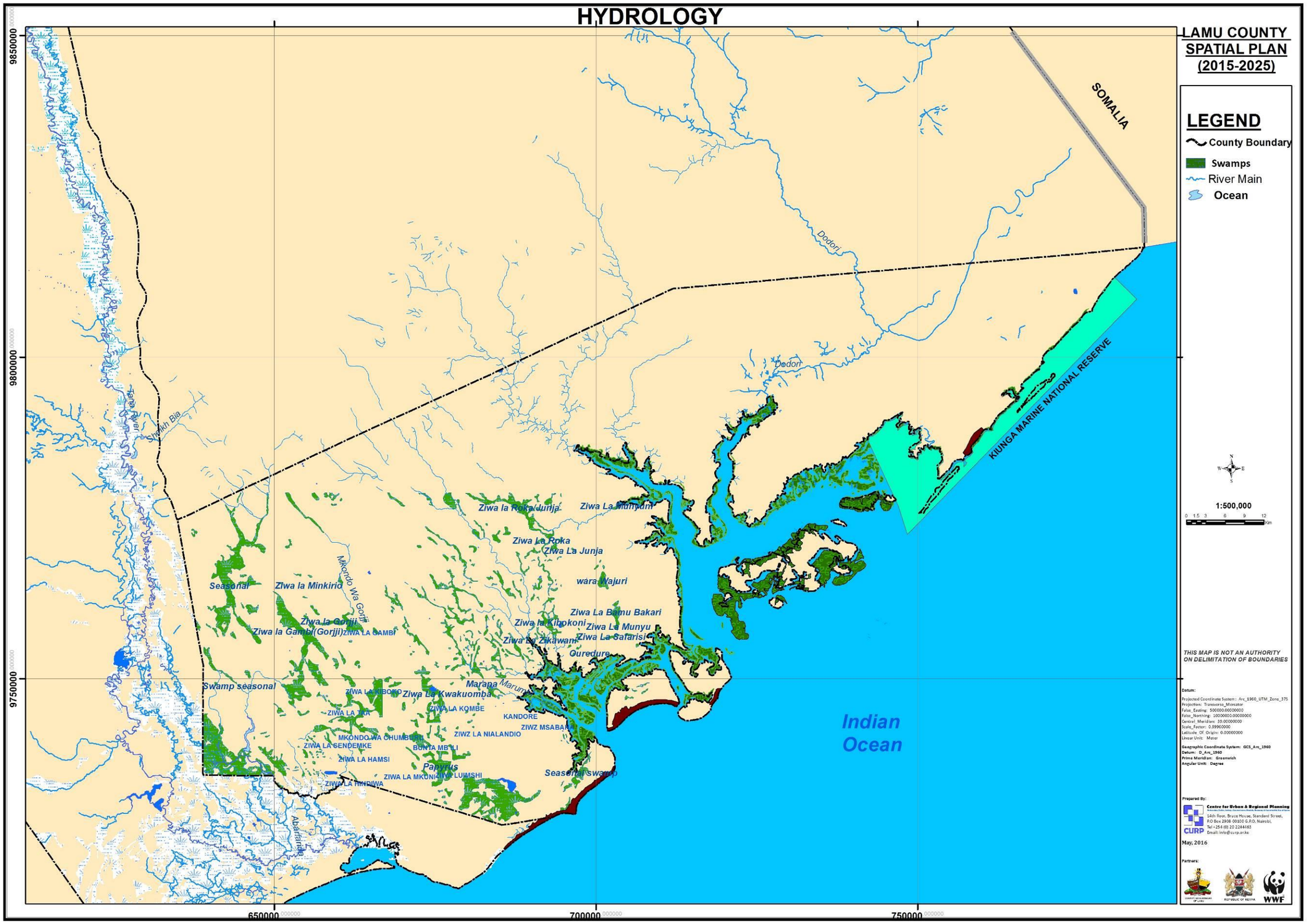
Lamu County is poorly drained because it has karst (underlying porous limestone) terrain and sand deposits, which allows most of the surface runoff water to completely percolate into the ground. This has resulted in poor surface and spring water supply, within the County, especially during the dry season (NEMA 2015). The County has four major water catchment areas categorized as Dodori, coastal zone, Duldul, the Lamu bay drainage and Tana River catchments (CGL, 2013). Lamu bay drainage comprises a significant area of Lamu's Coastline which is covered under sand dunes that are a catchment area for groundwater which are recharged directly from rainfall and seasonal run-off. The groundwater water serves settlements with freshwater. The Tana River which enters the Indian Ocean at Kipini in the neighbouring Tana River County, has parts of its Delta within Lamu County. The hydrology of the Tana river delta influences the ground water resources in southern part of Lamu County (NEMA, 2015).

The Dodori channel and river Mangai are the only all year flowing drainage channels within Lamu County. Every year, large quantities of water from outside the County flows through these drainage ways to the Indian Ocean. There are few seasonal streams which flow from the northwest towards the south-eastern part of the County in a direction perpendicular to the Indian Ocean coastline. These streams do not drain into the Indian Ocean rather drain into the limestone karsts and therefore contribute to groundwater in the County (NEMA, 2015). The most important of the seasonal streams are: Arosen, Duldul, Mkondo wa Bargoni, Mkondo wa Kareni, Kitoko, Mkondo wa Mkuyuni near Witu, Hadhi and Kibokoni Lake. Other Seasonal streams include *Marumbi, Mkondo Wa Balesangh, Mkondo wa Chumburu, Mkondo Wa Daitti, Mkondo Wa Gorjji, Mkondo Wa Matomo, Mkondo wa Mkumbi, Mkondo wa Mkuyuni, Mkondo wa Muuni, Mkondo wa Nure, Mkondo wa Nyangoro* and *Mkondo wa Sakuto* (**See *Map 4.1* Overleaf)**

Between the mainland and the islands' archipelago, and between the islands themselves, are stretches of inland waters including the Dodori Creek, Mto Wange Creek, Ndau Bay, Mto wa Hidio, Mto wa Kipungani and Mto wa Mkunumbi. There are also a number of small and shallow typical oxbow lake wetlands in the mainland of Lamu County, most of which are ephemeral. These are mostly remnants of the various meanders of the Tana River and include lakes Moa, Mkunguya (Kenyatta) and Amu in Mpeketoni and Dide Waride. These lake wetlands are either recharged through ground water seepage or by the periodic flooding. (WWF, 2014). Lake Mukungunya in Mpeketoni which is only permanent open water site in the County which recently has been decreasing in water volumes due to rampant human activities around it. Some of the lake wetlands, especially the smaller ones in Pandaguo area, show swamp characteristics.

As a matter of priority, it is critically important that all these fragile drainage ecoystems in the County are well protected and conserved in their natural setting and buffered from any sort of human encroachment that would otherwise result in their degradation. It would be plausible enough that no human development or activities is allowed on these ecosystems since they serve very important natural environment functions. Most of these critically fragile drainage ecosystems are shown below.

Map 4: TOPOGRAPHY AND DRAINAGE MAP



4.2.2 GEOLOGY AND SOILS

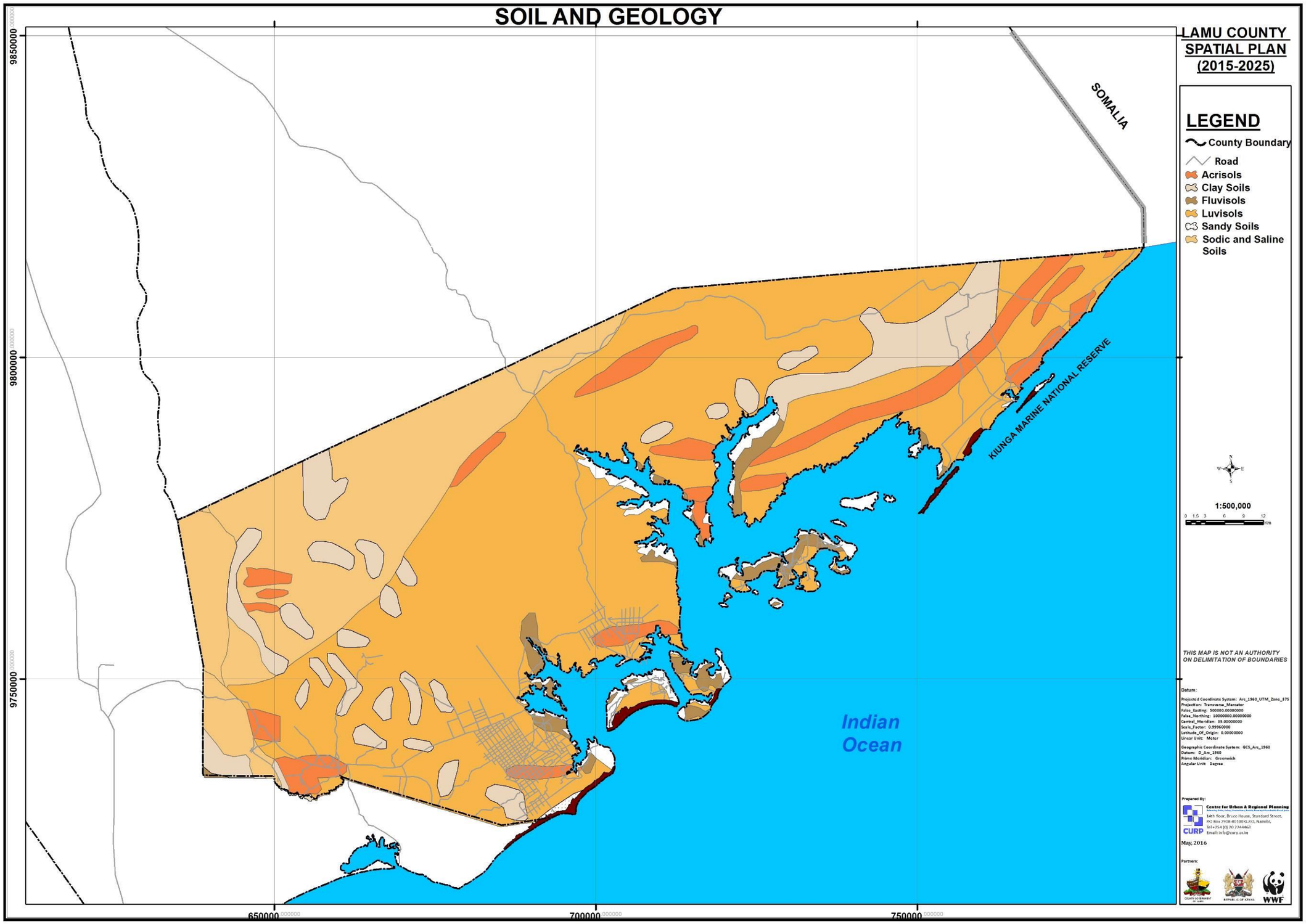
The tectonic processes that opened up the Indian Ocean resulted in the formation of sedimentary rocks, both along the coast line, into the ocean, and offshore. Much of the Kenyan coast is formed by low, about 4 to 6m high limestone coral cliffs (WWF, 2014). The principal soil types in Lamu County include a narrow strip of coastal sands towards the north where it is permeated by narrow bands of grumosolis brown clay soils. The soil south of the County is composed of bialternate bands of loams beyond which the grumosolis are permeated by thick bands of ash and pumice soils (WWF, 2014). This geology influence groundwater availability.

The porous parent material of the soils in Lamu County originates from marine (none)-consolidated sediments. These soils are generally shallow and poor for agricultural purposes and are prone to water logging. Soils found Northwards of the County, have low fertility similar to soils formed on former coastal beach ridges which are often orientated in a South West-North East direction. Southwest from Lamu, soils on sand dunes are of low to very low fertility while those in the coastal plains have low to moderate fertility. However, patches of highly productive soils have been observed in areas of alluvial deposits. Soils in the bottomlands and in the plains to the west of the County have high fertility and if not too shallow, some solids on coral rock are relatively fertile.

This depicts a geomorphology composed of residual coral limestone and columns of sand. Rock outcrops occur in the islands of Manda and Kiwayu while sand dunes are found in Lamu Island, Kiongwe and parts of Mkokoni in Kiunga. Fossil coral reef deposits form the Coastal Plain, with reef flats or gently sloping beach formations, while beaches sheltered behind fringing reefs typically are backed by one or a series of wind-blown sand dunes up to 30m in height (e.g. north of Kipini, Shela, Kiwayu and Mkokoni). River plumes reduce, and sometimes prevent, offshore coral growth, particularly in the south of the seascape from Kipini to Lamu. From Lamu Island all the way to Ishakani, the reef is discontinuous and broken into islands and patch reefs (WWF, 2014).

The map below has been used to indicate the soil occurrence and distribution in Lamu County:

Map 5: Soil and Geological Characteristics



4.2.3 CLIMATE AND WEATHER

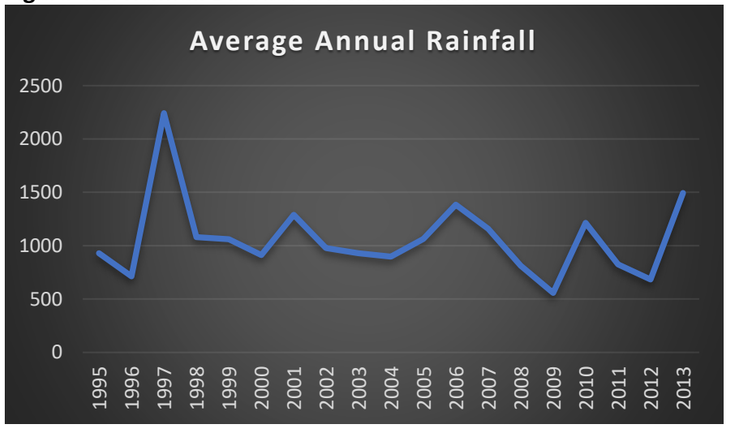
The Climate of Lamu County is difficult to describe accurately because there are very few local recording stations. However, based on the Köppen-Geiger climate classification, Lamu County can be said to be between the Tropical Monsoon and Arid Steppe Hot climate (Peel et al. 2007). This Climate is conditioned by biannual movement of the inter-tropical convergence zone and two monsoons, namely North Eastern ("Kaskazi") and the South-Eastern ("Kusi"). The County lies within the 600 to 2300mm isohytes annually (***See map 4.3 overleaf)*** and is characterized by a bimodal rainfall distribution and a mean temperature of 28°C.

4.2.3.1 Rainfall

The rainfall pattern in Lamu County is greatly influenced by the Monsoon winds with the long rains falling between late March and early June with May being the wettest month. Light showers fall in July and decreasing from August. The short rains come in November and December decreasing rapidly to a minimum in January and February (WWF, 2014). January to March are usually dry months. The degree of reliability of the short rains decreases from South to North.

The highest rainfall is recorded around Kenyatta settlement scheme, Hindi, immediate area surrounding Witu, and the western side of Lamu Island. The total annual rainfall ranges recorded annually are suitable for development of various industries in the County including Agriculture, Livestock ranches/wildlife conservancies among others.

Figure 4.1: Rainfall Distribution within Lamu

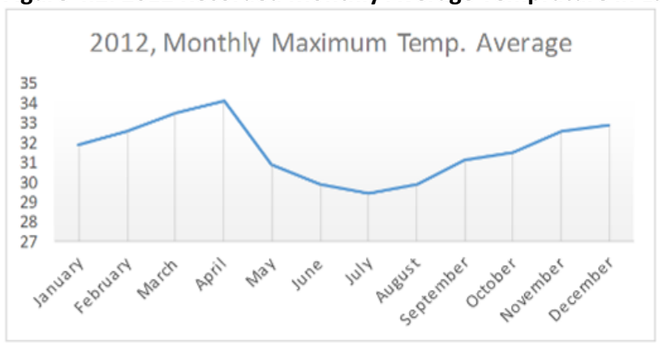


Source: Lamu Meteorological Station, 9240001

4.2.3.2 Temperature

Temperature throughout the County is usually high ranging from 23 degrees Celsius to 30 degrees Celsius. The mean annual minimum and maximum temperatures range between 24 degrees celsius and 34 degrees Celsius respectively. The hottest months are December and April while the coolest months are May and July. The temperature graphs as recored in meteorological stations are shown below:

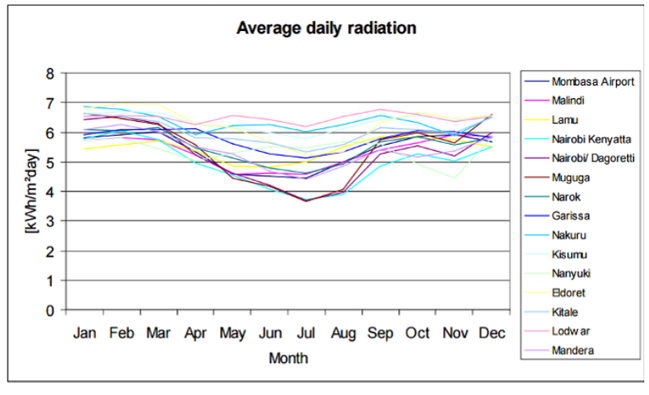
Figure 4.2: 2012 Recorded Monthly Average Temprature in Lamu



Source: Lamu Meteorological Station, 9240001

Lamu County experiences 5 to 6 kWh/m^2/day (Figure 3) levels of insolation. Solar irradiation on Lamu Island for example is about 2200 kWh per m^2 a year, equal to 250 W per m^2. This means the islands full electricity need would be covered by 2.3 hectares of PV panels of 15 percent efficiency, an area of just about 150x150 meters or two football fields (Archer, 2012) providing heat for institutions, households and industry.

Figure 3: Average Daily Radiation Measured at 15 Meteorological Stations in Kenya by Month of Year in the Period 1964-1993



Source: Energy Regulatory Commission (ERC), 2011

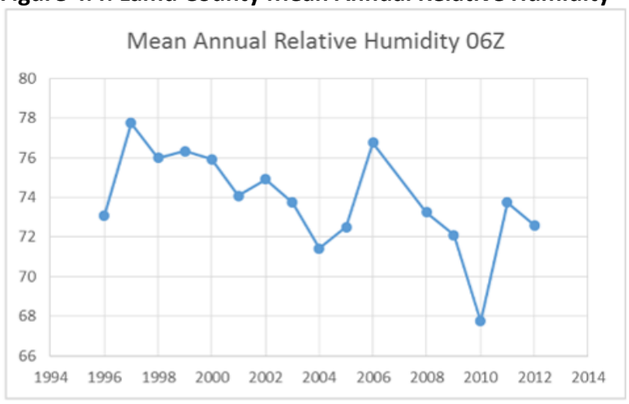
The high solar potential in Lamu County shows that investments in solar energy generation in the County can not only ensure adequate load for solar equipment but also increase the accessibility to electricity and other benefits of solar energy resources to more residents of the County especially those who inhabit rural areas with little or no access to electricity currently.

4.2.3.3 Relative Humidity

The mean relative humidity in the County is 75%. The total amount of evapo-transpiration is 2,230m per annum, with the highest values occurring in March and September and the lowest in May. The high relative humidity levels in Lamu discourage certain development land use aspects as the proposed coal Plant under LAPSSET as the resultant emissions will be absorbed in the evaporation processes resulting to destructive rains as opposed to productive rains.

The graph below shows the relative humidity intensity as recorded in the meteorological station in the County:

Figure 4.4: Lamu County Mean Annual Relative Humidity

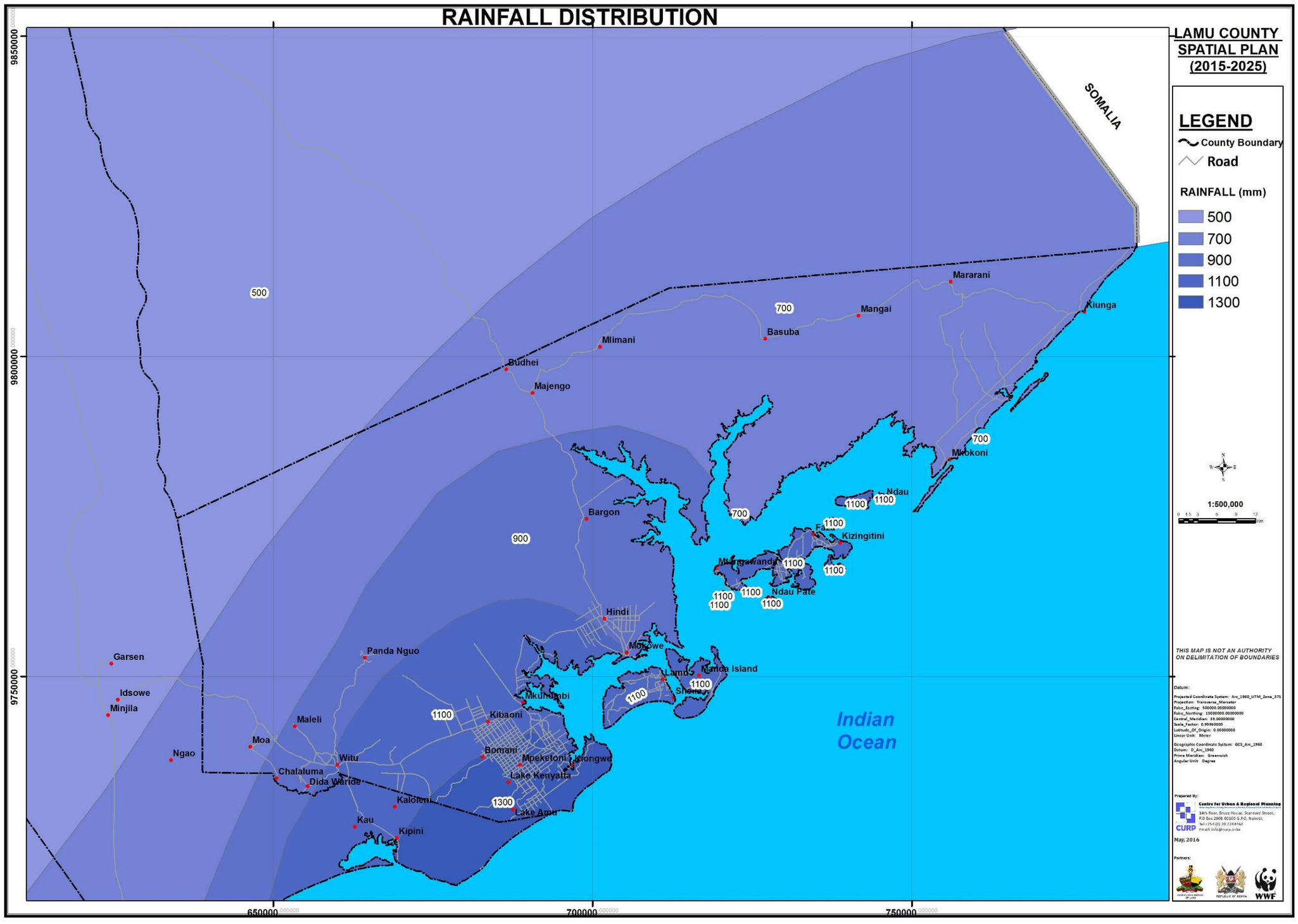


Source: Lamu Meteorological Station, 9240001

4.2.3.1 Wind Patterns

Lamu County experiences strong winds through out the year. The strongest winds blow during the Northeast monsoon (NEM) locally referred to as *Kaskasi* and the Southeast monsoon (SEM) locally referred to as *Kusi.* **SEM** runs from May to September and **NEM** from November to March with high wind speeds of up to 100 knots. Such winds necessitate tapping them for energy and possibly validates the proposed Wind Power Generation Project site at Baharini.

Map 6: Rainfall Distriution Map



4.3.1 AGRO ECOLOGICAL ZONES

Due to the physiographic climatical and other natural conditions discussed above, the County is made of two broad economic zones covering the mainland for agriculture and livestock keeping, conservation and freshwater fishing and Islands for marine activities. The different agro-ecological zones are highly influenced by the rainfall variability patterns experience throughout the County and somehow define the natural potential of Lamu County.

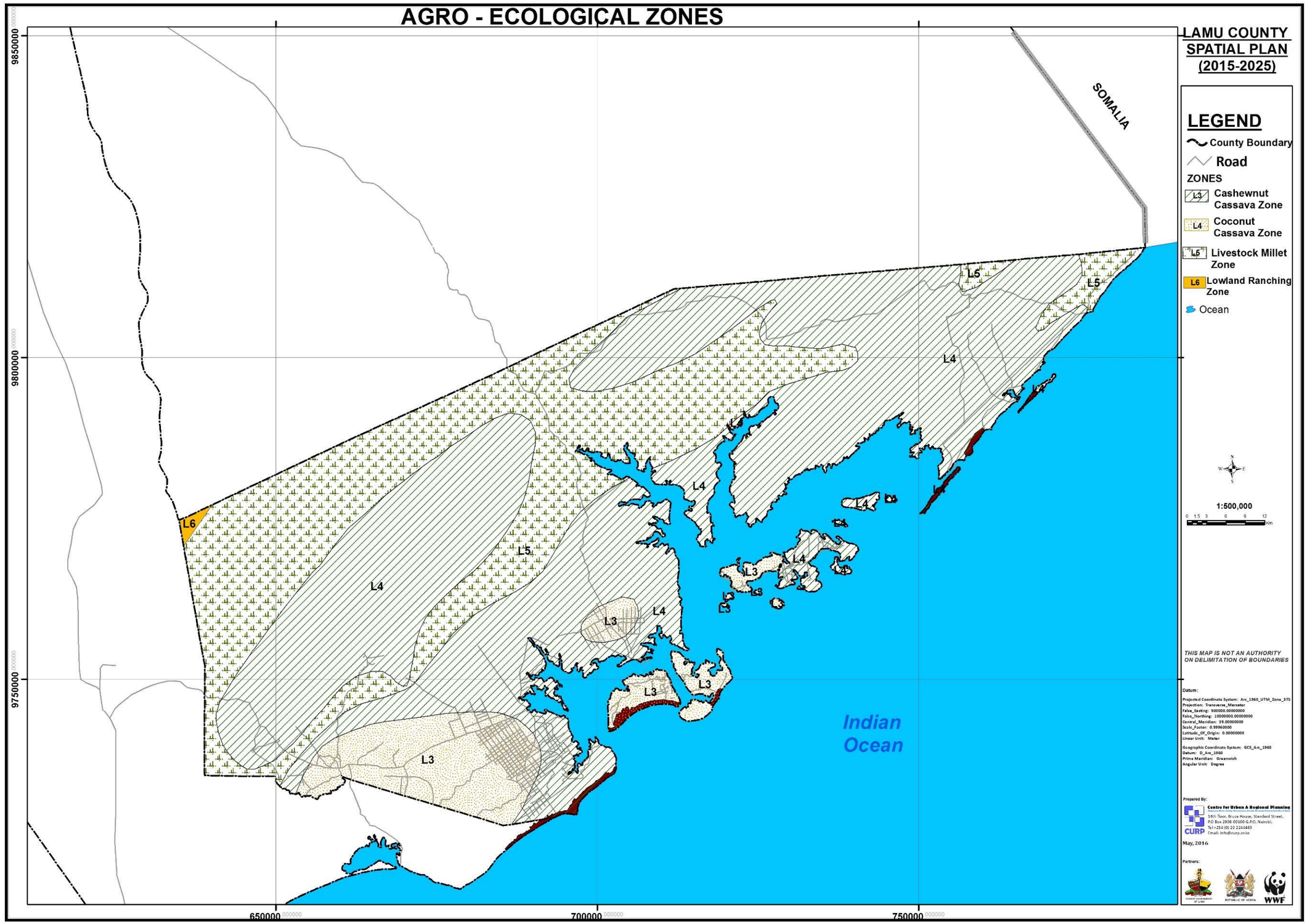
The Zones are as indicated in the table below;

ZONE	DESCRIPTION	AREA/LOCATION	SUITABLE CROPS
L3 – Coconut Cassava	Intermediate rains (Starting end of March – July) and short one (From Mid-October), loam soils, prone to water logging	Kenyatta settlement scheme, part of Lamu Island and Hindi	Maize, millet, ground nuts, soya beans, sim sim, green grams, cow peas, cotton, tomatoes, kales, Chinese cabbage, chillies, sweet pepper, pumpkins, onions, melons, cucumber, garlic, cashew nuts, bixa, paw paws, cassava, guavas, bananas, lemons, oranges, pineapples, mangoes, grapefruits, coconuts
L4 – Cashew Nut - Cassava	Two rain seasons, Dry forest patches characterized by presence of tsetse flies near forests, duom palm savannah on lower places, medium and light soils	Along the lower coastal strip and covers the larger parts of the islands	Cassava, Cashew nuts, Maize, Sorghum, Millet, Ground nuts, Kales, Onions, Pumpkins, Chillies, Pepper, pastures and forage, sim sim, and tomatoes
L5 – Livestock-Millet Zone	Light soils, 1st rain (from April)		Mangoes (whole year), bulrush millet, maize, pasture and forage, marana beans, cassavas, and water melons
L6 – Lowland Ranching Zone			Cashew nuts, buffalo gourds

Source: Farm Management Handbook, 1985

The spatial distribution of these zones can be represented as in the map below:

Map 7: Agro-Ecological Zones of Lamu County



4.3 NATURAL CAPITAL ASSESSMENT OF LAMU COUNTY

This section analyses the naturally occuring assets that can be used for economic, social or other gain. These assets usually are either renewable or non-renewable and it is paramount to note that the utilisation of these resources has an impact on both the current and future generations. This Plan established that Lamu County has rich and unique natural resources, both the terrestrial and marine which are habitats of living organisms and from which communities in Lamu have been deriving various services and drawing their livelihoods from. Most of these natural assets need to be highly conserved and protected from foreseen development impacts of human activities.

On that note, a number of natural capital asset categories were identified. These include:

The arable land, grazing lands, terrestrial forests, fresh water and terrestrial species. Arable lands are found in Witu, Mpeketoni, Pandanguo, Amu Ranch, Hindi and Mokowe where local communities undertake cultivation of food and cash crops for subsistence and commercial farming activities.

Grazing lands are found in Moa, Witu, Nyogoro, Pandanguo, Lake Kenyatta, Amu, Mkunumbi, Koreni and Hindi. Forest assets include Witu Forest Reserve, Dodori National Reserve (DNR), Kipini Provisional Forest, Boni-Lungi forest ecosystem, Pandanguo forest, Amu Ranch forest as well as open forest areas. Fresh water resources comprise of aquifers (Shela, Vumbe, Chomo, Belebele, Witu North), Lakes Moa, Witu, Amu and Kenyatta and River Mangai.

A range of terrestrial species occurs in Lamu County including endangered species Aders duiker *Sylvicapra grimmia* and Hirola antelope *Beatragus hunteri.* Buffalos and Topi are the most common herbivores while carnivores include the Vulnerable wild dog *Lycaon pictus*, spotted hyena *Crocuta crocuta*, aardwolf *Proteles cristata*, leopard *Panthera pardus* and *lion Panthera leo*. Both endangered *Euphorbia tanaensis* and high value tree species comprised of *Afzelia quanzensis* (Mbambakofi) and *Milicia excels* (Mvule) among others occurs in the County. The County has two Important Bird Areas (IBAs); Kiunga Marine National Reserve (KMNR) and Dodori National Reserve (DNR). Over 283 bird species have been recorded within the County (Kenani, 2015).

Many of Lamu's natural assets are on a steep downward trend due to human pressures. Mangroves and terrestrial forests are declining particularly rapidly, in terms of both quantity (e.g. habitat area and species populations) and condition. Kenya has already lost almost 40% of its mangroves in the last 30 years, mostly from Lamu County (which hosts some 70% of Kenya's total mangrove stock). Water sources (e.g. rivers and aquifers) and marine fish stocks are also being rapidly depleted and/or degraded as a result of the unmitigated human activities on most of these natural assets that act as their habitats or breeding grounds. This continued degradation need to be stopped and/or reversed to maintain the sanctity of Lamu County.

Among the greatest threats affecting Lamu's natural assets are the clearance of habitats including mangrove forests, as a result of the LAPSSET project (some components of which are already under construction, such as the three pilot port berths). Other threats include conversion of forests into farmlands (which is increasing the area of agricultural land) and increased extraction of natural resources (e.g. water, timber and fish) by the growing population.

Natural capital within the Marine context includes the marine fishery which is exploited for lobsters, prawns, mixed demersal fish, tuna and pelagic. The crustacean fishery is primarily based on five species of spiny lobster and five (5) species of prawns (WWF, 2014). Rabbitfish *Siganus sutor,* the emperors *Lethrinus lentjan* and *L. mahsena*, the parrotfish *Leptoscarus vaigiensis*, *Lutjanus fulviflamma* and *L. argentimalatus,* sweetlips *Plectorhinchus gaterinas* and *P. gibbus* are the dorminant species landed.

4.3.1.1 Wild Life & Forest Ecosystems

The terrestrial fauna includes many species of birds, reptiles including crocodiles, mammals (pigs and monkeys) and insects found within Kiumga, Hongwe, Bahari and Hindi.The Cape buffalo, herds of the endangered hirola hartebeest are found within the Dodori River, Amu Ranch and the Tana Delta. Crocodiles and hippos live in the fresh water rivers and water catchments and new species such as the Oribi antelope, usually found on the western borders of Kenya, have been found in the area. Fish eagles circle the channels and Carmine bee-eaters roost on the sheltered islands. Many smaller species such as the Southern banded bushbuck, porcupines, vervet monkeys and bush babies also live on the islands.

Additionally, the two main forests namely Dodori and the Boni-Lungi forest are classified by the Conservation International as "Biodiversity hotspots" and the areas rich forest land,savannah woodland and thicket supports significant populations of Wild animals and habitats. Apart from the Main forested areas of of Boni and Dodori, there exists smaller pockets of protected forests in areas of Witu, Lungi, Pandanguo, Kipini and the Lake Kenyatta buffer zone. It is very important that this bio-diversity is promoted. Consequently, this Plan identifies these areas as key conservation areas to be utilized for wildlife conservation and their linkage as wildlife habitats and corridors promoted.

4.3.1.1 Boni – Lungi Forest Ecosytem

The Boni-Lungi Foest ecosytem comprises of Boni Forest and Lungi Forest reserves, the Dondori National Reserve, mangrove swamp, lowland dry forest, marshy glades and ground water forest, and is bisected by the Dodori River. This ecoregion is in good condition over large areas and represents a junction of the Somalian and East African flora and fauna. Many species within this ecoregion are at the limits of their ranges and there is likely to be increased endemism as a result (WWF, 2002).

There is unfortunately inadequate knowledge of the biodiversity values of this ecosystem because of security problems in the area. However, this ecosystem hosts a vegetal diversity mainly consisting of coastal and riverine forests, mangroves, swampy grasslands and savannah. It contains important hardwood resources, e.g. *Brachylaena huillensis*, or *muhuhu*, a sought-after species that has been over-exploited elsewhere. Away from the rivers and channels, impenetrable thornbush is scattered with gigantic baobabs (WWF, 2013).

This forest ecosystem has high conservation value as an area supporting the restricted Eastern African Coastal Forest ecotype, as an elephant recovery nucleus and as a site where the critically endangered hirola antelope occurs. With its palatable browse and scattered surface water, Boni Forest historically has been an important refuge for elephants. Furthermore, their uninterrupted linkage with the forest ecosystems to the South West of the County including Witu forest, Amu Ranch and Kipini conservancy

as wildlife habitat and corridor as earlier alluded to need to be promoted.

4.3.1.2 Witu Forest Ecosystem

Witu Forest Ecosystem (WFE), includes the Witu Forest Reserve, Kipini Provisional Forest and the Lake Kenyatta ecosystem (KFS, 2015). Intensified human activities to increase farm lands around these ecosystems have led to their continued degradation. This continued threat to their existence need to be properly mitigated and the areas protected by policy, legislation and enforcement for conservation purposes

Witu forest reserve is known to hold at least nine species of threatened Plants, including the critically endangered *Euphorbia tanaensis* that is endemic to Witu forest in the world. The Woodland and wooded grassland is however, the largest vegetation type, linking with other vegetation types in the ecosystem, important grazing area for Buffalo, Topi, Waterbuck and Bushbuck. The forest also has a coastal bush land thicket which is a large intact vegetation type that provides refuge for large mammals such as elephant, buffalo and lion as well as coastal specialist species such as Suni and Harvey's duiker (KFS, 2015).

Additionally, eighty-five species of birds have been recorded in Witu forest. Observations include the near threatened Southern Banded Snake-eagle and Fishers Turaco. In addition, the regionally threatened Saddle-billed Stork, African Crowned Eagle, Little Yellow Flycatcher and Scaly Babbler have been recorded. Of the observed species, the Little Yellow Flycatcher, Mombassa Woodpecker, Chestnut-fronted Helmet-shrike and Fishers Turaco are endemic to the Coastal Forests of East Africa.

The great biodiversity offered by these forest ecosystems and the importance they hold as pristine ecosystems for Lamu County can not be over looked. The forests offer measurable means of livelihood sustenance and immesuarable health benefits by ensuring a clean environment through carbon sequestration. It is therefore important to note that this Plan strongly advances for their conservation without much alteration to their natural existence.

4.3.1.3 Wetlands & lakes

Lamus surface water consists of rainfall run offs that accumulates on the Limestone Karst terrain as natural wetlands or swamps. The many patches of wetland ecosystems spread across the County are very important for ground water recharge and this Plan advocates for their selfless conservation in a bid to ensure sustainable water supply. Lake Kenyatta and Lake Amu are the two main fresh water lakes in Lamu with Lake Kenyatta covering approximately 5km^2 and offers an ecological site for populations of fish, Hippos and birds.The people of Bahari, Hongwe and Mkunumbi Wards rely on the lake for fishing and as a source of fresh water.

MARINE ECOSYSTEMS

This ecosystem consists of a wide range of features ranging from the physical, chemical and geographic variations within the Indian Ocean Coast. The Kiunga –Lamu seascape provides rich marine habitat thats offers a diversified support of the economic livelihoods of its inhabitants hence contributing to the different sectors of the economy such as tourism sight seeing, fisheries, Research and conservation. Among other important marine ecosystems, the following have been discussed:

4.3.2.1 BEACHES & SAND DUNES

There are several sandy beaches along the Lamu coastline, the major ones being in Lamu Island, Manda Island, Kiwayuu, Mkokoni area, and in Bahari Ward around Kiongwe area. Beaches provide nesting grounds for sea turtles, and an important habitat for shore and migratory birds. They are important in providing access to the sea for fishing, recreation and tourism. Most of these beach fronts are sheltered off from the mainland by sand dune ecosystems. These sand dunes are vital in preventing water overflow to the dry land. Among other functions, the sand dunes are known to assist in the retention of freshwater tables against saltwater intrusion.

Indeed, the supply of drinking water in Lamu Island and the hotels in Manda is sourced from the large sand dune ecosystem in Shella stretching to Kizingoni. The continued encroachment on the dune will ultimately result to continued fresh water depletion in the Island. That is why this Plan strongly advances for the protection and conservation of these very fragile ecosystems yet very important ecosystems as key assets to the County.

4.3.2 CREEKS, ESTUARIES AND MANGROVE FORESTS

Lamu County is well endowed by large tracts of mangrove forests which have been estimated to be more than 70% of Kenya's total mangrove forests. Their natural occurrence is mostly found on the many creeks/estuaries of the Lamu Coast line. It is on these creeks that most marine habitats and rich fish production obtained. The Dodori creeks and inlets for example serve as ideal breeding grounds for marine animals such as dugong and the green turtle (KWS, 2013) which are highly endangered species the world over.

The forests form a very important value in terms of biodiversity, climate protection (blue carbon), fishery, nature-based tourism and coastal protection. Some of these values are presently threatened by the ongoing construction of the port under LAPSSET project.

In 2004, the total mangrove forest in the country was recorded as follows:

Figure 4.5: Areas of Mangrove on the Kenyan Coast

LOCATION	COUNTY	AREA(Ha)
LAMU	LAMU	30475
KIUNGA	LAMU	3025
KIPINI(WITU)	TANA RIVER	1595
MTO TANA(WITU)	TANA RIVER	250
MTO KILIFI(WITU)	KILIFI AND TANA RIVER	2335
MTO FUNDISA(WITU)	KILIFI	330
NGOMENI	KILIFI	1815
MIDA CREEK	KILIFI	1600
TAKAUNGA	KILIFI	30
KILIFI CREEK	KILIFI	360
MTWAPA CREEK	KILIFI AND MOMBASA	525
TUDOR CREEK	MOMBASA	1465
PORT REITZ	MOMBASA AND KWALE	1575
MAFTAHA BAY (GAZI)	KWALE	615
RAS MWACHEMA	KWALE	5
FUNZI BAY	KWALE	2715
VANGA	KWALE	4265
TOTAL		52980

Source: Kairo G, 2004

Figure 4.6: Mangrove Area Distribution in the Kenyan Coast

COUNTY	AREA(Ha)
LAMU	33500
OTHER COUNTIES	19480
TOTAL	52980

Source: Kairo G, 2004

These figures can however be disputed in the current dynamics with certain authorities indicating that Lamu County has about 54,000 Ha of mangrove forests that are intact. These forests are key assets to the County with very many beneficial impacts resulting from their protection and conservation. Most of the mangrove species in Lamu County are utilized for direct economic benefits by the locals in construction (both houses & boats), for fuel, and for medicinal & food preservation purposes. Mangrove forests are perhaps the most important natural assets in the County.

Additionally, mangroves offer great value in terms of their environmental responsibilities and which could also be tapped into economic opportunities. Mangroves serve as the basis of a complex marine food chain which culminates in food for man both on a subsistence and commercial level; they create critical habitats for coastal fish and bird populations, stabilize sediments and protect shorelines, they improve water and atmospheric quality and they also contribute to the health of coral reefs among many other roles.

There 8 species of Mangroves in Lamu County namely: *Rhizophora mucronata, Ceriops tagal, Bruguiera gymnorrhiza, Sonneratia alba, Xylocarpus granatum, Avicennia marina, Lumnitzera racemosa and Heritiera littoralis.* The most common species in the County are the *Rhizophora mucronata* (the red mangrove) and *Avicennia marina.* The most preferred mangrove species for the mangrove poles and wood is the genus (*Rhizophora*) *mkandaa.*

Mangroves are important, too, in treating effluent resulting from storms, because the Plants absorb excess nitrates and phosphates, thereby preventing contamination of near shore waters. Moreover, they absorb carbon dioxide and store carbon in their sediments, thus lessening the impact of global warming. Mangroves also offer protection for associated marine ecosystems, such as sea-grass beds and coral reefs that depend on healthy mangroves to filter sediments and provide nursery grounds for resident species such as prawns which are harvested and sold.

According to new studies, mangroves may be the world's most carbon-rich forests, storing up to 50 times more carbon than tropical forests by area. Also, sea-grass beds and coral reefs depend on healthy mangroves to filter sediments and provide nursery grounds for resident species. The annual economic values of mangroves, estimated by the cost of the products and services they provide, have been estimated to be USD 200,000–900,000 per Ha (Wells et al., 2006).

This economic benefit can be well harnessed by the County Government of Lamu in its quest to increase its revenue base. The vast mangrove forests therefore need to be protected from degradation and unsustainable harvesting through corraborative efforts by both the KFS and the County Government if maximum economic and environmental gains are to be realized. This is because conserved mangrove forests means increased marine habitats, leading to increased fish production, clean and healthy environment and consequently a healthy population.

Figure 4.7: Lamu Mangrove Forest



Source: CURP, 2016

4.3.3 TANA RIVER DELTA AND INLAND WETLANDS

Tana River Delta is one of the six deltaic areas of Eastern Africa and the largest freshwater wetland system in Kenya. The Delta is located in Tana River and Lamu Counties and covers an area of more than 130,000 ha of which 69,000 ha are regularly inundated. It is rich in biodiversity and supports diverse species of flora and fauna. It is internationally important for the survival of no less than 22 species of birds "…making the delta one of the key sites in the country for water bird conservation" (Bennun & Njoroge, 1999). It also holds the breeding sites of valuable edible fish and shellfish.

It is important that the delta ecosystem is protected and conserved from any form of degradation and human encroachment on its reserves. This will go a long way in ensuring that the critical biodiversity protected by its expansive footprint spreading over to Lamu County are protected also. The delta footprint is also a place of last resort for wildlife and pastoralists looking for water during the drier seasons of the year and hence the emphasis and advancement given by this Plan towards its protection and conservation.

Additionally, most of the riverine and marshy wetlands in the south west of Lamu County discussed above drain to the ocean through the delta footprint. This makes them part of one ecosystem that is very important in supporting critical biodiversity including the human population either as habitat or source of water. As alluded above, their conservation will go a long way in ensuring that sustainable livelihoods are maintained for the longest time and generations to come.

4.3.4 THE LAMU SEASCAPE

The Lamu seascape is located at the northernmost part of Kenya's coast line. It starts from the Tana river delta in the South and stretches to the Kenya – Somalia border in the north (Olendo, 2015).

The Lamu archipelago comprise of approximately fifty-five islands which are mainly made up of fossilised sand dunes or raised beaches. Five main islands are habitable – the world famous Lamu Island, Manda, Pate, Ndau and Kiwayu Islands respectively. The coastal sections of the Dodori National Reserve on the mainland as well as the Kiunga Marine National Reserve (KMNR) also form part of the archipelago.

The biodiversity found in the Lamu seascape are in semi pristine condition. The beaches are scenic and secluded, providing ideal conditions for nesting turtles. The seascape also hosts the largest continuous stretch of mangrove alluded to be more than 70% of the total mangrove cover in the country. Furthermore, it has a very extensive seagrass bed, consisting of eight different species, which are vitally important for local fisheries and feeding grounds for rare marine species including the endangered fish mammals - dugong.

The network of secluded islands provides refuge and nesting grounds for the roseate terns, the largest colony in East Africa. The area is located at the Ecotone – northern limit of the coral reef and thus hosts regionally endemic coral species as well as globally rare species. Lamu seascape is also home to five of the seven known marine turtle species, these nest and forage in the region – with the green turtle being the ubiquitous.

4.3.5 CORAL REEFS AND SEA GRASS

Patch and small fringing reefs border the islands of the Lamu - Pate islands. This reef system extends from the sea surface to about 20-25 m depth. Reefs are home to one quarter of the ocean's biodiversity even though they only cover a tiny percentage of the ocean floor. They are referred "rainforests of the oceans''. The coral reef system provides a natural defence of the shoreline from wave-erosion and is a source of white sand that replenishes local beaches. The coral reefs and associated lagoons harbour rich and diverse species of flora and fauna, which support artisanal fishery and tourism.

Seagrass meadows are found in the muddy or sandy areas of the lagoon and coral reef system. Seagrass beds form important foraging grounds for endangered species such as dugongs and marine turtles as well as important resource fish families while coral reefs provide a habitat for many fish species, support a nation-wide artisanal fishery dominated by local and migrant fishers and protect the coastline from ocean waves. As a result of extensive use with little effort control, reefs have been generally over-fished and suffer from destructive fishing techniques.

Sea grass beds are the only true flowering Plants found in the sea and are among the most productive areas of the world. Sea grasses form extensive beds on the mud and sand of coastal East Africa. Twelve species of sea-grass beds are found in East Africa, the dominant one being *Thallasondendron ciliatum,* which forms monospecific stands. Its structure provides a home beneath its canopy for juvenile fish and invertebrates, making sea grass beds important habitats for many coral reef species.

Certain species of seagrasses such as Enhalus accoroides and Halophila spp have traditionally been used as remedies for different human health problems. Sea grasses also form important foraging grounds for endangered species such as dugongs and marine turtles as well as for important fish species like the rabbitfish, surgeonfish, and parrotfish. They are home to thousands of small species of animals and Plants, including seaweeds, sponges, worms, crabs, shrimps, marine snails, starfish, sea cucumbers, and sea urchins. They also act as traps for sea shells hence people are able to collect them easily.

The Kiunga Marine National reserve offers the best spot to view the sea grass as there are various water sports such as snorkeling that enable individuals explore the marine life biodiversity. Some of this marine biodiversity is discussed below:

4.3.2.3 Marine Wildlife

1. Dugongs

In Kenya, large dugong herds were reported frequently before the 1960s. According to World Wildlife Federation (WWF) 2004 data, the exact numbers of dugong in Kenya are not known; however, a small number of dugongs has been spotted in the Lamu Archipelago especially on areas near the Pate Island.

Figure 4.8: Dungong feeding on the Sea Grass



2. Sea Turtles

Sea turtles have a complex life-cycle, with eggs laid and hatched on beaches, post hatchlings being pelagic (Open Ocean), sub-adults residing in developmental habitats, and adults living in adult-foraging grounds. At different times in their lives, most species migrate between different foraging grounds, which are often hundreds of miles apart, and they migrate from these foraging grounds to offshore nesting beaches during the reproductive season. Five of the world's seven species of sea turtles are found in the Kenyan ocean waters: the Green (Chelonia mydas), Hawksbill (Eretmochelys imbricata), Loggerhead (Caretta caretta), Olive Ridley (Ledpidochelys olivacea), and Leatherback (Dermochelys coriacea) turtles. (WWF, 2015). A few of these species are found within the Lamu seascape.

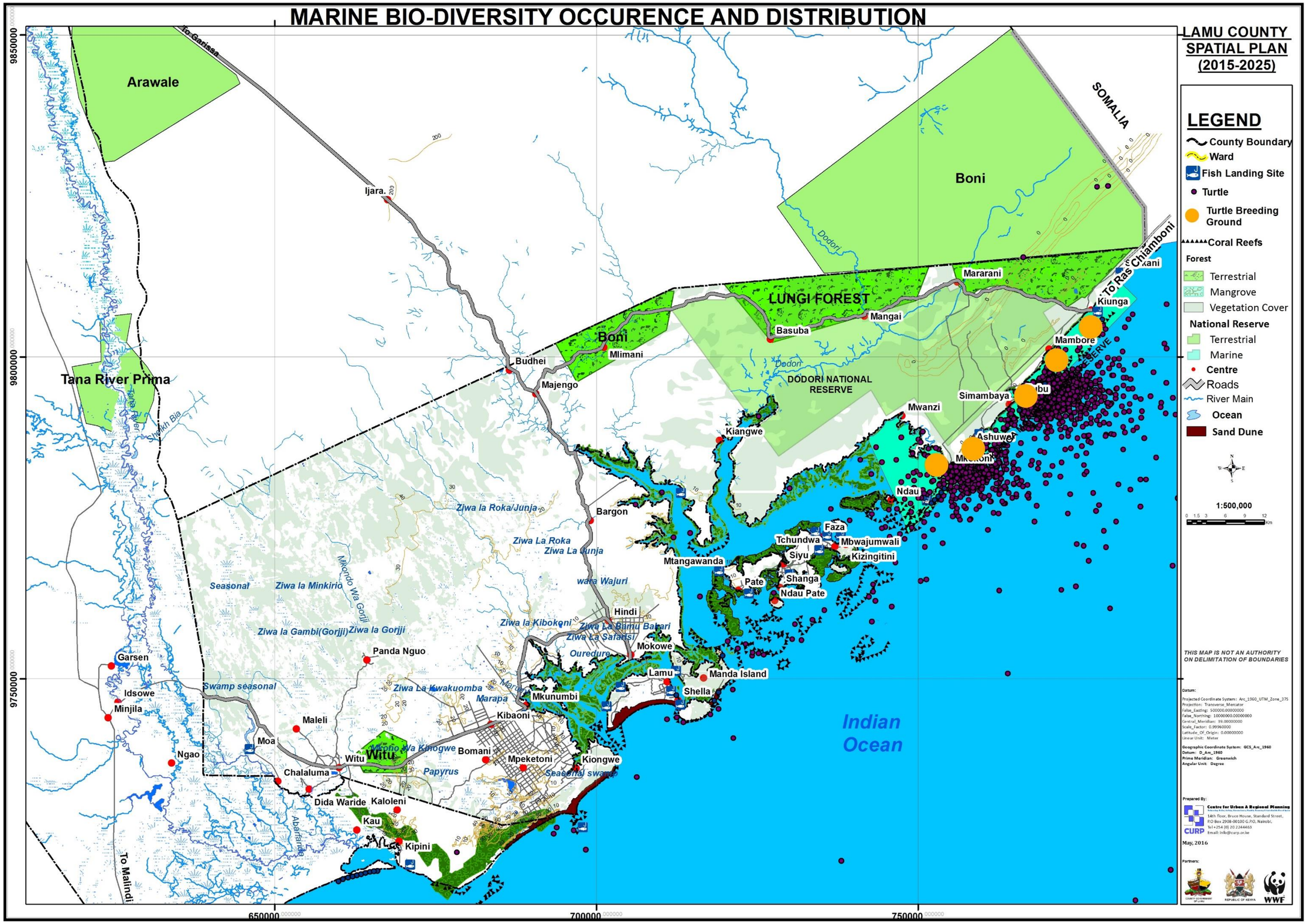
3. Prawns

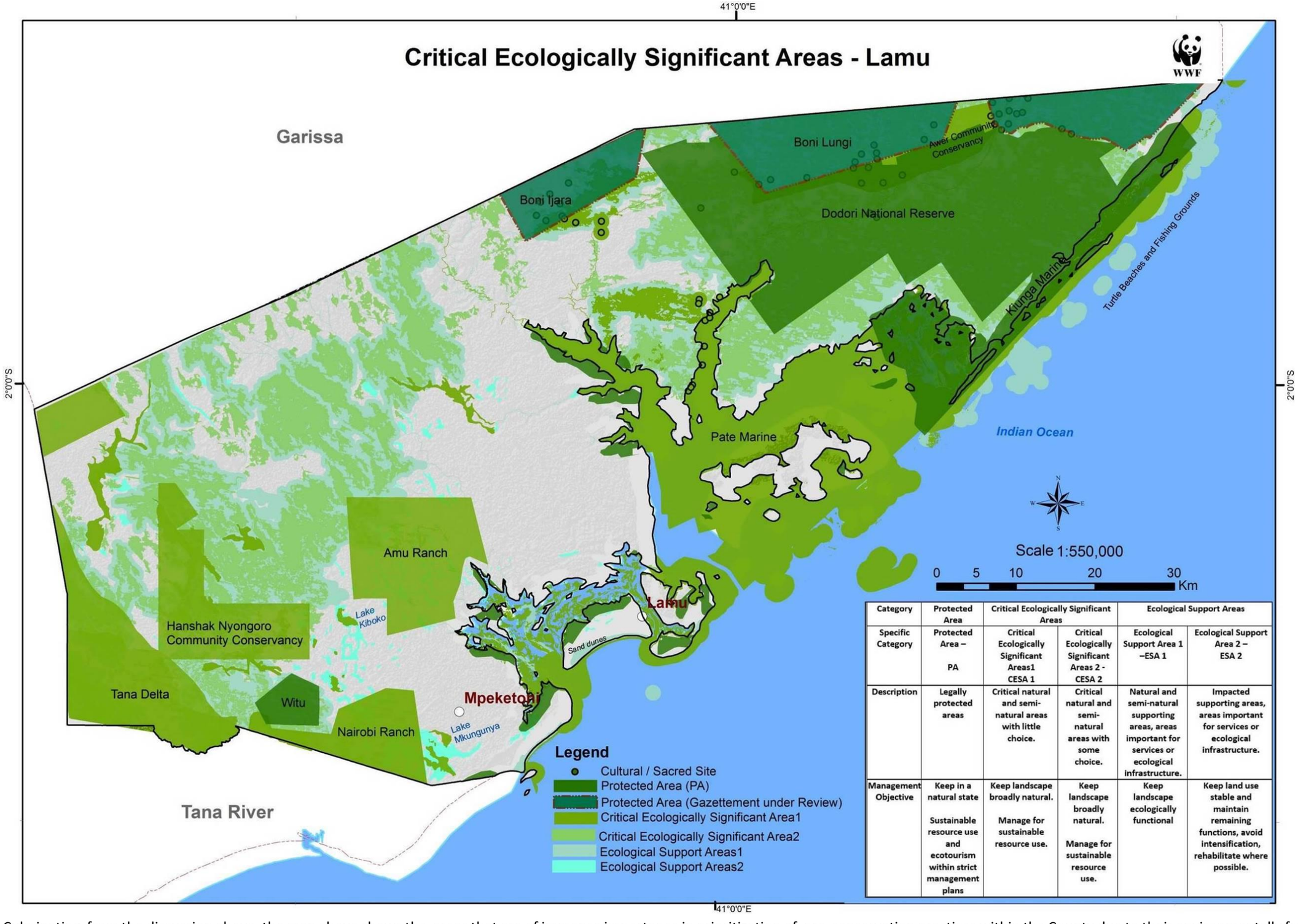
Freshwater prawns are also abundant and make a valuable contribution to the local fisheries department in Lamu County.

Other species of marine life found within Lamu include whales and Sharks among other types of fish.

The map below has been used to indicate some of these areas where most of these marine activities within Lamu occur. They include the fish landing sites, the turtle distribution, and nesting grounds. Their occurrence and distribution as indicated in the map continue to emphasize the need to protect and conserve the environments where they occur. The map is shown below:

MARINE BIO-DIVERSITY OCCURENCE AND DISTRIBUTION





Category	Protected Area	Critical Ecologically Significant Areas		Ecological Support Areas	
Specific Category	Protected Area – PA	Critical Ecologically Significant Areas1 CESA 1	Critical Ecologically Significant Areas 2 - CESA 2	Ecological Support Area 1 –ESA 1	Ecological Support Area 2 – ESA 2
Description	Legally protected areas	Critical natural and semi-natural areas with little choice.	Critical natural and semi-natural areas with some choice.	Natural and semi-natural supporting areas, areas important for services or ecological infrastructure.	Impacted supporting areas, areas important for services or ecological infrastructure.
Management Objective	Keep in a natural state Sustainable resource use and ecotourism within strict management plans	Keep landscape broadly natural. Manage for sustainable resource use.	Keep landscape broadly natural. Manage for sustainable resource use.	Keep landscape ecologically functional	Keep land use stable and maintain remaining functions, avoid intensification, rehabilitate where possible.

Culminating from the discussion above, the map above shows the areas that are of immense importance in prioritization of pro-conservation practices within the County due to their environmentally fragile nature.

IMMEDIATE BENEFICIAL IMPACTS AT RISK FROM DECLINING NATURAL CAPITAL

With the exception of increased crop yields and livestock grazing (associated with the expansion of agricultural activity), many of the benefits provided by Lamu's natural assets are being put at risk as stocks are reduced (see the Figure 9 below). Benefits at very high risk are the supplies of timber, wood fuel, water and commercial marine fish species. The benefits provided by forests and mangroves are at particularly high risk. This is a concern, because these benefits are critical to sustaining healthy diets, livelihoods and incomes.

Figure 8: Natural assets, ecosystem services (benefits) and current trends in benefit provision in Lamu

NATURAL ASSET	MAIN ECOSYSTEM SERVICES (BENEFITS) PROVIDED BY NATURAL ASSETS	TREND IN SERVICE (BENEFIT) PROVISION
Arable land	Food provision (food/cash crops)	▲
Grasslands	Livestock grazing	▲
Forests	Carbon sequestration Timber and wood fuel provision Water supply and flood protection (via regulation of water flows)	▼
Water resources (rivers, aquifers, lakes, wetlands)	Water supply and flood protection (via regulation of water flows)	▼
Terrestial species	Nature-based recreation	▼
Mangroves	Carbon sequestration Timber, wood fuel and food provision (fish)	▼
Coral reefs	Food provision (fish) Nature-based recreation	▼
Marine fishery	Food provision (fish)	▼
Marine species	Nature-based recreation	▼

Source: WWF

In turn, loss of these assets is likely to also be indirectly affecting other benefits. Forest clearance is likely to be adversely affecting water supplies (due to their role in regulating water flows) and the potential for nature-based tourism (due to loss of wildlife habitat). Loss of mangroves is also likely to be a major factor in the decline in marine fish catches over recent years since they are vital breeding and nursery areas for many commercial fish species.

HUMAN ACTIVITIES ON THE NATURAL CAPITAL

There have been significant national development projects proposed in Lamu County. This includes the LAPSSET project and all its components including a coal power generating Plant, wind energy development Plant, Ranching and irrigation schemes. The proposed developments have impact on the unique and fragile environment in Lamu County.

THE LAPSSET PROJECT

The LAPSSET is a major flagship project under vision 2030 with several components including: The Port area, the Coal Power Plant, the Port city, the LAPSSET Corridor, Railway terminal station, a Resort city, Fisherman wharfs, Cultural and ICT centre, Amusement park, a Special Economic Zone, Airport, and an Oil refinery. Whilst these developments could generate substantial economic and social benefits, they also pose significant risks to the natural environment based on their specific location.

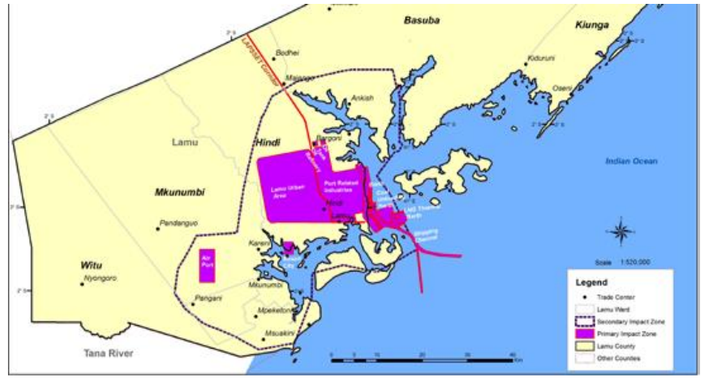
In particular, if poorly executed, they could lead to significant and irreversible environmental damage, including the loss of valuable natural capital assets (including forests, mangroves, water sources, beaches, seagrass, coral reefs and fisheries).

These assets provide a range of vital goods and services that underpin the County's economy and well-being of its people (e.g. by providing water, fuel, food and raw materials; supporting farming, fishing, grazing, tourism and recreation; absorbing waste and carbon, and protecting people from hazards such as drought, flooding and storms). Many of these assets are already in decline due to human impacts, and the negative impacts of this are already being felt occasioned to some extent by shortage of ater and fish production. Further losses would undermine the ability of natural systems to sustain economic productivity and basic human needs, posing profound implications for Lamu's future prosperity.

The potential impacts of LAPSSET include:

- Direct loss of natural assets in areas cleared for the construction of project components, including the proposed new port, roads, railway, airport, resort town, oil refinery, fishing port, and new urban and industrial areas, this is shown as the 'primary impact area' in the Figure 10 below.
- Direct loss of natural assets over a larger area due to the wider development that LAPSSET would attract and/or require, such as new settlements, industries and infrastructure (this is shown as the 'secondary impact area' in Figure 10).
- Indirect impacts due to increased pollution and extraction of water, food, fuel and raw materials by a much larger population (this is not shown in Figure 10, however, given the scale of the LAPSSET project, these impacts would be felt over large distances, including neighbouring counties and in offshore marine areas).
- Geographical Information System (GIS) analysis suggests that over 150,000 Ha of intact habitats (mainly mangroves, forests, coral reefs and seagrass beds) could be lost within these primary and secondary impact areas (see Figure 11). The possible further loss of over 9,400 ha mangroves would represent a 38 % in Lamu's total stock. Water resources, fishing areas and wildlife would also be significantly affected.

Figure 9: Map showing potential area in which direct loss of habitats would be expected due to construction of LAPSSET project components (primary direct impact area) and due to associated future development (secondary impact area).



Source: WWF

Figure 10: Amount of Land lost as a result of LAPSSET

NATURAL ASSET	CURRENT EXTENT IN LAMU (HA)	POTENTIAL IMPACTS OF LAPSSET PROJECT		TOTAL POTENTIAL LOSS (HA)	TOTAL POTENTIAL LOSS (AS % OF LAMU'S TOTAL STOCK)
		PRIMARY DIRECT IMPACTS (HA LOST)	SECONDARY DIRECT IMPACTS (HA LOST)		
Forests	265,552	7,076	23,558	30,634	12%
Grasslands	6,400	292	1,342	1,634	26%
Shrub lands	323,588	26,496	76,555	103,051	32%
Wetlands	227	11	82	93	41%
Mangroves	25,209	202	9,261	9,464	38%
Seagrass beds	30,049	1,198	6,509	7,707	26%
Total	**651,025**	**35,275**	**117,307**	**152,583**	**23%**

Data Sources:
- Land Use land cover of 2014 – Systems for Land based Emission Estimation in Kenya(SLEEK) Program
- Mangroves Cover – Regional Centre for Mapping of Resources for Development – SERVIR program on East African coastal mapping
- Seagrass beds – Regional Centre for Mapping of Resources for Development – SERVIR program on East African coastal mapping
- LAPSSET Growth Area – SIGHT Africa, WRI

Source: WWF

The implications of natural capital losses of this scale for Lamu County could be profound. Reduced supply of water, food, timber, fuel and raw materials combined with increased severity and frequency of drought, erosion and flooding is a realistic scenario. This would in turn put productivity, investment, livelihoods and well-being at risk, exacerbating pressure on social infrastructure and Government funds from a growing population.

Preliminary analysis suggests that, in a scenario of full development of the LAPSSET project, clearance of forests and mangroves (primary impacts only) would lead to a loss of ecosystem services worth at least US$ 4.4m per year (equivalent to a present value loss of US$ 74.4m when capitalised over 25 years at a discount rate of 3.5%). However, in reality the costs would probably be far higher, because this figure does not take into account:

- all of the multiple benefits that these assets provide
- secondary and indirect impacts on these assets, and
- other assets that would be affected (e.g. other habitats, water resources and fishing areas).

On the other hand, by taking steps in the CSP to protect and restore the County's natural capital, these risks would be reduced or avoided, and key economic sectors, markets, livelihoods and communities would be more resilient. The benefits could be even higher if effort was also made in the CSP to develop new sustainable economic sectors/markets (e.g. enhancing tourism infrastructure, improved water efficiency measures, and creation of new sustainable markets/industries.

Mitigative measures provided by the CSP

This Spatial Plan will provide interventions that could be applied to help ensure that LAPSSET delivers maximum value to society by proposing measures to protect and improve natural capital. This will be achieved by proposing of policies and measures that avoid and/or minimise adverse impacts on critical natural assets through careful layout and design of project components like the SEZ and Coal power Plant.

In particular, the Plan does not advocate for some components of the LAPSSET including the proposed site for the SEZ and the Coal Power Plant as these will have devastating effects around the Natural surrounding of their respective neighborhoods. This is because the SEZ is proposed around the sensitive Dodori Forest Reserve and Boni - Lungi Forest ecosystem which should be afforded the maximum protection within the Plan. On the other hand, the coal power Plant will ultimately have very high potentially negative impacts on the environment.

However, this Plan takes cognizance of the fact that the land for the various LAPSSET components could already be secured including the SEZ site. Consequently, this Plan proposes that the land be utilized in the manner as will be proposed under the guidelines of that area. This includes the tapping of green energy (proposed solar power farm in Basuba Ward) from the area as an alternative to the establishment of the coal power Plant in the County.

Furthermore, where the design / layout of specific LAPSSET components has already been finalized, or where construction has already commenced (e.g. the first three berths of the Lamu Port), the Plan proposes policies that will assist developers avoid or mitigate potentially negative impacts resulting from destruction of natural assets. It also proposes that where unfeasible, the Plan should fully offset and/or appropriately compensate for any losses following international good practice. This is for instance, the anticipated clearance of the 16 kilometers of Mangrove forest clearing, the County Government of Lamu in partnership with Kenya Forest Service and LAPSSET authority should foster partnerships that will see rehabilitation and reafforestation of equal acreage as those cleared. Sites should be clearly deliniated and proposed for appropriate compensation of the forest area. This Plan might not be explicit on the specific areas as this will be detailed out on the agreement between the three concerned authorities.

The LAPSSET might have set a development precedent with highly unmitigated impacts for the County. However, this Plan ideally makes future proposals that will see the County is utilized in a more efficient and proactive manner that enhances the sustainability of the natural assets. This will be achieved through:

- Designation the whole County according to land-use 'zones' with clearly defined acceptable and unacceptable land uses and activities for each with an aim to enhance the asset base overall.
- Designation of some areas for conservation (i.e. as off limits to development). This should include existing and Planned protected areas, as well as other areas containing important and intact natural assets (e.g. such as forest, mangroves, coral reefs, seagrass and water resources).
- Designation of some areas for restoration, in which the primary aim is the recovery and/or rehabilitation of degraded natural assets.
- Introduction of measures to promote or enhance sustainable use of under-utilised natural assets or areas (e.g. through new or expanded sustainable natural resource related activities, such as tourism, farming and aquaculture).
- In areas where development is allowed, ensuring that is subject to strict development control requirements (particularly where it may affect sensitive areas, habitats or features).
- Development of procedures, guidelines, standards and permitting conditions for development control and land-use management in specific zones.

Population growth impacts on natural assets

With a population growth rate of about 4% (from 101,535 in 2009 projected to be 133,613 in 2016 and 190,173 in 2025- projected by the LAPSSET Authority to be over 1.5Million people), holding all

other factors constant, the increasing human pressure and concentration in the largely environmentally fragile County is posing a big threat to the natural resources, by way of livelihood demands. Resources are required to provide construction materials (mostly mangroves and corals) and food (fish, mammals, turtles, seagrass and seaweeds). Mostly these demands are met unsustainably or without measures to replenish their stocks. Furthermore, the anticipated developments including LAPSSET in the County has occasioned an increase in undocumented population for speculation purposes by about 50%.

This increase in population if not timely mitigated through policies advanced by this Plan will ultimately result in depletion and degradation of natural assets. It is expected that policies and implementation measures and proposals advanced by this Plan will highly be adopted and strictly enforced especially where conservation of fragile environment areas that are key natural assets to the County is concerned.

MARKET FAILURE

Market failure as a human impact has contributed significantly to the decline of the Kenyan marine and coastal biodiversity resources by leading to over-fishing and over-harvesting of mangroves, that in turn, have contributed to the ecological disruption. The prices at which the Kenyan fisheries and mangrove products are sold at the export and national markets are low, as the environmental and social costs of harvesting the marine resources are ignored. This is because the environmental and social spill-overs are not traded in the market. Only private costs (capital, labour, materials and management) are considered as factors of production (Ikiara, 2001).

Consequently, this CSP appreciates the ecological value of these natural assets and will propose policies that will ensure that monetary or other ecological value is attached to the value of the products gained. This will ensure that the ecological value lost is compensated either on monetary gain or regeneration measures which will ensure sustainability of the resources/assets is guaranteed.

FISHING AS A MEANS OF LIVELIHOOD SUSTENANCE

The incidence and depth of poverty and inequality in Lamu County, like in other coastal areas, is very high (absolute poverty is about 40% adult equivalent), putting high pressure on fish and other marine resources to meet livelihood needs.

In fact, some records have it that in some coastal villages such as Kizingitini, Kipini and Pate, the whole village smells of fish (Mohammed Hassan, NMK). This is because more and more people depend directly on marine resources specially fish for their survival, and the lack of alternatives and opportunities leads to unsustainable use of the resources – either by equipment or method employed to harness the resources.

It is on this backdrop that this Spatial Plan takes keen interest in promoting the livelihoods of the local communities without necessarily distorting their way of lives. The Plan appreciates fishing as key enabler of the local livelihoods of most residents of Lamu County not only as a way of getting access to food but also as a means of poverty alleviation. Their fishing practices, however, needs to be regulated but at the same time sustainable. That is why this Plan strongly advocates that the natural assets that support the industry including the mangrove forests, the sea grass, corals among other key habitats needs to be selflessly protected and conserved. Additionally, the Plan also advocates that the fishermen be fully equipped and trained with modern fishing technologies to enable them explore the deeper waters which could see them triple their production and consequently their revenue base.

TRADITIONAL BELIEFS AND VALUES

Some cultural oriented norms in the County are directly impacting negatively on the available resources. These include traditional uses of sea turtles, dugongs, whales and dolphins by the coastal communities in Lamu areas for food and medicinal purposes (including beliefs in aphrodisiac qualities from some), or as charms to scare away evil spirits, or even as ornamental and jewellery are direct threats to these living resources as demand to satiate these beliefs and values increases.

This Plan greatly advocates that training sessions be held with the local communities to enhance their knowledge of these local natural assets and dissociate themselves from such traditional norms and beliefs.

INEFFECTIVE ENFORCEMENT OF REGULATIONS

Poor capacities within Government implementing agencies in enforcement of regulations governing marine resource utilization have been rampant. In addition, another constraint is the weak coordination between the different departments and agencies responsible. It is paramount that if the policies, regulations, and guidelines that have been proposed by this Plan are to be achieved, coordination between the responsible authorities need to be strictly enhanced.

INDUSTRIALIZATION & INVESTMENT IN SALT PRODUCTION

Other cases of industrial ventures that have resulted in extensive degradation of the environment have been witnessed in the County. Among others, these include the extensive salt works from five salt production companies that have been established at the Gongoni – Fundi Island area and Kurawa that operate with little regard to environmental concerns. Problems of salination and salt intrusion into wetlands are not addressed when they happen.

The area dedicated to salt production is over 5,000 ha of former mangrove vegetation cleared without compensatory efforts of supporting rehabilitation programs such as reforestation. Due to lack of such policies that promote rehabilitation, or poor coordination in the agencies involved, or poor enforcement from concerned authorities, this trend of degradation might continue. It is for such reasons that this Plan sets out policies and regulations in the hope that once implemented might sought out or reverse some of these trends that have been destructive to the environment for the longest time.

EMERGING ISSUES AND CONCLUSION

As a consequence of these human activities on the environment, some of the directly visible degradation impacts on the very scenic environments in the County include the following:

Air Pollution on the beach fronts

It is evident that Lamu Island is deficient of a solid waste land fill site. Consequently, burning of waste in non-designated points is a common way of solid waste disposal especially on beach front areas as these are the most common public areas. These are high value areas that if well exploited as opposed to degradation

activities on them would benefit the County in a big way especially through tourism related ventures. The photos below show some of these activities on the beach fronting Shella touristic hotels:

Figure 11: Illegal Burning of Solid Waste along Shella beach



Source: CURP, 2016

Fresh Water Pollution

The continued degradation on key assets including encroachment on the sand dune ecosystem on Lamu Island has resulted to increasing fear of water pollution. Additionally, continued sinking of shallow wells throughout the County and improper sitting of latrines coupled by the high salinity levels and water intrusion has resulted to continued depletion of fresh water sources in the County. This problem of is further heightened by lack of proper and integrated solid waste and sewer management system throughout the County. The problem extends to the sea where water is mostly contaminated by terrestrial pollutants from activities like agriculture and industrial activities including refuse discharged directly into the sea, thus polluting the shorelines and creating a very distasteful site during low tides.

Figure 12: Disposal of Solid Waste on the Ocean Shoreline



Source: CURP, 2016

This Plan recommends that the sand dunes be protected from any sort of encroachment to ensure sustainable source of fresh water supply and also controlled sinking of shallow wells through out the County. It also advocates that the County takes adequate measures and relevant consultancies to ensure an integrated solid waste and sewer systems are put in place.

Arising from this chapter, the following emerging issues are fronted as the main issues ailing the County with respect to the Natural ennvironment and which this Plan intends to solve.

SUMMARY OF THE EMERGING ISSUES

- Lamu County is largely an environmentally fragile County with huge patches of sensitive ecological ecosystems including the protected forests, mangrove forests, sand dune ecosystem, wetlands & lakes among others. These needs to be highly protected and conserved for the benefit of the County as discussed above.
- Lamu County is generally flat with low gradient and prone to flooding during the rainy seasons and periods of high tides in the sea. These areas should strictly be considered as off limit areas for any development.
- The LAPSSET project will have devastating impacts on the natural environment that need to be mitigated through policy and strict guidelines where flexibility in its implementation can still be accommodated
- The LAPSSET project will ultimately result to loss of established livelihood interests like fishing and hence the need to compensate the affected fishermen also while implementing the project
- There is need to have an integrated sewer and solid waste management system for the whole County
- The continued degradation of environmentally fragile ecosystems will have very negative impacts on the sustenance of the livelihoods of the local communities.
- The high-water table in the County can be harnessed as an alternative source of water but due to the high salinity levels and uncontrolled sinking of shallow wells, proper measures need to be put in place to enhance water quality
- The County receives high temperatures that can be tapped into green energy through establishment of power farms in the County
- Lamu County receives long rains between late March and early June with May being the wettest month. The short rains come in November and December
- Lamu County experiences high wind speeds of up to 100 knots which can be explored as source of green energy

CHAPTER 5: THE PEOPLE IN LAMU COUNTY

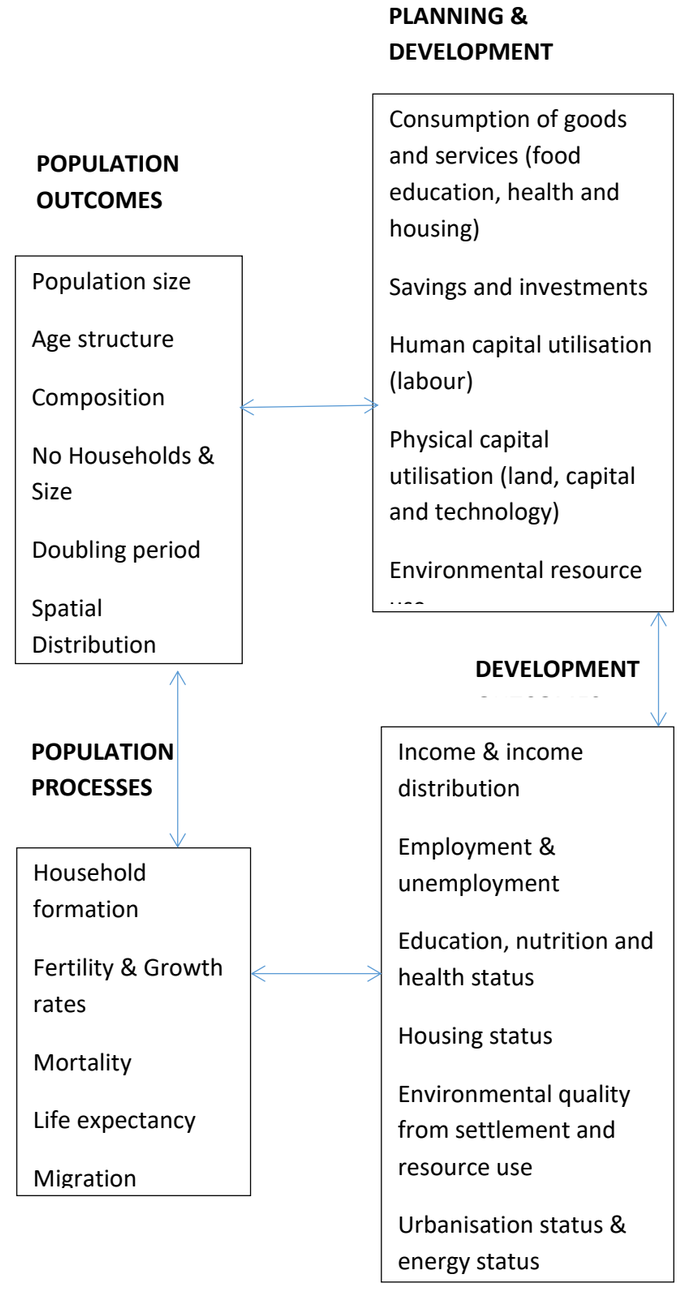
OVERVIEW

There has been a popular discourse that rapid population growth has varied impact on social economic status and vice versa. The above has been understood from both a theoretical and empirical consequences in two ways that interact to and from. In the negative sense population exerts pressure on available resources both financial and natural reducing the capacity of populations to sustainably support themselves and ensure social economic security and transformation. This has led to the calls for reduced population and family Planning by most national Governments. In a positive sense, there has been the optimistic view that though a challenge it creates far greater opportunities than having a smaller population. A Large population provides a larger consumer market, labour force, tax revenue when employed, innovation and an army for the protection of the Country. Its role in the Planning process and development is conceived through a population and spatial Planning and development framework.

It covers the population process of fertility, growth rates, household formation, mortality, life expectancy, and doubling period of population and migration patterns which lead to population outcomes such population size, age structure, composition, households and their sizes, spatial distribution and changing structures. In addition, there is also a focus on social cultural process and practices that accounts for the above variables are also looked into and their influence on population outcomes and development processes

POPULATION SPATIAL PLANNING AND DEVELOPMENT

Population of a place is crucial for Planning and development process viewed within people spatial Planning and development relationship interacting in a reinforcing manner among categories of variables. To illustrate, in Figure 5-1 the demographic processes of fertility, household formation, growth rates, life expectancy, mortality and migration lead to the outcomes of population size, age-sex structure, households, household sizes, composition, and the spatial distribution of the population. These demographic outcomes impact on development processes such as the consumption of goods and services, savings and investment behaviour, the utilization of human, physical and natural resources, and public expenditure etc. These development processes, in turn, lead to development outcomes, which can be expressed in terms of income or its distribution, levels of employment, educational status, health and nutritional status, housing status, urbanisation status and network of human settlements, water and sanitation, energy status, mobility status, environmental quality and which might be affected by extensive and overexploitation of natural resources. These socio-economic outcomes, in turn, also alter the population processes of fertility, mortality and migration - the starting point of this illustration.



Source: Adapted and Modified from NEDA 1993

TRENDS IN LAMU POPULATION GROWTH

Population of the County over the years since 1969, and other variables such as inter-censual growth rates, number of households and growth rate in households provides a good context for understanding the population dynamics of the County. The trends in the above variables have captured not only the Lamu population but also the national, coast province for comparison purposes. Trend in population growth of the nation, County are as shown in table 5-1.

Table 5-1: Population Trends 1962-2019

AREA	1962	1969	1979	1989	1999	2009	2019
National	8,600,000	10,942,705	15,327,061	21,448,774	28,686,607	38,610,097	
Coast	-	944,082	1,342,794	1,825,761	2,487,264	3,325,307	
Lamu		**22,401**	**42,299**	**56,783**	**72,686**	**101,539**	

Source: Various KNBS Census Reports

Whereas there has been a rapid increase in the national and coast population, as well as the County, in absolute terms County population appears smaller. Growth rates in table 5-2 illustrate or explain the rate of increase of the population at the three levels which are beginning to decline with time. Population at national, Coast and County will still increase even though there is a decline in population growth rate due to the inbuilt momentum of growth. Population growth rate of the County shows a more rapid growth from 1999 than the previous periods. The growth trend in absolute figures is accounted for by the growth rate as indicated in tables 5-1 and 5-2 and other salient population process variables earlier mentioned. It can be attributed to in migration and people returning back to Lamu from other places they had gone to settle.

Table 5-2 Population Growth Trends

AREA	1969-79	1979-89	1989-99	1999-09	2009-19
National	3.4	3.4	2.9	3.0	
Coast	3.5	3.1	3.1	2.9	
Lamu	**8.9**	**3.4**	**2.8**	**3.97**	

Source: CURP Computations 2016

Table 5-2 illustrates the inter censual growth rates in the population history of the Country characterised by a high growth rate nationally across the three areas but a larger increase for Lamu County between 1999 and 2009 than the coast and national. Rapid population growth in absolute figures is accounted for by the growth rates indicated in the table above. However, growth rate of Lamu looks peculiar, and shows influx of people into the County both from other areas and those Lamu residents who have been residing elsewhere.

This is a trend that is expected to be repetitive given the current developments anticipated in the County as an influx of people keep migrating into the County for land speculation purposes.

5-3 Trends in Growth of Households

AREA	1979	1989	1999	2009	2019
National	5,956,363	4,352,751	6,371,370	8,767,954	
Coast	269,199	360,882	527,427	731,199	
Lamu	**8,681**	**11,238**	**15,006**	**22,184**	

Source: KNBS Census Reports

There has been an increase in the absolute numbers of household nationally pointing towards numerous requirements for the population to be able to support itself. This has increased from about 5,956,363 in 1979 to 8,767,954 households in 2009. The trends in growth of households are explained by the growth rate of households indicated in Table 5-4. Lamu County has experienced growth of households from 8,681 to 22,184 in 2019. Corresponding growth rate of households is shown in table 5-4, showing a high growth rate in the period 1999-2009 than the previous periods. Previously household growth rate was lower than for the Nation and Coast as indicated in the table below.

Table 5-4 Trends in Growth Rates of Households

AREA	1969-79	1979-89	1989-99	1999-09	2009-19
National		3.89	3.81	3.19	
Coast		2.9	3.79	3.27	
Lamu		**2.95**	**3.35**	**4.78**	

Source: CURP Computations 2016

When table 5-1 and 5-3 are combined a trend in household size is arrived at illustrating the average household size across the three regions, national, coast and Lamu County. The figures reveal a similar trend of almost a uniform relatively large household size across the three areas. Coast and Lamu County however have a larger household size than the whole Country, with the household size of Lamu being larger on average than the national and coast region. Trend in household size is illustrated in table 5-5 implying the growth process of population is uniform across the regions compared, and that Lamu has a large household size than the national and coast province.

5-5 Trends in Household Sizes

YEAR / AREA	1979	1989	1999	2009
NATIONAL	2.57	4.93	4.5	4.4
COAST	4.98	5.01	4.71	4.5
LAMU	**4.87**	**5.05**	**4.84**	**4.577**

Source: CURP Computations 2016

MORTALITY RATES

Mortality rates for the population are interpreted from a variety of viewpoints. These are namely: infant mortality; child mortality, cohort specific mortality, and general population mortality. This enables us to gauge the absolute increase in the size of the

population, households and various growth rates. Mortality at different levels illustrates or is closely related to levels of educational attainment, levels of public health, child and maternal health, economic status among both male and females. Trends in certain population variables in the table for Lamu compared to the Nation, and other counties are illustrated in table 5-5. The figures lead to a revelation of inadequate access to medical services, inadequate awareness among the population about maternal health services and information in addition to lifestyles of the residents.

Table 5-5 Population and Mortality Rates

Variables	KENYA	NAIROBI	COAST	LAMU COUNTY	TANA RIVER COUNTY	KILIFI COUNTY
Infant Mortality Rate (per 1000 live births)	54	46	67	**76**	81	55
Under 5 Mortality Rate (per 1000 live births)	79	56	94	**106**	112	72
Life expectancy (Male) (years)	58	62	56	**58**	56	57
Life Expectancy (Female) (years)	61	63	55	**53**	56	62
Adult Mortality Rate (Male) (*probability of dying between the age of 15 and 60*) per 1000	348	310	352	**305**	330	350
Adult Mortality Rate (Female)	313	300	394	**406**	395	282
Maternal Mortality Rate (per 100,000 live births)	495	212	328	**676**	395	290
Crude Death Rate (per 1,000)	10.4	6.3	11	**11.5**	11	9.3

Source: 2009 Kenya Population and Housing Census

FERTILITY TRENDS IN THE COUNTY

The County according to demographic health survey has a fertility level of 4.3 higher than the national, but lower than her surrounding Counties of Tana River at 5.8 and Kilifi at 5.1. With fertility at 4.3 and crude death rate at 11.5 per thousand population, there are indications that population of Lamu will grow rapidly. There is still need to enhance access to medical care, and improvement in public health**.** There are also indications that marriage is a universal activity and with low level of educational attainment among the mothers, fertility will remain quite high.

5-6 Population Fertility Rates*(Trends Needed**)**

REGION	**FERTILITY RATE**
NATIONAL	3.9
COAST	4.3
KILIFI	5.1
LAMU	4.3
TANA RIVER	5.8

Source: Kenya Demographic and Health Survey

POPULATION PROJECTIONS

From the above comparisons, it is evident that the population of the County is on an upward trend. Growth rate of population in the County since 1969 averages at 4.8%, which is way above the national average growth rate of 3.18%for the same period. Households growth rate is also rapid as indicated above together with a household size of about 5. In the light of the above trends, this study will use two growth rates to capture the possible scenarios of population growth processes and outcomes and their relationship to Planning and development processes and outcomes.

1. Current growth rate of 4 rounded off from the actual figure of 3.97. It assumes that the current population processes will remain constant
2. Average growth rate of 4.8 rounded off from the actual historical mean growth rate of 4.76 since 1969. It assumes this figure will accommodate the influx of population as the implementation of LAPSSET gets underway.
3. Average household growth rate is 3.36% while current household growth rate size is 4.78. The spatial Plan will assume a first scenario of 3.4% and a second one of 4.5%.

The Plan has three population projection scenarios as illustrated in the tables below. First the consultant adapted a 3.5% growth rate used by the County of Lamu and projected for the entire population, the cohort population, and number of households. Secondly the consultant used the current calculated growth rate from the census reports and particularly the inter censual growth rate between 1999 and 2009 which is 3.97, and finally an average of inter censual growth rates since 1969 up to 2009, which is 4.8%.

Table 5-6 –Projected Lamu Population 2016-2028

Division	2009	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
AMU	22,366	28,456	29,452	30,483	31,549	32,654	33,797	34,979	36,204	37,471	38,782	40,140	41,545	42,999
HINDI	10,700	13,613	14,090	14,583	15,093	15,622	16,168	16,734	17,320	17,926	18,554	19,203	19,875	20,571
MPEKETONI	36,527	46,473	48,099	49,783	51,525	53,328	55,195	57,127	59,126	61,195	63,337	65,554	67,849	70,223
WITU	13,105	16,673	17,257	17,861	18,486	19,133	19,803	20,496	21,213	21,955	22,724	23,519	24,342	25,194
FAZA	8,346	10,618	10,990	11,375	11,773	12,185	12,611	13,053	13,510	13,982	14,472	14,978	15,503	16,045
KIZINGITINI	6,577	8,368	8,661	8,964	9,278	9,602	9,938	10,286	10,646	11,019	11,404	11,804	12,217	12,644
KIUNGA	3,914	4,980	5,154	5,334	5,521	5,714	5,914	6,121	6,336	6,557	6,787	7,024	7,270	7,525
TOTAL	101,535	129,181	133,702	138,382	143,225	148,238	153,426	158,796	164,354	170,107	176,060	182,222	188,600	195,201

Source: Lamu Statistical Office 2016

POPULATION SIZE & DISTRIBUTION

Table 5-6 above shows the current population size and distribution as per the divisions. County of Lamu has applied a growth rate of 3.5% per annum and projected population growth rate during the Planning period up to 2026 is as indicated in table 5-6. This was adapted by the consultant as the first scenario of population comprehension for the spatial Plan. This growth rate applies to the cohort structure of the population and special needs category analysis of population useful for Planning purposes especially projections of various requirements of the population. The cohort projection is useful for population structure illustrated by a population pyramid. According to this first scenario projection, Mpeketoni will remain the most populated area and Kiunga the least populated area by the end of the Plan period, which is by 2026. Amu which is the most unique and special area in Lamu County, as it is a world heritage centre, will also have its population increase as a result of in-migration. The other divisions in Lamu County which include Hindi, Witu, Faza and Kizingitini will also experience some increase in population as shown in the table 5-6 above. Lamu County therefore, from the population projection will experience an increase in population. This will exert pressure to the available resources and services as well as natural capital. There is therefore need to Plan for the increased population in terms of sustainable utilisation of the County resources so as to achieve sustainable development. Likewise, there is need to Plan for proper thresholds for the islands.

Density distribution is as illustrated in the Map below (overleaf):

Map 8: Population Distribution in Lamu County

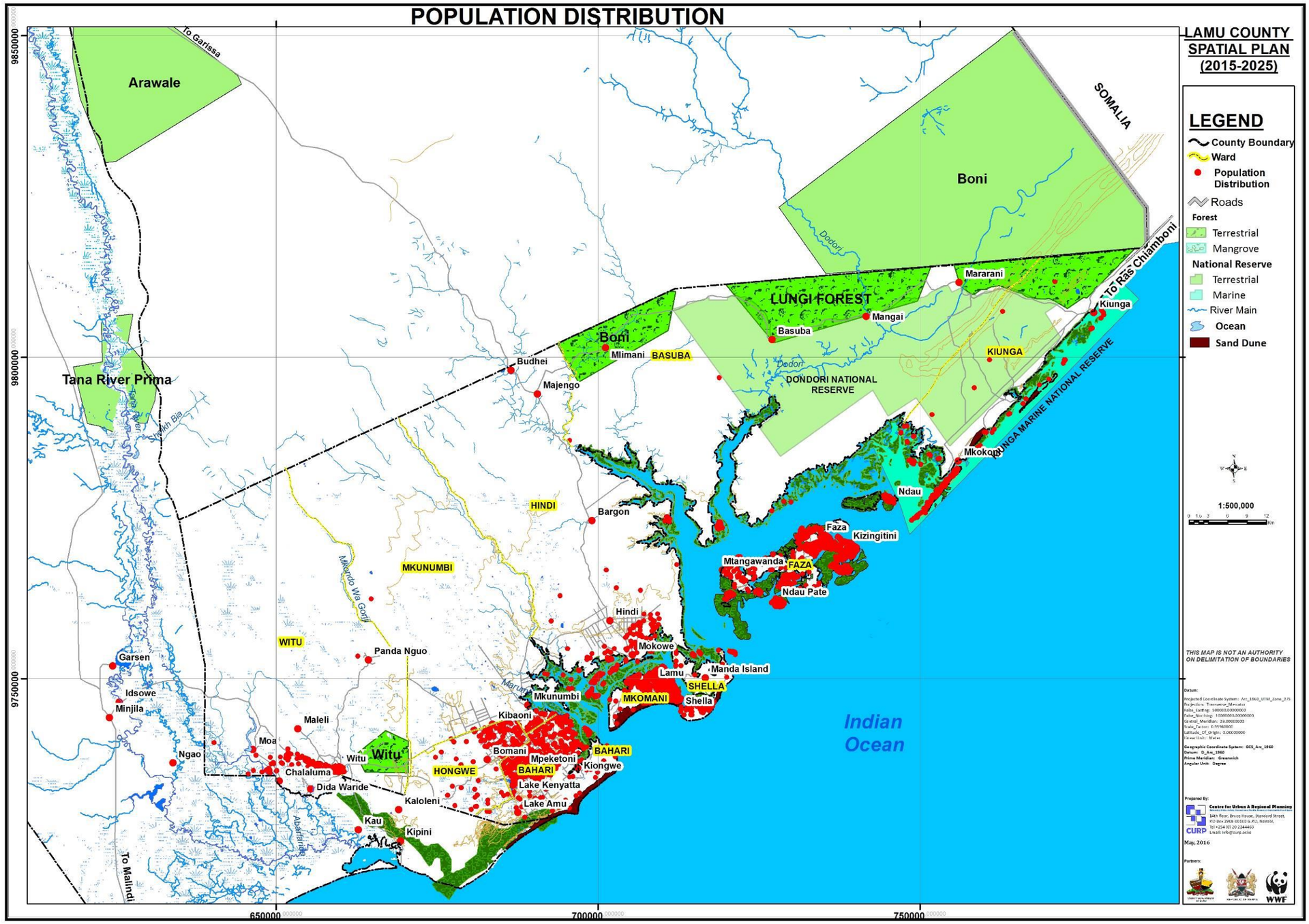


Table 5-7 Projected Households 2016-2028

Division	2009	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
AMU	5,272	6,644	6,867	7,098	7,337	7,583	7,838	8,101	8,374	8,655	8,946	9,246	9,557	9,878
HINDI	2,286	2,881	2,978	3,078	3,181	3,288	3,399	3,513	3,631	3,753	3,879	4,009	4,144	4,283
MPEKETONI	8,524	10,743	11,104	11,477	11,862	12,261	12,673	13,099	13,539	13,994	14,464	14,950	15,452	15,971
WITU	2,540	3,201	3,309	3,420	3,535	3,654	3,776	3,903	4,034	4,170	4,310	4,455	4,604	4,759
FAZA	1,641	2,068	2,138	2,209	2,284	2,360	2,440	2,522	2,606	2,694	2,785	2,878	2,975	3,075
KIZINGITINI	1,159	1,461	1,510	1,560	1,613	1,667	1,723	1,781	1,841	1,903	1,967	2,033	2,101	2,172
KIUNGA	762	960	993	1,026	1,060	1,096	1,133	1,171	1,210	1,251	1,293	1,336	1,381	1,428
TOTAL	22,184	27,958	28,897	29,868	30,872	31,909	32,981	34,090	35,235	36,419	37,643	38,907	40,215	41,566

Source: CURP Computation 2006

In relation to table 5-6 on the population projection which indicates that there will be an increase in population by 2026, table 5-7 matches this scenario and it indicates that there will be also an increase in the number of households in Lamu County. From table 5-3 on the trends in growth of households, there has been a rapid increase in the number of households in Kenya, Coast and in Lamu County with a household size of about 5. Lamu County having a household growth rate trend of 2.95, 3.35 and 4.78 in table 5-4 implies number of households will grow hence the need for provision of additional housing. There is therefore the likelihood of densification of existing settlements and expansion of the same. Analogous to the population size, Mpeketoni division will have the highest number of households and Kiunga will have the least. Hindi, Amu, Witu, Faza and Kizingitini will also experience an increase in the number of households. Hence therefore, due to this increase in the number of households there is need to Plan to ensure that there is no haphazard putting up of structures and to also Plan to increase the number of support services to these households such as drainage systems, sewer, water supply, electricity etc. in accordance to the Planning standards. Reference is made to the Density and Distribution maps above.

Table 5-8—Projected Special Categories 2016-2028

	2009	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Under 1	3,175	4,039	4,181	4,327	4,479	4,635	4,798	4,966	5,139	5,319	5,505	5,698	5,898	6,104
Under 5	15,719	19,999	20,699	21,423	22,173	22,949	23,752	24,584	25,444	26,335	27,257	28,211	29,198	30,220
6-13	21,330	27,138	28,088	29,071	30,088	31,141	32,231	33,359	34,527	35,735	36,986	38,280	39,620	41,007
14-17	8,744	11,125	11,514	11,917	12,334	12,766	13,213	13,675	14,154	14,649	15,162	15,693	16,242	16,810
18-29	28,474	36,227	37,495	38,807	40,165	41,571	43,026	44,532	46,091	47,704	49,374	51,102	52,890	54,741
28-49	22,843	29,063	30,080	31,133	32,222	33,350	34,517	35,725	36,976	38,270	39,609	40,996	42,431	43,916
50-64	52,448	66,729	69,064	71,481	73,983	76,572	79,253	82,026	84,897	87,869	90,944	94,127	97,422	100,831
Over 65	3,490	4,440	4,596	4,757	4,923	5,095	5,274	5,458	5,649	5,847	6,052	6,263	6,483	6,710

Source: Lamu Statistical Office 2016

Population of special categories using the same growth rate of 3.5% is indicated in the above table. It shows the projection of the special categories which include those under the age of 1, less than 5, between the age of 6-13, between the age of 14-17 and over 65. The table also shows the distribution of the households in the various categories and the need therefore of projecting population needs in various sectors to attain what is needed. Due to the projected increase in these special categories, it is necessary to undertake proper Planning for schools (primary, secondary, tertiary) and the need for an increase in employment opportunities and also need to undertake Planning for homes for the elderly.

SECOND SCENARIO 2

Table 5-9—Population Projection at 4% Growth Rate

Division	2009	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
AMU	22,366	29,432	30,609	31,834	33,107	34,431	35,809	37,241	38,731	40,280	41,891	43,567	45,309	47,122
HINDI	10,700	14,080	14,644	15,229	15,839	16,472	17,131	17,816	18,529	19,270	20,041	20,843	21,676	22,543
MPEKETONI	36,527	48,067	49,990	51,989	54,069	56,232	58,481	60,820	63,253	65,783	68,414	71,151	73,997	76,957
WITU	13,105	17,245	17,935	18,653	19,399	20,175	20,982	21,821	22,694	23,601	24,545	25,527	26,548	27,610
FAZA	8,346	10,983	11,422	11,879	12,354	12,848	13,362	13,897	14,453	15,031	15,632	16,257	16,907	17,584
KIZINGITINI	6,577	8,655	9,001	9,361	9,736	10,125	10,530	10,951	11,389	11,845	12,319	12,811	13,324	13,857
KIUNGA	3,914	5,151	5,357	5,571	5,794	6,025	6,266	6,517	6,778	7,049	7,331	7,624	7,929	8,246
	101,535	**133,613**	138,958	**144,516**	**150,297**	**156,308**	**162,561**	**169,063**	**175,826**	**182,859**	**190,173**	**197,780**	**205,691**	**213,919**

Source: CURP Calculations

Secondly the consultant used the current calculated growth rate from the census reports and particularly the inter censual growth rate between 1999 and 2009 which is 3.97 which was rounded off to 4% as shown in table 5-9 above. Table 5-2 illustrates the inter censual growth rates in the population history of the Country characterised by a high growth rate nationally, 3.0 across the three areas but a large growth r Lamu County in 2009 than the coast and national. Compared to the first scenario, the second scenario leads to a higher population growth according to the projection hence this translates to increasing demands on all types of resources required to meet the needs of the growing population for basic services in terms of food, health, education and shelter and therefore the need for Planning. Its distribution as per divisions is also indicated in the table and densities can be inferred when associated with the area.

Table 5-10—Households Growth

DIVISIONS	2009	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
AMU	5,272	6,644	6,867	7,098	7,337	7,583	7,838	8,101	8,374	8,655	8,946	9,246	9,557	9,878
HINDI	2,286	2,881	2,978	3,078	3,181	3,288	3,399	3,513	3,631	3,753	3,879	4,009	4,144	4,283
MPEKETONI	8,524	10,743	11,104	11,477	11,862	12,261	12,673	13,099	13,539	13,994	14,464	14,950	15,452	15,971
WITU	2,540	3,201	3,309	3,420	3,535	3,654	3,776	3,903	4,034	4,170	4,310	4,455	4,604	4,759
FAZA	1,641	2,068	2,138	2,209	2,284	2,360	2,440	2,522	2,606	2,694	2,785	2,878	2,975	3,075
KIZINGITINI	1,159	1,461	1,510	1,560	1,613	1,667	1,723	1,781	1,841	1,903	1,967	2,033	2,101	2,172
KIUNGA	762	960	993	1,026	1,060	1,096	1,133	1,171	1,210	1,251	1,293	1,336	1,381	1,428
TOTAL	22,184	27,958	28,897	29,868	30,872	31,909	32,981	34,090	35,235	36,419	37,643	38,907	40,215	41,566

Source: CURP 2016

In relation to table 5-9 on the population projection which indicates that there will be an increase in population by 2026, table 5-10 matches this scenario and it indicates that there will be also an increase in the number of households in Lamu County from 22,184 in 2009 to 38,907 in 2026. From table 5-3 on the trends in growth of households, there has been a rapid increase in the number of households in Kenya, Coast and in Lamu County with a household size of about 5. Lamu County having a household growth rate trend of 2.95, 3.35 and 4.78 in table 5-4 implies number of households will grow hence the need for provision of additional housing. There is therefore the likelihood of densification of existing settlements and expansion of the same. Analogous to the population size, Mpeketoni division will have the highest number of households and Kiunga will have the least. Hindi, Amu, Witu, Faza and Kizingitini will also experience an increase in the number of households. Hence therefore, due to this increase in the number of households there is need to Plan to ensure that there is no haphazard putting up of structures and to also Plan to increase the number of support services to these households such as drainage systems, sewer, water supply, electricity etc. in accordance to the Planning standards.

Table 5-11: Special Category Projections at 4%

	2,009	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Under 1	3,175	4,178	4,345	4,519	4,700	4,888	5,083	5,287	5,498	5,718	5,947	6,185	6,432	6,689
Under 5	15,719	20,685	21,513	22,373	23,268	24,199	25,167	26,173	27,220	28,309	29,441	30,619	31,844	33,118
6-13	21,330	28,069	29,192	30,359	31,574	32,837	34,150	35,516	36,937	38,414	39,951	41,549	43,211	44,939
14-17	8,744	11,507	11,967	12,445	12,943	13,461	13,999	14,559	15,142	15,747	16,377	17,032	17,714	18,422
15-29	28,474	37,470	38,969	40,527	42,148	43,834	45,588	47,411	49,308	51,280	53,331	55,465	57,683	59,990
15-49	22,843	30,060	31,262	32,513	33,813	35,166	36,572	38,035	39,557	41,139	42,785	44,496	46,276	48,127
15-64	52,448	69,018	71,779	74,650	77,636	80,741	83,971	87,330	90,823	94,456	98,234	102,163	106,250	110,500
Over 65	3,490	4,593	4,776	4,967	5,166	5,373	5,588	5,811	6,044	6,285	6,537	6,798	7,070	7,353

Source: CURP 2016

Population of special categories using a 4% growth rate is indicated in the above table. It shows the projection of the special categories which include those under the age of 1, less than 5, between the age of 6-13, between the age of 14-17 and over 65. The distribution of the population in the categories is as indicated in the table, illustrating the various requirements to be provided for the population in the Planning stage. Due to the projected increase in these special categories, it is necessary to undertake proper Planning for schools (primary, secondary, tertiary) and the need for an increase in employment opportunities and also need to undertake Planning for homes for the elderly.

THIRD SCENARIO 3

Table 5-12: Population Growth & Distribution

Division	2009	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
AMU	22,366	31,054	32,545	34,107	35,744	37,460	39,258	41,142	43,117	45,186	47,355	49,628	52,011	54,507
HINDI	10,700	14,856	15,569	16,317	17,100	17,921	18,781	19,683	20,627	21,617	22,655	23,742	24,882	26,076
MPEKETONI	36,527	50,716	53,150	55,701	58,375	61,177	64,113	67,191	70,416	73,796	77,338	81,051	84,941	89,018
WITU	13,105	18,196	19,069	19,984	20,944	21,949	23,002	24,106	25,264	26,476	27,747	29,079	30,475	31,938
FAZA	8,346	11,588	12,144	12,727	13,338	13,978	14,649	15,352	16,089	16,862	17,671	18,519	19,408	20,340
KIZINGITINI	6,577	9,132	9,570	10,030	10,511	11,015	11,544	12,098	12,679	13,288	13,925	14,594	15,294	16,028
KIUNGA	3,914	5,434	5,695	5,969	6,255	6,555	6,870	7,200	7,545	7,908	8,287	8,685	9,102	9,539
Total	**101,535**	**140,976**	**147,743**	**154,834**	**162,266**	**170,055**	**178,218**	**186,772**	**195,737**	**205,133**	**214,979**	**225,298**	**236,112**	**247,446**

Source: CURP 2016

Thirdly, the consultant used the mean of the growth rates from 1969 to 2009 of the County which came to 4.76% and rounded off to 4.8%. The growth rate in population and distribution in the various divisions is as indicated in table 5-12. Population is expected to grow from 140, 976 in 2016 to 225,298 by 2026 compared to the figures of scenario 1 and 2 discussed above. Scenario three leads to a higher population growth according to the projection hence this translates to increasing demands on all types of resources required to meet the needs of the growing population for basic services in terms of food, health, education and shelter and therefore the need for Planning. Its distribution as per divisions is also indicated in the table and densities can be inferred when associated with the area. Density distribution is as illustrated in the Map above

Table 5-13 –Households Growth

DIVISIONS	2009	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
AMU	5,272	7,174	7,497	7,835	8,187	8,556	8,941	9,343	9,763	10,203	10,662	11,142	11,643	12,167
HINDI	2,286	3,111	3,251	3,397	3,550	3,710	3,877	4,051	4,234	4,424	4,623	4,831	5,049	5,276
MPEKETONI	8,524	11,600	12,122	12,667	13,238	13,833	14,456	15,106	15,786	16,496	17,239	18,014	18,825	19,672
WITU	2,540	3,457	3,612	3,775	3,945	4,122	4,308	4,501	4,704	4,916	5,137	5,368	5,610	5,862
FAZA	1,641	2,233	2,334	2,439	2,548	2,663	2,783	2,908	3,039	3,176	3,319	3,468	3,624	3,787
KIZINGITINI	1,159	1,577	1,648	1,722	1,800	1,881	1,966	2,054	2,146	2,243	2,344	2,449	2,560	2,675
KIUNGA	762	1,037	1,084	1,132	1,183	1,237	1,292	1,350	1,411	1,475	1,541	1,610	1,683	1,759
TOTAL	22,184	30,189	31,548	32,968	34,451	36,001	37,621	39,314	41,084	42,932	44,864	46,883	48,993	51,198

Source:

In relation to table 5-12 on the population projection which indicates that there will be an increase in population by 2026, table 5-13 matches this scenario and it indicates that there will be also an increase in the number of households in Lamu County from 30,189 in 2016 to 48,993 in 2026. From table 5-3 on the trends in growth of households, there has been a rapid increase in the number of households in Kenya, Coast and in Lamu County with a household size of about 5. Lamu County having a household growth rate trend of 2.95, 3.35 and 4.78 in table 5-4 implies number of households will grow hence the need for provision of additional housing. There is therefore the likelihood of densification of existing settlements and expansion of the same. Analogous to the population size, Mpeketoni division will have the highest number of households and Kiunga will have the least. Hindi, Amu, Witu, Faza and Kizingitini will also experience an increase in the number of households. Hence therefore, due to this increase in the number of households there is need to Plan to ensure that there is no haphazard putting up of structures without Planning and also Plan to increase the number of support services to these households such as drainage systems, sewer, water supply, electricity inter alia that match the Planning standards. Density distribution is as illustrated in the Map

Table 5-14 ---Household Growth Rate at 4.5%

	2009	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Under 1	3,175	4,408	4,620	4,842	5,074	5,318	5,573	5,840	6,121	6,415	6,722	7,045	7,383	7,738
Under 5	15,719	21,825	22,873	23,970	25,121	26,327	27,591	28,915	30,303	31,757	33,282	34,879	36,553	38,308
6-13	21,330	29,616	31,037	32,527	34,088	35,724	37,439	39,236	41,120	43,093	45,162	47,330	49,601	51,982
14-17	8,744	12,141	12,723	13,334	13,974	14,645	15,348	16,084	16,857	17,666	18,514	19,402	20,334	21,310
15-29	28,474	39,535	41,432	43,421	45,505	47,689	49,979	52,378	54,892	57,526	60,288	63,182	66,214	69,393
15-49	22,843	31,716	33,239	34,834	36,506	38,258	40,095	42,019	44,036	46,150	48,365	50,687	53,120	55,670
15-64	52,448	72,821	76,317	79,980	83,819	87,842	92,059	96,477	101,108	105,962	111,048	116,378	121,964	127,818
Over 65	3,490	4,846	5,078	5,322	5,577	5,845	6,126	6,420	6,728	7,051	7,389	7,744	8,116	8,505

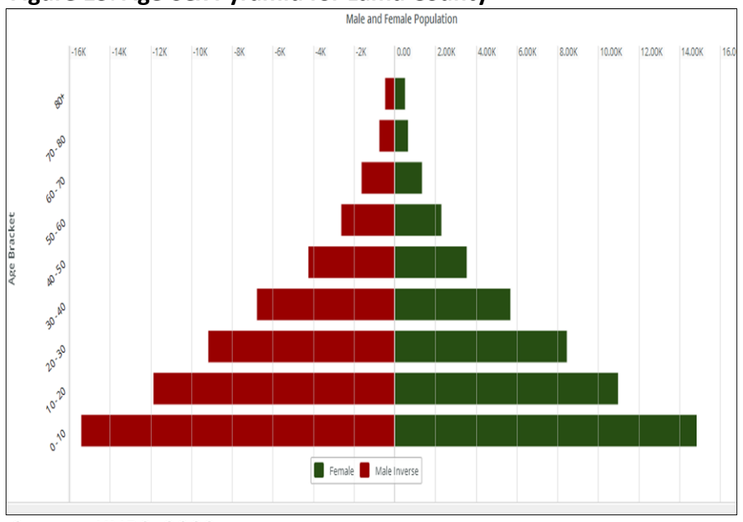
Source: CURP 2016

Population of special categories using a 4.8% growth rate is indicated in the above table. It shows the projection of the special categories which include those under the age of 1, less than 5, between the age of 6-13, between the age of 14-17 and over 65. Distribution of the population in various categories for different requirements for the Planning period is indicated in the table and has varied Planning implications. Due to the projected increase in these special categories, it is necessary to undertake proper Planning for schools (primary, secondary, tertiary) and the need for an increase in employment opportunities and also need to undertake Planning of homes for the elderly.

DEPENDENT POPULATION

In 2009, the dependent population was 56,504 representing 55.64% of the population. This is projected to be 131,708 people in 2033 representing 65.31%. The Age Dependency Ratio was 100:82 in 2012 (Kenyadecides.co.ke 2012). This figure increased to 53% in 2013 whereby out of 113,845 people, 59,833 were below the age of 20 years. It is likely to remain the same for in the three scenarios projected above.

Figure 13: Age-Sex Pyramid for Lamu County



Source: KNBS, 2009

INDICATORS OF WELL-BEING

POVERTY LEVELS

Lamu faces food poverty, absolute poverty and hard-core poverty as showed in the assessment carried out in 2000 which revealed that 60 % (43,525) were poor, in 1977, the situation stood at 39.35 % (25,809 people). The overall poverty incidence in the former district (Lamu County) still stands at 60% as per the annual monitoring and evaluation report for the 2005/2006 financial year.

The above scenario shows that poverty indices are rising fast. Serious strategies are needed to address poverty reduction. Most of the people affected by poverty are the landless, squatters, the sick, widows, orphans, people with disability, the unemployed youth, women and children. Poverty in Lamu is attributed to high disease incidence, frequent droughts, poor road infrastructure, high illiteracy, and poor marketing facilities for agricultural crops and insecurity in the mainland.

EDUCATION

School Going Population

The total of school going population (primary and secondary) was 37,428 representing a 36.86% of the population in the year 2009. This is projected to be 74,331 in 2033, also representing 36.86%. In 2007, the numbers of primary schools in Lamu were 70 and secondary schools were 11. For primary schools, the teacher to pupil ratio was 1:40 and for secondary schools was 1:39 (Kenyadecides.co.ke). The steady increase in school goers will require a similar increase in the number of nursery, primary and secondary schools.

HERITAGE AND CULTURE OF THE PEOPLE OF LAMU

ETHNIC COMPOSITION OF LAMU

There are numerous ethnic groups that are found in and around Lamu including but not limited to the Bajuni, Sanye, Orma, Awer, Kore Maasai, Miji Kenda, Pokomo, Somali and Kikuyu. The Bajuni are believed to be a result of Arab and Indian intermarriages with the local Bantu communities during the 14th century inter-continental trade. The Bajunis have generally dominated the economic, social and political landscape of Lamu. The Bajuni constitute the majority with a population estimated above 30,000 currently and are a traditional fisher and agricultural community living along the Lamu coastline and Islands.

The Orma believed to have migrated into the area in 17th or 18th century are pastoralists estimated to be around 7, 000 and occupy most parts of Lamu County's grasslands while the Boni (also referred to as the Awer) are found in Boni forest and estimated to be 2,500. The Boni are a Cushitic people who believe that their ancestry is from Ethiopia in Harar. They practice subsistence agriculture and hunting/gathering of edible forest products. The hunting is done by men while women dig for roots, berries and fruits. The Boni also carry out trade activities by producing carved items, such as stools, and mats which they sell to their neighbours. They sell honey that they gather from the forest as well. The Boni people are a vulnerable group in the County; they lack many basis services such as education. One of the reasons for this is that they are situated in a remote area and the teachers are not enticed to live there. The people are also skeptical about secular schools and opt for their children to remain at home. This is among the reasons why they would like to see more Islamic schools in the area. (The Tana River Delta and Lamu Archipelago; Pilot SEA, 2010)

The Sanye, also hunter gatherers and closely related to the Awer are estimated to be 500. The Giriama, Pokomo and Somali are generally businessmen who migrated to Lamu from neighbouring counties while the Kore Maasai are thought to be around 200 and migrated into Lamu around the 17th century as a result of Maasai inter-clan conflicts in the Rift Valley. The Kikuyu constitute a significant population in and around Mpeketoni area. They are immigrants brought to the area in the 1970s by the first post-independence Government of Kenya under President Jomo Kenyatta.

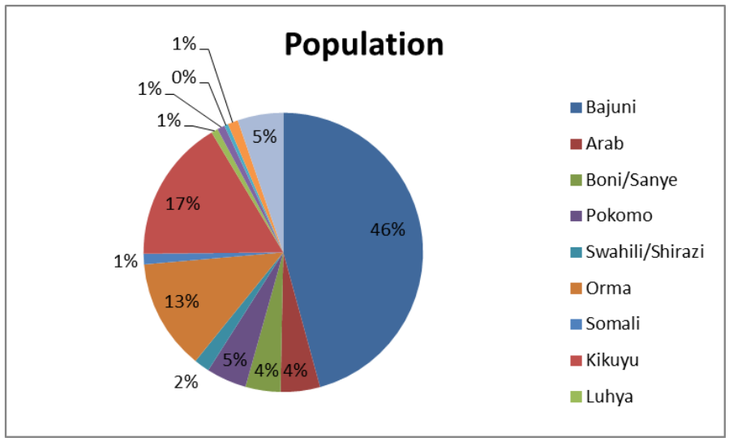
Table 5.1: Ethnic Composition

Name of Tribe	Population
Bajuni	**25,000**
Arab	**2,495**
Boni/Sanye	**2,212**
Pokomo	**2,545**
Swahili/Shirazi	**979**
Orma	**7,000**
Somali	**670**
Kikuyu	**9,059**

Luhya	**426**
Luo	**475**
Taita	**244**
Tharaka	**652**
Others	**2,886**
TOTAL	**42,299**

Source: Lamu CountySocial Development Office 2007

Figure 1.14: Population Distribution by Ethnic Group



Source:

Despite a vast population practising Islam, there are still those who practise Christianity; there are therefore a number of churches found in the County.

Lamu old town is characterised by beautiful stone buildings and carved doors influenced by Arabic, Persian, Indian, European and Swahili building styles. The buildings are well preserved and show the development of the Swahili building technology using lime, coral and mangrove poles. There are also narrow streets that most people find very unique; this inhibits the use of motor vehicles and promotes Non-Motorised Transport like donkeys. This street pattern originated from the Arab traditions of land distribution and urban development. The dwellings in the town are clustered into small wards consisting of closely related lineages. (UNESCO World Heritage Centre)

The town's cultural uniqueness has been a major draw to the film industry as it offers exotic locations at a much cheaper cost. This has contributed to a boost in the local economy in terms of employment creation and a thriving tourism industry (*Lamu Management and Conservation Draft Plan, 2007).*

The unique and diverse cultural heritage of Lamu County can be used as a resource to tap the tourism opportunities within the County.

CHAPTER 6: LAND AND HUMAN SETTLEMENTS

OVERVIEW

Land is one of three major factors of production in classical economics (along with labor and capital) and an essential input for housing and food production. Thus, land use is the backbone upon which most economies are anchored and it provides substantial economic and social benefits.

Lamu County is one of the six counties within Kenya's Coast Province. It borders Garissa County to the North; Tana River County to the west and South and the Indian ocean to the East. The County covers 6,474.7 km^2, 150 km^2 of this land mass being the Islands while 4% is terrestrial waters.

Out of the total area of the County (Approximately 6474 km^2), the arable land covers 5,517 Km^2, non-arable land is 649.7 Km^2 and 308 Km^2 is under water mass. A large portion of the land set aside for ranch purposes remain idle, understocked or not in use. It is for this reason that recently; a few formerly allocated ranches have reverted back to the County Government for better Land utilization. The table below shows the land distribution in the current Ward jurisdiction boundaries:

Land Resources Fact File

Ward	Area km^2
Mkomani	172.5
Hindi	1150.8
Bahari	123.3
Witu	975.4
Faza	79.2
Basuba	1708.7
Kiunga	513.9
Hongwe	128.5
Mkunumbi	1366.1
Shella	54.7
TOTAL	**6,273.1**

Source: Lamu County CIDP, 2013-2017

HISTORICAL DEVELOPMENT OF LAND TENURE IN LAMU COUNTY

Historically, land in Lamu County has always been known to be generally 'no man's land'. This was attributed to the historical land adjudications that took place towards regularization of the tenure. After 1888 when the Imperial British East African company took over the administration of the area the Khatt was retained with the stipulation that all transactions subsequent to that date be registered at the company offices. Thus, for the first time an attempt was made to record land ownership and use in a single central registry.

In 1895 by a treaty between the British Crown and the Sultan of Zanzibar, the ten-mile coastal strip was leased to the East African Protectorate by a lease agreement according to which the Crown recognised the right of occupants over the land. This recognition was later confirmed by the East African land regulation of 1897.

In 1902, the crown Land Ordinance was issued vesting all land in the Protectorate including the ten-mile coastal strip to the crown and empowering the crown to grant free hold titles or long team leases for unoccupied land. In the same year, the Registration of document Act was passed requiring all transactions in land and immovable property subsequent to that date to be registered and six years later in 1908 the Land Title Act was introduced.

This Act marked a new era in the development of land tenure in Lamu County in that it established a legal mechanism for the adjudication of claims, surveying and compilation of Plans. Boundaries were defined on the ground by wooden pegs, masonry blocks, iron pin in cement.

The process of claims adjudication started in Lamu Island during the first World war. By 1923 over 1000 residential plot and some 500 agricultural plots were surveyed. In 1963 the Registered Land Act began to gradually replace all previous acts and land registers were opened. The new act simplified the process of transactions and resulted in the compilation of the Registry Index Maps (RIM) where the plots are identified by District (County currently) and section and could be updated to show subdivision and consolidation.

The main reason in outlining the historical background to registration of claims on land in the County, is to show the real source of the land problem in the County. It is our submission that the declaration of land that was initially owned by the Sultan of Zanzibar as crown land by a mere treaty between the Sultan and the British East African Company paved the way for irregular allocation of land in Lamu County without regard to the needs of the local population.

Thus, unlike in other counties in Kenya where land was either privately owned or held by the former County council on behalf of the community as Trust land, in Lamu, land was owned by the Central Government. As will be demonstrated in the sections below, the lack of Government accountability in land governance has perpetuated irregular allocation of public land in the County. The situation is made worse by the assumption in minds of landless Kenyans who move to the County with the hope of finding free land to settle on for occupation and cultivation.

FACTORS INFLUENCING LAND UTILIZATION IN LAMU COUNTY

Land utilization in Lamu is influenced to a greater extent by the topography of the County. Lamu presents very unique topography. The County is generally flat and lies between 1 and 50 meters above sea level which makes some parts of the County liable to flooding during the rainy season. The main topographical features include;

- The coastal plains
- The Delta
- Island plains
- Dondori/Mangai river plains
- Sand Dunes
- The coastal plains

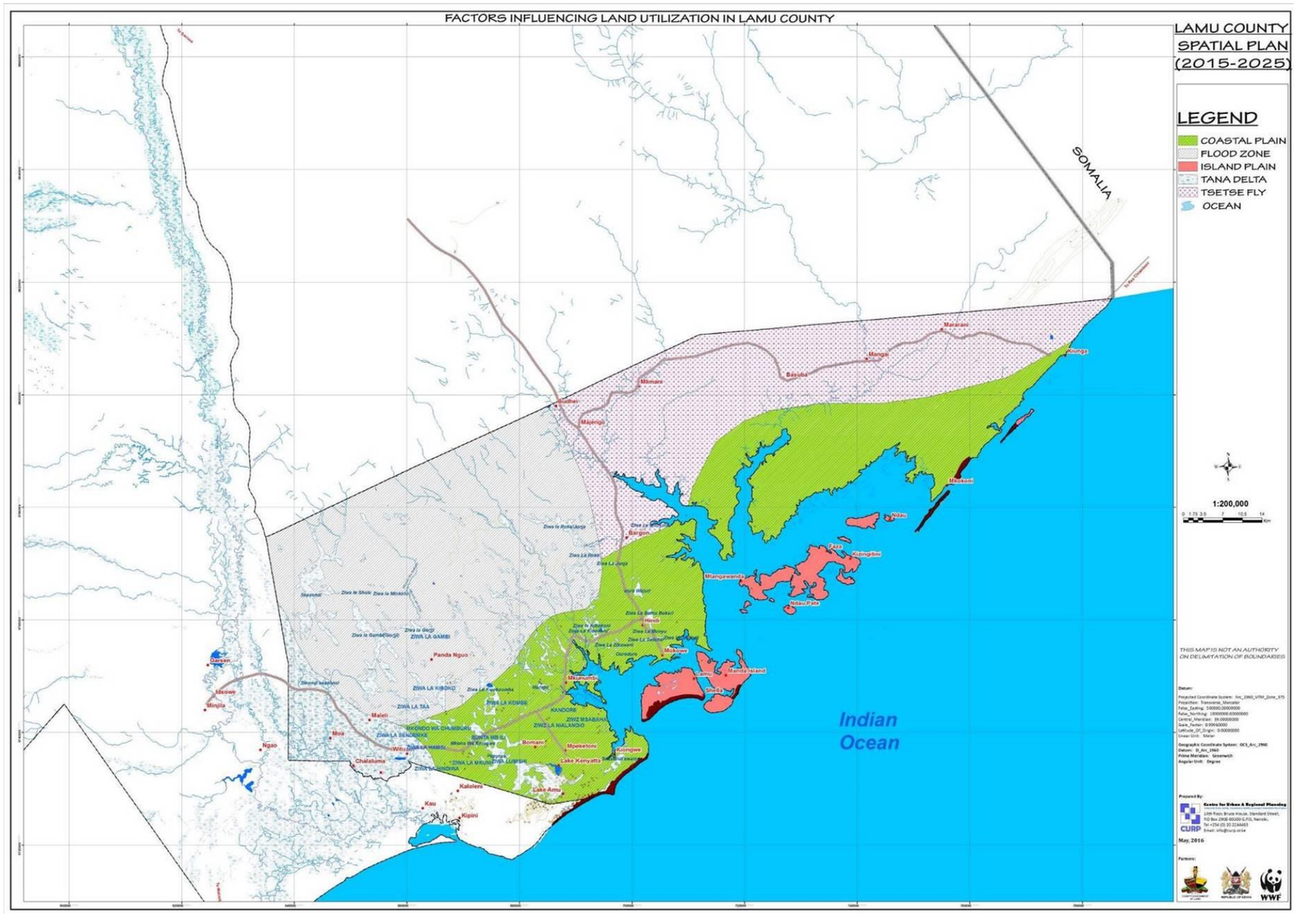
This is a unique landscape characterized by a number of depressions shaped like a bowel which during the rainy season

collect water and provide a natural habitat for growth of swampy vegetation. The local people referred to this land forms as *Ziwa,* a Kiswahili word meaning a lake. Traditionally, these swampy areas provided an ideal pasture for Livestock and Wildlife during the dry season. Consequently, most ranches are found within this landscape.

The Tana Delta covers part of Lamu County as it meanders to find its way into the Indian ocean. The Delta is key oceanic ecosystem and important wetland housing unique variety of Mangrove trees among other life species. In spite of its ecological importance, land allocation, inappropriate land uses as well as inadequate conservation measures are rampant within the delta ecosystem. These human activities directly impact on what happens upwards within the County including drying up of areas formerly very vital for underground water recharge as wetland ecosystems.

The Island plains is a typical land form on the Archipelago. The land is flat with occasional limestone outcrop in isolated areas. In Manda Island for example, Limestone rock formation is covered by thin layer of sandy soil that makes the island unsuitable for intensive agriculture. Generally, the most dominant factors influencing land utilization are represented in the map below:

Map 9: The map below shows the influencing factors



Tsetse fly infestation in the area to the north of Bargon settlement and extending all the way parallel to the County boundary with Garissa County and extending into Somalia, has in some way impeded utilization of land in this part of the County. The flies sting and has a negative effect on public health, animal health, tourism and agriculture in the areas of their occurence.

The County has to initiate tsetse fly eradication interventions to realize any significant economic growth in both the Agricultural sector and tourism sector. The County has to work closely with the Kenya Tsetse fly and Trypanosomiasis Eradication Council (KENTTEC) inoder to eradicate the tsetse fly infestation in the County. The eradication of the tsetse fly in Makima, Embu is a good case study for a successful procedure in their eradication. Another successful example is the recent eradication of the fly in Zanzibar by the Government of the Republic of Tanzania in collaboration with international partners. These examples are encouraging and clearly shows that with commitment the County Government working with KENTTEC can be able to free the County of this menace that greatly influence the land utilization of that upper part of the County.

CATEGORIES OF LAND

According to the constitution of Kenya 2010, land in Kenya is only held, used, and managed in a manner that is equitable, efficient, productive and sustainable. The constitution clearly states that there are three categories of land in Kenya. These are Public, community and private land.

PUBLIC LAND

Public land includes unalienated Government land, and land in respect of which no individual or community ownership can be established by any legal process. It also includes all minerals and mineral oil deposits, Government forests, Government game reserve, water catchments, National parks, Government animal sanctuaries and special protected areas, all roads, rivers lakes and other water bodies. The continental shelf and all land between the high and low water mark also forms part of public land. The constitution clearly specifies that Public land shall vest in and be held by the County Government in trust for the people resident in the County and shall be administered on their behalf by the National Land Commission (NLC). The constitution of Kenya now empowers the County Government to play a leading role in the management of public land in close consultation with the National Land Commission.

According to the statistical figures obtained from the lands office, there is an indication that about 57.8% of the total land size in Lamu is categorized as public land. This is such an important factor in the making of this County Spatial Plan as much land is left for exploration to put it into best use in the proposals.

PRIVATE LAND

Private land is any land registered and held by a person under freehold or leasehold tenure. The state, however, may regulate the use of any land or interest in or right over any land whether privately held or not in the interest of defence, public safety, public order, public morality, public health or land use Planning. This means the constitution gives the County Government the power to regulate the use of land within its jurisdiction.

Most of the private land owners in the County have title deeds issued by the Sultan of Zanzibar who ruled this area dating back to the 19th century. Some people in the settlement schemes and some of the ranches have also been issued with letters of allotment with just a little proportion of the population in possession of title deeds. A big proportion of the land in the County is still regarded as private though lacking secure tenure. This proportion of land represents about 35.5% of the total land in the County.

COMMUNITY LAND,

The Constitution of Kenya defines community land as that land which is lawfully held, managed or used by a specific community. Such land will include community forest, grazing areas or shrines. In Lamu County, marginalized communities such as the Boni/awer could qualify for allocation of community land to enable them to practice their way of life and guarantee their livelihood as hunting and gathering. It is the recommendation of the County Spatial Plan that the County Government will explore the possibility of providing such land to this community. Additionally, most of the archipelago islands (Lamu, Pate, Faza, Uvondo Kiwayuu, Simambaya, and Manda etc.) where the indigenous Swahili people live in villagesa are also considered as part of Community trust lands. The community land is however not large in the County representing just about 1.7% of the total land available in the County.

This County Spatial Plan, however, regards the territorial ocean waters as part of land and a resource the vast Lamu County has. On that note, land distribution in the County has been noted as follows:

Table 5.: Land Type Distribution

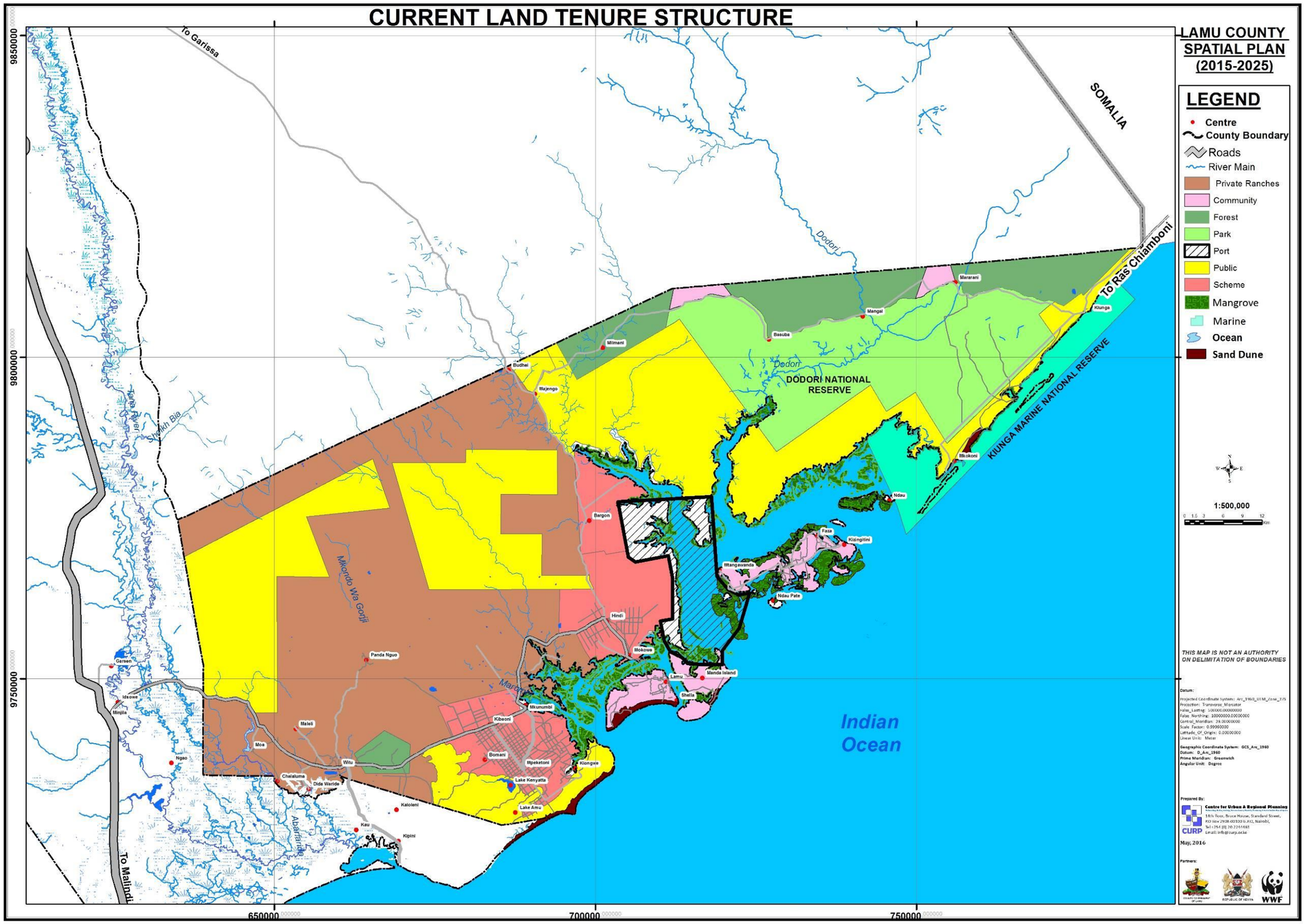
Categories	Area (km^2)	Percentage
Territorial Ocean Waters	56,100	90.1
Government land	3568.6	5.73
Private land	2187.0	3.51
Trust land	103.10	0.17
Terrestrial Water mass	308.0	0.49
Total	62266.7	100

Source: Lamu CountyDevelopment Plan 2004/2008

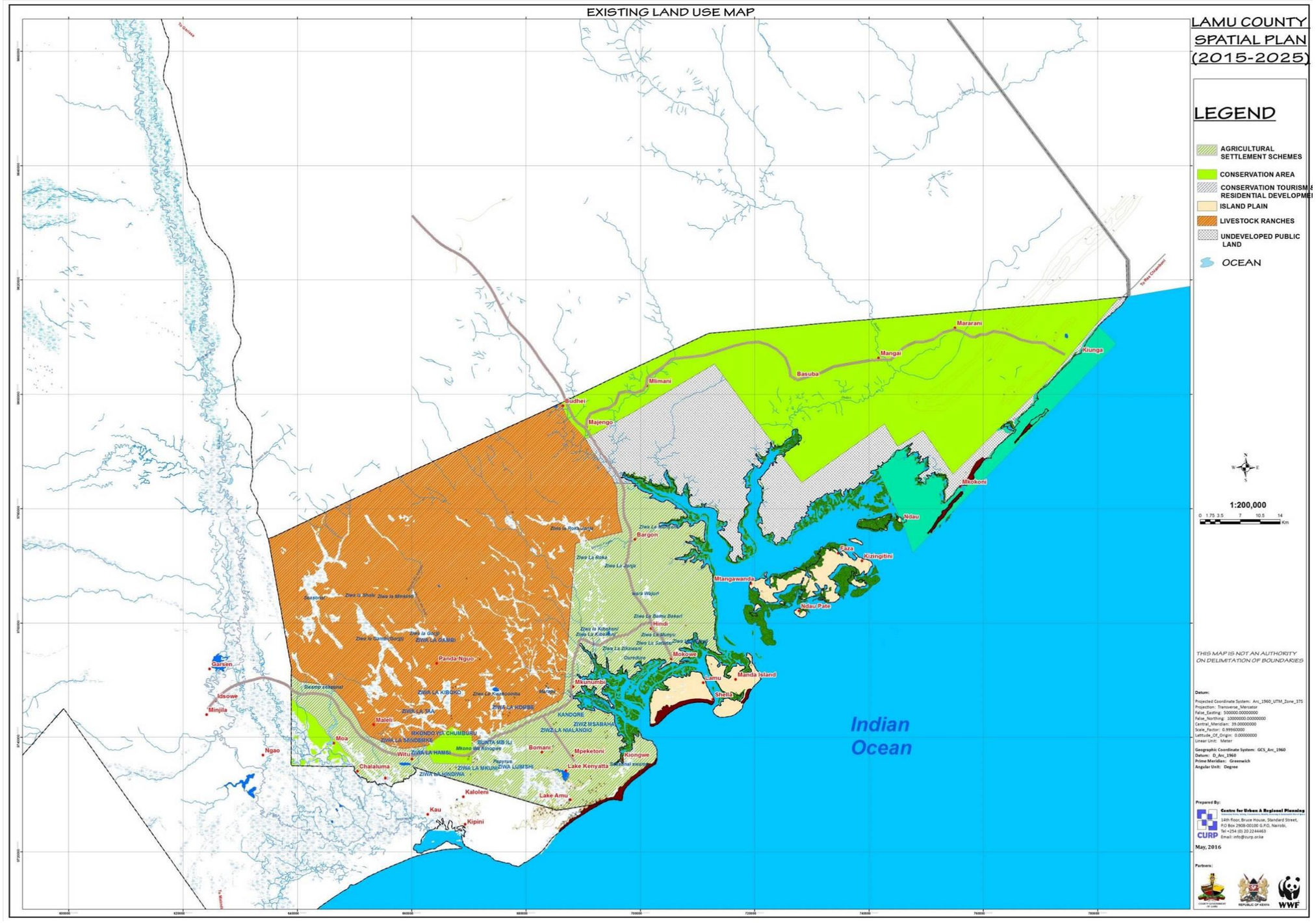
From the table above, it is noted that the largest form of land resource in the County is the vast territorial waters of the Indian Ocean. It is also worth noting that this land resource has been treated with a lot of specialization in the making of this spatial Plan as most people in the County derive their livelihoods from it through activities such as fishing, touristic activities, transportation, and the anticipated benefits to be realized from the Lamu Port under the LAPSSET project. It therefore becomes inevitable that the territorial ocean waters have to be treated with utmost consideration in the making of this Spatial Plan.

Contrary to common belief that Lamu County has a lot of free land up for grabs, the findings of this study established that most of this land is not entirely free. This is because most of the land in the County is held in trust of the community by the County Government hence deemed as public land. In cases where the land is not held in trust by the government, it belongs to indingenous locals who lack legal claim owing to lack of tenure security. To the best of this study, the general land tenure structure, land use and land availability models were established as follows:

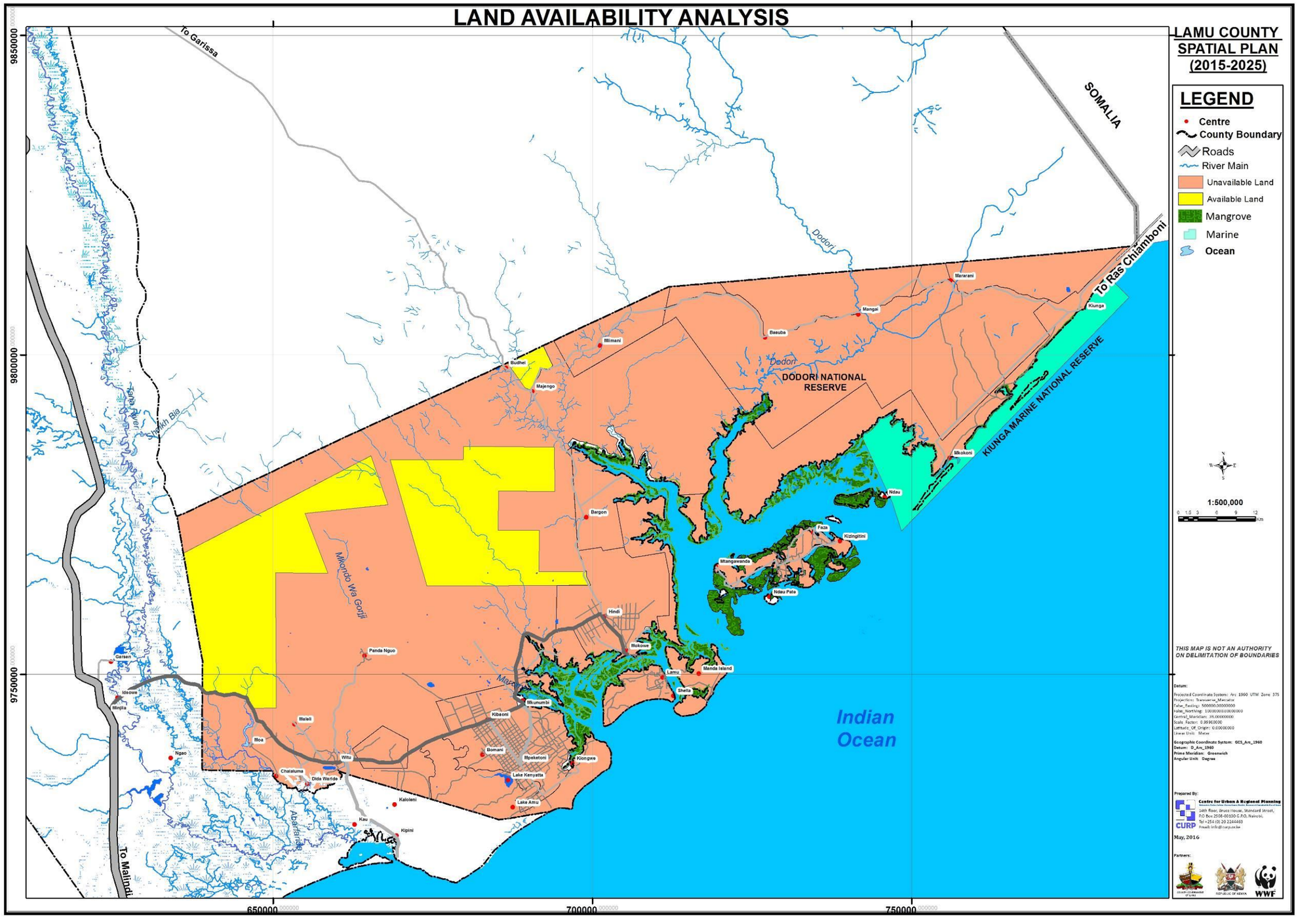
Map 10: The Current Land Tenure Structure



Map 11: General Land use map of Lamu County



Map 12: Land Availability Assessment in Lamu County



LAND ADMINISTRATION IN LAMU

The County Government is working towards establishing an effective land administration system that will guarantee the recording of land rights and promote tenure security. The County Government has successfully completed regularization of schemes of existing villages within the islands and title deeds issued to the beneficiaries. The NLC has also stepped in to try resolve and arbitrate most historical injustices in Lamu County and regulate use of land for projects of strategic National importance proposed in the County. This Spatial Plan is prepared in anticipation that most issues related to land facing the locals of Lamu will be addressed and give direction to the best land utilization practices within the County.

LAND USE MANAGEMENT ISSUES

The use of land in Urban and Rural areas as well as in the land /water interface has been a major area of concern to the people of Lamu. This has in the past been occasioned by centralized land allocation done by the Government prior to the introduction of the new constitution without any regards to the local residents. On that note, local individuals and institutions have become very vocal in matters of land administration, use and management of land thereof within their localities. Specifically, in Lamu County, the greatest issues identified according to the people are in one way or the other inclined to land utilization and tenure security. Some of the issues are highlighted as follows:

The anticipated developments in Lamu County and the notion of the County as 'No man's land' has resulted to many non indingenous population migrating into the County to buy land for speculation purposes. This coupled with a disconnect in land administration systems in the County has resulted to poor land management in the County. This County Spatial Plan is being prepared in the hope that once completed, the proposed utilization model for land will be adopted which might solve this endemic problem of viewing Lamu County as an available land up for grabs while essentially that is not the case.

The other notable issue has been encroachment onto fragile ecosystems like the sand dunes, wetland areas and other environmentally fragile areas as discussed in other sections of this report. This has been witnessed in Amu island where allocation of land has been made on the sand dune and beach areas which would otherwise be public spaces. Other areas where sand dunes are encroached are the 'Bawaya' sand dunes in Bahari Ward, Kiongwe area where rampant farming activities has resulted to cumulative degradation of the intrinsic value of the sand dunes.

Notably also is the uncontrolled human activities including farming on wetland areas which is adversely affecting the water availability in the County since underground water recharge is being tampered with. A good example of this is the Lake Kenyatta which has over time been diminishing and requires candid conservation interventions if its sustainability is to be guaranteed.

Recently, carcass of various biodiversity that are dependent on the lake have been witnessed around the lake and this is a clear indication that if the proposed interventions by this CSP to save the lake are not adhered to, more life would be lost in the future. Below are some images of declining levels of the lake and lost life and biodiversity occasioned by the same.

Figure 15: The rescinding levels of the lake and lost biodiversity occassioned by the same







Source: WWF, 2016

For the above reasons, emphasis on strict regulations and buffer zones for water catchment areas cannot be overlooked. It is overly important that water catchment management Plans for all catchments be carried out throughout the County.

The land use management issues are not only felt within the mainland but also in the archipelago village settlements where most residents of the County reside. This in particular relates to the traditional Planning practice emanating from the Swahili culture relating to the setting of land parcels in residential neighbourhood where roads of access are narrow as the accesses found within Lamu Old Town. The same narrow footpath has been extended to Langoni and Shella neighbourhoods.

The County Government has to educate the residents on the Planning benefits of providing adequate roads of access even though they want to maintain Amu town as a world Heritage site famous for non-motorized transport. This spatial Plan has recommended introduction of Planning standards which when implemented will improve the pedestrian circulation within the archipelago villages or neighbourhoods.

Furthermore, the technical staff with the requisite technical knowledge in processing of building applications have in the past allowed buildings to be built without providing for building setbacks and building line. The County Government is in the process to establishing a competent Building Department and it is possible that we shall see improvement in the building sector in the future. Since the County Government is now a Planning authority, it will need to establish a fully-fledged Enforcement unit within the Building Department. The role of the enforcement section is to ensure compliance with land use Planning regulations and policies.

The Territorial waters have been identified as a key resource in the County where most local people benefit from economic activities such as fishing and tourism related activities. This means that compatible utilization of the territorial waters also need to be enhanced to incorporate mutual economic benefits of all stakeholders. On that note, marine assets such as the fish landing sites for the fishermen need to be jealously safeguarded and promoted as a way of enriching and promoting local livelihoods for the local people. There have been incidences in the past where fish landing sites have been grabbed by private developers and thus blocking access of fishermen to the sea and to transport their catch to the market.

Furthermore, it was established that the proposed developments like the LAPSSET project will have a direct bearing on the sea routes used by local fishermen or passengers using water as their means of transport owing to security concerns attributed to such infrastructural utilities such as a Port. On that note, the making of this County Spatial Plan considers all options to propose viable alternatives for mutual benefit of all stakeholders including compensation of affected fishermen.

LAND USE PLANNING IN LAMU COUNTY

Land use Planning is an essential process in achieving efficient and sustainable utilization and management of land and land based resources. Compared with other counties in the Country, Urbanization is still very low in Lamu County and this is partly attributed to the poor transportation condition and network in the County. Urban Centres have been known over time to be hubs of economic activities and when they are vibrant, they greatly shape the land use forms of various places. The main road of access into the County connecting Lamu and major urban centres in the coast region like Malindi, Kilifi and Mombasa is not tarmacked making travel to the County a night mare for road users.

This Spatial Plan incorporates efforts by the National Government to have this road tarmarcked in the hope that it will spur growth and development of the County and create urbanization opportunities for Centres along the corridor.

According to the reviewed documents, and information with the consultant, there has been past attempts in land use Planning in the County which include the preparation of the County Integrated Development Plan (CIDP), preparation of the Delta land use Plan covering the Tana Delta ecosystem and outlying areas among others. Other land use Planning efforts have been pro-conservation sort of land use management Plans including various documentations of Natural Resources by WWF. Other notable Plans prepared within the County include the land use Plan prepared by the Director of Physical Planning for Mpeketoni, Mokowe, Hindi Mkunumbi and Kiunga town. The completion of the County Spatial Plan will provide the necessary framework for the development of the County through consideration and incorporation of all previously prepared Plans.

RURAL LAND USE PLANNING IN LAMU COUNTY

Rural settlement Planning in the Country in general has been limited to preparation of settlement schemes by the Department of settlement in the Ministry of Lands, Housing and Urban Development. There is need for the Department of Physical Planning and the Department of settlement to work closely with the County Government in the preparation of rural land use Plans to ensure that rural settlement Planning integrate implementation of cluster settlements.

This is because as observed from the existing archipelago villages within the County, Cluster settlements will ensure cheaper provision of infrastructural services and stop uncontrolled subdivision of land. By concentrating residential buildings for the beneficiaries of the respective settlement scheme, the entire agricultural plot can be exploited for agricultural production as opposed to the existing situation where farmers build their houses within the plot.

The making of the County Spatial Plan advocates for such practices to be adopted in the establishment of rural settlement schemes in Lamu County. This will enhance control over land use in a bid to conserve the overly sensitive geographical ecosystem of Lamu County and ease provision of services by the County Government.

DEVELOPMENT CONTROL

Development control is the power of the state or County to regulate property rights in Urban and Rural land and this power is derived from the state constitutional responsibility to ensure that the use of land promotes the public interest. In the past, development control has not been extensively used to regulate land use and to ensure sustainability and this has been due to lack of the necessary manpower. However, with devolution, it is the responsibility of the County Government to set up the necessary institutional structures to facilitate development control. As a Planning authority, Lamu County Government should establish a fully-fledged Physical Planning department.

The County should work very closely with the Central Government to establish standards, process and procedures that are efficient, transparent and accountable taking into consideration the National policies.

ECOSYSTEM PROTECTION AND MANAGEMENT

Lamu County has diverse ecosystem which include forests, sand dunes, mangrove forest, wetlands, marine and coastal ecosystem, lakes and drainage basins that present formidable management

challenges because of factors such as conflicting uses and lack of proper governance frameworks.

The unsustainable exploitation of these natural resources is made worse by the absence of clear natural resources management guidelines and lack of clear political will to implement the existing ones. Human encroachment into the fragile ecosystems should be discouraged and no settlement schemes should be opened up without proper assessment of suitability of the area for human habitation. The Islands constantly face the threat of beach erosion and the County Government has to put in place measures to define and maintain beaches at high and low water mark and erect sea walls to mitigate against erosion.

As noted earlier in previous chapters of this report, most parts of Lamu County are environmentally sensitive and hence need to proactively secure most of these areas.

SECURITY ISSUES AFFECTING LAND USE

Immediately following the independence of Kenya as a British colony in 1963, there was a bloody revolt by the Somali ethnic community who attempted to secede from Kenya and join the Somali Republic.

The Government of Kenya vehemently objected to this revolt and vowed not to surrender even an inch of Kenyan soil. The result was conflict which the Kenyan Government named *Shifta* after the Somali word for "*bandit".* The Somali ethnic group received military support from the Somali Government in a war with their own Country. The war started in 1963 ended in 1967 when the Prime Minister of the Somali Republic signed a cease fire agreement with the Kenya Government. The effect of the war, however, was felt for several decades resulting in disruption of villages in North Eastern region and parts of Lamu County particularly the area bordering Garissa County.

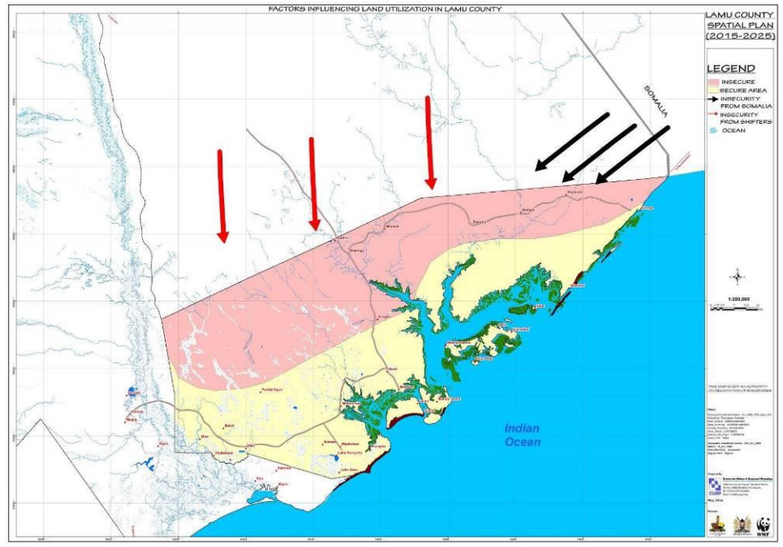
Map showing area inhabited by Somali People at the time of Independence of Kenya in 1963:



In the recent past the same area has been infiltrated by the *Al Shabaab* who have been staging attack on innocent residents in Lamu County. These attacks by *Shifta* in 1963 to 1967 and recently by *Al Shabaab* on the northern part of the County has had a devastating effect on the land use pushing human activities particularly agriculture and human settlement virtually to the south of Garisen / Mokowe Highway.

As a result of this, the upper part of the County is intermittently developed rather zero development characterised by large tracts of forest and range lands which make it easier for the bandits to move within the County to cause destruction in the lower parts of the County that are more developed and habited.

For this reason, considering human settlement and development patterns, the map below showns the situation of insecurity in the County:



This zero-development situation in the upper part of Lamu County also favours the pastoralist who are able to move their livestock in search of water and pasture unhindered during the dry season since this area is occupied by miles of forest and rangelands.

Consequently, this uncontrolled incursion by pastoralists from the neighbouring Counties has become an annual routine which cause strain on land resources available. The pastoralists remain in Lamu County until it rains in their County of origin. During this time, they establish temporally settlements in the County without any regard to land use or the sensitivity of the land they settle in. This in the past has resulted to various sort of conflicts among them being human-wildlife conflicts and conflicts between farmers and pastoralists. Studies indicate that the pastoralist are able to stay in their County for only three to four months and move to Lamu for six to eight months.

EMERGING ISSUES ON LAND

- A prevalence of squatter settlements in the County who have encroached in key fragile ecosystems including wetland areas, forests like the Kipini Provincial Forest, and other ranches. They continually degrade these ecosystems

and consequently destroying the water catchment areas and pushing wild animals away (Daily Nation, 2012).

- Undocumented indingenous land claims
- Blatant Encroachment on Land
- Illegal acquisition of land
- Increase Land Bank for the County from the land that has reverted back to the County Government for public utilization

LAND AND HUMAN SETTLEMENT

The vast majority of human activities throughout history has occurred in land areas that support agriculture, habitat, transportation corridors, wildlife habitats and natural resources. The latitude, elevation, topography, reflectivity and land use all have varying effect on land settlement.

The topography of the land is critical in determining how the communities living in the area use the land for socio- cultural and economic development. In light of the discussion above on land, it is important to note that Lamu County has a skewed human settlement pattern highly influenced by various factors as highlighted in previous sections including the fragile nature of land; historical land injustices; insecurity among others. The following sections of this chapter discusses the human settlement patterns and trends in Lamu County.

TYPES OF HUMAN SETTLEMENTS

Human settlements are defined as man-made systems within which people live, from the most primitive to the most developed ones.

The Physical Planning Handbook of Kenya classifies human settlements into four categories;

- Local Center
- Market Centre
- Rural Center
- Urban Center

	Population Catchments	Resident Population
Local Center	5,000	-
Market Center	15,000	<2,000
Rural Center	40,000	2,000-10,000
Urban Center	100,000-150,000	5,000>

FUNCTIONS OF HUMAN SETTLEMENTS

SERVICE LEVELS

In the development of service centers, the overall guidelines adopted in Planning are to provide;

- One designated local centre for a catchment population of 5000
- One designated market centre for a catchment population 15,000
- One designated rural centre for a catchment population of 40,000
- One designated urban centre for a catchment population of approximately 120,000.

Lamu Old Town is the largest service centre in the County (it is both the commercial and administrative centre currently with indications pointing to Mokowe as the next administrative Centre in the County). Most other centres are villages with a few shops providing only the minimum basic requirements. Due to the scattered nature of the population, the people are inadequately served by the low number of service centres. Most people have to travel long distances in order to reach any of the centres seeking services. Some travel times last for a couple of days. This is because the transportation options (both road and water) serving most of these settlements are also limited and more often not reliable.

Service Centers in Lamu County as per the current structure

URBAN CENTER	RURAL CENTER	MARKET CENTERS	LOCAL CENTERS
Lamu	Witu	Mokowe Hindi Mpeketoni Manda Bay Kizingitini	Kiunga Mkunumbi Majengo Faza Pate Matondoni Siyu Bargoni Mangai Mararani

Source: Lamu District Environmental Assessment Report

From the population statistics collected in 2009, the following classification abides:

Population of the service centers in Lamu County

URBAN CENTER	MALE	FEMALE	TOTAL
Lamu	10,232	10,006	20,238
RURAL CENTRE			
Kizingitini	3240	3337	65,77O
Mpeketoni	19,128	17399	36,527
Witu	6740	6365	13,105
MARKET CENTERS			
Mokowe	1705	1493	3,198
Hindi	6021	4679	10,700
Manda Bay	681	411	1,092
LOCAL CENTERS			
Kiunga	2162	1756	3,918
Mkunumbi	3580	3448	7,016

Majengo			
Faza	4212	4134	8,346
Pate	1104	1149	2,253
Matondoni	844	831	1,675
Siyu	949	880	1,829
Bargoni	1192	864	2,056
Mangai	116	136	252
Mararani	103	95	198

Source: Kenya Populations Census, 2009

PATTERN AND TRENDS OF HUMAN SETTLEMEMTS IN THE COUNTY

Rural Settlement Schemes

Since settlement work was beginning in 1974, a number of registered settlement schemes have been done covering an area of approximately 31,924 hectares. Some of these schemes were established by the German assisted Settlement Programmes (GASP). GASP provided the necessary infrastructure facilities such as roads – road opening and grading, water-pipe laying and extension to schools – construction and maintenance of community based organizations (CBO) to manage and conserve the established infrastructure. Some of these settlement schemes include Mpeketoni, Lake Kenyatta phase 1 and 2, Hindi magogoni and hongwe.

However, smaller percentage of indigenous community benefited from these established settlement schemes with majority of the occupants being from other parts of the country outside the County. Some of the challenges these settlements were faced with that are still very relevant to date included; Low provision of services (water and sewer, health and education services etc.), Human -wild animal conflicts, Lack of security of land tenure, and In-migration of people from up country hence abetting the indigenous to sell land parcels

Lake Kenyatta phase II was allocated to the local indigenous communities. The settlement scheme just as the earlier ones still lacked a lot of services like the ones discussed above. For these reasons, the indigenous communities sold their land to people outside the County who were not indingenous locals of Lamu County.

The establishment of these settlement schemes brought rise to a number of settlement areas that have developed into vibrant Urban Centres like Mpeketoni to date. The population of these settlements have continually grown partly because of migration of people from other Counties. For this reason, Agricultural land has continually continued dwindling as the settlement areas uncontrollably and sparsely expand. This expansion in most settlements have resulted to encroachment to sensitive and fragile ecosystems which has resulted to various environmental degradation issues.

However, within the settlement framework, it should be noted that the largest share of land in the County constitute Government land which has not been alienated to the resident of the County. This has seen the marginalization of certain communities such as the Boni and the Sanye. The Boni are basically hunters and gatherers and have been ignored by the settlement or the conservation programmes which have been under taken in the past. There is need therefore to adopt an integrative land use legislation that brings on board the interests of these communities that lives in gazetted forest ecosystems.

Urbanization Trends

Urbanization in the County has been slow although the region has some of the oldest centres in the east coast of Africa. The major centres are Lamu, Mpeketoni, Witu, Hindi and Mokowe and constitute about 1,094 square kilometres of land that is about 16.7% of the total land in the County. The growth of these centres can be attributed to the population catchment, culture, tourism, agricultural productivity, transportation, fishing and administration. Urban development has however been slow within the County with various factors including poor transportation systems and linkages attributed to this.

The slow growth rate of urban development has also been attributed to this area being a frontier region and therefore direct Government investment in catalyzing development has been inadequate. Some of the identified urban centres and market centres above have growth potential influenced by the anticipated development projects in Lamu including the LAPSSET project which will position Mkunumbi, and Hindi as Industrial Towns while Mokowe will now be the administrative capital of the County.

Lamu town still has the highest potential for growth and is still the leading centre in the County as envisaged in the 1979 Human Settlement report. However, its growth is likely to be limited by environment concerns, this because only about 3% of Amu Island is suitable for urban development. The rest of the island constitute sand dunes, depressions, and mangrove area and farm lands. The sand dune, depressions and the farmlands contains the fresh water aquifers that are the source of water for the resident of the town. The limited waste management system of the town and the increasing concentration of development further hinder the expansion. There is however an opportunity for controlled growth of the human settlement areas within the island considering the heritage aspect of the old town and the promotion of the NMT capacity of the Island.

Mpeketoni

Though Mpeketoni was designated previously as a market Centre, it is the fastest growing center in the County owning its origin to the settlement activities in the County and its location in a high potential agricultural zone and its link to an international trunk road Garsen-Mokowe to Somalia. The growth of this center is expected to continue and therefore is proposed to be among the growth centers of the County.

The Government should give these growth centers first priority in provision of first class infrastructure and services. Inter and intra connectivity between the growth centers and the other centers of lower cadre should also be promoted. These centres should be given first preference in Planning and reservation of adequate land

to accommodate a population of more than 100,000 persons. Major investments should be directed to these centres to make them viable dwelling places that will offer employment opportunities. Mpeketoni holds the opportunity of growing further as an Agricultural industrial Centre with opportunities of various value addition industries situating there.

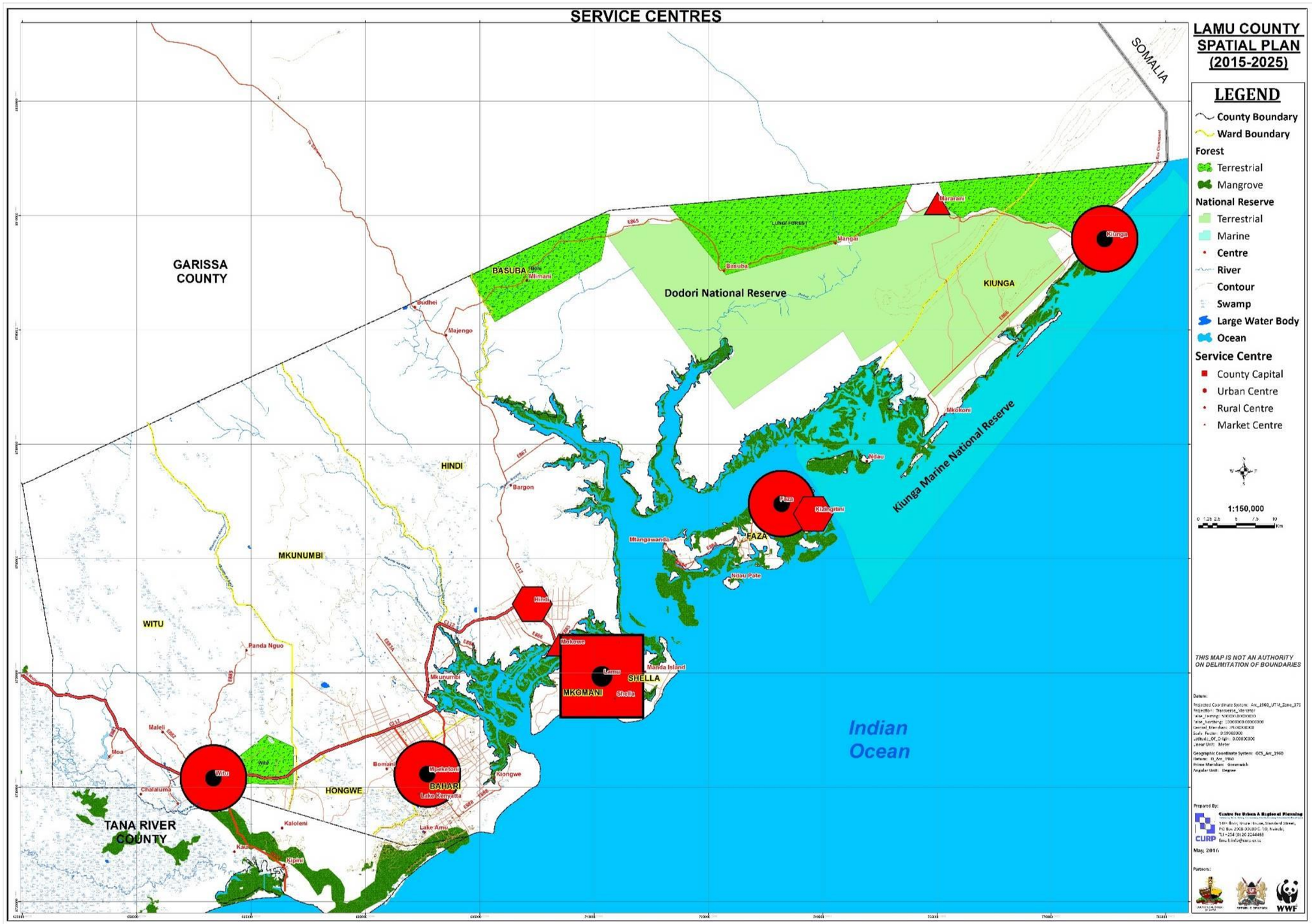
Witu, Mkunumbi, Hindi and Mokowe

Witu, Mkunumbi, Hindi and Mokowe have maintained their status because they are located along the international trunk road Garsen-Mokowe road (see map on urban centre growth potential). These centres are important growth nodes in Lamu County and can be promoted and developed to ease and decentralize service provision currently offered in Centres such as Lamu and Mpeketoni. If the LAPSSET project is ever to be realized in Lamu, the proposed Airport in Mkumumbi will automatically boost the Town as an Industrial Town and its growth and expansion will be inevitable.

Hindi Town, even as it is currently referred 'the LAPSSET Town' will automatically be the 'Host Town' of the Lamu Port and all its overspill activities and economic benefits. It will most likely be the dormitory town for the port industrial workers and its growth just like Mpeketoni is inevitable. Mokowe on the other hand have already shown indications of growth on the onset of transforming it as the administrative capital for Lamu County. The level of services expected in this Town will have trickle down impacts resulting to its instant growth. Of importance is how the County Government will brace itself ready for these developments and put measures in advance in anticipation of this growth.

Reference is made to the map below:

Map 13: Current hierachy of Urban (Service) Centres in Lamu County

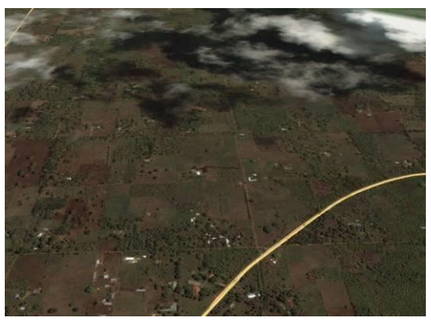


RURAL SETTLEMENTS

Settlement in the larger part of the region is scattered and limited to groups of farms/forest plain lands. The upper parts of the County (*as defined by the area discussed in a section on this report on security and land utilization - above*) are habited majorly by nomadic groups of pastoralists who practice pastoralism moving from the Boni-Lungi and Garissa County areas all the way to the Tana Delta areas depending on the availability of pasture on different times of the year. The interaction of these pastrolalists with three cross-cutting Counties really calls for mitigated County Development Pacts between the three Countied to ensure that measures are put in place to ensure sustainable use of the environment during the movement of the pastoralist communities in search of pasture.

Other settlement patterns in the mainland and archipelago practice Agriculture. Their nature of settlement is mostly sparse apart from those settlements that practice agriculture in the archipelago. These areas are mostly dorminated by poor infrastructural linkages and often poor market access for their products. Most of these settlements in the mainland are found to the south of the main Mokowe – Garsen road while the ones in the archipelago are mostly found in Pate/Faza Island with their farming activities extending to Basuba areas in the mainland. The Agricultural schemes have land Parcels of 5–15 acres and it is where agriculture is majorly practiced that we have high population concentration who derive services from the urban enclaves that have been discussed above based on their closest proximity.

Example of Dispersed settlement found around Mpeketoni and Hindi service centres



Settlement pattern in rural areas take a number of settlement pattern and they include dispersed settlement in areas of Hindi and Mpeketoni and clustered settlement in areas of Faza. Clustered settlements in Faza, Nyabogi, Kizingitini and Mbwajumwali among others.

Example of Clustered Settlement in Faza Island (Siyu village)



HOUSING

HOUSING TENURE

The issues of housing tenure are important to both private and public sector. It informs the actors on the demand of the houses and also the rate of conversion of different land uses to residential in the County. In Lamu County majority of the houses within the clustered settlements and urban centres (coincidentally where the majority live) are privately owned and made available to the residents for rent.

HOUSING TYPOLOGY

The housing typology in Lamu County varies from one settlement to the other but majorly of Swahili typology. Most semi-permanent traditional houses and a few permanent houses are found in the sparsed rural settlements while the more permanent structures are found within the urban/service Centres. The housing typologies vary from old Swahili architecture mostly dominant in the Centres within the archipelago while a mix of housing typologies including Swahili housing typologies and the conventional housing typologies (all other housing typologies) in Kenya more observed in the service Centres in the mainland including Witu, Mpeketoni, Kibaoni, Hindi et al.

The discussion below defines and elaborates more on these housing typologies:

Contemporary Swahili houses

These are houses with layouts of Swahili type houses but constructed of thick walls of coral blocks and bonded with sand and cement mortar. The walls of the house have decorated plaster works and they have a characteristically flat roof.

Merchant Stone Houses

Coral rag building mostly found in the Towns of Lamu Old Town, some parts of Witu. These houses are built in coral stone and hardwood, this beautiful building is crafted to the highest standards and reflects the best traditions of Swahili design. All external and internal finishes use creative hand-crafted design to blend ancient Swahili culture with contemporary comfort, creating harmony with the past but looking towards the future. These housing typologies are quite spectacular to look ar and adore. They are quite often a reason why most tourists visit the Lamu Old Town to marvel at the superb architecture of the buildings. This makes them a great asset for the County.

Status of Housing-Building Materials

Most of the building materials used in Lamu County are locally obtained materials like makuti, coral rocks and mud. As far as walls are concerned, majority of the houses in Lamu County have stone/mud/wood walls. They majorly utilize the cheapest available local materials.

Households by main type of Roofing Material for main dwelling units in Counties

Most of the household roofing style in Kenya use corrugated iron sheets followed by makuti, where Lamu County contributes a greater percentage. More often, the kind of the building materials

people use on their housing structures is mostly used to measure the level of affluence of the particular person or their culture and religion. In that regard, about 35% of the residents have used Makuti as their preferred roofing material while 81% of them have cemented their floors (Kenya National Housing and Population Census, 2009).

Housing Conditions

Generally housing conditions in the County are characterized by inadequate modern sanitary facilities. Electricity and piped water is only found in few towns such as Lamu Old Town and Mpeketoni. The villages are haphazard and poorly organized making accessibility difficult and roads are quite narrow and in other areas non-existent. Housing in the County is generally inadequate and this shortage is more acute in the upcoming growth centres outside Lamu town. The anticipated growth in population for the County occasioned by the upcoming development projects will require that an integrated solid and liquid waste management Plan for the County as proposed by this Plan is put in place.

HOUSING DENSITY

Housing densities are defined by the Population size, Plot Coverage and the Number of Dwelling Units. The level of Density is determined by availability of services such as water, sewerage, size of roads, etc. The highest densities in the County are within the urban/service Centres of the County and the archipelago villages. The maximum plot sizes for these high-density areas was noted as 50x100ft often characterized by less access provisions or none at all. This Spatial Plan endeavors to propose measures that the County Government can put in place to enhance order and service provision in such areas where densities are high.

Emerging Development Issues

- Most settlement patterns within Lamu County are centred around small holder economic activities and major structuring elements like roads and along the sea front.
- Rapid urbanization and urban sprawl- Various towns like Mpeketoni are rapidly developing uncontrollably and sprawling into their surrounding rich agricultural hinterlands.
- Poor infrastructural linkage i.e. roads and sea routes to mainland and other centres of importance.
- Low service provision to settlement areas and Inadequate problem of housing and provision of other social amenities – recreation, schools, Bus Park. General lack of spatial order and environmental degradation

CHAPTER 7: ECONOMIC BASE OF LAMU

OVERVIEW

County spatial economic system represents a framework within which the spatial character of economic activities is understood. It denotes complex interlinked processes through which people make a living and contribute to their economic empowerment. Economic systems in counties are dynamic entities and the nature and consequences that take place in these systems are of considerable importance.

Changes in the spatial character of economic activities emanate from within the County and external being determined by the quantity and quality of infrastructure facilities and services, human resources, and distribution of natural capital. Economic activities and wealth of the County is manifested in natural capital distribution, flow activities (goods and services, people, and money) and man-made capital wealth in form of economic infrastructure as well as buildings of various uses. Economic infrastructure includes roads, airports, energy, water and sewerage.

The economic sector identifies the types of economic activities, their distribution in space, rationale of location, levels of operation, trends on production, markets, internal and external linkages, commercial and trade activities besides small scale industrial activities and resources mobilisation. Analysis is categorised into primary, secondary and tertiary sectors.

PRIMARY PRODUCTION ACTIVITIES

Natural capital base from resource base from physiography, environment and natural resources is the fulcrum of the County spatial arrangement of economic system having both intra and inter linkages. The County spatial economic system is further linked to the external economic system within the Country and international. Vibrancy of County economic base is depended on

economic infrastructure and capital investment trends arising from resource mobilisation and past investments.

CROP PRODUCTION AND VALUE

The physiography and climate have resulted in a variety of agro ecological zones which characterise the different farming activities carried out in the County. Agro ecological zones in Lamu are; coconut cassava zone, cashewnut cassava zone, livestock millet zone, lowland livestock zone and low land ranching zone. Both crop and livestock production is carried out in the zones mentioned. Economic activities on land are influenced by soil types, rainfall availability and distribution, and topography. Farmlands within the County provide food security and income to approximately 73.6% of the population (Ministry of Agriculture, 2014). Distribution of crop farming is shown in the Map 8.1 overleaf.

Crops are either grown for subsistence or commercial purposes. Cultivated food crops include maize, cowpeas, simsim, cassava, green grams, pigeon peas and bananas. The major cash crops are cotton, mango, bixa, cashew nuts, coconut, banana, simsim and citrus fruits. Farming activities provide employment to the people of Lamu directly and indirectly. Directly employment is created in utilization of labour for various activities from farm preparation Planning to harvesting and storage.

Production statistics from Lamu Agricultural Office shows that land under crop farming has been on the rise from 23,759Ha in 2008 to 76,703 Ha in 2015, with largest increase being for maize crop compared to other crops. *Table 8.2* overleaf illustrates land size under cultivation for various crops. There has been quite an increase in land cultivation under crop farming and particularly maize. This is approximately 39% of the total arable land in the County. It implies the County is using the frontier model of agriculture production and hence there is more room to increase production through high appropriate input utilization in the future.

This has to take care of the enhancement of soil fertility to guard against soil exhaustion experienced in farming regions of up Country. Increase in farming area has the consequences of encroaching on certain fragile ecosystems threating water catchment and wetland areas.

The expansion in the crop farming area has led to an increase in output in metric tonnes from 53,348 in 2008 to 253,393 in 2015 for all the recorded crops grown. *Table 8.3* illustrates the trend in crop production for the period indicated. Land in the County is therefore suitable for crop production. Value of crop production for the same period in Kenya Shillings has increased from 1,314,096,600 to 7,253,104, 483. Crop production contributes immensely to the output of the County. Value in of crop production is captured in *Table 8.1* overleaf for the County from 2008 to 2015. It has been increasing over the years with maize sub sector contributing a large portion of the value.

Crop farming activities in the County has been affected by a number of constraints. These are; inadequate extension services, inability to cultivate large tracts of land due to lack of farm machinery, accessibility problems caused by impassable roads making it difficult to get inputs and access markets, conflicts between farmers and livestock keepers, conflicts between farming activities and wildlife, and lack of value addition to various crops produced. Value addition to cashew nuts, coconut, cotton, simsim, maize, cassava and fruits has the potential to expand and open up opportunities for employment and wealth creation. The value chains of selected crops illustrate what can be realized from the crop production sector and this should be extended to other crops for improving the economy of the County. This will transform it from primary production to first stage of manufacturing and processing.

Table 7.1: Value of Crop Production

CROP	2008	2009	2010	2011	2012	2013	2014	2015
Maize	372,301,000	369,046,500	635,117,598	473,385,206	809,235,000	1,187,641,000	1,025,800,000	1,239,700,000
Sorghum	2,151,000	6,228,180	4,739,040	16,467,300	14,450,000	68,589,000	21,600,000	44,856,883
Rice	6,105,000	10,524,960	10,753,500	1,868,400	4,842,000	3,186,000	3,300,000	3,132,000
Cowpeas	6,307,200	39,983,625	69,264,720	132,574,131	137,347,200	221,310,619	294,535,480	383,382,065
Greengram	9,128,700	33,308,550	80,745,120	145,585,108	144,774,400	242,774,420	236,201,390	275,446,660
Dolichos	4,926,600	18,308,160	57,168,000	27,799,200	346,800,000	319,360,000	436,000,000	46,880,000
Simsim	4,378,000	33,798,300	31,649,150	71,955,000	275,328,000	116,100,000	296,000,000	496,200,000
Cotton	72,480,000	69,682,600	176,477,000	91,000,000	166,250,000	185,472,000	325,038,000	325,710,000
Cassava	94,515,000	93,502,500	518,700,000	46,702,500	346,800,000	319,360,000	440,725,000	436,000,000
Cashewnuts	22,953,000	47,700,000	64,320,000	60,328,000	350,780,000	263,430,000	295,434,000	412,185,000
Coconut	185,990,400	60,000,000	32,560,000	29,086,800	64,490,000	65,514,000	611,190,000	664,200,000
Bixa	30,931,200	442,440,000	400,840,000	144,555,000	163,782,000	219,735,000	217,215,000	209,250,000
Mangoes	99,880,000	12,650,000	174,254,250	182,970,800	892,804,800	1,007,246,500	533,857,500	313,816,875
Pawpaw	50,650,000	43,960,000	92,340,000	44,746,500				
Banana	134,240,000	100,570,000	146,880,000	101,964,600	526,010,000	892,804,800	534,408,000	574,540,000
Orange	35,562,000	44,040,000	51,850,000	33,040,000	105,367,750	235,941,750	235,941,750	309,120,000
Targarine	5,016,000	4,363,000	3,860,000	5,960,000	56,780,000	84,915,000	97,461,000	213,111,000
Lime	2,734,500	7,321,000	5,680,500	3,462,000	28,171,625	42,017,625	42,017,625	151,880,000
Lemon	1,305,000	2,397,000	2,556,000	2,642,000	21,765,000	11,781,000	15,708,000	44,790,000
Tomato	15,952,000	117,116,000	97,660,000	26,615,830	448,666,200	454,221,600	454,221,600	639,500,000
Watermelon	87,840,000	33,365,000	193,533,000	97,410,000	105,048,600	245,118,600	220,956,600	345,804,000
ABC Chili	68,750,000	4,184,510	19,808,000	6,768,750				
Kales					56,000,000	61,500,000	60,000,000	123,600,000
Total	1,314,096,600	1,594,489,885	2,870,755,878	1,746,887,125	5,065,492,575	6,248,018,914	6,397,610,945	7,253,104,483

Source: Lamu Agricultural Office 2016

Table 7.2: Trends in Land under Cultivation in Ha

CROP	2008	2009	2010	2011	2012	2013	2014	2015
Maize	6,967	13,049	10,609	15,313	20,057	21,324	20,149	26,125
Sorghum	196	226	202	1,142	449	1,326	263	652
Rice	45	145	101	191	53	36	82	121
Cowpeas	837	1,324	1,135	2,598	2,736	2,832	3,620	5,531
Greengram	637	1,048	1,071	1,764	2,354	2,959	3,214	3,504
Dolichos	282	432	534	989	765	478	1,063	559
Simsim	429	718	1,013	1,511	3,824	2,667	7,447	11,753
Cotton	3,616	12,808	2,966	6,849	7,922	2,944	5,169	5,170
Cassava	880	994	665	646	867	798	1,279	1,099
Cashewnuts	1,871	4,592	4,615	4,126	5,474	4,832	7,153	7,223
Coconut	1,560	3,156	1,163	1,336	2,491	1,600	4,595	4,738
Bixa	2,023	2,119	2,119	2,119	2,400	2,110	2,099	2,023
Mangoes	1,491	1,897	2,041	2,148	2,187	2,229	2,229	2,369
Pawpaw	495	547	676	526	562	562	562	821
Banana	1,332	1,363	1,400	1,276	1,230	1,492	1,492	1,763
Orange	428	488	514	526	562	562	562	821
Targarine	66	71	90	167	167	167	191	263
Lime	115	143	163	175	175	175	175	465
Lemon	40	45	51	68	56	56	56	149
Tomato	78	77	103	196	275	246	276	288
Watermelon	210	179	208	149	531	608	608	957
ABC Chili	161	20	124	35				
Kales					112	153	150	309
TOTAL	23,759	45,441	31,563	43,850	55,248	50,157	62,434	76,703

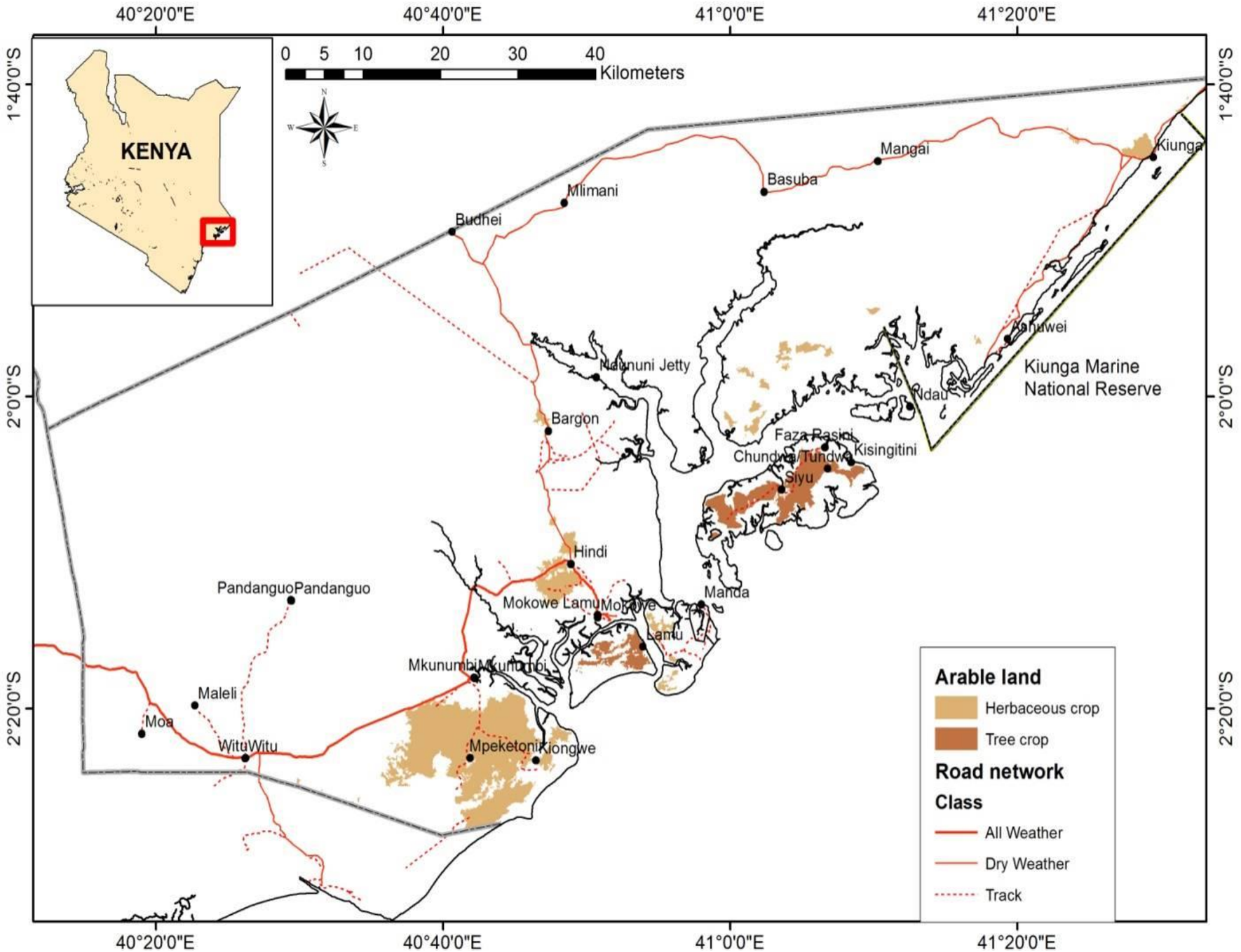
Source: Lamu Agricultural Office 2016

Table 7.3: Trends in Production in Tons

Crop	2008	2009	2010	2011	2012	2013	2014	2015
Maize	6,744	6,685	33,427	14,400	27,727	43,614	42,692	49,588
Sorghum	108	156	158	549	362	1,086	270	746
Rice	20	132	134	23	48	32	41	39
Cowpeas	315	889	1,539	1,893	2,077	3,347	3,490	5,651
Greengram	304	606	1,215	1,267	1,648	2,760	2,913	3,397
Dolichos	246	229	715	347	568	344	787	469
Simsim	219	425	487	1,057	4,589	1,170	3,700	8,270
Cotton	3,624	2,680	5,191	1,900	4,750	4,416	7,739	7,755
Cassava	9,452	8,006	31,920	2,870	17,340	15,968	23,555	21,800
Cashewnuts	1,114	1,740	3,216	3,016	10,318	5,854	6,413	7,771
Coconut	5,166	774	1,628	1,454	1,079	2,755	10,537	11,328
Bixa	1,390	22,121	20,042	4,819	5,459	4,883	4,827	4,650
Mangoes	6,940	14,854	17,425	18,297	24,417	59,270	40,419	42,582
Pawpaw	2,073	4,396	6,156	2,983				
Banana	9,888	5,029	9,792	6,798	20,166	37,211	26,654	28,128
Orange	1,971	2,202	2,093	1,652	10,535	7,865	7,865	10,304
Targarine	198	176	193	298	4,072	2,831	3,248	7,104
Lime	182	366	379	231	2,815	2,100	2,100	6,086
Lemon	131	160	170	183	1,451	785	785	2,240
Tomato	798	2,928	3,906	1,065	11,217	10,156	11,356	12,140
Watermelon	2440	3,337	6,451	3,247	6,820	6,090	10,923	17,165
ABC Chili	25	76	396	135				
Kales					2,800	3,075	3,000	6,180
Total	53,348	77,967	146,633	68,484	160,258	215,612	213,314	253,393

Source: Lamu Agricultural Office 2016

Map 14: Distribution of Crop Farming Area in Lamu County



Source: WWF-KENYA 2015

Figure 7.1: Maize Value Chain

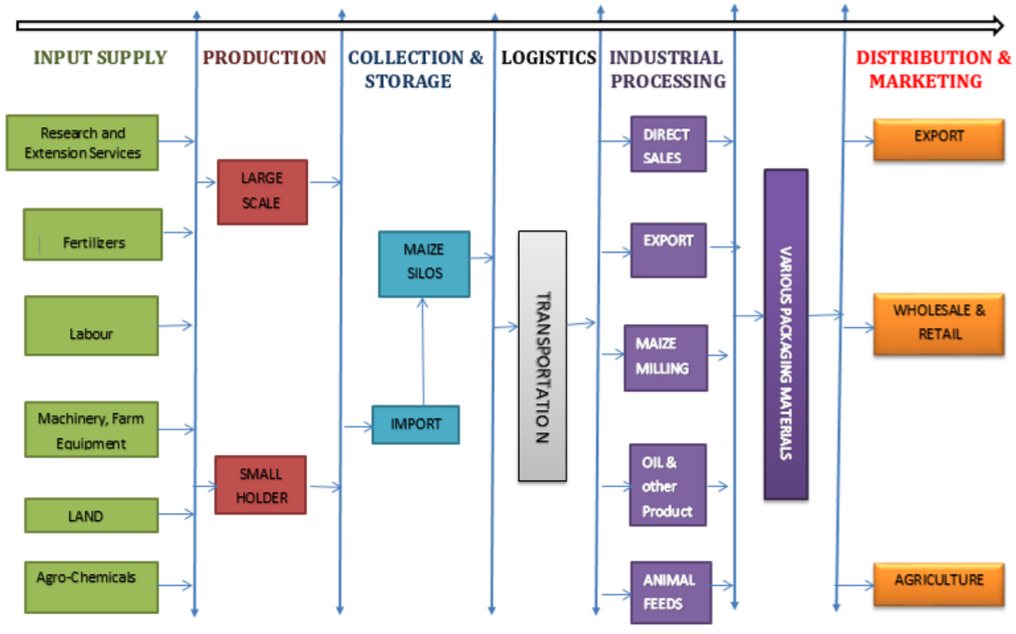
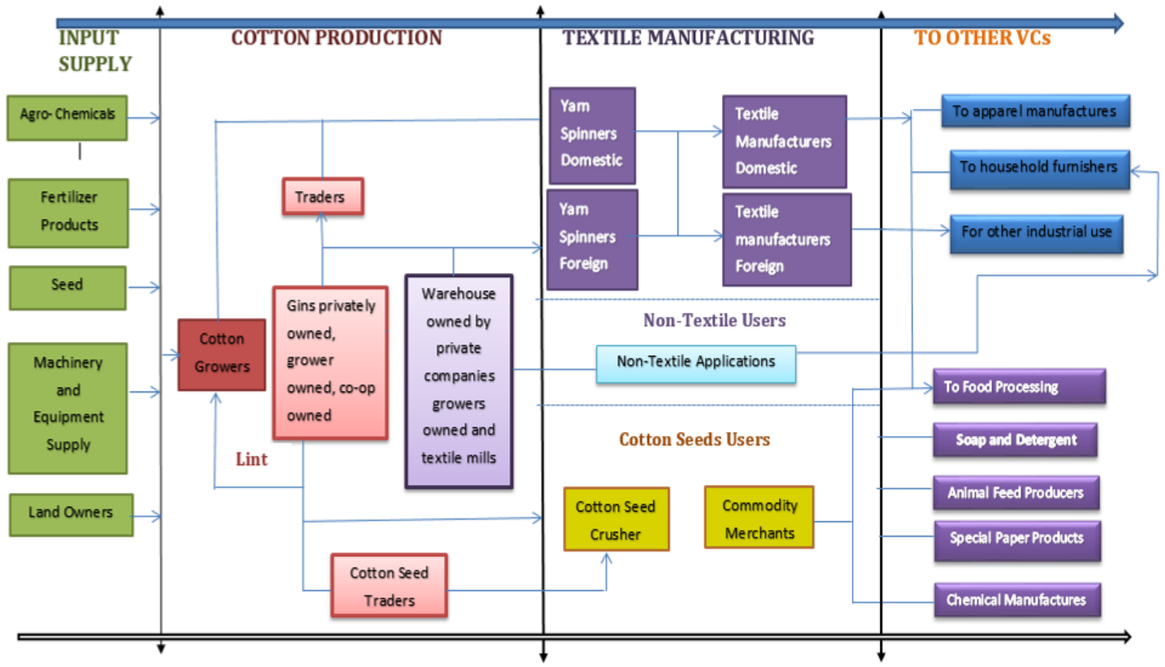


Figure 7.2: Cotton Value Chain



SPATIAL RELEVANCE OF THE VALUE CHAINS IN THE PLAN

Value chains have been used in the economic chapter to bring out the possible areas that require strengthening and illuminate the untapped potential within the agricultural sector. It has both spatial and economic linkages popularly referred to as backward and forward linkages. Value chain is described as the entire range of activities required to bring a product from the initial input supply stage, through various phases of production to its final market destination aimed at maximization of resource utilisation. It takes on a system view of production aimed at complete utilization of resources to expand output and employment.

The value chain analysis begins with the input provision for production of various crops, livestock and fisheries. These inputs are either primary or secondary inputs required for production. Production takes place on space requiring the movement of inputs to the production space. This is linked to transport networks from the input source to the farm.

Next in the value chain is the harvesting and storage which again requires inputs and storage facilities to handle the output with minimal losses. At this juncture, their can be either direct sales or sales to manufacturers for industrial processing. Taking the case of industrial processing, indsutries are located in central nodes with adequate infrastructure facilities and services to enable the processing to take place. The final poducts require packaging henece the establishment of packing industry. Final products can then be taken to warehouses awaiting distribution and marketing either for local market or export. In all of the areas where value chains have been constructed, the same thinking applies. Othere have greater multiplier effects in terms of numerous activities emerging from utiliusation of resources like livestock subsector.

The spatial relation is the utilization of space at the production phase that has connection to input supply, harvesting collection and storage facilities on space. The intermediate output is either consumed directly or taken to the manufacturing and processing firm or industry. Both final and intermediate products come out of this process that creates another round of economic activities. The final element in the process is distribution and marketing for final consumption. There is a linakage from the farm to the urban centres connected by transport network; implying hinterlands should be well safeguarded for economic production and economic vibrancy of urban areas. This can only be achieved by integrating county spatial plans with integrated strategic urban development plans.

LIVESTOCK PRODUCTION AND VALUE

Most of the livestock activities comprising cattle, goats, camels, sheep and dairy are carried out in the productive scape of either crop farming or livestock production. Other livestock activities are pig, honey, and rabbit, poultry (chicken, ducks, and turkeys), dogs, donkeys and dairy goats. Extensive livestock production is in the agro ecological zone for livestock and extending to the zone of crop production. Due to increasing human population and hunger for land there has been encroachment into areas of livestock grazing and migration by farming activities. On the other hand, there has also been cases of livestock farmers in the course of search for water and pasture, they move into crop farming areas and interfere with farming activities. In some instances, there is also conflict between human activities and wildlife movement and grazing. Distribution, type and quantity of livestock are as shown in the table 7.4. Within the County Lamu extensive livestock activities take place in the following ranches, Pandanguo, Witu Nyongoro, Amu, Witu Cooperative, and Nairobi.

The above form a combined area of 136, 400 Ha with a total animal population of about 144,000 cattle and 215, 850 sheep and goats. Livestock migration to Lamu takes place during the dry periods in search of water and pasture. This migration is of three types namely, within Lamu; from the surrounding counties (Lower Tana River, Lower Garissa, and Kilifi) and across the national boarders (International). These migration routes are as shown in the map below. When juxtaposed with LAPSSET infrastructure development project of road, railway and pipeline, there will be a disruption of the migration not only of livestock but also wildlife.

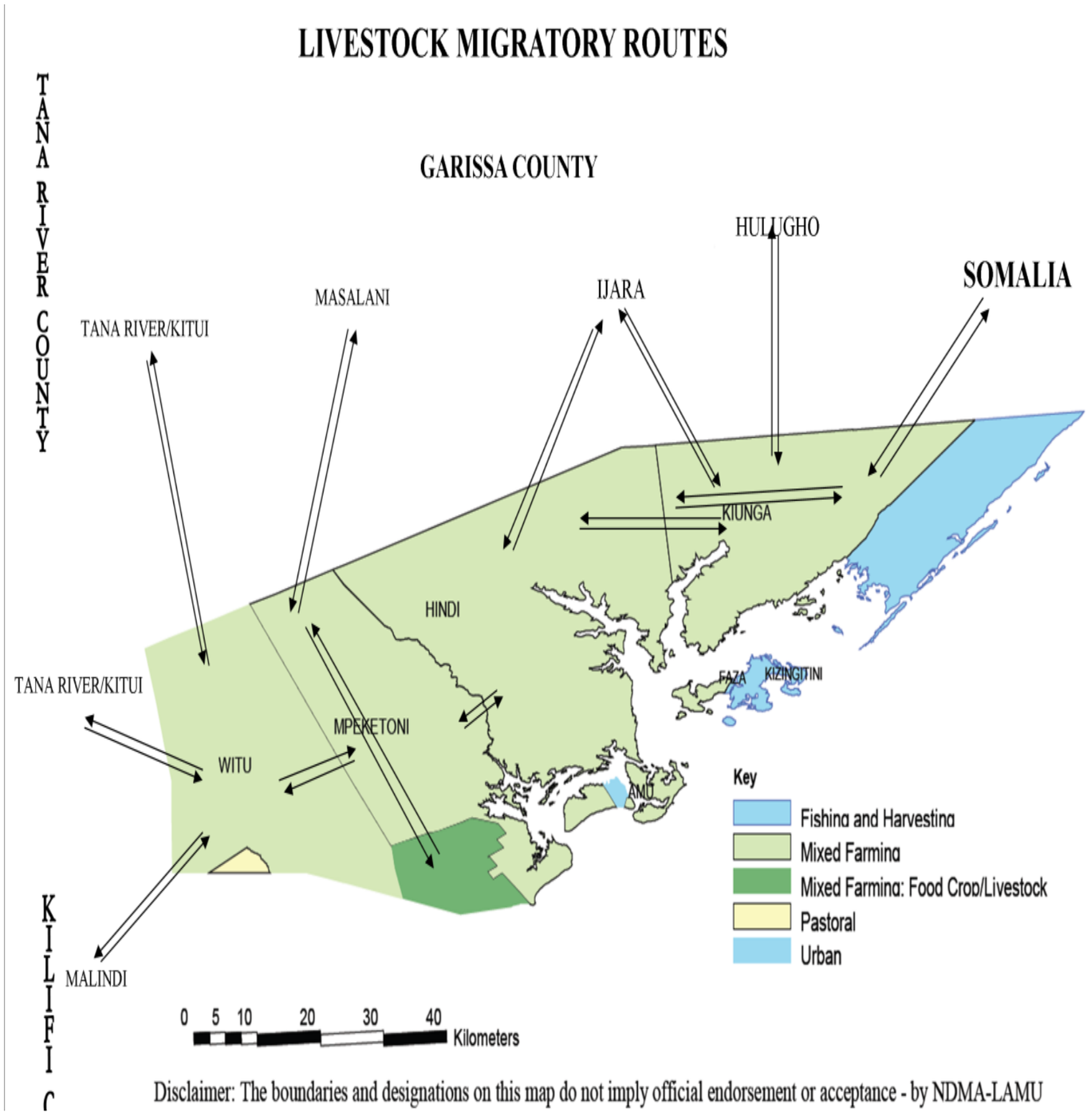
Positively it opens up the County for trade, commerce and investments and particularly to international markets.

Table 7.4: Livestock Distribution within Lamu County

Livestock Type	Amu	Hindi	Mpeketoni	Witu Division	Faza	Kizingitini	Kiunga	Sub Totals	Grand Total
Beef cattle (zebu)	1,200	11,000	35,000	75,000	3,350	4,800	12,800	**143,150**	**147,280**
Dairy cattle/ crosses	2,800	50	1,200	-	60	20	-	**4,130**	
Sheep (local)	650	2,200	1,200	45,000	850	140	690	**50,740**	**50,740**
Goats (local)	7,200	11,000	108,000	15,000	3800	2460	17,650	**165,110**	**167,200**
Dairy goats/ crosses	100	210	1,500	200	40	40	-	**2,090**	
Layers	2,500	800	45,000	150	260		-	**48,710**	**207,460**
Local chicken	2,100	13,650	115,000	2500	11000	8500	6,000	**158,750**	
Ducks	200	1,450	400	30	30	150	90	**2,350**	**2,350**
Turkeys	10	20	30	-	-	30	10	**90**	**90**
Dogs	250	450	2,000	250	320	160	170	**3,600**	**3,600**
Donkeys	2,000	50	50	20	1200	1100	310	**4,730**	**4,730**
Camels	3	-	-	-	-	-	-	**3**	**3**
Totals								**583,453**	**583,453**

Source: Lamu County Livestock Office 2015

Map 15: Distribution of Livestock and Migration/Movements Corridors



Source: **Lamu County Livestock Office, 2015**

LIVESTOCK INFRASTRUCTURE

Infrastructure for livestock in the County ranges from research in livestock matters, training, veterinary professionals, vet service providers, animal disease control, disease surveillance, disease vector control, breeding for quality improvement, markets and slaughter houses. Availability of the mentioned infrastructure facilities and services for livestock is critical to the improvement of this economic activity both in quantity and quality. Table 2 shows the distribution of livestock health professionals in the County. Indeed, the distribution is skewed in favour of Lamu west, and inadequate in view of the numbers of livestock within the County and those which migrate to the County during the dry season.

Table 7.5: Livestock Health Professionals

SUB COUNTY	LAMU WEST		LAMU EAST		TOTALS
	Public	Private	Public	Private	
Veterinary Surgeons	2	1	1	NIL	**4**
Veterinary Paraprofessionals (diploma)	1	2	1	Nil	**4**
Veterinary Paraprofessionals (cert)	5	3	1	Nil	**9**
Hides and Skin Inspectors	2	Nil	nil	Nil	**2**
Totals	**7**	**6**	**3**	**Nil**	**16**

Source: County Livestock Department 2015

In addition to the above there are also inadequacies in the area of disease control, surveillance, vector control and breading services. This affects the quality and quantity of livestock leading to losses.

Table 7.6: Disease Control Services

VETERINARY SERVICE PROVIDERS	SUB COUNTY		
	LAMU WEST	LAMU EAST	TOTAL
Agro vets	20	NIL	**20**
Private Vet clinics	2	NIL	**2**
Animal feed manufacturers	NIL	NIL	**NIL**

Source: County Livestock Department 2015

LIVESTOCK PRODUCTS

Livestock products from produced from the sub sector are milk from both cows, and goats, beef from dairy and beef cattle, goats and sheep, white meat from poultry, hides and skins. Trade in live animals also takes place in various places within the County particularly Witu, Bargoni, Hindi and Kiunga. The distribution of available slaughter slabs for meat production in the County is indicated in Table 4. Slaughter slabs available are of the lower-class C. This constraint the preparation or production and processing of meat for export market.

Table 7.7: Distribution of Slaughter Slabs

SUB COUNTY	SLAUGHTER SLABS		SLAUGHTER HOUSE CLASS
	RUMINANTS	TOTAL	
LAMU WEST			
Witu	Witu 1	1	C
Mpeketoni	Mpeketoni 2	3	C
	Kibaoni 1		
Hindi	Hindi 2	3	C
	Mokowe 1		
Amu	Amu 1	1	C
LAMU EAST			
Kiunga	Kiunga 1	1	C
Faza	Nil	Nil	Nil
Kizingitini	Nil	Nil	Nil
TOTAL	**9**	**9**	

Source: County Livestock Department 2015

The County has over the years slaughtered a large number of sheep and goats and fewer cattle for local use only. Table 5 illustrates the numbers of animals slaughtered over a span of four years. Opportunities for commercial production of livestock for income generation are available and require appropriate support. The difficulty in transportation due to poor road condition and lack of modern processing and storage facility of the meat products impedes the growth of the livestock sector and its contribution to the economy of Lamu County. A comprehensive view of the livestock sector from a value chain approach has the potential of properly organising the sector to utilise its full potential for generating employment and wealth for the County.

Table 7.8: Number of Animals Slaughtered 2012 – 2015

SPECIES	2012	2013	2014	2015	TOTALS
Cattle	1440	1,058	1,258	1,738	**5,494**
Sheep	6970	6,144	7,907	9,054	**30,075**
Goats	1630	1,116	1,125	3,067	**6,938**

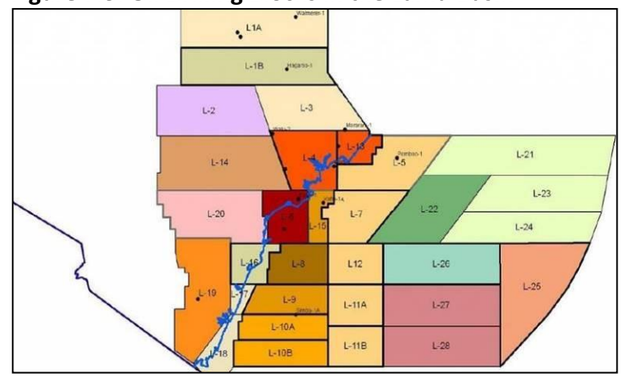
Source: County Livestock Department 2015

- ## Mining

Lamu is rich in minerals like titanium, salt, limestone, coral stones, sands and cement. Currently mining activities are limited to building sand and stone in Bahari, Manda-Shella Wards among others. Other mining activities include those of salt extraction. The location of solar salt works is controlled by the rainfall regime and the occurrence of suitable impermeable soils. These conditions occur from Ngomeni northwards to the Lamu area. Extensive salt works have been established at the Gongoni-Fundi and Kurawa. The total area dedicated to salt production is over 5,000 hectares that yield an average of over 170,000 tonnes of salt annually. Mkunumbi area of Mkunumbi Ward has salt deposits which have so far not been exploited. It has been observed that the salt deposits exist in economically viable quantities and therefore a salt manufacturing industry could potentially be developed in the area (Republic of Kenya, 1997).

The main sand and ballast quarrying sites in Lamu are in Manda, Matondoni, Lake Kenyatta, Kiongwe, Kizingitini and Faza. Most of these activities are uncontrolled and support over 2000 persons in the County. There are old limestone deposits to the South of the County but only a few isolated exposures of limestone are found between Malindi and Lamu. The limestone in the area north of Lamu has not been mapped. The current geological activities indicate traces of titanium with oil and gas exploration ongoing in Pate Island. On that note, the Kenyan Government has given out licenses for oil drilling in the Pate area of Lamu (Block L4 & L13) to operator Zarara Oil and Gas. Zarara's Block L4 & L13 is marked in the following map under Block L3 colored orange.

Figure 7.3: Oil Drilling Blocks in the Lamu Basin



Source: www.oilnewsKenya.com

Pate as a producing well will undergo extended well testing to supply temporary electric power generating units. Zarara's drilling strategy is to fully appraise the Pate natural gas discovery and then, in partnership with leading electrical power generation partners, undertake a phased development of up to 1,000MW of electricity generation capacity near the Lamu Port, proposed under the LAPPSET Project. This will then be followed by the first phase of gas powered generation from Pate, assuming successful appraisal of the gas resource by Pate-2 and the follow-on development wells. Additionally, it has been indicated that the company would require about 50-Acres of land in Siyu to start the first phase of the drilling project. Consequently, this would require the preparation of RAPs in advance as that development is anticipated.

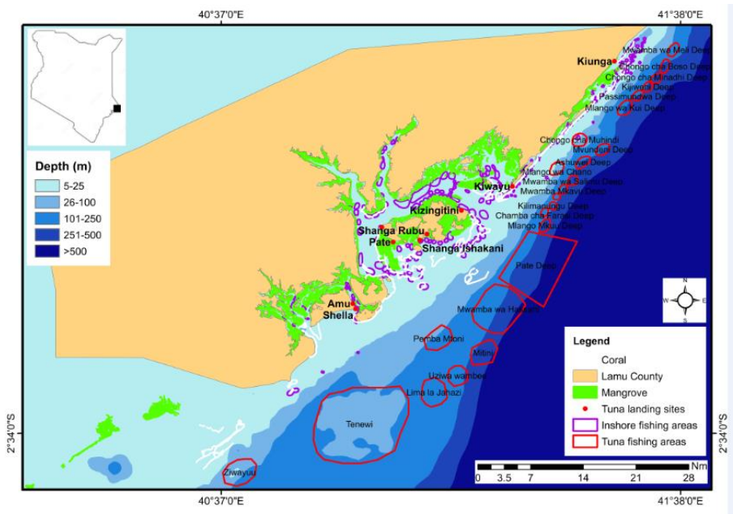
Coral stone is mined in most of the Island Centres of Lamu County. However, the Village of Maweni on Manda Island which is itself a coral reef forms a rich source for the important stone. This is the area where stones for house construction in the Lamu Archipelago are quarried. This particular coral stone has been used in Swahili architecture for centuries. To ascertain the County mineral wealth, there is need to upscale the ongoing geological survey

- ## Fishing Activities

Fishing as an economic activity in Lamu takes two forms namely; sport and fishing for domestic and export use. Sport fishing is associated with tourism and the latter is for consumption locally and exports as a source of livelihood. This economic activity is derived from natural capital of the County comprising fresh water resources in the mainland and marine resources or from the ocean.

Two main fish sources are the expansive fishing grounds along the Kenyan coast averaging an estimated 15, 596Ha (WWF 2015) and the mainland fresh water areas. The fresh water areas are; ponds, ox bow lakes, fresh water lakes and river Tana delta. A long the coast of Lamu, fishing is undertaken from Ras Tenewi on the border with river Tana to the south (Mikama) off Ishakani on the Northern Kenya boarder with Somalia and extending into the deep sea to the end of the continental shelf. The County has some 40 fishing grounds and 32 landing sites of which 22 are gazetted. These fishing grounds, landing sites, and extent of fishing area are illustrated on the map No 2. Increase in landing sites is due to the rising population of fishermen in the County, hence there is need to recognise, and secure the new fish landing sites.

County Fishing Grounds and Landing Sites



Source: County Fisheries Department 2015

Fishing activity is limited to the shallow waters of the ocean due to lack of modern fishing equipment.

It has a high fish potential due to presence of mangroves, seagrass and coral reefs providing an ideal breeding place and food for a variety of fish species. Fish species found in Lamu are; 5 turtles, 150 red fish and 183 hard coral fish. The fishing grounds quoted above yield 1,500 tonnes of fish annually which is far below the potential of the County. It translates into a value of one hundred million Kenyan shillings. Fish production has been rising up to 2,250 metric tonnes valued at almost Kshs 430,000,000 (County Fisheries Department 2015).

Comparative Analysis

Production trends of fish at the Kenyan Coast from the counties bordering the ocean are as illustrated in the tables 6 & 7. The illustration has captured marine fish, crustaceans, and other marine fish from 2010 to 2014 for Lamu, Tana River, Kwale and Mombasa.

Marine Fish Production in Metric Tonnes

County	2010	2011	2012	2013	2014	Total
Lamu	2,250	2,257	2,103	2,103	2,198	10,911
Tana River	107	97	390	643	295	1,532
Kilifi	2,295	2,348	2,076	2,076	2,139	10,934
Mombasa	715	700	893	893	990	4,191
Kwale	1,916	2,020	2,015	1,952	2,164	10,067

Source: Statistical Abstracts 2012 & 2014

Crustacean Production in Metric Tonnes

County	2010	2011	2012	2013	2014	Total
Lamu	165	169	195	162	174	865
Tana River	35	40	63	117	62	317
Kilifi	91	98	150	196	50	585
Mombasa	132	145	230	223	165	895
Kwale	96	97	101	101	104	499

Source: Statistical Abstracts 2012 & 2014

Other Marine Fish Production

	2010	2011	2012	2013	2014	Total
Lamu	25	24	68	68	56	241
Tana River	19	22	29	29	26	125
Kilifi	132	131	156	181	152	752
Mombasa	66	63	62	62	59	312
Kwale	362	301	334	330	354	1,681

Source: Statistical Abstracts 2012 & 2014

Lamu County does relatively well in the area of marine fish and crustacean harvesting from the ocean compared to other Counties at the Coast as observed from the tables 7 and 8. From the above Lamu County earns Kshs 1,243,382,000 over a period of 4 years. This is the highest compared to other Counties at the Coast. Apart from the local markets fish is exported to China, Hong Kong, Saudi Arabia and European Union. The value of fish production in Lamu County from 2010 to 2014 is depicted in the maps no 9, 10 & 11. The value is depended on the quantity of fish harvested from the ocean which has been erratic, rising at certain periods and declining at other times. The value of fish output has also increased rising from Kshs 179,029,000Millions to in 2010 to Kshs 315, 476,000Millions in 2014 as shown in table 15.

Value of Marine Fish 2010-2015 in 000

	2010	2011	2012	2013	2014	Total
Lamu	120,698	114,514	139,410	175,872	176,187	726,681
Tana River	7,224	13,627	57,950	47,421	31,706	157,928
Kilifi	191,350	211,169	337,450	348,248	316,157	1,404,374
Mombasa	80,476	102,355	155,090	147,539	183,604	669,064
Kwale	156,752	187,992	187,655	82,311	253,294	868,004

Source: Statistical Abstracts 2012 & 2014

Value of Crustaceans 2010-2014 in 000

	2010	2011	2012	2013	2014	Total
Lamu	55,211	55,577	71,942	96,108	90,210	369,048
Tana River	10,512	15,131	13,140	22,699	27,421	88,903
Kilifi	18,700	20,109	76,555	86,857	20,669	222,890
Mombasa	20,100	35,871	42,703	53,115	49,772	201,561
Kwale	22,331	29,335	28,960	27,581	45,829	154,036

Source: Statistical Abstracts 2012 & 2014

Value of Other Fish 2010-2014 in 000

	2010	2011	2012	2013	2014	Total

Lamu	3,120	4,860	20,805	19,789	49,079	97,653
Tana River	1,165	1,126	1,806	1,762	8,711	14,570
Kilifi	10,597	15,796	27,615	28,736	46,566	129,310
Mombasa	7,452	5,835	7,097	6,726	2,237	29,347
Kwale	22,065	33,099	38,955	33,319	49,079	176,517

Source: Statistical Abstracts 2012 & 2014

Lamu Fish Value 2010-2015

	2010	**2011**	**2012**	**2013**	**2014**
Marine	120,698	114,514	139,410	175,872	176,187
Crustaceans	55,211	55,577	71,942	96,108	90,210
Others	3,120	4,860	20,805	19,789	49,079
Total	**179,029**	**174,951**	**232,157**	**291,769**	**315,476**

Source: Statistical Abstracts 2012 & 2014

Offshore fishery offers the best opportunity to develop the fisheries sector. This represents an area that has not been fully exploited with an estimated stock of 150, 000 metric tonnes. There are only two cold storage facilities in Lamu located at Faza and Mokowe Jetty. Processing for export is handled outside the County in Kilifi and Malindi, denying the County employment opportunities.

Fishing provides employment in a chain process starting with research, manufacture and trade in equipment for fishing (fishing gear, and cold storage chain, fish processing equipment), fishermen, retail of raw fish to consumers, processing of fish into a variety of products, packaging of the products and transporting the products to various destinations for final consumption. This opens up more opportunities in the fish subsector for economic opportunities and transformation of the County.

The fishing sector faces the following challenges: poor access to external markets; poor physical infrastructure including (landing sites, access roads, inadequate fish conservation facilities); inadequate enforcement of fisheries regulations; illegal fishing activities by distant water fishers; and inadequate resources allocation to the department. Besides the excess capacity experienced by the County in utilisation of its marine resources, there is also lack of value addition in the limits the full contribution of fishing to the economy of the County. The untapped potential is well depicted in the fish value chain diagram above. This is clearly linked to the limitations imposed by technology applied in fishing, and marketing of the fish products.

ECONOMIC RELEVANCE OF THE FISHING INDUSTRY

The fishing industry both marine and terrestrial has a great potential of creating wealth and employment for the County. It begins from setting up of correct policies and regulations, building strong research institutions in the sector besides capacity building of those involved. Another stage in the chain of activities is the identification of spaces for setting up the necessary infrastructure for handling of fish and storage of equipment. This connects to all the required input supplies and labour required. These are fishing gear, cold storage rooms, chemicals, among others. The raw fish product is either marketed directly for consumption or taken in for processing to produce a variety of products. Fish products in whatever form are marketed locally and internationally by grocers, in restaurants, hotels, supermarkets and municipal markets. The marketing and distribution is depended on a good transport system and hygenic handling of the products. The system described above if put in place creates enormous economic opportunity and creration of wealth.

• Ecosystems Products and Services

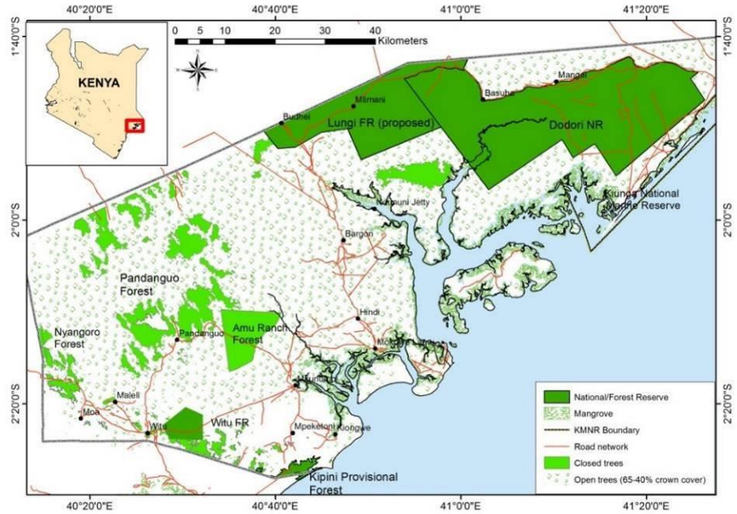
This focuses on ecosystems products of forestry, honey production, tourism inputs and various ecosystems services. Biodiversity also provides ecosystems services defined as the benefits to humans and beyond that result from ecosystems functions and processes such as;

- ♦ Major biological and nutrients cycles (water, carbon, nitrogen and phosphorous),
- ♦ Natural pest control by predators in food webs,
- ♦ Pollination by insects, bats and birds,
- ♦ Decomposition of biomass, wastes and pollution,
- ♦ Soil formation, retention, erosion prevention and maintenance of soil fertility and,
- ♦ Climate regulation

• Natural capital of Lamu provides

Lamu County has both gazetted and non-gazetted biodiversity spaces which cover 11.5% of the County surface area. Non-commercial forest activity cover 280Km^2, and the total forest cover in the County is 367,887Ha. Besides forest spaces, there are wildlife spaces which is part of the terrestrial biodiversity. Distribution by size is shown in table 11 and Map 7-3 of terrestrial biodiversity.

Map 16: Distribution of forest areas in the County



Source: WWF 2016

Terrestrial biodiversity is another source of livelihood for the people of Lamu. Ecological diversity of Lamu Country provides social economic benefits of three kinds namely;

- ♦ Ecosystems products,
- ♦ Ecosystems services and
- ♦ Non-material benefits

A variety of ecosystems products are; timber, charcoal, wood fuel, gums and resins, honey, wildlife, and handicraft. The value of the products particularly wood fuel and timber in Lamu County assuming available forest was used for timber and wood fuel is US $ 18.5m (WWF:2016).

Table 9: Computed comparative value for timber and wood fuel in Lamu County

	Ha	Timber (US $)	Wood Fuel (US $)
Witu Forest Reserve 1927	47,00	56,400	236,880
Kipini Provisional	15,400	184,800	776,160
Lungi Forest	44,000	528,000	2,217,600
Dodori Forest - 1976	87,000	1,052,400	4,420,080
Pandanguo	40,000	480,000	2,016,000
Amu Ranch	26,000	312,000	1,310,400
Nyongoro Ranch	32,000	384,000	1,612,800
Other Coastal Forest	47,070	564,800	2,373,328
Open Trees (40-60%)	71,014	852,168	3,599,105
Total	**367,884**	**3,562,440**	**14,962,248**

Other ecosystems products from Lamu have been already mentioned. In Kenya, charcoal accounts for 47% of the wood fuel used in Kenya (KFS, KNBS). The above activities however, threaten the survival of biodiversity in addition to encroachment by settlements. On the positive side, there are a number of initiatives of Planting of trees by the people in Lamu by approximately 8500 farmers.

- ## Tourism

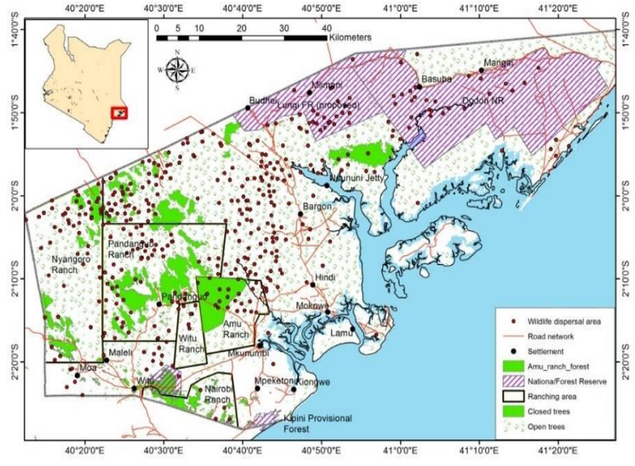
Wildlife is a key input in the tourism industry apart from performing important ecosystems function of food web/chain. The County is endowed by wild animals within and in the neighbouring counties of Garissa and Tana River, which connects to Somalia. It therefore implies there are special wildlife movement routes or corridors defining their movement to various habitats in certain periods which are worth recognition in the spatial Planning of the County. Table 2 and Map 2 illustrate the various types of wildlife found in the County and distribution in space.

Wildlife Species

Type of Animal	Lower Garissa (5936Km²)	Lamu County (5948Km²)	Lower Tana River (3268Km²)	Total
African Buffalo	3,370	9,523	861	13,754
Tropic	1,580	7,728	378	9,686
Reticulated Giraffe	1,788	1,325	141	3,254
Common Zebra	59	669	22	750
Warthog	417	68	63	548
Common Waterbuck	83	264	96	443
Lesser Kudu	212	19	38	269
Gerenuk	166	76	19	261
Ostrich	36	140	4	180
Hippopotamus	23	78	46	147
Hirola	83	14	38	135
Baboon	57	18	6	81
African Elephant	3	0	57	
Kongoni	22	7	8	
Impala	23	2	29	
Greater Kudu	16	0	0	
Fringe Fared	11	3	2	
Eland	11	1	0	
Bush Buck	1	9	1	
Grant Gazelle	11	0	0	
Elephant carcass very old	6	2	3	
Reed Buck	0	8	0	
Duiker	6	0	0	
Wild dog	5	1	0	
Elephant carcass old	2	2	1	
Lion	1	3	0	
Columbus Monkey	0	3	0	
Secretary Bird	1	1	1	
Dik Dik	1	0	0	
Jackal	1	0	0	

Source: KWS Report 2015

Map 17: Distribution of Wild animals in the County



Source: WWF 2016

This forms a great potential for tourism attraction within the County which is then complemented by marine related and cultural heritage of Lamu. It is clear from the table that wildlife resources cut across three counties hence migration routes of the wildlife in the above counties are connected. Implementation of the LAPSSET project will pose a challenge to the migration of the wildlife besides bringing about significant benefits to the County.

Besides wildlife, the County boasts of various heritage sites some of which are recognised and gazetted while others are yet to be recognised and gazetted. The cultural diversity of the County and craft industry as well as the beaches, and water sports opportunities are other assets that give the County a huge tourism base that has not been properly packaged for marketing the County. The tourism industry has further been constrained by terrorism and inaccessibility problems experienced in the County.

Local community is unable to benefit from opportunities provided by heritage status of the County, leaving it to foreigners. The County however faces the challenge of maintaining heritage sites that are recognised. Hotels along the beaches have encroached on riparian spaces making it difficult to access the beaches by the members of the public. It reduces the capacity of the County to generate revenue from public beaches during festive seasons as well as marketing it. Available tourist hotels are out of reach for the local people in terms of economic participation leading to a fortified foreign enclave.

A variety of challenges have been experienced affecting wildlife. They are;

- Human wildlife conflict especially when human beings encroach into wildlife corridor and habitat through farming activities and settlement
- Intended development requirements to be implemented by the Government will interfere with the migration corridors of the wildlife (LAPSSET)
- Settlement growth as a result of population growth

Other significant services of value to human beings and their economic activities include water, carbon, nitrogen and phosphorous cycles. Additional roles are natural pest control by predators in food webs, pollination by insects, bats and birds,

decomposition of biomass, wastes and pollution, soil formation, retention, erosion prevention and maintenance of soil fertility for agricultural production.

Climate regulation is through carbon sequestration. This refers to a process where forests remove carbon from the atmosphere and store it in their biomass. Sequestration benefits provided by Lamu forest and mangroves are as presented in table 3.

Sequestration Benefits of Forests

	Ha	Tonnes of CO_2 Sequestered	Value in US $10
Witu Forest Reserve 1927	47,000	347,640	47,000
Kipini Provisional	15,400	1,139,076	154,000
Lungi Forest	44,000	3,254,504	440,000
Dodori Forest - 1976	87,000	6,486,818	877,000
Pandanguo	40,000	2,958,640	400,000
Amu Ranch	26,000	1,923,116	260,000
Nyongoro Ranch	32,000	2,366,912	320,000
Other Coastal Forest	47,070	3,483,180	470,700
Open Trees (40-60%)	71,014	5,255,066	710,140
Total	**367,884**	**27,214,952**	**3,678,844**

Source: WWF Report 2016

Benefits that the County gets from forest is 27,214,952 tonnes of carbon dioxide absorbed which is worth US $ 3,678,844m of carbon credit. Planting and conserving forest would lead to improved absorption of carbon and more credit in terms of credit. Mangroves play a critical role of coastal protection estimated at US $ 1,587 per hectare. They are also an important area of fish breeding.

There is a wide range of non-material benefits that are important to human wellbeing and development. These include historical, cultural, spiritual, recreational, educational, scientific and coastal protection particularly of sand dunes.

Issues threatening the contribution of ecosystems services and non-material benefits are mainly human activities.

• Trade, Commerce and Industry

Tertiary economic activities in the County take place within the urban and trading centres of the distributed across the County. This involves retail and wholesale, financial, hotel and catering, telecommunication, among others. Small scale manufacturing of baking bread and cakes, furniture, and metal fabrication takes place within the County also. The bulk of revenue collection through single business license comes from the trading and commercial activities taking place within the urban centres of the town. Five commercial banks KCB, GULF, ABC, EQUITY & DTB operate in Amu Island with KCB and Equity having branches at Mpeketoni. ATMs have been installed at Shella and Witu. These banks are also providing mobile and Agency banking services to reach the unbanked population. Except Lamu Teachers SACCO that provides FOSA services in five main trading centres, the rest of the 15 micro finance institutions are concentrated in Mpeketoni. The County's poor economic infrastructure has inhibited industrial development. The cotton ginneries that were established in the past have also collapsed due to inadequate raw material supplies and poor pay

• Resource Mobilisation by the County

Resource mobilisation is a Government function permitted constitutionally and designed according to the rationale of the state and constitutionally permitted. Depending on the nature of Government and its actual ideology, the mobilisation and allocation has been the preserve of the central Government. Since independence resource mobilisation and allocation has been done by the central Government with part of it being done by the County Councils and Municipalities before elections were done under the 2010 constitution in 2013. Funds were allocated to ministries of central Government according to the budgets of ministries cascading down via de-concentration up to the District departments of parent ministries. County Councils and municipalities had revenue mobilisation and spending powers besides being permitted to acquire loans according to the repealed Local Government Act Cap 265. Revenues collected by County Councils were not enough to meet the service delivery needs of the County Council.

With the implementation of the devolved system of governance, there has been clarity in division of functions between central Government and County Government. This has also led to sharing revenue mobilisation responsibilities between the two Governments. County Governments mobilise revenue but have no autonomy to spend money until it is allocated by the Commission for Revenue Sharing. The allocation of revenue is in accordance to the functions given to each level of Government by the Constitution in schedule 4.

Revenues mobilised by the County are taken into a consolidated national account and later allocated to the County Governments as per a given formulae of allocating revenue. The County has already available infrastructure of revenue mobilisation inherited from the County Council which has been enhanced with the implementation of the devolved Government system. Revenue is collected from various activities taking place within the County, and in another way from various partnership arrangements the County has entered into with non-state actors. During allocation time by central Government, to what the County has mobilised is added more from the Central Government to form the total resource envelope for the County from which it will utilise to discharge its constitutional mandates.

Projected revenue mobilisation for the next five years is shown in table 16. Table shows also types of activities from which revenue is collected, the amount collected and projected in future. Other revenue streams which come to the County from national Government are the CDF allocations, Women and Youth Fund, and through national development projects like the LAPSSET infrastructure development.

Local Revenue

S/NO	Items	FY 2013/2014	FY 2014/2015	FY 2015/2016	FY 2016/2017	FY 2017/2018
1	Single Business permit	7.0	7.3	7.5	7.95	8.4
2	Rates & Rents	9.0	9.2	9.3	9.8	10.3
3	Bed Occupancy	0.3	0.3	0.3	0.31	0.32
4	Vehicle Parking	0.4	0.4	0.4	0.42	0.44
5	Building Approval	0.5	0.6	0.6	0.63	0.66
6	Plot Transfer & Clearance	0.45	0.4	0.5	0.53	0.56
7	CILOR	10.0	0	0	10.0	10.0

8	Bill & Sign Boards	1.0	1.0	1.0	1.06	1.1
9	Bradding	2.0	0.1	0.1	0.1	0.1
10	LAPSSET	10.0	0	0	0	0
11	Forest Cess	0.6	0.6	0.6	0.63	0.66
12	Slaughter Cess	0.25	0.3	0.3	0.31	0.32
13	Local Quarry	5.0	5.1	5.2	5.5	5.8
14	Fish Cess	2.7	2.8	2.8	2.9	3.0
15	Produce Cess	5.8	5.85	5.9	6.2	6.5
16	Stall Fees - Meat	0.4	0.41	0.42	0.44	0.46
17	Fruits	0.05	0.05	0.06	0.06	0.06
18	Mitumba	0.11	0.12	0.12	0.13	0.13
19	Fish	0.12	0.13	0.13	0.14	0.14
20	Miraa	0.25	0.26	0.26	0.27	0.28
21	Open Air Market	0.8	0.8	0.9	0.96	1.0
22	Hide & Skins	0.1	0.1	0.1	0.11	0.11
23	Cheque Clearance fees	0.05	0.05	0.05	0.05	0.05
24	Tender Application Forms	0.35	0.36	0.37	0.37	0.37
25	Public Health fees	1.0	1.1	1.2	1.5	2.0
26	Veterinary fees	2.1	2.1	2.1	2.2	2.2
27	Agricultural fees	8.2	8.5	8.6	10.0	11.0
28	Land levy	10.0	10.0	10.0	12.0	12.0
29	Other misc. sources	6.5	6.6	6.6	7	8
	Sub Total	86.1	65.44	66.74	81.57	85.96

Source: Lamu CIDP 2013

Resources from the County are mobilised from the following mandated areas that include; business permits (11%), land/plot rates (29%), cess from produce (22%), and other sources (38%) as shown in Table 1 above. Land rates are charges levied on agricultural farm on annual basis and other valued private plot, and application fees are realized from all types of applications made including development and otherwise and finally other incomes which include sale of tender documents, sale of water etc. The incomes from local sources are assumed to increase at a rate of 6 % while that from the National Government are expected to increase at 5% per annum. Projected summary of resources from County and central Government are as indicated in table 17.

Projected Revenue, National & Local Sources in 000

	2013/14	2014/15	2015/16	2016/17	2017/18
National Transfer	1,500.70	1,896.50	1925.00	2000.00	2,050.00
Local Sources	86.10	65.44	66.74	81.70	85.96
Balance B/F2012/13	67.70	-	-	-	-
	1,654.50	1,961.94	1,991.74	2,081.70	2,135.96

Source: Lamu CIDP 2013

- ## County Expenditure

At the County revenue is divided to two important Government categories namely; recurrent and capital expenditure. Currently the County of Lamu spends 30% of its total revenue on capital development projects and the remaining on recurrent functions. This is unlikely to meet the shortfall in the development gap experienced by the County in the area of economic infrastructure and specific sector requirements to enhance economic performance and social welfare of the residents.

- ## Emerging Development Issues

The overall status of Lamu economy is:

- Rich natural capital resource base of the County
- Available population of the County (human capital)
- Revenue mobilization in the County & central Government allocation
- Economy is basically based on the primary sector (farming, fishing, livestock, mining, tourism
- The potential of the primary sector to create value and employment is not fully exploited (value addition)
- Inadequate and poor economic infrastructure has affected economic operations of the County (roads, ICT, energy & water & sanitation)
- Insecurity situation in the County has affected economic activities and curtailed inflow of investments (local, sea, and terrorism)
- Inadequate skilled human resource in the County (literacy levels, and technical training)

The sub sectoral issues are:

Agriculture & Rural Development

- Available arable land and diversified farming activities (Map of the farming areas
- Conflicts between crop farmers and pastoralists and between crop farmers and wildlife
- Poor road conditions (road network and conditions) Map
- Inadequate agricultural support services (research and extension, storage, and marketing)
- Inadequate input support (seeds, tools and equipment)
- Lack of value chain approach to analysis and improvement of the crop farming sector

Livestock & Range management

- Available expansive land for grazing
- Availability of water and pasture in the Tana River delta
- LAPSSET infrastructure development and livestock subsector
- Lack of designated grazing zones leading to conflicts between wildlife and livestock
- Inadequate livestock infrastructure (dips and vaccination crushes, grazing and, water facilities
- Lack of value chain analysis of the livestock sector for enhanced performance

Fishing

- Expansive fishing area of the sea and availability of a variety of fish species
- Low volume of fish harvested in the County compared to available resource (evidence
- Lack of cold storage chain in fish landing zones
- No value addition to fish harvested

- Potential conflict between current fishing activities and LAPSSET infrastructure projects (clearing of mangroves, fish landing sites, and areas of fishing taken as ship route
- Unprotected landing sites (Map)
- Foreigners encroaching on territorial waters of Kenya
- Threats of survival of fish due to destruction of mangrove forest an important breeding ground for fish (Map)

Tourism & Heritage

- Rich unique tourism input resources both terrestrial and marine (wildlife, ox bow lakes, beaches, ocean, marine park, mangroves)
- Intended national development project (resort city, access to Lamu by air, road and railway)
- Encroachment and on wildlife spaces, forest and poaching (development projects, human settlements, poaching)
- Inaccessibility of the beaches and pollution (properties to the sea, point pollution sources)
- Inadequate publicity of tourism potential/resources of Lamu (heritage sites)
- Inadequate maintenance of current gazetted heritage assets
- Numerous heritage sites have not been recognized and gazetted
- Traditional crafts have not been well harnessed as tourism assets
- Lamu does not benefit from past and current tourism activities (fortified tourism enclave)

Trade & Commerce

- Available commercial centres where trade activities take place in a specialized manner
- Limited investor knowledge of opportunities in Lamu
- LAPSSET infrastructure development project presents an opportunity to increase the trade capacity of Lamu
- Low level of operation of current trade and commercial activities

Resource mobilization and Utilization

- Available local infrastructure for collection of revenue
- Economic infrastructure development gap arising from past policies of a centralized Government system and a weakened semi-autonomous local Government
- Inadequate provision of resources from the national Government allocated by the revenue commission
- Inadequate use of available funding opportunities
- Disproportionate resource allocation between functions of recurrent and development
- Inadequate use of the cooperatives as a vehicle of resource mobilization and investment.

CHAPTER 8: TRANSPORT, INFRASTRUCTURAL SERVICES AND UTILITIES

OVERVIEW

This chapter looks at the available transport options and infrastructure available in Lamu County. It takes cognizance of the fact that the capacity of the levels of infrastructure and transport development are key pillars to the development and economic well-being of any County or Country in that respect.

Lamu County has notably three major options of transport which are: Water; Road; and Air. These options connect the County both externally and internally. Rail connection is not established within the County despite there being a need of a rail connection. The LAPSSET project is anticipated to offer this opportunity and bridge this gap of rail connection to the County once its implementation takes course. From the foregoing statement, it is also notable that there is need to connect Lamu County with the existing rail in Mombasa port. This is in a bid to promote inter-County trading but also to realize the economic gains of product export as Lamu County has a lot to offer the world.

Additionally, Lamu County is set to benefit from other projects of strategic National importance including investments in the energy sector with the proposed sites for both wind and coal power sites within the County. All these mega infrastructural projects will go a long way in promoting the economic well-being of the County. This Chapter therefore seeks to place Lamu County in its current position relative to the anticipated impacts of the development scenarios that will be occasioned by the realization of the proposed development projects in the County.

The chapter has been organized under different sub-heads that run through the chapter in the following order:

EXTERNAL TRANSPORTATION CORRIDORS

ROAD TRANSPORT (NETWORK AND DISTRIBUTION):

Roads are the main means of transport in all regions of the world. Nearly all other means of transport like air and water cannot function effectively without depending on road networks. Roads therefore have different roles in the development of regions world over. Road networks at the simplest perspective open up regions and other geographical areas to development. This is through movement of goods, information and migration of people with the final product being agglomeration of human activities in the regions.

Lamu County is not unique and also needs defined and elaborate road networks if its growth and potential is to be discovered. From a recent Senatorial Committee in charge of Transport in Parliament visit to Lamu County, it was observed that there has been minimal progress in the construction of Roads and other infrastructure projects in Lamu owing to the geography of the area and the limited financial allocations. This was attributed to the fact that Lamu County has never received the equalization fund that was meant to benefit marginalized regions in Kenya. This is a fact that the Consultant was also able to establish as one key detriment to the growth of Lamu County economically since its accessibility by road is highly challenged therefore limiting its market reach and exchange of knowledge and information. This is holding all other factors constant.

In the context of road transport, external transportation corridors are some of the most important trunk road networks as they connect Countries; Counties; Towns to Towns. These roads are mostly classified as International or National Trunk roads which could either be Class A, B, or C roads. Their comparative advantage cannot be overlooked as basic essential to promote economies since aspects such as trade are promoted through these transportation networks.

The most important trunk road in Lamu County is the Malindi-Garsen-Mokowe Class C road which constitute a high accessibility development corridor. This corridor presents opportunities for location of centres such as Witu, Muhamarani, Mkunumbi, Hindi and Mokowe and is the main spine upon which the secondary roads hinge. It connects Lamu County to Tana River County. Recent efforts by the County Government to murram the road has been quite commendable though it still poses high accessibility issues between various centres especially during the rainy season as shown below:

Figure 4: The Garsen-Witu-Mokowe road



Source: CURP, 2016

Other important National roads in the County include the Hindi-Bodhei road which connects the County to Garissa County; and extends as Milimani Road up to the border with Somalia through Basuba and Kiunga; the Witu-Kipini road which connects to Tana River County. These roads put the County at a great location advantage in the event that the potential of Inter-County trading is well explored within the region since Lamu County pose higher

competitiveness by all degree as compared to the other Counties. This will ultimately result in promoting the growth of the County as the main economic hub within that upper region of the Coast Counties.

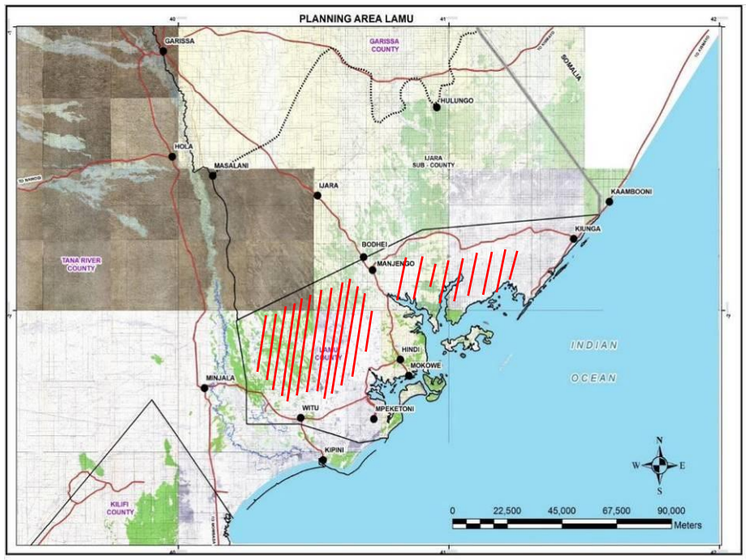
These roads are equally in a poor state making movement quite tedious. The economic potential held under these roads were they to be opened up and tarmacked has not been realized yet. Furthermore, the roads are still classified as class D roads and this might pose challenges in the future if not revised and classified as Class B. This is because there will be more people living and trading within Lamu County. This means that the road widths recommended for Class D roads might not be commensurate with the anticipated activities that could be happening then along the economic corridors and is just viable enough to upgrade them now when the space for expansion is still available; survey and formally demarcate their boundaries accordingly. Some of these roads are shown below:

Figure 5: Mpeketoni-Kiongwe Road & below Hindi - Bodhei road



Source: CURP, 2016

The map below shows the important National Trunk road corridors connecting to various Centres within Lamu County and neighbouring Counties;



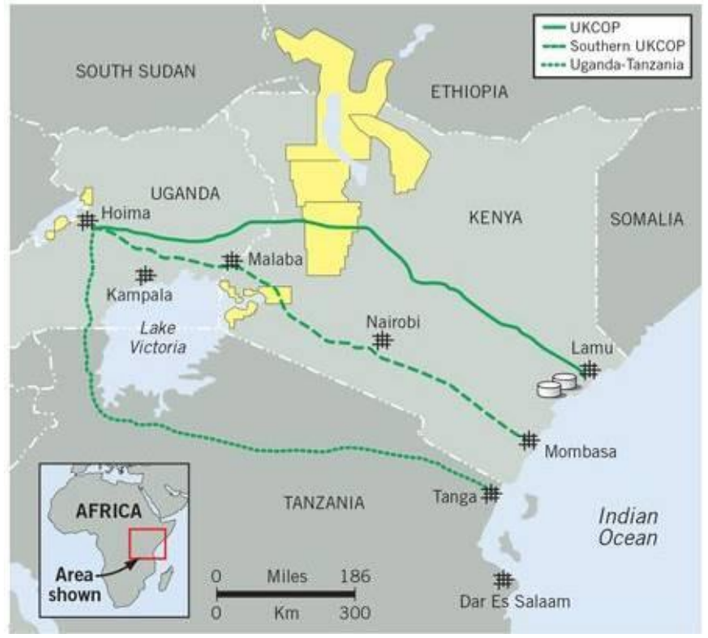
Source: CURP Consultants, May 2016

The areas hatched in red (above) within the map are areas of highly limited accessibility owing to the fact that there has been limited or little road establishment within those particular areas and settlement areas/Centres. Opening up of these areas through proposed road networks or upgrading existing road routes that currently only existing as cut lines will highly boost inter-County trading and information sharing. It will go a long way in promoting sustained economic benefits to the County.

SEA TRANSPORT

Another form of external connection to the County is sea formally known as water transport. Sea transport in the County dates back a very long time and is very important because it links Lamu with other port Cities in/and outside Kenya.

The proposed LAPSSET project will immensely contribute to the opening up of the County externally to other Port Cities and Nations of the world. This is because proposed crude oil pipelines have been propsed to run from the Lamu Port and link the Country to the neighboring countries of Tanzania and Uganda and the rest of the world. The implementation of the Lamu Port will see the construction of 32 berths within the sea as docking areas for the ships. This will boost the connectivity of the County to the outside world by sea immensely. The proposed oil pipeline routes from Lamu port is as shown below:



Source: the LAPSSET Authority, GoK

The port will not only promote trade between countries as a terminal for petroleum and crude oil transport but will also promote growth of tourism. This is because opportunities of linking the County to other cities globally will now exist when this platform where passenger cruise ships can dock will now be established. Mombasa as a City and a County in whole has been benefiting a lot in tourism through such connection where tourism vessels has been docking in the port of Mombasa over time. This however do not satisfy the immense opportunities within the Kenyan coastline and the construction of the Lamu port will offer viable options to navigators and tourists who like cruising the East African coast line. This will boost tourism activities in Lamu County over time resulting to multiplier effects of tourism gains realized in the County.

Figure 6: MV Nautica passenger ship docked in the port of Mombasa



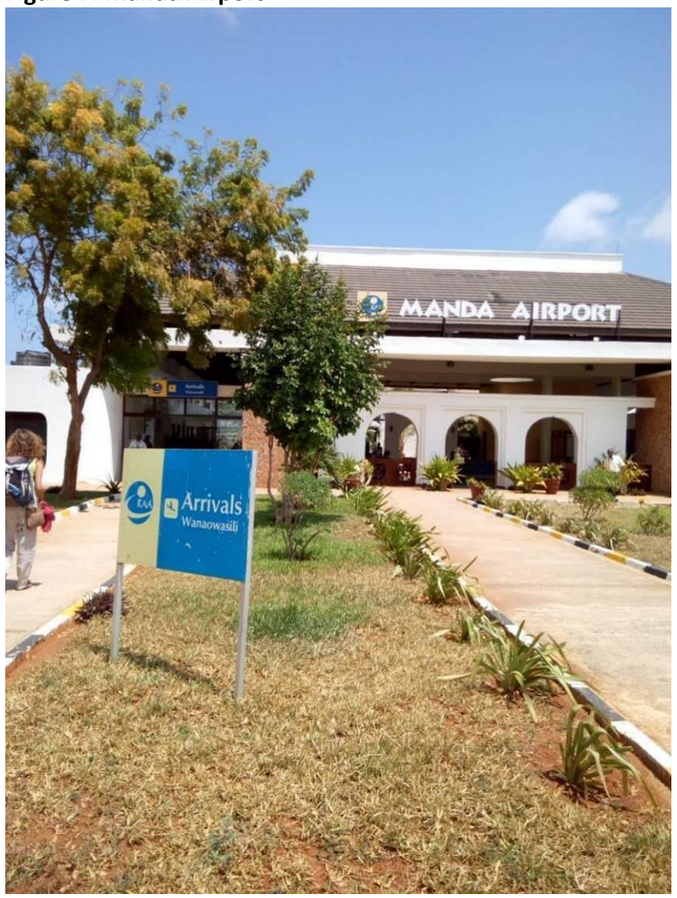
Source: Standard Media Group, January 2014

Air Transport

In a County like Lamu where road transport is very poor and external sea transport is non-existent, air transport emerges as a key transport option to link the County to other Counties of Kenya or other Countries of the world. There is currently 1 airport located on Manda Island (Manda Airport), and 12 airstrips in the County found in Mokowe, Witu, Mkunumbi, Pate, Siyu, Tenewi, Mangai, Kizingitini, Kiwayuu, Mkokoni, Kiunga and Mararani. The map overleaf 9.2 below has been used to illustrate the distribution of these airport/airstrips.

The Government recently completed lengthening of Lamu-Manda Island Airport runway from 1.1km to 2.3 kms. Improvement works are already complete for the airport terminal building. Preparations are at an advanced stage towards the construction of a parallel taxiway and aircraft apron area to improve capacity of the airport. These improvements will enhance the capacity of Manda Lamu Airport that already has a strong scheduled flights clientele. The airport has also embarked on a project to supply fresh water from Lamu Island to the airport. The four major airlines that operate at Manda Airstrip are, Kenya Airways, Air Kenya, Fly 540 and Safari link.

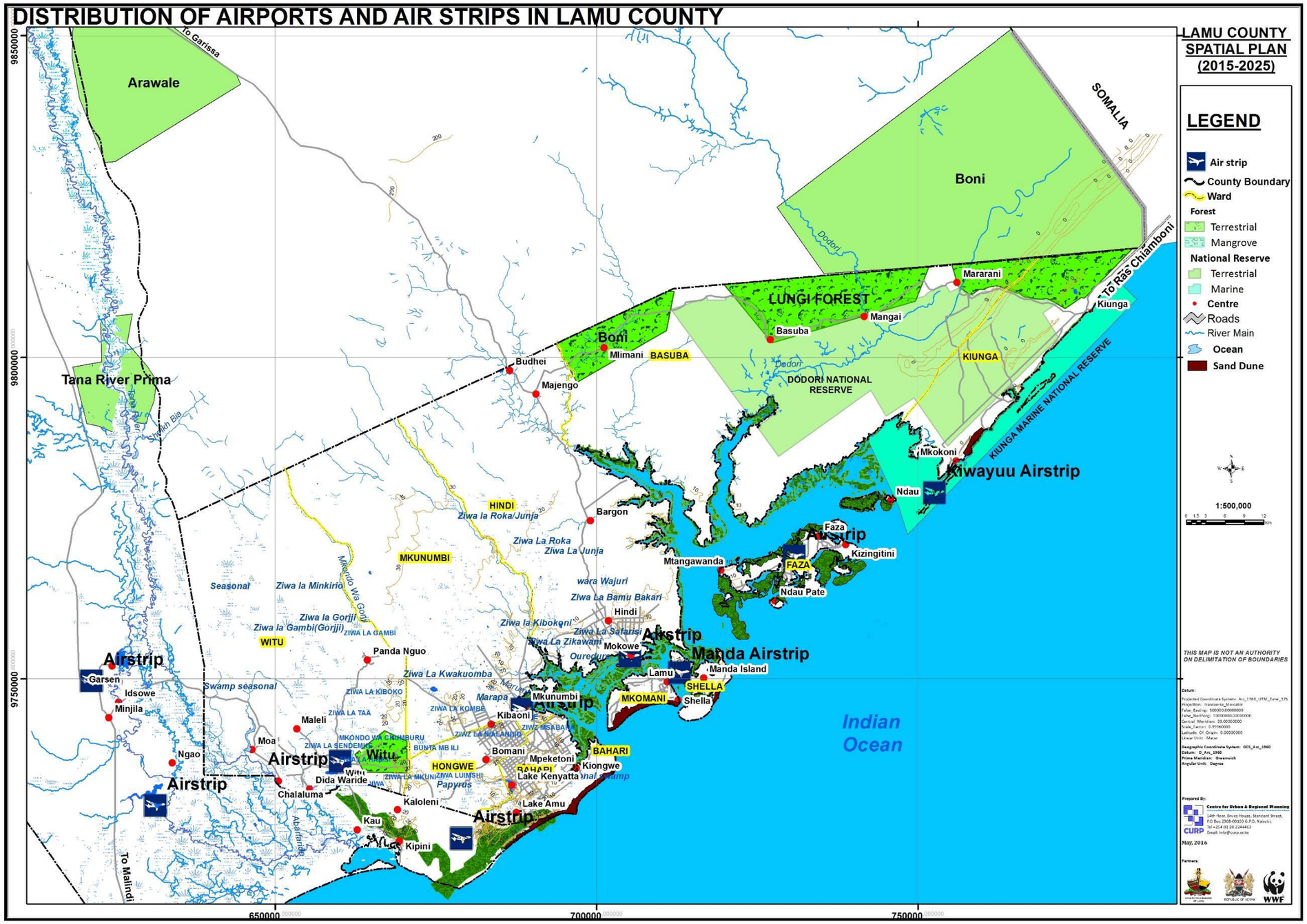
Figure 7: Manda Airport



Source: Consultant, August 2016

Apart from Manda airport, all the other airstrips do not have regular flights. Mokowe airstrip, though not tarmacked, is also well maintained with a length of about 1000meters. The Witu, Mkunumbi, Siyu, Kizingitini and Kiunga airstrips are simple but of adequate length (up to 800m) and are of strategic locational importance.

Map 18: Distribution of Airports/Airstrips in Lamu County



Most of these airstrips are used either during emergencies, for important functions, by tourists or by Government officers especially administration and security staff. Only Manda airport and Mokowe airstrip are maintained by the Government. The LAPPSET project has proposed to develop an Airport in Mkunumbi which has widely received acceptance from the residents of the proximal wards including the residents of Hindi (LAPPSET Town); Bahari; Hongwe; and Mkunumbi Wards. The proposed site for the Airport in Mkunumbi is very convenient as it will serve the agriculturally rich wards surrounding it as well as the Port Area activities. It will boost air transport in the County as well as enhance it as an alternative efficient means of transport.

The site for the proposed LAPSSET Airport in Mkunumbi is as shown below:

The positioning of the Airport in Mkunumbi will automatically position the Centre as an industrial Centre with multiple spill over effects felt within the town. This therefore calls for mitigated Planning interventions to be prepared in advance of this anticipated development. There is also an opportunity of situating and establishing value addition agro-processing Plants in both Mkunumbi; Hongwe; and Bahari Wards as fast and efficient transportation means by air will now be guaranteed. The Airport also comes with the opportunities of opening up the area and hence need for infrastructural improvement like roads and water which cumulatively will benefit the residents of the proximal wards.

RAIL TRANSPORT

Rail transport and connectivity is very important in any economy. The modern world has heavily invested in rail connections as opposed to road networks as these are more efficient and convenient especially when it comes to public mass transit or even cargo.

Lamu as a County lacks a rail connection with the first opportunity to connect the County by rail created by the LAPSSET project. The implementation of this project will see the County achieve a great milestone where development capacity is involved. If the maximum economic gains of Lamu County were to be realized by bridging the accessibility gap of the County to the rest of the Country, then a rail connection has to be established. This should not only connect the County through the LAPSSET corridor but also viable options and routes to connect Lamu Port to that of Mombasa should be explored.

INTERNAL (INTRA-COUNTY) TRANSPORTATION OPTIONS

ROAD TRANSPORT

The total length of all classified roads in the County is 688.6Km with bitumen surface covering 6Km, gravel surface 161.1Km and earth surface 521.5Km. The County is made of both the Lamu archipelagos (Islands); and the mainland discussed as follows:

THE MAINLAND

A great percentage of the roads in the County are in the mainland. These roads connect to various Centres within the County and are as follows:

The *Witu-Lamu (via Mokowe Jetty)-Kiunga* Class C road which is a major road still remains in a deplorable state despite over thirty (30) years of promises that it would be tarmacked. The road forms the main access into the County and connects from the existing bitumen paved road from Garsen. Garsen is a strategic Centre which is connected to the main road network by a bitumen surfaced road to the main Malindi to Garissa Road (B8). This gives access to the coast road to Mombasa, and via the Malindi-Manyani Road to Nairobi.

The extension of the road into the County ends at Nyongoro, through Witu and Hindi to Mokowe, and from Hindi through Milimani to Kiunga. The road is approximately 250 km long, of which 210 km was earmarked in 2008 for expansion and tarmacking.

The project was phased in two components (alignments) as follows:

Alignment A Nyongoro – Witu - Lamu

This section of the road was to start on the C112 Road at the border between Lamu and Tana River County at Nyongoro, which is about 16km west of Witu Market. From Witu Market, it takes an easterly direction up to Mkunumbi market. From Mkunumbi, the road takes a north – north easterly course to Hindi and then proceeds in a south easterly direction to Mokowe and the Mokowe Jetty, from where ferry boats serve Lamu Town on Lamu Island. Alignment A includes 11 km of access road D565 connecting Mpeketoni Market Centre to the C112 Road at Kibaoni. The existing road on this section is a two-lane two-way gravel road that has previously been improved to engineered standard and is approximately 8 to 10 meters in width, generally with improved main drainage structures and some minor drainage structures.

The Mpeketoni-Mkunumbi loop road will also be included during this improvement of the road to bitumen standard. The *Muhamarani-Mpeketoni-Mkunumbi; and the Kibaoni-Mpeketoni corridors* serves the agricultural rich lake Kenyatta settlement scheme and facilitates movement of goods and services. It serves an area of high population concentration; and high agro-industrial potential. The improvement of the roads to Bitumen Standard as proposed will enhance accessibility and facilitate movement of goods to the market on time.

Alignment B Hindi – Milimani - Mangai

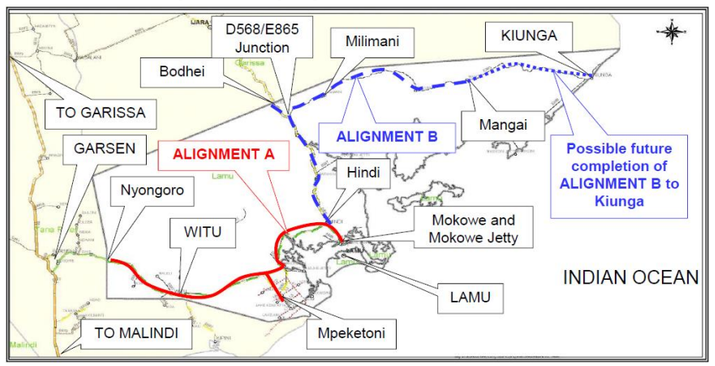
Alignment B was to start at Hindi Market Centre on C112 and run in northerly direction to Bargoni along the D568 Road. From Bargoni the road continues in a northerly direction to a point that is a short distance south of Bodhei market, where it branches off from D568 and joins E865. The *Hindi-Bodhei-Ijara corridor* is an area of limited accessibility due to poor road condition. Settlements are nucleated in few centres such as Junja, Bargon, Majengo and Bodhei. Due to insecurity, the corridor is intermittently developed. It is hoped that the tarmacking of this road will also go a long way to the improvement of the security situation in that area.

From Hindi through Bargoni to Bodhei, the existing road has some structure, but from the D568/E865 Junction to Kiunga the road is little more than a truck, with no formation or proper drainage at all. This section of the road is often impassable in the rainy season. At the conclusion of this Project, the link from the junction of the D568 and E865 to the village of Bodhei was included into the scope of Alignment B. This section was not surveyed but an allowance of 10 km was made in the estimation of the costs of Alignment B.

The road travels in an easterly direction through Milimani and Mangai, up to Kiunga. This section consists of sandy/ clay soils track of 4-6m wide road in poor condition. *Bodhei-Kiunga-Somali border* corridor constitutes an area of limited accessibility due to poor road condition. Settlements are nucleated in few centres such as Milimani, Basuba, Mangai, Mararani, Kiunga, Ishakani and Dares salaam.

The road then proceeds in a southerly direction to Mkokoni though this section of the road is not part of the initial phase of the tarmacking project. *The Kiunga-Mkokoni corridor* is an area of limited accessibility due to poor road condition. Settlements are nucleated in few centres such as Kiunga, Mambore, Rubu and Mkokoni. It is also a corridor of insecurity due to banditry. The insecurity around the area has made accessibility to the settlements around there very limited.

The location map for the project was as follows;



Source: KeNHA Tender Document, 2008

Since inception of this project, the tarmacking of the road has not been achieved despite being the major economic corridors of the County. Improving of the road to bitumen standard would go a long way in enhancing the connectivity of the County to other Counties down the Coast and to the rest of the Country as a whole. There have however been commendable efforts from both the National and County Governments to fast track the pledges made in 2008 to have the road tarmacked. The procurement and tender processes for the road construction have been done by KeNHA and the tender awarded with construction of the road earmarked to start any time during the year.

The consultant, however, felt that for the sustainable growth and for the welfare of future generations, the roads classes as proposed in the project should all be appraised to either classes B or C. This is to cater for the unforeseen development projections that will be occasioned by the development projects proposed in Lamu County at both the National and County levels. This is because these roads connect the County to other Counties including Tana River County at Nyongoro past Witu Town; and Garissa County at Bodhei. The road also connects the County to the Republic of Somalia at Kiunga.

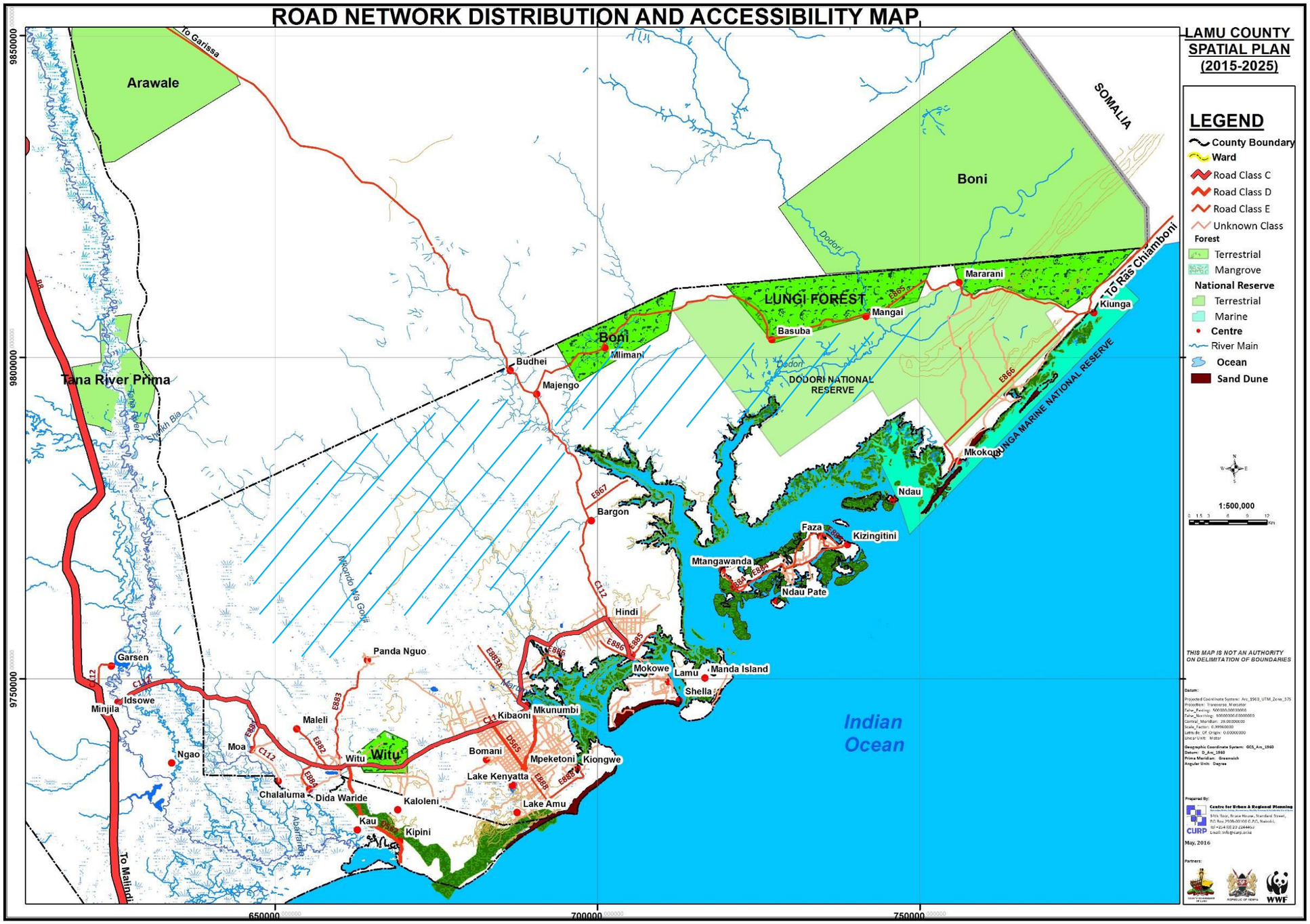
This therefore place the Centres as prominent places in the County as entry points to Lamu County. Deliberate efforts to Plan the Centres as definitive growth Centres in the County should not be overlooked but rather promoted. Appraising the road class will ensure that the minimum road reserves for the road can be secured now and where necessary, land compensation procedures for affected persons started as early.

Other important National roads in the County include the *Witu-Kipini road* connecting the County to Tana River County to the South. This road transects through wildlife rich areas to the Kipini conservancy through Nairobi Ranch areas. This road hold tremendous opportunity for the County in the promotion of tourism through wildlife conservancies in the lower region of the County.

ROAD MAINTENANCE

There are very few road camp maintenance units which, again, are very far apart. They are located at Witu and Mokowe. The Witu camp maintains roads up to Hongwe which is 50 km away while the Mokowe unit maintains roads at distances up to 175 km to the Somali border and 190 km to Mkokoni. The Kiunga camp was closed due to high administrative costs. This skewed distribution of road maintenance camps means road maintenance cannot be carried out as required.

Map 19: Road Network Distribution and Accessibility Map



An inventory of road distribution and network in the County based on the road class is as shown. The areas where no roads reach are areas of limited accessibility (hatched in lime). These areas will require opening up interventions in a bid to promote balanced growth of the County as well as spur the much-needed development.

THE ARCHIPELAGOS

There are no roads connecting the main land to the Lamu archipelago; and/or from Island to Island where majority of the people live. A movement between islands, therefore, is by sea. Sea transport is also used extensively during the wet season when most roads in the mainland are impassable. Both passengers and goods are carried by small passenger boats, motor-boats and dhows.

Navigation between Lamu harbour and the open sea is guided by several pillars, beacons and buoys (Navigational aids). Small vessels usually anchor at the customs jetty but departure and arrival are sometimes affected by tides. However, large vessels anchor in the sea far from the Lamu Island as the sea is shallow. Smaller vessels are then used to load or off-load them.

PORTS AND JETTIES

There are several jetties but the most important ones are the customs (KPA) jetties on Lamu Island and the Mokowe jetty on the mainland.

Figure 8: Different views of Mokowe jetty





Source: CURP, May 2016

The two are the busiest registering the highest number of boats carrying both passengers and goods. The Manda Island jetty (shown below) connects Lamu Island with Manda Airport.

Figure 9: Manda Airport Jetty



Source: CURP, May 2016

Other jetties in Lamu Island are the Fisheries Department jetty and the landing steps at Shella near Peponi Hotel.

There are other jetties are also located at Mkunumbi, Kizuka, Magogoni, Kizingitini, Mtangawanda, Siyu, Matondoni among others. With extensive mangrove forests, swamps and mud due to tidal changes, access to and from the sea is difficult without jetties and they act as the terminal facilities to necessitate water transport within the islands.

Detailed discussion of the specific islands is outlined below:

LAMU ISLAND

Lamu Island has the majority of the County's inhabitants linked from the main land via the Mokowe jetty living within Amu Heritage Town; Langoni settlement; Wiyuooni Settlement; Shella; Matondoni Village; and Kipungani Village. The settlements are not will linked and there are no motorable roads except along the sea-shore - Lamu Sea wall where a cabrol street has been established. The street connects directly from Amu Town to Shella and Langoni; and also Wiyuooni where the most preferred mode of transport within the street and settlements by extension is by use of donkeys; walking; and cycling.

Figure 10: Cabro street along the sea wall in Amu Town; and a similar street in Langoni settlement below.





Source: CURP, May 2016

Shella Town is a dormitory Touristic Town and the efforts to link it to the Heritage Town by the County Government could not have come at a better time. The cabrol street serves the linkage in a very profound manner and creates more opportunities for both domestic; and foreign tourism immensely. The linkage through the Island to Matondoni; and Kipungani villages which are both a craft; and fishing settlements will need to be enhanced and improved to promote economic interaction between the settlements.

The current popular mode of transport to Matondoni and Kipungani within the Island is by water which is often quite expensive and not safe.

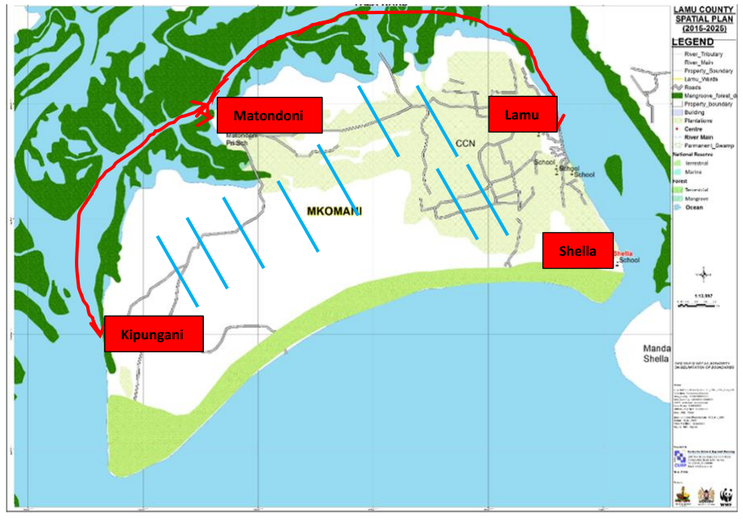
Figure 11: KPA Jetty in Amu Town; and Matondoni Jetty below (Terminal Facilities)





Source: CURP, May 2016

Road connection within the island to the various settlements is quite challenged and need to be improved. There exists traditional cutlines running connecting Lamu Old Town to Matondoni and Kipungani. These cutlines are most often sandy making walking quite a challenge. The consultant established that due to this missing link, there is less social interaction between the various settlements and so is trading. Also, access to the major health facilities and higher-level services offered within the Old Town are highly limited due to this connectivity gap. The consultant observed that a good linkage to these settlements would also offer an alternative option of access to the main land at Kiongwe. The traditional cutlines that will need to be improved within the island are as shown in the map below:



Accessibilty to Matondoni is limited mostly to water transport via the route indicated in red. The hatchings (lime line crossings) indicate areas of limited accessibility within the Island or rather the infamous option of accessing Matondoni and Kipungani settlements. This is because the foot tracks are not formally established thereby giving prominence to water transport as the most viable transport option to access the settlements.

PATE(FAZA) ISLAND

Pate Island has quite a large population catchment with the biggest villages (Faza; and Kizingitini) having populations of about 8,000; and 6,000 people respecti

vely (KNBS, 2009). The Island settlements are connected through one major Class E spine road where all other roads hinge.

Figure 12: Main spine Class E 884 road in Faza Island connecting almost all settlements from Faza village



Source: CURP, May 2016

The roads are equally in a deplorable state; unpaved and often impassable during rainy seasons. All settlements within the Island from Faza village including Tchundwa; Nyabogi; Mbwajumwali; Kizingitini; Siyu; and Shanga are all connected by the major road in their nucleated structure to Mtangawanda jetty.

This is as shown below:

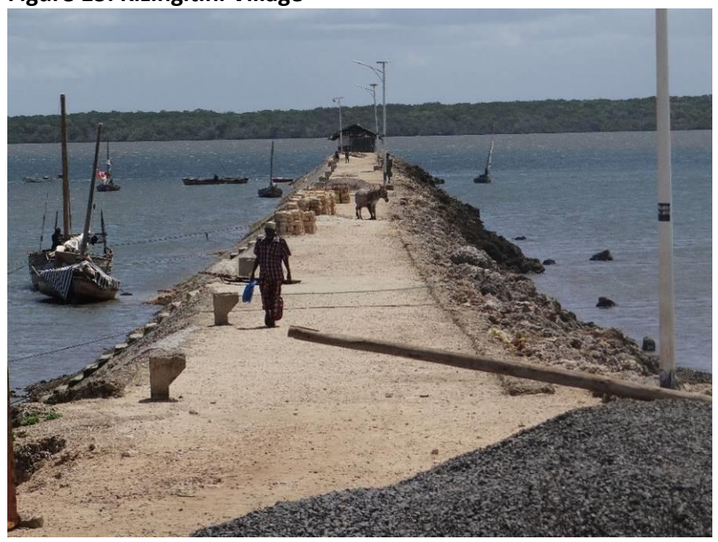
Map 20: Shows the main Class E spine road in Faza Island



It was noted that the road need to be paved and upgraded to a level that creates and promotes more opportunities for interaction; trade; and accessibility to the human settlements areas it connects to.

Kizingitini and Faza Villages were observed as prominent human settlement areas within the Island. The level of services offered within the villages and economic opportunities available in the two villages are immense owing to their population catchment. Kizingitini village holds tremendous advantage point of growth if well harnessed as a stop-over village for fish and other economic ventures due to its proximity and location where it faces the open sea. It has a jetty and its strategic location as an entry point to Lamu County from the open sea cannot be overlooked.

Figure 13: Kizingitini Village



Source: CURP, May 2016

PUBLIC TRANSPORT

PUBLIC ROAD TRANSPORT

The main modes of road transport are buses, matatu (probox; other small vehicles) and lorries. The buses ferry people regionally and locally from areas; Centres; or Counties/Countries outside Lamu County including Mombasa; Nairobi; Kampala; and Dar es Salaam. The security threat being experienced currently in the County has led to low number of buses and commuters visiting Lamu County.

The National Government through efforts to stabilize the security situation in the County offer escort to the public transport buses plying through the Witu-Mokowe; and Hindi-Bodhei corridors. The latest bus leaves Mokowe jetty before one o'clock in the afternoon after which no other transport is available to Mombasa until the next morning.

Figure 14: A view of activities at Mokowe Jetty

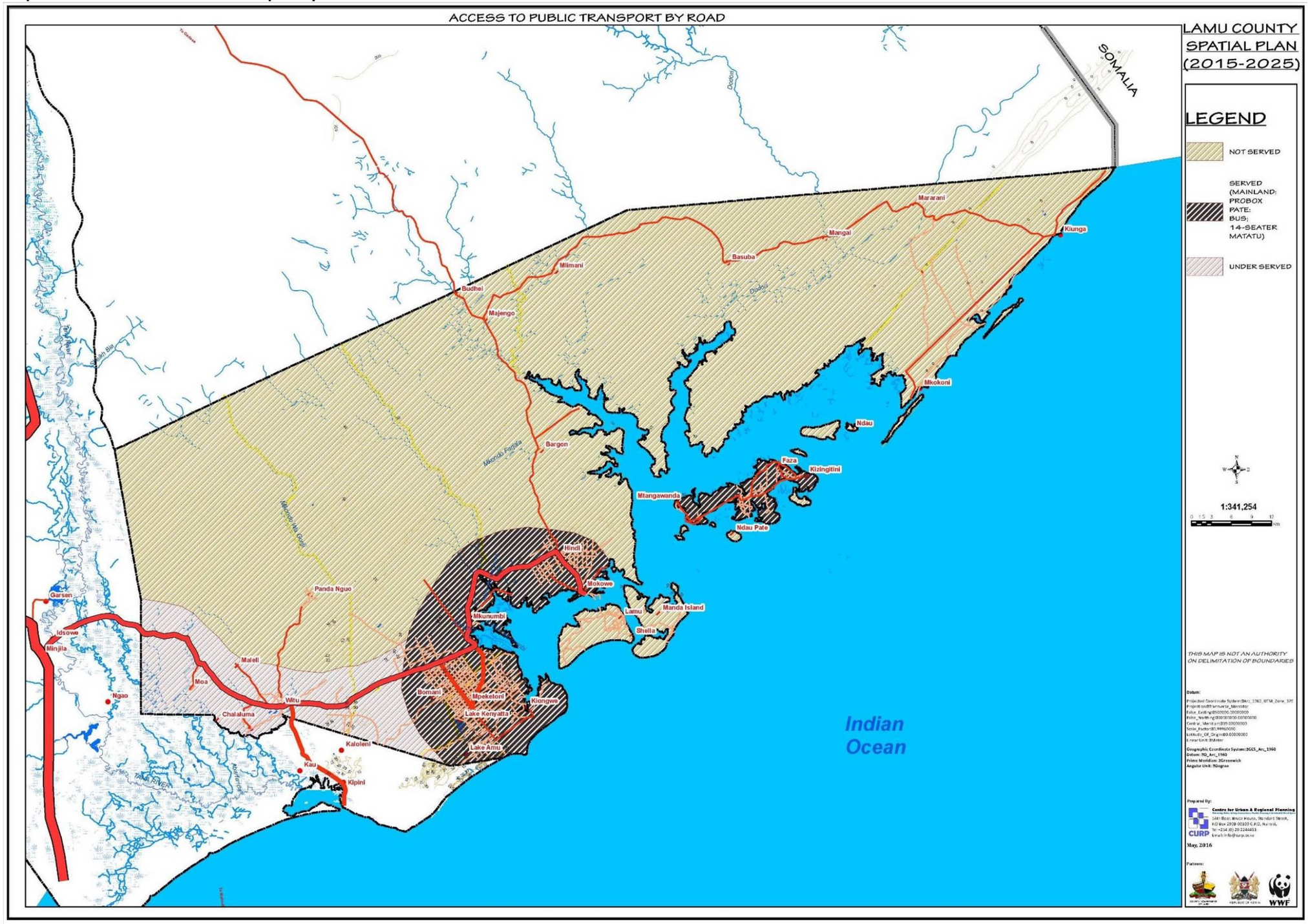


Source: CURP, 2016

Other parts of the County have no permanent means of transport and therefore make use of the only available means of transport at their convenience. These include the smaller vehicles that offer public transport alternative within the County. The busiest route by use of these smaller vehicles is the Mpeketoni-Mokowe route. The centres along the Hindi-Bodhei corridor have no constant public transport means and are accessed through the use of *'Bodaboda'* means. The use of 'Bodabodas' is quickly gaining root within the Centres in the County as experienced mostly in Mpeketoni; and other centres in Bahari; Hongwe; Hindi; and Mkunumbi Wards.

Other areas are not served by any reliable means of public transport by road and the only means include lorries which are otherwise meant to ferry fish and other agricultural products to markets in the respective urban centres.

Map 21: Shows access to Public Transport by Road



PUBLIC SEA TRANSPORT

The available transport means are accessed from the jetties as terminal facilities. KPA jetty in Amu Heritage Town is the biggest in Lamu Island and serves the greatest population in the County since most people frequent the town as tourists; or to access various services. People from the airport are transported to either Shella; Amu; Matondoni jetty; Kipungani; Faza Island; or Kiunga from Manda Airport jetty. The main jetty in the mainland is the Mokowe jetty which links the islands to the mainland. It is a very busy jetty with frequent visitors from other parts of the Country; or within the County.

The capacities of the jetties currently are able to meet the demand but the anticipated growth of the County will require increased capacities of all the jetties.

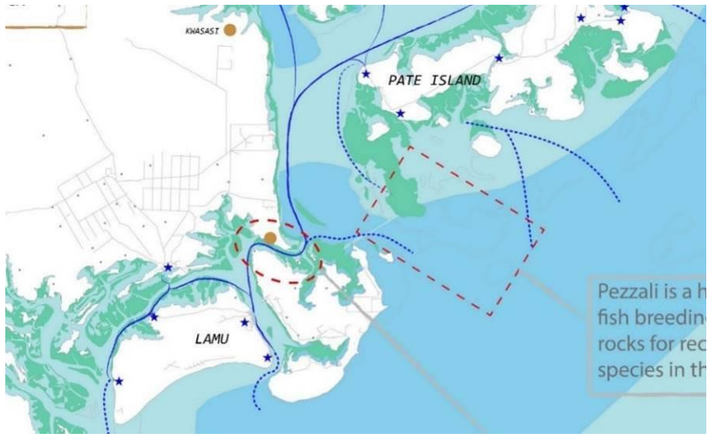
Areas with regular public sea transport are around the islands of Lamu, Manda, and Faza islands. The rest of the areas such as Ndau, Kiwayuu, Mkokoni and Kiunga have irregular public sea transport and residents are more often forced to use speed boats that are used to ferry '*Miraa*' to Somalia via Mkokoni jetty.

Figure 15: Passengers on a speed boat from Lamu Island to Faza island



Source: CURP, May 2016

The map below shows the major public sea route within the islands:



Documenting potential impact of development projects on communities in Lamu County.

Source: ***Spatial Collective, 2015***

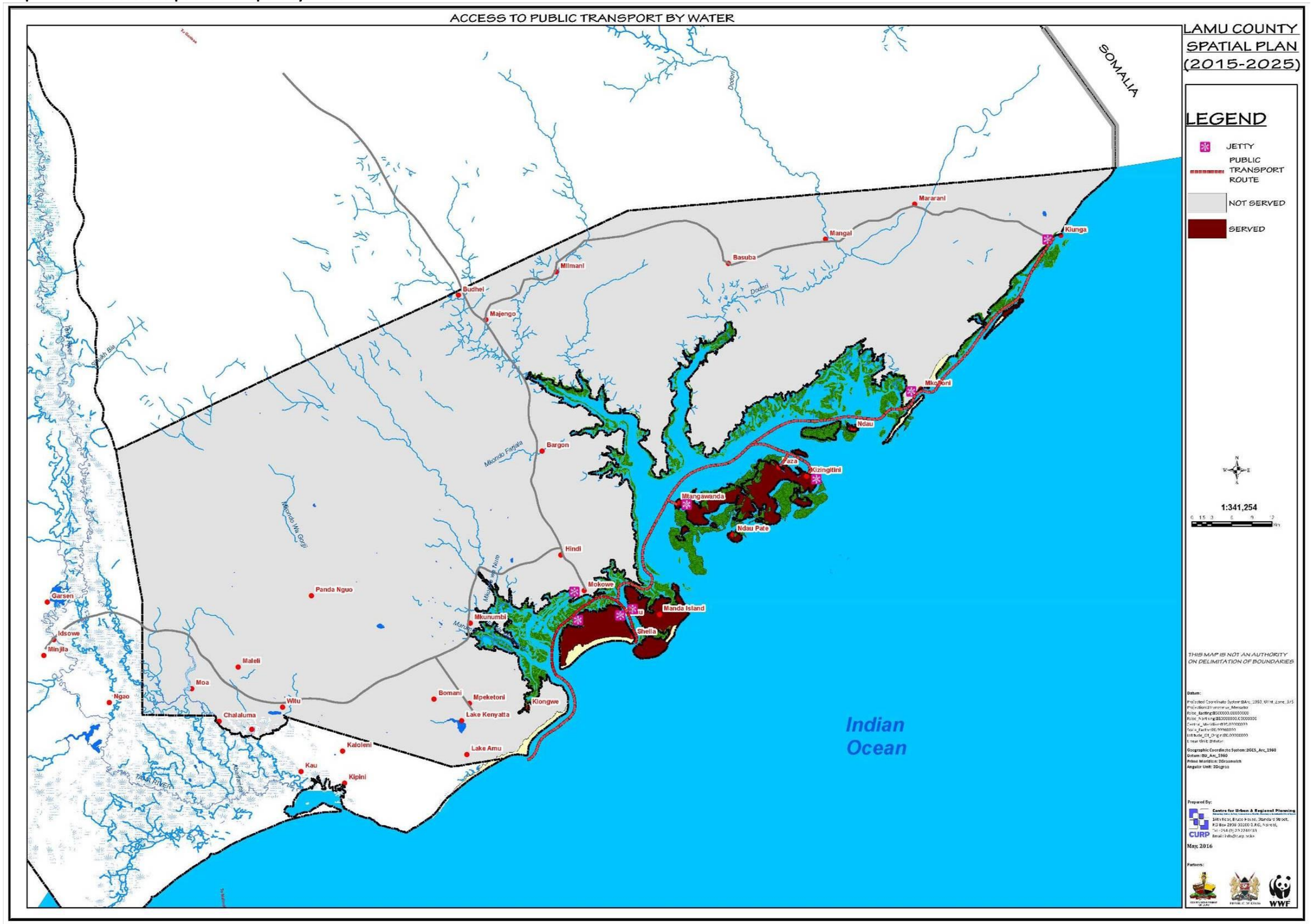
Public sea transport outside the region to such areas like Mombasa; Malindi; and outside the Country to destinations such as Dar es Salaam; Zanzibar and other parts of the world are not established. There are very few private boats that engage in sea transport to places like Zanzibar and Seychelles. These are mainly for tourists. There is need to establish proper, effective and efficient inter and intra County public sea transport.

Reference is made to the map 9.4 below to show areas accessed by public water transport and those that lack or are underserved.

EMERGING ISSUES

- Unreliable public transport by both road and sea
- Insecurity on road transport occasioned by the insurgence of al shabaab terrorist on the boni forest corridor
- Poor public safety on sea transport where small sea vessels are used to ply high and rough water routes to transport pedestrians
- Expensive costs for public means of transport by both water and road
- Poor road conditions and network distribution

Map 22: Shows access to public Transport by Water



ENERGY

OVERVIEW

Energy is an essential factor for sustainable development and poverty eradication. The challenge lies in finding ways to reconcile the necessity and demand for modern and sustainable energy services with its impact on the environment and the global natural resource base in order to ensure that sustainable development goals are realised.

The energy sector plays a vital role in the world economy. Increased fossil fuel prices, energy security issues and climate change have been the main driving forces to development of alternative and renewable energy sources. As a result of increased population expansion and faster economic growth, energy consumption is growing rapidly in different economies the world over.

In spite of national and international efforts, however, most energy in the future will continue to be based on fossil fuels. Renewable energy currently accounts for 7 percent of global energy consumption, and is largely based on hydropower and biomass. Most biomass energy is consumed in developing countries (70 percent of the total), mainly for cooking and heating, with a smaller share going to power generation.

In this section, the Plan interrogates the available energy options in Lamu County; the way they affect development and possible viable options of exploring alternative options for energy sources.

ENERGY SOURCES IN LAMU COUNTY

Among other sources of energy, Electricity and Solar energy are widely used in the County. Recently the Government has embarked in promoting power generation in the Country and in a quest to boost this, a coal power Plant has been proposed in Lamu County under the Amu Power Project. The coal Plant is located in Manda Bay in Lamu, a distance of about 250km by air and 300km by road from Mombasa. The Plant is expected to inject 1050 MW of energy into the National Grid.

On this note, it is important to note that the National grid power line has reached Lamu County and already connected to both the mainland; and the archipelago. The grid line is part of the 323 KM 220KV power line built by Kenya Electricity Transmission Company (KETRACo) from Rabai to Lamu under the rural electrification programme. This has enabled the County and especially in the major Centres like Lamu Old Town, Mpeketoni, Mokowe, Hindi and Shella to deviate from the traditional diesel-powered generators for electricity. It has also opened opportunities for investment and industries within the County that are high consumers of electricity power.

Figure 16: The grid pylons to Lamu Island crossing from Mokowe jetty below.



Source: CURP, May 2016

Figure 17: An electrician working on a Power meter connected from the National Grid in Langoni settlement



Source: CURP, May 2016

The National Government through the Rural Electrification Programme has also established a power station to light up the island for the first time. The two diesel-powered power Plants will have an installed capacity of about 450KVa. The connecting power lines have already been laid out within the island to enhance connection to various homesteads within the island as follows:

Figure 18: Palm trees fell down to create way for the passage of the National grid power line in Faza Island



Source: CURP, May 2016

This initiative by the Government would not have come at a better time and is aimed at improving the living standards and livelihoods of the residents of the island. This milestone marks an important case in the making of this Spatial Plan. This is because any proposed development project that is high power consuming can now be accommodated within the island with power supply guaranteed.

Additionally, the Lamu County Assembly has already approved a proposed Sh20 billion wind power project which is to be set up in Kiongwe, Bahari Ward - Mpeketoni. The 800 Ha wind farm will be located about 20 kilometers from the site of the proposed Lamu Port. The project which is under a Belgium company Electrawinds in partnership with World Bank and Kenwind Company of Kenya is expected to generate about 90MW of electricity to be injected to the National grid.

Reference on the wind power site is made to the map and image below:

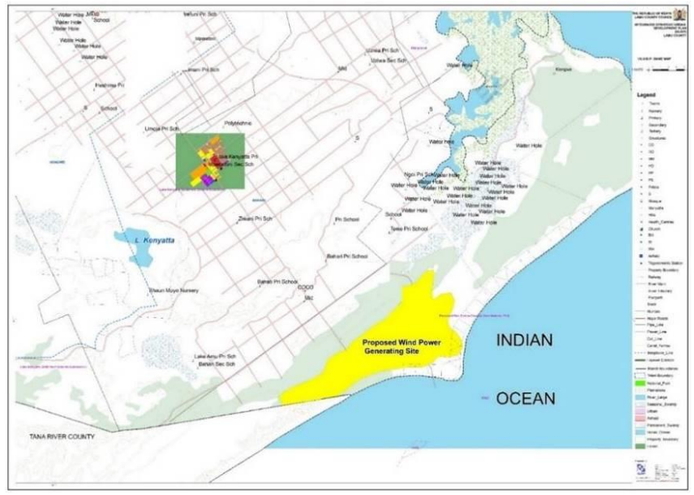


Figure 19: Proposed Wind generating power site in Bahari Ward



Source: CURP, May 2016

OTHER ENERGY SOURCES

SOLAR

There is a lot of potential in this energy source in Lamu. The sun's heat and light (solar) is available for slightly less than 12 hours a day. Solar energy is silent inexhaustible and non-polluting. What is basically required is the technology and resources to develop this kind of power in large scale within Lamu County.

Most settlements however within the islands have tapped solar energy as the main source of energy within their homesteads. Furthermore, the County Government; together with the World Bank have also adopted the use of solar energy in street lighting.

Figure 20: Solar Panel on the roof of a house in Kizingitini Village



Source: CURP, May 2016

Figure 21: Solar powered street lights along the Cabro street in Amu Town as observed from the County Commissioner's office.



Source: CURP, May 2016

WAVE AND TIDAL

Wave, tidal and ocean energy technologies are just beginning to reach viability as potential commercial power sources across the globe. While just a few small projects currently exist worldwide, the technology is advancing rapidly and has huge potential for generating power in Lamu County in the open sea. This as an energy source alternative need to be explored.

WOOD FUEL

Firewood is the main source of energy for cooking and lighting in the rural areas of Lamu County and a few exceptions within the urban settings. The cost of wood fuel is not uniform and depends on demand and availability. Owing to low population density, and the large vegetated and forest areas, widespread de-vegetation is not common in the County.

ENERGY DEMAND AND PROJECTIONS

EMERGING ISSUES

- Possibilities of tapping to green sources of energy to supplement supply of power and consequently spur investment in the County.
- Low connection capacity of homesteads to the National grid power line

WATER

OVERVIEW

Water is at the core of sustainable development and is critical for socio-economic development, healthy ecosystems and for human survival itself. It is vital for reducing the global burden of disease and improving the health, welfare and productivity of populations. It is central to the production and preservation of a host of benefits and services for people. Water is also at the heart of adaptation to climate change, serving as the crucial link between the climate system, human society and the environment.

Water is a finite and irreplaceable resource that is fundamental to human well-being. It is only renewable if well managed. Today,

more than 1.7 billion people globally live in river basins where depletion through use exceeds natural recharge, a trend that will see two-thirds of the world's population living in water-stressed countries by 2025. Water can pose a serious challenge to sustainable development but managed efficiently and equitably, water can play a key enabling role in strengthening the resilience of social, economic and environmental systems in the light of rapid and unpredictable changes.

SOURCES OF WATER IN LAMU COUNTY

According to the survey done by the consultant, it was established that most people within the County use water mostly sourced from shallow sunken wells. The major challenge associated with this source is the high salinity levels of the water obtained which makes it less potable thereby widening the gap of the number of people within the County with access to quality and potable water.

Figure 22: Shallow Wells sunk in Langoni Settlement.





Source: CURP, May 2016

Another source is rain water which is mainly tapped by use of djabias especially in Kizingitini village in Faza Island. Other settlements have their own techniques of harvesting the rain water to ensure sustainability of water provision. It was however noted that though Lamu receives relatively high rainfall throughout the year, the harvesting techniques of this rain water were not well harnessed. Since the problem of water shortage was well expressed throughout the County, it is viable that better water harvesting techniques be explored to ensure sustainable quality and potable water supply for the residents of the County.

Other sources of water include the piping networks managed under different companies. This was mostly evident within the Lamu Island where fresh water sourced from the Shella sand dunes was directly piped and connected to different homesteads within the Island and the hotels in Manda Island. Also, parts of Bahari (Mpeketoni, Lake Kenyatta settlement scheme etc), Hongwe, Mkunumbi, and Witu wards were found to be supplied by piped water. These sources however are faced by a looming challenge of water shortage owing to the adverse human activities on their sources including the encroachment on sand dune ecosystems, farming activities around lake Kenyatta, and generally around wetland areas that are very useful in the recharging of underground water.

Other discussion has been organized in the following manner:

GROUND WATER POTENTIAL

According to a study done by Njuguna, 2008 on the assessment of ground water resources in Lamu, it was established that groundwater was the only source of drinking water within the Lamu Archipelago. The only source of the fresh water that has supported the oldest urban habitation in Kenya for more than 700 years up to now are the sand dunes located on the southern part of the Lamu Island, Shella and Kizingoni area.

Areas of Basuba and Kiunga around the Boni Forest ecosystem and Dodori National reserve hold the highest potential for ground water due to the hydrological system of Dodori-Mangai rivers and other hydrological systems within the pristine ecosystem. Also, other Wards with high potential for ground water are Mkunumbi; Hongwe; and Bahari due to a stretch of swamps; and wetland ecosystems stretching through the Wards.

Reference is made to the hydrological patters of Lamu County map discussed in previous sections of this report. The map indicates the key hydrological aspects in the County including wetlands and swampy areas together with the rivers among others. Of importance is the major stretch of key swamps and wetlands ecosystems that are very important in ground water recharge. The map also shows Mangai river which is a very important resource in the County. Mangai river flow throughout the year and the land gently undulates towards the other parts of the County. There would be a possibility of constructing a dam along the river channel of the Dodori-Mangai river in a bid to supplement water supply to the rest of the County. It is however noted that the relatively flat terrain of the County might not offer this option as the best option to ease water supply in the County but it is an option that can be explored further by the water engineers.

DISTRIBUTION AND ACCESS OF WATER RESOURCES IN THE COUNTY

LAMU ISLAND

The Islands within Lamu County experience high salinity levels due to high water tables and the comparative height above sea level. Within Lamu Island, water is supplied and managed by Lamu Water and Sewerage Company (LAWASCO). Due to the topography and geology of the island, rain water does not collect in any developed drainage pattern. Some of the rainwater sinks into the coral formations while the rest collects into small pools and is lost through evaporation owing to the fact that much of Lamu is sandy.

Vegetated sand dunes act as filters and storage for water, hence improve the water quality and ensure reliable water supply within the Island and other areas of the County where they are formed. Dune formations are fragile ecosystems; this fragility means that apparently small changes induced by man or natural causes can have a great effect on this coastal environment.

Figure 23: Vegetated Sand dunes in Shella



Source: CURP, May 2016

The source of water for Lamu Island is from thirty production water wells that are within the sand dunes next to Shella beach. The water from the wells is pumped to a water tank which has a capacity of 450m³ from where it is supplied to the residents, for domestic use (mostly drinking and cooking). The water supply is 1,500m³/day against a demand of 3,000 m³/day.

Although the Island (Amu town; Shella; Wiyoni; Langoni settlements; and Manda Island) seems to have a steady source of fresh ground water supply, the rest of the County suffers from lack of water during the dry season. In the recent times, however, water supply has continued to dwindle over the time owing to the increase in population within the Island. Alternative sources of water will inevitably need to be explored in the near future which should be complimented by tough legislations that enhance the conservation of sand dunes as fragile ecosystems within the Island and other areas of the County. This is because the continued degradation on the sand dune ecosystem will cumulatively result in water shortage over time since these are the key sources of fresh water within the island.

Figure 24: Water pipes in Shella to supply water from the Lamu Island to Manda Island



Source: CURP, May 2016

There are about 3,000 water connections, out of which only 2300 are active and metered. The distribution of these active connections is 2,000 located in Lamu Island (1,940 domestic and 60 institutional) while 300 are located in Mokowe and Magogoni area. These connections serve a population of 21,000 people, where 18,000 are in Lamu and Manda islands and 3,000 in Mokowe.

Figure 25: LAWASCo Water Meter in Amu World Heritage Town



Source: CURP, May 2016

These statistics indicate that about 50% of the population is still not served by any reliable water connection to their homesteads. There is however hope that more and more people will continually be connected by water in Hindi Ward when the Lamu Port under the LAPSSET project is constructed.

Additionally, there have been different water projects that have been launched in Mokowe recently together with the last mile project that will go a long way in supplementing the water supply within Hindi Ward and adjoining areas. It is therefore the mandate of the County Government and the National Government to give support to these water related projects that will see the provision of this basic commodity ensured and sustained.

Witu Ward

The water supply in Witu Ward is under WIWA "Witu Water Users Association" whose main water source is from boreholes. The project was initiated by German Donor (GTZ) 16 years ago, (2000). Water was meant to serve only the settlement scheme. It also serves Sedemke and Moa. Currently, the population has grown which has resulted to higher demand than the supply. This inadequacy of water in some areas of the ward requires that the current pipeline be extended to serve the unserved areas of Didawaride; Moa; Maleli; Chalaluma; and Pandaguo Villages. This can be achieved by further sinking of more boreholes; or direct sourcing of water from Nyongoro River.

(water demand against supply in witu ward)

Bahari; Hongwe; Hindi and Mkunumbi Wards

Water is supplied by LAKWA – Lake Kenyatta Water Association which was formed in 1994. It was funded by GOK and GTZ. The increase in population over time has resulted to more human impacts like farming and encroachment around L. Kenyatta. This has resulted to lower volumes of water in the lake which has cumulatively resulted to loss of biodiversity and dwindling supply of water over time. The unmitigated impacts of such encroachment will result in low fresh water supply within the wards and the lake might be extinct in less than 5 years.

This water supply covers Lake Kenyatta I & II, Kiongwe, Ndambwe villages, Mkunumbi, and Mapenya. 4000 litres of diesel per year is used by LAKWA to pump water. The association serves about 70% of the total population in the three cross-cutting Wards which represents an area of about 229km2. The supply system and pipe network comprises of five boreholes with a capacity of producing 1100m^3 per day which is held in a reservoir tank at Bomani Hill. The water is then supplied to particular settlements at a supply rate of about 300m^3 per day against a demand of about 1000m^3 per day. This has been attributed to low volumes of the piping system which if upgraded would upscale the supply to match the total demand of water per day.

The pipe network does not extend to all corners of the cross cutting wards and the rest of the population, use private boreholes and rain water harvesting. The water salinity is however high and water got from boreholes or shallow wells is not very safe for drinking. The need to control the human encroachment on the L. Kenyatta ecosystem need to be emphasized so as to secure future source of fresh water with a possible expansion of the water reservoir at Bomani Hill and extension of the pipeline system.

Figure 26: An extension of pipeline community project signage by the L. Kenyatta Water Association; and below L. Kenyatta.





Source: CURP, May 2016

Pate (Faza) Island

This is one of the Islands in Lamu County with the highest number of people. Fresh water supply in the Island is quite a challenge. This is because of high salinity levels experienced throughout the Island thereby compromising on water quality. The settlements near the sea experience this problem more than the settlements that are more interior to the Island. Kizingitini village use a technique of harvesting rain water which is stored in huge reservoirs known as 'djabias'. There is also a de-salinition Plant in Kizingitini village which is rather expensive in maintenance and its sustainability as a source of fresh water supply not guaranteed. It serves just a small segment of the population. The desalination Plant was commissioned in 2016 as a National Government project to ease water provision in the village. The Plant is shown below:

Figure 27: Desalination plant in Kizingitini



Source: CURP, May 2016

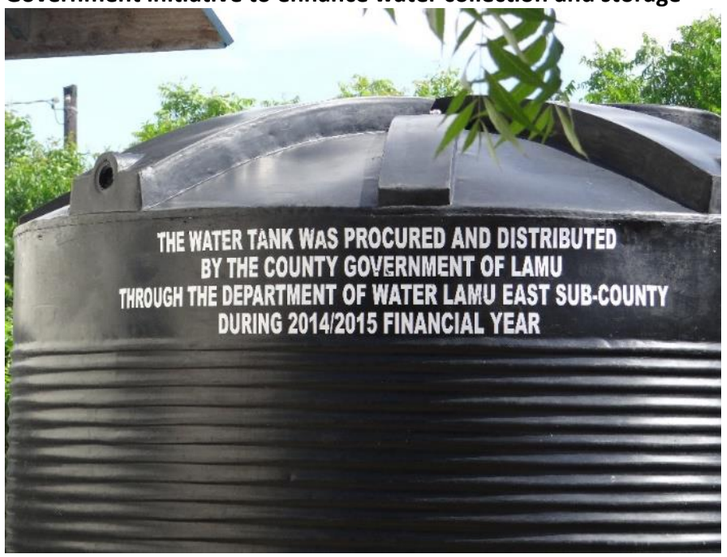
Other settlements within the Island source their water from shallow wells which is often not the safest method of acquiring water. The problem of water is quite evident within the island which is mostly felt during the drier seasons where water is sourced from Lamu Island.

The County Government is making efforts to ensure that quality service provision of water is sustained. One way they are ensuring this is through buying of water storage tanks to advance better techniques of rain harvesting which has not always been the case within the island. These are efforts and proposals that has been put

forward by this Plan also since as observed, Lamu County receives relatively high rainfall throughout the year.

The image below is a storage tank procured under the County Government project in Faza village.

Figure 28: A water storage tank procured under a County Government initiative to enhance water collection and storage



The images below show the other common modes of water provision in the island as noted:

Figure 29: Shallow well in Siyu Village



Figure 30: Use of Djabia to store rain water in Kizingitini village



Figure 31: Use of shallow well in Pate Village

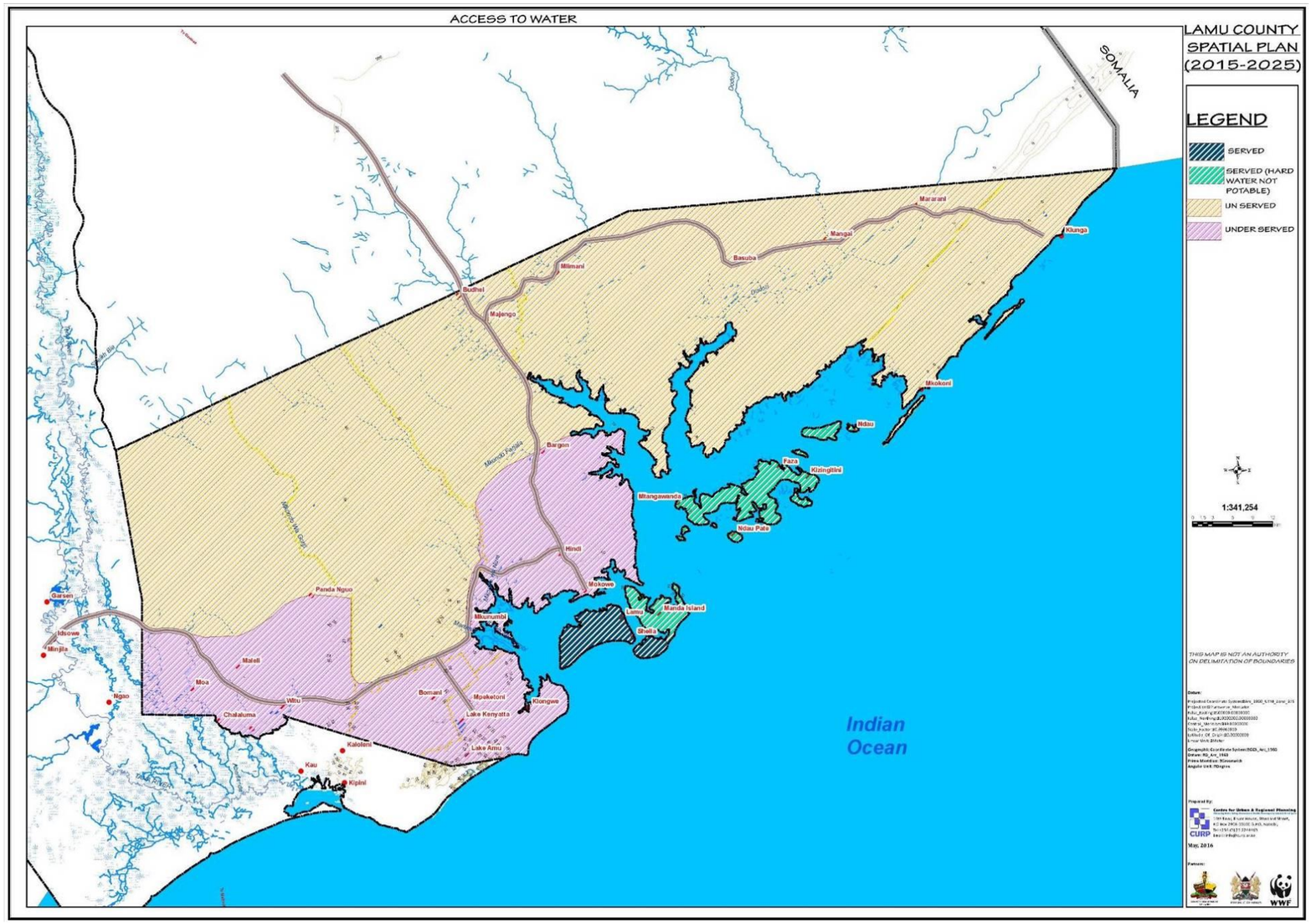


Source: CURP, May 2016

Basuba; and Kiunga Wards

These are water rich Wards if better and sustainable water harvesting techniques are explored. This is because they are within the hydrologically rich ecosystems of Boni-Lungi forest ecosystems as well as the Dodori National Reserve. A few djabias have been established to serve as fresh water sources in the two Wards. Other sources include boreholes; a spring at Mkokoni; and shallow wells distributed across the Wards. The viability of constructing a dam along Dodori-Mangai River to supplement the supply of fresh water should highly be explored as some of this water can also be used to supply to Manda Island to sustain its habitation.

Map 23: Shows access to water in different parts of the County



Source: CURP 2017

WASTE MANAGEMENT

OVERVIEW

As development of regions continues to take place, the management of solid waste is becoming a major public health and environmental concern in not only the urban areas but also the rural areas of many developing countries. The concern is serious, particularly in the urban areas, which are often gateways to investment opportunities, businessmen, and tourists. Poor visual appearance of these cities will have negative impacts on tourist visits and foreign investment.

A typical solid waste management system in a developing Country displays an array of problems, including low collection coverage and irregular collection services, crude open dumping and burning without air and water pollution control, the breeding of flies and the handling and control of informal waste picking or scavenging activities. These public health, environmental, and management problems are caused by various factors which constrain the development of effective solid waste management systems.

Most of the island settlements of Lamu County are agglomerated together in small centres/villages taking urban characteristics. Solid waste management therefore becomes a major issue to grapple with. Other urban centres are found within the mainland where issues of solid waste management need to be addressed. The discussions below have been used to illustratively detail out the solid and liquid waste situation in Lamu County.

SOLID WASTE MANAGEMENT IN LAMU COUNTY

The County Government has invested in solid waste management especially in the Islands. Measures have been put in place though not effectively as waste is still being dumped into the ocean. In Lamu Island, the County has made use of strategically placed dustbins where solid waste is collected periodically by the County tractor to be disposed of to a designated land fill site.

Figure 32: County garbage tractor along the cabro street in Amu Town



Source: CURP, May 2016

Figure 33: Designated dumping site at Langoni near the Cemetery



Source: CURP, May 2016

In this attempt, the County has invested in the separation of collected waste by separating the waste bins through different colours. This is as shown below:

Figure 34: Waste bins at Shella



Source: CURP, May 2016

With such efforts from the County Government, it is just plausible that this could be followed by avid recycling practices. The County Government should therefore invest in quality and timely waste recycling facilities in different parts of the County. This is because the anticipated developments in the County will result in population growth and with an increase in population, the issues of solid waste will be more rampant.

From the foregoing statements, it was observed that within Amu Heritage town, the problem of solid waste is still evident since the streets are narrow and the tractor cannot access the inner parts of the town. Also, boat dumping was evident on the shores of the sea along the sea wall which destroy the appeal of the shore line.

A lot of waste in settlements such as Matondoni was found to be directly disposed into the ocean which ultimately results to environmental degradation and loss of aesthetic appeal of the shore line especially when the water has receded from the shore line.

Figure 35: Solid waste in the inner parts of the Amu Heritage Town that are a bit inaccessible due to the narrow streets



Figure 36: Direct dumping of solid waste and boat dumping in Matondoni along the sea wall.



Figure 37: Direct dumping of solid waste in Siyu along the shore line



Source: CURP, May 2016

Solid waste in the mainland of Lamu County is controlled by the County Government with strict designated areas where the waste is burnt. The major challenge with regards to solid waste that requires a lot of interventions and mitigation is in the archipelago where direct dumping into the ocean has been experienced.

LIQUID WASTE MANAGEMENT

OVERVIEW

This refers to the principles and practices relating to the collection, removal or disposal of human excreta, household waste, water and refuse as they impact upon people and the environment. Decent sanitation includes appropriate hygiene awareness and behavior as well as acceptable, affordable and sustainable sanitation services which is crucial for the health and wellbeing of people.

Lack of access to safe human waste disposal facilities leads to higher costs of living to the community following the results which include reduced incomes as a result of disease and lower educational outcomes.

LIQUID WASTE SITUATION IN LAMU COUNTY

According to a World Bank survey conducted in 2010, a total of 57% of residents of Lamu County used improved sanitation (They include flush/pour flush (to piped sewer system, septic tank, pit latrine), ventilated improved pit (VIP) latrine, pit latrine with slab, and composting toilet), while the rest used unimproved sanitation in the County.

Lamu East constituency has the highest share of residents using improved sanitation at 72%, which is 19% above the population of Lamu West constituency (the lowest share). Faza Ward has the highest share of residents using improved sanitation at 78%, which is almost 51 % above Witu ward which has the lowest share. Improved sanitation is higher in female headed households at 61% as compared with male headed households at 55%.

Most of the waste water from the County runs through open drains (mainly grey water) and piped sewers (sewage) with outfalls emptying directly into the ocean. In many houses in the built-up area of the town have septic tanks located below the concrete-paved narrow streets, which are more often than not, under-designed due to very shallow water table and therefore fill quite often, in most cases discharging the contents into the nearby open drains to drain into the ocean with consequent health and environmental concerns.

Figure 38: Direct channeling of liquid waste into the ocean in Amu Town



Source: CURP, May 2016

Overall, it is observed that the County does not have a modern sanitation system to handle liquid waste and there was an expressed need to develop a waste water treatment system for the County.

EMERGING ISSUES ON WASTE MANAGEMENT

- Best practice on solid waste segregation practices but poor public sensitization and knowledge and to some extent ignorance for segregating the waste by the public
- Lack of solid waste land fill sites and solid waste transfer facilities in the County

INFORMATION; COMMUNICATION; AND TECHNOLOGY (ICT)

OVERVIEW

In order to overcome stagnant and decreasing economic growth, countries have to consider the possibilities offered by ICTs as they now play a catalytic role in several aspects of economic growth and social life. In fact, technological progress has been driving economic growth since 1990. The ICT sector infrastructure and networks, IT-related services and media is regarded as an engine of growth and a source of innovation, with some of the highest growth in productivity. The ICT related infrastructure analyzed under this section include telephone services, postal, mobile phone services, courier services, newspaper, radio and television coverage

TELECOMMUNICATION

a) Landline

The land line technology has over time been replaced by modern technology and the wide spread use of mobile gadgets for communication purposes. Some of the Areas however still covered by the landline system include Lamu Island, Shella area, Mokowe, Faza Ward, Witu and Mpeketoni. There are two telephone exchanges. Lamu I exchange has a capacity of 600 lines, while Lamu II exchange serves 300 lines where over 90% of the lines are not under use currently. Mpeketoni and Witu were previously served from Malindi exchange. According to Lamu County Development Plan 2002 - 08, there were 27 public telephone booths in the County but most have been rendered non-functional.

b) Wireless

Efforts have been made to establish wireless network within the County. The entry of fibre optic in Kenya has seen a boost in this with the National Government putting money aside to ensure wireless services reach to all the Country's 47 Counties. Lamu County has wireless network though not to its entirety. Other service providers include Telkom wireless which cover extensively up to Matondoni within Lamu Island and Pate areas. Wireless base transmission stations are expected to be installed in surrounding areas of Lamu Island and Faza Ward.

c) Cell phone services

There are three cell phone providers in the region namely Safaricom, Yu and Airtel. The areas covered are Lamu Island; Pate Island; Mokowe; Witu; Mpeketoni; and Hindi. Kiunga; Basuba; and some areas of Witu Ward are still disadvantaged as the network coverage is inefficient.

Figure 39: Telecommunication boosters in Faza Village; and Hindi Town





Source: CURP, May 2016

d) Courier Services

The County is served by different modes of courier services. The different modes include Air; Water; and Road. Most courier services within the County are offered by road and sea. Most deliveries being done from other counties like Nairobi find air as the most convenient mode of delivery which is more efficient and faster though being a little bit expensive as compared to other means. These services are available in Lamu, Manda, Mpeketoni, Mokowe, Hindi and Witu.

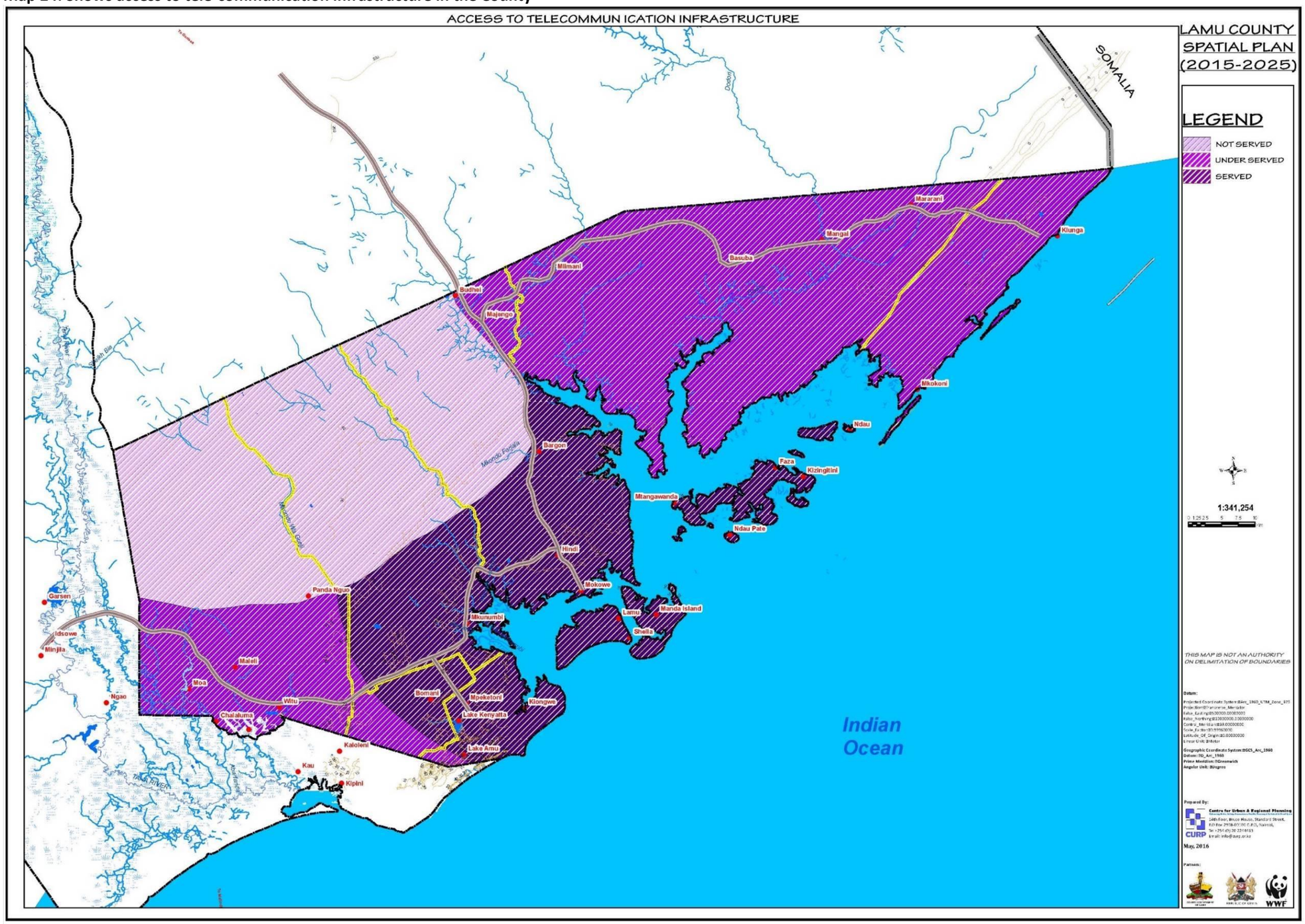
e) Postal Services

Postal services are available in Lamu Island, Mpeketoni, Faza, Witu and Mokowe. The capacities of the postal services are different and are available in the following towns as follows;

- 600 boxes at Lamu Island.
- 200 boxes at Mpeketoni
- 100 boxes at Faza.
- 100 boxes at Witu.
- 100 boxes at Mokowe.

There is an ongoing construction of a Huduma Centre in Amu Heritage Town as part of the National Government's efforts to extend and devolve service delivery.

Map 24: Shows access to tele-communication infrastructure in the County



Source: CURP 2017

CHAPTER 9: SOCIAL SERVICES AND INFRASTRUCTURE

OVERVIEW

This chapter looks at the various services the County Government of Lamu offers its people through necessitated infrastructural utilities. This has been discussed as social services in term of infrastructure capacity for Education; Health; and Recreation facilities and spaces.

Education

Overview

Education is typically seen as a means of improving people's welfare. Studies indicate that inequality; and economic growth declines as the average level of educational attainment increases, with secondary education producing the greatest payoff, especially for women (Cornia and Court, 2001). There is considerable evidence that even in settings where people are deprived of other essential services like sanitation or clean water, children of educated mothers have much better prospects of survival than do the children of uneducated mothers. Education is therefore typically viewed as a powerful factor in leveling the field of opportunity as it provides individuals with the capacity to obtain a higher income and standard of living.

At the national level, the broad objective is to achieve 100% net Primary School enrolment rate and reduce the disparity in access and quality of education. This is in line with the millennium development goal no. 2 which expired last year 2015 where all children both boys and girls alike were to be able to complete a full course of primary schooling.

Education Structure

Kenya education system has evolved over time and with major changes having been instituted in the 1980s. In 1984, 8-4-4 structure system replaced the 7-4-2-3 structure system which introduced a broader curriculum at every level. 8-4-4 system was intended to make education more relevant so as to produce skilled and high-level work force to meet the demands of economic dynamics. The system still in place up to date and therefore all learning institutions in all the 47 counties conform with it.

Lamu County has Pre-Primary; Primary; Secondary; and Tertiary Institutions sparsely distributed within the County. Presence of a learning institution defines and largely affect the settlement pattern of an area.

Table 10: Education Level in Lamu County Compared to other regions

	Total	Currently attending	Previously attended	Never attended	DK
Kenya	34,924,226	14,160,067	14,262,702	6,063,646	437,811
Lamu County	91,347	34,979	36,893	18,441	1,034
Tana River County	210,670	67,580	44,358	96,303	2,429

Source: Kenya National Bureau of Statistics, 2009

Access to Education and Distribution of Basic Education Facilities in Lamu County

A total of 33% of Lamu County residents have no formal education. Lamu East constituency has the highest share of residents with no formal education at 44%. This is 14 percentage points above Lamu West constituency, which has the lowest share of residents with no formal education.

Lamu East constituency is 11 percentage points above the County average. Basuba ward has the highest percentage of residents with no formal education at 59%. This is three times Bahari ward, which has the lowest percentage of residents with no formal education. Basuba ward is 26 percentage points above the County average (Exploring Kenya's Inequality, KNBS 2013).

Early childhood Education

There are 127 Early Childhood Development Education (ECDE) centres within the County with a current enrolment of 5316 students. The rate of enrolment is likely to increase given the positive impact of the Free Primary Education Program and the devolution where they are under the County Government. The school feeding program has also contributed to high enrolment in past and is expected to have impact in future, if sustained.

Primary Schools facilities

A total of 54% of Lamu County residents have a primary level of education only. Lamu West constituency has the highest share of residents with a primary level of education only at 55%. This is 7 percentage points above Lamu East constituency, which has the lowest share of residents with a primary level of education only. Lamu West constituency is 1 percentage point above the County average. Hongwe ward has the highest share of residents with a primary level of education only at 65%. This is 25 percentage points above Basuba ward, which has the lowest share of residents with primary only. Hongwe ward is 11 percentage points above the County average (Exploring Kenya's Inequality, KNBS 2013).

The current primary school facilities present in Lamu County is approximately 105 public primary schools and 23 private primary schools in both Lamu West and East Constituencies. Of this, there are two low cost boarding primary schools which cater for the nomadic communities and vulnerable children. These include Mokowe Arid zone in Lamu West and Mangai in Lamu East which is closed because of insecurity. The Ministry has Planned to establish five more namely Moa, Swabaha, Mkunumbi, Naghele and Manda. The County has one Special Needs School and four units for special needs education.

The teacher pupil ratio in primary schools stands at 1:35 which compares favorably with recommended ratio of 1:40. The number of private schools in the County is relatively low hence majority of the students depend on public primary schools for education.

The communities living in Kiunga and Basuba Wards have been faced by the challenge of access to education facilities over time while the ones that are there do not offer full education courses as per the education structure. Efforts should therefore be devoted to open up this area for development to make full use of these facilities. The schools in this area are under school feeding

programme as the communities living there entirely depend on the forest to derive their livelihoods with no permanent aboard.

Secondary school facilities

Only 13% of Lamu County residents have secondary level of education or above. Lamu West constituency has the highest share of residents with secondary level of education or above at 15%. This is almost twice Lamu East constituency, which has the lowest share of residents with secondary or above. Lamu West constituency is 2 percentage points above the County average. Bahari ward has the highest share of residents with secondary level of education or above at 20%. This is 19 percentage points above Basuba ward, which has the lowest share of residents with a secondary level of education or above. Bahari ward is 7 percentage points above the County average (Exploring Kenya's Inequality, KNBS 2013).

The current secondary schools in Lamu are 22 public secondary schools and 3 private secondary schools. If all the secondary schools can be operational, they will be enough to serve the County population up the year 2016 thereafter there will be demand of one to two secondary schools every three years up to the Plan period 2040.

The accessibility index for basic education facilities is as represented in the map 9.1 overleaf in the next page:

School Enrolment and Gender Balance

School enrolment in nursery and primary schools within the County shows gender equity. This shows that the County population has taken advantage of the free primary education. Despite the gender equity; the overall enrolment rate is wanting and ways of improving it needs to be explored. The primary schools and secondary schools' enrolment rate stands at 70% and dropout rates are 45% and 30% for primary and secondary schools respectively.

Table 11: Primary School Enrolment

	Public	Private	Totals
Sub County	Boys	Girls	Boys	Girls	Boys	Girls
Lamu West					11,501	10,973
Lamu East					2,554	2,388
Sub-total	12,282	11,748	1,773	1,613	14,055	13,361
TOTAL	**24,030**		**3,386**		**27,416**	

Source: Ministry of Education, Science and Technology, Lamu, 2014

The margin between the number of males and the number of females attending school is small as shown on the table above and this presents a big opportunity for the young population. Transition rate from primary school to secondary school is 48%. This is very low if the County has to produce skilled manpower to effectively develop the region.

Table 12: Secondary School Enrollment, 2014

Class	*Lamu West*		*Lamu East*		*Total*	
	Boys	*Girls*	*Boys*	*Girls*	*Boys*	*Girls*
Form 1	796	620	70	66	866	686
Form 2	899	668	93	55	992	723
Form 3	829	535	102	56	931	590
Form 4	623	432	50	38	673	471
TOTAL	3,333	2,235	129	235	3,642	2,470
GRAND-TOTAL	**5,568**		**364**		**5,932**	

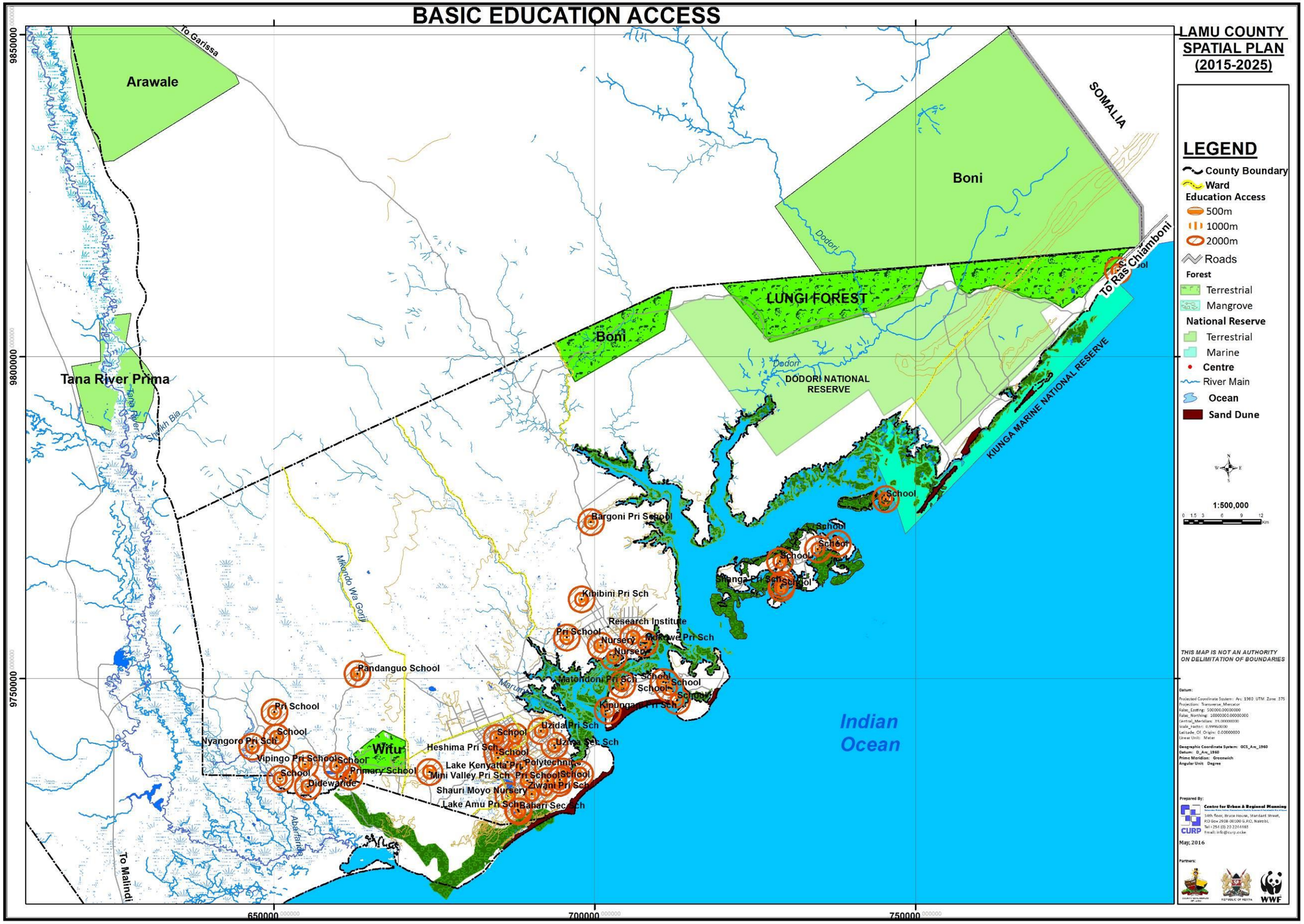
Source: Ministry of Education, Science and Technology, Lamu, 2014

An inventory of the schools in the County is appendiced in this document. From that table, it can be deduced that the literacy disparity in the County between Lamu West and East constituencies has been occasioned by this irregular distribution of schools in the two constituencies.

Out of 105 public primary schools, 84 public primary schools are found in Lamu West representing about 80% of the total public primary schools in the County. The same trend has been propagated in the secondary level education whereby, out of 22 public secondary schools in the County, only 4 are in Lamu East Constituency while 18 of them are in Lamu West. This represents about 81% of the total public secondary schools in the County. All the 23 private primary schools and 3 private secondary schools are all located in Lamu West constituencies.

This distribution however to some extent caused by the skewed population distribution in the two Constituencies continues to show there is need to localize and establish more schools in Lamu East constituency to bridge the gap of high illiteracy levels experienced in the Constituency. This will go a long way in improving the living standards of the local population and also promote development in the County as a literate population has been known to spur development of regions the world over.

Map 25: Shows access to Basic Education on a radius of between 0.5km (inner circle) and 2km (outer cirle)



BASIC EDUCATION DEMAND AND PROJECTIONS

Based on the Table above and statistical deductions derived from it, it can be deduced that a total of approximately 32,319 students are currently attending in the 153 learning institutions both public and private in both levels of learning (Primary & Secondary Schools). These students can rightfully be assumed to be between the ages of 5-19 years which is the major school going population within the Country.

According to the 2009 National Housing and Population Census, the total population within this age bracket was tabulated as 37,428 people. If all factors were held constant, it would then be assumed that a total of about 5,109 student population is not attending school currently. However, based on statistical projections as discussed elsewhere in this report, the growth rate of the County has been estimated at about 4 to 4.8% considering various assumptions which have also been discussed.

It is on that premise that the projections of the school going population within the County has been projected as follows:

Table 13: Shows student projected population as at 2025 at 4% growth rate

Age Cohort	2009	2016	2020	2025
5 – 9 Yrs.	14,559	19,159	22,413	27,269
10 - 14	12,052	15,860	18,554	22,573
15 - 19	10,817	14,234	16,652	20,260
Total	37,428	49,253	57,619	70,102

Source: KNBS, 2009. Projections done by Centre for Urban and Regional Planning, 2016

Based on Table 10. 1 above, it can be deduced that with a current projected population of about 49,253 students that are supposed to be enrolled in schools, there is a deficit of about 16,934 students that are not enrolled in any school, whether public/private primary school or public/private secondary school. Considering an ideal enrolment rate of about 400 students per school as an assumption, the current number of 153 schools both primary and secondary schools can accommodate about 61,200 students which means there would be an oversupply by about 11,947 student slots.

In the year 2025, the school going population in the County is projected to be 70,102 students. This means that with the current enrollment rate of 32,319 students for 153 schools, there would therefore be need to establish approximately 179 more institutions to cater for the population needs. However, following on the ideal situation where an enrollment of about 400 students per school was emphasized, it means that the current student capacity would be about 61,200 students requiring just about 22 more schools by the year 2025 to cater for the student population.

The same assumptions and statistical tabulations can be deduced for the student population were the growth rate to be 4.8% as assumed and supported elsewhere in this report. The student population projections would be as follows:

Table 14: Shows student projected population as at 2025 at 4.8% growth rate

Age Cohort	2009	2016	2020	2025
5 – 9 Yrs.	14,559	20,214	24,384	30,826
10 - 14	12,052	16,734	20,185	25,518
15 - 19	10,817	15,019	18,117	22,903
Total	37,428	51,967	62,686	79,246

Source: KNBS, 2009. Projections done by Centre for Urban and Regional Planning, 2016

From the table above, it means that when the student population will be 79,246 in 2025, there will be a need of about 375 schools which means an extra 222 schools will need to be built. However, as in the prior discussion, if the existing schools were to accommodate a student population of about 400 students per school, it would then mean that an extra 23 schools will need to be constructed to accommodate the cumulative student population by 2025.

UNIVERSITY/TERTIARY EDUCATION

OVERVIEW

University/Tertiary education is more than the next level in the learning process; it is a critical component of human development worldwide. It provides not only the high-level skills necessary for every labor market but also the training essential for teachers, doctors, nurses, civil servants, engineers, humanists, entrepreneurs, scientists, social scientists, and a myriad of other personnel. It is these trained individuals who develop the capacity and analytical skills that drive local economies, support civil society, teach children, lead effective Governments, and make important decisions which affect entire societies and the development capacities of those regions.

The recent World Bank Study Globalization, Growth, and Poverty: Building an Inclusive World Economy, by David Dollar and Paul Collier, describes how 24 developing countries that integrated themselves more closely into the global economy experienced higher economic growth, a reduced incidence of poverty, a rise in the average wage, an increased share of trade in gross domestic product, and improved health outcomes. These countries simultaneously raised their rates of participation in higher education.

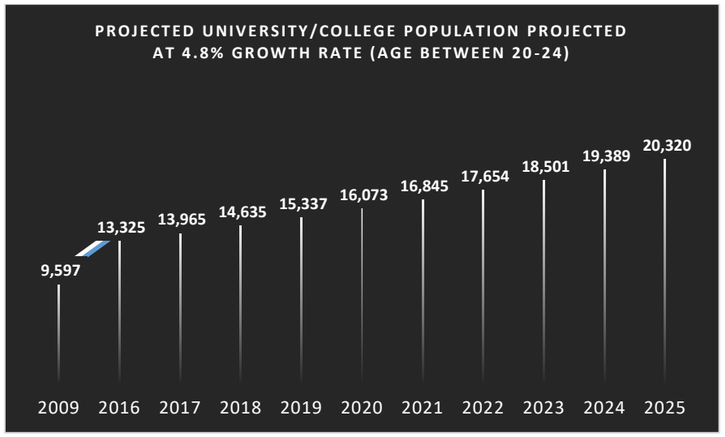
Indeed, the countries that benefited most from integration with the world economy achieved the most marked increases in educational levels. In addition, there is growing evidence that university education, through its role in empowering domestic constituencies, building institutions, and nurturing favorable regulatory frameworks and governance structures, is vital to a Country's efforts to increase social capital and to promote social cohesion, which is proving to be an important determinant of economic growth and development.

ACCESS TO TERTIARY INSTITUTIONS IN LAMU COUNTY

Lamu County has only three tertiary institutions namely Lamu Youth Polytechnic, Mpeketoni Youth Polytechnic and Witu Youth Polytechnic. These institutions located in Lamu West are all public and have only a handful of students who have qualified and can afford the education. In 2015, the percentage of University

qualification in Lamu County was 13.9 as compared to 9.14% in 2011. The County, however, have no university institution. It was noted that the population of the young population continues to grow as shown in the projection graph below. This therefore means that there would be need to localize and establish at least one university or university campus within the County. This would be in line with the National and County Government ideals of promoting education and technical know-how in the Country.

Graph 10.1: Projected population of University/College going Population



Source: KNBS, 2009. Projections done by Centre for Urban and Regional Planning, 2016

The population projection statistics above indicate that there would be enough population to support establishment of tertiary institutions within the County. However, the enrolment statistics of students within the County gaining expertise from these local institutions within the County has not been very encouraging for a County that would want to invest in sustainable educational ideals for its future generations. The enrolment rate is as follows:

Table 15: Shows enrollment in Lamu Polytechnics

Sub County	Name of Institution	Public/ Private	2013		2014	
			Male	**Female**	**Male**	**Female**
Lamu West	Lamu Youth Polytechnic	Public	24	78	24	80
	Mpeketoni Youth Polytechnic	Public	64	52	38	55
	Witu Youth Polytechnic	Public	47	78	50	46
Lamu East			0	0	0	0
TOTAL			**135**	**178**	**112**	**181**

Source: Ministry of Education, Science and Technology, Lamu, 2014

The enrolment trend above can be attributed to a few factors ranging from the technical capacity of the institutions in terms of personnel; facilities and training equipment. Additionally, the institutions in the County are more casual and passive in nature and hence therefore, most people prefer training in institutions outside the County like Nairobi and Mombasa Counties. There is an urgent need to invest in tertiary education within the County if growth and sustainability of technical expertise that would drive the County's economy is to be realized.

CURRENT EDUCATION PROGRAMMES/INITIATIVES

The National Government has made good attempts to improve the provision of education to the County and Country as a whole. Currently, some of the Government funded initiatives that has a bearing on education improvement are:

- The Free Primary and Secondary School Education (FPE and FSE)
- Provision of sanitary towels for girls in schools
- PRIDE program- supporting teaching of Mathematics in schools
- TUSOME programme- supporting teaching of English and Kiswahili
- The School Feeding programme for some schools
- Low Cost Boarding Primary Schools- Mokowe Arid Zone Boarding school and Mangai

The County Government of Lamu also has the following programmes aimed at improving the education situation in the County:

- A bursaries kitty aimed at improving financial access to needy students
- The Early Childhood Education programme
- Responsible for advancing technical and tertiary institutions in the County.
- Education investor sourcing and sensitization of stakeholders

Adult education is also catered for by the 77-adult education centres that are located in both Lamu West and Lamu East. The number of adult males enrolled in these centres in 2014 are 719 as compared to the 1398 females.

In order to be a nationally competitive County; provision of tertiary education is key. In this light, proposed future projects are:

- Construction of Egerton University at Majembeni
- Construction of a Moi University Campus at Mkunumbi

All these programmes and initiatives are aimed at improving the education situation in the County and hence, both Governments should consolidate their various efforts to improve education to derive a functional and conscious work Plan to improve education in the County.

EMERGING ISSUES

OPPORTUNITIES

- Expressed interest to support education related programmes from key stakeholders including key development partners and both levels of the Government.
- There is a huge opportunity to equip the existing schools and to some extent rehabilitate and expand some to guarantee higher enrolment and capacity to hold more students.

CONSTRAINTS IN THE EDUCATION SECTOR

- Understaffing- This is so where enrolments are low because of low population. Though in most cases as reported and documented the teacher-student ratio compares favourably, the issue of understaffing is still imminent. This is because of the low enrollment and transition rates experienced within the schools in the County.
- Additionally, understaffing is also experienced at the District Education office. Quality Assurance Officers have been withdrawn from the divisions to the DEO's office to carry out administrative work. This is the reason why quality of education has continued to decline and hence low performance.
- Traditional and non-progressive cultural practices that has influenced early marriages resulting to the girl child being disadvantaged in term of access to education.
- Food insecurity- Only 16 schools are under World Food Programme (WFP) Children come to school hungry therefore cannot concentrate, thus another factor of low performance.
- Fewer tertiary institutions- There are only three polytechnics within the County to cater for technical expertise and for the students who do not qualify for university or college admission.
- Poor enrollment and transition rates in all levels of education within the County.
- Finance- inadequate funds for improvement of already established institutions

HEALTH

OVERVIEW

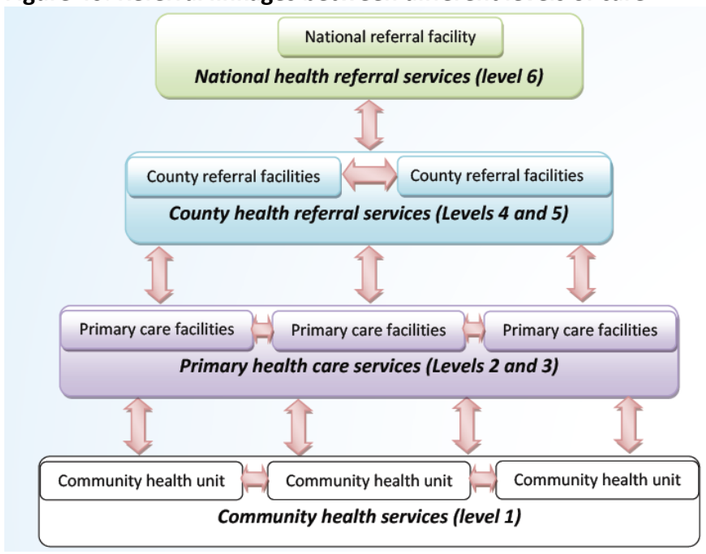
The relationship between the health of a population and the state of development of a society is complex and varies over time. Health is a very key component in any development process. The general welfare and health of a population determines among other things the level of productivity of the population, living standards and consequently the level of development.

In this regard, health issues should be emphasized, and proper strategies should be formulated to ensure good health which will lead to development. This is in line with the Millennium Development goals target 5-8.

BACKGROUND INFORMATION ON THE HEALTH SECTOR IN KENYA

The constitution of 2010 provides an overarching conducive legal framework for ensuring a more comprehensive and people driven health services, and a rights – based approach to health is adopted, and applied in the Country. On the onset of devolution, the health sector was devolved as a County Government function. On this premise, it is expected that every County should at least have a level 5 County Referral Hospital; level 4 sub-County hospitals; level 3, 2, and 1 health facilities. These facilities should be commensurate with the level of services with a referral linkage as in the structure below:

Figure 40: Referral linkages between different levels of care



Source: Adopted from Kenya Health Sector Referral Implementation Guidelines, 1st Edition of 2014

The ***Community Health Services (Level 1)*** comprises all community-based health activities, organized around the Comprehensive Community Strategy (CCS). This is a no facility
based level.
The ***Primary Care Facilities (Levels 2 and 3)*** comprises all dispensaries, clinics, health centres, and maternity homes.

The ***County Referral Health Facilities (Levels 4 and 5)*** comprise all level 4 and 5 facilities operating in and managed by the County. All of the County-managed facilities form a County referral system, which shares specific services to form a virtual network. The County referral systems receive referrals from primary care facilities in its area of responsibility, from other County facilities in the County, and from facilities outside the County (horizontal referral) and community units.

The ***National Referral Health Facilities (Level 6)*** include the facilities that provide specialized health care services, such as hospitals, laboratories, blood banks, and research institutions. These facilities operate with a defined level of autonomy.

ACCESS TO HEALTH FACILITIES AND THEIR DISTRIBUTION IN LAMU COUNTY

The County has about 28 health facilities managed by the County Government of Lamu ranging from Level 2 to 5. These are 3 Hospitals, 3 health centers and 22 dispensaries. Additionally, the County has 3 Faith Based Organizations (FBO) health facilities of which one is a health centre and two are dispensaries. Furthermore, the County has 1 Non-Governmental Organizations (NGO) health centre facility and 12 Private facilities of which one is a nursing home.

The ideal situation would be for each sub-County to have a level 4 facility and several level 3 and 2 facilities. The aim would be to decongest Lamu County Hospital in Lamu Island, Mkomani Ward which is the largest in the County offering the highest level of specialized services. The average distance to a health facility in the County is less than 2 kilometers in every ward which compares favorably to the Planning standards for health facilities in the

Country. The challenge is on the equipment, personnel and number of the health facilities.

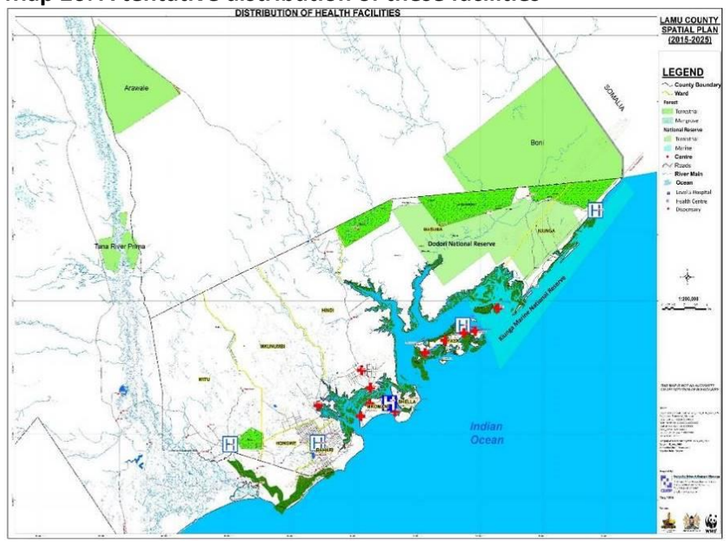
Their distribution is highly influenced by the population distribution with ward of high population concentration having a larger share of the concentration of hospitals. This is as shown in the table below:

Table 16: Spatial distribution of health facilities as per the Wards

Ward	Health Facilities
Witu	Moa dispensary Dide Waride dispensary Pandanguo dispensary Witu health centre
Mkunumbi	Muhamarani dispensary Mkunumbi dispensary
Hongwe	Hongwe catholic dispensary
Bahari	Maria Teresa Nuzzo health centre Mpeketoni subCounty hospital
Hindi	Bargoni dispensary Hindi Magogoni dispensary Hindi GK prison dispensary Mokowe health center
Mkomani	Kipungani dispensary Matondoni dispensary Lamu County hospital Pablo Horstmann paediatric health centre
Shella/Manda	Shella dispensary
Faza	Mtangawanda dispensary Patte dispensary Siyu dispensary Shanga dispensary Tchundwa dispensary Mbwajumwali dispensary Kizingitini dispensary Faza SubCounty hospital
Kiunga	Ndau dispensary Kiwayu dispensary Mkokoni dispensary Kiunga health centre
Basuba	Mangai dispensary

Source: Ministry of Health, Lamu

Map 26: A tentative distribution of these facilities



Source: CURP, May 2016

ACCESS TO MEDI-CARE (HEALTH PERSONNEL) IN THE COUNTY

In the year 2007, the Doctor-Patient ratio was 1:36,343. A comparison between the number of health facilities and the staff shows that that some of the facilities lack delivery of efficient services. This could be as a result of under staffing and lack of necessary equipment. The availability of health personnel including doctors, clinicians, nurses etc is a critical determinant of quality and access to health sevices.

To give efficient and effective services, staff numbers in all the health facilities need to be reviewed upwards. This should be in all cadres but more so in clinical officers' cadres that mostly are in charge of the dispensaries. In a situation like Lamu where the majority depend on public health services, staffing and availability of drugs is important for a healthy community. See the staff strength of the registered medical personnel in the County as at 2014 in Appendix 2

HEALTH INDICATORS IN THE COUNTY

The general level of health services enjoyed by the people of Lamu County can be assessed using standard health indicators which have been established to measure the different dimensions of health. These health indicators range in a wide array and are summarized in the table below:

The diseases with the highest morbidity rates are respiratory diseases and skin diseases at 44.8% and 13.7% respectively contribution to morbidity.

Table 17: Shows incidences of disease prevalence in the County

Cause of Outpatient Morbidity	2014/2015	% Contribution	Cause of Outpatient Morbidity	2013/2014	% Contribution	Cause of Outpatient Morbidity	2012/2013	% Contribution
Respiratory Diseases	68,966	44.8	Respiratory Diseases	63,717	17.4	Respiratory Diseases	56,179	39.4
Skin Diseases	21,151	13.7	Skin Diseases	19,483	5.3	Skin Diseases	17,140	12
Diarrhoea	14,062	9.1	Ear Infections	17,361	4.7	Diarrhoea	13,459	9.4
U.T.I	9,289	6	U.T.I	8,369	2.3	U.T.I	6,781	4.8
Pneumonia	7,955	5.2	Pneumonia	7,038	1.9	Pneumonia	7,955	5.2
Eye Infection	4,823	3.1	Eye Infection	3,283	2	Eye Infection	3,263	0.9
Dental Disorders	4,240	2.8	Dental Disorders	3,953	1.1	Dental Disorders	2,914	2
Anaemia	1,569	1	Anaemia	1,230	0.3			

Source: Ministry of Health, Lamu

From the table above, it can be deduced that the challenge of basic health provision is missing within the County owing to the highest disease incidences causing death in the County. This is because most of those diseases are highly curable with the right health care

services that the County is currently challenged in. The need to equip the existing hospital with necessary medical equipment and personnel would not have come at a better time.

CURRENT/ONGOING HEALTH PROGRAMMES

From the foregoing discussion, both levels of Governments have invested in the health sector within the County by initiating different programmes and projects that are key to the making of this County Spatial Plan. Some of these initiatives by the Government include:

- Construction of additional primary health facilities to improve on access to health services in the following areas:
  - Maisha Masha
  - Katsakakairu
  - Moa
  - Tewe
  - Uziwa
  - Ishakani
  - Sinambio
  - Manda
  - Mokowe
  - Witu
  - Tchundwa and
  - Kiunga
- Upgrading of existing health facilities to level four and level five hospitals so to improve quality of health care services in the County including:
  - King Fahd Lamu County Hospital
  - Faza Hospital
  - Witu Health Centre
- Renovation and expansion of existing health facilities to improve on diagnostic (laboratory) and maternity services. The proposed facilities are:
  - Kiunga Health Centre
  - Patte Dispensary
  - Shanga Dispensary
  - Mkokoni Dispensary
  - Kiwayu Dispensary
  - Siyu Dispensary
  - Matondoni Dispensary
  - Mkunumbi Dispensary
- Construction of mortuary at Mpeketoni hospital
- Construction of Incinerators for medical waste disposal at:

The future programs and projects by County Government include:

- Renovation and upgrading of Mokowe Health centre
- Establishment of Medical Training centre at Mokowe
- Upgrade Lamu County Referral Hospital to a Teaching Hospital
- Construction of a modern health centre at Hindi
- Designation and proper management of solid waste disposal sites
- Sewerage system
- Construction of additional health facilities at:
  - Kiangwe and
  - Bargoni

The flagship/priority programs and projects are:

- Upgrading Witu Health Centre to level four hospital
- Upgrading Faza to a functional hospital
- Improving and upgrading Lamu King Fahd Hospital to level 5 hospital
- Automation of Lamu and Mpeketoni hospitals

5 EMERGING ISSUES

- There are high maternal and infant mortality rates. The effects of high maternal mortality include loss of education as the surviving children are more likely to drop out of school and marry young; increased mortality for children whose mothers have died and difficulty for the surviving fathers and children to manage the household. In the last scenario, children may end up getting sent away to live with other family members so as to ease the burden of care; this may result in permanently broken families. (Tezeta Tulloch, 2015)
- Inadequate Medical Personnel and Health Facilities
- Inadequate Disaster Management and Medical Emergency Response Services
- Poor Preventative Health Care Provision
- Shortage of medical equipment and drugs
- Prevalence of drug abuse
- Funding and National Equalisation

RECREATION

The recreative space in the County is a missing component. Recreactive spaces could either be in form of open spaces like playing fields, stadiums, City/Urban Parks, community facilites and social halls among others. These shape the public realm and an indicator of how communities interact to boost the social realm. Parks are a tangible reflection of the quality of life in a community. They provide identity for citizens and are a major factor in the perception of quality of life in a given community. Parks and recreation services are often cited as one of the most important factors in surveys of how livable communities are. Most of these amenities or spaces are lacking in the County and the Spatial Plan has taken keen interest in this.

CHAPTER 10: GOVERNANCE & INSTITUTIONS

OVERVIEW

The question of County Governance brings into focus who rules or governs and who benefits. Through the principle of social contract, those who govern have been bestowed with power and authority legitimately by a constitutional framework to act in the best interests of all with or without a voice. The greatest goal or main goal of governance being to guarantee an inclusive sustainable social economic transformation of a country or County guided by the tripartite concurrence of Planning, executive and policy making at all levels of Government.

Tripartite consensus in expediting public affairs appears to be the Achilles hill of governance in the Country and the quest for local and national development. Governance is crucial for the success of formulation of County spatial Plan, and its implementation for favourable intended outcomes**.** It functions in a milieu of hierarchical layers guided by national values and principles constitutionally established and legitimacy of performance in addressing Planning and development challenges. In it is the value of guardian of and on behalf, direction, cohesion, and motivation.

PURPOSE OF AND PRINCIPLES OF GOVERNANCE

In order to realize or achieve the above, the national Government, County Governments, and other state agencies in collaboration with non-state actors work to ensure the following;

- Maintaining legal and social framework (property rights regulate contracts).
- Maintain competition (monopolies and anti-trust laws).
- Providing public goods and social services –These are non-rival in consumption and non excludable –(national defense, roads, streetlights, drainage, health,, education, recreation)
- Redistribution of income – (taxes, social security, victims of market rationality).
- Ensuring equitable spatial development in the national territorial space to avoid polarized development.
- Correction of markets failures with regard to information flow and externalities- (Negative & positive externality)
- Stabilizing of the economy – (growth, employment, stable price levels, favorable exchange rates, and interests' rates)

The assignment of functions and responsibilities together with powers between national Government, County Governments and other state agencies is provided for in the constitution of Kenya. This has adhered to the norm of power sharing according to Article 6 of the constitution. It recognizes that the Governments at national and County levels are distinct and inter-dependent and shall conduct their mutual relations on the basis of consultation and cooperation. Responsibilities and duties to achieve functions and purposes of Government are as provided for in the fourth schedule of the Kenyan constitution.

Discharge of the function and purposes of Government at all levels of Government is guided by national values and principles stipulated in article 10 and chapter 6 on integrity of the Constitution. This implies total commitment to serving the collective interests of the Kenyan nation through subordination of individual interests. National values guiding all public policy and implementation actions are;

- Patriotism, national unity, sharing and devolution of power, the rule of law, and the participation of the people.
- Human dignity, equity, social justice, inclusiveness, equality, human rights, non-discrimination and protection of the marginalized.
- Good governance, integrity, transparency and accountability
- Sustainable development.

The discharge of functions and purposes of Government to the citizens is supported by articles 75 on integrity and 232 on values and principles of public service. Values and principles of public service are stated as:

- High standards of professional ethics
- Efficient, effective and economic use of resources
- Responsive, prompt, effective, impartial and equitable provision of services
- Involvement of the people in the process of policy making
- Accounting for administrative acts
- Transparency and provision to the public of timely, accurate information
- Fair competition and merit as the basis appointments and promotions
- Representation of Kenya's diverse communities; and
- Affording adequate and equal opportunities for appointment, training and advancement, at all levels of the public service, of (men and women, members of all ethnic groups, and persons with disabilities)

NATIONAL LEVEL INSTITUTIONS

Institutions at the national level through which Planning takes place are the national executive consisting of 14-22 cabinet secretaries, the president and his deputy and the attorney general; a bicameral parliament for policy making comprising the national assembly and the senate, the judiciary for arbitration of conflicts, and protection of the bill of rights for social justice and equity, independent constitutional commissions and state corporations. The assembly and the senate are involved in policy making and their various roles are stipulated in articles 94, 95, and 96 of the constitution respectively. The senate performs some functions of policy making and oversight that enhance the operations of the County Governments. These roles are;

- Represents the counties and serve to protect interests of the counties and their Governments.

- Participates in the law-making function of parliament by considering, debating and improving bills concerning counties as provided in articles 109 &113.
- They participate in the oversight of the state officers by considering and determining any resolution to remove the president and the deputy president.

An important element of the organization of Government institutions (national, state corporations, constitutional commissions, and counties) is that of collaboration and checking the excesses of each other. In working to discharge their various functions, they are guided by three key issues mentioned as;

- Devolution and equal access to services
- Adhere to the bill of rights as stipulated in the constitution
- Empowerment of citizens through public participation

The national level institutions and discharge important roles that are important to the implementation of County Spatial Plans in the Country and particularly Lamu County**.** The institutions and some of the roles or relevance to County Spatial Plans are indicated in table 11 below**.**

Table 18: Distribution of governance institution and respective relevance to Spatial Planning

National Ministries	Organisation into Directorates	Constitutional Commissions & Other Agencies	State Corporations	Relevance to County Spatial Planning
Interior & Coordination of & Coordination of National Government	• Immigration and Registration of Persons • Kenya Police • Kenya Prison Services	• 3No Security Organs (Defence, Intelligence, & Police Service) • National Security Council • National Police Service Commission • National Cohesion and Integration Commission	• Independent Policing Oversight Authority • National Cohesion & Integration Commission • Betting Control & Licensing Board • Kenya Citizens & Foreign Nationals Services • National Authority for the Campaign Against Drug Abuse (NACADA)	• Law, order and ensuring internal security • Authentic citizen documents (Birth Certificates National Identity Cards and Passports, and Work Permits) • Harmonious cohesive coexistence and ensure equal access to opportunities • Fight against drugs and abuse of drugs • National security intelligence to counter terror and crime • Distribution of security infrastructure and capacity
Defence	Kenya Defence Forces	• Defence Forces & Defence Council • National Security Council		• Protection of the land of Kenya and its people against external aggression (Terror threats, border issues at Ras Kamboni with Somalia) -Land and Sea • Forces security intelligence to guard against infiltration into the national communication system • Distribution of security infrastructure and capacity to guard our borders
Foreign Affairs & International Trade				• Follow up diplomatically on correct border situation with Neighbours of Kenya (Land and Sea) with regard to appropriate boundaries • National security matters • Trade and cooperation between Kenya and other Countries
Ministry of Information, Communication and Technology			• Kenya Broadcasting Cooperation • Kenya Institute of Mass Communication • Postal Corporation of Kenya • National Communications Secretariat • Communications Commission of Kenya • Konza Technopolies • Development Authority	• Policy and standards on information and communication • Dissemination of information to the Citizens through various media • Regulations of actors in the communication sector to avoid parallel set up that can be a source of insecurity

			• Kenya Information • Communication Technology Board	• Issuance of license and frequencies to investors in the information and communication sector • Freedom of dissemination of information and public awareness
Ministry of Environment, Natural Resources and Regional Development Authorities	Directorate of Environment		• National Environmental Management Authority • National Environmental Trust Fund • Regional Development Authorities (CBDA & TARDA) • Kenya Wildlife Services • Kenya Forestry Services	• Regulation the use of natural resources by people and their effects on others through (EIA & SEA) and Planning • Policy, standards and regulations of utilisation of the natural resources • Inventory and status assessment of the natural resources in relation to expanding human demands • Inventory of the natural resources and market them for prudent utilisation • Coordinate the protection of natural resources of the Country
Ministry of Water & Irrigation			• National Water Conservation & Pipeline Corporation • Kenya Water Institute • Water Resources Management Authority • Water Service Regulatory Board • Water Services Trust Fund • Kenya Meteorological Department • Kenya Meteorological Training College	• Policy, standards and regulations guiding utilisation of water and waste water • Protection of the water towers and water sources through community initiatives by the water authorities • Regulation of service agencies in charge of provision of water to the communities • Lacks a land use Planning framework to guide protection of water towers and provision of water services
Mining				• Policy, standards, and regulations guiding the mining sector • Regulation of the mining sector
Devolution & National Planning		Transition Authority Public service Commission	• Vision 2030 Board • National Economic & Social Council • National Coordination Agency for Population and Development • Kenya Bureau of Statistics • Constituency Development Fund Board • Kenya Institute of Public Policy Research and Analysis • Drought Management Authority • Youth Enterprise Fund • Kenya National Youth Council • Women Enterprise Fund	• National development policy direction • Coordination of national development efforts • Research, storage and publication of vital social economic information on Kenya • Policy research, publication and dissemination • Inventory of all Government development initiatives past and current

			• NGO Board • NGO Co-ordinating Bureau	• Lack of a sector wide approach to coordination of development efforts
Finance & National Treasury		• Controller of Budget • Auditor General • Commission on Revenue Allocation • Salaries and Remuneration Commission	• Public Sector Accounting Standards Board • Kenya Competition Authority • Kenya Revenue Authority • Privatisation Commission • Public Procurement Oversight Authority • Retirement Benefits Authority • Kenya Institute of Supplies Management • Capital Markets Authority • Anti- Money Laundering Authority • ICDC	• Policy, laws regulations and standards on generation and utilisation of financial resources in Kenya • Free and competitive business environment for investment • Fair and independent allocation of revenue to counties and national Government according to functions performed by ministries • Regulation and monitoring the utilisation of the resources • Fairness and equality in remuneration within the public sector
Agriculture, Livestock & Fisheries			• Agriculture, Fisheries and Livestock Authority • National Irrigation Board • Coffee research foundation • Kenya Plant Health inspectors service • Kenya Agricultural Research Institute • Central Agricultural Board • Kenya Farmers Association • Kenya Sugar Board • Coffee Board of Kenya • Cotton Development Authority • National Cereals and Produce Board • Kenya Seed Company • Horticultural Crops Development Authority • Kenya Sugar Research Foundation • Agricultural Information Resource Centre • Kenya Animal Genetics Resource Centre • Pest Control Products Board • Kenya Dairy Board • Kenya Meat Commission • Kenya Veterinary Vaccine Production Centres • Kenya Marine and Fisheries Research Institute • Agro-Chemical and Food Company • Agricultural Development Corporation • National Bio- Safety Authority	• Policy, standards, and regulations guiding crop, livestock and fisheries • Research institutes that support the agricultural subsectors • Agricultural support financial institutions that provide loans to farmers • Responsible for land where agriculture is practiced both on private and public land • In charge of guiding on proper agricultural inputs to be applied by farmers

Industrialisation, Trade & Enterprises Development			• Kenya Leather Development Council • Kenya Wine Agencies Limited • Industrial Commercial and Development Cooperation • Savings and Credit Societies Regulatory Authority • Kenya Investment Authority • Export Processing Zones Authority • Kenya Industrial Research and Development Institute • Kenya Industrial Training Institute • Kenya Bureau of Standards • Kenya Industrial Property Institute • Kenya National Accreditation Services • Anti-Counterfeit Authority	• Policy, laws, regulations and standards on industry, trade, and enterprises • Incentives for industrialisation and commerce • Creation of industrialisation zones small scale and agro industrial parks • Cortication of products and services • Enable the innovators to patent their inventions • Training of local labour on industrial skills • Market access for products and services • Competitiveness of Kenya as an investment destination is a challenge
Tourism			• Kenya Tourism Board • Kenya Tourism Development Cooperation • Tourism Trust Fund	
Labour & East African Affairs			• National Industrial Training Authority • National Social Security Fund • National Council of persons with Disabilities • National Council for Children services • East African Legislative Assembly	• Policy, laws, regulations and standards of faire labour practices • Employment information in Kenya • Resolution of labour disputes • Welfare and rights of children under difficult circumstances • Training of labour to acquire technical skills
Public Service, Youth & Gender				
Lands & Physical Planning		National Land Commission	Settlement	• Policy on land use, land policy, laws, regulations and standards • Coordination of interCounty Planning • Oversight over land use Planning • Land administration • Coordinate resource based Planning and resolution of conflicts • Determination of location of development and land use in the entire country at both national and County in accordance to division of Planning responsibilities • Focus national attention on inter Country Planning matters

				• Provision of an integrative Planning framework that coordinates all sectoral development efforts • Integrative Planning framework as a basis of financial allocation
Transport Infrastructure, Housing & Urban Development			• Kenya Civil Aviation Authority • Transport Licensing Board • National Road Safety Council • Kenya Airports Authority • National Transport and Safety Authority • Highway & Building Technology • Kenya Maritime Authority • Kenya National Shipping Line • Kenya Ports Authority • Kenya Airports Authority • Kenya Railway Corporation • Kenya Ferry Services • Kenya Roads Board • Kenya National Highways Authority • Kenya Urban Roads Authority • Kenya Rural Roads Authority • LAPSETT Corridor Development Authority	• Policy, laws, regulations on transport, housing and urban development • Responsible for design, and implementation of roads, ports, and airports as well as railway • Provision of ferry services • Responsible for urban development and housing • Road responsibility been assigned to different agencies • There is lack of coordination between land use Planning and transport Planning • Fragmentation of integrated spatial Planning responsibilities
Energy & Petroleum			• Kenya Power and Lighting • Kenya Energy Generating Company • Kenya Electricity Transmission Company • National Oil Corporation of Kenya • Kenya Pipeline Company • Energy Regulatory Commission • Rural Electrification Authority • Geothermal Development Company • Kenya Petroleum Refineries Ltd	• Policy, standards, and regulations of the sector • Ensure the distribution of power to the citizens of the County • Responsible for energy infrastructure in the Country as a network and nodal points • Determination and regulations of energy producers • Setting up of energy tariffs for petroleum and electricity • Equal access to power is still a challenge in the energy sector • Inadequately coordinated with land use and relevant stakeholders
Education, Science & Technology		Teachers Service Commission	• Kenya Education Management Institute • Kenya National Examination Council • Kenya Institute of Special Education	• Policy, standards, and regulations of the education sector • Management of the examinations in the Country

			• Commission for University Education	• Regulation of higher education • Employment and facilitation of teaching personnel in education sector • Distribution of quality schools is a challenge to the ministry as well teaching personnel • Retention of learners in school is challenge facing the sector • Inadequately coordinated with land use and relevant stakeholders
Health			• Kenya Medical Supplies Agency • Kenya Medical Research Institute • Kenya Medical Training College • Referral Hospitals Authority • National Aids Control Council • Pharmacy & Poisons Board • National Hospital Insurance Board	• Policy, standards and regulations in the sector • National health insurance services • Training and regulation of health professionals • Regulation of health practice • Provision of immunisation programmes • Challenge of distribution of health facilities • Capacity to utilise existing facilities as well as improve on health care delivery is inadequate
Attorney General and Department of Justice		• Ethics and Anti-Corruption Commissions • Independent Elections and Boundaries Commission • Kenya National Human Rights and Equality Commission • Gender and Equality Commission • Judicial Service Commission	• National Anti- Corruption Campaign Steering Committee • Truth, Justice and Reconciliation Commission • Kenya Law Reform Commission • National Crime Research Centre • Auctioneers Licensing Board • Commission on Implementation of the Constitution • Commission on Administrative Justice • Witness Protection Agency • Kenya Copy Right Board • Advocates Complaints Commissions	• Drafting of laws and regulations • Interpretation of various legal status requiring clarification • Inadequate linkage between law and policy. Laws have been drafted without policy • Identification, clarification of corrupt cases forwarded for prosecution • Focus national attention on cases of abuses of human rights by Government agencies and others • Inadequate attention on cases of human rights due to non-performance of Government on provision public services • Ensure equal access to justice and protection of the rights of all • Provide cheques and balances on the excesses of both the executive and the legislature

THE COUNTY GOVERNANCE SYSTEM

Governance at the County level almost similarly mirrors what is at the national level illustrating a quadruple relationship which is felt differently at the grassroots level among the communities. It is a relationship of national, constitutional commissions, state corporations, and County Government system in addition to the non- state actors. At the County level, the expression of direct central Government is manifested through the County commission office.

County governance system internally comprises the executive organ for implementation of County policies and programmes and a policy making organ for the formulation and approval of County policy. For Lamu County these are County Government administration headed by the governor and the County assembly headed by the speaker. County Government structure has staffing institutions for both the assembly and the executive namely the County assembly service board and the County service board.

THE COUNTY ASSEMBLY

The County Assembly is the policy making and approval arm of the County Government created by article 177 of the constitution and article 7 of the County Government Act. Representation of the members of the County Assembly is in accordance with constitutional provisions that guarantee fairness and equality. Nominees of political parties to the County Assembly are guided by:

- Community and cultural diversity of the County
- Adequate representation to protect the minorities within the County in accordance with article 197 of the Constitution

The County Assembly has been assigned the following roles;

- Vet and approve nominees to the County public offices as may be provided in this Act or any other law
- Perform the roles set out in article 185 of the constitution
- Approve the budget and expenditure of the County Government in accordance with article 207 of the Constitution and the legislation contemplated in article 220 (2) of the Constitution guided by articles 201 and 203 of the Constitution
- Approve the borrowing by the County Government in accordance with article 212 of the constitution
- Approve County Development Planning; and
- Perform any other roles as may be set out in the constitution and any legislation.

County assembly operates on the principles of separation of powers and sharing of power within and between the County and the citizens. This implies County assembly members have oversight, policy formulation and representation roles and cannot perform therefore executive functions. Roles of County assembly members are stipulated as;

- Maintain close contact with the electorate and consult them on issues before or under discussion in the County assembly
- Present views, opinions and proposals of the electorate to the County assembly
- Attend sessions of the County assembly and its committees
- Provide a linkage between the County assembly and the electorate in public service delivery and
- Extend professional knowledge, experience or specialised knowledge to an issue for discussion in the County assembly

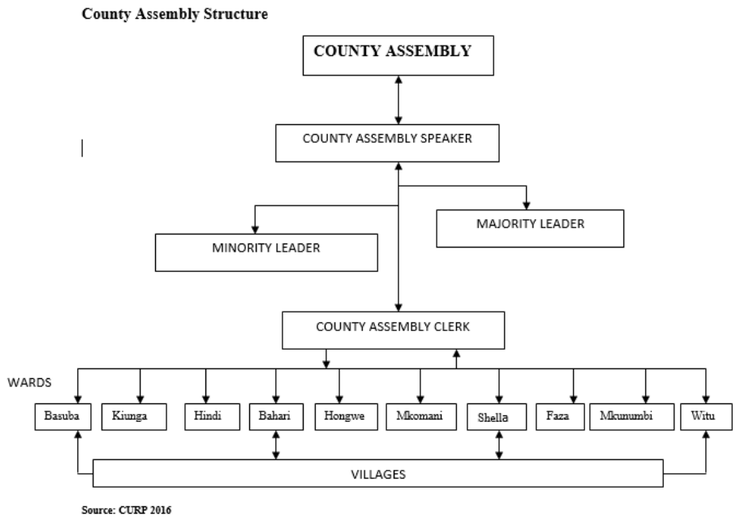
STAFFING OF THE COUNTY ASSEMBLY

Staffing of the County Government is carried out under the institution established by both the constitution article 235 and the County Government Act article 12. The County Assembly Public Service Board is a body corporate with perpetual succession and a common zeal. It comprises the speaker of the County Assembly as the chairperson, leader of the majority as vice chairperson, leader of the minority party, a person resident in the County, appointed by the County Assembly from among persons who have knowledge and experience in public affairs, but is not a member of the County Assembly and the County assembly clerk who shall be Secretary to the County Assembly Service Board. Responsibilities of the County Assembly Service Board are as stipulated below:

- Providing services and facilities to ensure the efficient and effective functioning of the County assembly
- Constituting offices in the County assembly service board and appointing and supervising office holders
- Preparing annual estimates of expenditure of the County Assembly service and submitting them to the County Assembly for approval and exercising budgetary control over the service
- Undertaking singly or jointly with other relevant organisations, programmes to promote the ideals of parliamentary democracy; and
- Performing other functions necessary for the well-being of the members and staff of the County Assembly and prescribed by the national legislation.

The Staffing at the County level is guided by the range of functions and responsibilities assigned to the County, and the number of ministries operationalized at the national level as stipulated by the constitution which sets the limits of both national and County Governments. The ministries that have been established by the constitution at the national level are also expected to be expressed at the County level.

COUNTY ASSEMBLY STRUCTURE



The County assembly discharges its functions through a committee system comprising of at least each member of the assembly. The attendance of the County assembly to conduct its business is set at one third of the total members of the County assembly. The County assembly structure is as presented above.

The County Assembly works through a number of committees as per the capacity of the County guided by the standing orders consistent with the constitution. Policy decisions are communicated to the people from the County by their respective members of the County assembly, and issues affecting the community needing attention of the County Government are communicated to the County through the members of the County assembly from the community. A participatory community group is yet to be established at the ward level to channel the interests of the communities to the County Government system through their elected representatives.

COUNTY GOVERNMENT ADMINISTRATION

In carrying out delivery of services and facilitating inclusive social economic development within the County, the supreme law in spirit of power sharing has established County Governments by making provisions for decentralization according to article 174. The principles of devolved Governments are;

- To promote democratic and accountable exercise of power.
- To foster national unity by recognizing diversity.
- To give powers of self governance to the people in the exercise of powers of the state and in making decisions affecting them.
- To recognize the right of the communities to manage their own affairs and to further their development
- To protect and promote the interests and rights of the minorities and marginalized communities.

- To promote social and economic development and the provisions of proximate easily accessible services throughout the country, thereby the nation.
- To ensure equitable sharing of national and local resources throughout Kenya.
- To facilitate the decentralization of the state organs, their functions and services from the capital.
- To enhance checks and balances and separation of powers

Operating on the above principles, the County Government is expected to fulfill its functions and purpose of promoting equitable social economic transformation of the County. This is supported further by the following norms provided by the constitution of Kenya in article 175. These are;

- Democratic principles and operation of powers
- Reliable sources of revenue to enable them deliver services effectively and efficiently
- Ensure gender rule of2/3rd in employment within the County
- Each County Government shall decentralize its functions and provision of services.

These principles guide the operations of the County Government of Lamu towards achieving functions and purposes to the benefit of local residents. Based on the above, the delivery of services and promoting a favorable environment for inclusive sustainable social economic transformation, the governance structure of the County is organized along three key functions;

THE COUNTY EXECUTIVE ORGAN

County executive system consists of the office of the governor, his or her deputy, the County executive committee members and the County secretary. Executive functions are performed by the governor directly and indirectly by delegation and assignment of responsibilities to the County executive committee appointed by the governor and approved by the County assembly. The executive committee is accountable to the governor, while the governor is accountable to the electorate of the County. The responsibilities of the office of the governor are as follows;

- Diligently execute the functions and exercise the authority provided for in the constitution and legislations.
- Perform such state function within the County as the president may from time to time assign on the basis of mutual consultation.
- Represent the County in national and international fora and events
- Appoint with the approval of the County assembly, the County executive committee in accordance with article 179 (2)(b) of the constitution.
- Constitute the County executive committee portfolio structure to respond to the functions and competencies assigned and transferred to each County.
- Submit the County Plans and policies to the County assembly for approval.
- Consider, approve and assent to bills passed by the County assembly.
- Chair meetings of the County executive committee
- By a decision of the County gazette, assign to every member of the County executive committee responsibility to ensure the discharge of any function within the County and the provision of related services to the people.
- Submit to the County assembly an annual report on the implementation status of the County policies and Plans.
- Deliver annual state of the County address containing such matters as may be specified in County legislation; and
- Sign and cause to be published in the County Gazette notice of all important formal decisions made by the governor or by the County executive committee.

To perform functions classified under subsections (2) of the County Government Act, the governor must carry out the following;

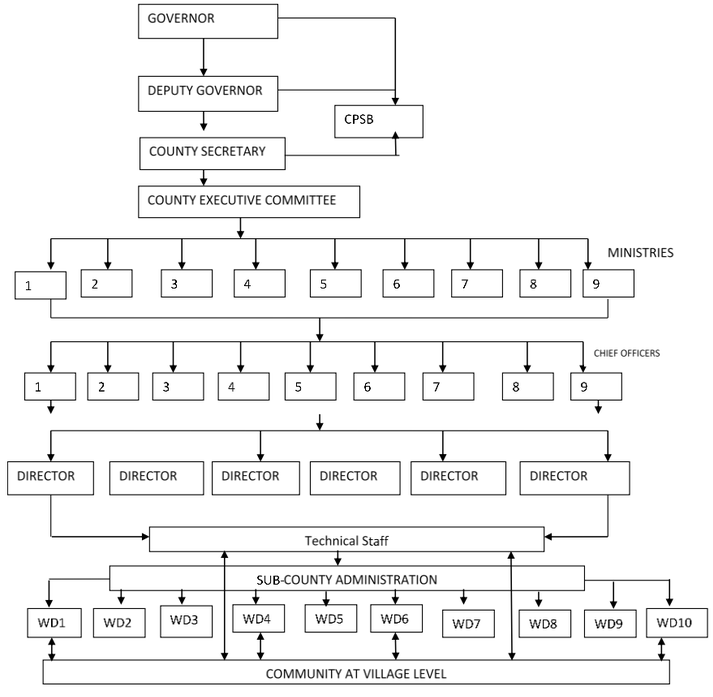
- Provide leadership in the County Governance and development.
- Provide leadership to the County executive committee and administration based on the County policies and Plans.
- Promotes democracy, good governance, unity and cohesion within the County.
- Promote peace and order within the County.
- Promote the competitiveness of the County.
- To be accountable for the management and use of the County resources; and
- Promote and facilitate citizen participation in the development of policies and Plans and delivery of services in the County.

Functions of the executive are stipulated both in the Constitution and the County Government Act. According to the Constitution, the County executive is expected to perform the following functions;

- Implement County legislation
- Implement within the County, national legislation to the extent that the legislation so requires
- Manage and coordinate the functions of the County administration and its departments and
- Perform any other functions conferred on it by this legislation or national constitution.
- Any other function stipulated by article 5 (2) of the County Government Act.

To facilitate the delivery of the functions mentioned above the County Government is organized according to a hierarchy as designed in figure 2 comprising of departments of two types. One of the department types is by function while the other is by region in form of spatial jurisdiction of Sub County and wards for the delivery of services to the County. This coexists with central Government administrative system of County commissioners which is based on territorial departmentation up to the village level.

THE COUNTY EXECUTIVE STRUCTURE



Source: CURP

The assignment of functions between levels of Government and among Government agencies is guided by the constitution. National constitutional commissions have been created by the constitution with specified functions and operationalised through acts of parliament. Their roles have been mentioned in table 21-1 above. Functions of the County Government and particularly Planning have been articulated in part 2 of the fourth schedule and section 8 of the schedule in the constitution.

Article 66 (1) of the constitution has clarified the user rights on land as broadly defined are nationalised. It does imply the state is the custodian of user rights on land irrespective of the ownership status in the interests of defence, public safety, order, public morality, public health and land use Planning in a sustainable manner. This function is supported by other articles in the Constitution such as; article 42 on environment and 69 on environment and national resources and enforcement of environmental rights in addition to article 43 on economic and social rights.

Achievement of the intentions of the constitutions as sacrosanct rights of the citizens of Kenya can only be done through a participatory spatial Planning process, implementation, monitoring and evaluation. It is only the integrated Planning framework that can help the County Government and its citizens achieve the aspirations of the Kenyan people stated in the bill of rights and Government policy papers. The Planning function is located within the executive committee of the County under the ministry of land, physical Planning, infrastructure and water headed by County Executive Member. The ministry has a chief officer, three directors of water, housing and land, technical staff and non-technical staff. These are the officers charged with ensuring Planning is carried out and that all development taking place on space is guided by Planning.

PLANNING RESPONSIBILITIES OF THE COUNTY

County headed by the County executive member in charge of lands and physical Planning and staff under him have the responsibility of ensuring that every part of the County as defined in the constitution with reference to land is Planned. This provides a framework of guiding allocation of resources and sustainable development of the County. In addition to ensuring Plans are availed for the entire County both rural and urban centres, it has also to ensure compliance to the Plans through a system of development permission application under the County development management function.

The system of Planning at the County level also liaises with national system of Planning on matters of policy, laws, regulations and standards regarding Planning. It is also expected to work closely with various central Government ministries, constitutional commissions, state corporations that are undertaking national development projects within the County aimed at improving the social economic conditions of the people. This process of engagement however has to respect the constitutional requirements of participation, national values and principles, demonstrate benefit sharing with local communities where possible and bill of rights.

County Planning system is also expected to bring to the attention of the County Government and national director of physical Planning matters of resource use, and towns that fall among counties. It is also expected to raise Planning matters that fall between two Countries. In the ame stride, Planning issues falling between two Countries relate to Examples noted in the process of County spatial Planning are matters that touch on Lamu, Garissa, and Tana River Counties as well as between Kenya and Somalia which have a bearing on County spatial Planning**.** Planning and implementation of development in these areas requires additional implementation tools to be prepared and availed to Planners on both sides to facilitate their Planning work

Internally, the County Planning system is expected to coordinate all the development projects of other sectors that take place on land. Through an integrative framework all the development current and future development needs of all sectors have been captured. Besides a regional focus of County and Sub County Planning, it is also envisaged that a system or hierarchy of urban centres within the town will be Planned. This is done in line to fit within the County spatial Planning framework. Enforcement of the development should be carried out adhering to Planning guidelines and standards formulated by the national system of Planning in consultation with County Planning system and the Plan zone regulations.

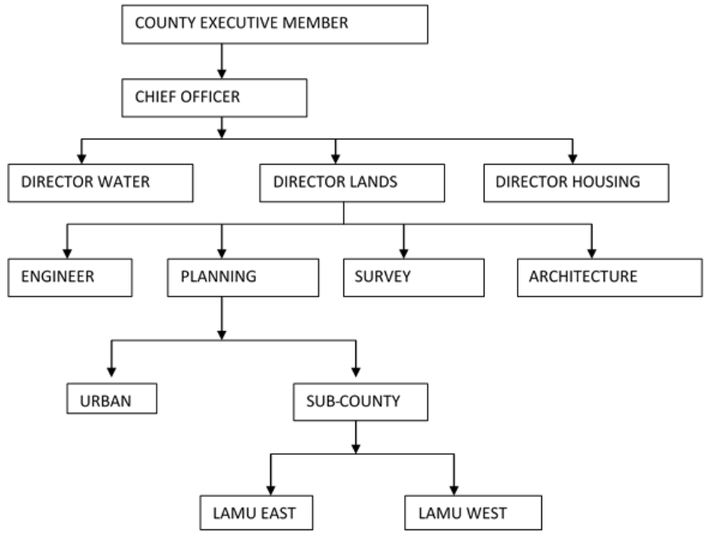
County Planning system faces the responsibility of implementing Planning proposals on the blue pearl to facilitate the utilisation of the resources of the Indian Ocean. A part from transport use, there is fisheries, recreation, exploration of oil and natural gas, corals, seagrass, marine parks and other ocean sea resources that require a proper marine spatial implementation Plan to tap into the blue economy.

The current Planning structure apart from having the responsibility of coordinating all the sectors within a Plan for purposes of budgeting and implementation for sustainable social economic development located at the same level in the County and national departmentation structure of governance at the executive. It is therefore apparent that it serves a critical function of mobilisation of resources both from Government and non-Government agencies for implementation of Planning proposals. Planning unleashes and leverages development funds yet its recognition in the governance structure and role in development has been deliberately downgraded.

The above implies Planning advice is inadequately sought when various decisions are made regarding implementation of projects, governance, and allocation of funds**.** The structure through which County Planning takes place indicated below. Given the above Planning responsibilities, the County Planning staff is expected to carry them out to enable the County deliver its objectives to the citizens of Lamu.

PLANNING STRUCTURE OF LAMU COUNTY

The Ministry comprises in addition to the executive member chief officer, three directors, technical staff and non-technical staff.



Source: CURP

NON-STATE ACTORS

THERE are some of the Non-State actors that play a vital role in regulation and provision of services vital for the people of lamu. THE Non-State actors are UNITED NATIONS Educational, Social and Cultural Organisation, world wide fund for nature, save lamu pressure group and various religious groups. THE UNESCO group deal with culture and hertage conservation of lamu old town, while WWF and save lamu deal with biodiversity and conservation of natural capital of lamu. A variety of CHALLENGES HAVE A RISEN DUE TO THE INCREASE IN THE PRESSURE FOR LAND AND CONSEQUENT DEMAND FOR SERVICES PUTTING PRESSURE ON NATURAL CAPITAL AND HERITAGE CONSERVATION.

PLANNING CAPACITY OF THE COUNTY

Planning capacity of the County refers to its ability and professional autonomy in the context of organisation and political set up to discharge its mandates efficiently and effectively. In the arena of capacity, the focus is on financial allocation to Planning for Planning and facilitation of implementation, level of Planning staff and equipment, powers of available to the Planners for enforcement of Planning decisions, clear processes of Planning and approval and coordination of implementation.

Integrated spatial Planning has faced difficulty of accessing resources from the exchequer for carrying out Planning responsibility envisaged in the constitution, County Government Act, and Urban Areas and Cities Act besides emerging Planning need. Land use Planning proposals give rise to massive multi-billion shilling projects across various sectors, giving a proper rationale of their development and guarantees sustainable utilisation of resources. Planning decisions add value to property triggering investments in property for various functions. When done also without Planning, their synergetic contribution to other sectors is also lost leading to great costs to society.

The technical department of the built environment within the County has inadequate human personnel and its complementary equipment for discharging its functions. Besides being inadequately staffed by Planners and GIS qualified personnel, it also lacks engineers, quantity surveyors, and property valuers. The County lacks a fully-fledged Planning department office that is equipped with necessary equipment, and vehicles for Planning assignments.

Powers to carry out and implement Plans are vested in various statutes as earlier mentioned to carry out and implement Planning. This however requires building the capacity of the County by availing all the statutes, training and the finance to enforce the decisions Planning decisions. Coordination with relevant central Government agencies responsible for their sectors is essential. Besides the Planning Act Cap 286, the Planning office has to utilise

all other acts in liaison with state corporations and sectors to enforce development compliance with approved Plans.

Process of Planning and approval is already provided for in the above Planning act and regulations of the act. However, there is need to document the process for all types of Planning permission required including advertisements and disseminated to the community through ward administrators.

Implementation of Plans has been a challenge due to inadequacy in the Plan preparation and provision of leadership from the Planning department. It is clear that the Plan implementation is a collaborative effort when every sector is implementing projects from the Plan that are within their sector. Coordination of implementation is an area that needs to be looked at especially horizontal and vertical to enhance the success of the Plan.

EMERGING ISSUES

Governance is crucial for the success of formulation of County Spatial Plans, and implementation for favourable intended outcomes**.** It functions in a milieu of layers guided by national values and principles constitutionally established and legitimacy of performance in addressing Planning and development challenges. In it is the value of guardian of and on behalf, direction, cohesion, and motivation. Emerging challenges that impact on Planning are;

- There exists some conflict between autonomy of County Governments to articulate the needs and rights of the citizens within the County in relation to the domineering approach of the central Government demands and state corporations.
- The institutional and governance realm also faces the challenge of inadequate collaboration and coordination of development efforts among state actors leading either to conflict or duplication of efforts. For instance, County Government, central Government, state corporations, and state actors)
- There is lack of sector wide approach to the implementation of development project, leading to sub optimal outcomes of development efforts. This is due to lack of or inadequate sectoral coordination and collaboration among departments and sectors within the County.
- Within the County Government, there is inadequate understanding of what the County Spatial Plan is, what it entails, and the value it creates for the executive and the ward representatives. It represents a negotiated agreement on the solution of the people's problems by the people and the location of those problems thereby empowering everyone.
- Currently the County has inadequate capacity in all forms to implement the spatial Plan across the sectors (financial, technical officers, office requirements, vehicles.
- The ministry in which Planning is located within the County executive is at par with other ministries. Given its important role of providing a spatial framework that coordinates other sectors, minimise land use conflicts in addition to regulations guiding land use for all sectors, its current placement in the organisational structure is like boxer in the animal farm.
- The Planning function within the County Government is therefore underfunded given the fact that a number of County assembly members inadequately understand its role, and its location within the executive structure of the County.
- Planning capacity within the County is weak to oversee County both County Spatial Planning and formulation of integrated urban development Plans envisaged in the County Spatial Plan for all the wards, sub County towns, other emerging towns besides development control.
- Institutional responsibility and regulations for overlap resource areas between counties and counties is not embedded within the County Government system

County has no clear process of development applications and approval. This is vital for the investors both private and public for ease of decision making and facilitation of approvals.

CHAPTER 11: SUMMARY OF THE EXISTING SITUATION

OVERVIEW

Emerging Planning problems are presented according to the sectors under analysis. These sectors are: Physical, Natural Resources and Environment; The People of Lamu, Heritage and Culture; Land and Human Settlements; Economic Base of Lamu County; Transport, Infrastructure Services and Utilities; and Institutions and Governance.

PHYSICAL, NATURAL RESOURCES AND ENVIRONMENT

- Planning problem and opportunities singled out from the above broad sector during the analysis are as presented below:

- Lamu County is generally flat with a low gradient and therefore prone to flooding during rainy seasons on land, and periods of high tides on the shore-scape bordering the sea. It has three distinct landscape units namely: the seascape unit (that is at zero altitude and contains the blue pearl); the immediate coastal plain landscape unit; and gentle rising **landscape unit.**

GEOLOGY AND SOILS

- The County's geological structure sits on a basin with a succession of sediments in which a sequence of conformities has developed leading to a great area of hydrocarbon potential both on land and sea. This provides a high chance of the presence and discovery of oil and natural gas; the result of which has been the identification of current natural gas and oil exploration blocks.

- Its geological structure is characterised by variation in grain sizes, porosity, permeability, compaction, texture, and cementation thereby influencing ground water availability.

- The County has soils of varied characteristics, i.e., texture, depth and potential for different farming activities- depending on availability of water. The variety of crops grown in the County and available agro ecological zones attest to this fact.

- Availability of fresh water in lakes, swamps, seasonal and permanent rivers, is a great asset to the County. The fresh water sources, however, are increasingly facing degradation due to excessive utilisation by human settlements and grazing. A case in point is the drying up of Lake Kenyatta which is an important source of fresh water for farmers in Mpeketoni settlement scheme.

- Beaches and sand dunes serve important public functions as recreation areas and a protective wall against tidal waves respectively. These are important public assets that require careful Planning interventions for posterity. They have been greatly encroached upon by human activities and greed of land market forces.

CLIMATE

- Lamu County experiences inadequate rain. In addition, the rainfall is highly variable spatially. It has a bimodal rainfall pattern occurring in March to May and October to December, and average quantity of about 540mm annually. Rainfall is highest along the immediate coastal plain with rainful of 1000mm recorded in the areas of Witu, Mpeketoni and in Lamu archipelago but it decreases as one moves away to the rising landscape unit.

GREEN ENERGY

- The County is richly endowed with a variety of green energy sources. These are solar, wind and tidal waves. It experiences wind speeds of 100knots which is adequate for wind power generation. Besides wind potential, Lamu also has high solar irradiation of 1900-2500 Kwhr/m^2, highest near the sea and decreases as one moves away from the sea. This is more environmentally friendly than the proposed Amu Power Plant.

- The monsoon winds influence the movement of goods and services in the Indian Ocean especially with regard to small scale sea vessels and fishing activities. The onset of monsoon winds creates different seasons and is also associated with variations in the roughness of the sea, which, by and large, determine the safety of sea transport.

BIODIVERSITY AND CONSERVATION

- A large part of the County, approximately 18% has both protected and community forests that provide various biodiversity benefits to the County. They are habitat to wildlife and various bird species, and also form part of the conservancies found in the County. Large parts of forested area contain tsetse fly which has influenced human settlement in the County. They do contain also wet lands, and swamps besides being part of livestock and wildlife grazing and migration zones.

- Human activities such as settlement, farming as well as land needs for national infrastructure projects, however, pose a threat to the County's biodiversity.

- Implementation of major National infrastructure project (LAPSSET) is set to enhance access and enhance employment opportunities however it has adverse impact on existing natural resources ie the Mangrove forest and the migratory route for Wildlife. The County Spatial Plan takes this into consideration and points to the requirement of integrating wildlife movement channels with the LAPSSET project.

- The green mangrove ring that forms the interface between the land and the sea is a great natural land mark of Lamu County. This natural landmark-containing over 70% of the

Country's mangrove resources. However, the forest faces threat of destruction due to indiscriminate logging, reclamation of sea front, and implementation of national development projects (**LAPSSET)** which will lead to a clearance of 16Km stretch of the mangrove for the Port of Lamu project causing adverse impacts on diversity and livelihoods.

MARINE RESOURCES

- The Indian Ocean has a variety of resources that can be a game-changer in providing employment and generating revenue necessary to grow the economy of the County. These Marine resources include marine parks at Kiunga, a variety of sea fish, sea grass, coral reef, sea turtle, oil and natural gas.

SOLID WASTE DISPOSAL

- Dumping of sea vessels on the sea shoreline coupled with open solid waste-in the erstwhile aesthetic view of the sea-is an eye sore to the citizens and visitors. Recycling of waste is definitely a good opportunity for the youth of Lamu County.

THE LAMU ARCHIPELAGO

- The Lamu archipelago contains 57no Islands. These Islands include, Amu, Manda, Pate, Ndau and Kiwayu which are fairly large and provide habitat for the Swahili Culture.
- Amu Island, apart from being a world Heritage site according to UNESCO.
- The archipelago contains several archaeological/ Historical sites of great significance such as the TAKWA ruins which are important assets for tourism developments.
- Lamu County has a complete package of tourism potential that is enviable. This comprises; culture and heritage; wildlife and bird species; and sea sport and beaches

THE PEOPLE OF LAMU, HERITAGE AND CULTURE

Emerging Planning issues and opportunities are as explained below:

- The County has sparse population distribution. This pattern of distribution is partly influenced by the rainful distribution, availability of arable land, availability of social services, accessibility, and livelihood opportunities. Most of the Lamu population is concentrated within the immediate coastal plains and archipelago.
- The current composition of the population is cosmopolitan and to some extent represent the face of Kenya. However, there are local indigenous communities who fell threatened by the growing number of migrants moving to Lamu in search of land for agriculture and settlement. There is need to identify the local communities and protect their land rights. The County Government working in consultation with the National Land Commission have responsibility to insulate these communities by registering their land rights
- Population of Lamu County is rapidly rising as supported by the mean growth rate from 1969 to 2009 of about 4.8 percent. In-migration from other parts of the Country due to the intended development of the LAPSSET infrastructure project and periodic movement of pastoralists in search of pasture during the dry season greatly contributes to the growing population. It creates demand for settlement and associated facilities and services leading to encroachment into protected and fragile spaces within the County; not to mention the declining per capita space.
- The County experiences relatively high infant and child mortality of 76 and 116 per 1000, as compared to the National average. This is an indication that public health related to children and education of mothers must be looked into.
- Lamu County has one of the highest maternal mortality rates of 676 per 100,000 live births and a high female mortality rate of 1000. This is attributable to cultural practices of giving birth at home as well as accessibility to health facilities. Accessibility to health facilities, education of women and awareness, as such, are crucial in improving maternal health in the County.
- In the Analysis, it has been noted that there is bias propagated against the girl child with regard to access to education and employment opportunities.
- There is rapid growth in the formation of households in Lamu as seen from the projections. It is a pointer to the need for provision of well-Planned human settlements with services where housing can be availed.

LAND AND HUMAN SETTLEMENTS

- The County has vast earth surface land as well as marine land both of which have unique characteristics and potentials for varied human uses in different magnitudes.
- The port area of the LAPSSET and its corridor will influence human settlement growth. Human settlement growth will gradually take a metropolitan nature. This implies Planning the towns within the central point of the infrastructure and adjacent ones immediately, with enhanced linkage among them.
- The County has control of additional public land which was revoked by the National Land Commission from private developers. They had irregularly been allocated land parcels in conservation areas that accommodate wildlife, grazing lands, as well as migration channels for wildlife.
- Fraudulent land acquisition and land invasions in the past and at present have led to tension between the settlers and indigenous communities. This has occasioned encroachment on vital fragile ecosystems including wetlands, forests and ranches.
- Beaches and sand dunes have been encroached upon as earlier mentioned by farmers and private developers respectively.
- The County suffers from competition for land arising from increasing population, and location of national

development projects within the sensitive fragile ecosystem.

- The County has two main population distribution patterns; concentrated and dispersed. The concentrated, which is almost nucleated, are within the archipelago and to some extent the coastal plain while the dispersed are found within the mainland area of Lamu away from the coastal plain.

- Human settlements in the County lack a proper hierarchy, function and are inadequately serviced (water and sanitation, telecommunication, drainage, solid waste management, power). These are mandatory core urban services upon which the quality of human life is predicated and they greatly support private sector performanc

- Extents of settlements are not properly defined and are also inadequately Planned. This has led to uncoordinated growth, sprawl, and encroachment on accessibility spaces like roads.

- Settlements are inadequately linked spatially both internally and spatially. Internal settlement linkage focuses on local integrated strategic urban Plans with a clear layout. External settlement, on the other hand, focuses on the road hierarchy that provides linkages between the urban settlements and their productive hinterlands or scapes.

ECONOMIC BASE OF LAMU

- Lamu County has a rich natural capital resource base which ranges from terrestrial forest, wildlife, rich agricultural land, beaches and sand dunes, coral stone, sand, limestone, solar, wind, marine mangrove forest, ocean, sea grass, marine parks and other ocean resources.

- There is inadequate skilled human resources in the County (as exhibited by low literacy levels and inadequate technical training opportunities). This inadequacy also represents a constraint in that it exerts pressure on available natural resources and calls for more spending on social services.

- Lamu's economy is basically based on the primary sector (farming, fishing, livestock, mining, tourism, and gathering honey from the forest). It represents the first level of resource utilisation and tends to fetch low returns on investments, and worsens when there is an oversupply.

- Diversification of the economy into commercial, service and industrialisation is vital in future.

- The potential of the primary sector to create value and employment has not been fully exploited. Value addition, for instance would go a long way in growing the economy and creating employment in the County.

- Land utilisation should be seen from the economic rationale of optimisation to boost agro industrialisation.

- Inadequate and poor economic infrastructure has affected economic operations of the County (roads, ICT, energy & water & sanitation). The infrastructure necessary for growing the economy is either in bad condition and inadequate, or completely non-existent thereby negatively affecting the economy of Lamu.

- Revenue mobilization in the County is a function of economic vibrancy. The County Government is yet to tap into all potential sources of revenue.

- Central Government allocation is based on national statistics about Lamu that are at times misleading, particularly on population. Ignored in the allocation, are the classified road infrastructures suffering from long periods of neglect.

- Insecurity situation in some parts of the County has affected economic activities and curtailed inflow of investments leading to a decline of tourists visiting the archipelago.

AGRICULTURE & RURAL DEVELOPMENT

- Available arable land is approximately 198,000Ha while only about 70,000Ha of land is utilised for farming. Main crops grown are indicated in the relevant chapter of analysis, the quantity over the years and value created. The County can achieve more in terms of production by use of appropriate modern farming methods- (Map of the farming areas).

- The implementation of LAPSSET has the effect of reducing the farming area of the County and hence affecting production volume. There will be need to expand farming into other parts that are currently underutilised but are suitable for farming. However, the implementation of infrastructure project will enhance market access for the farm products.

- The County experiences inadequate agricultural input support (seeds, tools and equipment). Farmers require adequate inputs as indicated to enhance production. Seeds and other inputs have been out of reach due to high costs of inputs unaffordable to some farmers.

- Agricultural support services of research, and dissemination by extension staff, provision of storage and marketing are vital for enhancement of the performance of the sector. Inadequacies in this area of support services have affected the performance of the agricultural sector. A positive note is that the County has provided tractors to be used for cultivation by farmers to enable large scale to medium scale farming.

- Conflicts between crop farmers and pastoralists and between crop farmers and wildlife have become common as a result of drought and search for water and pasture. There has been also agricultural expansion into areas of wildlife as well as migration corridors both for wildlife and livestock increasing the chances of conflict.

- There is lack of value chain approach to analysis and improvement of the crop farming sector in order to diversify the County economy. Using the value chain approach implies spatially linking all the sectors that contribute to the performance of farming, harvesting, transportation, storage, manufacturing and processing to distribution and marketing.

LIVESTOCK & RANGE MANAGEMENT

- The County has expansive land for grazing covering areas of swamps, wetlands, and seasonal rivers as well as the Tana Delta area. These happen to be areas where ranches are located as well as livestock migration channels. It closely interacts with wildlife spaces and their migration patterns.
- There is heavy dependence on pasture that grows naturally leading to scarcity at times and hence conflicts.
- LAPSSET infrastructure development is expected to help the livestock sub sector in terms of enhancing the market access and providing opportunities for value addition. Conversely, space for the project will definitely reduce the current livestock grazing areas and interfere with livestock migration patterns. This requires the attention of the spatial Plan to integrate not only the livestock and wildlife movement channels but also the County road system.
- It has been observed that livestock mode of production is still too traditional facing lack and inadequate livestock infrastructure (dips and vaccination crushes, grazing and, water facilities). Further, it is still viewed greatly from the prisms of cultural prestige; sentimentally rather than in the economic rationale. This has an impact on the productivity of the sector, and the failure to leverage improved techniques to expand the sector on an industrial scale for export market
- Potential of the sector to create wealth through value chain analysis and spatial Planning has remained underutilised.

FISHING

- The County has an expansive fishing area of the sea (40 traditional fishing grounds and 32 landing sites) and availability of a variety of fish species with potential for improving the economy.
- The volume of fish harvested in the County is low compared to available resources. This is due to inadequate infrastructure for fishing. The infrastructure to grow the fishing industry includes research, laboratory testing, vessels used, cold storage chain in fish landing sites, ease of transportation and marketing.
- Fish harvested in most cases is sold in raw form and fish being highly perishable, turns many fishermen into desperate suppliers at the mercy of the buyers. A focus on the whole fish value chain will lead to improved livelihoods of the fishermen and greatly benefit the County.
- There are some unprotected fish landing sites which constrain the operation of the fishermen. These are spread throughout the County and require immediate attention for their protection from the concerned authorities.
- Over the years there is a gap in collaboration between the national Government and the County Government with regard to the policing of the territorial waters of the Country. This has been worsened by inadequate policy focus on the blue pearl as a frontier of wealth creation and opportunity. It has therefore motivated foreigners to encroach on Kenya's territorial waters reducing the quantity of fish available to the fishermen of Lamu.

TOURISM & HERITAGE

- Lamu boasts of rich unique tourism package both terrestrial and marine (wildlife, ox bow lakes, beaches, ocean, marine park, traditional crafts, culture and Heritage). Already referred to as the "complete package", this unique feature is yet to be aggressively marketed as the land mark of Lamu.
- The proposed national development project (resort city, access to Lamu by air, road and railway) will enhance the access to the County and make it easier to market its tourism uniqueness.
- There is encroachment on wildlife spaces and forest through development projects, human settlements and poaching thereby affecting wildlife as an input in tourism. It is however hampered by the tsetse fly menace and insecurity posed by terrorism.
- Current heritage sites are characterised by inadequate maintenance. The qualities of these sites need to be diversified and package appropriately as tourist destination. This calls for partnership between the National Museum of Kenya and the County Government of Lamu.
- Lamu does not benefit from past and current tourism activities (fortified tourism enclave). Investments in tourism are dominated by foreigners who have Planned comprehensively for their visitors from arrival, and transportation into their tourism facilities. This tends to limit the participation of the local people in tourism.

TRADE & COMMERCE

- County has commercial centres where trade activities take place with a number of them specialising in provision of certain services. They form the nucleus of urbanisation, commercial development and industrialisation. It is imperative that they be Planned and provided with required services to facilitate investments, and accommodate more people in a compact manner.
- The County suffers from limited investor knowledge of opportunities due to lack of aggressive marketing and inadequate infrastructure facilities and services. It has culminated into low level of operation of current trade and commercial activities within the County.
- LAPSSET infrastructure development project presents an opportunity to increase the trade and investment capacity of Lamu.

TRANSPORT, INFRASTRUCTURE, FACILITIES, SERVICES & UTILITIES

This sector is the cornerstone of social economic development (both quality of life and creation of wealth) by providing inputs and efficient accessibility to opportunities and services. Emerging Planning issues and opportunities touching on transport, telecommunication, energy, water and sanitation, education, health, security and recreation are summarized below;

TRANSPORT

- Road conditions linking the County to the outside are in bad conditions limiting accessibility and marketing of local produce externally. The same applies to accessing goods externally for use within the County. Air transport is out of reach of the majority while sea transport is limited within the archipelago and not safe and secure for external accessibility.
- County faces unreliable public transport both by sea and land due bad roads and insecurity brought about by terrorism. Roads are in bad conditions due to long periods of neglect and isolation from the main economic development artery of road and railway from Mombasa Port to Kisumu, Eldoret, Busia and Malaba.
- County faces expensive public transport both on sea and land hampering accessibility to opportunities and land. Sea transport is not well organised due to lack of Planned terminal facilities at the jetties within the County.
- Poor public safety of sea transport where small sea vessels are utilised to ply high and rough water routes to transport goods, services, and people (Kiunga, Pate, Ndau, Faza, Pata, Manda, Shella, Matondoni, Kiwayu, Mokowe, etc). It is worsened by untrained sea vessel personnel, without insurance and warning equipment. It is also characterised by inadequate monitoring and patrol for safety by the maritime authority.
- There is lack of enforcement of maritime regulations about safe sea transport and requirements in the County. Safety and security of sea transport is therefore compromised by the current operations of sea transport.
- On land, the LAPSSET project constitutes a key spatial organising element of the County dividing it into almost two equal parts of East and West. It will exert influence on the land use along it and there is need to link it to the rest of the County at various junctions by proper integration with existing road system of the County.

ENERGY

- Currently the County has a variety of energy sources both for domestic, commercial and industrial use. These are gas, diesel, kerosene, charcoal, wood, and electricity. Utilisation of the above is according to one's social economic status. Some of the energy sources are not sustainable like wood and charcoal.
- It has great potential of tapping into renewable energy such as solar and wind. This is supported by wind speeds in some parts of the County as well as solar irradiation intensity. It is a better alternative to the coal power Plant.
- Only a small part of the County is served by electricity.

WATER & SANITATION

- Available sources of fresh water are experiencing pressure of over utilisation, inadequacy due land use practices while others contain water that is unsafe for human use.
- County is experiencing rising demand for water occasioned by rapid population growth (of people and animals) and urbanisation. There is urgent need to identify a variety of sources of fresh water supply to the people of Lamu.
- No human settlement in Lamu has a Planned sewer system hence current approaches of sceptic tanks are unsustainable for compact urban settlements and for increased population. Currently within the archipelago domestic waste water runs in open drains, and is directed into the sea.
- County has a best practice of solid waste separation but lack solid waste value chain to properly manage the solid waste in a modern way (green techniques or approaches). This includes transfer stations, recycling; organic waste centres and final land fill area.

EDUCATION

- The County has adequate school facilities corresponding to the settlement pattern or concentration but faces the challenge of getting the pupils to schools and retaining them to the end of the education cycle. Some schools are inaccessible, like in some parts of Kiunga, and Basuba wards.
- County has adequate secondary facilities which are underutilised due to inadequate enrolment for secondary education.
- Low levels of secondary school attainment are widespread in Lamu partly due to their unequal distribution within the County. It is also difficult for transition from primary to secondary schools and to retain the students in school up to the end of the education cycle. Young people are affected by drugs, easy money from tourism in the past and cultural practices affecting the girl child.
- Unequal access to education among boys and girls in favour of the boys' due to cultural practices has led to high illiteracy among the ladies and unequal participation in the labour market place.
- Performance of the learners in national examinations both in primary and secondary schools is poor due to lack of discipline on the part of the students, lack of parental follow up and inadequate school administration.
- There are fewer tertiary institutions in the County for skills training and development, while the available ones have deteriorated.
- Understaffing in some of the schools denies the learners the attention and guidance required from the teacher.
- In future, the County will face increasing demand for both primary and secondary education as population grows. There is need for Planning for future education needs in view of increasing population needs from population projections.
- The menace of drug addiction is affecting the education of the boy child and young men in the County leading to a loss of labour and productivity besides spread of HIV/ AIDS.

HEALTH

- County has made attempts to distribute various health facilities across the County but the people still face accessibility problem to the health facilities in terms of distance and affordability of the services.
- Hierarchy of the facilities and distribution has not been well ordered to facilitate proper referrals in accordance with complexity of the medical issue.
- County is unable to retain qualified health personnel (both doctors and nurses) within the County and in many cases falling below the required threshold as per the WHO. .
- Mortality rates are high within Lamu leading to low life expectancy in the County compared to the national one.

TELECOMMUNICATION

- Poor network availability in most parts of the County by the major service provider's hampers connectivity and information flow internally and externally.

RECREATION

- County is characterised by inadequate and lack of recreational spaces. Within the archipelago there are some public open spaces, and on the beaches. In the rest of the County apart from educational facilities and show ground, there are no public recreation spaces for the residents of the County.

SECURITY SERVICES

- Security provision is under the central government through the office of the Ministries of internal security and defence. The County Government would therefore be not the best placed to curb insecurity matters in the region
- Insecurity in the County is more in the areas that are less accessible occasioned by poor road conditions and network, forest thickets and intermittent development areas
- Areas of resource competition like pasture and water also form the areas of potential livelihood conflicts and threat to security

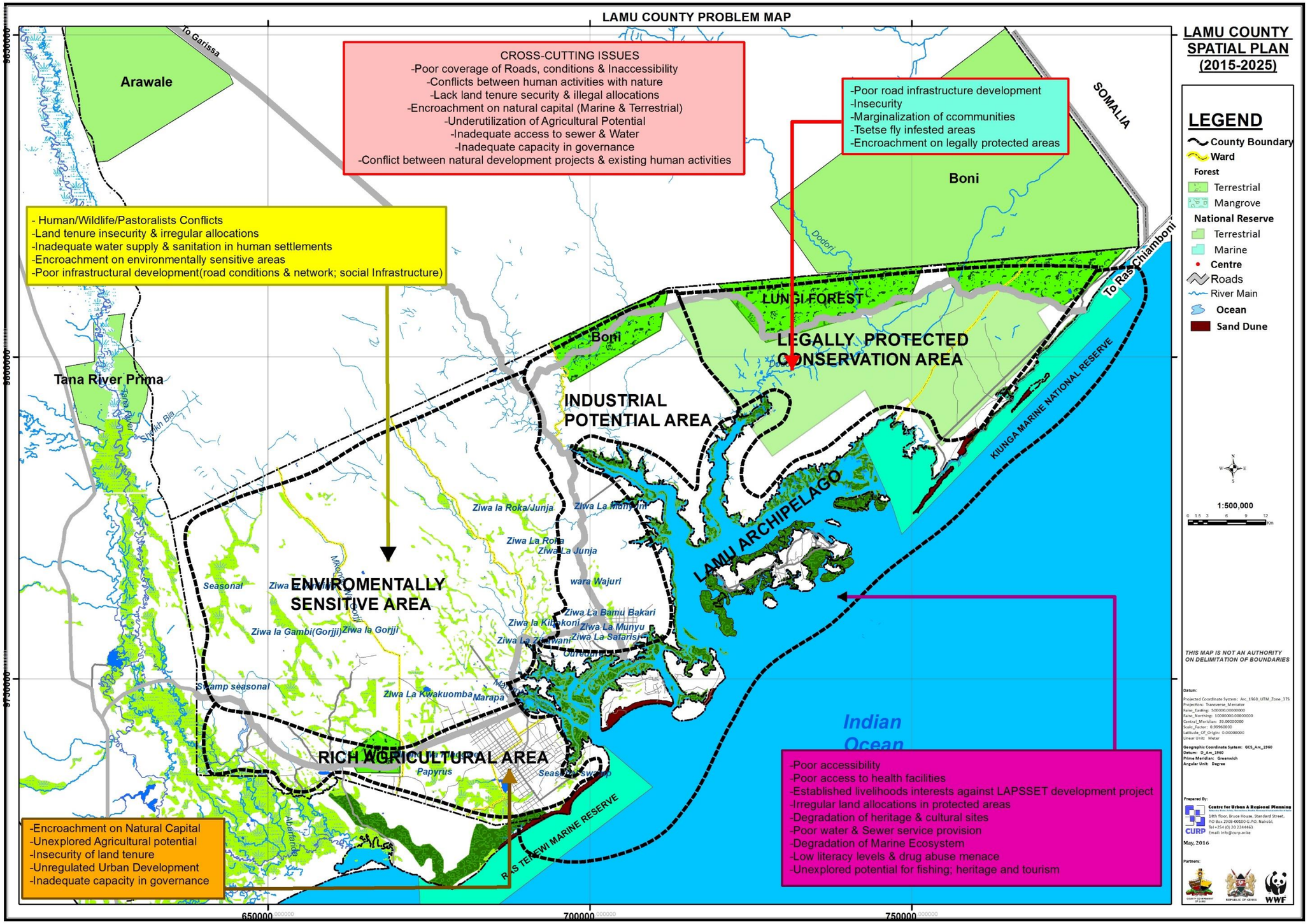
CEMETERY

- Cemeteries available in Lamu County are in areas occupied by the people of Islamic faith while those of the Christian faith have no cemetery
- The county faces the problem of providing adequate cemetery facilities where they are provided, and currently where they are lacking

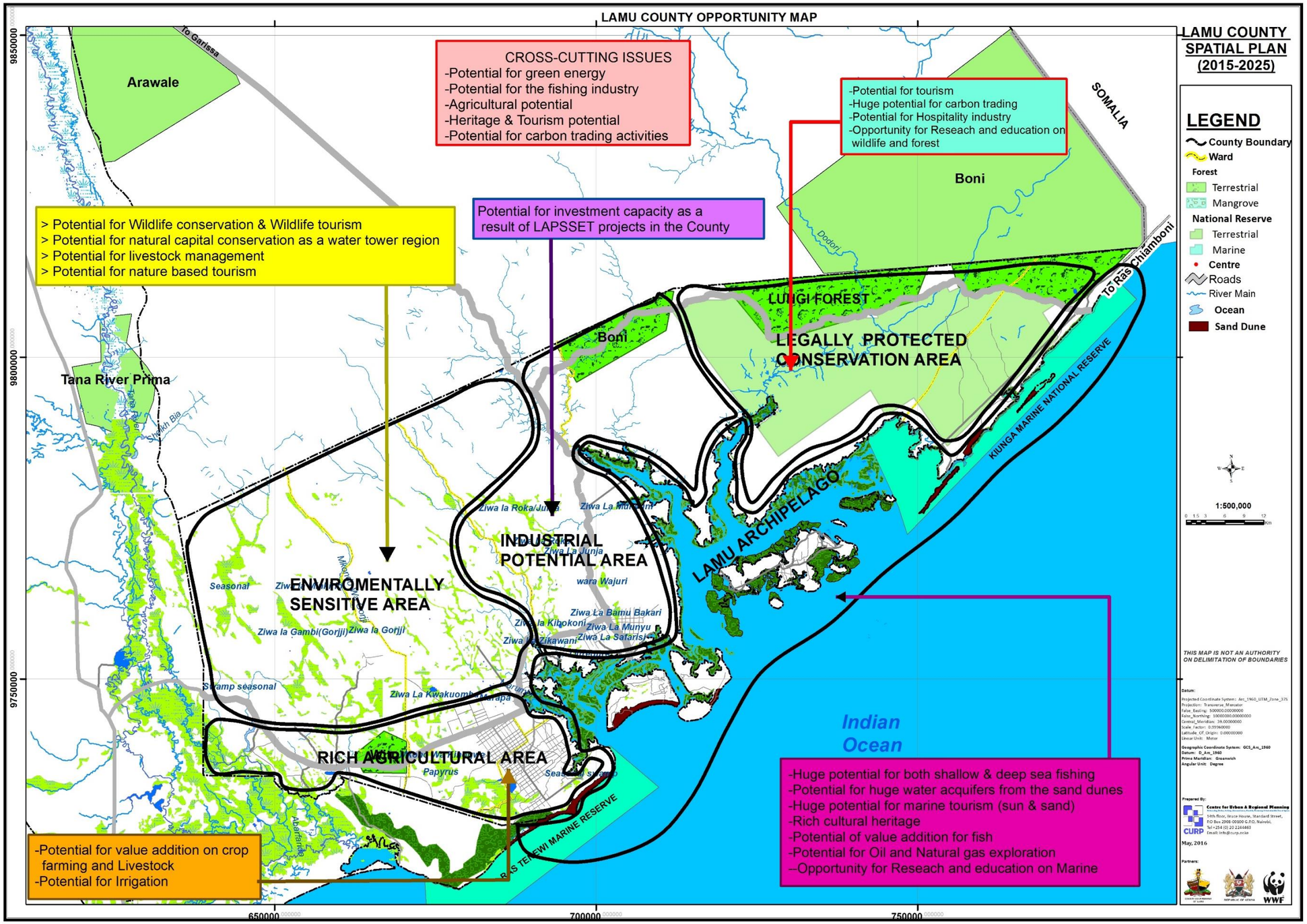
INSTITUTIONS AND GOVERNANCE

- Governance is crucial for the success of formulation of County Spatial Plans, implementation and for favourable intended outcomes**.** It functions in a milieu of layers guided by national values and principles; constitutionally established, and legitimacy of performance in addressing Planning and development challenges. In it is the value of guardian of and on behalf, direction, cohesion, and motivation. Emerging challenges that impact on Planning;
- There exists some conflict between autonomy of County Governments to articulate the needs and rights of the citizens within the County in relation to the domineering approach of the central Government demands and state corporations. In certain instances, the local community are at the receiving end of decisions made without their participation, and adequate advocacy for them by their guardians.
- The institutional and governance realm also faces the challenge of inadequate collaboration and coordination of development efforts among state actors leading either to conflict or duplication of efforts. For instance, County Government, central Government, state corporations, and state actors)
- There is lack of sector wide approach to the implementation of development project, leading to sub optimal outcomes of development efforts. This is due to lack of or inadequate sectoral coordination and collaboration among departments and sectors within the County. It warrants the formulation of a County Strategic Plan to oversee the implementation of the County Spatial Plan.
- Within the County Government, there is inadequate understanding of what the County Spatial Plan is, what it entails, and the value it creates for the executive and the ward representatives. It represents a negotiated agreement on the solution of the people's problems by the people and the location of those problems thereby empowering everyone.
- Currently the County has inadequate capacity in all forms to implement the spatial Plan across the sectors (financial, technical officers, office requirements, vehicles). Each sector is expected to translate the strategies, policies, and projects of the spatial Plan into a sectoral Plan that guides its operations.
- Planning capacity within the County is weak to oversee both County Spatial Planning and formulation of integrated urban development Plans envisaged in the County Spatial Plan for all the wards, sub County towns, other emerging towns besides development control. Capacity in the land and physical Planning office urgently requires strengthening broadly to tackle the land use Planning and development requirement in a timely manner.

Map 27: Summary map of the problem areas in the County



Map 28: Summary map of the opportunity areas in the County

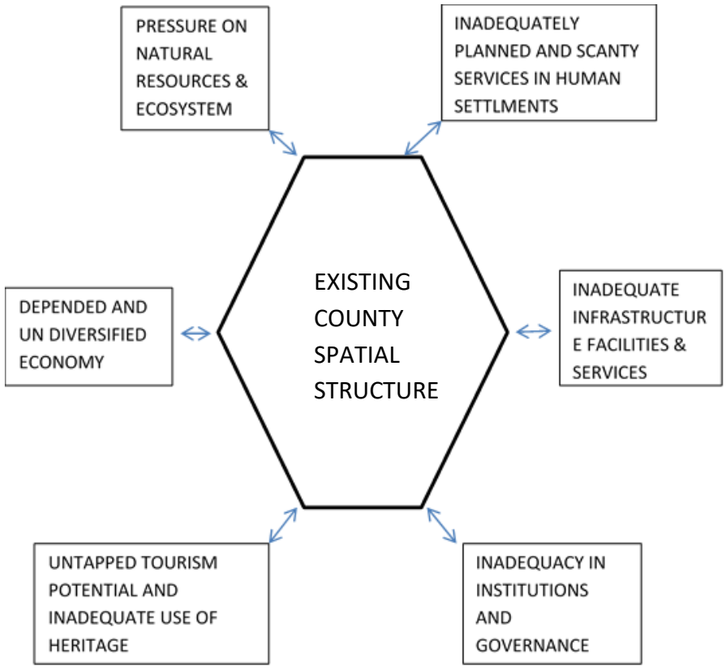


CHAPTER 12: SYNTHESIS AND SPATIAL DESIGN CONCEPTS

OVERVIEW

Having presented the situational analysis above, some conclusions can be drawn regarding the thematic areas discussed above that have a direct bearing on how the spatial Plan will be designed. The conceptual basis of the Plan was discussed as follows:

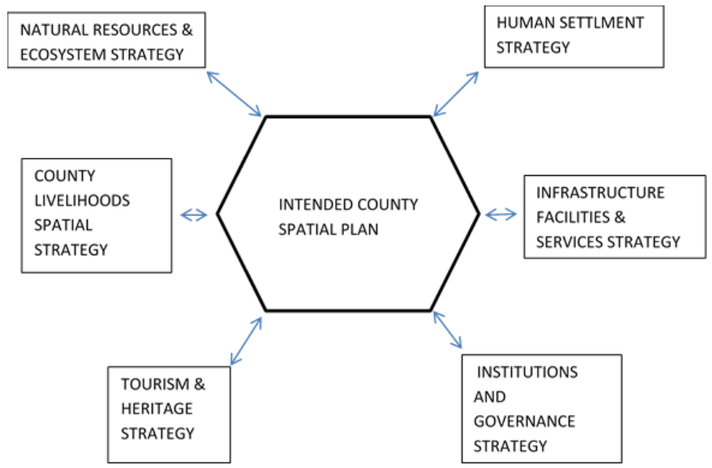
Where are, we coming from conceptually?



Where do we **WANT TO GO** conceptually?

VISION (Diagrammatic steps from the ward stakeholder workshops)

"Sustainable utilisation of the County's natural, human, and cultural capital assets towards an economically prosperous competitive County"



Source: CURP

The thematic areas are discussed below under:

PHYSIOGRAPHY, NATURAL RESOURCE BASE & ENVIRONMENT;

As far as Spatial Planning is concerned, attention is given to the physiographical characteristics of Lamu County as a space upon which economic development can take place taking into consideration environmental, social, political and cultural values of the County. The success of any Planning exercise is largely dependent upon the degree to which it is able to interpret the manner in which resources and human activities locate in spaces. Thus, the Planning research must determine the role that space plays in the intermediation of natural environment and human processes in the space and the challenges and prospects that this presents. The Planner therefore looks at the existing spatial structure as a process to better understand the territorial spatiality of natural resources and representative ecologies.

The disaggregation of County spaces into specific structural elements is the first step in understanding the spatial structure of the Lamu County. Each layer is interpreted as an independent entity with its own unique spatial attributes and structural qualities. However, it is often the case that the very properties of a spatial component are determined by those of another. Consequently, it becomes necessary to overlay one or two elements (say transport and settlement structure) in order to gain further insight regarding the importance of each to the other and how they relate. An overlay of all the various layers' results in a synthesis of the existing County spatial structure.

The analysis of the existing spatial structure has the following advantages.

- To shed light on past and present processes of the County's structural existence.
- To uncover strengths and weaknesses associated with the County's form and assess its suitability as a durable template upon which to adapt and orientate strategic and programmatic aspiration of ending the Planning exercise.
- To suggest programmes and policies for the subsequent readjustment and re-alignment of specific spatial – structure components in line with a preferred option.

THE COMPONENTS OF LAMU'S NATURAL ECOSYSTEMS INFLUENCING THE STRUCTURE OF THE CSP

Lamu`s ecological structure consists of two major components namely, **Terrestrial and Marine eco-systems**. The former refers to Plant and animal ecologies that are land-based while the latter refers to water based ecologies. The terrestrial ecosystems can further be disaggregated into the following elements.

THE PHYSICAL STRUCTURE

The analysis of the physical structure seeks to examine the properties of the landscape and geomorphology of the County including topography, geology, soils and hydrology.

TOPOGRAPHY

The County's physical structure is defined by east –west graduated height differences that include the coastal plains lying between 0-30 meters above sea level. The land rises gradually from Mokowe to Bodhei a distance of 58 kilometers at an altitude of about 0-50 meters above sea level. This gives a fairly gentle slope from Bodhei to Mokowe dictating the drainage pattern into the Indian ocean.

GEOLOGICAL FORMATION AND THE SOIL STRUCTURE

The coastline of Lamu is characterized by a predominance of sand dunes. The sand dunes are formed over a long period of time by winds blowing from the Indian Ocean picking sand particles and depositing the same in a linear formation along the coastline to form a barrier between the sea and the mainland. The formed sand dunes act as sea walls and prevent rough ocean waves from flooding into the human settlements fronting the sea. Additionally, the sand dunes are very important ecosystems as they act as breeding grounds for sea turtles and other sea species.

The present coastal geological structure evolved during the Pleistocene era – this was a period marked by numerous fluctuations in sea levels. Because of its evolutionary history, the principle rocks observed in Lamu are of sedimentary origin. The dominant rocks within the County are marls and limestone characterized by sandstones, clays conglomerates and gravel. Thus, its typical to find well developed reef complex, consisting of coral reef, coral rubble and sandstone occurring extensively along the Lamu archipelago and the hinterland. This rock formation is extensively exploited by the building industry within the County and forms a basis of the structure of this proposed County Spatial Plan.

It is this rock formation that actually determines the soil distribution of the County. In the formulation of this Plan, it was very important to assess the soil distribution of the County which required the Planners to interrogate the agro-ecological zones occasioned by this soil distribution. It is no doubt that the altitudinal variation in the landscape structure provides soils that are fertile for both agricultural and livestock production.

This understanding would then help in shaping the structure the County Spatial Plan was to take and the various recommendations to be proposed for the various zones identified in the Spatial Plan.

HYDROLOGY.

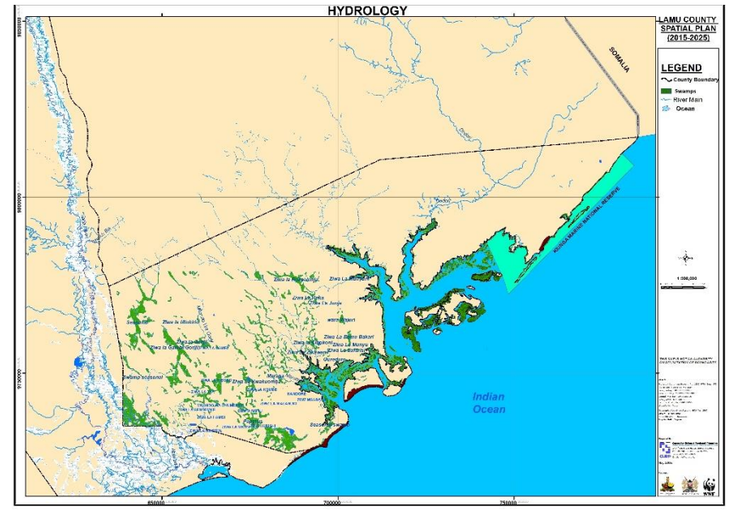
Lamu's hydrology is a factor of Kenya's topography and oceanography. One of the County's principle rivers is the Tana River which emanates from Kenya's water towers of Mt. Kenya and the Mangai river which traverses the County through the forest rich areas of Basuba and Kiunga Wards. Mangai river is a seasonal river with a considerable river flow during the rainy seasons. Compared with other seasonal rivers flowing from Garissa County through Hindi and Mkunumbi wards, Mangai river can be considered a source of fresh water within the County with a potential for the construction of a dam on its channel in the future.

The Tana River on the other hand is the longest river in Kenya. It covers a distance of 850 Kilometers as it traverses through a number of Counties in Central, North Eastern and Coast region. It has a catchment area of 127,00 Kilometers and it discharges an average of 4,000 million cubic meter of fresh water and 6.8 million tons of sediment annually into the Indian Ocean. The river enters the ocean at Kipini in Ungwana Bay. About 30 Kilometers from its mouth, River Tana branches with its tributaries forming the Tana delta. One of its tributaries meanders into Lamu County to the South West of Witu township.

The hydrology of Lamu also includes other surface and underground water sources notably Lakes, springs, swamps and other seasonal rivers in Witu, Mkunumbi and Hindi Wards forming a spectacular site of immense importance as wetlands requiring great care in their management. Up to this point in time the area is devoid of encroachment by farmers but it is a haven for pastoralist and the Wildlife.

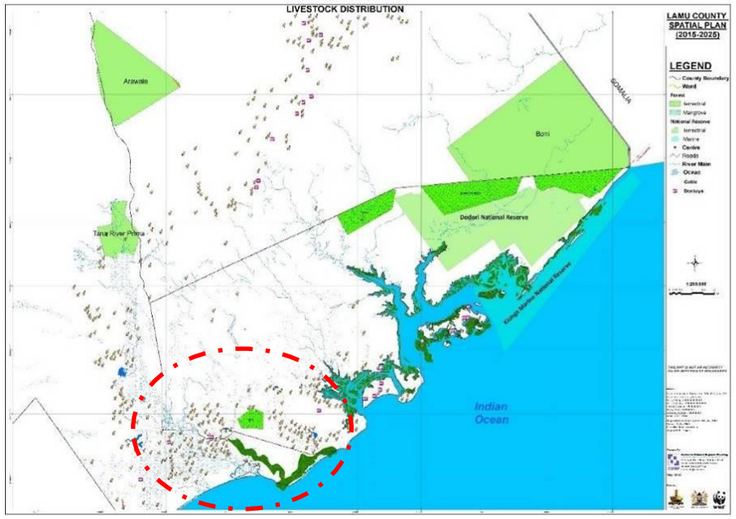
Consequently, this has resulted to rampant farmers-wildlife conflict within the region which largely overspills to Lamu County from Kipini conservancy through Nairobi Ranch. In some cases, the pastoralists have permanently settled within the region masquerading as squatters in the notion that the land they occupy is no man's land. This has resulted to the locals coining a term to this process of self-allocation of land as '*Witemere*' a direct translation of *'cut for yourself'*. Consequently, it is such acts of no control in the use of land that ultimately pose a great danger to this fragile ecosystem.

Understanding the hydrological drainage of the County was very important as some key proposals to the Spatial Plan were really guided by this hydrological character as in the map below:



Source: CURP, 2016

The livestock distribution map below has been used to illustrate some of these conflict prone areas (bounded by red ribbon). The conflict is a result of various activities including farming, pastoralism, and wildlife conservation happening around this region. Solutions were sought in the making of the most desired Spatial Plan as presented in this report:



Source: CURP, 2016

The continental shelf and Oceanography

Kenyan's continental shelf is relatively narrow about 5-10 nautical mile (nm) wide with depths dropping below 200 meters in under 4 nautical miles of shoreline. At the mouth of the Tana Delta, the Shelf is significantly wider, exceeding 15 kilometers off the Northern end of Ungwana Bay. Beyond the continental shelf, the sea bed slopes away to a depth in excess of 4,000 meters. The shelf is sedimentary, dominated by fine sands, salt and mud derived from terrigenous sources (Obura, 2001).

In the making of this Spatial Plan, our definition for 'Land' included the mass occupied by the 20 nautical miles territorial waters and the 200 nautical miles international waters. This amount of land interpreted elsewhere in this Plan as the Exclusive Economic Zone was very important to understand and interrogate as the bulk or resources anticipated to lift the economic capacity of the County lie within this zone including fish and other minerals like the potential for Oil and Gas exploration. The narrow continental shelf means that deep sea fishing can only take place if the fishers are empowered with the requisite fishing gear otherwise they can only fish within shallow waters.

On the same line, it was very important to understand the oceanic currents influencing Kenya`s coastal waters which are: The East African coastal current (EACC), the Somali current (SC), the Southern Equatorial Current (SEC) and the Equatorial Counter Current (ECC) that blow in different times of the year locally known as the *'kas kazi'* and the *'kas kuzi'*. Sea surface temperatures are highest during the North –East Monsoon averaging 28.4^{0}C (maximum 29^{0}C) and lowest during the south – East monsoon averaging 26^{0}C (minimum 24 ^{0}C).

FOREST AND WOODLANDS.

Lamu County is home to some of Kenya`s most unique and indigenous forest woodlands, courtesy of the regions agro - climatic regime. 70% of all the mangrove forest in Kenya is found in Lamu County. Mangrove forests are the predominate vegetation growing on the shallow water within the Lamu Archipelago and the mainland around the ocean creeks. In the islands of Pate, Ndau, Manda and to some extent Lamu, the mangrove forests form a ring like pattern of a very pristine environment.

The mangrove forest therefore gives Lamu County its unique identity and all efforts should be made to preserve and protect the mangrove forest to at least maintain the cover in its current level or increase to a higher level. Other forests in Lamu include the coastal lowland forests of Witu, Boni-Lungi forest ecosystems and the Dodori National Reserve. Like the forests of Arabuko Sokoke in Kilifii County, these forests are extremely important for their variety of Plant species; and other biodiversity they support which are very key in the integrated making of this Spatial Plan. Both Witu, Boni and Lungi forests are gazetted forest with unique challenges posed by human settlements and incursion by livestock in search of water and pasture.

The understanding of these environmental natural resources as key pillars to the economy of Lamu County are very important in the making of this Spatial Plan.

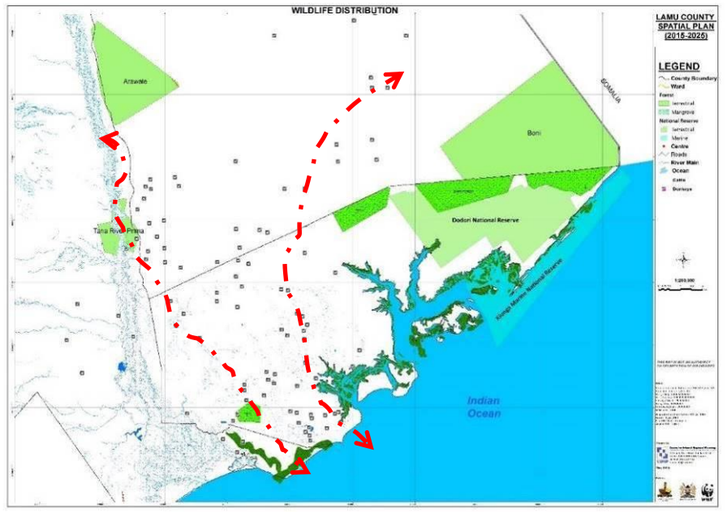
WILDLIFE HABITATS

A substantial portion of Lamu County is inhabited by an innumerable variety of wildlife. The wildlife areas may be grouped into terrestrial and aquatic inhabitancies. The former consists of Game Reserves (Dodori National Reserve) while the aquatic habitat includes the Fisheries and Marine park of Kiunga. Although Dodori National Reserve is a gazetted wildlife conservation area, most of the wildlife is found outside this area since the Reserve is not fenced. This necessitates both farmers from the County and pastoralists incursion from Garissa County and beyond particularly during drought period to displace the wild animals from their habitat areas.

The insecurity posed by armed terrorists from Somalia has made the situation worse. The Elephants which in the past were frequently sighted in the area are rare to find today partly due poaching by the said armed terrorist and other related human wildlife conflicts. Wildlife from this habitat move freely to the south west of the County towards the Tana Delta and its environs in search of water and pasture.

Understanding this phenomenon and interrogating the factors leading to the resulting wildlife movement really shaped the direction of the most desired County Spatial Plan.

The map below shows the wildlife movement map:



Source: CURP, 2016

SWAMPS AND MARSHLANDS

Low lying wetlands with grassy vegetation are mainly situated in transition zones between the Indian ocean and mainland. These swamps and marshlands are a normal occurrence in Bahari, Hongwe, Witu, Mkumumbi and Hindi Wards. These habitats provide ideal location for wildlife and livestock particularly during

the droughts and dry seasons. In these wards, therefore human/ wildlife conflicts are a common phenomenon.

These swamps and marshlands are very important as water retention areas and their distribution in this pro-conservation County Spatial Plan was very important. From the foregoing discussion on the Natural ecosystems, a few issues as discussed below informed the Plan formulation. These issues are:

- Human/wildlife conflict and farmers/pastoralists conflicts. Question of how a sustainable solution can be brought about by the Plan were interrogated to inform a most desired pattern of the Spatial Plan while still considering the other components and solutions to other issues.
- The threat of promoting conservation of sensitive ecosystems like the mangrove forests, sand dunes, indigenous forests, wetlands and swamps etc. Reasons limiting pro-conservation practices of such ecosystems was interrogated, viable options proposed which were then translated into concepts upon which the Spatial Plan was anchored.
- The issues relating to communities living in cross cutting ecosystems of the County as discussed above. It was a common objective that the Plan should not Plan in isolation of the People. It is on such understanding that ideologies such as those of integrating the Boni – Aweer / Sanye community (which lives and drives its livelihood from hunting and gathering within the Boni – Lungi forest and Dodori National Reserve) into the conservation efforts by the Kenya Forest Services (KFS) and Kenya Wildlife Servises (KWS) was arrived at.

HUMAN SETTLEMENTS, STRUCTURE

Human settlement structure clearly shows the distribution of human inhabitants across the entire County. The settlement structure can broadly be grouped into two categories i.e urban and rural settlements

Urban Settlements

These are inhabitants that agglomerate land - use practices and occupation of a mostly urban nature, together with associated support systems including community facilities and infrastructure services. In Lamu County these settlement characteristics can be observed along the main highway traversing the County from Nyongoro through Witu, Majembeni, Kibaoni, Mkumumbi, Hindi and terminating at Mokowe. The other urban settlements are found located along the main road from Hindi, Bargoni, Majengo and Bodhei. The other linear settlements pattern can be observed from Majengo, Milimani, Basuba, Mangai, Mararani and Kiunga. The other settlement pattern is also linear in its formation running parallel to the Indian Ocean from Mkokoni to Kiunga.

The understanding of this distribution is very important as Urban Centres have been known over time to form the basis of growth. The identified Centres were therefore assessed and their growth potentials determined to give a trajectory direction to which their areas of influence would take in the future. This important aspect was considered in the shaping of this County Spatial Plan.

Settlement pattern within the Lamu Archipelago

The human settlement pattern found within the Archipelago is unique in their form and distribution. The formation of the settlements represents a clustering of several independent urban Villages as nodes. The settlements are compact and well supplied with the necessary infrastructure services. However, Access roads are narrow typical of settlements that were developed in the 19th century. The Settlements include Faza, Kizingitini, Pate, Ndau, Bwajumwali, in Pate islands and Amu, Matondoni and Kipungani in Lamu Island. The compact nature of the settlements provide security and provide an ideal opportunity for the community to access social and infrastructural services. The cost of providing social and physical infrastructure is fairly cheaper in this type of settlement.

On this understanding, formulation of the CSP strategies within the archipelago considered these settlements as centres of growth and the proposed interventions for the outlying areas were highly influenced by the growth of these settlements.

Rural Dispersal Settlement

The concept of rural dispersal is used to delineate settlements of a purely rural nature and of a relatively low density. In Lamu this type of settlement structure can be found in Mpeketoni settlement scheme. The agricultural plots were in various sizes ranging from 2 hectares to 4 hectares. Each individual farmer located their residential house on one corner of the plot. Provision of services to this type of settlement is expensive but increases the land available for agricultural production.

SYNTHESIS OF THE SETTLEMENT STRUCTURE

- Intensive Human settlement is limited to the south of the main highway Nyongoro section - Mokowe leaving the hinterland apart from Pandanguo free of human settlement. Some of the questions this pattern raised is how does this impact on the direction of development of the County? How can the hinterland be opened for access to decentralize development without the unmitigated effects environmental conservation? How can service Centres be improved to be more economically viable with raised levels of service delivery etc. such questions formed the basis of providing the solution through the CSP.
- What best practices can be borrowed from the distribution and arrangement of the human settlements? Can Future Planning of Human Settlement adapt the compact village setting witnessed in the Lamu Archipelago? Is it a viable/sustainable practice when concerned with service delivery?

SYNTHESIS OF THE TRANSPORT STRUCTURE

Poor roads condition and road network has immensely limited economic development of the County. To spur growth, the main access road to the County i.e Nyongoro – Witu - Mokowe road must be improved to bitumen standard. The other important road is Hindi - Bodhei and Majengo - Kiunga road both of which are security road. These roads when improved to bitumen standard will greatly enhance the security of the County.

Water transport from Amu island to Pate, Ndau and Kiwayu is eratic, unsafe and unreliable. The County Government should explore possibilities of securing a more reliable seat worth vessel

and introduce a more regular, safe and reliable sea transport within the Archipelago

The only way to access Lamu County by air is through the Manda airstrip. There is a proposal to put up an airport in Mkunumbi. Based on the anticipated developments to be proposed in the County, there would be need to open up more options for air transport by improving the airstrip in Faza and Kiunga to have a more connected air link from the mainland and the archipelago.

The County Government of Lamu should be involved in the Planned development of the LAPSSET project particularly in the design of the railway, oil pipe line and the road corridor between Lamu port and Isiolo resort city. As this corridor traverses between the port of Lamu and Bodhei Township at the border, the design should take cognizant of wildlife and livestock crossing this corridor considering these are high value wildlife and livestock movement corridors.

Understanding the current transportation infrastructure guided us in determining the unserved areas and potential development areas where this infrastructure reach could be proposed to enhance access and open development. The proposals under this Spatial Plan were therefore made in a way that improves the standards of the existing infrastructure and to provide other infrastructure where none is existent.

HERITAGE STRUCTURE

Lamu County has a unique historical and cultural heritage sites. These have emerged over the centuries and behind each historical site, whether archaeological, cultural or religious is an intriguing story of how it came to be. This is what has given the County its rich cultural and historical heritage. If these Historical sites are renovated to their original splendor and documented, they can be prime tourist attraction. Amu old town is already a UNESCO heritage site. The open space in-front of Lamu Fort could be designed by floating a tender for international competition to seek for the best design that will take cognizant of the immense importance of the square within the heritage site.

LANGUAGES IN LAMU COUNTY

Languages are a fundamental part of Lamu culture and heritage. There are numerous languages spoken in Lamu due to the cosmopolitan nature of the County and its rich history of trade with middle East and Asian countries. However, Kiswahili has emerged as a unifying language among the people of Lamu.

Lamu is a rich material culture ranging from the kangas, building materials as makuti, the architecture and music. The different ethnic communities have different cultures e.g the Swahili have the taarab music and a unique architecture for constructing curved doors, balconies and roofs. It is important to note that the direction of this CSP really considered the cosmopolitan nature of the County as an integral part of the people of Lamu.

PLAN FORMULATION PROCESS

THE INTENDED SPATIAL STRUCTURE:

In our analysis of the existing spatial structure use, we have attempted to characterize the County space by highlighting its fundamental qualities and the underlying components to guide this Plan formulation process as discussed above. We have underscored the critical function of space as a bedrock or basis upon which natural resources and human activities are situated.

In view of the fore going, we appreciate the need for remedial measures to improve the space qualities in order to achieve environmental sustainability and development of the County given the aspiration of the people of Lamu who through consultation forums have expressed their desire for positive change in the manner in which both natural and human resources are utilized.

To this end, we wish to deploy three key instruments towards the spatial reorganization and restructuring of the County's space in order to achieve a set of desired goals which include, inter-alia:

- Achieving a sustainable County wide development framework
- Securing a balanced and equitable development for the County
- Securing competitiveness of Lamu County within the supra-regional context

To achieve this, the thought process towards achieving the desired Spatial Plan were as follows:

PRELIMINARY SPATIAL CONCEPTS

Globally, Spatial Planners use concepts in order to better understand the region or County for purpose of determining overall strategy of intervention in an effort to re-organize /restructure the space one is dealing with. The spatial concepts are informed by the existing spatial structure and build upon fundamental assets and opportunities displayed by the space under study. Concepts respond to the question of **what can** and ought **to happen**? Fundamentally and in response to the question **where?** They indicate a select number of areas for targeted, strategic intervention, the aim being to investigate synergies and domino effect across the County.

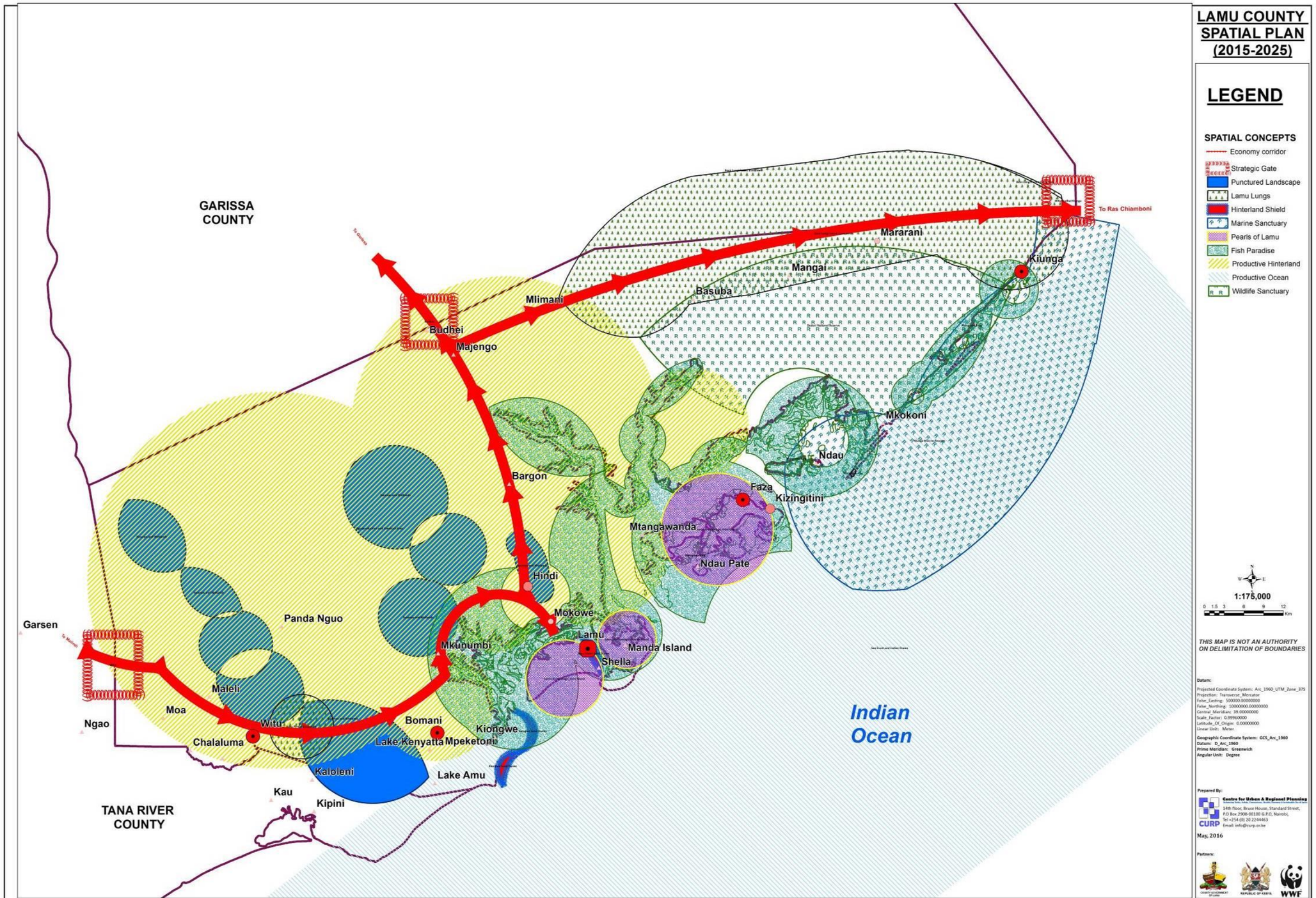
After a critical and thorough analytical consideration of all the thematic areas to inform our most desired Spatial Plan as discussed above, a few spatial concepts with very specific objectives for the most desired Spatial Plan were identified. The objectives for the Spatial Concepts were identified for the purposes of:

- Promoting conservation of key natural resources and biodiversity within the County
- Improving the transportation infrastructure and provision of basic services in the County
- Boosting the economic situation of the County by promoting the local production sector in fishing; agriculture; and livestock
- Improving the livelihoods and standards of living of the people

In a bid to achieve this, the preliminary spatial concept below started shaping the thought process and the analytical output of the desired County Spatial Plan.

The Preliminary spatial concept bubble diagram was derived as follows:

SPATIAL CONCEPT_LAMU COUNTY SPATIAL PLAN



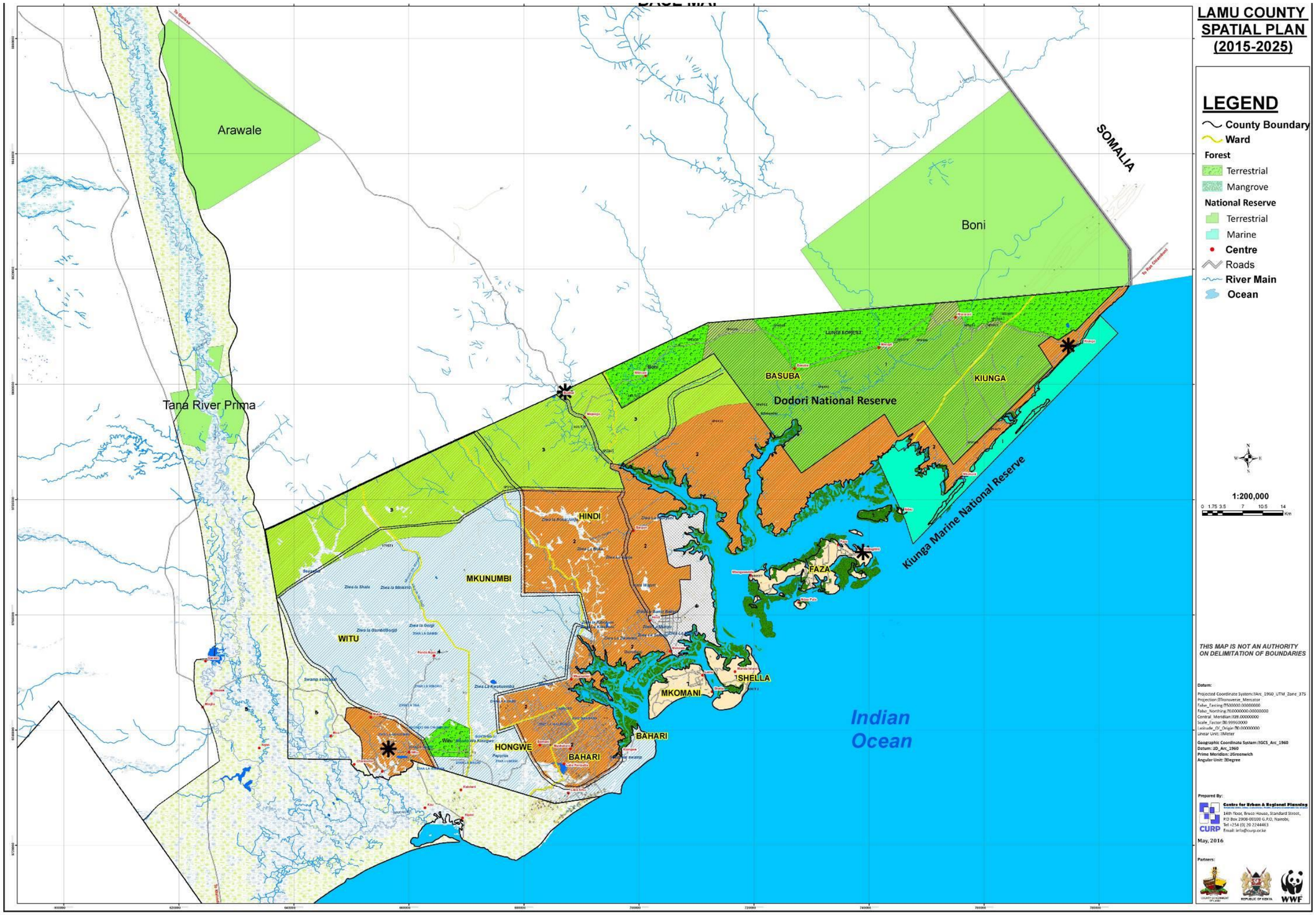
- The preliminary design highlighted the central corridor (Nyongoro – Witu – Hindi – Mokowe: and Hindi – Bargon – Milimani – Bodhei: and Milimani – Majengo – Kiunga roads) as the main development corridors that need to be improved first to enhance connection and promote public transport;
- It also highlighted a zone of various wetlands and swamp areas as the punctured scapes above which the rich agricultural zone transncends;
- The Mangrove forest rings around the archipelago were also highlighted as a defining spatial concept where their conservation would be promoted;
- This also included the Lamu lungs defined by the Boni – Lungi forest ecosystem; the Witu Forest; the Dodori National Reserve; and the Kiunga Marine Reserve where pro conservation practices would be highly encouraged;
- The other concept was the shielded hinterland defined by the stretch of sand dunes and this also emphasized the need for pro conservation practices owing to their importance as a natural resource;
- The last spatial concept on the preliminary design was the archipelago, where comparative strengths of the Islands would be assessed and practical spatial proposals to enhance the livelihoods of the people made;
- Another concept that was explored on this preliminary design was the Lamu Gates where these were interpreted as the Urban Centres of Witu; Bodhei and Kiunga.

It is on these preliminary spatial design concepts that our most preferred and desired spatial Plan concepts were anchored upon and arrived at. These are discussed below:

THE DESIRED SPATIAL PLAN CONCEPTS

In the designing of the Lamu County Spatial Plan, twelve (12) Spatial Concepts were developed to guide the preparation of a County Plan with a difference. Just as discussed above, these had very specific overall objectives in anticipation of the desired outcome of the Spatial Plan.

The most desired Spatial Plan concepts were as follows:


LAMU COUNTY SPATIAL PLAN (2015-2025)
LEGEND
County Boundary
Ward
Forest
Terrestrial
Mangrove
National Reserve
Terrestrial
Marine
Centre
Roads
River Main
Ocean
1:200,000
0 1.75 3.5 7 10.5 14 Km
THIS MAP IS NOT AN AUTHORITY ON DELIMITATION OF BOUNDARIES
Datum:
Projected Coordinate System:Arc_1960_UTM_Zone_37S
Projection:Transverse_Mercator
False_Easting:500000.00000000
False_Northing:10000000.00000000
Central_Meridian:39.00000000
Scale_Factor:0.99960000
Latitude_Of_Origin:0.00000000
Linear Unit: Meter
Geographic Coordinate System:GCS_Arc_1960
Datum: 2D_Arc_1960
Prime Meridian: Greenwich
Angular Unit: Degree
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CURP
May, 2016
Partners:
WWF
Arawale
Tana River Prima
Boni
SOMALIA
LUNGI ECHESI
BASUBA
KIUNGA
Dodori National Reserve
Kiunga Marine National Reserve
HINDI
MKUNUMBI
WITU
FAZA
SHELLA
MKOMANI
HONGWE
BAHARI
Indian Ocean

The twelve concepts are discussed in details below:

THE SHIELDED HINTERLAND;

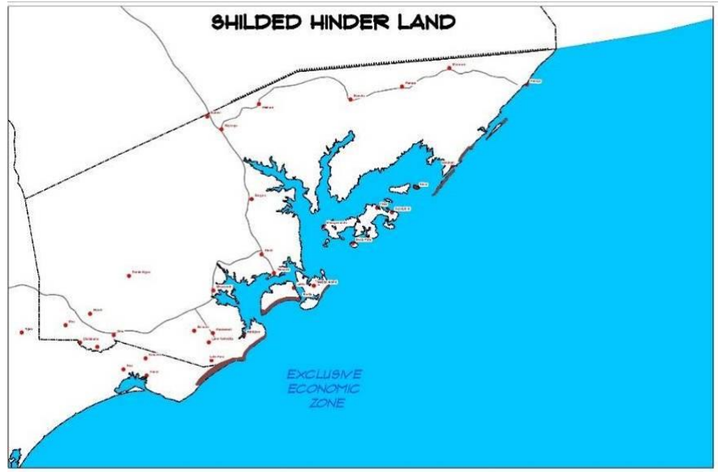
This is a concept we have assigned to the scenic sand dunes that define the edge of the coast line in Lamu County. Sand dunes are formed over a long period of time by the sea currents that pound the coast line accompanied by strong winds that blow the fine to medium grained sand on the beach and depositing it in a longitudinal pattern along the coast running parallel to the shore. Geologically therefore the sand dune is covered by the said fine to medium grained sand. Other rare and isolated rock types may occasional occur. Quite often than not the rock types may include calcareous sandstone and pink-red limetone. The front part facing the sea tend to be acquire a curvilinear shape. Lose vegetation particularly the creeping type grow on the side and on top of the sand dune. Rain water percolate through the surface of the sand dune to form an aquifer which as in the case of Amu Island sand dune, supply the town of Amu, Shella and Manda with portable water.

These sand dunes are found in Bawayas in Kiogwe (Bahari Ward), Lamu Island, Manda Island, Kiwayu Island, Mkokoni, Rubu Island, and Kiungamwini Island. The Sand dunes vary in height from as low as 23 meters to 70 meters above the mean sea level. The longest sand dune is the one found in Amu Island which stretches up to 13 kilometers from Kizingoni to Shella, while Bawayas in Kiogwe is 10.5 Kilometers long, Kiwayu 9.5 Kilometers, Mkokoni 5.0 Kilometers, Rubu 8.5 Kilometers long and finally the one in Kiungamwini is only 3.0 Kilometers long.

The sand dunes in Kiwayu, Mkokoni, Rubu and Kiungamwini Islands fall within the Gazetted Kiunga Fish and Marine Reserve. As is shown elsewhere in this report, parcels of land have been allocated in Kiwayu Island despite the area falling within the Gazetted Marine Park. It is our considered opinion that these allocations be revoked as soon as possible. The same goes for the allocations witnessed in Bawayas in Kiongwe, and Amu. The sand dune in Bawayas is facing a more serious challenge in the form of encroachment by the farming communities. The threat here is pose by the illegal cultivation of Watermelon on the slope of the sand dune. Watermelon is a creeping Plant and grows very fast on the fine to medium grained sand.

The sand dunes are important but fragile ecosystem. Apart from being a water tower for the surrounding communities they provide an ideal breeding ground for Turtles. They therefore need to be preserved at all cost. The Lamu County Spatial Plan is a strategic Plan and this concept therefore provides us with the opportunity to come up with area specific strategies on how these fragile environmental assets can be conserved to ensure continued provision of secure breeding ground for sea turtles which is one of the endangered species requiring global attention.

The spread and stretch of these sand dunes in Lamu County is as shown below:



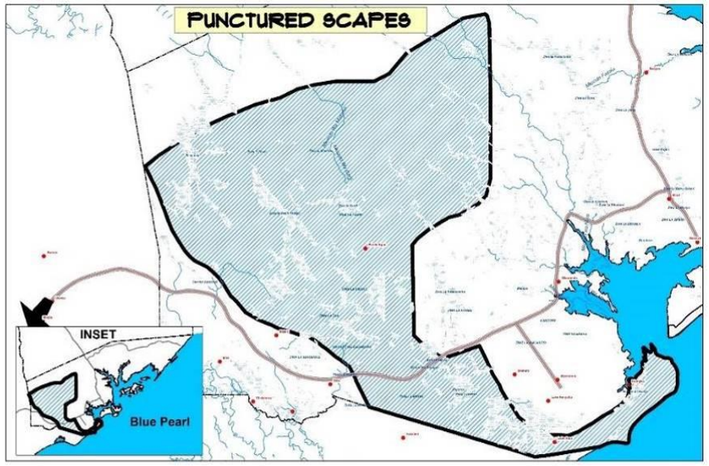
THE PUNCTURED SCAPES

The land form of the area of Lamu County lying to the north of the main Highway form Nyongoro through Witu, Majembeni. Kibaoni, Mkunumbi, to Hindi and to the northwest of the road from Hindi through Bargon, Majengo to Budhei on the border with Garissa County, portray a unique landscape characterized by shallow depressions on the earth surface that collect water during the rainy season as the water percolates into the ground, reed vegetation and other Plant species associated with swampy conditions germinate to provide fodder for Livestock and Wildlife. Some of these depressions were infact lakes which overtime have dried up due to climate change except Lake Mukungunya (later renamed Lake Kenyatta). The dried-up lake includes Lake Amu, ziwa la Luimshi, ziwa la Gambi, ziwa la Kiboko, Ziwa la Kwakuomba, Ziwa la Roka, Ziwa la Kibokoni, Ziwa la Shalu, Ziwa la Munkirio, Ziwa la Kombe, Zuiwa la Sendembe and Ziwa la Taa.

The concept of punctured scapes enables us to isolate this fragile ecosystem in order to prescribe the necessary interventions for sustainable development. When one superimposes the rain pattern on this area you will notice that rain tends to reduce in intensity as you move from Witu to the North and northwest.

The Swampy vegetation helps to retain underground water sources. However, if the area is opened up for agriculture, the underground water table will be adversely affected and this would lead to depletion of the aquifer with serious consequences to communities downstream. Already the communities in Mpeketoni are complaining of reduced water levels in Lake Kenyatta and if we do not prohibit Agricultural activities in the area falling within this Concept then the County will find it extremely difficult to sustain water provision for the people of Hongwe; Mkunumbi; Hindi; WItu and Bahari wards in the future. In our view, the area should be zoned for Wildlife conservations similar to what Narok County has done in the Mara Conservancy and on that note double up as the wildlife movement corridor.

The zoning of the area as conservancy is in line with the attempts by Private Ranches in Witu who have struggled to introduce Wildlife conservation in their ranches to attract tourism. We applaud the Lamu County Government and the National Land Commission for the positive steps they have taken to revoke the illegal allocation of land in this area. The land has reverted back to the County Government and submit therefore that the most sustainable way of using this land is by zoning it for conservancy and Livestock production. These kinds of preferred uses will strengthen the conservation intended for this zone. The concept cuts across the areas below:

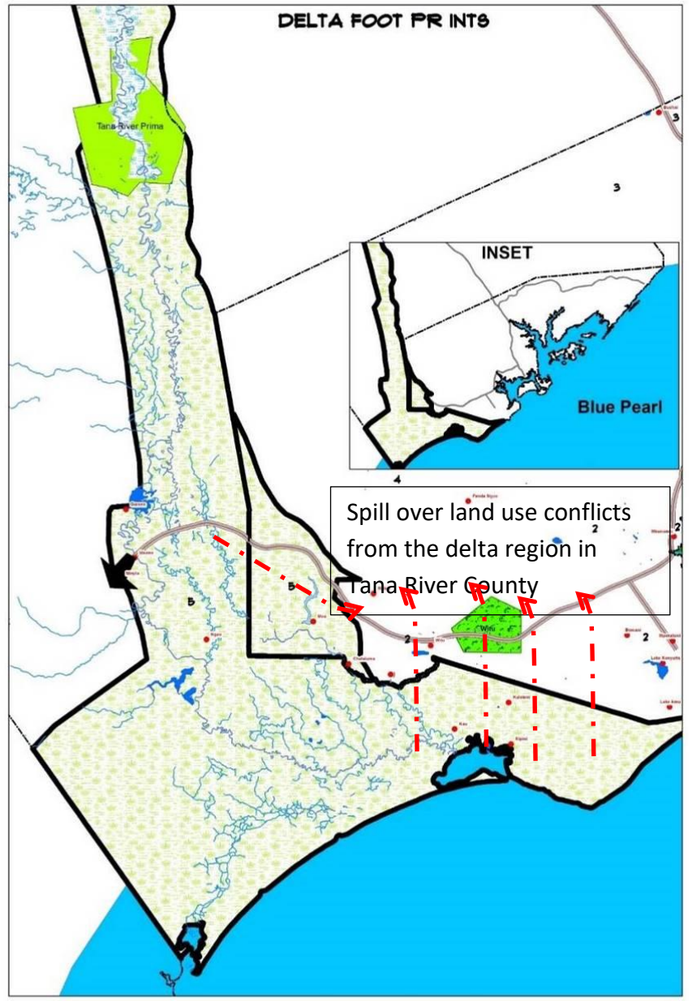


THE TANA DELTA FOOT PRINT

As discussed elsewhere in this report, the Tana River enters the Indian Ocean bringing in a load of sediments through its 850 Kilometer journey from its source around Mt Kenya and deposit it in an area stretching almost 30 Kilometers from its mouth in Kipini town. This area forms its Delta which is a unique ecosystem. The delta area covers any area which in approximately 132,600 Hectares. Of this total area, 16,800 Hectares fall within Lamu County.

The Delta is a wetland of immense importance in Kenya. It is a Birds sanctuary and a haven for unique Biodiversity. It provides a fertile ground for agriculture and because of its quality as wetland, it remains green throughout the year making it **a place of last resort** for Pastoralists who travel long distance from as far as Marsabet, Mandera, Wajir and Garissa to bring their Livestock for water and pasture during Drought or any dry season.

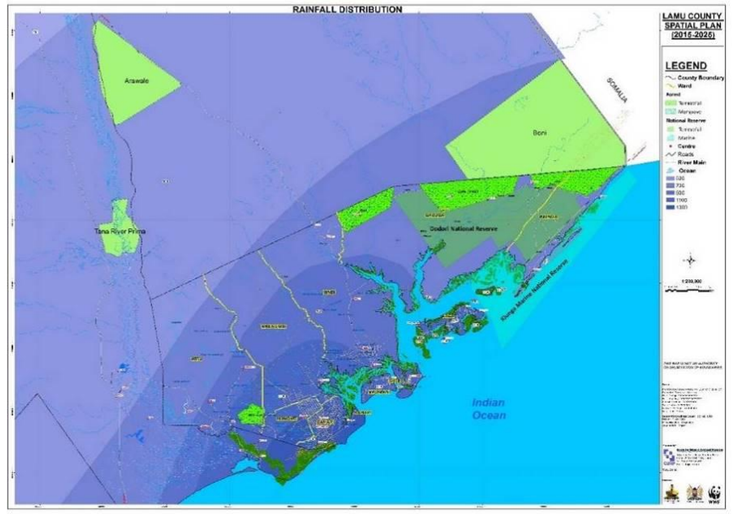
We have isolated this space to enable us look in details at some of the challenges posed by the various interest groups competing for the right to use the land. This becomes a very important area as most of the activities happening on that lower area of the County spills over to Lamu County from Kipini Conservancy through Nairobi Ranch. When this is happening, various forms of land use conflict occur including Farmers/Pastoralists conflicts and Human/Wildlife conflicts. We therefore can not Plan Lamu County without considering this area as a Spatial Concept with direct impacts to Lamu County. The Concept covers the area shown in the map below:



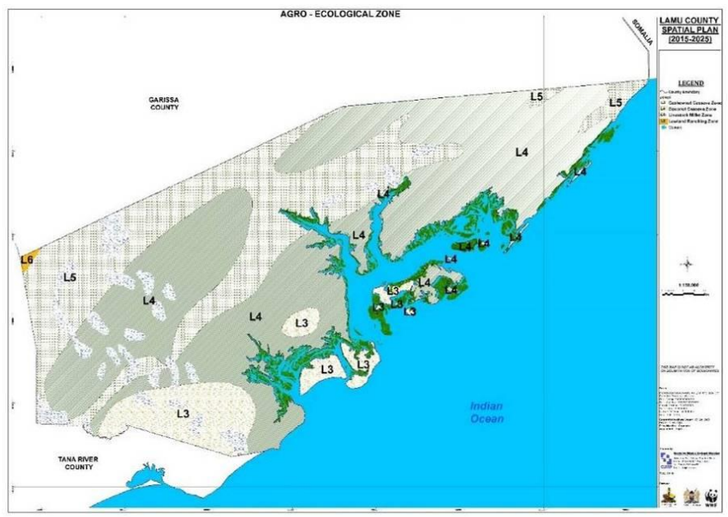
THE PRODUCTIVE SCAPES (AGRICULTURE)

In our discussion of the agro-ecological zones and rainfall distribution in the County, we observed that it is well endowed with fertile soils and receives adequate rainfall for agricultural production. However, the rainfall is not evenly distributed and tends to reduce in intensity away from the Indian Ocean.

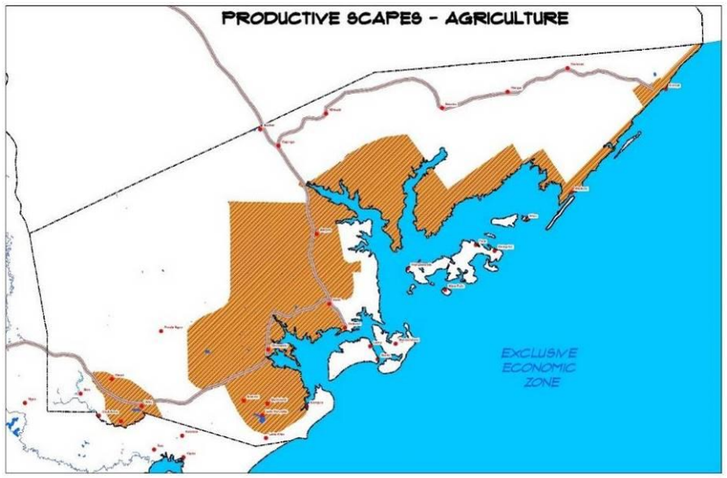
The areas close to the coastline receive up to 1100mm of rain per year while the area around Budhei at the boundary with Garissa County receives less than 500mm per year. The soils also tend to generally conform to the variation in the precipitations with the fertile soils found in Hongwe, Bahari and the lower part of Mkunumbi and Hindi ward. We have therefore coined a concept that appropriately addresses the concerns of this area. Refer to the maps below for better understanding:



This first map shows the rainfall distribution. The rains are much high around Witu; Bahari; Hongwe; Mkunumbi Wards and the Archipelago. For this reason, a lot of farming activities take place around those places.



On the second map, we appreciate that the agroecological potential of the County is more where the County receives higher rainfall patterns.



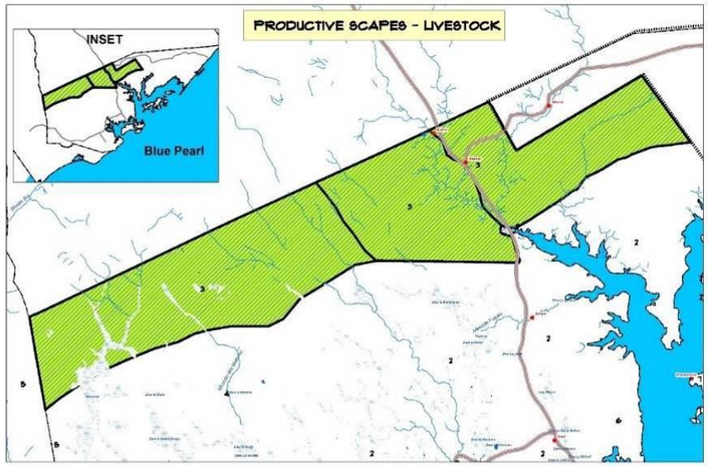
The map above is the concept zone map for productive scapes agriculture. This concept was highly influenced in its zoning by the rainfall patterns and the agro-ecological potentials of the cross-cutting areas.

PRODUCTIVE SCAPES (LIVESTOCK);

As discussed above elsewhere in this report Livestock keeping is a major economic activity in Lamu County. The livestock in the County not only refers to Livestock in the local ranches but also Livestock in transit to the Tana River Delta from the neighboring counties of Mandera, Wajir and Garissa. The County due its skewed distribution of the population to the southern part of the County (see the Map below), the northern part of the County remained devoid of human occupation.

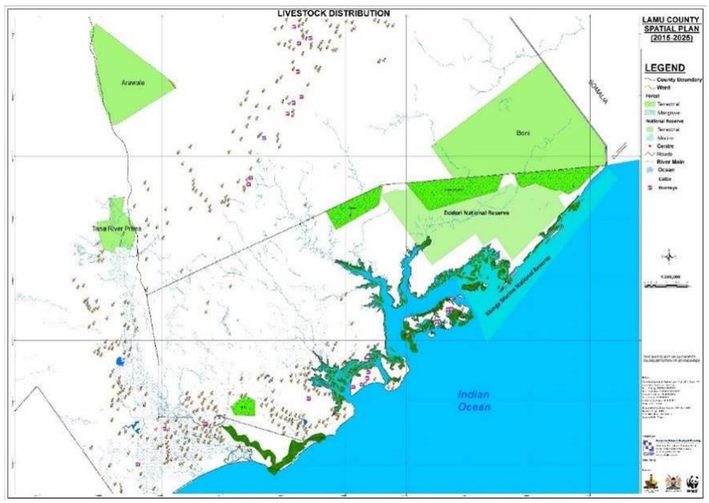
Earlier efforts by the defunct County council of Lamu in collaboration with the Central Government assigned this area for Livestock ranching and this allowed the Pastoralist from the counties in the northern part of Kenya to move with their livestock unhindered. However due to conversion of a few ranches to agriculture by way of subdivision, the Land available as open grassland is diminishing progressively to the extent that we are now witnessing frequent conflicts between the farmers and Pastoralists.

The isolation of this area through the above-mentioned concept will enable the Planning team to suggest spatial solutions to mitigate the conflict by delineating a very convenient zone for livestock movement shown below:



Source: CURP, 2016

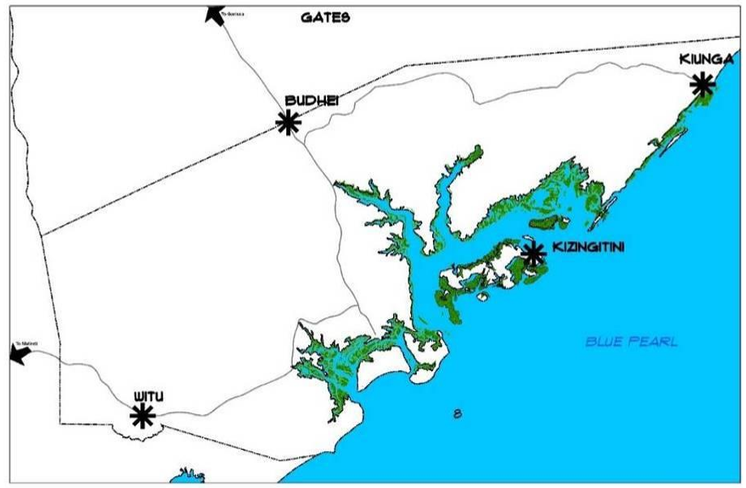
This concept was highly influenced by the livestock movement and as shown in the map below. Other factors such as the proposed holding grounds on that upper region of the County were considered in the delimitation of this zone as a productive livestock zone to double up as the livestock movement corridor.



Source: CURP, 2016

THE STRATEGIC GATES OF LAMU

These are Urban nodes that are located strategically at the entrance to the County on land and water. It is the intention of the County Spatial Plans to assign these urban node functions that will enable them to grow in future by directing investments by the County and the private sector. The concept will therefore enable the Planning team to focus attention to these towns and prescribe appropriate interventions in the form of programmes and projects.



Source: CURP, 2016

THE ECONOMIC CORRIDOR;

There are Plans by the Kenya National Highways Authority (KeNHA) to improve the main Highway linking Lamu County to Malindi and Mombasa to bitumen standards. Lamu County is perhaps the only County in Kenya that has never had a tarmacked road and thus the low level of Urban Development. The improvement of this Highway will certainly generate demand for establishment of a number Economic activities that will require careful consideration to ensure safety and avoid the pitfalls witnessed in other similar project in other parts of the County.

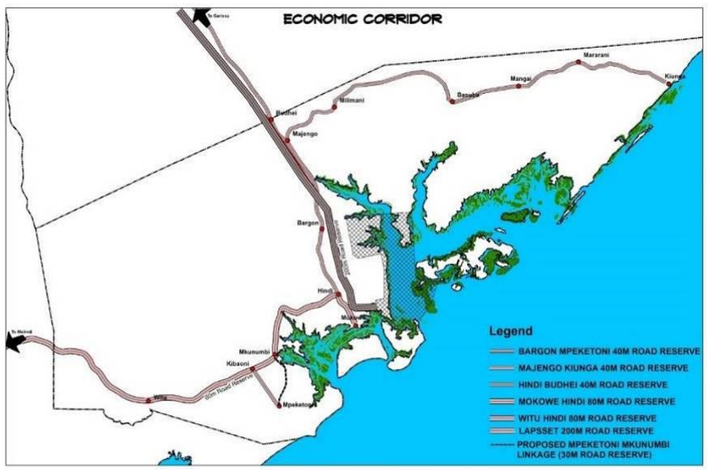
The corridor is Planned to be implemented in three Phases with phase 1 which starts from Nyongoro at the border with Tana River County and traversing through Witu, Majembeni, Kibaoni, Mkunumbi, Hindi, and ending up at Mokowe. Within this phase the road from Kibaoni to Mpeketoni will also improve. One would have

wished that the road on reaching Mpeketoni, a loop would have been constructed to join the tarmac road at Mkunumbi township.

Along with objectives of this Spatial Concept, it is proposed that the Lamu County Government take up this issue and approach KeNHA with a view to asking for a variation in the contract sum to include the said loop. Phase 2 of the project will involve the construction of the road from Hindi, Majengo, Milimani, to Basuba then phase 3 is from Basuba to Kiunga sea port. In our view the road from Hindi, Majengo, and Kiunga Port is an important security road which when tarmacked will go a long way to not only improve security and rid the County of the Al shabaab menace, but open up Dodori National Reserve and Kiunga Fish and Marine Reserve to tourists.

KeNHA has proposed a road reserve of 40.0 meters but the Spatial Plan is providing a **corridor of 80.0 meters wide** to accommodate future infrastructure needs. We fore see a need in future to connect the Port of Lamu to the Port of Mombasa by SGR Railway line. We have recommended elsewhere in this report that the County Government of Lamu should prepare a **Relocation Action Plan (RAP)** to ensure that the corridor is achieved.

The Planning team is determined to suggest ways that would enable the County Government better manage this Transport corridor in a sustainable way by restricting ribbon Urban development and encourage the development of orderly urban centers in designated areas.



Source: CURP, 2016

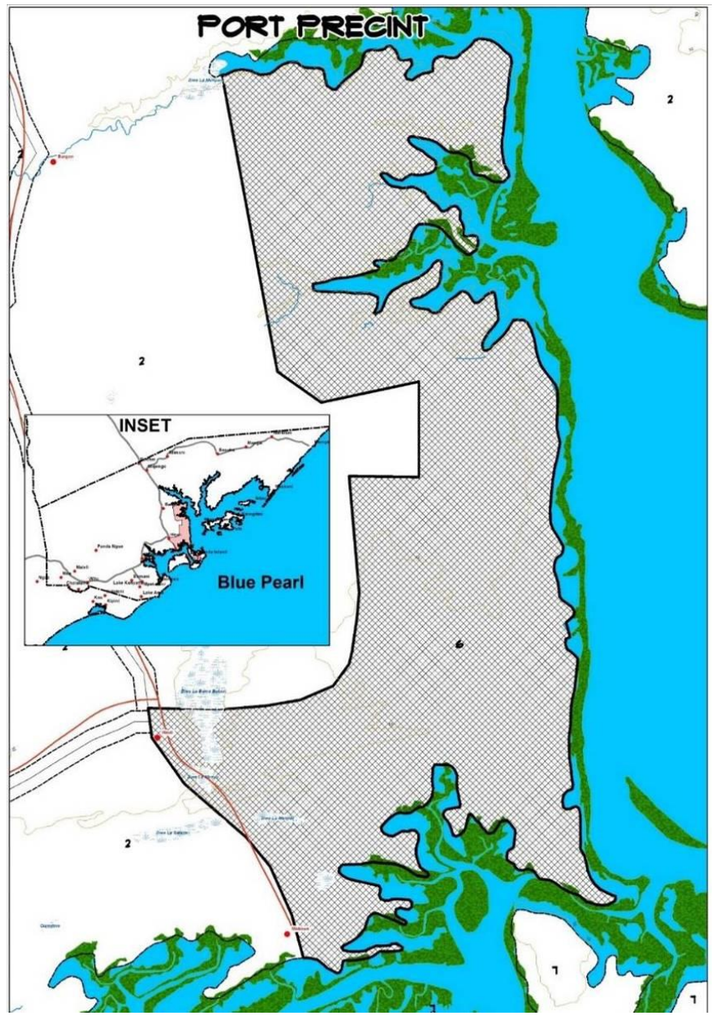
THE PORT PRICINCT

Lamu County has a natural deep-sea neighborhood of Kililana. The area has recently been identified for the Kenya Vision 2030 flagship project commonly referred to as the **Lamu-Southern Sudan Ethopia Trasport Corridor(LAPSSET).** This is a transport and infrastructure project that, when completed, will be Kenya's second transport corridor. The only other corridor which is existing is the Mombasa- Nairobi- Kampala- Kigali corridor.

The development of the LAPSSET project has received support from the County Government of Lamu and the effort to consider this area as concept in the preparation of the Spatial Plan is to ensure that the County Government incorporates the project in the County Spatial Plan in in order assess the impact of these projects in the overall development of the County.

Of particular interest to Lamu County, is the implementation of social infrastructure services and security which will ensure that schools, health centers, towns, water and sanitation services, security services and other social amenities are provided at optimal level to make LAPSSET corridor secure, desirable, livable and providing an environment conducive for future generation.

The concept area is shown below:



Source: CURP, 2016

THE ARCHIPELAGO;

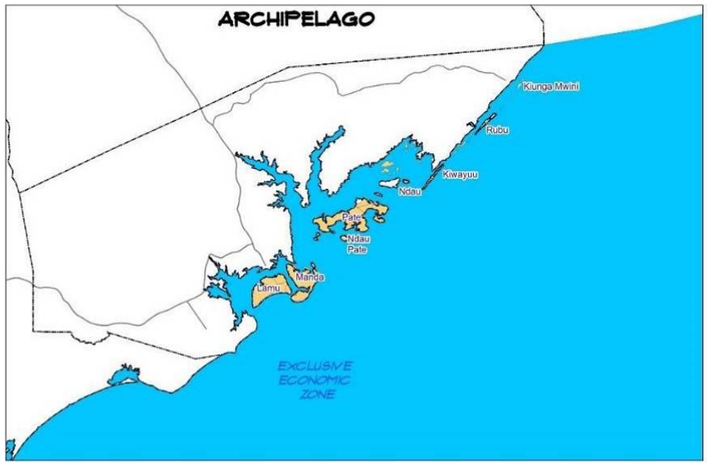
Lamu Archipelago is perhaps one of the most interesting human settlement in the coast region with a story line that is captivating and inspiring. The Archipelago is made up of some 57no Islands spread along the coastline from Lamu town to Kiunga.

In terms of size, Amu, Manda, Pate, and Kiwayu are the largest while the rest are small Islands. Lamu town is one of the original Swahili City State of East Africa and it represents one of the oldest

urban settlements in Kenya. It is estimated to be close to 700-years-old.

The town has the most intricate architectural decoration as can be seen by the design of the roofs, veranda, the doors and carved plaster works. We have coined a concept that best capture the importance of Islands in the history and culture of the County.

Also considered within this concept of the archipelago as a spatial concept is the economic activities taking place in them and how they can be revitalized to boost the revenue generation in the County which will ultimately improve the people's livelihoods. For the purposes of this concept, the Spatial Plan considered only the habited Islands as shown below:



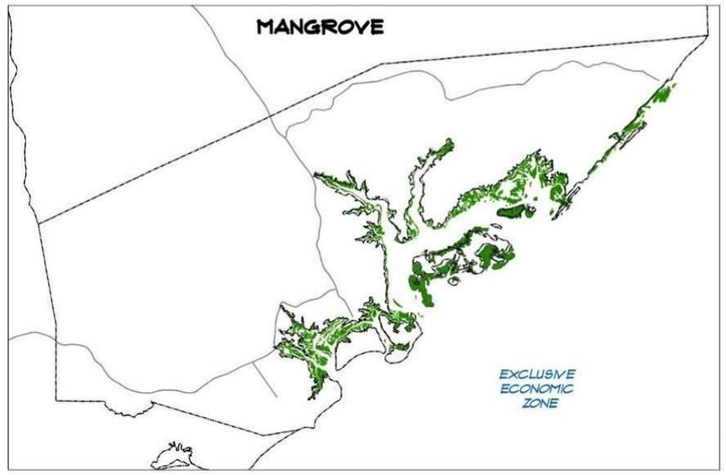
Source: CURP, 2016

THE MANGROVE RING

Mangroves are shrubs or small trees that grow in coastal saline or salty water. There are about 80 different species of mangrove trees. They grow in areas with low-oxygen soil where slow moving water allows sediments to settle out of the water and build up the muddy bottom.

Mangrove forests stabilize the coastline, reducing erosion from storm surges, currents, waves and tides. The intricate root system of mangrove also makes these forests attractive to fish and other organisms seeking food and shelter from predators. 90% of all mangrove forest found in Kenya are in Lamu. They form a conspicuous ring around the edges of the Islands within the Archipelago and thus the concept "*mangrove ring".*

The exploitation of this resource leaves much to be desired and the County Spatial Plan will attempt to suggest intervention measure to ensure sustainable utilization and conservation of the mangrove forests. The concept covers the zone shown below:

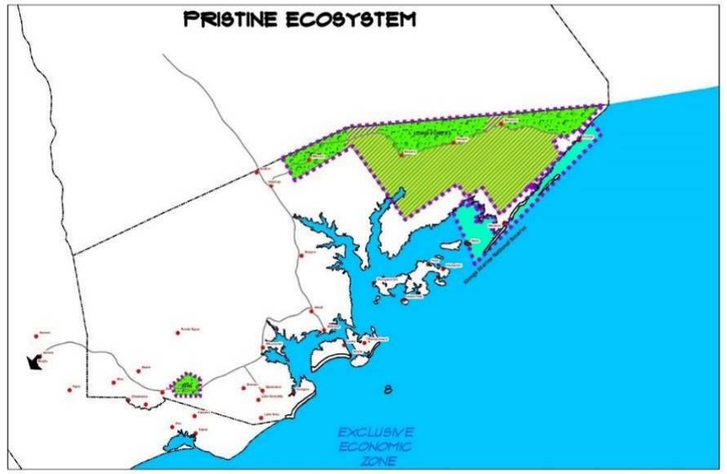


Source: CURP, 2016

THE PRISTINE ECOSYSTEM

This is a concept we have assigned for that part of the County located to the northeastern part of the County, defined by the border with Garissa County, Somali boundary and the Indian Ocean. This area is home to Boni-Lungi Forest ecosystem, the Witu Forest; Dodori National Reserve and Kiunga Marine National Reserve.

We consider this area pristine because the area has very limited human settlements and it is inhabited by a community(s) well known for conservation of the environment. The Boni-aweer tribe inhabit this area and their way of life as community rely on hunting and gathering. This community is marginalized and the County Spatial Plan will attempt to suggest interventions aimed at conservation at the same time suggesting how the interests of the community(s) can be incorporated within the conservation area.



Source: CURP, 2016

THE BLUE PEARL (THE EXCLUSIVE ECONOMIC ZONE)

In the making of this Spatial Plan, we adopted a different definition of land where the water mass including the ocean was defined as part of land. It is evident that most of the residents in the County especially the Archiplelago derive their livelihoods from the sea mostly from fishing which is a major economic venture in the County. Additionally, there are prospects of oil and gas exploration in the ocean and as so, Lamu County will benefit through revenue sharing with the National Government.

This as a concept will be highlighting the strengths of the ocean as a resource and how the livelihoods of the people of Lamu County can be improved by tapping into this resource. Various programmes and projects have been discussed on how best this zone can be utilized maximally to benefit the County and the people of Lamu in general.

This discussion (above) later led to the formulation of most desired and preferred land use model and its land use guidelines and regulations. This was arrived at from various stakeholder consultations that were held at this level. The preferred model is discussed below in the next chapters.

CHAPTER 13: THE SECTORAL PERSPECTIVES

NATURAL RESOURCES; BIODIVERSITY AND ENVIRONMENTAL CONSERVATION

Under this section, the CSP endeavours to promote the conservation and protection of ecologically sensitive bio-diversity since this form the main spatial organising element of the Lamu County. It does imply that only developments that are environmentally friendly will be allowed in the County of Lamu. Some of the objectives under this section are discussed below:

- Empower the people of Lamu to utilise the Natural capital sustainably to meet their diverse needs.
- Reclaim and rehabilitate ecologically sensitive areas that have been lost
- Establish and empower existing Natural capital community groups to protect and conserve natural capital in their own area of jurisdiction

strategies

- Protect and conserve the demarcated natural capital areas in the County spatial plan
- Reconciliation of all development activities on both land and sea with expected widespread impacts on natural capital in the County
- Community awareness programmes on all projects and their impact on the natural capital in their own County and area
- Establish sustainable community initiatives of utilisation of natural capital
- Promote community awareness campaigns of the state of the current natural capital base use practices and its consequences now and for posterity
- Establish collaborative mechanisms among the stakeholders with the Community to protect and conserve demarcated natural capital areas
- Establish collaborative mechanism in form of county pacts to monitor common resource use across county borders
- Central and County Governments to establish measures of improving security in the County to enable effective protection of natural capital and its utilisation
- All development projects to be subject to plan guidelines and natural capital assessment criterion and participation of the local community
- Fully utilise the tourism potential of the County based on the triple package integrated with the community to bolster conservation efforts
- Natural capital resource plans and guidelines for natural capital will be prepared for detailed implementation of the plan
- National government and the government of Somalia, and others to initiate mechanisms of conserving and sustainable use of natural capital

The environmental aspects are later divided into terrestrial & marine aspects and are discussed below:

TERRESTRIAL

Forests

Lamu's gazetted forest areas cover 37.5% of the total County land surface area. The ecosystems are habitat to monkeys, baboons, buffalos, wild pigs, elephants, hippos, snakes, birds, butterflies and the rare rumped back elephant shrew (a rare and endangered mammal). The forest is being harvested for non-commercial activities on an area of 280 km^2 within Boni/Dodori, Lungi, Pandanguo, Witu, Kipini Forest and Lake Kenyatta buffer zone area. The aspirations of the CSP on this sector are discussed below:

a) Objective

To promote sustainable conservation of forests and forest resources

b) Issues

- Illegal land allocation and encroachment on forest land
- Possibility of higher instances of insecurity in the forested areas
- Unsustainable harvesting of mangrove forests in particular
- Unexplored potential of forest areas including the capacity to carbon trade
- Human-Wildlife conflicts are more rampant in forest areas
- Etc

c) Policies

- Establish suitable community based mechanisms for resolution of human-wildlife conflicts and put in place a framework for mitigation of the effects of wildlife menace.
- Introduce awareness to general public to protect and enhance biodiversity.
- Introduce community benefits sharing mechanisms for conservation and utilization of the natural resources.
- County Government to control encroachment on natural resource areas by proposing buffer zones or other integrative mechanisms in their management

d) Actions

- Revocation of titles under forested areas
- Develop a comprehensive natural resource inventory and intensify research programmes focusing on specific aspects of the environment: for example, water catchment, biodiversity, renewable energy, etc.
- Conduct community awareness programmes to enrich civil awareness on environmental matters
- Conduct a survey of all Forests ecosystems
- The gazzetement of all surveyed forests as protected areas

Parks & Wildlife

Wildlife assets include the African buffalo, topi, giraffes, zebras and a variety of bird species. Kipini provisional forest reserve is both a conservancy and a wildlife corridor. It was formerly known as the Nairobi ranch and measures 220km^2 shared between Tana River and Lamu Counties but it's managed from Lamu County with 70% of the forest in Lamu.

a) Objective

To promote wildlife tourism in Lamu County

b) Issues

- Insecurity and wildlife poaching
- Poor infrastructure development including hotel failites and good network of roads in areas deemed as wildlife hotspots
- High prevalence of Human wildlife conflicts along wildlife corridors

c) Policies

- Ensure there is adequate wildlife protection and mitigate human wildlife conflicts
- Enhance infrastructure development to improve access to the touristic rich areas
- Promote wildlife conservation in the County

d) Actions

- Establishment of hotel facilities and eco lodges in identified areas of wildlife conservancy
- Employment of more KWS officers in protected areas under their mandate
- Promote local benefit sharing mechanisms with local communities in areas where wildlife conservancies fall
- Fencing of wildlife protected areas

Wetland & Swamp Areas

Lamu has various swamps from which the majority of the rivers/streams that flow through the County drain into or from. These wetlands and swamp areas are mostly dominated on the area in the south-western side of the County referred the punctured scapes in the land use concepts discussed elsewhere in this report. These include the fresh water marshes of Ziwa Roka, Ziwa Gambi, Ziwa Kiboko, and Ziwa Kambe among others.

a) Objective

To identify, survey, document and ensure that all the wetlands and swamp areas are protected and conserved.

b) Issues

The major issue around this is the rampant encroachment of the wetlands for farming activities and human settlement

c) Policies

- Promote legal protection and conservation of the wetland resources for environmental posterity
- Enhance drainage pollution control using appropriate cost effective and efficient technologies and urban water management to conserve resources and prevent entry of ground water and surface water resources.

d) Actions

- Conduct surveys for Ziwa la Gorrji, Ziwa la Kiboko, Ziwa la Taa, Ziwa la Kiboko, Ziwa la Sendemke, Ziwa la Hindiwa and Ziwa la Shalu wetlands etc
- Revoke all irregularly acquired land titles and allotments within Ziwa la Gorrji, Ziwa la Kiboko, Ziwa la Taa, Ziwa la Kiboko, Ziwa la Sendemke, Ziwa la Hindiwa, Ziwa la Shalu wetlands wetlands and revert the land to Lamu County Government
- Regulate access and activities within Ziwa la Gorrji, Ziwa la Kiboko, Ziwa la Taa, Ziwa la Kiboko, Ziwa la Sendemke, Ziwa la Hindiwa, Ziwa la Shalu wetlands by proposing land use buffer zones around the wetlands

Mangrove forests

The mangroves of Lamu County cover approximately 54,000Ha, equivalent to 90% of the national mangrove coverage in Kenya. Nine species of mangroves are found in Lamu i.e. Sonneratia alba (Mlilana), Rhizophora mucronata (Mkoko), Bruguiera gymnorrhiza (Muia), Ceriops tagal (Mkandaa), Avicennia marina (Mchu), Xylocarpus granatum (Mkomafi), Xylocarpus moluccensis (Mkomafi dume), Lumnitzera racemosa (Kikandaa), and Heritiera littoralis (Mkungu).

Mangroves of Lamu County are classified into five management blocks namely; Northern Swamps, Pate Island Swamps, North Central Swamps, Southern Swamps, Mongoni and Dodori Creek Swamps. The Northern Central Swamps are within the Kiunga Marine National Reserve (KMNR) and are dominated by pure stands of Rhizophora which are relatively pristine. The average stand density and volume is 2,225 stems/ha and 382.8 m3/ha respectively. In terms of forest structure and productivity, the most complex mangroves in Lamu occur in the KNMR; particularly at Mambore and Rubu.

a) Objective

To promote sustainable conservation of mangrove forests and corals as part of the County's natural resource assets

b) Issues

- Unsustainable harvesting of the mangrove forests
- Encroachment on the forest areas

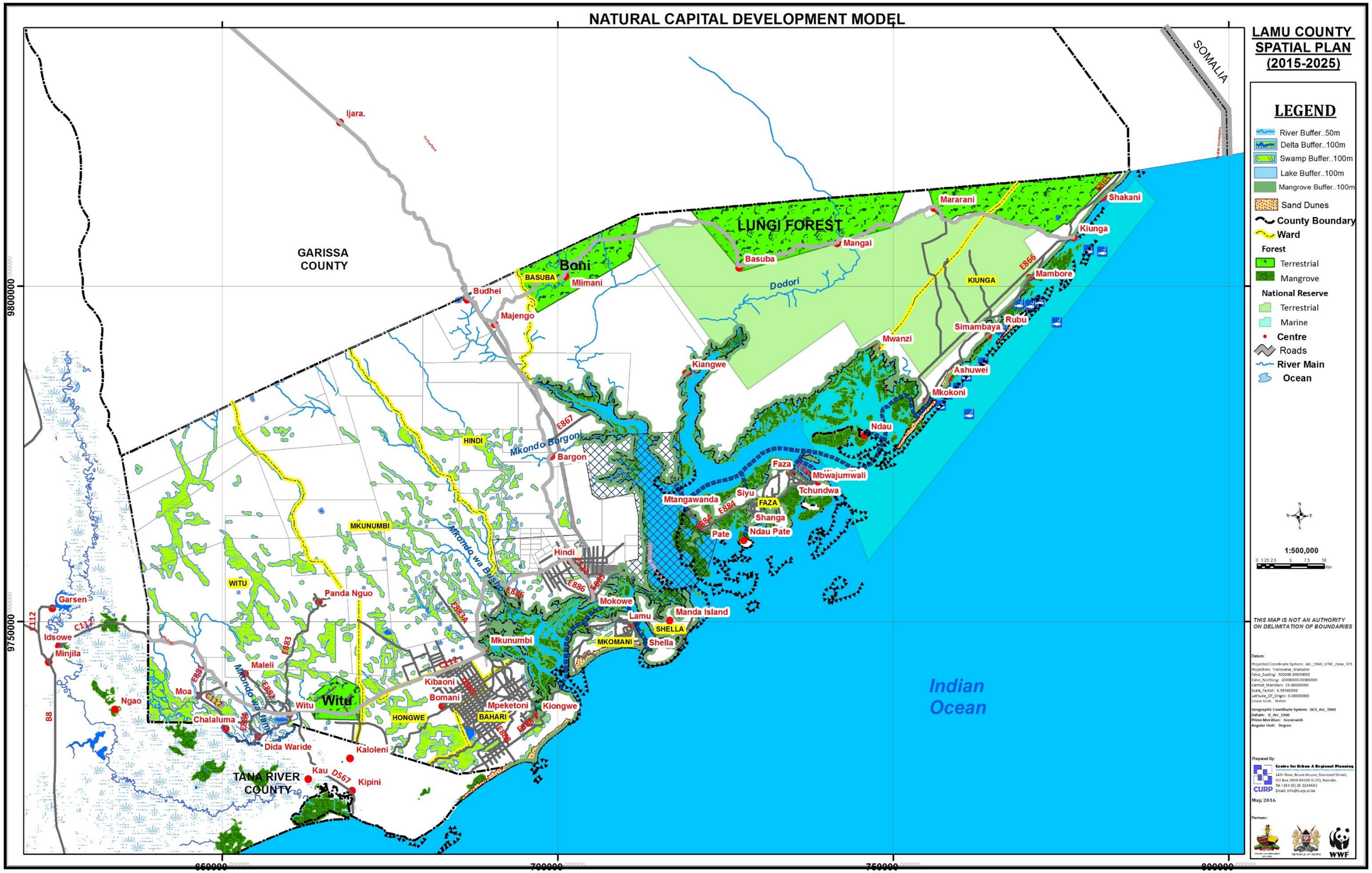
c) Policies

- Ensure re-afforestation programmes are initiated in the mangrove ring areas
- Ensure there is protection and conservation of the mangrove forests
- Promote sustainable harvesting

d) Actions

- Determine the actual acreage of land under mangrove by surveying and formerly protecting them through gazettment
- Provide a buffer of atleast 100 metres around the edge of the mangrove rings from the measured from the highest watermark
- Re-afforestation of cleared mangrove trees
- Prepare Environmental Management Plans for the mangrove forests
- Carry out public sensitization programmes to increase civil awareness necessary conservation purposes

Map 29: The Environmentally Sensitive Ecosystems Development Model



TRANSPORT & ACCESSIBILITY

ROAD TRANSPORT

The development of road networks has economic, social and political functions in the social economic development process. This Plan ultimately recognized the viability of good and quality road networks in enhancing the competitiveness of the county to attract business, investments and inclusiveness.

a) Objective

- To improve the road network to enhance accessibility and open up poorly served areas of the County.
- To have a navigable road system that is well linked and in a good condition that promotes public transport within the County.

b) Issues

Road network: It was evident that there was a good network of roads linking various human settlements within Lamu County. Specifically, roads in Witu; Bahari; Faza; Hongwe; Mkunumbi; and Hindi wards are well laid out in a good connected network to enhance linkage in the various human settlements in the wards. Inspite of this, the roads are in a deplorable condition that often limits accessibility to those areas. Other wards such as Mkomani; Basuba; and Kiunga have a poor road linkage and their accessibility by road is highly limited.

Road Size(s): Lamu as a County still hold tremendous advantage for road infrastructure expansion as most of the roads are not encroached. There is enough space for road expansion on need for all roads based on their respective classifications and the current standards as per the Planning Handbook and other legislations.

Road Conditions: Across the County, all roads are unpaved and in a deplorable state which makes travel time increase by 300% compared to the normal time it would take to reach a destination. The main Class C road from Mokowe to Witu is in a poor condition and often floods; large potholes rendering the road impassable by use of small vehicles. This is the main economic corridor of the County and needs the most immediate intervention to improve its standards if economic potential of Lamu is to be realized.

Other Class D roads connecting to Mpeketoni from Mkunumbi; and Kibaoni consecutively and to Bodhei from Hindi are equally in poor states. These are agricultural rich areas and serves as the County's food basket while the surplus produce is exported to other Counties including Nairobi. Improving the road standards connecting to these regions will enhance accessibility and efficiency in transport to promote the market reach.

The roads in Lamu County generally link Centres and areas; or Counties of high importance and needs to be improved to Bitumen; and or Tarmac standard gradually over time to realize the maximum economic potential of the County.

Public Transport: It was evident that most residents of Basuba; Kiunga; Witu; Hindi wards have limited means of public transport by road. The economic losses; exposure to current world affairs; untapped biodiversity potentials in these regions caused by this gap was highly felt during the interactions with the residents from the wards. The need to provide viable means of public transport by road was highly emphasized by these residents as a way of linking them up with the rest of the Lamu County; Country; and the world in general.

The LAPPSET Project: The project is still set to take off. It will serve great connectivity and opening up of the Lamu County. It will consist of a road highway; a rail connection; and a pipeline. Both the rail and highway will serve great connectivity importance for the County and will in the long run open up the County to major mutual economical gains from trade with the rest of the Country; regionally; and the rest of the world.

c) Policies

- Ensure every ward has at least 30kilometers of tarmac connecting service Centres in the next 10 years.
- Ensure the minimum standard for all roads within the County is gravel whether classified; or un-classified and should be maintained quarterly
- Ensure linkage and opening up of areas that are less linked to the rest of the County
- Ensure every ward centre is connected by a 30 metre road except where they are connected already by a higher class of road
- Integrate LAPSSET road and railway infrastructure with the internal road network to facilitate social economic development
- Ensure concerned road authorities endeavor to include non-motorized transport facilities on all roads to ensure equity and social justice
- Formally demarcate and survey all roads within the County
- Ensure that all wards in the mainland are served by at least four 14-seater public transport vehicles owned by individuals facilitated by the County Government of Lamu through joint Public-Private Partnership initiatives.
- The County Government to liaise with the National Government Institutions in charge of roads to formally classify un-classified roads that currently link to various human settlements

d) Actions

- Tarmacking of the 114 kilometers Garsen-Witu-Mokowe road (C112) – (Mokowe-Nyongoro section) shown below. the proposal is in line with a current National Government Proposal.
- Tarmacking of the Kibaoni-Mpeketoni road; Mkunumbi-Mpeketoni road; Hindi-Bargon road; Majengo-Kiunga; Witu-Moa road; and Faza-Pate-Siyu-Mtangawanda road

Hindi-Majengo Road



Source: CURP, 2016

- Improving the Mpeketoni-Kiongwe road to Gravel Standard in the next 5years and to tarmac in the next 10years
- Improving Mkokoni-Kiunga road; Witu-Kipini; Witu-Pandaguo; Witu-Maleli roads to gravel standards

A section of the Witu-Kipini Road



Source: CURP, 2016

- Classification of Witu-Moa-Chalaluma road
- The County Government to create an enabling environment to facilitate the purchase of at least sixteen 14-seater matatus for public transport by private individuals to offer viable options of public transport for residents living in Bargon; Majengo; Milimani; Mangai; Kiunga; Moa; Pandaguo; Kipini; Chalaluma; and Basuba.
- Provision of a 12-meter cabral/bitumen road to link Lamu town; Matondoni village; and Kipungani village; and another road to act as buffer from the Agricultural land and the sand dunes within the island on the southern end.

WATER TRANSPORT

a) Objective

To promote and improve public water transport in the County

b) Issues

Public Transport: residents of Faza; Kiunga and Basuba wards are highly limited on public transport means since their most viable option of transport currently is by water. It was however noted that there are no dedicated public transport boats and the ones available are very few; old; and slow. The faster boats that offer public transport for the residents as an alternative are the speed boats that ferry 'miraa' to Kiunga for transit to Somalia. More often, the available means of water transport is either not safe; convenient; or time efficient. It was evident that there was need to provide a viable solution for safe; convenient; and faster public transport by water for the residents of Kiunga; Basuba; and Faza wards.

A boat ride from Mokowe to Lamu Island



Public Jetties: The County Government has made commendable efforts to construct jetties for ease of public transport in most human settlement areas within the County. In particular, is the jetty in Lamu; Matondoni; Kizingitini; Mokowe; Manda; Mtangawanda among others. These jetties act as the terminal facilities where public transport boats dock awaiting passengers. Provision and construction of more jetties on connected sea spaces need to be assessed and proposed to offer more viable and connected public water transport in the County.

KPA Jetty



Source: CURP, 2016

Sustainability of public water Transport on Lamu-Faza route: On the onset of the LAPPSET project, the port area will cut across the deep waters of Mtangawanda rendering sustainability of public transport using this route from Lamu to Faza in uncertainty. This is because this section will be now controlled owing to the economic significance against the security situation once the LAPPSET port area is fully operational.

c) Policies

- Law requiring that all boat captains; and/or their assistants are in possession of first aid certificates; and all passenger boats are fitted with basic first aid kits; and life saver jackets
- Ensure that boats smaller than 24ft do not to ply the high waters of Kiunga and Mtangawanda section while carrying passengers
- Ensure that all settlements accessed by sea are served by convenient and efficient means of public water transport provided by the County Government.
- Ensure that all public transport boats are covered by an insurance policy in the event of a disaster.
- Ensure that the docking facilities for the public transport boats are well secured and established

- Ensure that an alternative route is identified to connect Pate and Amu islands in the event that the LAPSSET project curtails movement around the Port area
- Ensure connectivity of the Lamu Port and other ports in East Africa to enhance cruise Tourism activities in the regions

d) Actions

- The County Government to facilitate the purchase of at least 10 speed boats not less than 32ft with a capacity of at least 28 passengers to provide public transport to residents of Kiunga; Basuba; and Faza wards
- First aid training lessons to be made mandatory to all boat captains and assistants who ferry passengers to either Manda jetty; Mokowe jetty; Matondoni; Faza; Mtangawanda; Kiunga or any other jetty
- Establishment of a boat marina in Lamu Island – Old Town of Amu
- Securing of water linkage route from Mtangawanda jetty to a creek in Basuba Ward in the mainland
- Formation of a boat owners Sacco to necessitate issuance of an insurance policy.
- Construction of a sea walls at Siyu Village, Mbwajumwali, and Kiangwi(e)
- Reconstruction of Siyu foot bridge connecting to the Siyu Fort which is currently being restored under a County Government project.

Siyu village showing the bridge highlighted in red



A section of the bridge



The sea wall at Siyu village



Source: CURP, 2016

AIR TRANSPORT

a) Objective

- To enhance linkage of Lamu County through air transport
- To promote air transport as an efficient means of produce delivery

b) Issues

Current Condition of Airstrip(s)/Airport: Manda airstrip, with recent efforts to upgrade it to an airport is the biggest and serves as the County's main linkage regionally; and to the rest of the world through air transport. The airstrip as it is, is small with a low number of passenger flights flying into Lamu. There are Plans proposed under the LAPPSET project to construct an airport in Mkunumbi. The proposed airport site has far reaching economic benefits owing to its locational setting. It is proposed in a location of rich agricultural value where farmers undergo huge losses every year due to the perishability of their products that miss on time to get to the market. Additionally, there is enough land in this area for expansion of the Airport on need considering it is within the mainland of Lamu County.

The proposed location in Mkunumbi is the most viable location considering it will be serving the residents of Lamu County and more specifically the Agriculturally rich Bahari; Hongwe; Mkunumbi; Hindi wards; and the LAPPSET port activities at the same time. It was also evident that the residents of Mkunumbi; Hongwe; Bahari; and Hindi wards are highly receptive of the project and welcome it.

c) Policies

- Ensure that the County is served by at least 1 Airport and at least 2 functional Airstrips
- Promote the use of air transport as the alternative means to export farm/livestock products
- Publicize and advertise the use of air transport to Lamu as a way of attracting and promoting both domestic; and foreign tourism

d) Actions

- Upgrading of Mkunumbi airstrip to an Airport in the next 5years in anticipation of the LAPPSET project

and owing to its locational advantage; and the availability of land for expansion on need

- Maintain and expand Manda Airstrip as the second biggest commercial Airstrip to accommodate a larger number of passenger flights.
- Upgrade Faza Airstrip to serve Pate Island

RAIL TRANSPORT

a) Objective

To have a well-established rail system that links Lamu County to the rest of the Country; and East African Region as a whole

b) Issues

Rail Network: Lamu County is not served by any rail network. It is anticipated that the proposed LAPPSET project will introduce a rail connectivity to Lamu. It was noted that there is need for a rail connection of Lamu to the existing network at Mombasa owing to the huge traffic of people visiting; and/or anticipated to visit Lamu in the near future. Additionally, the tourism; agriculture & Livestock potentials of Lamu need to be linked by rail to other counties; and regionally to expand the current market structure and as a means of an efficient means of transport.

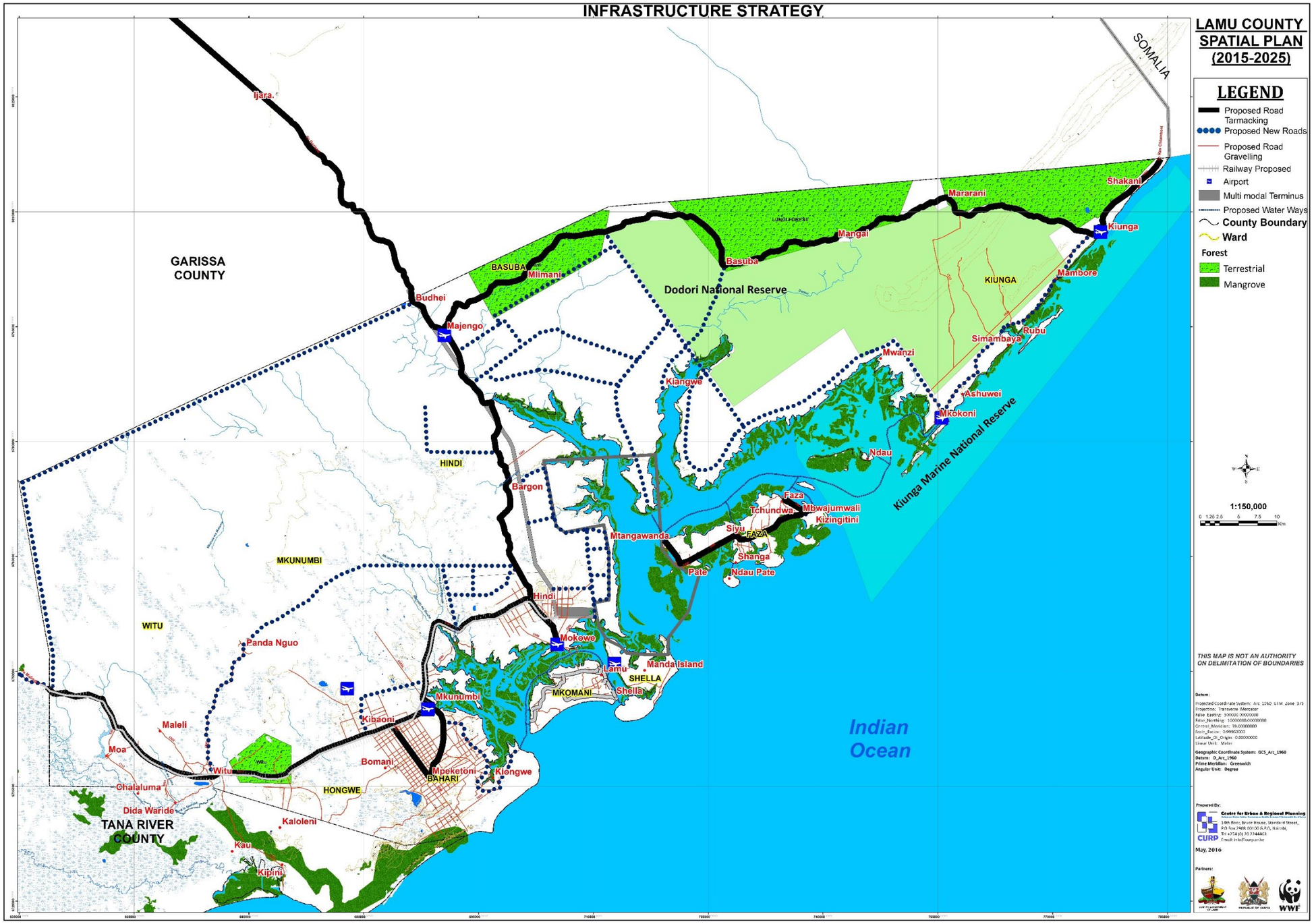
c) Policies

- Ensure there is a rail connection of Lamu and the rest of the Country; and East Africa region
- Prepare a Resettlement Action Plan to offer guidelines on resettlement of Project Affected Persons in the event that a rail route is identified.
- To promote industrial activities within the County to emphasize the need for the rail network

d) Actions

- To identify; survey; and demarcate a best route alternative for the rail system to connect to the existing Mombasa rail network
- To liaise with the national Government to ensure the construction of the rail network in the next 10years
- To identify and delineate land in all the wards across the County for industrial establishments in the next 10 years based on comparative strength as follows:
  - Witu Ward – Slaughter House and Value Addition industry in meat processing
  - Bahari; Hongwe; Mkunumbi Wards – Agro processing industries and warehouses
  - Hindi Ward – The LAPPSET project
  - Mkomani Ward – Craftsmanship Industries

Map 30: Proposed Road Hierachy in the County



LAND & HUMAN SETTLEMENTS

The County Government of Lamu is custodian of public land from recently revoked ranches irregularly allocated to private developers. Lack of land tenure is a common problem in the County as majority of Lamu residents have neither title deeds nor letters of allotment to the land they live or draw their livelihoods from, this threatens Lamu's biodiversity and local livelihoods.

a) Objectives

- Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss (Sustainable Development Goal number 15)
- Reduce inequality within and among countries (Sustainable Development Goal number 10)
- Efficient, sustainable and equitable use of land for prosperity and posterity (Kenya National Land Policy)
- To ensure security of tenure to residents and investors in Lamu County

b) Issues

Undocumented indingenous land claims

Demographic estimates place the indigenous title ownership in Lamu between 10-20% depending on the area of settlement. It has been found that most locals sell their land due to the high poverty levels and expensive land adjudication process that led the impoverished owners to relinquish their lands. This situation is causing ethnic tensions in the region since indigenous populations remain insecure on ancestral lands and access to natural resources

Blatant Encroachment on Land

Plots in gazetted water towers and catchment areas, such as the Shela sand dunes where wells for the town are located have been encroached by numerous individuals and companies laying claims to ownership of the land. (Save Lamu)

Encroachment into recognised grazing corridors for the pastoralist communities has created conflict between different communities. Some have illegally subdivided the ranches and sold the land later to outside parties who have opted to develop the areas.

Fish landing sites have additionally been grabbed and thus threatened livelihoods and biodiversity in the area, especially turtle breeding grounds

Illegal acquisition of land

Reclaimed lands in the Wiyoni area of Lamu Island created from dredging operations and meant for public utility have also been encroached by private investors and squatters who have already begun developing the area.

Hotel owners on Kiwayu Island who have irregular/fraudulent title deeds on the land have developed resorts on the island, which is a National Marine Reserve. This prejudice has developed mistrust amongst community and natural resource agencies and also encouraged locals to sell land rather than conserve their resources as there is no direct observed to retaining the land

Huge swathes of land held for speculative purposes

Prevalence of squatter problems

There is continual degradation of Boni and Witu Forests as the region is invaded by recent immigrants under the false pretense of being squatters so as to benefit from the existing settlement scheme program

Increase Land Bank for the County

Title deeds of 12 parcels of land totaling 353,770 acres (143,227 hectares) were cancelled and the land returned to Lamu County for public use. The County Government can now best manage and utilize thses lands for the sustainable development of Lamu County

c) Policies

- Provide security of land tenure to indigenous people of Lamu in areas they live and draw their livelihoods
- Require title deeds of land both for agriculture and ranching are to be issued they should be leasehold not freehold.
- Conduct an inventory of land ownership to determine land availability and identify illegal land acquisition in Lamu County,
- Revocation of titles illegally or irregularly issued
- Raising awareness among local communities on their land rights and mechanisms of securing their land
- Prepare checks and balances to prevent irregular and illegal land sales as well as on illegal sale of letters of allotment.
- Allow indigenous communities land access rights for sustainable traditional livelihoods within formally protected areas
- Provide direct support on a trial basis with formalization of land rights for selected communities.
- Advocate for devolving powers over public land under control of the National Government to the Lamu County Government.

d) Actions

- Resettle indigenous squatters and other landless Lamu citizens in settlement schemes and allocate them title deeds,
- Provide community titles to areas where communities draw their livelihood and live
- Require title deeds of land both for agriculture and ranching are to be issued they should be leasehold not freehold.
- Conduct an inventory of land ownership to determine land availability and identify illegal land acquisition in Lamu County,
- Revocation of titles illegally or irregularly issued
- Raising awareness among local communities on their land rights and mechanisms of securing their land
- Prepare checks and balances to prevent irregular and illegal land sales as well as on illegal sale of letters of allotment.
- Provide recognized community land access and utilization within formally protected areas to indigenous communities for sustainable traditional livelihoods

- Formalization of land rights for selected communities who may suffered from historical land injustices
- NLC to set up framework to devolve powers over public land under control of the National Government to the Lamu County Government.

HUMAN SETTLEMENT

Human settlement strategy reflects a concentration of people, their activities and influence on the natural capital or environment. Human settlements alter significantly the natural environment in which they are located, and draw upon various services and products from the environment besides releasing by products of human activities to the environment. The natural environment too influences the human settlement in terms of centrality and topographical characteristics. Its critical functions or roles are to reduce pressure on land and fragile ecosystems, facilitate efficient delivery of services, enhance competitiveness of urban areas for economic opportunities, and reduce costs of production. Other roles include commerce, administration, industry, education, health, recreation and resort/tourism and entertainment.

This strategy incorporates aspects from a variety of concepts that have been developed earlier. These are; port precincts, archipelago, economic nodes, the gates and economic corridors. In developing the future human settlement strategy for the County, the spatial Plan has taken into consideration the following;

- The previous hierarchy of human settlements (Local, market and Urban Centres)
- The gates of Lamu town emerging from the spatial Plan analysis
- Emerging areas of concentration of human settlements outside the designated hierarchy
- Emergence of devolution that has singled out sub counties and wards as administrative territorial units within the County and being used as territorial units of service delivery
- Implementation of LAPSETT, especially port facilities, town and airport (Port area or precinct)
- Predominance of sensitive biodiversity and natural environment of the County
- Availing mandatory services for liveable sustainable human settlements
- Functions to be performed by human settlements and relationship to their resource hinterlands
- Optimum utilisation of land
- Heritage conservation and Swahili culture
- Distribution of human settlements in line with devolution

DISPERSED AND CONCENTRATION STRATEGY

The above strategy of human settlement has been adopted for the Lamu spatial Plan as strengthened by the support mentioned above. Secondly, it combines the concepts developed in the spatial Plan, administration, emerging pattern of human settlements and the priming decisions o central Government and County Government within a given natural environmental setting. Applying the concept of strategic gates, urban human settlements that form the strategic gates of Lamu containing landmarks and unique welcome to the County are singled out. These urban centres are; Witu, Budhei, Kiunga, Manda, Mkunumbi, and Kizingitini. The size, functions and services required are as explained in the table below. The gates on the other hand provide a dispersal that is distributed in the County as follows: Kiunga, Kizingitini/Faza, Manda, Witu, Mukunumbi and Budhei.

DISTRIBUTED AND CONCENTRATED STRATEGY

Distributed and concentration purely focuses on the administrative components that give us three level hierarchies of human settlements. In addition, it takes note of the other emerging centres within the County that require special attention of Planning and management. These three level hierarchies are: Capital City of the County at Mokowe; Sub-County urban Centres at Amu for Lamu West and Faza Urban Centre for Lamu East; finally, 10 lower centres as ward administrative areas. Concentration is crosscutting among all the human settlements to discourage proliferation of settlements into productive livestock or agricultural zones as well as conservation areas. It also ensures efficient and cost-effective provision of services.

The application of the gates and administration incorporates the following previously designated human settlements; Amu, Witu, Faza, Mkunumbi, Kiunga, Manda, Kizingitini, and Mokowe. Some areas of concentrated development of people outside the above-mentioned areas are; Mkomani, Kiongwe, Pandanguo and Mapenya. Within this strategy, it is expected that around the port area the growth of a metropolitan character will take place in the long term. Metropolis is envisioned to grow within the towns of Hindi, Mkunumbi and Mokowe. It is likely to expand to Bargoni, and Mpeketoni if not properly Planned and contained.

HUMAN SETTLEMENTS REQUIREMENTS IN THE SPATIAL PLAN

- All the urban settlements must be guided by integrated urban strategic Plans
- Proper management systems to be put in place to guide the development of the proposed system of urban centres according to the reviewed Urban Areas and Cities Act
- Adequate palatable water supplies
- Adequate sanitation system
- Liquid water collection system from the settlement
- Proper management of solid waste
- Adequate drainage system
- Availability of energy supply in the urban settlements
- Regulate development to take place within the Planned area to avoid sprawl
- Spatial linkage of the settlements in terms of connection between the centres and between centres and their primary production spaces (terrestrial and marine)
- Adequate appropriate circulation system to open up opportunities and enhance integration
- Human security provision and its maintenance

GUIDELINES

- Human settlements within the Archipelago to grow and maintain the preservation of heritage and culture as an important input for tourism beyond opportunities provided by the sea (Manda, Shella, Ndau, Kizingitini, Pate, Faza etc.)

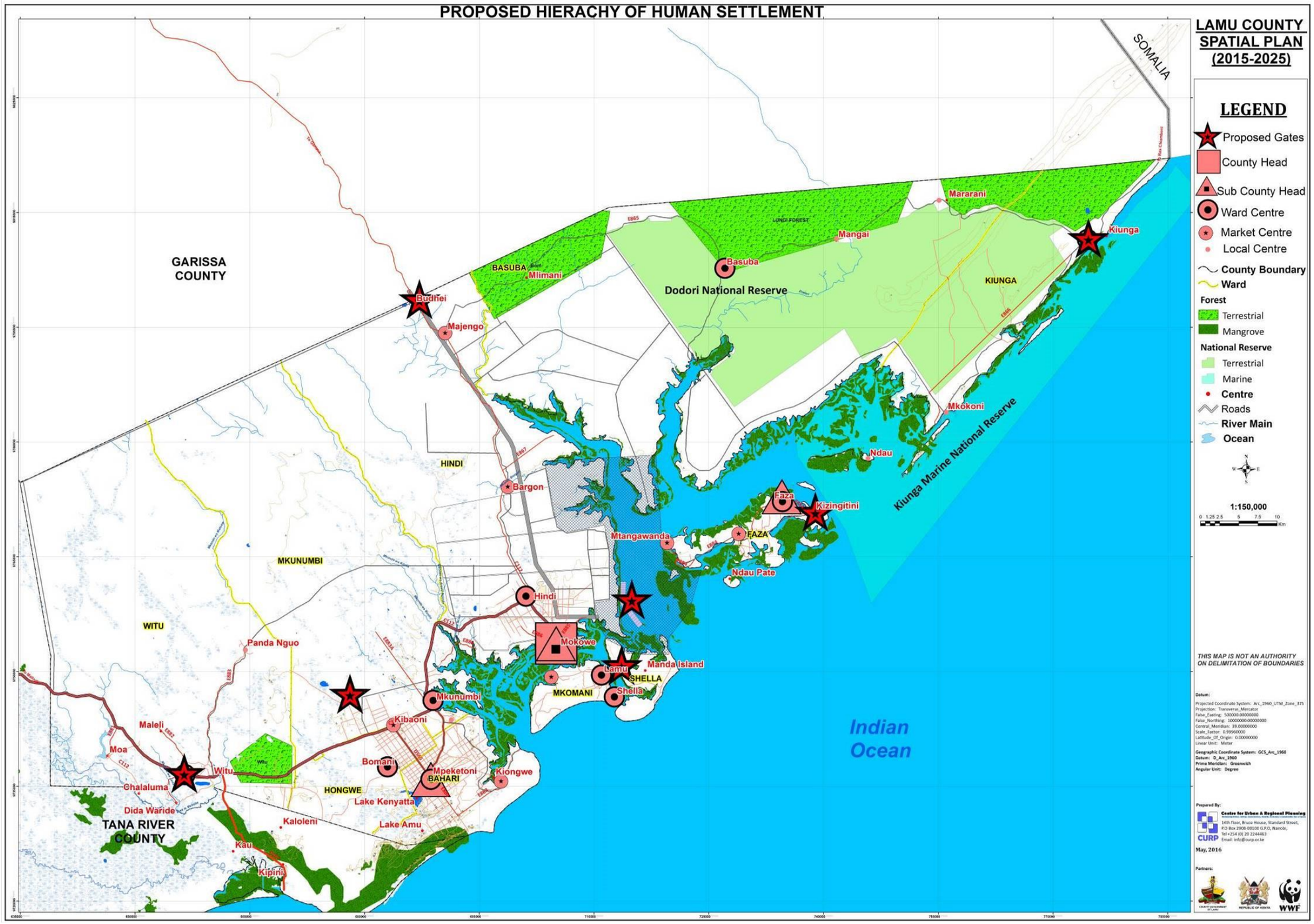
- Conservation of the biodiversity and marine ecosystem is a necessary requirement for enhancing the natural asset for economic utilisation both for fishing and tourism as well as other ecosystems services

- Core framework of services as mentioned above to be provided by County and stakeholders
- Improvement of security will enable the establishment of ward administrative centre at Kiunga moving it from NDAU and also setting up of the ward administrative centre in Basuba ward
- Growth and development of the human settlement system in the spatial Plan is linked spatially through interdependence related to services and also primary production activities
- Planned connections of the urban centres and markets to economic corridors and avoid future mobility problems especially at junctions
- Centres of Hindi, Mkunumbi, and Mokowe should be connected by well-Planned adequate road network and well linked to the LAPSETT economic corridor which has the potential to grow into a metropolis

PROPOSED HUMAN SETTLEMENT HIERARCHY

Urban Centres	Resident Population	Catchment Population	Core Functions & Services	Actual urban Centres
Primary Urban Centre	40,000	150,000	Administration (County & Central Government), Level 5 Hospital, Centre of Telecommunication, Centre of Financial Institutions, Primary Commercial Centre, Central National Security Coordination Area, Industrial, Logistics, Small Scale Industrial Parks, Central Park & Hierarchy of Open Spaces, Research & Institutions of Higher Learning, Large Wholesale & Retail, Education, Building & Construction, Professional Services, Main Postal Service Centre	Mokowe,
Secondary Urban Centre	20,000	80,000	Sub County Administration for both County & National Government, Some Gates (Mkunumbi) Fishing Industry (Faza, & Amu), Jetty Facilities, Agro Industrial, Logistics, Level 4 Hospital, Heritage Conservation & Tourism, Parks, Financial Institutions, Secondary Commercial Centres, Micro & Small Scale, Education, Parks, Hotels, Sub County Security, Veterinary & Extension Services, Telecommunication Services, Sub Postal Service Centres	Amu, Faza, **Mpeketoni**, **Mkunumbi**,
Rural Centre	5,000-8000	40,000	Ward Administrative Centres, Input Supply Centres, Agro ware House & Collection Centres, Agro-Processing, Commercial Centre, Financial Institutions, Primary Education Coordination, Security, Level 3 Hospital, Maternity Facilities for Mothers, Extension Officers for both Crop & Livestock, Jetty Facilities, Livestock Value addition, Attractive Commercial & Service Facilities, Telecommunication services, Money Transfer, Carpentry & Metal Fabrication, Heritage Conservation and Tourism.	All the ward headquarters that do not have higher functions, and new trends in settlement growth and the Gates (Witu, Kiunga, Hongwe, Kizingitini, Budhei, Manda,
Market Centre	2000	15,000	Trade and Shopping area, Level 2 Health Facility, Telecommunication Services, Jetty Facilities, Money Transfer, Markets for Local Produce, Carpentry, & Metal Fabrication, Local Crafts,	Pate, Matondoni, Siyu, Bargoni, Kiongwe, Mapenya, Mtangawanda
Local Centre	<2000	10,000	Shopping area, markets, Level 1 Health Facilities, Central Meeting Point, Telecommunication Needs, Money Transfers,	Ndau, Mangai, & Mararni, Pandanguo,

Source: CURP 2016


PROPOSED HIERACHY OF HUMAN SETTLEMENT
LAMU COUNTY SPATIAL PLAN (2015-2025)
LEGEND
Proposed Gates
County Head
Sub County Head
Ward Centre
Market Centre
Local Centre
County Boundary
Ward
Forest
Terrestrial
Mangrove
National Reserve
Terrestrial
Marine
Centre
Roads
River Main
Ocean
1:150,000
THIS MAP IS NOT AN AUTHORITY ON DELIMITATION OF BOUNDARIES
Datum:
Projected Coordinate System: Arc_1960_UTM_Zone_37S
Projection: Transverse_Mercator
False_Easting: 500000.00000000
False_Northing: 10000000.00000000
Central_Meridian: 39.00000000
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Latitude_Of_Origin: 0.00000000
Linear Unit: Meter
Geographic Coordinate System: GCS_Arc_1960
Datum: D_Arc_1960
Prime Meridian: Greenwich
Angular Unit: Degree
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CURP
May, 2016
Partners:
WWF
GARISSA COUNTY
SOMALIA
Budiiei
Majengo
BASUBA
Mlimani
Basuba
Dodori National Reserve
LUNDI FOREST
Mangai
Mararani
Kiunga
KIUNGA
Mkokoni
Ndau
Kiunga Marine National Reserve
HINDI
Bargon
Faza
Kizingitini
Mtangawanda
FAZA
Ndau Pate
MKUNUMBI
Hindi
WITU
Panda Nguo
Mokowe
Manda Island
Lamu
SHELLA
Shella
MKOMANI
Mkunumbi
Kibaoni
Maleli
Moa
Witu
Bomani
Mpeketoni
BAHARI
Kiongwe
HONGWE
Lake Kenyatta
Ghalaluma
Dida Waride
TANA RIVER COUNTY
Kaloleni
Lake Amu
Kau
Kipini
Indian Ocean

EDUCATION

The County's literacy level is estimated at 70% but this proportion represents the highly-exposed residents of Lamu west Sub County. Literacy levels for Lamu East are estimated to be less than 30%. (keya County Data). Lamu Couty has no tertiary level institutions except four commercial colleges and a youth polytechnic that are under equipped and with poor enrolment. The County's youth economic empowerment lies with acquisition of relevant tertiary level skills (CIDP). The main objectives for this section in the making of this Spatial Plan are:

a) **Objectives**

- Ensure inclusive and quality education for all and promote lifelong learning (Sustainable Development Goal 4)
- Enhance accessibility and number of Education institutions
- To improve learning resources ensuring effective monitoring and evaluation of the education institutions
- Promote tertiary level institutions in the County

b) **Issues**

Poor Literacy levels

A total of 33% of Lamu County residents have no formal education. Basuba ward has the highest percentage of residents with no formal education at 59%. This is three times Bahari ward, which has the lowest percentage of residents with no formal education.

A total of 54% of Lamu County residents have a primary level of education only. Hongwe ward has the highest share of residents with a primary level of education only at 65%. This is 25 percentage points above Basuba ward, which has the lowest share of residents with primary level of education only. Hongwe ward is 11 percentage points above the County average.

Poor Transition Rates

Only 13% of Lamu County residents have secondary level of education or above. Bahari ward has the highest share of residents with secondary level of education or above at 20%. This is 19 percentage points above Basuba ward, which has the lowest share of residents with a secondary level of education or above.

Poor Performance in Schools

Lamu County seems to have adequate number of both primary and secondary schools with above average enrolment and retention rates but they have been performing extremely poorly for a very long time. In 2014 KCSE, for instance, there were several A's in Lamu West from candidates in schools like Lamu Boys, Lamu Girls, Mpeketoni Boys and Shella Girls. The story was however different in Lamu East, with the top student only managing to score C plain.

Inadequate Educational Facilities

Most of the schools in Lamu County have inadequate educational facilities such as learning and laboratories. In Lamu East Sub-County only Faza and Kizingitini secondary schools have science laboratories.

Most of the schools do not have adequate facilities for effective education of persons with disability. This has the impeded the access and enrolment for this vulnerable group.

Furthermore, Lamu County does not have a public library to promote effective knowledge and information flow

Inadequate ECDE centers and Trained teachers

Lamu County experiences an un-even distribution of ECD centres and trained teachers especially in Lamu East Sub-County where most of the ECD centres are not well equipped with learning and play resources and most ECD teachers are being paid by parents.

Inadequate Tertiary Level Institutions

Lamu County does not host a University and only has four youth polytechnics that are poorly equipped.

Poverty effect in Schools Performance

The poor performance has been attributed to high poverty levels in Lamu County creating a situation whereby a student maybe willing to go to school but has to endure an empty stomach by doing so. Indeed, it has been noted that the introduction of feeding programmes in some Lamu schools, resulted in a notable increase in school enrollment

Drug Abuse effect in Schools Performance

The use of illicit drugs among school going children both in primary and secondary schools within Lamu is also a major cause of the poor performance of the County schools. This menace, especially manifested in Lamu East and may be one of the significant exPlanation to the extreme poor educational performance in this sub-County.

Retrogressive Cultural Practices

The backward cultural practices of Female Genital Mutilation (FGM) and early marriages among school girls and have been rife in Lamu County. This is mostly practiced among the indigenous Aweer and Sanye communities who still hold on to traditional cultural and religious beliefs. In some instances, school going girls opt to get married in the belief that their husbands will rescue them from the poverty in their maternal homes.

Furthermore, the traditional indigenous communities of the Aweer and Sanye and some Bajuni do not believe in contemporary education and discourage their school going children from attending schools.

Insecurity

Lack of adequate security has affected the performance of some Lamu County schools. This is especially so in for schools in Basuba, Mangai, Milimani and Mararani which are close to the Kenya-Somalia border. In fact, attackers invaded Mangai primary school and burnt school property including the administration block, mattresses, all the textbooks and the school's solar panel. Indeed, some three public primary schools in Lamu East sub-County had to be closed down indefinitely and teachers redeployed to other schools in the region due to insecurity.

Insecurity of land tenure in most school in the County is also an issue. Some schools in Lamu County have been encroached on by intruders and squatters and most other school land remains unsecured.

c) Policies

- Enhancing access to lower level education facilities across the County
- Improving the capacity of the training institutions for both equipment and personell
- Enhance access to education facilities and school enrollment rates across the County
- Institute measures to improve performance at all levels of school while ensuring higher retention and transition rates
- Enhancing access to tertiary and vocational training institutions in the County to diversify on skill set for County residents
- Institute measures that will eradicate drug abuse among the young people as well as removing cultural biases against the girl child
- Develop more ECDE centres within Lamu East Sub-County;
- Train and employ more ECDE teachers in Lamu;
- Increase access and enrolment for persons with disability;
- Encourage public universities and colleges to set up campuses in the County;
- Ensure effective access to public library services;
- Strengthen teacher supervision and monitoring in schools within Lamu County;
- Create mechanisms for harnessing the varied talents of students

d) Actions

- Develop 180 ECDE centres in Lamu ensuring effective distribution to households in Bargon, Majengo, Mlimani, Mararani, Mangai, Basuba and Kiunga by 2018;
- Lamu County Government to employ 540 ECDE teachers and by 2018;
- Equip all exsiting ECDE Centres with adequate learning and play facilities;
- Develop boarding primary schools in Mararani, Majengo, Bargoni ensuring the schools are friendly to persons with disabilities;
- Provide school feeding programmes in all public primary schools, especially school in Lamu-east Constitutency;
- Public primary and secondary Schools' Boards of Management to ensure they acquire and safeguard titles to their respective school's land and secure the school's perimeter though adequate fencing;
- Develop adequate and secure staff housing for teachers and staff within public Primary and secondary schools in Lamu County,
- Develop prizes, awards, and effective incentives rewarding exemplary performance by teachers, pupils and schools in Lamu County;
- Develop a Secondary school for every primary school in Lamu County ensuring the schools are friendly to persons with disabilities;
- Set up a university majoring in agricultural and Technological development in Majembeni;
- Engage University of Nairobi, Egerton, KU and JKUAT universities encouraging them to open campuses in Lamu County;
- Develop an institute majoring in Maritime and Biodivesity development in Kiunga,
- Set up an Archeological, Culture and Heritage preservation institute in Amu island;
- Develop a Hospitality and Tourism college in Mokowe,
- Set up a Medical practioners training college attached to the Lamu County Hospital in Amu;
- Set up a Teachers training institute in Bargon;
- Develop more youth polytechnics in Bargon, Majengo, Mlimani, Mararani, Kiunga and Witu;
- Revamp and operationalize the existing 4 youth polytechnics by 2018;
- Set up of public libraries in Witu, Mokowe, and Majengo by 2018
- Conduct a survey to determine the existing number of special education pupils/students aimed at recruit special education teachers
- Develop an ICT, youth and Talent growth centre of excellence in Mokowe.

HEALTH

Lamu County has a total of forty-four health facilities spread across the County. The County has three hospitals of which one is a County Hospital and two are Sub-County Hospitals; five Health Centres, twenty-four Dispensaries, twelve Medical Clinics and one Nursing Home. The most notable Hospitals are Lamu County Hospital, Faza and Mpeketoni Sub-County Hospitals. The County has thirteen medical officers, six degree nurses and one hundred and sisty six diploma nurses, thirty-six registered clinical officers, one dentists, five pharmacists, three physiotherapists, five nutritionists and one mortuary attendant. The most prevalent Diseases in the County are malaria, respiratory tract infections, skin diseases and HIV/AIDS.

a) Objective

- Ensure healthy lives and promote well-being for all at all ages (Sustainable Development Goal 3);
- To provide an efficient integrated and high quality affordable health care to all citizens. Priority will be given to preventive care at community and household levels, through a de-centralised national health-care system. (Kenya Vision 2030);
- To provide a robust health infrastructure network in Lamu County; and
- To promote wellness and efficient access to effective health services in Lamu.

b) Issues

Inadequate Medical Personnel

The County suffers from inadequate numbers of qualified personnel with only thirteen medical doctors, 24 clinical officers, 94 nurses, 17 public health officers, 5 pharmacists and 30 technical personnel. This create a disparity in doctor to patient ratio of 1:9,000 which is inadequate compared to the one doctor for every 1000 patients recommended by the World Health Organisation

Despite presence of some good hospitals in Lamu County, most qualified medical practioners shun working in Lamu County. This situation has created an unwarranted problematic situation for the County Government responsible for ensuring adequate medical personnel in Lamu. The lack of adequate personnel is worst experienced in Faza sub-County hospital which provides medical

services to nearly 30,000 people on the entire Lamu East sub-County. Furthermore, the theatre at the Faza sub-County hospital has not been operational for years since it was installed in 2009.

A section of Faza Hospital showing idle medical facilities due to lack of medical personnel



Source: Bocha Galgalo, Nation Media Group, December 2014

Inadequate Health Facilities

Lamu County patients suffer from inadequate access to adequate healthcare. The average distance to the nearest health centre in Lamu County is approximately five kilometers. This evaluation considered with the County's poor road infrastructure and limited availability of transport services, means access to proper health care in Lamu County is a major challenge.

Lamu East sub-County has only Faza sub-County hospital, one health centre in Kiunga and eleven dispensaries. Basuba ward has only one dispensary in Mangai whereas Hongwe ward is only served by a Catholic Dispensary. This dire situation in terms of numbers, distribution and access of health care providers in Lamu County is precarious to the welfare of the Lamu people.

Inadequate Disaster Management and Medical Emergency Response Services

Lamu County has no a Disaster prevention and management Plan, services nor adequate medical emergency response services. The County does not have a proper emergency call centre and no adequate services in case of disasters and emergencies. There are inadequate ambulance services which is a threat to adequate response to medical emergencies. There is worsen by the human settlement patterns of some communities living in dispersed clustered villages mostly accessible by through the Indian Ocean. This fact came to life in during 2009 fire disaster in Faza village and since then no adequate measures have been put to ensure acceptable disaster prevention, preparedness and management.

Poor Preventative Health Care Provision

Preventative healthcare is a challenge in Lamu County as most communities live in remote and dispersed settlements that are not adequately accessible. The Dispersed settlements coupled with poor road infrastructure poses a challenge to the provision of preventive healthcare. Furthermore, most of the remote communities undertake rudimentary livelihoods that makes them susceptible to diseases that are otherwise preventable. It is noted, for example, that malaria accounts for 63.3% of illness in the County. Despite the high prevalence rates, only 30% of children under 5 years sleep under treated nets due to inadequate access to these lifesaving mosquito nets. However, there is increased success in immunization programmes and incidence of malnutrition is rare in Lamu County.

Shortage of medical equipment and drugs

Although the County seems to have spread health physical infrastructure throughout most settlements, there are no medical equipment and drugs to sufficiently provide proper medical service. Most of the health care providers are dispensaries and medical clinics without adequate medical equipment and drugs.

Prevalence of drug abuse

Lamu County is drug abuse especially among its youthful population. It is reported that bhang and cocaine are heavily used among the youth in Kizingitini, Majengo Village in Mokowe, Witu Town, Kashmir Village in Lamu Town, Faza, Tchundwa and Mbwajumwal. This situation is a threat to the healthcare of the County especially ase there are no drug users rehabilitation facilities or infrastructure to support drug addicts willing to abandon the vice.

Poor Maternal Healthcare

Lamu County has the highest number of maternal deaths in Kenya according to a Kenya Demographic Health Survey. Most maternal deaths in Lamu County occur due to failure of most mothers to reach health facilities during child birth. It is reported that although most pregnant women, in Lamu County, attend prenatal clinics, over 45 per cent of the women prefer home deliveries assisted by traditional birth attendants. This is especially in Lamu East Sub County, where most women deliver their babies at home without proper care.

Poor access to health facilities during childbirth, especially in case of birth complications is attributed to lack of proper infrastructure, as well as few dispensaries in the County that experience both human resource and crucial medical equipment shortages. It also noted that social and cultural barriers keep some mothers in Lamu County away from health facilities during child birth.

HIV AIDS Prevalence

Lamu County's healthcare is challenged by the HIV and AIDS prevalence in the County. The prevalence rate in the County stands at an average of 3.2% with the male prevalence rate is at 3.7% while for female is at 2.7%. The prevalence is higher in urban settlements as compared to rural areas. This prevalence rate should be reduced to 1% and complemented with complete eradication of mother to child transmission.

There are positive measures being undertaken as in addition to all the County health facilities, there are 13 VCT centres that provide voluntary testing and counseling services. However, there is need to expand VCT and maternity care outreach, train the infected and affected to provide better homecare, mobilize increased community participation and capacity build of health care providers to guarantee effective monitoring and evaluation.

Funding and National Equalisation

Healthcare provision in Lamu is set to b positively impacted by inceresed funding to promote proper healthcare provision in the County. Indeed, the County signed a Memorandum of Understanding with the national Government, in January 2016, and received KES200 million to upgrade hospitals in the County. This was in line with the National Government's programme of

improving medical facilities throughout the Country to ensure Kenyans access better healthcare services. Lamu County Government dedicated KES 100 million to upgrade the Lamu County Hospital to level 5 status from the allocation from the National Government. It further allocated KES 50 million each to Mpeketoni and Faza sub-County hospitals to facilitate their modernization.

Furthermore, the County received medical donations worth KES 250 million from well-wishers in 2014 and has availed more funds to fight HIV leading to more people accessing VCT services, increased uptake of ARV's and increased awareness and reduced mother to child transmission.

The County is also to benefits from equalisation fund receiving KES 186 million annually from 2013 upto the year 2016. This fund is constitutionally set up to ensure provision of basic services including water, roads, health facilities and electricity to its marginalised areas aimed at bringing the quality of those services in those areas to the level generally enjoyed by the rest of the nation.

Lamu County was fully kitted mobile clinic in May, 2016 courtesy of The Beyond Zero campaign. The campaign is aimed at accelerating the implementation of the elimination of new HIV infections among children and promoting maternal, newborn and child health in Kenya. The mobile clinics also serve as immunisation centres for children, besides providing emergency delivery services for mothers. HIV/Aids testing and minor surgical operations are also available at the mobile clinics

c) Policies

- Strengthen the existing hospitals and health care providers to render enhanced services;
- Prepare a Disater Prevention and Managemnet Plan for Lamu County;
- Improving the quality of health service delivery to the highest standards;
- Promotion of partnerships with the private sector in ensuring effective health care providion;
- Providing access to those excluded from health care for financial or other reasons;
- Require all County wards to have effective health service facility;
- Promote preventative healthcare provision;
- Reduece HIV prevalence rate in the County to 1% and ensure complete eradication of mother to child HIV transmission;
- Promote training of medical personnel in the County;
- Create awareness about the dangers and risks of drug abuse and change attitudes towards drugs among the youth;
- Encourage medical colleges to establish themselves in the County in order to absorb local students;
- Collaborate with NGOs and international partners on provision of healthcare facilities and equipment;
- Facilitate the marginalized communities to take up training in health sector;
- Empower locals to provide voluntary services in their localities through a community health program.

d) Actions

- Increase the number of medical personnel in Lamu County by 30% by 2018;
- Increase equipment and facilities in health centres and dispensaries by 20% by 2018;
- Elevate Lamu County Hospital to level 6, referral hospital by 2020;
- Develop Medical training institute in Amu attached to Lamu County Hospital by 2018;
- Upgrade the Mangai Dispensary into a Helath Centre by with a functioning, well equipped Maternity Wing, 2018;
- Upgrade Patte Dispensary to a health care centre with a functioning, well equipped Maternity Wing;
- Upgrade Faza dispensary to a health care centre with a functioning, well equipped Maternity Wing;
- Develop and Improve Health Centre in Mararani, Bargon, Tchudwa, Majengo and Milimani;
- Upgrade Ndau Clinic to a Dispensary with a functioning, well equipped Maternity Wing;
- Develop an emergency call centre in Mokowe by 2018;
- Purchase 3 well equiped mobile marine clinics to serve all villages in Pate, Manda and Amu islands as well as Kiunga and Kiwayuu;
- Purchase 5 Speed boat Ambulances to be stationed in Pate, Manda and Amu islands as well as Kiunga and Kiwayuu;
- Mobilizing more funds to expand VCT and maternity care outreach;
- Undertake training of the HIV infected and affected persons on provision of better homecare;
- Undertake programmes to ensure increased community participation and reduction of capacity building on HIV prevalence rate;
- Develop Medical practioner residences in Faza Hospital, And all upgraded Health centres in all wards;
- Set up a drug abusers' rehabilitation centre in Hindi town.

WATER AND SANITATION

a) Objective

Water is a huge problem in Lamu County as depicted by the residents during the FGD meetings. Therefore, the main objectives are:

- To have improved access to potable water
- To have improved access to water for wildlife
- To have an integrated Solid & Liquid waste management system
- To have a good system for solid and liquid waste disposal

b) Issues

High Rainfall:

Lamu County receives high rainfall in the rainy season which when tapped can serve the population during the dry seasons.

In Faza ward, this is already being practiced as they use djabias to harvest water. This helps them practice agriculture even during the dry season. They use that water for drinking and cooking purposes when the salinity levels in the wells are too high. The high rainfall is a huge potential for the Country as they are able to practice agriculture which is a major driver of their economy.

Sand dunes:

There are many sand dunes within the County, in Bahari and Shella wards. Sand dunes act as water reservoirs and sieve out salty water. The wetland areas near the sand dunes are the result of this and the water is clean and fresh. There are also other water catchment areas within Hongwe ward. allusion

Water Resources:

There are many water resources including rivers and underground water; for example, Mangai River. There is thus availability of fresh water in such areas that can be used wisely. In Hongwe, Bomani hill is the highest point where a water reservoir can be situated and water supplied to the households through gravity.

Inadequate supply of clean water & high salinity levels:

There is inadequate supply of clean water in many parts of Lamu County including kiunga, bahari, Hindi, Mkunumbi, Hongwe, Kihobe, Mararani and Manda. People rely on shallow wells that have high salinity levels. This poses a major problem for the residents as they have to deal with lack of fresh potable water. There are a few lakes that they can fetch clean water from but even those are under threat; one of the lakes, Lake Amu is already dried up. In areas such as Kizingitini, Hongwe; Faza and Bahari, the problem of high salinity levels in water was highly mentioned.

Encroachment on water catchment areas and wetlands:

The numerous water catchment areas and wetland areas existing in Hindi ward are also under threat. This is because of the encroachment by human beings onto the areas. This leads to depreciating water content and could consequently lead to the wetland areas drying up.

Lake Kenyatta



Sand dunes and a swamp in Bahari



Lake Amu which has completely dried up



Source: CURP, 2016

Limited Number and capacity of water officers:

Residents in Faza ward expressed that there are no water officers to help them in making wise decisions about the use of water.

No water points for wildlife:

In areas, such as Mkunumbi, there are **no water points for wildlife**. The animals walk long distances looking for water and pasture; they are therefore found in large numbers in Hindi and Witu wards. These are the areas that still have wetland areas.

Lack of an integrated solid & liquid waste management system

The situation of sanitation within Lamu County is wanting as there are several inadequacies in solid/liquid waste disposal management and human waste disposal. There are few to no dumping sites leading to careless dumping of waste anyhow within the County. In Bahari ward, there is no dumping site and inadequate personnel required for the town's cleanliness. The few personnel are unable to maintain cleanliness due to the large size of the town.

There is no sewer system in Mkomani, Bahari and Hindi wards; they therefore have to rely on pit latrines. This poses a health risk as the pit latrines are situated near shallow wells. There is a high chance of the water mixing with waste, which when consumed leads to outbreak of diseases. In Hongwe ward, the main problem on sanitation was that there is no sewage Plant.

c) Policies

- Ensure protection and conservation water catchment/wetland areas to sustain underground water recharge
- Ensure water sustainablility through diversified and better storage and harvesting techniques
- Ensuring a clean environment free of solid and liquid waste degradation
- Diversifying water sources including rain water and the implementation of water recycling where possible
- Educate the local communities on water related issues

d) Actions

- Preparation of a Water Master Plan for the entire County
- Delineate; survey and register all wetlands & swamps with the County Government and the NLC
- Prepare an integrated solid & liquid waste management plan
- Assess the possibility of damming Mangai River at several points to serve both humans and wildlife
- Establish specific water points for wildlife and livestock in the deliniated wildlife and livestock movement corridors
- Set aside land for solid waste management/ garbage disposal site in all wards
- Construct a water office and increase the number of officers in Faza, Kiunga, Basuba, Hindi, and Witu wards

ENERGY AND COMMUNICATION

a) Objective

- To have good access to communication facilities and good network
- To ensure every household is provided with electricity

b) Issues

Poor network connectivity:

There are telecommunication challenges, that is, poor network connectivity in most parts of the County. The problem is highly experienced Kiunga and Basuba Wards and also parts of Witu and Hindi Wards.

Poor communication is a connotation of lack of development; business activities can barely take place in these areas.

Poor Electricity Connectivity:

Rural electrification from the National Grid already started in many parts of Lamu but many residents have not received the power connection. They therefore rely on generators for electricity and other alternative sources of energy like solar.

Potentials

One of Lamu's strengths is that it is connected to the national grid and the rural electrification programme is already underway. Other than electricity, Lamu County has potential for:

- Wind Energy- The strength of wind received in the area is enough to generate wind power. A proposed project by Kenwinds in Bahari Ward to tap this energy is ongoing.
- Solar Power- The equator passes through Kenya and thus the Country receives sunlight throughout the year with a Direct Normal Irradiation (DNI) of between 2200 – 2350 kWhr/M^2 annually.

c) Policies

- Ensure that the telecommunication network coverage is accessible from any human settlement area within the County.
- Enhance efficient and fast connection of the power from the National grid line
- Tap into enormous renewable energy opportunities available in the County
- Promotion of public private partnership investments in green energy and less polluting thermal power
- County and KPL Company & network service providers to put in place a power supply/service provision programmes that connects key strategic investment areas of the County
- Ensure supply of affordable diverse energy options at a competitive rate for the economy of Lamu
- Ensure energy wayleave spaces have been demarcated and distributed equally in the County

d) Actions

- Set up service providers network boosters in Bargoni, Chalaluma, Pandanguo, Basuba and Kiunga

SAFETY AND SECURITY

a) Objectives

- To ensure the upscale of security within the County
- To ensure safe means of public water transport
- To ensure disaster preparedness in all parts of the County

b) Issues

Insecurity:

Insecurity was noted to be a huge problem in many Wards including Witu, Kiunga; Basuba; Bahari; Hongwe, Mkomani and Shella. The alshabaab menace make up a huge part of the insecurity problem.

The national Government has continually made efforts to curb this menace by introducing KDF camps in the County and this has really helped the residents. The Insecurity issue in the County is a big threat to the overall growth of the Coutny as it has great impacts on the businesses within the County and cumulatively loss of investor confidence. This has resulted to the County's continued economic losses as opposed to the tremendous economic gains that the County holds.

No police stations and lack of community policing:

The distribution of police stations within the County is skewed with only a few wards having established police stations. Police stations are required so as to have police officers available at all times to maintain law and order.

Where the scarcity of police surveillance is evident, the use of Kenya Police Reservists and community policing is adopted. It was reported that some wards lack both KPR officers or good structures of community policing rendering such areas very insecure for both the residents and the business community.

Safety

Safety can simply be defined as the condition of being protected from harm and the control of recognizable harm in order to reduce risks. Some of the risks in Lamu include incidences of fire, boat accidents, drowning among others.

Lack of disaster preparedness: There lacks measures put in place to prevent fire occurrences. The width of the streets within most nucleated settlements in the archipelago are small and this limits chances of rescue in case of a fire. It is widely accepted that these setllements have been established for long times along the cultural

and heritage values but inspite of all this, measures have to be put in place to ensure preparedness in times of disaster like fire.

Increased incidents of drowning: Many boats do not have life jackets and first aid equipment which can help save lives in case of accidents.

Degraded sea walls: The degraded sea walls allow sea water to the main land which poses a flood risk.

c) Policies

- Improved security within the County to enhance accessibility to most parts of the County to facilitate security operations
- Integrating different security dockets to improve their efficiency in handling security matters
- Institute collaborative measures between security agencies and the local communities
- Ensure safe and reliable public water transport

d) Actions

- The Police Station established at the Port Area to increase the patrols; and surveillance of the area
- The Kenya Maritime Authority to conduct routine surveillance on the waters within the Port Area
- Improvement of security in the villages through addition of KPR officers;
- Improvement of Nyumba Kumi Initiative
- Ensure that every ward is served by a police station
- Better remuneration for KPR officers and integration into the police force
- Construction of sea walls at Siyu; Mbwanjmwali villages

RECREATION AND OPEN SPACES

a) Objective

To have an adequate number of recreation areas and open spaces

b) Issues

Few recreation parks and open spaces:

Lamu County is well endowed by vast and available land but lack recreation parks and other open spaces that add value to urban centres and human settlement areas. They serve as meeting points for residents; relaxation sites and also act as areas where talents can be nurtured.

The old town of Lamu have a very vibrant open space which is used as an active space by the residens for various purposes. The public square is shown below:



Source: CURP, 2016

Lack of resource centres

There was an expressed need by the residents of various wards including Witu; Bahari; Hongwe; Mkunumbi; and Faza to locate and establish various resource centres for youth talent growth in the various Urban Centres within the wards

c) Policies

- Ensure provision of recreation and open spaces to strengthen the social fabric; and add value to land
- Ensure sustainable talent development programmes & facilities to promote the well being of the youth
- Developing a mechanism of facilitating the enjoyment of natural assets available in the county
- Enhancing access to active recreation spaces across the County
- Enhance tapping of youth talent in the County

d) Actions

- Identify and delineate sites for recreation in all wards within the County
- Establish resource Centres including social halls; theatres in all Urban Centres across the County
- Undertake town beautification in Amu, Mpeketoni, Kibaoni, Hindi and Witu
- Development of a stadium in Mokowe
- Set aside land for a playing field in Lamu Island

ECONOMY & LIVELIHOOD DEVELOPMENT OF LAMU PEOPLE

The livelihood strategy of the CSP integrates sectoral perspectives, and the spatial concepts to provide the future direction of the sector. The overall objective of the sector is to:

'Ensure secure enabling environment for sustainable competitive diversified economy'. To achieve the above, the following sub-objectives have to be realized:

- Location of various economic activities including corridors and nodes of development according to their Natural and cultural capital suitability
- Enhancement of skills of the local population to participate in the economy of Lamu by the public and private sector
- Integration of the National infrastructure development project with associated components with current realities and future projections
- Enhanced maximum contribution of the primary sector to the County economy through value chain and value addition driven by both public and private sector partnerships

- Provision of adequate first class infrastructure through public and private sector initiatives (Roads, railway, airports, Ports, Energy, Water and Sanitation, ICT)

- Adequate provision of security on both sea and land

Key sectors of focus for livelihood development are as indicated below. These sectors are heavily borrowed from the situational analysis, sectoral perspectives, and the spatial concepts.

a) Objective

To ensure a secure enabling economic environment for a sustainable competitive and diversified economy

b) Issues

Rich natural capital resource base of the County

The County is well endowed with natural resources from which various economic activities a rise. Resources are both terrestrial and non-terrestrial (ocean and freshwater). On terrestrial land is classified into categories of varied potential for crop farming, livestock, forest and forestry, wildlife and aquaculture. On water resources, there is underground un surveyed minerals, sea grass, mangroves and a variety of fish species in addition to the waves and currents. Wind and long hours of sunshine create a potential of green energy generation.

Available population of the County (human capital)

Human capital is essential for social economic development from which is derived the market potential, labour force and increase in the number of people. Population if not well harnessed exerts pressure on both natural and financial resources of an area leading to negative consequences. Lamu has a working population of over 50% of the total population and is expected to benefit from the influx of skilled personnel from the rest of the Country due to the implementation of the LAPSSET infrastructure and urban development project. However, Lamu human capital is low skilled and will require investments for its improvement

Planned national development projects (LAPSSET project

The infrastructure and urban development project is set to enhance accessibility of the County and open it up for both national and international investments. There will be the creation of an economic corridor of development and a unique commercial and industrial zone of a resort City. It creates direct employment opportunities, housing, and commercial, besides making Lamu a favourable place for investments. Its potential impact however on natural capital and current livelihoods of the Lamu people.

Revenue mobilization in the County & central Government allocation

Main revenue sources of the County Government are allocations from central Government and local revenue collected from the County. The County has a variety of revenue sources from which revenue is collected, and a few where revenue is not collected such as boat transport and honey production. Actual social economic situation of the County should be reflected in the criteria used to allocate revenue to counties by the revenue allocation commission

Economy is basically based on the primary sector (farming, fishing, livestock, mining, tourism)

The County has a rich natural capital resource base from which a variety of economic activities and products are produced. Crop farming activities yield a variety of crop products sold directly to consumers within Lamu while others are marketed outside the County. Livestock activities as a means of livelihoods ranging from cattle, sheep and goats, bee keeping, fishing, aquaculture, poultry and pigs are widely practiced in the County. Mining activities are limited to sand harvesting, and stone quarrying besides tourism supported by Lamu heritage, beaches, and water sport. The County has not ventured into value addition to enable rationalization of its production system thereby diversifying its economic base.

The potential of the primary sector to create value and employment is not fully exploited (value addition)

The primary sector is not well linked backwards to support services, the necessary policies and forward to manufacturing processing, packaging, marketing and distribution. Transformation of the primary sector into value addition requires a Planned scientific approach to farm production and involvement of the Community.

Inadequate and poor economic infrastructure has affected economic operations of the County (roads, ICT, energy & water & sanitation)

The competitiveness of localities for investment and economic prosperity is depended upon the quantity and quality of infrastructure facilities and services. These facilities and services provide support to the economy and besides facilitate the movement of skilled and non-skilled labour to spaces of opportunities. Lamu County has available road network connecting production and residential spaces, other social spaces but is poor quality and impassable. There are also areas of missing links in the County making it difficult for production activities and movement of people. Water and sanitation services are inadequate in the County as well as ICT facilities and services, which increases the costs to investors. It limits the capacity of the Country to attract investment.

Insecurity situation in the County has affected economic activities and curtailed inflow of investments (local, sea, and terrorism)

Lamu Country faces insecurity both within due to inability of many of the young population to attend school and increasing cases of drug addiction. Recently there has a risen the problem of terrorism and radicalization from Somali and gaining a lot of momentum along the coast. It is also attributed to many years of lack of investments in the County particularly roads, water and sanitation. This has created a fertile ground for the spread of insecurity within that works against investments in the County. The insecurity has affected tourism industry of the County leading to underutilization of available hotel facilities.

Inadequate skilled human resource in the County (literacy levels, and technical training)

The labour force is handicapped by lack of skills due to very low levels of school attendance attained in the County. This has a variety of implications namely, inability to utilize the available opportunities provide by the natural capital, and inadequately prepared to be part of the implementation of national development project of LAPSSET.

c) Policies

- Harness the natural capital potential to diversify the County economy to meet local and export market needs (dependent on crop farming, livestock, and fishing, tourism)
- Utilise a value chain approach in the primary sector to help tap all the potential of the primary sector moving it to the first stage of industrialization (input supply, production, processing, marketing and distribution)
- Improve economic infrastructure to attract business and industry (roads, energy, ICT, landing sites)
- improve security and safety in partnership with central Government and other actors in Lamu (local, terrorism, sea safety)
- Develop human resource capacity of the County to tap into local resources and meet the demands of diversified competitive economy (Education & technical training)

d) Actions

- Training support to various local economic groups
- Construct value chain diagrams for various primary sector products where there is potential to expand economic opportunities through value addition
- Lobby central Government investment in areas of roads, energy, ICT water and sanitation
- Put in place local security system or infrastructure with the help of central Government
- County to spearhead education activities both at primary and secondary school level that is well distributed with all the facilities
- Set up technical training institutes in the County through partnerships

TOURISM & HERITAGE

The making of this CSP noted that to devise a complete County-based tourism model, it had to consider the socio-economic, and natural aspects of the County revolving around culture/heritage, wildlife and marine.

a) Objective

- Promotion of Lamu as a unique investment destination with a complete triple package (culture/heritage, wildlife, and Marine assets)
- Increase tourist revenue through quality services and new high value niche products
- Improve and diversify accommodation facilities and services to attract tourists as well as design a complete package promotion campaigns to market the potential of Lamu as a tourist destination

Targets: Increase the number of tourists visiting Lamu

b) Issues

Rich unique tourism input resources both terrestrial and marine (wildlife, ox bow lakes, beaches, ocean, marine park, mangroves)

Lamu County is naturally blessed with tourism attraction sites that are on land, water and heritage sites. The land has a variety of tourism resources in form of wild animals and birds, while the sea has green mangrove ring, beaches, marine park and heritage sites. Some of the sites have been declared world heritage sites adding a lot of value to the County, which it has not been able to utilize. There are hotels but of limited capacity and class to accommodate the number of visitors the County is capable of attracting when properly.

Intended national development project (resort city, access to Lamu by air, road and railway)

National infrastructure and urban development projects are to be implemented by the national Government in Lamu. These projects are a superhighway, railway, and an oil pipeline to Southern Sudan, and Ethiopia. In addition, there will be a resort city and an international airport constructed. They will open up the County for more people inform of investors, tourists and workers. This will facilitate trade between Lamu, the rest of the Country and beyond. At the same time the location of the projects will interfere with current land use and conservation activities both on land and on water.

Encroachment and on wildlife spaces, forest and poaching (development projects, human settlements, poaching)

Terrestrial tourism attraction based on wildlife, punctured scapes, and forests are threatened by encroachment of human settlements into wildlife and forest areas, and rising cases of poaching. This has the effect of reducing the wildlife, and forest resources and diminishing water resources thereby weakening its tourism potential. Conservation efforts are constrained by the current state of marauding radicalized groups in forests and wildlife areas.

Inaccessibility of the beaches and pollution (properties to the sea, point pollution sources)

Beaches as recreation and tourist attraction assets have been greatly interfered with by privatization hence limiting public access. Some areas of the beach fronting human settlements are experiencing pollution from human activities both liquid and solid waste. This has also compromised safety along the beaches in case of dawning in the ocean in relation to safety areas for rescue which are unavailable.

Inadequate publicity of tourism potential/resources of Lamu (heritage sites)

The vast tourism opportunity of the County as mentioned earlier has not been marketed effectively within Kenya and to the rest of the world. Besides, the County has faced a long period of infrastructure marginalization from the main development corridor limiting accessibility choices to use of water and air transport. This has culminated into underutilisation of the tourism potential of the County that is both terrestrial and marine, culture, and heritage.

Inadequate maintenance of current gazetted heritage assets

Lamu County is on the world heritage map by being part of a UNESCO world heritage site of the old Lamu town, Kiunga Marine National Park, and the Tana Delta area. The current heritage area of Lamu Old town is inadequately maintained due to ignorance of people about heritage value and lack of affirmative action from the authorities in charge of the heritage area. Local people of the town have not made use of the heritage status to maintain and improve the town for heritage and investments. Heritage value is latent to many in the town and tapped by those who come to invest in the

County particularly on the beach front. Value of heritage has not been recognized by the local people

Numerous heritage sites have not been recognized and gazetted

It has also numerous historical sites that have not been surveyed and secured as heritage sites such as Siyo in Kizingitini, Witu and others. This is an opportunity to the County requiring to be prioritized for identification, and put in place measures to gazette them. Addition of the other heritage sites to those already gazetted enhances the cultural and heritage identity of the County to be marketed for tourism attraction.

Traditional crafts have not been well harnessed as tourism assets

Traditional crafts are also available in the County from local people. It forms part of cultural expression and material culture transformed into beautiful products of value to the visitors. Special markets for traditional design crafts can go a long way to make opportunities available to the people involved in traditional crafts.

Lamu does not benefit from past and current tourism activities (fortified tourism enclave)

Value of plots on the beaches has been on the rise hence out of reach to the local people. There has been a tendency to allocate and reclaim plots from the sea on the beach front by investors from Europe and the Country. Investments in hotels along the beaches are owned by foreign investors who run their operation without involvement of the local people in any of the hotel chain activities

c) Policies

- County should resolve to protect and conserve available heritage sites through regulation and maintenance
- Resolution of conflict revolving around wildlife, LAPSSET infrastructure project and associated components, and human settlement to enable protection and conservation of wildlife areas through appropriate land use Planning
- Encourage and promote the establishment of conservancies on the model of NAROK but linked to culture, heritage and marine tourism
- Package tourism attraction assets and market the County locally and internationally using various channels (Posters, billboards, website)
- Institute measures in collaboration with partners to restore and maintain sites that have been abandoned (Museum, WWF, UNESCO, County, Community)
- Beaches should be protected as public assets and their accessibility enhanced
- The benefit sharing principle should be applied to enable the County and its residents to benefit from tourism
- Community to be educated and motivated to offer a variety of services to tourists (crafts, culture, taarab music, local food)
- Decentralize the resort city concept with core functions at one place while others are dispersed according to unique assets offered in specialized locations
- Enhancement of security and safety both on land and water to achieve a peaceful environment for social economic activities
- Linkage of the port of Lamu and Port of Mombasa and possibly up to Durban in South Africa for Cruise Tourism
- Improve tourism facilities and services by private sector

d) Actions

- Pass a policy for reclamation abandoned heritage sites
- Prepare an inventory of the sites for reclamation
- Prepare subject Plans, survey, gazette and rehabilitate the sites
- Map out the conflict areas and segregate the activities through zoning
- Carry out regular maintenance of heritage sites
- Advertise the available tourism attraction using different media
- Breakdown tourism into various activities and assign responsibilities to various actors
- Reclaim and regularly maintain public beaches as public recreation spaces for locals and visitors
- Hold capacity building seminars to enable them take advantage of heritage value (capture training on specific sites)
- Identify areas for locating training centres to train locals in tourism and hospitality
- Register and license tourist porters and tour guides
- Generate revenue from passengers to support the local porters and boat operation

AGRICULTURE & RURAL DEVELOPMENT

a) Objective

Enhance productivity and productiion of agriculture and emphasize on value addition for economic improvement.

b) Issues

Available arable land and diversified farming activities

The County has a land surface area of 6,474.7 Km^2 out of which **5,557** km^2 is agricultural land. The County falls within the CL3-coconut cassava zone taking 9.2 percent of the arable land size measuring **511 km^2**; CL4-cashewnut cassava zone forming 60.4 percent of the land size measuring **3356 km^2**, and CL5-livestock millet zone with 30 percent having land size of **1666 $km^{2;}$ CL6-ranching zone with 0.43 percent having land size of 24 km^2**. Farming takes place on only 69,025 Ha out of the total size of 196, 900 Ha. Various crops are grown in accordance to agro ecological zones. Crops farming employ the majority of people in Lamu and in 2014, a total of 314, 550 tonnes of both food and cash crop was realized.

Mechanized farming on a land in Mpeketoni



Source: CURP, 2016

Conflicts between crop farmers and pastoralists and between crop farmers and wildlife

There is specialization of economic activities within the County as dictated by the agro ecological zones. These specializations in livelihood are crop farming, livestock rearing, wildlife, and commerce and trade in various urban spaces. Growing number of people has led to the intensification of land use activities and in times of drought, conflict between farmers and wildlife and also wildlife and human beings and between pastoralists and farmers is enhanced. The conflict is compounded by pastoralists from other counties who flock to the County in search of pastures and water during drought. This calls for regularization of land use with clear recognition of land use for the activities in conflict together with livestock and wildlife migration corridors.

Poor road conditions and communication network

Road network infrastructure in Lamu is relatively good but in a poor state. There are only 7 kms which are tarmacked while the rest of the road network lacks drainage and impassable when it rains.

The roads linking to productive scapes and market centres which are basically urban pose a serious challenge of mobility. It leads to problems of transporting inputs to the farm as well as produce to the markets. Some parts of the County are not linked by road, hence difficulty of connection. Besides affecting agricultural production, the poor roadnet work, post-harvest losses to farmers produce, and insecurity discourage investment. This calls for increased investment in roads and communication network.

Inadequate agricultural support services (research and extension, storage, and marketing)

Agricultural production for commercial and supply of raw materials for industrialization requires specialized research, extension services for application of improved techniques, facilities for storage and ready outlets for the products. This provides incentives for the producers to enhance production, thereby generating more income and creating more employment either directly or indirectly. These services are inadequate leading to only a small part of crop production potential being realized. For instance, out of the total 196,900 Ha of arable land only a third of it is utilized. This calls for investment of in higher leadrning institutions, research development and enhancing ICT in information dissemination.

Inadequate input support (seeds, tools and equipment)

Input requirements in the production of crops range from affordable high quality seeds, appropriate fertilizer, tools, and machinery and farm chemicals. Besides the above regular supply of water is required and farm labour for better output. Policies to streamline input support to the crop farming subsector is essential for transformation of agriculture in the County.

Untapped irrigation potential

Crop production is rain-fed and seasonal. In the County, less than 100 ha of irrigation potential have been developed out of 3,000 ha existing irrigation potential. Success in irrigated farming is limited to Lamu West where individual farmers practice irrigation around swamps, water pans and shallow wells for horticultural crop production despite existence of river tana. The irrigation potential is based on surface and underground water including water harvesting and storage but remain unexploited.

Inadequate market infrastructure

The County has two physical markets for farm produce: one at Amu and the other one at Mpeketoni and are administered by the County Government. Other areas of Witu, Hindi, Kiunga and Faza are concentrated with vegetable kiosks situated in the town centres and along the major roads. The kiosks mainly sell vegetables, fruits and cereals sourced locally from local farmers. Inadequacy in storage and processing facilities in the County has continued to constrain marketability of particularly perishable goods such as fruits and vegetables. As a result, farmers are left at the mercy of exploitative middlemen who buy farmers' produce at very low farm gate prices thus impoverishing them.

Lack of value chain approach to analysis and improvement of the crop farming sector

Crop production in the County is affected by inadequate policies, standards, laws and regulations, pre-production, production, harvesting and storage, transportation, manufacturing and processing, marketing and distribution. Consistent high production from this subsector is affected by lack of value chain approach to Planning for agriculture linking it to inputs, production, processing and marketing. This brings about spatial linkage between production and urban centres for value addition besides exploiting backward and forward linkage. Agriculture is characterized by scarcity of value addition leading to excess capacity.

c) Policies

- Improvement of the road network and connectivity of the farming spaces to facilitate movement of labour, inputs and output
- Establishment of crop value chains to enhance production, productivity, and value addition to diversify the economy
- Strengthen the spatial linkage agricultural productive scapes and commercial nodes for value addition and marketing
- Protection of crop farming areas from grazing zones to avoid pastoralist- farmer conflict
- Improvement of agricultural support services (research and extension, storage and marketing of produce) through public-private partnerships
- Liaision with the private sector to facilitate improved quality inputs supply to farmers (seeds, fertilizer, and tools and equipment)
- Promotion of irrigation farming to grow high value crops throughout
- Establishment of marketing policy and regulation
- Apply value chain to link all the activities from input supply to production, processing and marketing so as to diversify opportunities
- Diversify opportunities and increase incomes through value addition
- Improve production of agricultural produce by using better techniques of farming to provide the required raw material for agro-based industries
- County to promote mechanization of agriculture through purchase and availing of farm machinery

d) Actions

- Costruction of feeder roads to farming areas

- Presentation of the road network improvement programme to either Kenya Rural Roads Authority or Kenya Highways Authority for their action (Specific roads in farming areas)
- Clear zoning of land for various activities to resolve conflicts
- Setting aside of land for research station and demonstration purposes to the farmers of new seeds and modern farming practices
- Establishment of irrigation infrustructire to grow high value crops
- Training and employment of extension workers
- Breaking into various activities the process of each crop production from input supply to production, harvesting, to marketing for improvement (Value chain mapping)
- Strenhthening of public- private partnership
- Mobilization of the private sector in agriculture investment and also agribussiness
- Planning for industrial zones in selected urban areas for establishment of agro-based industries

FISHING

a) Objective

Improve productivity and production of fish both fresh and marine for economic enhancement and value addition

b) Issues

Expansive fishing area of the sea and availability of a variety of fish species

Sources of fish in the County are from marine waters, fresh water and to a small extent aquaculture. There is expansive fishing area of the sea to the extent of the exclusive economic zone of 200 nautical miles. This fishing area has a variety of fish and in large quantities like lobsters, crabs, octopus, sea cucumbers, and turtles. Lamu has some of the unique/ rare fish species along the coast of Kenya. However, all these marine and fresh sources are underutilized, leading to less output, low revenue and low rate of employment. This is a livelihood for over 5,000 fishermen.

Low volume of fish harvested in the County compared to available resource

Quantity of fish harvested in the County estimated at 2500 metric tonnes worth ksh 380 million in 2015 and from fish landing sites from County. However, inland fish sources do not contribute much due to low adoption of fish farming. Fishing activity in the County is limited to the shallow waters due to lack of modern fishing equipment.

Inadequate fish cold storage

There is inadequate fish cold storage for the fishermen at all available 22 fish landing zones, leading to post-harvest losses and low generation of income.

Low value addition to fish harvested

There is inadequate comprehensive Planning in pre-fishing stage, fishing, storage, processing, marketing and distribution value chain. This has denied the County employment opportunities and revenue generation.

Conflict with LAPSSET infrastructure projects

Implementation of LAPSSET infrastructure project and resort City has the potential to enhance demand for fish and its products. However, the LAPSET will bring about disruption to current livelihoods, degradation of environment especially conservation areas, fish landing sites and transport on waters among the islands. Clearance of mangroves and taking of fish landing and fishing ground by the port infrastructure will affect the current livelihoods based on fishing and fish breading areas.

Unprotected fish landing sites

The County has 32 recognised fish landing sites out of which 22 are registered. There is need for recognition and securing of all the fish landing sites.

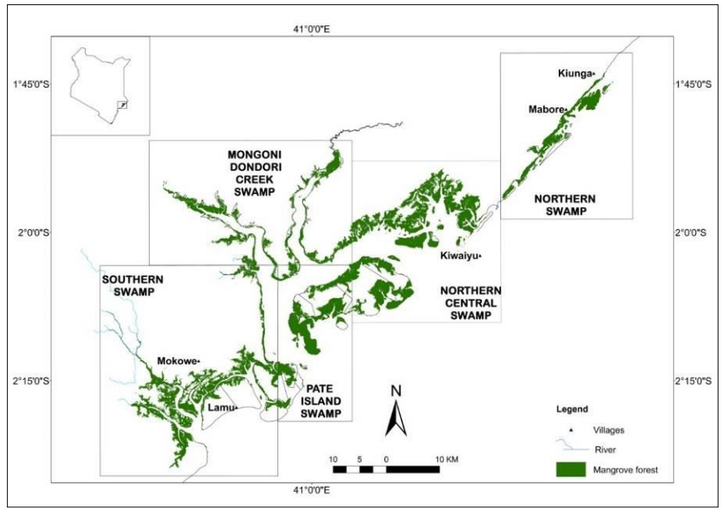
Ilegal foreign fishing vessels encroaching tereterial waters

Due to lack of effective monitoring and surveillance of the exclusive economic zone along the Kenyan, there has been illegal fishing from the Kenyan waters by other Countries contrary to international law. International Companies do indiscriminate fishing and exhaustion of certain fish species. It is an opportunity area for the County of Lamu to harness the economic potential of the blue pearl.

Threats to fish breeding sites due to destruction of mangrove forests and corals

The County of Lamu boasts of the largest reserve in the world. Mangroove and corals provide sufficient fish breeding ground for some fish species. Mangrove sites constitute an important fish breeding area and contribute to protection of the inland and islands against the sea, as well as reducing carbon emissions. Logging and clearing of mangrove for LAPSET and Coal Plant is a threat to fish multiplication and mangrove survival in the County.

The ring of mangrove forests in the County below:



c) Policies

- Modernize fishing equipment to enable deep sea fishing
- Incorporation of the defined ocean area into the land space of Lamu and the Country as recognized internationally
- Improve on fish marketing by provision of cold storage facilities
- County in partnership with stakeholders to promote marine research
- Mainstream fishing activities in LAPSET

- Provide incentives for local community to undertake fish farming in the mainland
- Improve and maintain all the fish landing sites
- In partnership with the Central Government, appropriate measures be instituted to protect the territorial waters of the Country
- Zone and protect the mangrove forests from destruction
- Diversify opportunities for improving incomes and employment through value addition of fish resources
- Capacity building of the local people on how on modern fishing equipment
- Strengthen MCS framework for sustainable exploitation of fisheries resources

d) Actions

- Purchase of initial modern fishing equipment by the County Government
- Construction of fish cold storage facilities
- Establish fish processing facilities with partners
- Establish a fisheries research and training institutions with partners
- Prepare regulations to guide the fishing industry
- County Government in partnership with central Government to provide land for establishment of more maritime police station to safeguard the exclusive economic zone (site)
- Train and employ maritime police
- Delineate, survey and protect the mangroves as a fish breeding source
- The surveyed land to be made public land
- Rehabilitate the fishing landing sites

LIVESTOCK PRODUCTION, HEALTH & RANGE MANAGEMENT

a) Objective

To improve livestock production, management and value addition for economic development

b) Issues

Unprotected expansive land for grazing

The ranches provide livestock grazing areas for both local and migrant pastoral communities from neighboring Tana River and Garissa Counties especially during the dry season between June and October. These ranches are Pandanguo at 60,000Ha; Witu Nyogoro at 32,000Ha; Amu at 26,000Ha; Witu Cooperative at 9,600Ha and Nairobi at 8,800Ha. Part of Nairobi ranch is on the Tana River side within the delta and its total size is 23,000Ha. The vast land available attracts illegal grazing and during the period of June to October approximately 111,160 cattle from neighbouring counties graze within the ranches. These grazing areas have traditional livestock routes that link them and hence require protection.

Accessibility to water sources and pasture in the Tana River delta

Ranches within Lamu as pointed above are within the punctured scapes which contain swamps, seasonal rivers, local lakes, and Tana River delta water and pasture that is crucial for livestock. Water and pasture along the livestock routes in the ranches are important attraction to pastoralist communities in Lamu. The seasonal increase in the number of cattle grazing in the ranches and wetlands points deplete pastures and water which is a potential for pastoralist-farmer conflict.

Encoachmnent of water catchment areas and apiary sites that support livestock livelihood

Human settlement and development have encroached wetland areas which are watering points for livestock and bee keeping. This reduces water accessibility for livestock watering leading to community conflits and also reduces production and income.

LAPSSET infrastructure development and livestock subsector

LAPSSET infrastructure project and resort City comprises of highway, standard gauge railway, Lamu port, airport, oil pipe line and a resort City. The above infrastructure project will affect the livestock and wildlife movement routes interfering with community livelihoods and conservation. The project will attract illegal human settlements eating up into food production thereby compromising on food security for the County.

Agro-pastoralists conflict due to lack of designated grazing zones

A conflict among farmers, pastoralists and wildlife constrains coexistence relations. This has a risen as a result of expansion of human settlements and crop farming activities into livestock grazing areas. Lack of designated zones for farmers, livestock and wildlife besides encroachment by settlements has opened up avenues for conflicts which need to be considered in the spatial Planning process. Conflicts are evident on border zones of the land uses for activities mentioned.

Inadequate livestock Health infrastructure (dips and vaccination crushes, grazing and, water facilities)

Inadequate Livestock health infrastructure comprising cattle dips, vaccination crushes, abattoir, taneries and, auction yards, holding grounds) increase the control of livestock diseases.

Provision of the above infrastructure in designated livestock zones reduces conflicts, animal diseases and ensures enhanced production of high value animals (beef, cattle sheep, goats, donkeys, dairy cattle and goats and others which are raised intensively at home.

A water point in Bahari Ward



Source: CURP, 2016

Provision of the above infrastructure in designated livestock zones reduces conflicts, animal diseases and ensures enhanced production of high value animals (beef, cattle sheep, goats, donkeys, dairy cattle and goats and others which are raised intensively at home. A number of livestock producing areas are

lacking the infrastructure mentioned such as Hongwe, Baharini, Mapenya, Uziwa, Hindi, Faza and Kizingitini.

Lack of value chain analysis of the livestock sector for enhanced performance

Livestock subsector just like crop farming and fish production lacks a comprehensive Planning approach based on value chain for enhanced performance and opening up of more opportunities. The value chain approach entails consideration of policies, laws, regulations, standards, inputs, roads, markets, slaughter houses, actual livestock production, processing, marketing and distribution. This has led to low investment and bussines in livestock sub-sector.

Policies

- Zoning and protecting livestock grazing areas and stock routes (mapping)
- Preparation of land use policy to cater for the needs of crop farmers, livestock keepers County and national development needs and wildlife through appropriate land use policies
- Improvement of the livestock infrastructure (research and extension, livestock export zones, dips, vaccination crush, crush pens, abattoir, water points, holding grounds and auction yards.
- Improvement of the marketing of livestock and its products (auction yards, livestock markets) where livestock is located
- Diversify opportunities of income and employment through value addition
- Establish fodder conservation areas and strategic fodder reserves

c) Actions

- Map out demarcate the livestock grazing areas and routes
- Secure the demarcated livestock routes as public land
- Clear zoning of land uses for farmers, livestock, and wildlife with respective land use regulations
- Identify sites for livestock infrastructure and develop the infrastructure (research and extension, markets, cattle dips, loading ramps and holding grounds)
- Rehabilite mokowe livestock dock yard
- Improve current livestock market area at Nagele
- Identify appropriate site for an abattoir and construct value addition industries (meat, and leather processing)
- Create a livestock disease free zones for dairy and beef export purposes
- Identify a land among the revoked ranches and develop it for a pilot project fodder on production
- Train and employ veterinary officers from diploma to degree level

TRADE & INVESTMENT

a) Objective

To upscale current trade and commercial activities through promotion of trade and investment for ehanced economy of Lamu

Lamu Old Town below:



Source: CURP, 2016

b) Issues

Available commercial centres where trade activities take place in a specialized manner

Existing trading commercial nodes and emerging ones provide space for the location of diverse wholesale and retail activities. Commercial nodes within the County appear to have specialized in activities they perform best for instance Hindi and Mpeketoni for agricultural produce and farming, Lamu town for heritage, cultural festivals and tourism, boat making and repair in other centres, besides small scale industrial activities of carpentry, metal welding and fabrication.

The commercial nodes need proper land use Planning and provision of infrastructure facilities and services (roads, parking, public transport, water and sanitation, financial services, security, energy and street lights) to enhance the commerce and trade function. This will open up the County for investors to take advantage of the available investment opportunities in Lamu.

Limited investor knowledge of opportunities in Lamu

Available diverse investment opportunities in Lamu are yet to be exploited by investors through marketing and County annual investment forums. There is need therefore to rethink the promotion strategy besides working closely with the communities, national Government and other partners to guarantee security and safety to investors in an era of terrorism attacks and operations. Promotion activities will be complemented by investments in infrastructure facilities and services to move the County from a basic level of existence to a secondary level of achievement motivation.

LAPSSET infrastructure development project presents an opportunity to increase the trade capacity of Lamu

Transport and Resort City components in the national development project of LAPSSET are vital for trade, commerce and industrial future of the County. With provision of adequate security there will be increment for investments and export of Lamu products to other destinations. Lamu County stands to gain more through export trade and enhanced use of its resources. To avoid polarization along the LAPSSET infrastructure corridor, there is need to invest in other road network of the County urgently and provide the missing links, besides advance land use Planning of commercial nodes and economic corridors. Local population should be prepared to take advantage of the national development projects in various fields through skills enhancement.

Low level of operation of current trade and commercial activities

Commercial nodes in the County suffer from low level of economic operation due to inadequate Planning, poor infrastructure and

services. Trade and commercial activities have been affected by insecurity and transport challenges particularly access to the County by road. This reduces the attractiveness of the County for investment hence low volume of trade. A periodic County economic survey is required to take stock of public sector economic activities and private sector, levels of operation, and constraints to business operation so as to evolve a package for enhancing business and industrial activities in the County.

c) Policies

- Development of legal framework that create enabling environment for trade and commece
- Improvement of the commercial nodes for enhanced trade and commerce along lines of specialization through Planning and provision of necessary services
- promotion of local and external investors by harnessing the available opportunities in the country
- Improvement of the capacity of the local people to participate in trade and commerce and take advantage of the opportunities brought about by the LAPSSET infrastructure and resort city project
- Periodic carrying out of business census and surveys to gauge the level of economic operation and constraints to economic performance
- Strengthening of partnerships between locals and foreigners to tap into investments opportunities of the County

d) Actions

- Identification of commercial nodes in the County, their specialization and determine levels of services (Witu, Mpeketoni, Kibaoni, Mokowe, Hindi, Faza, Kiunga, Kizingitini, Majengo, Amu)
- Planning of the commercial nodes and provision of services to create an enabling trade and investment environment
- Develop an inventory of trade and investment opportunities in the County
- Develop an opportunity investment package for marketing the County to both local and international investors
- Organize trade fares and investors fora
- Enforce weight and measures regulation
- Provide incetives to potential investors
- Establish funds for entrepreneur for empowerment
- Train local people and provide them with incentives to participate in trade and investment (Skills upgrading, and imparting of new skills)-Kenya Institute of Management, Cooperative College,
- Carry out a business survey for purposes of enhancing business performance
- Provide a one stop shop centre for trade and investment information, and processes investment in the County

RESOURCE MOBILIZATION AND UTILIZATION

a) Objective

To diversify revenue mobilization to provide effective services to the public and also invests in capital for prosperity of Lamu County.

b) Issues

Available local infrastructure for collection of revenue

The County has available infrastructure of revenue mobilization inherited from the previous system of central and local Governments. This provides the sources of revenue and means of mobilization of the revenue at the County and incooperate modification of more sources.

Economic infrastructure development gap arising from past policies of a centralized Government system and a weakened semi-autonomous local Government

County Government of Lamu faces a difficult task to create a favourable environment to attract investments to boost and diversify its economic base beyond primary production. The above has a risen due to the past policies of giving little attention to infrastructure development in the County especially roads, water and sanitation, and energy by the centralized national Government. The County is further located very far from the traditional main economic development corridor of the Uganda road and railway now being improved to standard gauge. Capacity of local Government is also weak to respond to challenges of Planning and investing in infrastructure. This has isolated the County for a long time making it unable to attract investments and has been worsened by current state of insecurity from terrorism activities.

The County has a weak economic base dominated by the primary sector impacting on revenue collection

Inadequate provision of resources from the national Government allocated by the revenue commission

Revenue allocation by the central Government is largely on indicators that continuously leave the County receiving low allocations. Recent spree of investment in road infrastructure in the County and Planning of towns have made the County further marginalising it. A County faced with past neglect of investments in road network, water and sanitation, and energy and now faced with infrastructure requires more national attention in resource allocation to allow for consolidation of development efforts and cohesion. Implication is the collection of revenue from limited sources.

Inadequate use of available funding opportunities

Available funding sources are in form of partnerships and depend on a clear inclusive framework of development provided by County Governments for various sectors. Clarity of development projects and outcomes and with appropriate policies for crafting partnership can go a long way in providing opportunities for different funding source apart from central Government allocation. This can benefit projects in health, education, water and sanitation.

Disproportionate resource allocation between functions of recurrent and development

Allocation of resources to categories of capital development and recurrent is in favour of the latter at the expense of the former. This affects the creation of the physical capital base that is essential for social economic progress. This state of affairs has a risen due to lack of appropriate policies of transition from a centralized system of governance to a devolved system. To the past central and local Government employees has been added County Government employees expanding the number of employees, besides allocation of more functions to County Governments that are not marched by adequate resources.

Inadequate use of the cooperatives as a vehicle of resource mobilization and investment

Employees and transport saccos have been very successful in mobilization of resources for investments. The same success story can be translated into production sector and help create local value addition enterprises to diversify the economic base of the County.

c) Policies

- Diversify the local economy to expand the revenue base of the County
- Enhancement of local revenue collection through appropriate measures and rationalization
- Institute frameworks of private public partnerships and also public/ public partnerships
- Formulate policy issues and social economic characteristics for presentation to Revenue Allocation Commission to get more allocation
- Encourage and improve the cooperative sector as a mechanism of mobilization of resources for investment
- Explore mechanisms of allocation of more funds to capital development projects

d) Actions

- Inventory and rationalization of revenue sources of the County (rates, user charges, marine transport, licenses, motorcycle transport, Planning permission, loyalties, benefit sharing etc**)-GIS inventory**
- Formulate policy and regulations to guide partnerships in areas of investments, infrastructure projects and implementation of Plans
- Carry out local social economic survey and past gaps of lack of good network of roads to lobby the CRA for more allocations
- Sensitization of the people on the benefits of cooperative movement in mobilization of resources
- Employment of cooperative officers to implement the objectives of the County Government
- Allocate more funds to capital development projects

COMMUNITY DEVELOPMENT

Lamu County, being of international repute, is cosmopolitan and made of population composed of indigenous communities, settler migrant communities from the rest of the Kenya as well foreign settlers. The major communities in Lamu County are mostly the Bajuni, kikuyu, Giriama, and Pokomo. The Bajuni, a mix of Arab and Bantu ancestry, is the predominant community in Lamu. The minority communities are the Aweer, Dahalo, and Orma. The indigenous Lamu communities include the Bajuni mostly found in Mkomani, Faza, Shella and Kiunga wards, Aweer living in Basuba, Hindi and Kiunga wards, Dahalo, Orma, and Wardei-Somali who are a marginalized community in Kenya experiencing land insecurity, having very low education levels and poor access to other basic services and facilities.

Immigrant settler communities from within Kenya are majorly the Agikuyu and Pokomo communities who practice agriculture and trade in Bahari, Hongwe, Witu and Mkunumbi wards; the Luo community who practice inland fishing in Witu Ward; and the Somali community who are settling pastoralists in Witu and Mkunumbi wards. Pristine Lamu has attracted renowned foreigners who have invested and settled in the County. Arabs, European and Africans from other nations have been attracted by the heritage and lifestyle in Lamu and have now settled in the County.

A majority of the communities in Lamu County still depend on nature-based livelihoods such as: fishing, mangrove cutting, hunting and gathering, pastoralism, farming, eco-tourism operators, and many others. Therefore, it would be sustainable to incorporate communities in the development agenda of Lamu County based on their historical and livelihood character.

Objective

- Build capacity for the local community in natural resource rights access, utilization and benefit
- Ensuring a just and cohesive society enjoying equitable social development (Kenya's Vision 2030)
- Optimizing community resourcefulness to improve Lamu people's Welfare
- Ensure Community equalization through integration in governance and development

Issues

Community Prowess

The various communities residing and drawing their livelihoods within Lamu have distinct dexterities that can be parlayed to enhance development of the County. Influenced by their strategic and historical location, deep culture, rich history, welcoming nature and fishing and trading heritage the Bajuni Community appeals as the community to enhance tourism, trade, marine biodiversity conservation and fishing activities at the Lamu Archipelago. The Agikuyu and Pokomo would be best to enhance agro-production and commerce as they have developed these enterprises since settling in Lamu. The Luo would be promoted to enhance inland freshwater fishing as they have endeavoured on this front in Moa. Due to their location within biodiversity protection areas, biodiversity conservation heritage, dependency on forest livelihood and community vulnerability the Aweer and Dahalo communities appeal as the communities to enhance tourism and biodiversity conservation within Lamu County mainland. The Orma are the ideal community to promote livestock keeping, ranching and wildlife conservation within Lamu County.

Land Dispossession

Hunter-gatherers depend on the availability of forestlands where their freedom of movement and their access to the natural resources on which their subsistence relies on are not limited. However, the indigenous hunter-gatherers have experienced a continuing process of land dispossession and mobility restriction, putting their traditional livelihood at risk. Their ancestral forests were turned into protected areas, while they themselves were gradually deprived of their previous user rights and eventually forcibly evicted. The Dahalo and Aweer, who live deep within the Witu and Boni forests respectively, are faced with a similar fate as a consequence of the gazetting of their forests by the Government. Government restrictions on cutting down of mangrove trees, which is a significant income earner for Bajuni community members who traditionally have been harvesting mangroves.

Mobility Restriction

Pastoralist communities depend on the availability of large tracts of rangelands where their freedom of movement as they marshal their livestock to access good pasture and water are not obstructed. The Lamu wetlands used for livestock during drought seasons are shrinking and further restricting livestock movement within the County. The Boni-Lungi forest ecosystems has over the years been shrinking with consequently less wildlife limiting the nomadic lifestyle of the Aweer community. Moreover, hunting in the Lamu forests became illegal and controlled by the Kenyan Wildlife Services (KWS) making hunting and gathering an obsolete livelihood for the Aweer and Dahalo communities. They are trying to adopt other livelihoods such as farming and livestock keeping without much success so far. The Aweer and Dahalo communities may become extinct if they will not be made aware of their rights and given special attention and protection.

Community Insensitive National Development Projects

Infrastructural developments also affect the development of communities in Lamu County. The proposed, Lamu Port and Lamu Southern Sudan Ethiopia Transport Corridor (LAPSSET), national project will strongly affect the livelihoods of the indigenous Bajuni and Aweer Communities living on the coast as well as the indigenous Orma pastoralists using rangelands along the corridor as it is expected to take up large tracts of land. In the Tana Delta area, large irrigation and Plantation projects, among others, are threatening the livelihoods of the Dahalo, Luo and Pokomo and the environment they base their livelihood in. Despite the community's lacking awareness and failing to be consulted most proposed development projects are ongoing without adequate consideration of the fragility of the local ecosystem on which the Lamu communities are highly dependent on.

Climate and Environmental Changes

Climate change is a reality especially for Lamu communities who draw their livelihoods from natural environment. The pastoral areas of Tana River and Garrisa Counties dry lands have become more and more unreliable for livestock keeping due to the slow but surely depletion of its rangelands caused by erratic rainfalls patterns and overgrazing livestock population. The situation is worsened by high evaporation rates as global temperatures rise. The 2009 and 2010 droughts are considered the worst in the last 30 years affected the communities in Lamu especially the Orma who lost most of their livestock.

The livestock populations of Tana River and Ijara have been depending on Tana Delta and Lamu wet rangelands respectively during the dry season and this dependency has been increasing over the time. As by now, for example, the herds from Ijara are spending more time in Lamu County, counting for 8 months of the year, than in Ijara with 4 months of the year spent there only. As the arid lands of Tana River and Ijara can hardly support its livestock population and the traditional dry season grazing areas of Tana Delta and Lamu are shrinking over time, the pressure felt in Tana River and Ijara by its own livestock and livestock from the North of Garissa County is being transferred as a ripple effect down southwards to Lamu and the Tana Delta. This has resulted into a drastic reduction of nomadic movements in terms of geographical scope and led into pastoralists versus farmers' conflicts.

Massive siltation of the Tana River, has made it change its course and reduced its water level, threatening to the small indigenous communities whose production systems and livelihoods are linked to the dynamics and functioning of the river–wetlands ecosystem. This also affects the Orma pastoralists, who graze their cattle in the areas around the floodplains. Agricultural communities in Lamu County are also affected as traditional knowledge regarding Planting and flooding seasons is now inadequate due to the unpredictability of local weather conditions.

Inter Community Conflicts

There have been recurrent conflicts between pastoralist and farming communities in Lamu County as mutual accusations of trespass often end in hostilities, with casualties on both sides. These conflicts are a result of complex combination of causes including land occupation, increasingly severe and more frequent droughts leading to competition over control and access to pasture and water, increasing levels of poverty, and the diminishing role of traditional governance systems. The consequences of these inter-ethnic armed conflicts are a loss of human lives, widespread destruction of valuable property, increased hatred between communities, and increased economic hardship as a result of a loss of livelihoods, leading to high levels of starvation and malnutrition among the displaced groups and unprecedented dependency on relief food. The situation is precarious, intercommunity conflict in Lamu County is still under control as mechanisms are in place to prevent and solve the conflicts. In this regard, young herders are being instructed by elders not to bring animals near the farms; when an incident happens, compensation follows; in Lamu where several communities live together, elders from different communities happen to meet at their own initiative as a committee to discuss the problems in the area.

The conflict issue is not limited to pastoralists versus farmers in Lamu County as Wildlife and farmers' conflict is another recurrent issue in Tana Delta and Lamu and is caused increasing population, competition for land and land-based resources and encroachment into fragile ecosystems. Lack of a general framework to guide development and resource utilization of the Tana Delta and Lamu wetlands continues to undermine natural resource conservation efforts and community interests and sustains probabilities of community conflicts.

Insecurity

Insecurity has been a major issue to community development in Lamu County for many years as a result of Shifta bandits and terror groups from the neighboring war-torn Somalia. The insecurity is affecting community livelihoods and trade. Recent attack against settler communities linked to Al-Shabab terror group has in affected agro-production and commerce within the County. The terror attacks led to killings of over hundred people mainly from the settler communities, uprooting of thousands of people from their homes while businesses, public transport and farming were ground to a halt. The terror incidences in Lamu caused the deployment of Kenya Defence Forces to Somalia and along the Kenya-Somalia borders and Ocean. It also necessitated a joint security operation being carried out by the Kenya Defence Forces (KDF), the National Police Service, the National Intelligence Service (NIS) and other State security agencies to restore peace and security within Lamu County. The security campaign was concentrated in Boni Forest, which traverses the Kenya-Somalia border but extended to Bodhei, Pandanguo, Witu, Pangani and surrounding areas.

Insecurity in Lamu has led to foreign countries issuing travel advisories against tourist travel to the County. This resulted in drastically low tourist turnout in the County whose economy was largely dependent on tourism and caused close down of hotels and restaurants resulting in job losses, loss of business for local communities relying on tourism and poor market for the agricultural and fishing communities.

Security operations undertaken in Lamu has affected the livelihood of the hunting & gathering communities as their subsistence is considered highly suspicious and activity movements of persons are also limited as they can be mistaken for parties involved in the conflict. This has resulted in Aweer and Dahalo communities being forced out of protected forest ecosystems and limiting their access to their livelihoods. The insecurity situation also affects the Pastoralist communities as the existence of many herders in most parts of Lamu, particularly Pangani, Mkunumbi and Witu areas seemed to have contributed to insecurity in the County. The National Government ordered pastoralists from neighbouring counties of Tana River and Garissa to return to their homes to pave way for the security operation in Pangani, Mkunumbi and Witu.

Insecurity in Somalia has also affected the fishermen communities of Lamu, due to fishing restrictions as a result of insecurity in Somali waters. Kenyan traders are forced to buy fish in Kiunga from Somali fishermen based in Ras kamboni as Kenyan fishermen are not adequately fishing.

Access to Justice

Indigenous communities in Lamu have a challenging access to justice especially in bringing their grievances and claims to courts of law. There is inadequate state administration, including courts, in their areas and are forced to travel long distances to access justice systems. Furthermore, the cost of legal proceedings is extremely high by the income standards of indigenous peoples and entails great sacrifices from the indigenous plaintiffs even on instances they get pro bono lawyer services.

Poverty

Lamu, is among five counties that lead in the poverty index in Kenya, with its community members experiencing problems of low income, expenditure and immense inequality. These counties are the poorest in terms of general poverty, income disparity, access to education, sanitation, water, lighting and housing. The ratio of expenditure by the wealthiest to the poorest is 20 to 1 in Lamu County meaning that those in the top ten percentage have 20 times as much expenditure as those in the bottom ten percentage. This is compared to an average for Kenya of nine to one. This bad situation is exacerbated as livelihoods are not promoted to boost the economic welfare of communities. In the Tana Delta, for example, small-scale farming and fishing no longer provide sufficient food or income to people and the absolute poverty rate (76.9%) is significantly higher than the national average (46%).

Provision of Basic Services

There is insufficient and disproportionate provision of civic services and utilities in Lamu with Bahari, Hongwe, Mkomani and Witu wards seemingly well provided compared to Faza, Kiunga and Basuba wards. The settler agricultural community are seen to be enjoying better facilities compared to local indigenous communities who lack adequate facilities to enhance their livelihoods such as motorable roads, public transport, adequate fishing gear, electricity supply, piped water, and health facilities. Poor service provision among indigenous Lamu communities may be brought about by their dispersed Settlement pattern of clustered villages which does not encourage effective service provision as it becomes very costly.

Poor Administrative and Political Representation

The Indigenous hunting and gathering communities have complained about their invisibility‖ and lack of recognition at the administrative and political level and indeed there is no meaningful participation of these indigenous communities in civil service and public office. The indigenous communities also exhibit high illiteracy levels manily due to Community and cultural beliefs and this has led to poor governance of the indigenous communities. This, together with their limited participation in politics at both local and national level, translates into a weak voice in public decision-making, including inadequate consideration in development projects and lack of access to important resources such as the substantial Constituency Development Funds (CDFs), administered by local MPs. There is need for affirmative action to ensure indigenous hunting and gathering communities' peoples are provided with opportunities for greater participation in decision-making processes relevant to their situation. The NCIC audit of the Civil Service shows the prevalence of discrimination against indigenous peoples.

Lack of Identity and Discrimination

Indigenous communities in Lamu also suffer discrimination and marginalization because of their way of life, which is seen as primitive especially for the Hunter-gatherer and fishing communities as well as violent and lawless for the pastoralist communities. Members of these communities, continue to face difficulties in obtaining recognition and accessing citizenship rights and their inherent freedoms, particularly ID cards and still feel discriminated and increasingly harassed.

The situation of indigenous women

Most of the indigenous communities in Lamu are highly patriarchal and traditional and although women's status and role may vary according to age, most indigenous women enjoy few rights as many traditional customs discriminate directly against the girl child and women in general. Indigenous women in these communities have many chores that are physically demanding despite often having many children and being responsible for obtaining food for all household members, while also working outside their homes. In most of these communities, the girl child is often denied the right to education, and thus illiteracy is prevalent among indigenous women. Most indigenous women have little access to healthcare and their mortality rate is high. Furthermore, Female Genital Mutilation (FGM), usually related to early marriages, remains widespread within the indigenous communities.

Enabling legislation

The Kenyan constitution and laws recognize community rights over areas they live and draw their livelihood. The Constitution in section 204, through the Equalisation Fund requires provision of basic services including water, roads, health facilities and electricity to marginalised areas to bring the quality of those services in those areas to the level generally enjoyed by the rest of Kenya. The Forest Act also recognizes forest communities 'rights to continue to use

the forest produce customarily taken from the forest, as long as these products are not to be sold on.

The act recommends empowering local communities to take an active role in forest management by registering as Community Forest Associations (CFA) and developing a management Plan. Communities doing so may be granted a number of forest user rights relating to, for instance, the collection of medicinal herbs; harvesting of honey; harvesting of timber or fuel wood; grass harvesting and even grazing. The Environment and Land Court Act (2011) establishes a superior court that will hear and determine disputes relating to the environment and the use and occupation of land. The National Land Commission Act (February 2012) defines the functions and powers of the independent commission which will be tasked with registering land transfers, resolving disputes and ending gender discrimination. The Truth, Justice and Reconciliation Act (2008) that established the commission (TJRC) to probe human rights abuses since independence in 1963, and to assess the perceived economic marginalization of communities and make recommendations on how to address their marginalization.

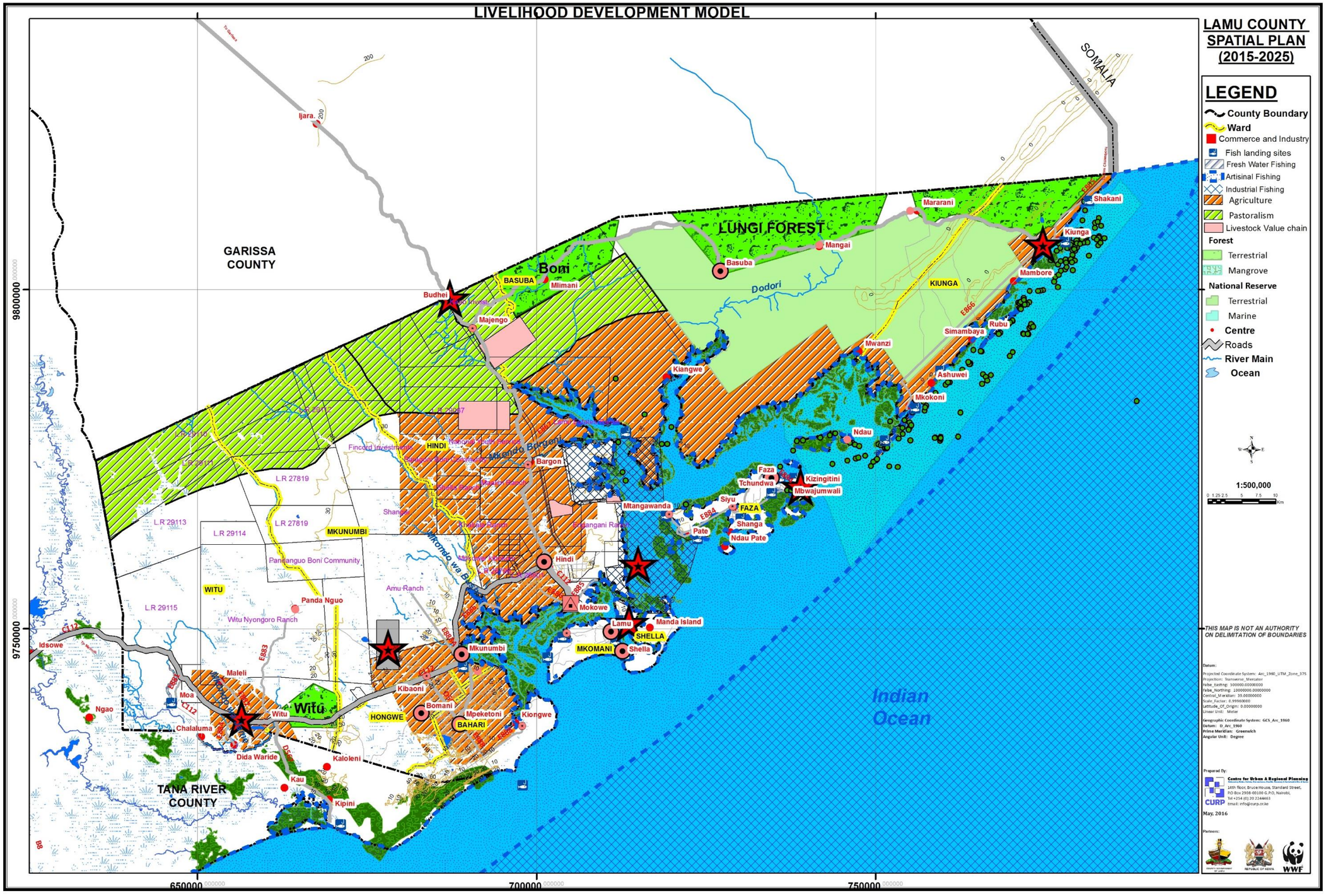
Policies

- Ensure equitable sharing of national resources;
- Linking ecotourism and biodiversity conservation with community-based natural resource management (CBNRM) and ensuring a share of benefits;
- Allocate protected natural resource access rights to communities, and controlling utilization of forests, and sensitive terrestrial and marine ecosystems;
- Development of community co-management agreements with KWS and KFS as well as with private sector in utilization of protected natural resources;
- Establish monitoring programs on the impact of development initiatives on marine biodiversity and community livelihoods;
- Empower communities to take charge of their own development processes through capacity building and inclusion in County Government;
- Promote more involvement of the indigenous communities in Government at local, County and national levels;
- Nominate representative of the Aweer and Dahalo communities to the County Assembly of Lamu;
- Promote proper management of devolved funds and reduce the interference of community development projects by political leaders
- Promote community livelihood gained skills/traditional economic activities of the indigenous communities including fishing, boat making, biodiversity conservation, and agriculture
- Promote cultural change to ensure women empowerment among indigenous communities;
- Promote development of designated compact urban centres allowing and protecting traditional community lifestyle of off-homestead farming in the hinterland;
- Promote and safeguard constitutional and legal rights of indigenous communities in Lamu

Actions

- Require conducting of Environmental and Social Impact Assessment (ESIA) on development projects affecting community development requiring effective dissemination of information to locals on project intentions, issues and their engagement;
- Require adequate capacity building of indigenous community members ensuring they are beneficiaries by getting proper training to be employed to manage approved development project before their implementation;
- Undertake programmes to educate locals and increasing community awareness on the significance of Lamu being a UNESCO World Heritage Site indicating specific areas of potential investment for the local communities;
- Appoint representatives of the Aweer and Dahalo communities to the Lamu County Executive committee;
- Develop high end five-star tourist hotel in Basuba, Mkomani, Shella and Kiunga wards engaging local communities;
- Undertake Training in hospitality industry for the Bajuni, Aweer and Dahalo Community members and engage them in promoting and improve the Tourism industry in Lamu;
- Undertake Training in ranching and wildlife conservation for the Orma, Aweer and Dahalo Community members and engage them in promoting biodiversity conservation in Lamu;
- Undertake training in modern fishing and boat making techniques and provide adequate vessels, fishing gear, fish cold storage facilities and fishing zones and regulations for the Bajuni community and engage them in promoting efficient and profitable fishing and sailing in the Indian Ocean;
- Develop strategies and programmes to ensure diversification of economic activities within Lamu archipelago;
- Educate the Bajuni, Aweer and Dahalo of their indigenous communities' rights and set mechanisms for special protection of these rights;
- Facilitate setting of Community Forest Association (CFA) among the Aweer, Bajuni and Dahalo communities to ensure they are granted forest user rights;
- Source for adequate funds from the County and national Government, private sector and donors for all community development projects;
- Require community co-management of the Boni, Lungi and Witu, Kipini-Nyangoro forests through appropriate incentives, including community tenure security;
- Prepare Integrted Urban Plans for Majengo, Bargoni, Witu, Faza, Kiunga, Mokowe, Pandaguo as urban centres and setting their urban limits allowing and protecting traditional community lifestyle of off-homestead farming in the hinterland;
- Undertake community programmes on structured public participation the indigenous communities in public affairs effectually increasing citizen awareness on devolved system of Government;
- Set up an Environment and Land Court in Mokowe and Witu

LIVELIHOOD DEVELOPMENT MODEL



INSTITUTIONS & GOVERNANCE

Effective and efficient governance relies on planning to provide direction, action areas and coordinated implementation of development for the benefit of all citizens. Planning likewise depends on good governance to provide the support and resources required crowned by responsive politics resonating with planned decisions for it to play its proper role. In the above active citizen involvement is mandatory for responsive planning and decision making.

a) Objective

- To ensure effective governance of the County through coordinated and integrated roles of both public; and private institutions.
- Devolution of functions and services to the lowest units of the county based Co-production for effective and efficient delivery of services
- Establishment of stakeholder groups in the ward to represent the interest of the People
- Capacity building of community leaders for effective representation of the interests of the Community

b) Issues

Diverse Institutions: Lamu County is one of the Counties in Kenya where very key institutions both in the public and private domain have expressed a lot of interest to be enjoined in governance and management of certain key resources in the County. Of importance, these institutions include;

- The Kenya Forest Service – Protection of Mangroves
- Kenya Maritime Authority
- Kenya Ports Authority
- Different Marine Ecosystem Specialists including the military
- International organizations such as the World-Wide Fund, among others.

All these institutions are concerned with different roles within the County in the management; and/or protection of certain key resources and pristine ecosystems that are very key to the economic growth of the County.

Devolved Governance: The onset of devolution has seen Counties make remarkable strides in development by establishing different devolved institutions at Ward Levels and below to manage the affairs of the County effectively; Lamu County has not been left behind on this front.

Corruption: Rampant corruption on Government officials in key Government dockets especially on matters related to land was reported as high in all wards within the County.

Decentralization of Institutions: Government institutions such as law courts; and Agricultural extension offices are decentralized and sparsely located within the County. There was an expressed need to locate various Government institutions in various Centres across the ward.

c) Policies

- Promote integrative roles of different Government and private institutions within the County
- Quarterly sharing information on cross cutting roles; projects; or programs of different institutions in the County
- Promote Government supported projects; and programmes within the County to assist the residents in their different community economic engagements.
- Promotion of a public sensitization campaign against drug abuse in the County
- Central government of Kenya and that of Somalia to establish policy and laws relating to planning and management of resources and jurisdictions across national boundaries and ensure security
- Kenya government and those of nationals which come to violate Kenyan water space as recognized by international maritime laws and treaties to resolve such matters by enforcing the laws and treaties governing the blue economy
- Mutual respect, consultation and cooperation among all government agencies in carrying out their mandates within the County of Lamu emphasizing all aspects of coordination (horizontal, and vertical to the Community)
- Formulation of inter-county pacts guided by inter government relations act to plan and implement development across counties
- Institutionalize sector wide approach based on integrative frameworks for implementation of all projects to maximize on synergies for greater public value
- Rationalisations of the County governance structure aimed at elevating the planning ministry above the others and enhance its capacity to plan, and coordinate implementation of projects
- Tripartite collaboration with one vision among the county administration, county assembly and the planning function to enable the transformation of the County
- To enhance the awareness to the county government about the primacy of planning and its contributions to rapid transformation of the County particularly leveraging more funding for implementation of the proposed projects
- Institute a clear process and requirements of development applications and approvals to guide implementation of projects and plans in the County
- Rationalisation of devolution to the lowest unites of the county government for effective and efficient delivery of services in collaboration with other actors

d) Actions

- Set up Agricultural extension offices in Witu; Mpeketoni; Faza; and Hindi Towns with at least 10 staff per office
- Initiate a Government funded public sensitization campaign against drug abuse all over the County to be spearheaded by selected youths selected from different wards
- Set up an information sharing digital platform for institutions engaging in rather common roles to enhance efficiency in updating and circulation of the information
- Set up a lower level Court in Witu Ward

CHAPTER 14: THE PREFERRED INTEGRATED COUNTY SPATIAL PLAN MODEL AND LAND USE ZONING FRAMEWORK

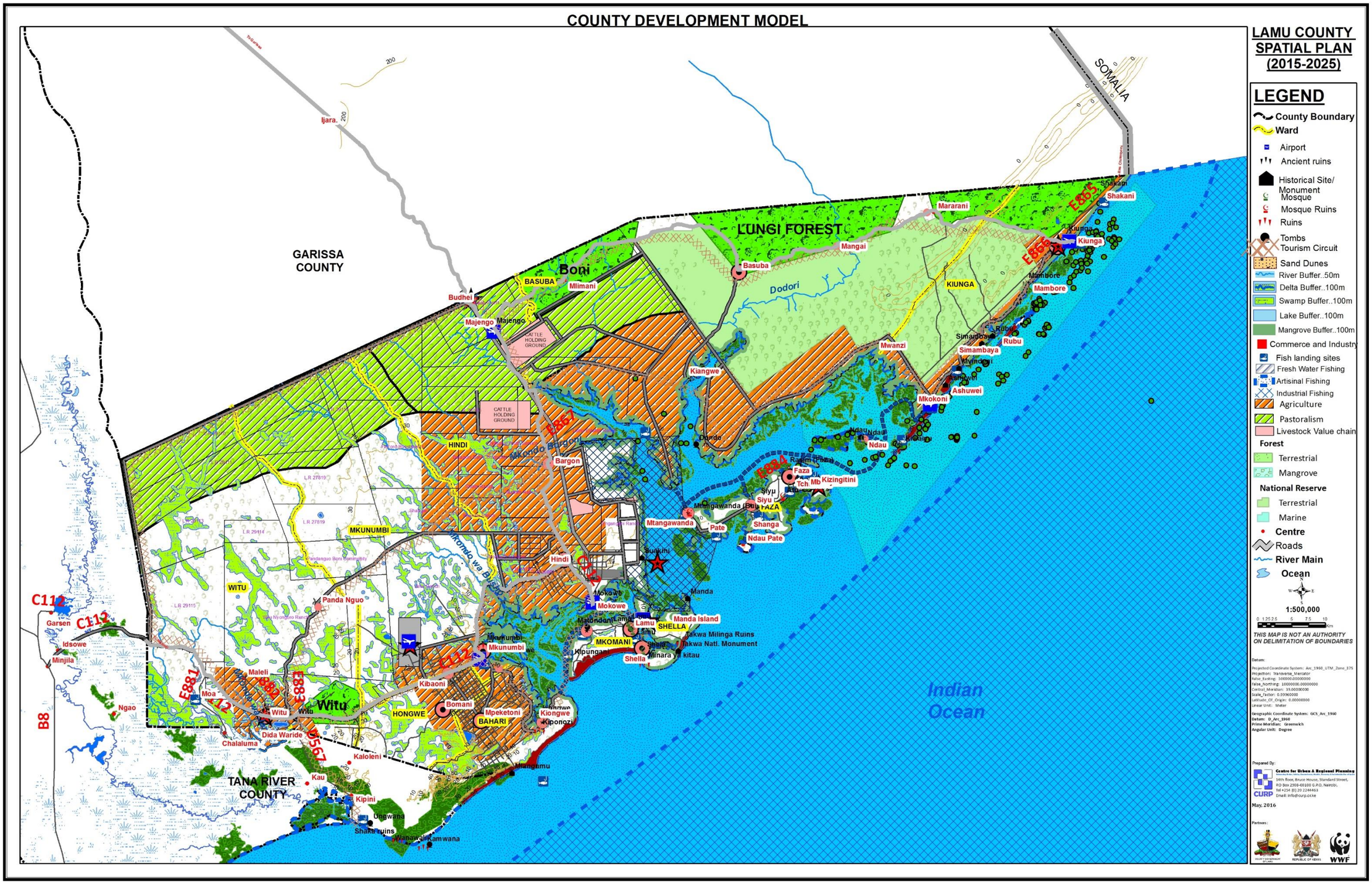


This chapter addresses the issues and challenges outlined in the previous chapters of this planning report. It presents an integrated Planning model that focuses on both the Spatial and sectorial aspects of Planning by playing an integral role of the sectoral perspectives and giving recommendations on Land Use Zones.

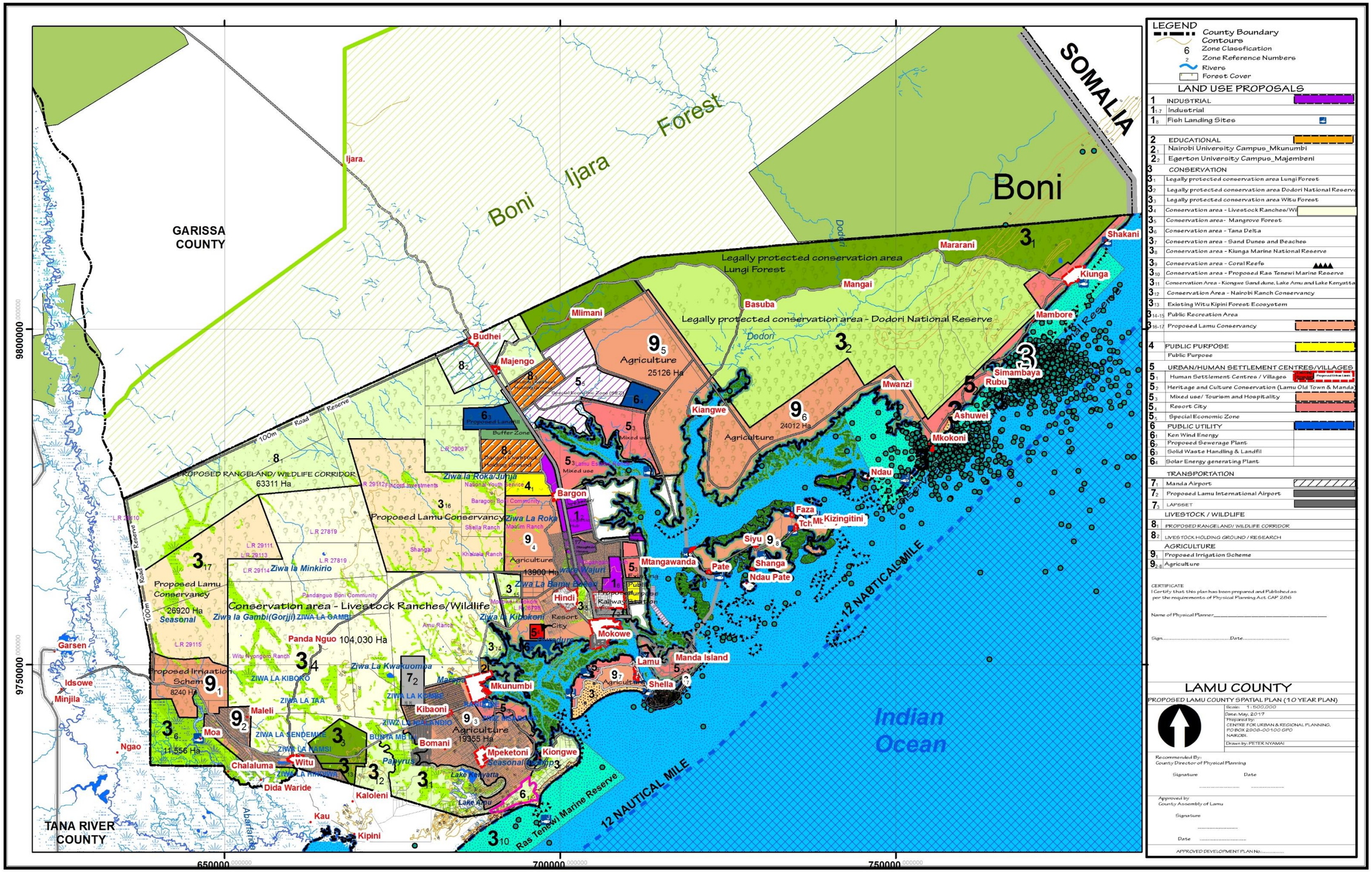
These zones have been proposed to address the overall issues identified in the County to be effective for the next 10 years. It is however notable that the Plan offers flexibility and is prone to review annually to track the progress of development as proposed in the different zones.

The Integrated land use model arising from the immediate previous chapter and the proposed land use zoning framework are as indicated in the next two pages:

Map 31: Integrated Land Use Model



Map 32: The Preferred County Spatial Plan Land Use Zoning Framework



LAND USE ZONE		KEY DEFINING ELEMENT OF THE ZONE	PERMITTED USE	LAND USE REGULATIONS
Industrial (1)	1_{1-7}	Promotion of industrial development and value addition in the County	Industrial Development	At least 0.5 Acres for a Light Industrial Complex/Warehouse development
				At least 5 Acres for Heavy Industrial Users
	1_8	Fish Landing Sites sub-zone	• Landing site development • Fish cold storage/depot establishment	The building footprint for the storage facilities should not exceed 0.125 Acres
Educational (2)		Promotion of education development in the County	Educational Uses only	At least 0.5 Acres for any ECDE educational facility
				At least 2 Acres for a Primary School with 2 streams per class
				At least 5 Acres for any secondary school with 2 streams per class
				At least 8 Acres for a University Campus/other Tertiary institution
Conservation Zone (3)	3_1	Legally Protected area Boni-Lungi Forest conservation sub-zone	• Wildlife Conservation and Natural Forest • Local Pro-conservation communities' settlements that are already existent.	• The extent of the settlements should/will not exceed ones prescribed in formal boundary survey in their integration in the forests for conservation purposes
	3_2	Legally Protected area Dodori National Reserve conservation sub-zone	• Wildlife Conservation; Natural Forest & Forest Reserves • Eco-tourism; & Hotel Developments • Infrastructure Development – Roads and Power Connectivity	• All gazetted boundaries will remain un-altered and selfishly maintained as they are currently surveyed • No building, structure, road, parking lot, driveway, games court, or other impermeable surface shall be located within a setback set for the protection and conservation of wetlands/streams or water point. • The wildlife corridors from the protected areas will be linked with the corridors linking to the wildlife conservancies to the west and south west of the County (Conservation Sub zones 3_{3-6})
	3_3	Legally protected area Witu Forest conservation sub-zone	• Wildlife Conservation and Natural Forest • Naturte Trails for eco-tourism	No other use other than forest
	3_4	Livestock Ranches/Wildlife conservation sub-zone	• Wildlife Conservancies • Eco-tourism; & Hotel Developments	• The setback from the highest water mark of any wetland, stream, lake or ponds within the spatial concepts will be 100 meters longitudinally or all around if it is a lake or a pond.

LAND USE ZONE		KEY DEFINING ELEMENT OF THE ZONE	PERMITTED USE	LAND USE REGULATIONS
			• Infrastructure Development – Roads and Power Connectivity • Proposed LAPSSET airport	• All streams/wetlands will be maintained in an open state (not enclosed or covered over in a culvert or other engineered material apart from a point where a road/path is crossing it). • No building, structure, road, parking lot, driveway, games court, or other impermeable surface shall be located within a setback set for the protection and conservation of wetlands/streams or water point. • The runways and/or other airport structures should be offset and oriented on dry land and or other fragile areas though protected and confined within the airport land left in their natural setting • The footprint area of any hotel building (s) will not surpass 0.5 Ha
	3_5	Mangrove Forest areas conservation sub-zone	Mangrove Forest only or mangrove seedlings seedbeds	A setback (buffer sub-zone) of 100 meters from the highest visible water mark or last mangrove tree on the edge before any development can be allowed. Then this should be followed by a road/path of width as prescribed by the County Government depending on the area to separate the buffer sub-zone and developable area
	3_6	The Tana Delta conservation sub-zone	No other use other than the Tana Delta Ecosystem	A setback (buffer sub-zone) of 500 meters from the highest visible water mark before any development/Agriculture is allowed
	3_7	The Sand Dunes & Beaches conservation sub-zone	No other use other than the sand dune itself	A setback (buffer sub-zone) of 100 meters from the lowest point of a sand dune ecosystem before any development can be allowed. Then this should be followed by a road/path of width as prescribed by the County Government depending on the area to separate the buffer sub-zone and developable area
	3_8	Kiunga Marine National Reserve conservation sub-zone	• Marine biodiversity conservation & Recreation • Kiwayuu Island human settlements	No other land use other than those allowed
	3_9	The Coral Reefs conservation sub-zone	Coral reefs only	No marine development project should be allowed on areas where coral reefs are situated
	3_{10}	The proposed Ras Tenewi Marine Reserve conservation sub-zone	Marine biodiversity conservation & Recreation	No other use

LAND USE ZONE		KEY DEFINING ELEMENT OF THE ZONE	PERMITTED USE	LAND USE REGULATIONS
	3_{11}	Kiongwe 'Bawaya' Sand dune Lake Kenyata water catchment system conservation sub-zone	• Water catchment conservation • Wildlife conservation & Recreation	No development should be allowed on a set buffer setback of 100 meters from the highest water mark of any lake, swamp, or wetland or the lowest point of the sand dune. Special conditions for a buffer setback of 500 meters around lake Kenyatta may be executed by the County Government (Reference to Volume III on Action Plans)
	3_{12}	Nairobi Ranch Conservancy conservation sub-zone	• Wildlife conservation & Recreation • Transportation & Energy infrastructure wayleaves • Eco lodges Development	• The road wayleaves will not exceed 30 meters • The energy wayleaves will be follow the prescribed standards • The building footprints for the eco-lodges will not exceed 0.5 Acres
	3_{13}	Witu Kipini Forest Ecosystem conservation sub-zone	Wildlife conservation & Recreation	No development allowed
	$3_{14\text{-}15}$	Public Recreation areas conservation sub-zone	• Wildlife conservation & Recreation • Active public open spaces & related amenities • Eco-lodges & Eco-tourism nature trails	All land use regulations prescribed for other conservation subzones including the buffer setbacks of all wetlands/swamps prevail where they occur in this subzone
	$3_{16\text{-}17}$	Lamu Conservancy conservation sub-zone	• Wildlife conservation & Recreation • Transportation & Energy infrastructure wayleaves • Eco lodges Development	• The road wayleaves will not exceed 30 meters • The energy wayleaves will be follow the prescribed standards • The building footprints for the eco-lodges will not exceed 0.5 Acres
Urban/Human Settlement Centres/Villages **(5)**	5_1	*Urban Centres/Human Settlement Villages:* Witu Kibaoni Mpeketoni Mkunumbi Hindi Bargoni	• Commercial (Retail Outlets, Office, Hotels etc) • Residential • Public Facilities (Hospitals, Schools, Research Insitutions, etc) • Industrial (Value Addition Industries for Agriculture and Livestock)	• All urban centres will be delimited and urban and urban peripheral boundaries proposed appropriately • Any land falling outside the delimited urban/peripheral boundaries will be agricultural land and the agricultural land regulations prescribed above will prevail • Value addition industries proposed in either the livestock development areas or Agricultural development areas will be confined within the delimited urban/peripheral boundaries of the nearest Centre

LAND USE ZONE		KEY DEFINING ELEMENT OF THE ZONE	PERMITTED USE	LAND USE REGULATIONS
		Bodhei Kiunga Mokowe Faza Kizingitini Pate Kiongwe Ishakani Tchundwa Langoni Etc….	• Other Industries as proposed by the LAPSSET authority • Public Utilities (Power substations, etc) • Transportation Utilities (Petrol Stations, Loading Areas for cargo lorries, Terminus etc) • Open Spaces/Parks	• All LAPSSET industrial developments falling in different zones eg. Conservation zone will be strictly guided in their developments by regulations of that zone • All public utilities like substations will be limited within proposed industrial areas • Other public utilities such as cemeteries will be located in designated areas within the delimited urban boundaries • All residential uses within delimited Urban/Peri urban boundaries will either be single dwelling or multi dwelling • All residential properties on outside urban/peri urban boundaries will strictly be single dwelling residential • Open spaces will be any public land left as green areas for public recreation purposes and leisure which could have public amenities like benches and fountains if parks or walk/cycle tracks – they also include all buffer setbacks protecting fragile ecosystems
	5_2	Lamu Old Town Proposed Manda Island Port City ***(Heritage & Culture conservation sub-zone)***	• Commercial/Retail activities • Institutions; and Offices • Educational and Religious Uses • Compact Residential and serviced apartments • Hotels and public facilities • Non-Motorized means of Transport • Manda Airport and related activities • Light Industrial activities in the proposed MIPC	• All permited use should and must conform to all stipulated guidelines of the World Heritage Site as per the NMK and UNESCO policies • Where the heritage zone is an entire urban centre like the Old Town or the proposed Manda Island Port City (MIPC), then the permitted users are allowed with highly controlled regulations in their building character, form, and function • All buildings in the proposed Manda Island Port City should and must conform to known Swahili architecture in their design no matter how modern the city is envisioned to be • No building will surpass four floors in the proposed MIPC excluding the ground floor • Where this conservation of heritage is composed of just a building like the Siyu Fort, or the Said bin Said house in Faza, then the building itself should be maintained in its original form

LAND USE ZONE		KEY DEFINING ELEMENT OF THE ZONE	PERMITTED USE	LAND USE REGULATIONS
				• Where the heritage zone covers only a site, like shanga ruins, then strict regulations as prescribed by the NMK should be ascribed to in their conservation
	5_3	Mixed Use Zones	• Residential • Educational including Child Care • Facilities and Kindergatens • Hotel & Visitor accommodation Use • Commercial • Natural and cultural values management institutions and offices • Passive recreation • Sports; recreation; and talent nurturing • Religious Use • Public Utilities	• To be allowed up to 4 floors including the ground floor • Child Care and Kindergaten is mandatory within the residential blocks. Other educational uses to be determined by catchment population • A mix of hotel facilities to be allowed on all blocks on the front row from the mangrove rings of the proposed blocks. • All hotel facilities should be multi-storey up to 5 floors to allow view of the ocean • Low traffic commercial uses like convenient stores and shops • Only if intended for conservation purposes or management of the residential blocks • Use that allow public access to the beach fronts like cycle tracks and footpaths or well-designed open spaces for public purpose on the proposed buffer zone • Single dwelling with an extended guest house • Public facilities and open spaces • Only if mosque or other religious facility facility • Land fill sites; fire assembly points and cemeteries
	5_4	Resort City	• Commercial • Hotel Development & Recreation Facilities	Land Use regulations to be determined by the County Government
	5_5	Special Economic Zone (SEZ)	LAPSSET related light industrial uses or other institutional uses	Design and land use regulations highly determined by the LAPSSET authority in consultation with the County Government for development approval

LAND USE ZONE		KEY DEFINING ELEMENT OF THE ZONE	PERMITTED USE	LAND USE REGULATIONS
Public Utility (6)	6_1	Proposed wind power farm	Wind power generating infrastructure and related use	No adverse development should be carried out within the water catchment subzone (3_{13}) passing through the site and all land use regulations prescribed for the subzone will abide.
	6_2	Proposed sewerage plant	Sewer treatment related infrastructure	Land use regulations of the site highly determined by the concerned Authority
	6_3	Solid waste land fill site	Land fill site and related solid waste handling & transfer facilities	The site regulations to be highly determined by the County Government but influenced by the zoning regulations of adjacent zones
	6_4	Solar generating power farm	Energy generating solar panels & related management offices and staff housing	The administrative offices and residential houses will not be developed on any land exceeding 5 acres
Transportation Utility (7)	7_1	Manda Airport	Airport related uses	No high development land uses will be allowed adjacent to the airport land
	7_2	Proposed Lamu International Airport under LAPSSET		
	7_3	LAPSSET Corridor	• Railway Development • Road Development • Pipeline Development • Power line wayleave • Light Industrial development	Land use alignment within the corridor will be greatly determined by the LAPSSET Authority in consultation with the County Government for development approvals
Proposed Range land for Livestock/Wildlife Movement Corridor (8)	8_1	Wildlife/Livestock Movement Corridor	• Forest rangelands condusive for wildlife/livestock movement and related water point development • Transportation & Energy infrastructure Wayleaves	• The transportation wayleaves will not exceed 30 meters • The water points will strategically be located on radius not exceeding 5 kilometers from each other
	8_2	Livestock Development sub-zone	• Livestock Research establishments • Livestock Value Addition & packaging industries • Level 1 slaughter houses	Any establishment in this subzone will be situated in a land of not less than 5 acres
	8_3	Bodhei Livestock Holding Ground		

LAND USE ZONE		KEY DEFINING ELEMENT OF THE ZONE	PERMITTED USE	LAND USE REGULATIONS
	8_4	Bargon Livestock Holding Ground	• Animal feed warehouses • Development of pasture & hay grounds • Slaughter houses & Abbatoirs	All land use regulations for these zones to be determined by the concerned authority in consultation with the County Government
Agriculture (9)	9_1	Proposed Irrigation Scheme	Agriculture only & Related Storage warehouses	The storage warehouses will not be built on land exceeding 2 Acres
	9_2	Agricultural sub zones	• Agriculture (Agro-production; • Livestock Production; & Fisheries) • Human settlement & Urban Centres • Conservation sub-zones • Industrial Development	• Small scale agriculture: Minimum land subdivision should be 0.75 Ha; and • Large scale agriculture: fruits and other cash crops - minimum subdivision shall be 2 Ha • Human settlements must be confined within prescribed urban boundaries and not further • All prescribed land regulations above for the conservation subzones within the concept stand • Only value addition industries like fruit processing Plants; fish canning/packaging **REZONING OF AGRICULTURAL LANDS** The rezoning of land zoned as agricultural land to a different zone shall be allowed only if all of the following criteria are met: • The parcels for which rezoning is requested (“subject parcels”) are adjacent to uses other than agriculture or agricultural support uses. • The rezoning will not be detrimental to existing agricultural operations. • The subject parcels are adjacent to existing development or infrastructure and conversion will constitute a logical contiguous extension of a designated user. • No feasible development alternative exists that is less detrimental to agriculture. • The rezoning will not otherwise interfere with the Lamu County Spatial Plan vision including the by-laws and set land use policies.

CHAPTER 15: PLAN IMPLEMENTATION STRATEGY AND THE CAPITAL INVESTMENT PLAN (CIP)

CONCEPT ZONE DEFINITION	STRATEGIES	PROGRAM	PROJECTS	ACTORS	OUTCOME
THE PUNCTURED SCAPES *(This concept covers the Coastal lowland plains feature punctured with rich wildlife biodiversity, seasonal rivers, swamps and wetlands (Ziwa la Gorrji, Ziwa la Kiboko, Ziwa la Taa, Ziwa la Kiboko, Ziwa la Sendemke, Ziwa la Hindiwa, Ziwa la Shalu* *Ranches to west of Lamu County Including Witu-Nyongoro, Pandaguo, Tulu, Bujraas, Akilo and Nairobi ranch* *Fragile Ecosystems including Kipini ecostyem, lake Kenyatta, Lake Amu, Lake Moa* *Pandaguo centre, Maisha Masha settlements etc.)*	Promote Wildlife Conservation	Promote the formation of wildlife conservancies	Prepare a wildlife management Plan for the wildlife corridor including the land that reverted back to the County Government of Lamu after various Ranch titles were revoked	• KWS • KFS • CGL • CSOs • CWCCC	• Reduced human wildlife conflicts
			Identify and develop conservancy sites in Witu-Nyongoro, Pandaguo, Tulu, Bujraas, Akilo and Nairobi ranch while still recognizing indigenous community land rights		• Increased Revenue generation for the County Government • Boost in Tourism • Improved standards of living • Employment creation
		Ensure the protection of the wildlife movement corridor within the scapes	Protect and gazette dense intact forest and grassland ecosystems for wildlife movement in Witu-Nyongoro, Pandaguo forest, Tulu, Bujraas, Akilo and Nairobi ranch		• Conserved forest areas as sensitive ecosystems
	Promote the conservation of Forest ecosystems	Determine and protect the diversity of forest tree species	Undertake an inventory to determine rare tree species within Witu-Nyongoro, Pandaguo, Tulu, Bujraas, Akilo and Nairobi ranch	• KFS • SoK • CGL • CSOs • GoK	• A researched inventory of all tree species within the identified areas
			Prohibit cutting down of indigenous unique tree species		• Protected rare tree species
		Develop policy, legislation and regulation to protect forest ecosystems	Conduct a survey in Pandaguo, and Kipini Forests ecosystems		• Demarcated forest boundary
			The gazzetement of Pandaguo and Kipini Forests as protected areas		• Gazzeted forests
	Conservation of Wetlands; rivers; and swamps	Ensure the protection of fragile wetlands	Conduct surveys for Ziwa la Gorrji, Ziwa la Kiboko, Ziwa la Taa, Ziwa la Kiboko, Ziwa la Sendemke, Ziwa la Hindiwa and Ziwa la Shalu wetlands and prepare respective water catchment Plans	• NLC • SoK • CGL • Ministry of Water and Environment • WARMA	• Formally demarcated and surveyed wetlands; and swamp areas • Enhanced conservation of the wetlands
			Revoke all irregularly acquired land titles and allotments within Ziwa la Gorrji, Ziwa la Kiboko, Ziwa la Taa, Ziwa la Kiboko, Ziwa la Sendemke, Ziwa la Hindiwa, Ziwa la Shalu wetlands wetlands and revert the land to Lamu County Government		• Enhanced conservation of the wetland areas
			Preparation of RAPs for Maisha masha, Ngombe, Moa squatters		
			Regulate access and activities within Ziwa la Gorrji, Ziwa la Kiboko, Ziwa la Taa, Ziwa la Kiboko, Ziwa la Sendemke, Ziwa la Hindiwa, Ziwa la Shalu wetlands		• Protected water catchment areas from encroachment • Increased water supply

CONCEPT ZONE DEFINITION	STRATEGIES	PROGRAM	PROJECTS	ACTORS	OUTCOME
	Promote Ecotourism to boost Lamu economy	Allow development of High end eco-lodges	Identification and construction of High-End hotels in Witu-Nyongoro, Pandaguo, Tulu, Bujraas, Akilo and Nairobi ranches	• CGL; • Ministry of Tourism • Private Investors • KWS	• Increased revenue collection • Employment creation • Opened up area by proposing new road connections to the area
		Promote Accessibility and infrastructural development	Upgrade Witu-Pandaguo road to gravel standard	• CGL • KURA	• Enhanced efficiency and convenience in transport • Enhanced accessibility to Witu; Pandaguo; and adjoining areas • Enhanced public transport to the areas • Enabled business environment
			Upgrade Pandaguo-Mkunumbi road to gravel standard		• Enhanced efficiency and convenience in transport • Enhanced accessibility to Mkunumbi; Pandaguo; and adjoining areas • Enhanced public transport to the areas • Enabled business environment
			Upgrade Pandaguo-Majengo road to gravel standard		• Enhanced efficiency and convenience in transport • Enhanced accessibility to Majengo; Pandaguo; and adjoining areas • Enhanced public transport to the areas • Improved security of the northern region of Lamu County • Enabled business environment
			Identify a site for and construct a health Centre in Pandaguo		• Enhanced access to health services in Pandaguo • A healthy population • Improved standards of living of the people
			Extend the National grid power line to reach the established investments within the wildlife corridor	• KPLC • KWS •	• Enhanced access to electricity power • Enabled business environment
			Extend a water distribution pipe network from Bomani Hill Reservoir managed by Lake Kenyatta Water Users Association to the established investments within the wildlife corridor	• LAKWA • CGL • CBOs •	• Increased water supply • Enabled business environment • Increased revenue collection by LAKWA

CONCEPT ZONE DEFINITION	STRATEGIES	PROGRAM	PROJECTS	ACTORS	OUTCOME
		Promote local community engagement and benefit from tourism	Encourage established Conservancies and hotels to employ from local communities	• CGL • Private Investors • Local business organizations • Ministry of Tourism and Culture • CBOs	• Improved standards of living for the people • Enhanced tourism in the region • Increased revenue collection
			Encourage integration of local businesses, eg displaying and selling of local curios and artifacts within the established hotel investments		• Improved standards of living for the people • Enhanced tourism in the region • Increased revenue collection by the County Government of Lamu
			Encourage local communities to develop tourist home-stays for medium tourist		• Improved standards of living for the people • Enhanced tourism in the region • Increased revenue collection by the County Government of Lamu
			Designate strategic locations to have cultural villages and traditional gear selling areas		• Improved standards of living for the people • Enhanced tourism in the region • Increased revenue collection by the County Government of Lamu
	Integrate and Promote livestock keeping	Regulate livestock grazing and movement	Identify and develop Water points within Witu-Nyongoro Ranch for livestock movement	• Ministry of Livestock Development • CGL • CBOs (Livestock Development) •	• Reduced farmers' pastoralists conflict • Improved welfare of the pastoralists • Increased livestock production
THE TANA DELTA *(This is the Lower delta triangle* *From Tana River Primate Reserve to Kipini* *And the Strategic Urban centres that are;* *Witu,* *Moa,* *Chalaluma,*	Sustainable water utilization	Regulate irrigation for sustenance of the water for other users	Allow limited uptake of water for irrigation upstream just after the Tana River Primate Reserve	• Ministry of Agriculture • Ministry of Livestock; • CGL	• Conserved and protected river riparian reserve • Increased water supply
		Regulate livestock access to Tana River	Provide livestock water points off the Tana River delta		• Controlled livestock movement • Reduced pastoralists-farmers' conflicts
		Undertake Flood control measures	Identify and designate areas for human settlements		• Mitigated human settlement areas • Foreseen disaster management
			Relocate all human settlements within flood prone zones		
			Dig canals from the highest water mark of the delta riparian reserve to control excess water flow to farmlands and pasture areas during heavy rains		• Controlled flooding in the lower Tana Delta region
	Protect diversified livelihoods dependant on the Tana Delta		Allow water uptake to fill the designated livestock water points	• Ministry of Livestock	• Controlled livestock movement

CONCEPT ZONE DEFINITION	STRATEGIES	PROGRAM	PROJECTS	ACTORS	OUTCOME
Kipini Etc)		Ensure promotion and support of pastoralist communities	Designate one of the revoked ranches for a pilot project as areas for pasture growing for livestock during extreme famine seasons	• CGL	• Reduced pastoralists-farmers' conflicts
			Identify sites for livestock holding grounds at Dide-Waride		
			Set up cattle dips to control animal diseases		• Controlled livestock disease spread • Controlled and structured livestock movement
		Ensure promotion and support of agricultural communities	Determine suitable farming areas for intensive agriculture in Witu, Chalaluma and Moa	• Ministry of Agriculture • Community • Ministry of Roads (KURA); • CGL •	• Increased food production •
			Fencing of farms to minimize human-wildlife conflicts		• Reduced human wildlife conflict •
			Upgrade Witu-Chalaluma road to gravel standard		• Enhanced accessibility to Witu; Chalaluma; Moa; and adjoining areas • Improved road standard • Enhanced public transport to Witu; Chalaluma; Moa; and adjoining areas
			Upgrade Witu - Moa road to bitumen standard		
		Ensure promotion and support of fishing communities	Diversify fishing activities by promoting aquaculture in Moa and Kipini	• Ministry of Fisheries • CGL • CGTR • CBOs • Fishing Cooperatives •	• Enhanced fishing activities • Improved standards of living of the people around Moa; and Kipini • Increased revenue generation for the County Government; and the people
			Determine highly regulated seasons to allow fishing within Tana River Delta		• Enhanced sustainable fishing methods •
			Provide modern boats and fishing gear for the fishermen		• Increased fish production •
			Provide cold storage facilities for fish in Moa		• Allowed longer time to market access • Increased fish production • Increased revenue collection
			Identify a site for a fish processing and canning Plant in Moa		• Value added fish • Increased revenue collection • Employment creation
			Provide extension services by having a Fisheries experts' office in Moa		• Increased knowledge of fish farming; and harvesting

CONCEPT ZONE DEFINITION	STRATEGIES	PROGRAM	PROJECTS	ACTORS	OUTCOME
					• Enhanced sustainable fishing techniques
	Conservation and Protection of Biodiversity	Protection of Wetland habitats	Regulate human activities and access to wetlands	• CGL • SoK • CBOs • KWS • WARMA • NEMA	• Conserved and protected wetland areas as water catchment ecosystems • Increased water supply
		Protection of Forest habitats	Undertake an inventory of indigenous and unique animal; and Plant species within Kipini, Witu-Nyongoro Ranch and Nairobi Ranch	• KFS • KWS • CGL	• A well-researched inventory of unique and rare species within the identified areas • Promoted biodiversity
			Designate bird watching trail and sites in all the forest areas		• Improved tourism • Increased revenue collection • Employment creation
		Develop policy, legislation and regulation to curb encroachment into the Tana Delta	Set 100 meters from highest visible water mark of the Tana River as riparian reserve (a special proposal made by the Plan that is not guided by any existing legislation)	• TARDA • CGL • KFS	• Protected water catchment system
			Relocation of human settlements within Tana River riparian reserve		• Enhanced conservation and management of the Tana Delta water tower • Increased water supply
			Revoke irregularly acquired land titles and allotments within the Tana Delta and revert the land to Lamu County Government		
			Prohibit cutting down of indigenous, unique species within Kipini, Witu-Nyongoro Ranch and Nairobi Ranch		• Conserved indigenous forests and ranches • Enhanced biodiversity; and tourism
	Prepare inter-County development pacts	Tana Delta management Pact	Identify grazing areas for Livestock banking within Tana river County during famine period	• TARDA • CGTR • CGL • CBOs • WARMA •	• Regulated livestock movement • Reduced pastoralist-farmers' conflicts
			To regulate Livestock movement into the Delta Tana river County		
			To develop Community Driven Conflict Resolution mechanisms		
		Livestock Development pact	Utilization of Tana River water for irrigation in identified pasture areas		• Rich pasture areas • Increased livestock products • Promoted regional economic integration
			Utilization of Tana River water for livestock water points		
			Develop a Hay and Pasture Banking Pact		
		Conservation Management Pacts	Develop a Wildlife and Livestock Movement Corridor Pacts between Lamu, Tana river and Garrissa Counties	• TARDA • CGL • CGG • KWS	• Promoted wildlife conservancies • Increased revenue collection • Improved tourism

CONCEPT ZONE DEFINITION	STRATEGIES	PROGRAM	PROJECTS	ACTORS	OUTCOME
				• CWCCC	• Reduced human wildlife conflicts • Promoted regional economic integration
THE PRODUCTIVE SCAPES (Agriculture) *High agro-production areas of Lamu County. Expereince high rainfall, fertile soil and inhabited by agricultural communities* *Hinterland* *Bahari,* *Mkunumbi,* *Hongwe,* *Hindi,* *Basuba,* *Witu,* *Kiunga,* *Urban Areas* *Mpeketoni,* *Mokowe,* *Bargon,* *Witu,* *Hindi,*	Promote agriculture as a profitable economic activity in the County	Manage land fragmentation by setting zoning regulations to limit sub-division of agricultural land to uneconomical sizes	Develop land use regulation guidelines for high potential agro-productive areas like Bahari; Mkunumbi; Hongwe; and Witu	• NLC • CGL • CWCCC	• A land use zoning guideline that promotes large scale farming • Increased Agricultural products • Improved standards of living for the people of Lamu • Increased monetary circulation within the County
			Set 5 acres as the minimum land size for high potential agro-productive areas	• NLC • CGL	
		Diversify agricultural activities to complement the agro-ecological zone	Encourage Simsim farming in Basuba	• Ministry of Agriculture and Livestock • CGL • LAKWA • CBOs	• Rise of specialized industries to shape development • Increased employment opportunities • Improved standards of living for the people of Lamu
			Promote cereal and horticulture farming in Mkunumbi, Bahari and Hongwe Wards		
			Promote dairy farming in Bahari, Hindi and Hongwe Wards		
			Promote inland fresh water fishing in Bahari Ward (Lake Kenyatta)		
		Promote affordable and easy access to agro production inputs	Provide affordable seeds and fertilizers for Bahari; Hongwe; Hindi; Mkunumbi Wards	• Ministry of Agriculture and Livestock • CGL • Private Investors	• Enabled farmers • Increased production • Improved farming techniques • Enabled business environemtn
			The County Government through Public Private Partnerships to facilitate the purchase of tractors and farming machinery for large scale farming		
		Promote extension and research development	Develop Egerton University in Majembeni (near the NYS Farm) to specialize in Agricultural Research and Technological Development	• Ministry of Agriculture; • Ministry of Education • CGL	• Increased farming knowledge • Improved and assured quality agricultural products • Employment creation
			Provide agricultural extension services in Bahari; Hongwe; Mkunumbi; Witu; Basuba; and Hindi Wards		
		Enhance road network linkage and condition to improve the market reach	Improving the C112 road; and the Hindi-Bodhei road (LAPSSET corridor) to bitumen standard	• KENHA • KeRRA • LAPSSET Authority • CGL • Local land owners	• Improved accessibility • Increased revenue and money circulation in the County • Sustainable food security • Improved livelihoods for the people
			Upgrading the Kibaoni-Mpeketoni; Mpeketoni-Mkunumbi; to bitumen standard		
			Improving all other class E roads in Mkunumbi; Hongwe; Bahari; Hindi wards; and the archipelago to all weather gravel standard		
			Rehabilitation of Kizuke jetty in Mkunumbi		

CONCEPT ZONE DEFINITION	STRATEGIES	PROGRAM	PROJECTS	ACTORS	OUTCOME
	Promote value addition of agro-production products	Set up agro-based packaging and processing industries	Set up an industrial agro-production zone in Hongwe	• Ministry of Agriculture and Livestock • CGL • Livestock Cooperatives • Farmers' cooperatives • Private Investors	• Value added agricultural products • Increased value of products • Increased monetary circulation • Increased revenue collection • Increased employment opportunities • Improved standards of living
			Identify a site for a fruit juice extraction and packaging factory in Pangani; and Witu		
			Identify a site for a cereals processing Plant in Hongwe		
			Identify a site for a meat and leather processing Plant in Witu		
			Identify a site for an animal feed Plant in Mkunumbi		
		Provide access to high level Markets	Provide accessible storage facilities for agricultural products in Mpeketoni; Hongwe; Kibaoni; Mkunumbi; Hindi; Witu and Bahari Centres	• Ministry of Agriculture and Livestock • CGL • The Community (Farmers) • KURA	• Enhanced market reach and accessibility • Enhanced efficiency and convenience in road transport • Enabled farmers' cooperatives • Increased agro-production capacities • Improved standards of living
			Organize and promote farmers' cooperatives in Basuba		
			Strengthen existing farmers' cooperatives in Bahari and Hongwe		
			Upgrade rural roads in Mkunumbi and Bahari to gravel standard		
	Promote sustainable urbanization	Establish livable and compact urban human settlements and urban nodes	Prepare an Integrated Strategic Urban Development Plan (ISUDP) for Mpeketoni, Hindi, Mokowe, Mkunumbi, Witu and Bargon	• CGL • SoK • Farmers' Cooperatives	• Enhanced order in the arrangement of the urban Centres • Improved human settlement areas • Enhanced ease of service provision to human settlements
			Demarcate and set urban limits for Mpeketoni, Hindi, Mokowe, Mkunumbi, Witu and Bargon to avoid unsustainable growth		
			Establish a farmers' market in Mpeketoni, Witu, Hongwe and Bargon		
		Ensure provision of basic facilities in the area	Construct more primary schools in Mpeketoni; Bargoni; Witu (Chalaluma, Moa, Meleli, Nagele, Pangani; and Hamasi); and Hindi	• Ministry of Education • Ministry of Health • CGL • Kenya Police	• Enhanced access to health services • Enhanced access to basic education • Enhanced and improved security
			Construct a health centre in Bargoni; Witu (Chalaluma, Moa, Maleli); and Hindi		
			Upgrading existing health Centre in Mpeketoni to a sub-County hospital		

CONCEPT ZONE DEFINITION	STRATEGIES	PROGRAM	PROJECTS	ACTORS	OUTCOME
			Set up a police station in Hindi		• Enhanced sustainable waste management practices • Improved standards of living and general welfare of the residents
			Prepare a solid and liquid waste management Plan for the towns		
		Ensure infrastructure development in the areas	Extend a pipe network from Bomani Hill to Urban Centres in Bahari; Mkunumbi; and Hongwe Wards	• LAKWA	• Improved water supply and distribution coverage • Enhanced access and coverage of the electricity power supply • Improved sanitation methods
			Extend the National Grid power line to Urban Centres in Bahari; Mkunumbi; and Hongwe Wards	• KPLC • CGL	
			Construct a sewer line in Mpeketoni; Hongwe; Mkunumbi; and Hindi Urban Centres	• CGL	
	Promote land security for locals and Investors	Ensure Land tenure security for local communities	Issue title deeds for all formally surveyed land for the people of Lamu County	• NLC • Ministry of Lands • CGL • CBOs	• Guaranteed land tenure security • Enabled business environment • A knowledgeable population on land matters especially related to land leasing • More public land gained from revoked title deeds and allotment letters
			Review and uphold legally acquired land titles/allotment letters and revoke all illegally acquired land		
			Undertake public awareness campaigns sensitizing local communities on land matters		
			Form local land community pacts guiding engagement with Government and potential investors while investment opportunities arise	• CGL • Private Investors	
			Encourage local residents to lease their land to investors through a benefit sharing platform as opposed to selling the land		
	Minimize conflict between agricultural communities, pastoralist communities and wildlife	Determine livestock grazing and movement corridors	Identify, document and open up livestock grazing and movement corridors to the North West of Lamu County	• Ministry of Agriculture and Livestock • Ministry of Lands • NLC	• Reduced human wildlife conflicts • Reduced pastoralists farmers' conflicts
		Determine Wildlife movement corridors	Identify and gazette wildlife and livestock movement corridors to the West of Lamu County	• CGL • KWS • CWCCC	
	Promote trade and commerce	Promote business activities in Lamu County	Set up a one stop business hub to offer relevant business information in Mokowe	• CGL • University of Nairobi • Ministry of Education	• Enabled business environment • Increased business performance knowledge; and technical know how
			Promote Education and Business related courses to be offered in University of Nairobi Campus to be established in Mkunumbi		
			Identify a site for a stadium in Mokowe	• CGL	

CONCEPT ZONE DEFINITION	STRATEGIES	PROGRAM	PROJECTS	ACTORS	OUTCOME
	Promote Youth development and talent	Enhance youth resourcefulness and growth	Identify a site to establish a resource Centre and theatre in Hindi	• Ministry of Youth and Enterprise • Youth Groups	• Improved livelihoods for the youth • Increased employment opportunities • Improved creative arts and culture
THE PRODUCTIVE SCAPES (Livestock) *Area of High Livestock Potential to include the livestock grazing and movement corridor* *Covering North Western part of Lamu County (Boundary with Garissa County) including the Ranches that were revoked (Nuclear Sugar Project Ranch; Akiro Ranch; County Council Ranch; Magolas Ranch) by NLC and reverted back to the County Government of Lamu*	Promote Livestock keeping as a viable economic activity	Identify and set up livestock production facilities	Demarcate the proposed livestock holding grounds Provide strategic water points within the livestock zone and movement corridor Provide strategic cattle dips within the livestock zone and movement corridor	• Ministry of Livestock • CGL •	• Formally established livestock holding grounds • Controlled spread of livestock diseases • Controlled and structured livestock movement
	Sustainable utilization of the land held by the County by minimizing influx of animals from neighbouring counties	Minimizing Farmers-pastoralists conflicts at the Lower Tana River Delta	Forge policy; and agreement pact between the County Government of Lamu; and Tana River County Identify alternative pasture area in Tana River County as alternative holding ground for livestock	• Ministry of Agriculture & Livestock • CGL • CGTR	• Reduced pastoralists farmers' conflicts • Increased Livestock production
	Sustainable Livestock Development	Set up value addition industries in the livestock zone	Identify and establish Dairy; and Meat processing industry within the livestock zone Establish a livestock auction market in the livestock zone Propose a road to open up the area linking the livestock corridor with Witu; and Pandaguo areas	• Ministry of Livestock • CGL •	• Established dairy and meat processing industries • An established industrial zone for livestock • Improved linkage between the livestock corridor and neighbouring towns
	Promote Extension and Research development	Promote research and Breed improvement	Establish a livestock breeding centre at Majengo offering Artificial Insemination Services		• An Established livestock breeding centre at Majengo • Better provision of Artificial Insemination Services
	Promote interaction of livestock movement and Wildlife movement in the North-Western end of the County	Preserve existing wildlife corridor movement areas	Protect dense intact forest ecosystem for wildlife movement	• KWS, • WWF, • NLC	• Un-inhibited Movement of wildlife between Arawale, Boni-Lungi and Witu habitat areas
PRISTINE ECOSYSTEMS *(These are gazette natural ecosystems that include:* *Dodori national Reserve*	Promote conservation and maintenance of the protected reserves	Determine the extent of the protected Forests and National Reserves	Erect visible pillars strategically to indicate the extent of Dodori National Reserve	• KWS • WWF • CGL • SoK • NLC	• Increased employment opportunities
		Strengthen the border control between Kenya and Somalia to enhance	Set up a border security camp at Dar es alam point in Kiunga		• Improved security within the pristine ecosystems

CONCEPT ZONE DEFINITION	STRATEGIES	PROGRAM	PROJECTS	ACTORS	OUTCOME
Kiunga Marine National Reserve *Boni-Lungi Forest Ecosystem* *Witu Forest* *Settlements within the ecosystems including Kiunga; Mangai; Milimani; Basuba; and Mkokoni)*		the security of the National Reserve	Establish a Kenya Wildlife Service camp in Dodori National Reserve	• National Government through relevant security agencies • KWS	
		Determine the extent of the protected Marine Reserve	Conduct a survey of the Kiunga Marine Reserve	• KMA • SoK • CGL • KWS • WWF	• A definite boundary of Kiunga Marine Reserve
		Promote sustainable land tenure within the marine reserve	Prepare an Integrated Marine Reserve Management Plan	• NLC, • KIP	• A complete Integrated Marine Reserve Management Plan
			Revoke titles irregularly allocated within Kiwayuu and other areas within the Kiunga Marine National Reserve	• NLC • CGL	• Reclamation of land under Kiunga Marine Reserve
		Protection of the Forest Ecosystem	Survey and fence the boundary of the Boni-Lungi Forest ecosystem	• KFS; • CGL	• Improved protection of Boni-Lungi Forest Ecosystem
			Conduct Community awareness programme in conservation of Boni-Lungi and Witu Forest ecosystems	• KFS; • CGL	
		Promote Eco-tourism within the protected forests	Allow local forest communities (Aweer) access to traditional livelihood within the Boni-Lungi Forest Ecosystem	• KFS • CBOs • CGL • Other Conservation Groups	• Improved livelihoods of the forest communities • Increased revenue collection
			Develop sustainable and paid access footpath routes within Witu Forest to enhance eco-tourism activities within the forest		
	Promotion of Indigenous Community livelihoods	Promote Sustainable fishing within Kiunga Area	Regulate the fishing periods to prevent over fishing	• Ministry of Fisheries • CGL • Private Conservation NGOs • KWS • Fishing Cooperatives	• Maintenance of the amounts of fish in the water resources • Empowered community on sustainable fishing techniques • Increased and sustained fish production • Improved livelihoods • Higher returns from the fishing sector
			Undertake programmes on community awareness on sustainable fishing		
			Regulate methods and equipment for fishing within Kiunga		
			Establish a fish cold storage at Kiunga and Mkokoni		
	Promotion of eco-tourism	Develop and promote a Tourism circuit	Upgrade the Mkokoni-Kiunga Road to gravel standard	• CGL • Private Investors • KWS • KENHA • KURA	• Higher Revenue Collection • Enhanced efficiency in road transport due to improved road standard • Access to more employment opportunities • Improved standards of living
			Upgrade the proposed road to connect at Moa from Majengo to gravel standard		
			Identify strategic sites for High End Hotel development along the Tourism circuit		

CONCEPT ZONE DEFINITION	STRATEGIES	PROGRAM	PROJECTS	ACTORS	OUTCOME
		Attraction of PPP controlled investments in the reserve	Establish and develop hotel facilities within the Dodori National Reserve; and Kiunga Marine National Reserve		• Improved tourism
		Marketing of the reserve	Develop a website for the reserve and have adverts on the local media		
	Promote community integration in conservation and management of the Forest Ecosystem	Enhance access to basic facilities and infrastructure to communities involved in conservation of the Boni-Lungi Forest Ecosystem	Set up a boarding Primary School in Basuba, Mararani and Mangai	• Ministry of Education • CGL • KENHA	• Improved access to education in the settlement areas • Increased literacy levels
			Set up a boarding Secondary School in Mararani and Majengo		
			Construct a Health Centre in Mararani and Majengo		• Improved health services in the wards (Kiunga; and Basuba)
			Upgrade the Kiunga-Majengo road to bitumen standards		• Improved security along the corridor • Enhanced transport efficiency and connectivity • Improved public transport in the region
	Promote sustainable security	Security enhancement within the security corridor	Establish strategic security checkpoints along Kiunga-Majengo road	• National Government • CGL	
	Promotion of sustainable urban Development	Prepare Strategic Development Plans and determine urban limits for efficient Service Provision	Survey and Prepare a Local Plan for kiunga	• CGL • SoK	• Planned urban centres
			Survey and Prepare a Local Plan for Mkokoni		
			Survey and Prepare a Local Plan for Majengo		
			Survey and Prepare a Local Plan for Mararani		
			Survey and Prepare a Local Plan for Kiwayuu		
	Promote conservation of Wildlife habitat; and their movement corridor in the reserve	Identification of animal species in the reserve	Conduct animal census in Dodori National Reserve	• KWS • Ministry of Environment • CGL • CBOs	• Determined number; and species of animals in Dodori National Reserve • Reduced wildlife poaching in the habitat areas • Protected water catchments
			Relocate identified species to the reserve from other parks		
		Reduction of Poaching	Increase KWS Officers physical presence		
			Create community awareness on importance of wildlife conservation		
	Promote conservation of the forest	Promote integration of pro-conservation communities within the forest	Demarcate; survey; and Plan integrated human settlement boundaries	• CGL • SoK • KWS • KFS • CBOs	• Surveyed human settlement areas • Increased fresh water supply • Promoted culture of the Boni-Aweer community • Revenue generation from carbon trading • Promoted wildlife conservancies • Increased revenue collection • Improved tourism
	Protect water catchment sources	Controlled Human activities in the forest	Regulate land use activities for the integrated communities by policy/law	• CGL • KWS • KFS • CBOs •	

CONCEPT ZONE DEFINITION	STRATEGIES	PROGRAM	PROJECTS	ACTORS	OUTCOME
	Promotion of synergies in Conservation and management of Boni-Lungi Forest; and Kiunga Marine Ecosystems	Promotion of Inter-Country conservation and management Pacts	Develop a Policy document; and agreement pacts between Kenya; and Republic of Somalia for the management (Boni-Lungi Forest; and Kiunga Marine Ecosystems)	• GoK • Government of Somalia • KWS • CGL • CGG • KFS •	• Promoted regional economic integration
		Inter-County conservation and management Pacts	Develop a Policy document; and agreement pacts between Lamu County; and Garissa County (Boni-Lungi Forest Ecosystem)		
	Promotion of sustained livelihoods	Protection of the indigenous communities (Awer, Boni)	Develop community based conservation strategy that aims to involve indigenous communities that derive livelihoods from the forest in consultation with KFS; KWS; WWF and other relevant stakeholders	• CGL • KWS • KFS • WWF • CBOs	• Continued conservation of the forest areas • Sustainable livelihoods of the communities

CONCEPT ZONE DEFINITION	STRATEGIES	PROGRAM	PROJECTS	ACTORS	OUTCOME
THE SHIELDED HINTERLAND *(These are the sand dunes that are evenly distributed along the Coastal line of Lamu County in Amu-Shella; Bahari Ward (Bawayas); Kiwayuu; Manda Island; island near Kiwayuu. These sand dunes are very important in fresh water retention and act as barriers between sea and land)*	Promote the conservation of the sand dunes as water towers and barriers between the sea and the land	Formally establish the extent and boundaries of the sand dunes	To demarcate and survey the extent of the sand dunes that have not been surveyed in Bahari Ward (Bawayas); Kiwayuu Island; and Manda Island	• KWS; • CGL; • NEMA • WWF; • NATURE KENYA • CBOs • OTHER NGOs	• Surveyed sand dune boundaries • Enhanced conservation measures of the sand dunes as water catchments • Sensitized community on conservation of sand dune • Reduced encroachment on the sand dune areas • Increased fresh water supply • Gazetted sand dune areas as fragile ecosystems • Controlled land use activities around the sand dune areas
			Gazette the sand dunes as fragile ecosystems		
			Revoke of the titles and letters of allotment issued in the Bawayas; and Kiwayuu Island which is within a gazette National Marine Reserve		
			Prepare a detailed Environmental Management Plan for the sand dunes		
			Carry out community awareness campaign on the importance of conservation of the sand dunes as fragile ecosystems		
		Protect the quality of water in the sand dunes	Discourage encroachment onto sand dunes particularly in Kiongwe (Bawayas) where there is evidence of farmers encroaching to farm water melons		
			Undertake a ground water survey in Bawayas, Manda and Kiwayuu to establish the quantity and quality of the water		
	Adopt mutually compatible land uses that promote conservation of the sand dunes	Provide zoning guidelines for the sand dunes	Prepare an Action Plan for any proposed wind/solar power projects in the County	• CGL • NEMA • KMA • WWF • CBOs • Other NGOs	
			Propose a 100-meter buffer zone separated by a 12-meter road in Lamu island along the sand dune strip		
			Prepare Environmental Management Plans (EMPs) for all the sand dunes within Lamu County		
	Promote conservation of the sand dunes as breeding grounds for the turtles	Promote inter-agency cooperation in the management and protection of the sand dunes	Formulation of Policies and inter-agency agreements outlining roles and responsibility of each agency		
THE MANGROVE RING *(These are areas populated by mangroves along the shore line and within the archipelago that depicts a ring pattern in their natural occurrence)*	Promote the conservation of the Mangroves as breeding grounds for fish; and other sea species	Securing the Land tenure for the Mangrove Forest	Survey; and Gazette the mangrove forests	• Minsitry of Lands • NLC • SOK • KFS • CGL • NEMA • WWF • CBOs	• Surveyed mangrove ring boundaries • Enhanced conservation measures of the mangrove ring as breeding grounds for fish
			Determine the actual acreage of land under mangrove		
			Preventing encroachment by providing a buffer zone of at least 100 meters along the edges of the mangrove ring cf. Proposed Manda Plan		
			Prepare Environmental Management Plans for the Mangrove rings across the County		
	Promote mutually compatible land uses that enhance the conservation of the Mangrove Forests	Encourage eco-tourism activities around the mangrove rings	Propose eco-lodges in Manda Island; and Pate Island around the Mangrove rings		

	Promote sustainable and controlled harvesting of the Mangroves *'Mikoko'*	Form Community Forest Organizations to collaborate with the KFS; and the County Government of Lamu in the management and use of the Mangrove Forest Resource	Establish Community Based Groups for conservation of mangrove forests		• Sensitized community on conservation of the mangrove rings • Reduced encroachment of the mangrove ring • Increased fish production and breeding • Gazetted mangrove ring as fragile ecosystems • Controlled land use activities along the mangrove rings • Increased mangrove tree cover along the coast line
			Encourage Bee keeping as an economic activity for the pro-conservation communities living around the mangrove rings		
			Set aside land for mangrove tree nurseries based on their specific species in compatible areas		
			Re-afforestation of cleared mangrove species annually		
			Introduce Prohibitive legislation in the use of Power Saws and other mechanized tools in mangrove harvesting		
	Promote Research institutions for marine life along the Mangrove rings	Establish training institutes to do research and train personnel on mangrove; and marine life	Put up complementary Marine research institutions in Manda Island		
	Promote mangroves forest as carbon sinks for revenue generation to both the National; and County Governments	Sale of carbon credits to companies; and other countries	Maintain at least the 70% mangrove cover in the County		
			Public sensitization programmes on the benefits of carbon trading		
	Promote inter-agency cooperation in the management and conservation of mangrove forests	Establishment of appropriate governance structures for collaboration in management; and protection of mangrove forests	Establishment of an inter-agency enforcement unit		
THE ARCHIPELAGO *(These are a series of 57Islands along the Coast of Lamu County. The largest of these are: Amu; Manda; Pate; and Ndau Islands. The rest of the Islands including Kiwayuu Island fall under the Gazetted Kiunga National Marine Reserve)*	Promote economic vibrancy of the archipelago	Enhacing tourism activities in the Islands	Upgrade Faza Airstrip to enable air transport to serve Pate Island	• KAA • Ministry of Tourism • Ministry of Agriculture • CGL • Private Investors	• Enhanced efficiency in transport by incorporating air transport in the island • Improved tourism potential • Increased revenue collection • Efficient money circulation • Increased agro production capacity • Improved standards of living • Access to more employment opportunities • Enhanced trade and economic activities
			Rehabilitation of the Siyu Fort; Said bin Said house in Faza village; Shanga Ruin s s and other heritage sites in Pate Island		
			Advertise and Market the Lamu Sunset dhow cruises among other tourist attraction activities in the County		
			Allow for the establishment of more hotel facilities along Kipungani's white sandy beaches		
			Adopt; Implement; Advertise and market the proposed eco-city in Manda Island		
		Enhacing Agricultural activities in the Islands	Set up Agricultural extension offices; and officers at Faza; Pate; Amu Town to promote Agricultural activities in the Islands including provision of farm inputs		

			Set up of Agricultural cooperatives in the Islands to ease markets sourcing and access to finance		• Improved access to a larger market • Increased fish production • Empowered citizen population • Improved fishing techniques
			Set up collection centres and storage facilities for Mangoes; Coconuts; Simsim; and *'madafu'* in Faza; Siyu; Mtangawanda; Kizingitini; Amu; and Matondoni		
		Enhacing Fishing activities in the Islands	Set up cold storage facilities in Faza; Siyu; Ndau; Amu; Matondoni; Kipungani; Tchundwa; Pate and Kizingitini villages (*Generally all fishing villages in Pate & Lamu Islands*)		
			Establish cooperatives for fishermen through which microfinance institutions; and the County Government can channel funds for the improvement and acquisition of fishing equipment; and appropriate vessels		
			Subsidies (County Government Kitty} on fishing equipment through a collaborative effort by the County Government; and other partners		
			Set up fishing extension programmes and facilities in Amu Town; and Faza to train on sustainable fishing techniques		
			Introduce maritime police to patrol and secure our territorial waters to control invasion of the fishing grounds by external forces		
		Enhancing cultural activities in the Islands	Patent; Advertise and market Lamu cultural festival and other local cultural initiatives through a website; and local media channels		
		Promote oil & gas exploration in Pate Island	Identify and survey specific sites for the oil exploration		
			Preparation of RAPs for affected in the drilling sites in Siyu		
			Require that the company fully engage on CSR activities to the community		
	Promoting development of infrastructure	Enhancement of road networks and standards	Improving Faza-Pate-Tchundwa-Mtangawanda road through Kizingitini village to bitumen Standard	• CGL; • Ministry of Health; • Ministry of Education; • KMA	• Improved road standards within the archipelago • Enhanced connectivity of the archipelago settlements • Empowered fishermen cooperatives • Enhanced safety in water transport; and disaster preparedness • Improved security in both water and land • Improved access to basic education
			Provide a 12-meter cycling/walking cabro road to connect Amu Town; Matondoni; and Kipungani villages to a possible future jetty at Kipungani to link to Kiongwe		
			Improve roads linking to villages in Pate island to gravel standard		
			Reconstruction of the Siyu footbridge connecting to the Siyu Fort		
		Enhancement of water transport	The County Government to facilitate the purchase of at least 10 speed boats not less than 32ft with a capacity of at least 28 passengers to provide public transport to residents of Lamu Island; Ndau; Kiunga; and Pate Island		

			First aid training lessons to be made mandatory to all boat captains and assistants who ferry passengers to either Manda jetty; Mokowe jetty; Matondoni; Faza; Mtangawanda; Kiunga or any other jetty within the Islands		• Improved access to health services
			Formation of a boat owners Sacco to necessitate issuance of an insurance policy		
			Mandatory requirement for Licenses for all boat captains offered by the Maritime Authority		
			Set up a boat marina (sort of terminal facility for the boats) in Lamu Island connected to the various jetties along the sea wall of the Old Town		
			Dredging of Nyabogi water channel		
		Enhancement of safety	Set up a Maritime police post at Mtangawanda Jetty		
			Construction of Siyu; and Mbwajumwali sea walls		
			Establish small scale fire stations at Faza; Kizingitini; Siyu villages for rapid response in case of a fire		
		Enhancing health access	Establish a dispensary in Ndau		
			Upgrade Faza health Centre to a level 4 Hospital with equipment and trained personnel		
			Accommodation for the medical personnel Faza Hospital		
		Enhancing education access	Establish a secondary school for all existing primary schools in the archipelago to increase the Primary-Secondary transition rate		
			Established equipped science and ICT laboratories in all secondary schools		
	Promote Heritage value in the Archipelago	Identify and map out all heritage sites in the archipelago	Prepare a zone guide for the gazetted UNESCO World heritage site (Amu Town)	• UNESCO • National Museums of Kenya • CGL	• Promoted heritage significance of Lamu County • Rehabilitated ruins of Pate; Siyu; and Shanga • Trained personnel on heritage value • Improved tourism on heritage sites • Improved revenue collection
			Prepare a Planning Policy; and Zoning Regulations for Wiyuooni; Shella; and Langoni informal settlement		
			The Kenyan Museums to train local personnel on the value and history of heritage sites to act as guides to tourists		
			Public sensitization programmes on the value of the World heritage site		
			Prepare a Heritage Impact Assessment & Management Plan for the County		
			Rehabilitate Pate village ; Siyu Village ; and Shanga Village Historical Ruins and incorporate them as part of heritage value towns/villages		
	Promote Livable human settlements within the Archipelago	Access to clean potable water	Construction of 'Djabias' for rainwater collection in Faza, Pate, Tchundwa, Siyu and Mbwajumwali villages in Pate Island	• CGL • KMA	• Improved access to fresh water supply

			Assessing the viability of a desalination plants in Island settlements ie. Mtangawanda, Siyu, Pate, and by extension Kiunga	• The Kenya Police • CBOs	• Improved sanitation • Improved standards of living • Improved health • Improved security
			Adopt policies that discourage sinking of shallow wells		
		Promote sustainable urbanization	Prepare Integrated Strategic Urban Development Plans (ISUDPs) for all Centres to guide anticipated growth		
			Prepare up to date Urban Land Information System on all urban Centres to capture all properties on ground		
			Prepare Valuation Rolls for all Urban Centres to enhance Revenue Sharing between the County and National Government		
		Promote access to sustainable liquid and solid waste management practices within the Archipelago	Identify probable land fill sites for solid waste management in Lamu and Pate Islands		
			Enforce donkey cells on those found roaming at night without owners in Amu Old Town to curb uncontrolled waste		
		Enhance security within the Islands	Lighting programmes within the villages of Pate and Ndau Islands		
			Put up police posts at Siyu Village		
			Encourage community policing within the settlements		
			Maritime Police posts at all jetties in the Islands to serve as security checkpoints		
THE ECONOMIC CORRIDOR *(This is the main road corridor in Lamu County upon which all other secondary roads hinge. It is a 2-part corridor; the first running from the Boundary with Tana River County through Witu-Hindi-Mokowe. The second part runs from Hindi Town through Bargon to Bodhei at the Border with Garissa County. This economic corridor presents opportunities for various Centres along it and a parallel railway line)*	Promote dialogue with the National Government to have the road class upgraded	Enhancing transport efficiency of Lamu County to other regions of the Country	Demarcate; survey the 80-meter road corridor that in future will include a railway line connecting the proposed Lamu port to Kilindini port in Mombasa	• KENHA • CGL • The World Bank • SoK	• Improved transport efficiency and economic interaction • Improved Public Transport • Improved security • Increased employment opportunities • Improved access to a wider market • Improved service delivery
		Improvement of the road standard	Tarmac the 114-km road from Garsen to Mokowe		
			Tarmac the 39-km road from Hindi to Bodhei parallel to the LAPSSET corridor		
	Promotion of Public Private Partnerships in development of the project	Develop a Resettlenment Action Plan for Project Affected Persons	Preparation of the Resettlement Action Plan (RAP)		
			Identification of sites for relocation		
			Public sensitization and awareness of adopted RAP procedures		
	Promotion of economically viable development centres along the corridor	Guide development growth for urban centres along the corridor	Prepare Integrated Strategic Urban Development Plans (ISUDPs) for all centres to guide anticipated growth occasioned by the proposed economic corridor		
			Prepare up to date Urban Land Information System on all urban Centres to capture all properties on ground		

			Prepare Valuation Rolls for all Urban Centres to enhance Revenue Sharing between the County and National Government		
	Promoting controlled developments along the economic corridor	Development control programmes managed by the County Government of Lamu	Prepare a land use Plan for the economic corridor which will provide detailed Planning policy and zoning regulations		
	Promote the highway corridor as a link to enhance Tourism; Trade; and Commerce between the County and Malindi; Kilifi; and Mombasa	Develop partnership to enhance Tourism; Trade; and Commerce	Formulate strategies to enhance Tourism; Trade; and Commerce in partnership with Tourism Development Board; and Chambers of Commerce and Industry		
THE PORT PRECINCT (Lamu Port) *This captures the site of the proposed Lamu port as a component of the LAPSSET project, and the impacts it will have on the adjacent areas and Lamu County as a whole)*	Promote the LAPPSET project as an economic asset to Lamu County	Boost the livelihoods; and the standards of living of the people of Lamu County	Train locals to work in the various LAPSSET sectors	• LAPSSET Authority • KMA • KAA • KPC • GoK • Government of Ethiopia • Government of S. Sudan • KENHA • CGL • Kenya Police • CBOs	• Increased sea trading activities in Lamu • Increased employment opportunities • Improved standards of living • Improved revenue generation for the County • Increased monetary circulation within the County • Improved road condition • Enhanced accessibility of areas along the LAPSSET Highway • Improved public transport • Improved Air Transport
			Formulate an affirmative action requiring at least 40% to be local employees of the LAPPSET project		
			Compensate local fishermen affected by the LAPSSET project within the port area		
			Buffer the Port Precinct from the adjacent human settlement areas		
		Enhancement of infrastructural linkage of Lamu to other Counties; and the rest of the Country	Construct a first rail line network connecting Lamu Port to the rest of the Country and extend the line to Ethiopia and Southern Sudan		
			Construct and design the proposed tarmacking of the Hindi-Bodhei Corridor and provide a safe crossing for livestock and wildlife moving toward the Tana Delta in search of pasture and water around Bodhei Livestock Centre		
			Construct the first oil pipeline that will connect Lamu Port to the rest of the Country; Ethiopia; and Southern Sudan		
			Construction of the Lamu Port berths on the naturally deep harbor that will not require a lot of drenching		
			Allow movement of the passenger boats; and other small vessels through the Port area to Islands such as Pate; Ndau; and Kiwayuu		
			The construction of the Airport proposed in Mkunumbi which will enhance air Transport; and convenient foreign trade		
		Enhancing Tourism	The port will provide docking berths for tourist cruise ships; and other passenger ships		
			Initiating the projects under the LAPSSET project components including the Amusement Centre; Fisherman's Wharf; and the Resort City to promote Tourism		

		Enhancement of security	The Police Station established at the Port Area to increase the patrols; and surveillance of the area		
			The Kenya Maritime Authority to conduct routine surveillance on the waters within the Port Area		
		Sustainable Waste Management for the Port Precinct	Prepare an Integrated Solid; and Liquid (including oil effluents and spillages in the sea) Waste Management Plan		
THE STRATEGIC GATES *(These are the main towns/entry or exit points into and out of the County in the mainland and archipelago.* *Here as a concept, they have been interpreted as the Centres of Witu; Bodhei; and Kiunga in the Mainland; and Kizingitini Village in the Archipelago)*	Promote Witu Centre as a tourism and hospitality hub	Provide an enabling land use environment for a sustainable growth of the town	To prepare ISUDP for Witu Town that promotes Eco-Tourism and Hospitality	• CGL • Private Investors • KENHA • LAPSSET Authority • KWS • Kenya Police • Natinal Museums of Kenya	• Planned Witu Town • Controlled growth of Witu Town • Improved accessibility due to road improvement • Improved public transport • Wide access to product market • Improved standards of living • Empowered youthful generation • Improved tourism • Increased employment opportunities • Increased revenue circulation
			Establish a Town management board for sustainable growth of Witu Town		
			Identify land to build the Town Hall for the Management Board		
		Promote infrastructure development of the Town	Integrated waste management Plan for Witu Town		
			Tarmacking of Witu- Moa road to open up to the unexplored potential of Lake Moa area as a tourist attraction area		
			Graveling of the Witu-Kipini road: connects to Kipini Conservancy and Tana Delta Region		
			Gravelling of Witu-Pandaguo road to enhance access to the wildlife conservancies		
		Enhance better management of the Urban Centre	Establish Town management board to ensure effective delivery of services		
			Establish a cultural artifact market in Witu Town		
			Establish Witu as a historical Town: Rehabilitate and Conserve Old Historical buildings of the Witu Sultanate in the Town		
		Promoting youth; and women empowerment through training institutions	Identify land to put a fully-fledged County Polytechnic Institution (Consideration for GTZ land)		
			Establish a Talent and Creative Arts Incubation Centre		
	Promote Fishing as the Main Economic Activity of Kiunga Town	Provide an enabling land use environment for a sustainable growth of the town	To prepare ISUDP for Kiunga Town that promotes Kiunga Town as a fishing Town	• CGL • Private Investors • KENHA • KWS • Kenya Police	• Planned Kiunga Town • Controlled growth of Kiunga Town • Increased fish production • Enhanced security in the area due to improved road; and development • Improved accessibility due to road improvement • Improved public transport • Wide access to product market
			Establish a Town management board for sustainable growth of Kiunga Town		
			Establish a Town Hall for the Management Board		
		Establishing Kiunga Town as a prominent fishing Town	Develop a fish processing Plant		
			Establish about 3 cold storage facilities		
		Enhance Infrastructural linkage	Tarmacking of the Majengo-Kiunga corridor		
			Upgrade the existing airstrip to enhance fish export		
		Enhance Tourism in the area	Upgrade the existing airstrip to promote tourism		
			Encourage Public Private Partnership in the provision of hotel facilities in the area		

			Link the town to the Dodori National Reserve through the proposed Tourism Circuit		• Improved standards of living • Improved tourism • Increased employment opportunities • Increased revenue circulation
	Promote Fishing as the Main Economic Activity of Kizingitini Village	Provide an enabling land use environment for a sustainable growth of the Village	To prepare a Local Plan for Kizingitini Village that promotes the village as a fishing destination	• CGL • Private Investors	• Planned Kizingitini village • Controlled growth of Kizingitini village • Increased fish production • Improved water and road accessibility due to road and jetty improvement • Wide access to product market • Improved standards of living • Improved tourism • Increased employment opportunities • Increased revenue circulation
		Establishing Kizingitini Village as a prominent fishing village	Develop a fish processing Plant in Kizingitini		
			Establish about 3 cold storage facilities in the village		
			Identify a site where a fish market can be developed		
		Enhance Infrastructural linkage	Improve the condition of the Kizingitini jetty		
			Improve the Faza-Pate-Kizingitini road to bitumen standard		
	Promote Bodhei as a Livestock Development; and Security Centre	Provide an enabling land use environment for a sustainable growth of the town	To prepare ISUDP for Bodhei Town that promotes the Town as a Livestock Development Town	• CGL • Private Investors • KENHA • LAPSSET Authority • KWS • Kenya Police	• Planned Bodhei Town • Controlled growth of Bodhei Town • Increased revenue collection for the County • Increased livestock production • Improved accessibility due to road improvement • Improved public transport • Wide access to product market • Improved standards of living • Empowered youthful generation • Improved tourism • Increased employment opportunities • Increased revenue circulation
			Establish a Town management board for sustainable growth of Bodhei Town		
		Enhance Infrastructural linkage	Tarmarcking of the Hindi-Bodhei road		
			Tarmarcking of the Majengo-Kiunga road		
			Establish a weigh bridge along Hindi-Bodhei at the intersection with the LAPSSET corridor		
			Identify a site for parking facilities near the dairy; and meat industry		
		Establishing Bodhei Town as a prominent Livestock Development Town	Establish and Develop meat; and dairy processing industries		
			Establish and demarcate the extent of the existing livestock holding grounds		
			Establish strategic water points for the livestock		
			Establish strategically placed cattle dips along the livestock corridor		
		Enhance competiveness and growth of the town	Identify a site for a Livestock Auction Market near the meat; and dairy processing industry		
		Enhancing the security of the Centre and adjoining areas	Identify sites that can be used by various security institutions as Camps; or Posts eg. KPR; Anti-Stock Theft Police Unit; Kenya Police; KWS; and the Administration Police		
			Establish a border security check point in Bodhei		
THE BLUE PEARL	Promote sustainable utilization of EEZ within Lamu County		Undertake Hydro-survey to delineate the oceanic EEZ Boundary; and put up buoys as the sea beacons	• SOK	• Increased fish production

(Exclusive Economic Zone) *(Indian Ocean from Ras Comboni to Kipini of Kenya's territorial waters measuring a length 480 Km of and a width of 370 Km* *Creeks, Wange Creek and Dodori creeks* *Headlands,* *Beaches)*		Determination of the extent of the EEZ within Lamu County	Undertake Bathymetric mapping of the oceanic resources (Marine Spatial Planning)	• KMA • CGL • Kenya Navy • KWS • KEMFRI	• Improved security in the ocean • Improved Tourism • Increased employment opportunities • Improved standards of living • Increased revenue generation and collection for the County
		Training of marine resource experts	Establish a KWS Marine Research Institute in Kiunga National Marine Reserve		
			Establish complementary Marine institutions in Manda and Faza Islands		
		Sustainable waste management in the EEZ	Prepare Integrated solid; and liquid waste management Plan for the EEZ		
			Undertake routine cleaning programmes for the ocean		
	Sustainable Exploration of oceanic resources	Enhancing sustainable deep-sea fishing	The County Government to facilitate the purchase of deep sea vessels that have modern fishing equipments to be used by local fishermen to access the deep sea within the EEZ		
			Through the KWS Institute, the fishermen should be trained on sustainable fishing techniques		
			Promote night fishing activities by withdrawing curfew imposed on night fishing		
			Regulate foreign fishing by agreeing on a benefit sharing platform with the County Government of Lamu; imposition of tax and custom regulations		
		Regulate Petroleum exploration	Forge partnership pacts with the National Government; the County Government of Lamu; and the Exploring Companies on benefit sharing agreements on successful exploration and production.		
			Awarded explorers should undertake an inclusive Environmental and Social Impact Assessment and a report submitted to the relevant authorities		
	Promote coastal and marine Tourism	Promote development and management Marine Parks	Diversify tourist activities within Kiunga national Marine reserve to include Snorkeling		
			Designate sites for scenic Deep-sea diving in Kiunga, Kiwayuu, kipungani		
		Diversify touristic services and activities	Encouraging deep sea recreational activities eg. Snorkeling; deep sea fishing; parasailing and deep-sea diving		
		Enhance Transportation activities in the EEZ	The County Government through Public Private Partnerships to facilitate purchase of deep sea vessels to enable deep sea water transport		
	Promote disaster preparedness and management in the Indian ocean	Develop inter-agency pacts in enhancing disaster preparedness in the EEZ	Derive policy legislation; and agreement pacts between the KWS; KMA; Kenya Navy; and all other agencies involved with activities within the Kenyan Territorial Waters		
			Constitute an inter-agency unit to assist in the mitigation of disaster preparedness in the ocean		
			Ensure all deep-sea vessels are covered by an insurance policy; and equipped with necessary safety		

			gears and equipment including first aid kits; life save jackets, navigation compass etc		
			Increase the number of boat ambulances to make regular patrols in the ocean		

CHAPTER 16: THE CAPITAL INVESTMENT PLAN (CIP)

OVERVIEW

The County Government of Lamu is constitutionally required to plan, fund, design, construct, and maintain infrastructural assets that enable the county and its people as well as the economy to flourish. However, the desired infrastructural investment for Lamu County requires capital that far exceeds available resources to the county Government making a case for the County to build capacity to appraise and prioritize its investment decisions. Hence there is an increasing need to establish and maintain a process of planning and funding capital investment as a regular activity integrated within the county together with its other activities and based on principles of good public management. For this to happen, the County Government of Lamu must identify and prioritize the most beneficial investments, those that will most help to meet long term goals, *inter alia*, for conservation, mobility, sustainability, healthcare, revenue generation and broad-based prosperity.

In developing this CIP, all possible Lamu county capital investments were considered together, and funding programs were developed and sized taking all capital needs into account. This CIP is the first capital plan produced for the County of Lamu and all programs and projects were selected to shape the single Lamu County vision of "**A planned, well governed, secure and healthy County that is economically vibrant and affords a high quality of life for its citizens through Sustainable use of its Natural resources, promotion of local culture and livelihoods and conservation of its unique heritage and biodiversity**".

THE NEED FOR A CAPITAL INVESTMENTS PLAN

The marginalised state and poor living conditions in Lamu County necessitate the need for the County Government of Lamu to invest in infrastructure and other social improvement assets that should enhance the economic and social development of Lamu communities. Furthermore, there is an unprecedented attraction of development to Lamu County, lured by the prospects of the proposed LAPSSET project in the County.

This coupled by Lamu's ecological and social-cultural fragility creates a need for an investments framework that ensures sustainable development in the county that would enhance the welfare of the people in Lamu. From the above perspective, investment is understood as investment in the acquisition or building of new assets; or major repair and replacement of existing assets that have an economic life longer than one year and a value above a specified threshold. Capital investment planning (CIP) by the County would include (or should include) capital investment by the County Government of Lamu, the National Government, National agencies and institutions established for the provision of public services, enterprises set and owned by the county Government for the provision of public utility services. CIP also may include investment by the private sector through public-private partnerships (PPP) as well as by NGOs whose missions intend to improve the welfare of the communities in Lamu.

APPROACH FOR DEVELOPING THE LAMU CSP CAPITAL INVESTMENTS PLAN

This CIP is based upon strategic priorities that enhance conservation and improvement of the biodiversity and heritage in Lamu as well as bolster economic development in Lamu, with an emphasis on sustainability. The set priorities shall guide investments on maintenance and modernisation of existing infrastructural assets that may have deteriorated or setting up new infrastructure to meet current stakeholder needs and requirements.

A Lamu County Spatial Plan Implementation Matrix, was generated after comparison of impacts of different development scenarios of investments across various sectors and county wards in order to provide a better understanding of the most efficient and strategic allocation of resources to achieve goals for the Lamu County Spatial Plan. Projects were selected from the Plan Implementation Matrix which, incorporated public input and detailed all known project ideas including strategy, relevant actors and expected outcome of implementing a project.

This Plan has established approximately 80 different funding programs which incorporate the capital responsibilities of the County Government of Lamu. The programs are sector based highlighting funding allocations for each program based on stakeholder input, and technical staff recommendations. Program sizes were initially established to ensure that they were sufficient to cover projects already underway. A two-phase process was then used to sequence the allocation of remaining funds. The first phase allocates restricted-use funds to projects within the first three years (2017-2020) and those that are legally or in some other way mandated. Allocations were then continued in the following 5 years (2020-2025) based on the strategic priorities.

Particular investments were considered for funding after the programs were defined, phased and assigned a funding level based on the priority of the program, the types of funding available for it, and the ability of the program to achieve the Lamu CSP strategic goals. In addition, this CIP is informed by and will inform other planning efforts within Lamu County, including the Integrated Strategic Urban Development Plans (ISUDPs), the County Integrated Development Plan (CIDP), Resource Area Management Plans, and LAPSSET Corridor Development proposals.

Finally, there will be a public review process of the Lamu CSP after one year, during which this CIP will incorporate input from elected leaders, county technical officials, business groups and other key stakeholders about other priority projects that best facilitate the sustainable development of Lamu County and require funding for planning, construction or both. This plan is a living document that will be regularly reviewed, with adjustments made as required. Annual updates will reflect the most current funding levels and the status of projects.

CHALLENGES OF THE CIP

There are at least three substantial challenges in dealing with CIP in Lamu County.

TIMING CHALLENGE

There is an intrinsic timing challenge. On the one hand, allocating funding for capital projects should be done annually within the County's budgeting cycle. On the other hand, complex infrastructure projects may require several years' preparation and "packaging" before external financing (grants or loans) can be sought.

This CIP encourages Lamu County to pursue study, design, permitting, and/or engineering for the next generation of major investments, even if construction financing has not yet been fully identified or committed for those projects. Such investments are large, expensive, complex, and important to the development of the County, and therefore CGL should continue to move them through the important phases of planning, community outreach, concept and preliminary design, and permitting. This plan facilitates the CGL to work with public and private sector partners and stakeholders to determine how best to advance such crucial investments in a manner that is fiscally prudent and sustainable, while continuing to aggressively pursue necessary steps to ready the projects for construction.

DESIRED DEMANDS AND AVAILABILITY OF FUNDS

After expenditures for remunerations, there are hardly any funds left for capital expenditures. Secondly, desires for capital investment are always higher than available funding, therefore, the County must make rational choices.

CAPACITY TO CAPITAL PLAN

Often new and contemporary approaches to evaluate options for complex infrastructure projects usually exceed the county's technical capacities, even in more developed counties of Kenya. For example, capital investment should be considered within the frameworks of life cycle costing and assessment of alternatives (for example, reducing demand for the service/facility, engaging the private sector). Such a consideration is not often easy to quantify and evaluate objectively by the County. In addition, CIP is an evolving area of public management. Local Governments across the world are continuously trying new approaches.

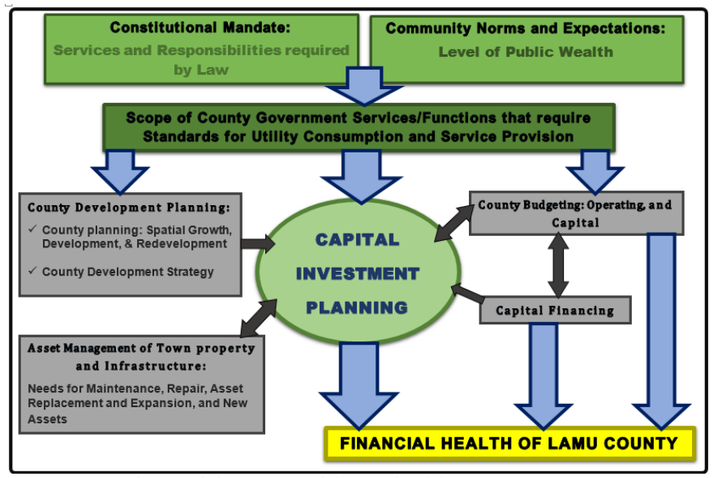
RELATING CIP TO OTHER COUNTY ACTIVITIES

Capital investment planning is appreciated in the context of the County functions and activities with which it is connected. Understanding these connections is critical for developing the CIP process as an integral part of a County that can evolve and mature (World Bank, 2011). Thus, Capital investment Planning is not a standalone, one-time effort for the County but sits at the intersection of two interrelated areas: asset management and financial management. Asset management is the process of acquiring, holding, managing, operating, and disposing of capital assets (such as land, buildings, infrastructure facilities and networks, movable property) and other assets needed for attaining Government goals (World Bank, 2011).

Figure 20.1 below depicts how CIP should ideally relate to other activity areas within Lamu County. The Green boxes illustrate conceptual, legal, social, and economical factors that establish a fundamental context for the CIP. It highlights the first key principle of contemporary good public management as properties and infrastructure in which the county invests should be only those needed for the services and utilities that the county is required to provide for its communities.

The services to be provided are either mandatory services required by law or discretionary services recommended in national or county policies. For example, the Constitution requires County Governments to provide healthcare services thus the county should invest in establishing adequate healthcare facilities. However, a county may decide to acquire/build and operate a Rehabilitation Centre for drug addicts. Providing this rehabilitation centre would be a discretionary service.

Figure 41: Capital Investment Planning and Relationship to Other County Activities



Source: Adapted from World Bank, 2011.

The challenge here is that laws very often are silent about the specific content, quantities, and qualities of the services that counties must provide. In such cases, societal norms and expectations come into play since all services come from public financial resources that belong to the people. In any event, service provision mandates, along with societal expectations and the wealth in the public sector, form the scope of the standards for public utilities and provision of services that the county must address in its CIP process.

The Grey Boxes show three interrelated factors that provide input to the CIP progress: sources of projects, funding, and finance. Finally, the Yellow Box depicts a very important aspect of CIP: decisions related to capital investment, city budgeting, and financing all directly impact the county's financial health and its future ability to fund services for its communities.

FUNDING STRATEGY FOR THE CIP

The list of projects prioritized in this CIP is nothing more than an expression of the County needs and preferences. In order to achieve the objectives of the Lamu County Spatial Plan as well as the national objective of accelerating economic growth and poverty reduction, a proper funding strategy of this CIP is critical. Since financial resources available for capital investment define

what can be implemented, the approval of this CSP containing the CIP has an impact on the county budgeting process. In addition, the Government needs to plan for and incorporate the after-acquisition life cycle costs of new or renovated assets in budget forecasts during the plan implementation period. Lamu County has an established budgeting process that requires approval of the Lamu County Spatial Plan incorporating this CIP to be eligible for county development funding from the exchequer and to allow for capital investment spending as part of the county's budgetary cycle.

Funds mobilization is key to the implementation of the identified County priorities. To ensure that the funding of the projects have been effectively been done, the first fiscal year of the Capital Investment Plan, 2017/18 has been set aside to carry out a massive funds mobilization for the projects. This will ensure that projects will only commence once funds have been guaranteed.

Some capital investment needs in this CIP will be addressed through the use of nonfinancial or nontraditional solutions. On the demand side, the CIP considers reduced cost for new infrastructure through urban planning that promotes compact human settlement areas. On the financing, building, and operating side, engagement of the private sector in the process through various forms of public-private partnerships is encouraged. Land-based financing which entails the mobilization of the economic value of the Government-owned land and Government's power to impose fees and charges, in particular on developers, or to sell "development rights" to generate additional revenues to fund infrastructure is also promoted in this CIP to enhance Lamu county's financial capacity.

PROPOSED CAPITAL COSTS FOR THE FIRST 3 YEARS (2017 – 2020)

The various sectoral capital costs for the first 3 years have been identified based on the review of the proposed sectoral strategies as follows:

i. Housing and Social Infrastructure

Informal housing and inadequate housing tenure is a major problem in Lamu County that is addressed in the Lamu CSP and constitute capital costs including housing typologies and conditions, spatial location of Housing, and improving housing delivery systems. Adequate healthcare provision generally within Lamu County and especially in Lamu East sub-county and island settlements is also a key issue reflected in the plan. Other aspects of social infrastructural services e.g. improving educational infrastructure, improving community facilities, also require capital funding and are considered in the same funding pool.

ii. Environment and Biodiversity Conservation

Lamu County has a unique and rich Biodiversity and heritage that affects the national economy and requires effective conservation. Furthermore, the biodiversity and heritage inherent in Lamu County has international and national interests as well as local interests who can all fund and implement programmes in this sector.

iii. Commercial & Industrial Development

Capital expenses proposed in this sector relate to the future development of Lamu County as a county creating employment and wealth for the Kenya and the larger East Africa region. The development of the Lamu Port and the LAPPSSET Corridor will make Lamu county a new regional focal point for industrial logistics. Similarly, by funding the capital infrastructure and facilities to encourage development of value addition industries in different parts of the County, will catalyse the establishment of Lamu as a regional industrial, tourism and commercial hub. This sector shall rely upon National and County Government funding as well as significant input from the private sector.

iv. County Financial Structures

Modest capital expenses have been proposed in relation to Computerization of county revenue operations, establishment of a Geographical Information System (GIS) and development of a modern Valuation roll.

v. County Planning and Management

Expenditures have been proposed for the establishment of a modern Planning Department in the County cascaded to include ward level planning units as well as a development of Integrated Urban Development Plans for selected urban areas within Lamu County.

vi. Infrastructure & Services Strategy

Most of the capital expenses in this category can jointly be funded by the County Government and the National Government agencies responsible. Some of the projects included in this category include the establishment of an integrated solid and liquid waste management system in the County. Other capital expenditures in this category will include the improvement of roads infrastructure in the County, Establishing Marine ambulances, Development of Mkunumbi Airport, development of Jettys and fish landing sites in different areas of the County among other projects. A summary for capital costs related to projects in the first 3 years is presented below:

Table 19: Summary of Short Term 3-year Capital Costs.

SECTORAL ACTIVITY	2017/18 ('000)	2018/19('000)	2019/20('000)	TOTAL ('000)
1. Housing and Social Infrastructure				
2. Environment and Biodiversity Conservation				
3. Commercial & Industrial Development				
4. County Financial Structures				
5. County Planning and Management				
6. Infrastructure & Services Strategy				
Total for 3 Year Capital Investment Plan				

Source: CURP, 2017

LAMU COUNTY'S FINANCIAL CAPACITY

Knowledge of the Lamu County's financial capacity to fund capital investments is another key input in the capital investment planning. This capacity is analysed to determine how the proposed expenditures summarized above, compare and relate to the total County budget. It is however notable that Lamu County is one of the most least funded Counties in the Country with an annual budget of about 2 Billion shillings. A look at the County's annual budgetary allocations to various departments would make it a bit hard to believe that the County alone can be able to fund all the projects proposed under this CSP. The following departmental budgetary allocations for the past 2-years in the County has been used as an example:

Sector	Year 2 (2014/15)	Year 3 (2015/16)
Agriculture, livestock, fisheries and Cooperative Development	104,776,195	108,200,000
Finance, Economic & Strategic Planning	5,790,226	4,000,000
Trade, Culture and Tourism & Investment Development	32,469,286	36,500,000
Lands, Physical Planning, Infrastructure, Water & Natural Resources	186,166,634	225,965,747
Health and Sanitation	78,765,099	174,200,000
Education, Gender, Youth and Social Services	55,345,722	159,200,000
County Government and County Assembly	107,574,045	138,000,000
Communication, EGovernment & Public Participation	5,094,250	6,500,000
GRAND TOTAL	575,981,457	852,565,747

Source: Lamu County Government, 2017

From the above allocations, it is not easy to directly compare the County Budget with the CIP budget since the County budget is not detailed enough to apportion actual programmes or fund them. However, it is clear that elements of the County Budget allude to certain expenditures that would fall under sectoral items discussed in this plan. For example, Agriculture, livestock and fisheries, Trade and Commerce sector, Urbanisation sectors, Lands, forestry, water and natural resources, Transport infrastructure Industrialization, Health, Education, Institutional Capacity Building, Gender, Youth and Social Services, Safety and Security are all County budgeted expenditures that would relate to the detailed proposed expenditures presented in the CIP. If this was the consideration, the County budgetary allocation for capital expenditure would therefore imply a budget of about KES 10 Billion annually to fully fund anticipated annual projects advanced by this CIP.

FUNDING THE INVESTMENTS

The 2017/18 Capital Budget will represent the funding for the first year of the CIP. Projects in the first year of the Plan generally represent the County's most immediate investment priorities and at about KES 5 billion, that is already a very high figure. Projects that are included in the Plan are stated as priorities but are not guaranteed for funding as the Plan is a reflection of the stated needs within the County. In this regard, the CIP is intended to be a fluid document that will be subject to change each year as priorities are re-assessed and as additional information on funding streams becomes more defined. Losses of County allocations, emergencies, unforeseen and extraordinary expenditures in the operating budget, are all factors that can force a change in the assumptions of the CIP. The mobilization of these funds is critical if the County Government of Lamu will have to contribute to the overall goals of accelerating economic growth and poverty reduction in Lamu.

The following are some of the sources of funds for the CIP.

i. National Government County transfers;

ii. County taxes and revenues from assets, valuation roll, among other forms of revenue generation;

iii. Development Partners (DP) funding e.g. WWf, ICRAF, DANIDA, WORLD BANK; and the African Development Bank (ADB) among others;

iv. Private and related collaborative sources (Public Private Partnerships - PPPs, etc).

v. The local community through CBOs, CSOs, SACCOs etc

GOVERNMENT OF KENYA (GOK) NATIONAL FUNDING

Lamu County receives funds from the national Government through the equitable share of the national Government revenue. Lamu County has received **KES 1.79 Billion** in 2014/15; KES 000 billion in 2015/16 from the equitable share of the national Government revenue. The National Government had through the Commission on Revenue Allocation recommended the allocation of **KES 377.5 Billion** to the 47 county Governments in the 2016 – 2017 Financial Year (FY) where Lamu County got the least allocation of **KES 2.5 Billion**.

Lamu also receives allocation from the national Equalisation Fund, with the funds meant solely for development of basic but critical services, such as water, roads, health facilities and electricity in marginalised areas to the extent necessary to bring the quality of these services to the level generally enjoyed by other areas. In the 2016-17 financial year, Lamu County was set to receive an additional **KES 722 Million** above what it receives in normal allocations from the equitable share of the national Government revenue. National Agencies also offer Targeted transfers (grants) which are allocated for specific sectors (for example, water, roads) or specific projects. In some agencies, such transfers may give some discretion to County Governments to decide how to use the funds, in the support of the devolved system of county Governments.

As alluded above, these amounts are still not enough to sustain the various capital projects advanced in this Plan considering the recurrent expenditure also takes quite a huge chunk of the monetary allocation from the National Government.

COUNTY GOVERNMENT OF LAMU (CGL)

Lamu County Government collected local revenue of **KES 35.57 Million** in 2013/14; KES **61.67 Mllion** in 2014/15; **KES 50 Million** in 2015/16 from local sources including land rates and rent, single

business permits, agricultural fees, public advertisments, local quarries, public health fees, produce cess and fish cess among other miscellenous sources. The County expects to get about KES 300 Million in 2016/17 as part of its revenue generation. Such funds if increased in their collection capacity through avenues proposed in this Plan will steer some of the projects proposed in this Plan.

The County Government has not been able to invest sufficiently in equipment and other capital assets. However, the County can budget to finance critical infrastructural investments in several ways which may contribute to capital sources. The county can dedicate local taxes and licence fees for capital projects. Such taxes and fees (for example, land development fees) usually charged to developers and should be used to fund necessary extensions of public infrastructure or may be considered as impact fee attributed to the need for additional infrastructure caused by the new development. This may however need policy and legislation to support effective enforcement.

Surplus from the annual operating budget either from own-source revenues or savings or from general transfers from national Government can also be a source for capital expenditures. Service utility users' contribution mostly a one-time input can be a substantial funding source, e.g. water connection charges. Furthermore, for infrastructure systems that provide user-paid services like water and sewerage, some part of the user fee should constitute a dedicated source for capital investment, paying for capital components of maintenance costs and for restoration and recapitalization. Contributing to the infrastructure implementation cost also builds citizens' sense of ownership and contributes to citizens' selecting priority projects and controlling implementation.

County revenue and funds dedicated to implementing this plan should be well managed in a Special Reserve Fund established through a formal County resolution. This fund would accumulate specific earmarked resources identified in its establishing documents for the development and maintenance of essential capital assets and cannot be used for other purposes. The special fund can either be dedicated to a particular infrastructure system or group of properties like roads and streets or water, sewerage, and rainwater harvesting. This reserve should be protected by local regulations from use for other purposes and supervised independently by a special board that incorporates key stakeholders and managed by a professional authority. Moreover, these special funds should be readily available only for capital investment projects as identified by this Plan.

The Lamu CSP has considered and planned for all land in the County and recommended public use land to be reserved for future development. The County can avail pulic land to pragmatic investors to ensure they effectively develop required capital investmenst recommended for the respective zoning boundaries. The plan also makes recommendations that discourage unecessary expropriation of land from sitting tenants when availing public land for development.

DEVELOPMENT PARTNERS (DPS)

The County Government of Lamu can obtain grant funds from specialized donor-funded entities as an important source of capital expenditure funding. Such programmes as the World Bank funded -Kenya Urban Programme Funds that are designed to support specific types of projects in the counties. Lamu County hosts world respected biodiversity and heritage sites and consequently attracted world organisations willing to finance efforts that ensure biodiversity conservaton, heritage, cultural livelihoods promotion as well as environmental protection. WWF, Nature Kenya, UNESCO among others alluded to above are such organisations that may be sources of grant funds to finance capital investments effect that their respective causes and mandates.

PRIVATE PUBLIC PARTNERSHIPS (PPPS)

Public-Private Partnerships are based on a contractual relationship between the Government and the private partner (which can be a consortium of private entities). Private-sector developers can take certain risks that the County Government might not withstand when undertaking a project and yet the county might benefit from the innovations and efficiency of the private sector in implementing capital projects. Private partners in PPPs can play several roles in implementing capital investment projects, which include providing financing, expertise, and efficiency; and, if a PPP is well structured, then a sure implementation procedure is imminent.

Well-structured PPP contracts protect public budgets from the risks of budget overruns and funding drying up before project completion. This is so because project costs and funding for the entire project are stipulated in the PPP contract, before project implementation commences. Some PPP projects can be completely financially self-sufficient and do not require public funding like a fishermans' wharf designed, financed, built, and operated by a private partner, with the with docking prices controlled by the county Government. In such cases, investors recapture their costs and obtain profit from the revenues generated by the property/facility they build, while the Government obtains the public-use facility built without significant public capital outlay.

Developer exactions is another form of PPP engagement which implies that developers build on-site infrastructure on their own, when developing their property with no public funding or finance. For example, a developer is required to build an access road to its development site, or complete off-site infrastructure that was supposed to have been built by the county Government but was not developed. This form can be a negotiated contribution of off-site infrastructure in addition to on-site infrastructure required of the private development. A relevant case would be to allow and have the proposed wildlife conservancies designed, financed, built, and operated by a private partner on a Government-owned land site and required to develop social infrastructure within the area. The County Government become shareholders in the conservancy and local community benefit from social infrastructural developments and also receiveing a profit share.

There can also be PPP form of voluntary and negotiated contributions in which property owners in a specific area agree to pay a predefined amount for specific improvements of infrastructure and services in the area, before capital investment in these improvements is made. This can best apply in business and commercial development zones of the designated urban areas.

THE HUMAN SETTLEMENT STRATEGY

HUMAN SETTLEMENT PLANS

PROJECT ID	PROJECT	QUANTITY	UNIT	PHASE		PHASE 1					PHASE 2					APPROXIMATE COST (IN KES.)
				PHASE 1 (%)	PHASE 2 (%)	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025	2025/ 2026	
ISUDP01	Prepare ISUDP for Mokowe	1269.08	HA	100%	-											45,000,000
ISUDP02	Prepare ISUDP for Mpeketoni	589.25	HA	100%	-											35,000,000
ISUDP03	Prepare ISUDP for Hindi	825.81	HA	100%	-											40,000,000
ISUDP04	Prepare ISUDP for Witu	207.26	HA	100%	-											30,000,000
ISUDP05	Prepare ISUDP for Amu Old Town	108.1	HA	100%	-											30,000,000
ISUDP06	Prepare ISUDP for Kizingitini	57.49	HA	100%	-											30,000,000
ISUDP07	Prepare ISUDP for Bodhei	200.94	HA	50%	50%											30,000,000
ISUDP08	Prepare ISUDP for Faza	25.78	HA	100%	-											15,000,000
ISUDP09	Prepare ISUDP for Kiunga	506.25	HA	100%	-											30,000,000
ISUDP10	Prepare ISUDP for Mtangawanda	25.61	HA	100%	-											15,000,000
ISUDP11	Prepare ISUDP for Bargoni	117.34	HA	100%	-											25,000,000
TOPSV01	Digital Topo-Survey and Contour overlay of the 11 Urban Centres at 1-2m interval	11 Centres	-	100%	-											12,000,000
HS01	Construction of County Staff Housing Scheme in Mokowe	-	-	100%	-											-

Procument and Consultant Selection; Funds Project Implementation Project Monitoring & Evaluation

INFRASTRUCTURE & SERVICES STRATEGY

TRANSPORTATION INFRASTRUCTURE

PROJECT ID	PROJECT	QUANTITY	UNIT	PHASE		PHASE 1					PHASE 2					APPROXIMATE COST (IN KES.)
				PHASE 1 (%)	PHASE 2 (%)	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025	2025/ 2026	
R01	Upgrade Witu – Pandaguo road to gravel standard	20	Kms	100%												50,000,000
R02	Upgrade proposed Pandaguo road through Amu Ranch to C112 junction to gravel standard	38	Kms	100%												95,000,000
R03	Upgrade Witu – Chalaluma road to gravel standard	12	Kms	100%												30,000,000
R04	Upgrade Witu – Moa road to bitumen standard	4	Kms	-	100%											120,000,000
R05	Upgrade Witu – Kipini road (upto Tana River County Boundary) to bitumen standard	2.5	Kms	-	100%											75,000,000
R06	Upgrading the Garsen-Witu-Mokowe road to Bitumen standard	91	Kms	100%	-											2,730,000,000
R07	Upgrading the Kibaoni-Mpeketoni-Mkunumbi loop road to Bitumen standard	19	Kms	100%	-											570,000,000
R08	Upgrading the Hindi-Bodhei road to Bitumen standard	25	Kms	100%	-											750,000,000
R09	Upgrading all Class E roads in Mkunumbi; Hongwe; Bahari; Hindi Wards; and the archipelago to gravel standard (No. of roads)	-	Kms	75%	15%											-

Procument and Consultant Selection; Funds Project Implementation Project Monitoring & Evaluation

PROJECT ID	PROJECT	QUANTITY	UNIT	PHASE		PHASE 1					PHASE 2					APPROXIMATE COST (IN KES.)
				PHASE 1 (%)	PHASE 2 (%)	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025	2025/ 2026	
R10	Proposed road to open up the area linking the livestock corridor with Witu; and Pandaguo areas	-	Kms	-	100%											-
R11	Upgrade Mkokoni-Kiunga Road to gravel standard	33	Kms	100%	100%											82,500,000
R12	Upgrade Majengo – Kiunga road to bitumen standard	106	Kms	100%	100%											3,180,000,000
R13	Upgrading of Proposed Kiangwi(e) – Milimani – Kiunga road junction to gravel standard	25	Kms	75%	25%											62,500,000
R14	Upgrading of Ishakani – Kiunga road to gravel standard	8	Kms	100%	-											20,000,000
R15	Upgrading Faza-Pate-Tchundwa-Mtangawanda road to bitumen standard	34	Kms	75%	25%											1,020,000,000
R16	Acquire a 12-meter reserve cycling/walking cabral path proposed in the Amu Island Action Plan	32	Kms	100%	-											640,000,000
R17	Reconstruction of the Siyu footbridge connecting to Siyu fort	80	M(s)	100%	-											2,400,000
WB01	Setting up of a weighbridge terminal at intersection of Hindi-Bodhei road and LAPSSET corridor	1	-	-	100%											-
TF01	Establishment of a boat marina fronting Lamu Old Town		-	100%	-											100,000,000
AS01	Upgrading of Faza Airstrip	-	-	-	100%											40,000,000

Procument and Consultant Selection; Funds Project Implementation Project Monitoring & Evaluation

PROJECT ID	PROJECT	QUANTITY	UNIT	PHASE		PHASE 1					PHASE 2					APPROXIMATE COST (IN KES.)
				PHASE 1 (%)	PHASE 2 (%)	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025	2025/ 2026	
AS02	Upgrading of Kiunga Airstrip	-	-	50%	50%											50,000,000
AS03	Upgrading of Bodhei Airstrip	-	-	-	100%											30,000,000
SW01	Construction of sea walls at Siyu, Kiangwi and Mbwajumwali	2,000	M(s)	100%	-											100,000,000

Procument and Consultant Selection; Funds Project Implementation Project Monitoring & Evaluation

SOCIAL INFRASTRUCTURE (HEALTH & EDUCATION)

PROJECT ID	PROJECT	QUANTITY	UNIT	PHASE		PHASE 1					PHASE 2					APPROXIMATE COST (IN KES.)
				PHASE 1 (%)	PHASE 2 (%)	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025	2025/ 2026	
ED01	Putting up Egerton Uni. Campus in Majembeni and Nairobi University Campus in Mkunumbi	2	-	100%	-											748,000,000
ED02	Construction of primary schools in Mpeketoni, Bargoni, Chalaluma, Moa, Maleli, Hindi, and Kiunga Ward	8	-	100%	-											300,000,000
ED03	Construction of Mangai Boarding school	1	-	100%												35,000,000
ED04	Construction of fully equipped science & ICT laboratories in Secondary schools across the County	23	-	100%												460,000,000
ED05	Establishment of Marine institutions in Kiunga and Manda Island	2	-	50%	50%											-

Procument and Consultant Selection; Funds Project Implementation Project Monitoring & Evaluation

PROJECT ID	PROJECT	QUANTITY	UNIT	PHASE		PHASE 1					PHASE 2					APPROXIMATE COST (IN KES.)
				PHASE 1 (%)	PHASE 2 (%)	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025	2025/ 2026	
HT01	Construction of health centres in Mpeketoni, Bargoni, Chalaluma, Moa, Maleli, Hindi, Mararani, Majengo	7	-	100%	-											700,000,000
HT02	Upgrading of Faza Health Centre to Level 4 Hospital with equipments and staff	1	-	100%	-											150,000,000
HT03	Construction of a Dispensary in Ndau, and Mangai	2	-	100%	-											50,000,000
HT04	Installation of an electronic medical records system for level three and above hospitals in the County	6		100%	-											12,000,000

Procument and Consultant Selection; Funds Project Implementation Project Monitoring & Evaluation

ENERGY & ICT INFRASTRUCTURE

PROJECT ID	PROJECT	QUANTITY	UNIT	PHASE		PHASE 1					PHASE 2					APPROXIMATE COST (IN KES.)
				PHASE 1 (%)	PHASE 2 (%)	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025	2025/ 2026	
E01	Extend the National grid power line to reach the established investments within the wildlife corridor	-	-	-	100%											-
E02	Extend the National grid power line to Urban Centres in Bahari; Mkunumbi; and Hongwe Wards (*Those not reached* yet) - *Extended to all primary schools & health facilities in the Wards*	-	-	100%	-											-

PROJECT ID	PROJECT	QUANTITY	UNIT	PHASE		PHASE 1					PHASE 2					APPROXIMATE COST (IN KES.)
				PHASE 1 (%)	PHASE 2 (%)	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025	2025/ 2026	
E03	Solar lighting programmes for the villages of Faza and Ndau-pate islands *Extended to all primary schools & health facilities in the Islands*	-	-	100%	-											-
E04	Establishment of the solar power farm in the proposed site in Basuba Ward	1557	HA	-	100%											234,465,880,000
ICT01	A joint website for all the pristine ecosystems and adverts on local media to promote them as tourist destinations	1	-	-	-											50,000

Procurement and Consultant Selection; Funds
Project Implementation
Project Monitoring & Evaluation

WATER, SEWER & SOLID WASTE MANAGEMENT INFRASTRUCTURE

PROJECT ID	PROJECT	QUANTITY		UNIT	PHASE		PHASE 1					PHASE 2					APPROXIMATE COST (IN KES.)
					PHASE 1 (%)	PHASE 2 (%)	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025	2025/ 2026	
SW01	Prepare a solid and liquid waste management Plan for the County	-		-	100%	-											55,000,000
SW02	Prepare an integrated solid and liquid waste management Plan for the EEZ			-	25%	75%											65,000,000
SWR01	Construct a sewer line in Mpeketoni; Hongwe; Mkunumbi; and Hindi			-	100%	-											-

PROJECT ID	PROJECT	QUANTITY		UNIT	PHASE		PHASE 1					PHASE 2					APPROXIMATE COST (IN KES.)
					PHASE 1 (%)	PHASE 2 (%)	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025	2025/ 2026	
WT01	Undertake ground water survey in the Bawayas (Kiongwe), Manda-Shella, and Kiwayuu sand dunes to establish the quality and quantity of water held	3		-	100%	-											30,000,000
WT02	Put up 'djabias' for rainwater collection in Kiangwi, Basuba, Mangai, Milimani, Matondoni, Kipungani, Faza, Pate, Tchundwa, Siyu, and Mbwajumwali (2 for each settlement)	22		-	100%	-											33,000,000 (1,500,000 each)
	Procument and Consultant Selection; Funds							Project Implementation					Project Monitoring & Evaluation				

RECREATIONAL INFRASTRUCTURE

PROJECT ID	PROJECT	QUANTITY	UNIT	PHASE		PHASE 1					PHASE 2					APPROXIMATE COST (IN KES.)
				PHASE 1 (%)	PHASE 2 (%)	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025	2025/ 2026	
RC01	A fully-fledged stadium in Mokowe	1.214	HA	-	100%											582,748,800
RC02	Establishment of a resource Centre and theatre in Hindi	0.405	HA	-	100%											157,827,540
RC03	Establishment of talent and creative arts incubation centres in Bodhei, Kiunga, WItu, and Kizingitini	0.808 (4 villages)	HA	-	100%											150,000,000
	Procument and Consultant Selection; Funds						Project Implementation					Project Monitoring & Evaluation				

INDUSTRIAL & COMMERCIAL DEVELOPMENT

PROJECT ID	PROJECT	QUANTITY	UNIT	PHASE		PHASE 1					PHASE 2					APPROXIMATE COST (IN KES.)
				PHASE 1 (%)	PHASE 2 (%)	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025	2025/ 2026	
IN01	Establishment of a fish packaging Plant in the County – Manda Island proposed industrial site	0.202	HA	75%	25%											54,621,000
IN02	Establishment of a fruit extraction and packaging factory in Hongwe	0.202	HA	100%	-											58,667,000 (Exception on equipment)
IN03	Establishment of a cereals warehouses and storage facilities in Mkunumbi	0.101	HA	100%	-											27,297,000
IN04	Establishment of a meat and leather processing Plant in Witu	0.202	HA	-	100%											58,667,000 (Exception on equipment)
IN05	Establishment of an animal feed Warehouse in Mkunumbi	1	HA	50%	50%											27,297,000
IN06	Establishment of storage warehouses for agricultural products in Mpeketoni, Hongwe, Kibaoni, Hindi, Bahari, Majembeni and Witu	0.101	HA	75%	25%											191,079,000
IN07	Establishment of a dairy and meat processing Plant in Bodhei	0.202	HA	-	100%											58,667,000 (Exception on equipment)
IN08	Establishment of fish cold storage facilities in the County	0.6875 (11 units)	Acres	100%	-											75,000,000 (Exception on equipment)
IN09	Establishment of fish processing Plant in Kizingitini and Kibokoni	0.202	HA	100%	-											58,667,000 (Exception on equipment)

Procument and Consultant Selection; Funds Project Implementation Project Monitoring & Evaluation

PROJECT ID	PROJECT	QUANTITY	UNIT	PHASE		PHASE 1					PHASE 2					APPROXIMATE COST (IN KES.)
				PHASE 1 (%)	PHASE 2 (%)	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025	2025/ 2026	
IN10	Development of fish landing sites	20	No.	100%	-											40,000,000 (2 Million for Each)
IN11	Development of fishing depots in Kizingitini, Kiunga, and Moa	3	No.	25%	75%											15,000,000
IN12	Establishment of fingerlings hatchery in Witu and Mpeketoni	2	No.	-%	100%											5,000,000
IN13	Establishment of fish feeds formulation machines in Hindi, Mpeketoni, and Witu	3	No.	-%	100%											9,000,000
IN14	Establishment of fish pond liners County wide	-	-	-%	100%											-
MKT01	Establishment of a farmers' market in Mpeketoni, Witu, Hongwe, Bargoni, and Kizingitini	2.02 (5 Units)	HA	100%	-											450,000,000
BS01	Set up a one stop business hub to offer relevant business information in Mokowe	0.05	HA	100%	-											120,000,000
BS02	Preparation of the County Valuation Roll	-	-	100%	-											10,000,000
EMP01	Provision of modern fishing equipment to tap on the EEZ	-	-	100%	-											-

Procument and Consultant Selection; Funds Project Implementation Project Monitoring & Evaluation

TOURISM & HERITAGE STRATEGY

PROJECT ID	PROJECT	QUANTITY	UNIT	PHASE		PHASE 1					PHASE 2					APPROXIMATE COST (IN KES.)
				PHASE 1 (%)	PHASE 2 (%)	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025	2025/ 2026	
TR01	Construction of touristic wild hotels in the proposed wildlife conservancies zones	12	No.	40%	60%											133,518,000 Each (66,000 per sq. m)
TR02	Construction of eco-lodges around the mangrove forests outside the proposed buffer zones	-	-	60%	40%											76,874,000 (38,000 per sq. m)
TR03	Rehabilitation of Siyu Fort, Said bin Said house, Witu sultanate, Pate Ruins, Fuma Liongo grave & Well	6	No.	100%	-											60,000,000
TR04	Build a commemoration monument (squares) for Suleiman bin Baru, Avu Tulla and Rodgers Well	2	No.	50%	50%											15,000,000
TR05	Advertise and market proposed eco-city in Manda island for potential investment	-	-	100%	-											5,000,000
TR06	Training of local personnel on the value and history of heritage sites to act as guides to tourists	-	-	100%	-											-
TR07	Preparation of Advisory Plan for Amu Ranch conservancy	-	-	100%	-											5,000,000

Procument and Consultant Selection; Funds Project Implementation Project Monitoring & Evaluation

CONSERVATION STRATEGY

PROJECT ID	PROJECT	QUANTITY	UNIT	PHASE		PHASE 1					PHASE 2					APPROXIMATE COST (IN KES.)
				PHASE 1 (%)	PHASE 2 (%)	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025	2025/ 2026	
CN01	Preparation of a wildlife management Plan for the proposed wildlife conservancies zones	1	-	100%	-											25,000,000
CN02	Undertaking an inventory to determine rare tree species and animals in the proposed wildlife conservancies area	1	-	100%	-											5,000,000
CN03	Survey of Pandaguo and Kipini forest	2	HA	100%	-											-
CN04	Survey of wetlands and swamps within the proposed wildlife conservancies	-	Ha	100%	-											-
CN05	Survey and Demarcation of the L. Kenyatta, L. Amu, and the Kiongwe Bawaya sand dunes water catchment ecosystem	-	-	100%	-											-
CN06	Preparation of Resettlement Action Plans (RAPs) for various settlements in environmentally sensitive ecosystems	-	No.	100%	-											30,000,000
CN07	Visible pillars strategically erected to indicate extent of Dodori National Reserve	-	No.	30%	70%											-
CN08	Fencing of Boni-Lungi forest ecosystem	1	Kms	40%	60%											3,500,000 per kilometer
CN09	Community awareness programmes for the conservation of the Boni-Lungi and Witu Forest ecosystems	-	-	100%	-											-

PROJECT ID	PROJECT	QUANTITY	UNIT	PHASE		PHASE 1					PHASE 2					APPROXIMATE COST (IN KES.)
				PHASE 1 (%)	PHASE 2 (%)	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025	2025/ 2026	
CN10	Dermacation, surveying and Planning of integrated human settlement boundaries in the Boni Lungi forest ecosystem			100%	-											-

Procument and Consultant Selection; Funds Project Implementation Project Monitoring & Evaluation

SUMMARY OF CAPITAL INVESTMENT COSTS

NO.	SECTOR	TOTAL APPROXIMATE COSTS PHASE 1 (In KES.)	TOTAL APPROXIMATE COSTS PHASE 2 (In KES.)
1.	Human Settlement Plans	307,000,000	30,000,000
2.	Transportation Infrastructure	9,441,775,000	290,000,000
3.	Social Infrastructure (Health & Education)	2,445,000,000	0
4.	Energy & ICT Infrastructure	50,000 **	234,465,880,000
5.	Water, Sewer, and Solid Waste Management Infrastructure	134,250,000	48,750,000
6.	Recreational Infrastructure	0	890,576,340
7.	Industrial and Commercial Development	1,041,304,500	217,657,500
8.	Tourism & Heritage	177,031,600	118,360,400
9.	Conservation & Biodiversity	60,000,000 **	3,500,000 **

SUMMARY OF CAPITAL INVESTMENT COSTS PER PHASE

NO.	PHASE	APPROXIMATE TOTAL COSTS (IN KES.)
1.	Phase 1 (2015/16 – 2020/21)	13, 606,411,100
2.	Phase 1 (2021/22 – 2025/26)	235,803,724,200

CHAPTER 17: THE MONITORING AND EVALUATION FRAMEWORK

OVERVIEW

Monitoring and evaluation is an integral part of any development project; the same applies to the implementation of this County Spatial Plan as the development framework for the County. Monitoring and evaluation of the overall progress of the implementation of the Plan and the continual feedback run is necessary as it provides the base for the measurement of its success. It provides a basis for adaptive management and continued improvement of the environmental conditions of the County. Various aspects of the project will be observed and reviewed annually in order to assess whether the implementation of the project is viable and continuous as projected in the planning proposals. In the subsequent sections of this chapter, the monitoring and evaluation stages, indicators of progress, and the implementation guidelines set up for the project will be assessed.

MONITORING AND EVALUATION STAGES

A key and most definitive check on to monitor the progress of the project is output evaluation as this will be important for the purposes of accountability and reporting of the Plan progress. Among other things, this will involve checking whether the implementation of the Plan is following the laid-out work plan and implementation schedule/projects, and whether the particular stages in the process are addressing the intended problem or rather achieving the expected outputs of the project.

For this to be achieved, there will be established a monitoring and evaluation committee with the sole intention of assessing the success of the project. It will comprise of representatives from all stakeholders including the County Government, the Consultant Team, WWF, the NLC, LAPSSET Authority, interested investors and property owners as well as the local community.

INDICATORS OF PROGRESS

The overall objective of this Plan is to 'Sustainably utilize the County's Natural, Human, and Cultural capital assets towards achieving an economically prosperous & competitive County'. This is expected to have an overall impact Socially; Economically; Politically; Environmentally; and Spatially which can only be proved through systematic tracking of the performance of the Plan implementation in relation to the expected outcomes of the project(s) implementation. This can be summarized as follow;

Table 20: Monitoring and Evaluation progress matrix

Impact	Expected outcome	Indicator
Economic impacts	Increased investment opportunities in the County	Increased number of investors in the County
		Increased employment opportunities in the County
		Diversified economic activities
		Enhanced trading capacity of the County
	Improved County revenue base	Increased County revenue collection
		Improved basic service delivery for the County residents by the County Government
	Increased production capacity of the County	Increased food security
		Increased intra/inter-County trading opportunities
	Enhanced infrastructural capacity of the County	Improved, efficient transport options & reduced travel time
	More vibrant and formal economic spaces	Increased entrepreneurship & revenue circulation in the County
Environmental impacts	Conserved and protected mangrove forests, terrestrial forest areas, and National Reserves	Gazettement of deliniated natural forests
		No loss of natural forest
		No loss of mangrove forests
		Increased forest cover in the County
		Increased carbon trading revenue
		All identified Water catchment and wetland ecosystems gazetted and secured
	Conserved and protected water catchment areas, wetlands and swamps	Increased and sustained water supply
		Increased civil awareness on environmental issues
	Conserved and protected sand dune ecosystems	Increased opportunities for recreation spaces, human interaction spaces & water catchment
	Improved wildlife conservation	Increased number of tourists visiting Lamu County
		Reduced encroachment on Natural capital assets in the County
Social impacts **(Improved standards of living for County residents)**	Improved access and enrollment to education facilities	Increased literacy levels in the County
	Improved access to health care facilities	Reduced ortlality, maternal death and disease prevalence rates
	Preservation of heritage value and culture	Reduced dilution of cultural heritage & Increased heritage tourism
	Improved access to affordable energy options	Increased number of household connections to the national grid/other energy source
	Improved access to water and sewer services	Increased number of household connections to potable water and sewer services
Spatial impacts	Highly controlled land use structure for the County	Reduced degradation and depletion of Natural resources
	Controlled Urban Development	Urban Development within deliniated urban edges and not beyond
	High land values across the County	Areas of highly controlled development

Source: CURP 2017

GUIDELINES FOR THE IMPLEMENTATION PROCESS

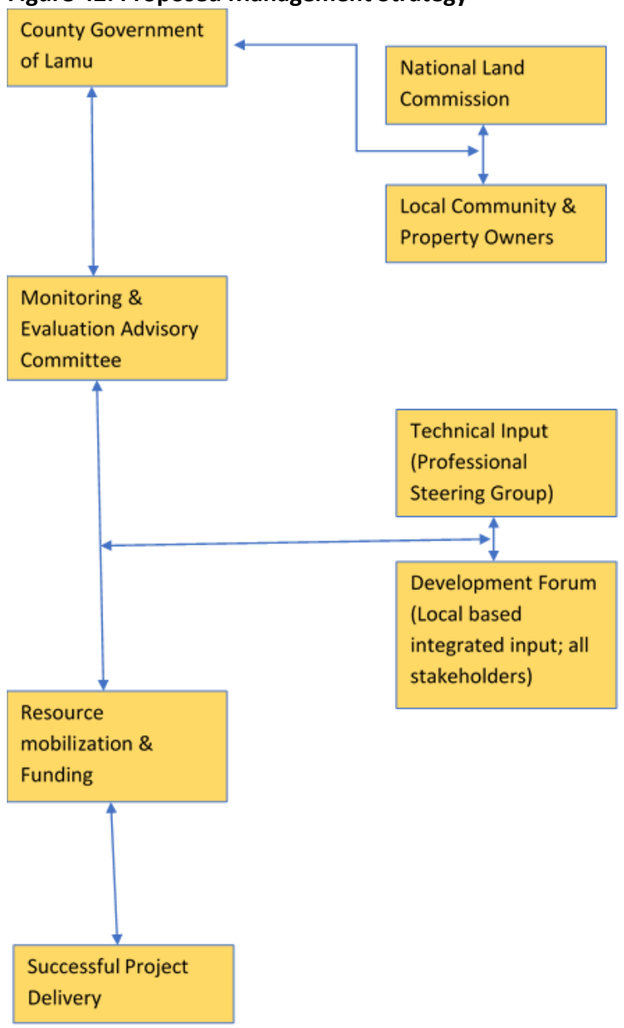
The successful implementation of this Plan will greatly depend on the level of detail and attention given to ensuring that the implementation schedule provided for this Plan is followed. For this reason, therefore, the following guidelines are proposed for adoption:

- A sustainable implementation of the CSP will have to involve an active participation of and partnerships between all stakeholders from the private sector (property owners and potential investors), public sector (County & National Government through relevant sectors/authorities), Center for Urban and Regional Planning (Consultant), and the local community affected by a proposed project under this Plan. The approach will ensure that all stakeholders feel ownership of the projects as their own and are confident about the implementation process.
- A Monitoring & Evaluation Advisory committee composed of the County Government representatives, the Consultant, WWF, and the NLC shall be established to oversee effective implementation of the Plan projects and subsequently ensure proper management of allocated funds
- The appointment of the Committee Chairman is critical to ensure all activities and resources necessary for the implementation of the Plan projects are well co-ordinated and organized to add value to the development process. It is proposed that the Chairman be a member of the Committee with full understanding of the Plan execution.
- All property owners/local residents shall be given priority when it comes to benefit sharing within a project area after a project is delivered successfully
- A professional consultation team comprising of Physical Planners, Water Engineers, Foresters, Agriculturalists, Environmentalists & Conservationists or any other relevant profession will be from time to time consulted on the development of certain projects through the Plan implementation
- All involved stakeholders shall assume collective responsibility of the Plan implementation to ensure proper use, management and conservation of the desired Spatial structure of the County.
- The County Government will have to formulate new by-laws or policy that govern the desired management of land use and in so doing, ensure that the established by-laws and development controls are strictly followed to enhance maximum yield of the land as desired

MANAGEMENT STRATEGY

The management of the Plan implementation will have to be sound and effective to completely achieve the targets and objectives it intends to. The preparation of lower level Plans proposed as part of the implementation projects under this Plan will have to be aligned to the overall objectives envisioned through this Plan. Inspite of the County Government of Lamu being very pivotal in the coordination of this Plan implementation, other departments and stakeholders will have to play a key role and integrated within the management structure to enhance the performance and facilitation of the Plan implementation. A proposed management structure for the implementation of the plan is as follows;

Figure 42: Proposed Management Strategy



Source: CURP 2017

HINDRANCES TO A SUCCESSFUL EVALUATION PROCESS

There are several hindrances to a successful evaluation process which need to be avoided during the monitoring and evaluation of this Plan. These include:

- Poor coordination among involved agencies and stakeholders thereby preventing data aggregation and information flow across the involved sectors.

- Data assessment not shared among all involved agencies and stakeholders, causing inconsistencies and loss of time in data cleaning.
- Lack of commitment by involved stakeholders and agencies to source for funds to implement certain projects leading to delays in their execution.
- Limited knowledge/poor understanding of the Plan during its implementation in the event that the Monitoring & Advisory committee constituting the proposed members is not established.
- Prioritising on projects that have less bearing on the development trajectory as envisioned in this CSP.

The study envisions that the Plan will be implemented successfully in order to achieve more sustainable livelihoods and land use practices. Consequently, the furtherance and implementation of this CSP will provide a sustainable solution to the various land use challenges experienced in the County. A successful implementation of the Plan to achieve the expected outcomes will open up an opportunity to the planning profession where Land Use Planning will effectively be adopted as a key to development.

CHAPTER 18: REFERENCES

1. Archer, D. 2012: Energy System Assessment and Modeling of a Potential Future Energy System on Lamu Island, Kenya. Chalmers University of Technology, Göteborg, Sweden
2. Bakker, K., Odiaua, I., Abungu, G., 2014: Heritage Impact Assessment for the Proposed LAPSSET Corridor, 2014, Nairobi, Kenya.
3. CGL, 2013: First County Integrated Development Plan 2013-2017: Lamu County. County Government of Lamu, Lamu, Kenya.
4. Church, J. E. And Obura, D. O., 2004: Management Recommendations for The Kiunga Marine National Reserve, Based on Coral Reef and Fisheries Catch Surveys, 1998–2003. CORDIO/WWF KMNR, Lamu, Kenya, 1-57
5. Daniels M., Skillman B., A guide for Local Land Use Planning for Agricultural Operations.
6. Duineveld, G. C. A., P. A. W. J. De Wilde, E. M. Berghuis, A. Kok, T. Tahey, and J. Kromkamp. 1997: Benthic Respiration and Standing Stock on Two Contrasting Continental Margins in The Western Indian Ocean: The Yemen-Somali Upwelling Region and The Margin Off Kenya. Deep-Sea Research II 44: 1293-1317.
7. ERC, 2011: STUDY PERIOD 2011 – 2031: Updated Least Cost Power Development Plan. Energy Regulatory Commission, Nairoi, Kenya
8. Ghaidan U.,1976: Lamu, a study in Conservation, 1976, Nairobi.
9. Gok, 1985: Lamu District Environmental Assessment Report. National Environment Secretariat, Ministry of Environment and Natural Resources, Nairobi, Kenya.
10. Gok, 2013: Integrated Coastal Zone Management (Iczm) Policy: Draft. Ministry of Environment, Water and Natural Resources, Nairobi, Kenya
11. Jame A., 2009: Creating the Community you want, Municipal Options for Land Use Control, Albany, Newyork.
12. KFS, 2015: Witu Forest Ecosystem Management Plan 2015-2025. Kenya Forest Service, Nairobi, Kenya
13. Kuria, Z N., 2008: Groundwater Resources Assessment of Lamu Island along Coastal Kenya. 2008, Nairobi, Kenya.
14. KWS, 2013: Kiunga-Boni-Dodori Conservation Area Management Plan, 2013-2023. Kenya Wildlife Service, Nairobi, Kenya
15. Ministry of Environment and Mineral Resources, 2012: Master Plan for the Conservation and Sustainable Management of Water Catchment areas in Kenya, Nairobi, Kenya
16. Ministry of Lands 2013: Planning Draft Report for the Hindi-Magogoni Settlement Scheme (Phase I) 2013
17. Moala, 2001: White Paper on Spatial Planning and Land Use Mangement
18. Molhud, 2011: Nothern Kenya Regional Plan, Garissa County Regional Physical Development Plan, 2011-2040, Nairobi, Kenya
19. Molhud, 2013: LAPSSET Project Components and Linkages Plan (Lamu County), 2013
20. Molhud, 2013: Planning Report for the Part Development Plan of the Proposed LAPSSET Project Component Sites (Lamu County), 2013
21. National Museums of Kenya, 2013-2017: Lamu Old Town World Heritage Site Management Plan. 2013-2017, Nairobi, Kenya
22. National Museums of Kenya: Gazetted Sites and Monuments, Lamu and Tana River Districts
23. National Museums of Kenya: Proclamation of Cultural and Natural Heritage Sites and Monuments in almu and TANA RIVER Districts, 2007
24. NEMA, 2014: Environmental Impact Assessment (EIA), review guide for communities, 2014
25. NEMA, 2015: Environmental Sensitivity Atlas of Lamu County. NEMA, Nairobi, Kenya.
26. Nyagah, K., 1995: Stratigraphy, Depositional History and Environments of Deposition of Cretaceous Through Tertiary Strata in The Lamu Basin, Southeast Kenya And Implications for Reservoirs for Hydrocarbon Exploration: Sedimentary Geology Volume 96. Issues 1–2, Pages 43-71 Elsevier
27. Obura, D. O. 2001: Kenya, Marine Pollution Bulletin, 42 (12): 1264-1278, ISSN 0025-326X, http://dx.doi.org/10.1016/S0025-326X(01)00241-7.
28. Olendo, M., 2015: Animals in Danger, Cute Animal Images, Habitats, Helping Save The Planet, Oceans, Rivers & Freshwater. Http://blogs.wwf.org.uk/
29. Ontario, 2005: Heritage Resources in the Land Use Planning Process.
30. Peel, M. C., Finlayson, B. L. And mcmahon, T. A., 2007: Updated World Map of The Köppen-Geiger Climate Classification. Hydrol. Earth Syst. Sci. 11: 1633–1644.
31. Schillings, C., Meyer, R., and Trieb, F., 2004: High Resolution Solar Radiation Assessment for Kenya. Solar and Wind Energy Resource Assessment (SWERA), DLR-Stuttgart, Institut für Technische Thermodynamik, Stuttgart, Germany
32. Schott, F., 2001: The Monsoon Circulation of The Indian Ocean. Progress in Oceanography, 51(1): 1-123
33. Siravo F., Pulver A., Leakey E R., 1986: Planning Lamu, Conservation of East African Seaport 1986.
34. Spencer, T., Laughton, A. S. And Flemming, N. C., 2005: Variability, Interaction and Change in The Atmosphere Ocean Ecology System of The Western Indian Ocean. Philosophical Transactions of the Royal Society, 363(1826): 3-13.
35. Tychsen, J. 2006: Kensea. Environmental Sensitivity Atlas for Coastal Area of Kenya, 76 pp. Copenhagen; Geological Survey of Denmark and Greenland
36. UNEP, 1998: Eastern Africa Atlas of Coastal Resources: UNEP Regional Reports and Studies, No. 1 Nairobi, Kenya
37. UNESCO 2005: Water and Sanitation Assessment mission to Lamu
38. Wimmer G H., Land Use Planning and Regulation, A survey of New York State Municipalities, Newyork
39. WRMA: Lamu Sand Dunes, 2015

40. WWF, 2001: Kenya, Priority Sites: Lamu-Kiunga And Mida-Malindisocio-Economic Root Causes of Biodiversity Loss in The Priority Sites of The East African Marine Ecoregion. WWF, Nairobi, Kenya
41. WWF, 2002: Notes on The Dodori-Boni Area in Kenya. WWF Regional Office for Africa, Nairobi, Kenya
42. WWF, 2013: Boni-Dondori Sustainable Forest Management. WWF Regional Office for Africa, Nairobi, Kenya
43. WWF, 2014: Climate Vulnerability and Capacity Analysis of The Lamu Land/ Seascape. Kulima Integrated Development Solutions, WWF-KENYA.

CHAPTER 19: APPENDICES

APPENDIX 1: DETAILED DESCRIPTION OF THE PUBLIC CONSULTATION AND STAKEHOLDER PROCESS

The making of this Plan strongly made use of Stakeholder participation and consultation through the Plan formulation. The Planning team sought the concurrence of stakeholders at every stage through workshops, seminars, focus group discussions, electronic and print media. Expert opinion was sought on complex issues arising from the process. The key public and stakeholder engagements can be summarized as follows:

9TH OF MAY, 2016

On this date, the consultant team led by the Lead Consultant Mr. Renson Mbwagwa and representatives of WWF met Key County Government officials led by the Chief Officer (C.O.) in charge of Lands and Director of Planning in the County. This was an introductory meeting and again the scope of the project was highlighted and emphasized.

Figure 43: Meeting with County Government Officials in their office in Lamu Island



Source: CURP

The C.O. highlighted key issues ailing the County of Lamu as well as the impacts of various National projects on the ecosystem of Lamu. The meeting prepared the consultant on what to expect ahead of the project as key issues of land and historical land injustices were also discussed.

After the meeting at the County offices, further deliberations, tasks assignment and work schedules were discussed and agreed upon in the presence of the County Director of Planning and County Planner at stop over Hotel. Here, the schedule and timelines of Transect surveys to be conducted throughout the County was agreed upon.

Figure 44: Meeting at Stop Over Hotel



Source: CURP, May 2016

10TH MAY, 2016

On this date, the first stop was at the County Commissioner's (C.C) office

Figure 45: Meeting at County Commissioner's (C.C) office



Source: CURP

The C.C. briefed us on the major security concerns in the County and also put forward some of the interventions the security dockets were employing to curb insecurity to see how we could incorporate them in our Spatial Plan.

Afterwards, the team visited Bahari Ward where they were hosted by the Ward Administrator. The Administrator briefed the team on most issues ailing the ward.

Figure 46: Meeting at Bahari Ward Administrator's office



Source: CURP, 2016

The Lead Consultant briefed the Administrator on the significance of the project in solving most challenges as he had highlighted. After long deliberations, the team visited various areas of Bahari ward that needed better understanding or rather first-hand understanding of the challenges through the guidance of the Administrator.

Figure 47: A stop at the proposed Kenwinds Farm in Bahari Ward



Source: CURP

It was of great concern to the Consultant to visit the endangered Lake Kenyatta whose water levels have been reported to be dwindling in the recent past due to uncontrolled human activities including farming to ascertain and get hold of the reasons leading to the same.

Figure 48: A stop at Lake Kenyatta



Source: CURP

11TH MAY, 2016

On this day, the Consultant team visited Witu Ward where they were hosted by the Ward Administrator and the Assistant County Commissioner in the ward.

Figure 49: At the Ward Administrator's office in Witu



Source: CURP

The Ward Administrator briefed the Consultant Team on most issues the people of Witu Ward are faced with ranging from the security concerns to poor infrastructural development in the region. In the meeting were also key representatives of the Community including the Witu-Nyongoro conservancy representative and some community elders who also voiced their concerns. The assistant County Commissioner highlighted and emphasized further the issue of security in the Ward and how development steered through the Spatial Plan would impact positively on the security of the area.

Figure 50: Deliberations and Discussions in the Office



Source: CURP

After the meeting, the Consultant visited the Lamu Conservation Trust in Witu, an organization that is interested in wildlife conservancies in the region where key concerns regarding land ownership and conservation were raised. All these concerns would later be discussed in detail in the Planning report where tentative interventions would also be proposed to solve the issues raised.

Figure 51: A stop at the Lamu Conservation Trust Office in Witu



Figure 52: A discussion with one of the officials of the Lamu Conservation Trust



Source: CURP

12TH MAY, 2016

On this date, the Consultant team visited Pate Island where they were hosted by the Ward Administrator, the Assistant County Commissioner and the Chiefs of various villages in the Island. Various administrative issues the island is faced with were discussed and deliberated upon with regards to how the CSP would improve the situation.

Figure 53: At the Ward Administrator's office in Pate Island, Faza village

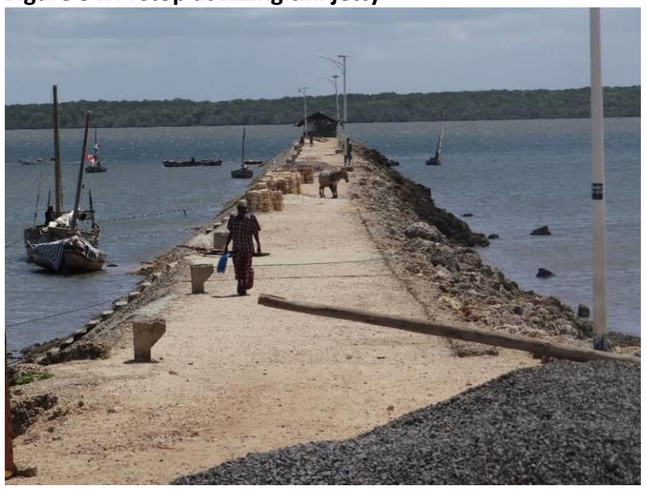




Source: CURP

While still within the Island, the team visited various villages and took note of various issues the residents go through and also the potentials most of the villages held in the development of this Spatial Plan.

Figure 54: A stop at Kizingitini jetty



Here the Consultant interacted with a number of fishermen who informed the team of the challenges they go through daily in the industry despite it being a key livelihood earner. These included poor fishing equipment and lack of a cold storage chain facilities within reach in the island making fish storage quite a challenge.

Figure 55: A stop at the Siyu Fort



Source: CURP

Under the guidance of the National Museums of Kenya (NMK) officials, we were informed that the fort was currently under rehabilitation to enhance tourist options within the island.

13TH MAY, 2016 WITU FOCUSED GROUP DISCUSSION (FGD)

On this day, the Consultant team led a team of community members organized and invited through the office of the Ward Administrator to an FGD.

Figure 56: The participants of the FGD in Witu being briefed on the approach of discussion



The groups were comprised of pastoralists, farmers, and business people in the society. They were supposed to discuss the strengths; Challenges; Proposed solutions to challenges; and their vision for the County.

Figure 57: A representative of the first group presenting their issues



Source: CURP

The group reported the potentials/Resources/Strengths of the Ward as follows:

- The County has Natural Forests for conservation and Tourism Attraction
- The County is rich for farming: Water Melons; Mangoes & Maize
- The County is rich in Coconut production
- The County has great potential for Pastoralism & Pastoralist products
- The County has great potential for honey production
- Human Resource Capital

The group also identified various challenges the Ward is faced with as follows:

Figure 58: A representative of the community presenting the challenges the County faces



Source: CURP

- Land issue – lack of tenure; and encroachment on natural resources
- Farmers/Pastoralists Conflicts; Human Wildlife Conflicts
- Poor roads and accessibility
- Inadequate health facilities
- Inadequate education facilities
- Inadequate market for farm & pastoral products
- Insecurity
- Poor governance

The community also had proposals to identified challenges as follows:

Figure 59: A representative of the community presenting proposed solutions to identified challenges



Source: CURP

- Improvement of road conditions to tarmac/bitumen standard
- Land Boundaries to be regularized and formalized
- Additional health facilities that are equipped with both personnel and equipments
- Additional Schools to be built within the ward in the settlements

- Improvement of security in the villages through addition of KPR officers; & improvement of nyumba kumi initiative
- Allocation of land for the construction of warehouse storage facilities for farm products and processing Plants

The community also had a vision for the Ward as follows:

Figure 60: A representative of the community presenting their shared vision



Source: CURP

A Lamu with clean water; good infrastructure linkage; with a healthy literate population, which is economically empowered

15TH MAY, 2016

On this day, the Consultant team visited Mkomani and Shella Wards where they were hosted by the NMK Heritage officer who briefed them on the Heritage aspect of the Old Town and the challenges that its continued conservation was faced with. The team made a detour of the heritage site (Old Town) to appreciate the highlighted challenges. It was quite evident that the Old town was in need of protection if the heritage significance was to be upheld.

Figure 61: Deliberations at Lamu World Heritage Site and Conservation Office



Other areas that were of great significance in our transect of Mkomani and Shella Wards were the sand dunes stretching from Shella to Kizingoni which we were informed as having been encroached in the recent past despite their significance as sources of fresh water to the Island residents.

Figure 62: The endangered sand dune ecosystem



Source: CURP

16TH MAY, 2016

On this date, the consultant team did a transect survey in Hindi ward where of key interest was visiting the LAPSSET site and the more marginalized communities and pastoralists of Bargon and adjoining areas. The team was guided by the Ward Administrator through the ward. The team made important stops in various schools and police stations in the ward to assess the nature of education levels and security in the ward. Of importance, was the visit to the LAPSSET site to assess the extent of mangrove clearing on the site which is detrimental to the environment.

Figure 63: The LAPPSET model Plan in the LAPSSET site office in Lamu



Figure 64: A community member hihglighting some of the expected devastating effects to be expected after clearing the mangrove trees



Figure 65: The extent of mangrove clearing on the shore line of the LAPSSET site



Source: CURP

17TH MAY FGD IN FAZA

On this day, the Consultant team led a team of community members organized and invited through the office of the Ward Administrator to an FGD. In this meeting, representatives of Basuba, Kiunga, and Faza Wards were present.

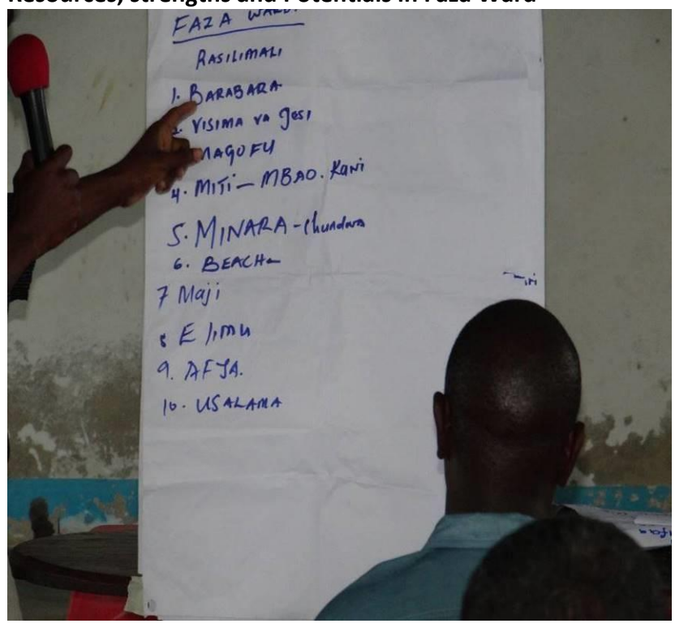
Figure 66: Community members participating in the FGD being briefed by the Consultant



Source: CURP

As discussed above, the participants were supposed to discuss the strengths; Challenges; Proposed solutions to challenges; and their vision for the County.

Figure 67: A representative of Faza Ward discussing some of the Resources, strengths and Potentials in Faza Ward



Source: CURP

The group representing Faza Ward listed most of their strengths as follows:

- Availability of resources- arable land, forests (mangroves and terrestrial)
- There is a beach - opportunities brought by an open coastline
- Availability of skills/human capital (labour force)
- There are roads – elaborate road network
- The people have good health
- There are Islamic institutions- good morals
- Historical sites
- Availability of untapped green energy- solar and winds
- There is oil and the LAPSSET project
- There are quarries – construction materials are readily available

Figure 68: Faza Ward representative discussing the challenges the Ward and County as a whole is faced with



Source: CURP

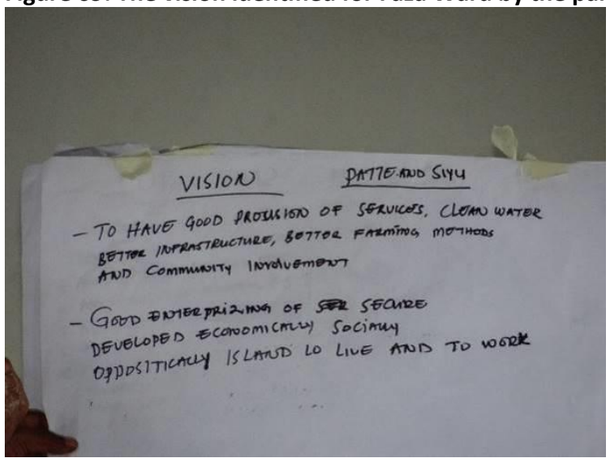
The identified issues as listed above were as follows:

- Poor road network and road condition

- Lack of market for agricultural products and fish products
- No cold storage for fish products
- Land grabbing; and corruption among officials
- Environmental degradation
- Few agricultural officers and veterinaries; cattle diseases
- Clean Water scarcity (salty wells); and no water officers
- Inadequate health & Education facilities
- Drug abuse

The ward representatives also identified a vision for ward as follows:

Figure 69: The vision identified for Faza Ward by the participants



Source: CURP

To have good provision of services, clean water, better infrastructure, better farming methods, and community involvement in environmental conservation.

17TH MAY KIUNGA WARD FGD

The consultant on this day had a session with Kiunga Ward community representatives in an FGD where issues facing Kiunga Ward were discussed in detail. The same process of conducting the FGD as was done in other wards was followed where participants were allowed to table their Potentials/strengths; Challenges they are faced with; proposed solutions to those challenges; and their shared vision in the Ward:

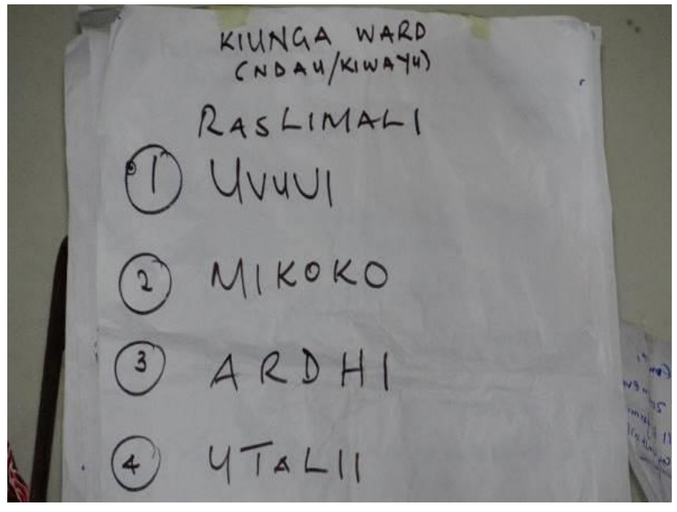
Figure 70: Discussion with participants of Kiunga Ward



Source: CURP

Ensuing from the discussion, the members identified the following as the key resources/strengths/potentials that the Ward pride in:

Figure 71: Key resources as identified by the residents of Kiunga Ward

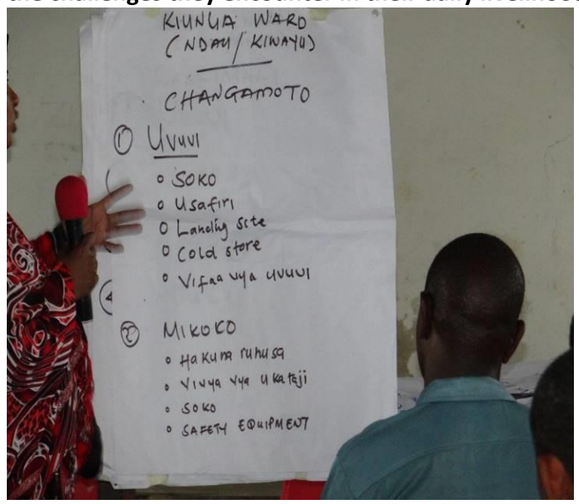


Source: CURP

- Availability of resources- land and mangrove forest
- Fishing
- Tourism potential

The participants also identified most of the challenges they encounter in their daily livelihoods as residents of Kiunga Ward as follows:

Figure 72: A representative of Kiunga Ward presenting most of the challenges they encounter in their daily livelihoods



Source: CURP

- Lack of modern boats and fishing equipments
- There is no cold store for fish storage; and a landing site for the boats
- Insecurity
- Lack of market for fish in Kiwayuu
- Lack of financing to clean beach
- Land Planning- the people are in a reserve therefore building is a problem and requires permits
- No public transport
- Water shortage
- Human- wildlife conflicts

As a response to the challenges they go through, the community also proposed a few solutions they thought would be viable to change their lives as follows:

Figure 73:The Kiunga representative presenting the proposed solutions to their challenges



Source: CURP

- Allocation of a landing site for the fishing boats and use of safety equipment in all boats where used for transport
- Sustainable harvesting of mangrove trees and prohibition in the use of power saw as a harvesting tool
- Construction of a chain of cold storage facilities to allow time for market sourcing
- Regularized land tenure and boundary demarcation
- Planning of Towns

The residents of the ward then had a shared vision for the ward as follows:

Figure 74: Kiunga representative presenting their shared vision for the Ward



Source: CURP

To have proper land regularization mechanism, Proper Land Use Planning, Tourism and Environmental Conservation

17TH MAY BASUBA WARD FGD

The consultant also had a session with residents of Basuba Ward through their FGD.

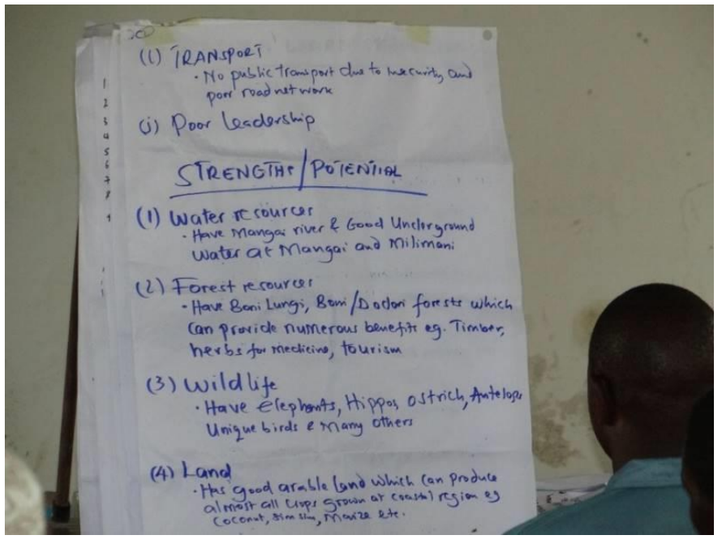
Figure 75: A discussion with residents of Basuba Ward



Source: CURP

The residents presented their resources/potentials as follows:

Figure 76: Strengths/Potentials as presented by Resident of Basuba Ward

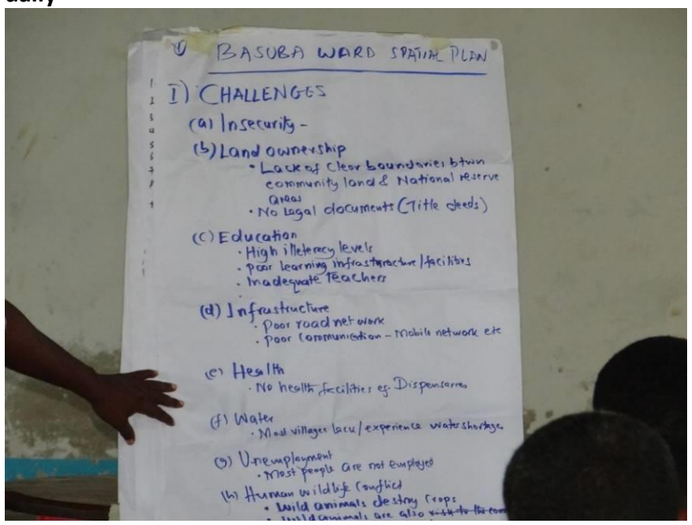


Source: CURP

- Water Resources: Mangai River; underground water potential at Mangai & Milimani
- Forest Resources: Boni Lungi; and Boni Dodori
- Wildlife: Variety of wild animals; and birds
- Arable land: Coconut; simsim; and maize

The residents also presented their challenges as follows:

Figure 77: Challenges the residents of Basuba are faced with daily

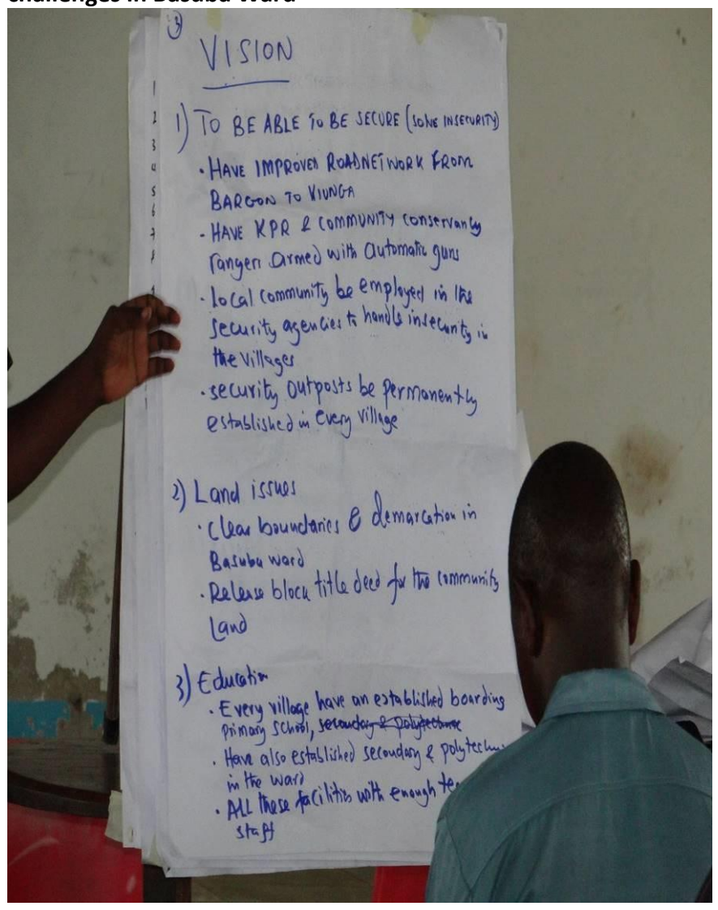


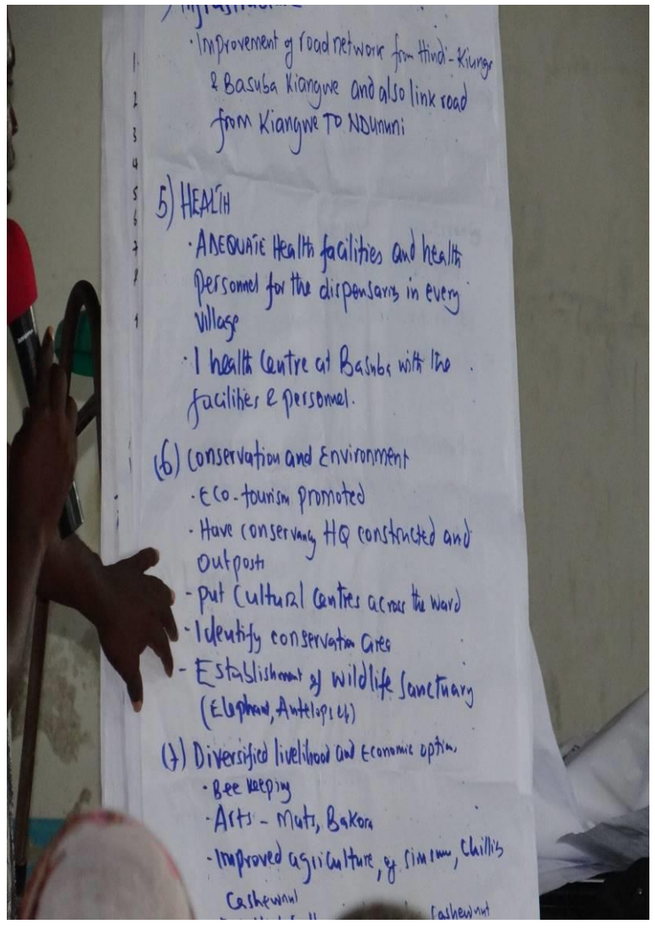
Source: CURP

- Insecurity
- Land issues- lack of tenure; and demarcation
- Human- Wildlife conflicts
- Water shortage
- Unemployment
- Education- poor learning facilities; high illiteracy levels and inadequate teachers
- No health facilities
- Poor leadership
- Poor infrastructural development both roads and network connectivity

The community members also expressed their proposed solutions to identified challenges as follows:

Figure 78: Proposed solutions/interventions to identified challenges in Basuba Ward



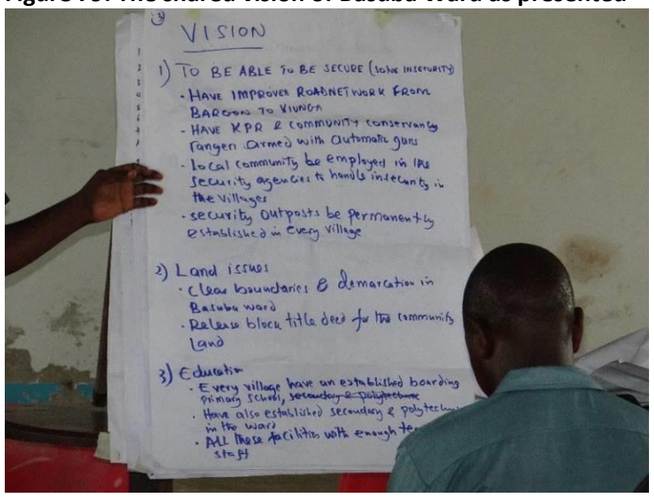


Source: CURP

- Improved security; KPR officers introduced and outposts established
- Improved road network
- Regularized land tenure
- Additional educational & health facilities in all settlements
- Establishment of a wildlife sanctuary and establishment of conservation boundaries

At the end of the discussion, the community member identified their shared vision as follows:

Figure 79: The shared vision of Basuba Ward as presented



Source: CURP

Improved livelihood through sustainable use of natural resources, diversified economic options, security, peace, improved infrastructure and preservation of culture.

18TH MAY FGDS IN BAHARI WARD

On this date, the consultant team visited Bahari Ward where they had successful deliberations with the residents of Bahari; Mkunumbi; and Hongwe Wards. The representation for every Ward was about 50 participants on average.

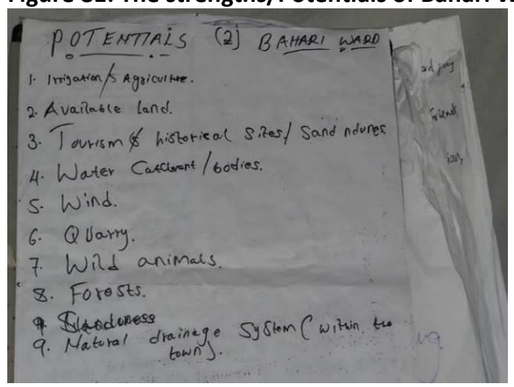
Figure 80: Launching of the FGD workshop in Bahari



Source: CURP

The residents of Bahari were the first ones to present their deliberations as follows:

Figure 81: The strengths/Potentials of Bahari Ward as presented

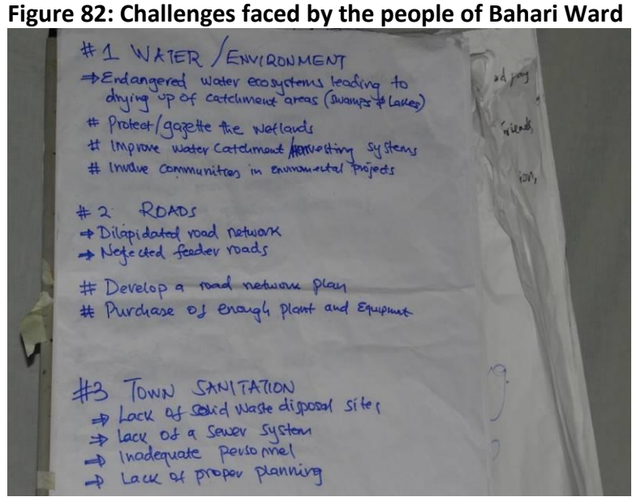


Source: CURP

- Rich arable land
- Sand dunes
- Water Catchments
- Wind
- Wild animals
- Natural forests
- Natural drainage

They then identified their challenges as follows:

Figure 82: Challenges faced by the people of Bahari Ward

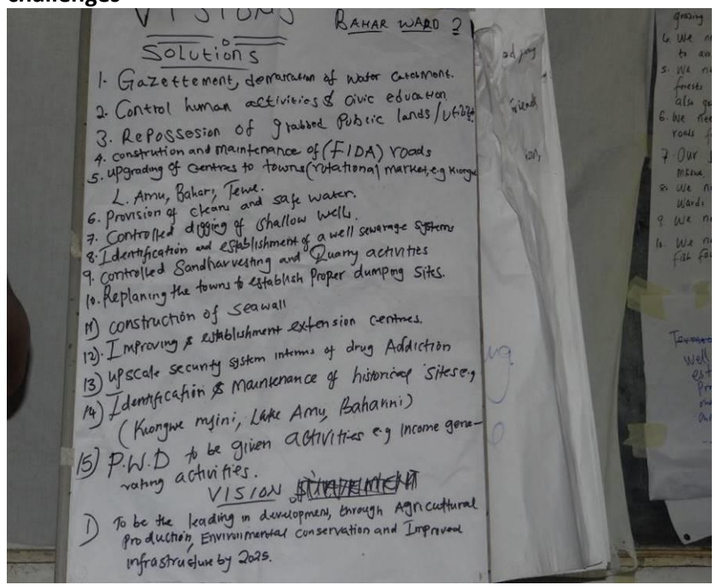


Source: CURP

- Water Scarcity- drying up of catchment areas
- Environmental degradation from encroachment of wetland catchments; deforestation
- Poor solid waste disposal
- inadequate health & educational facilities
- Insecurity
- Land grabbing of public utilities
- Poor town Planning- no expansion Plans
- Poor roads and infrastructure

The residents also proposed a few solutions to identified challenges as follows:

Figure 83: Bahari Ward proposed solutions to identified challenges



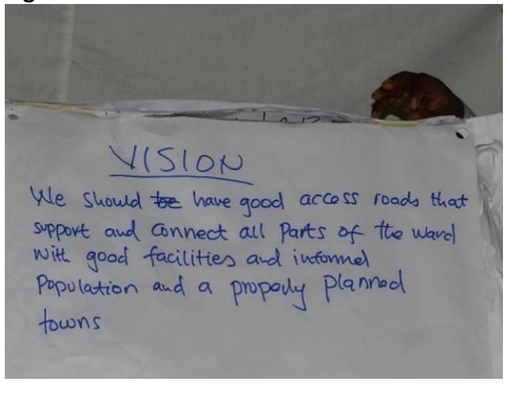
Source: CURP

- Gazettement; demarcation of water catchments
- Upgrading of centres to towns: adopt rotational markets
- Controlled digging of shallow wells
- Construction of sea wall
- Establish a sewer & sanitation system
- Establishment of agricultural extension centres
- Re-Planning of the centres

- Controlled sand harvesting and quarry activities

The residents of Bahari had a shared vision of their Ward as follows:

Figure 84: The shared vision of Bahari Ward



Source: CURP

We should have good access to roads that support and connect all parts of the ward with good facilities and informed population and properly Planned towns

HONGWE WARD

The consultant also had successful deliberations with participants from Hongwe Ward on their aspirations for the County.

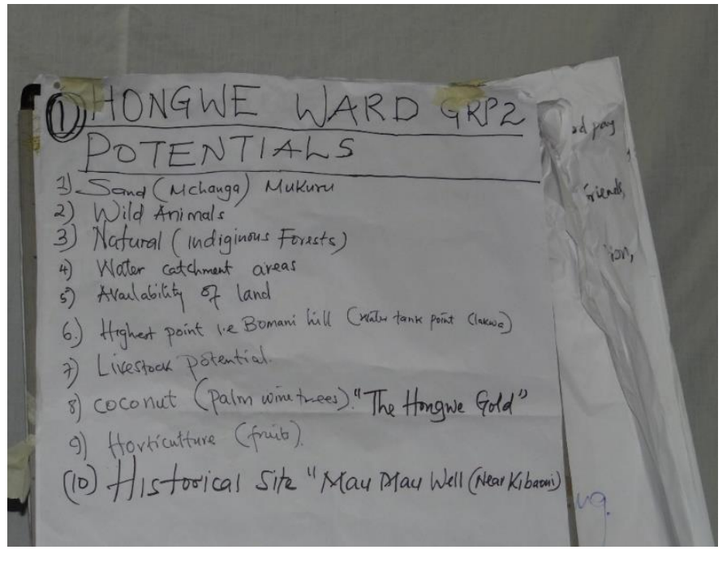
Figure 85: A discussion with participants from Hongwe Ward



Source: CURP

The residents of Hongwe ward identified some of their key resources as follows:

Figure 86: Key resources identified by the residents of Hongwe ward

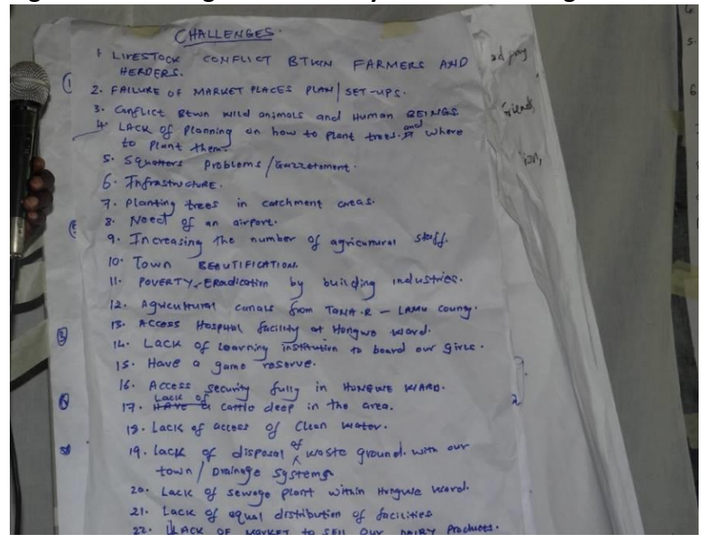


Source: CURP

- Natural indigenous forests; and wildlife
- Water Catchment areas
- Rich arable land for horticultural practices
- Sand
- Highest point ie. Bomani Hill
- Livestock Potential
- Human resource; and business potential
- Historical sites for tourism potential

The residents also identified their challenges as follows:

Figure 87: Challenges identified by residents of Hongwe Ward

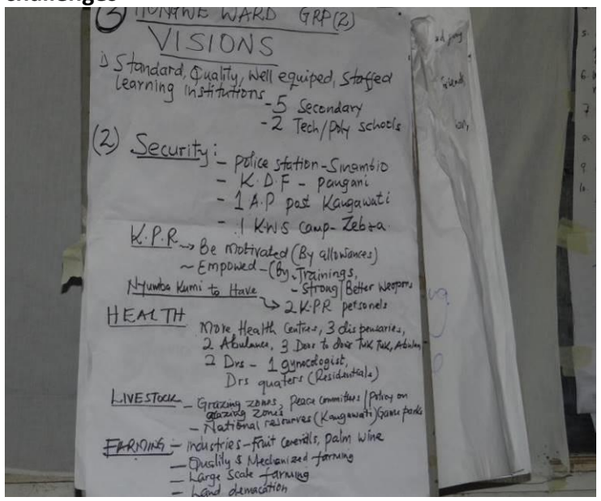


Source: CURP

- Poor roads and infrastructure
- Human-wildlife conflicts
- Few agricultural experts and foresters to lead Planting of trees
- Inadequate educational and health facilities
- Poor storage of agricultural products and no market for agricultural produce
- Poor quality of livestock breeds (indigenous)
- Clean water scarcity
- There is no game reserve
- Poor sewer & sanitation
- Land grabbing- leading to an influx of squatters
- There is no town beautification

The residents also proposed a few interventions to curb the identified challenges as follows:

Figure 88: Proposed interventions to curb the identified challenges

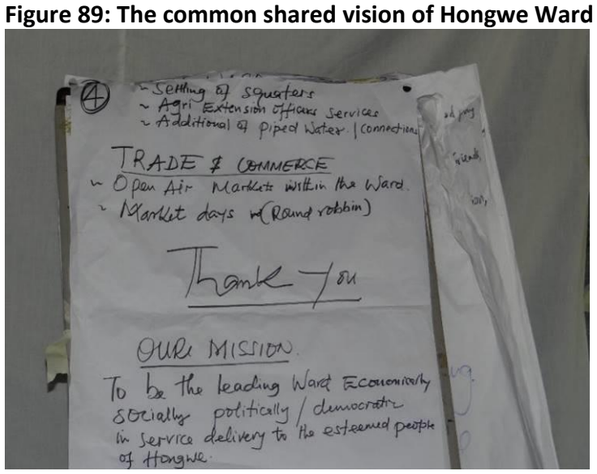


Source: CURP

- Additional health and educational facilities that are well equipped; trained personnel
- Establishment of a police station at sinambio; K.D.F camp at Pangani; A.P post at Kangawati; K.W.S camp at Zebra; motivation of K.P.R officers
- Demarcation of grazing corridors
- Establishment of a fruit industry

The group also identified their common shared vision as follows:

Figure 89: The common shared vision of Hongwe Ward



Source: CURP

To be the leading economically, socially, politically and good service delivery to the people of Hongwe

MKUNUMBI WARD

Residents of Mkunumbi Ward were also engaged to give their public opinion regarding their ward and the shared discussion was presented as follows:

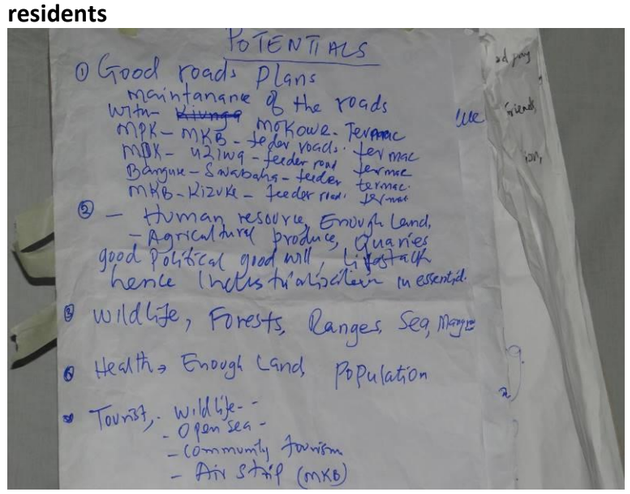
Figure 90: A discussion with the residents of Mkunumbi Ward



Source: CURP

The residents presented their potentials and strengths as follows:

Figure 91: The resources of Mkunumbi Ward as presented by the residents



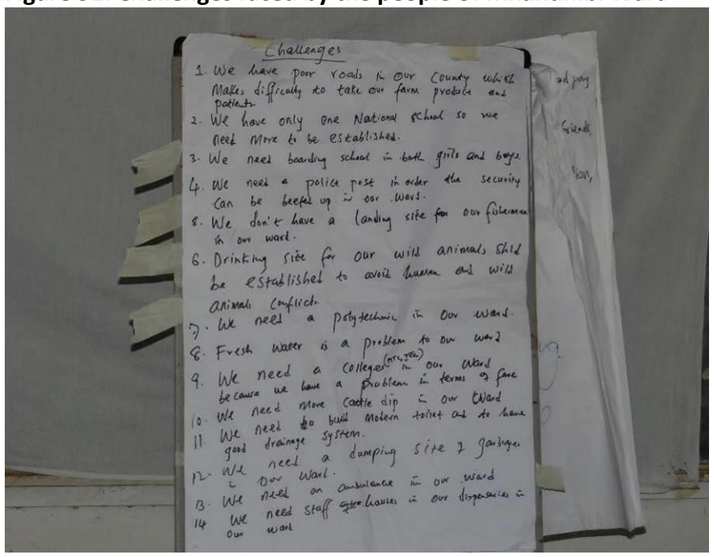
Source: CURP

- Availability of resources- Land, Wildlife, Forests and Ranges
- Business opportunities
- Historical sites
- Wind and solar power potential
- Availability of fresh water
- Quarries
- Tradition and culture
- Ocean- open beach
- Availability of human resource
- Good road system
- Availability of an airstrip

The residents also identified most of the challenges they go through in their daily livelihoods. The challenges identified were as follows:

- Pastoralists – Farmers; Human – Wildlife conflicts
- Unclear land ownership (no title deeds) and Land grabbing
- Unpaved roads
- Inadequate Health & Educational facilities
- There is no police post
- There is only one cattle dip
- Poor drainage system and use of pit latrines
- There is no dumping site
- There is no market for agricultural produce
- Water: Inadequate water supply and lack of fresh water
- Environmental degradation

Figure 92: Challenges faced by the people of Mkunumbi Ward

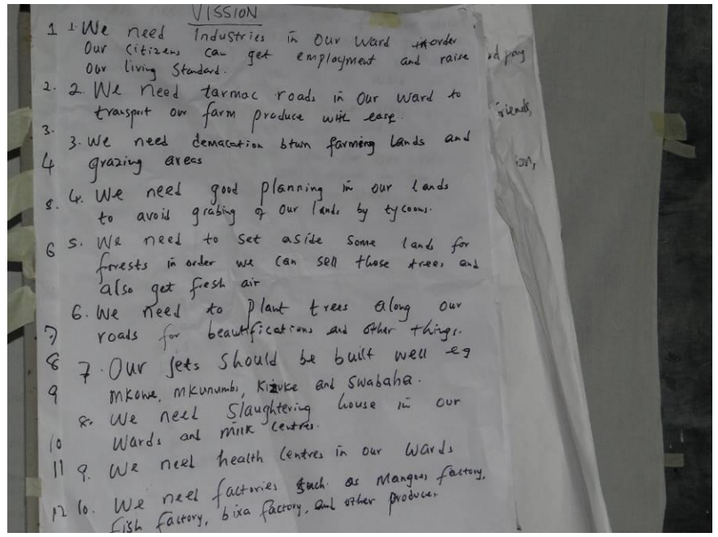


Source: CURP

The County also proposed interventions that would be viable in the solving of their challenges. These were as follows:

- Tarmacked roads
- Demarcation of grazing corridors
- Regularized land tenure
- Expansion of sea jetties
- Establishment of a slaughterhouse; and milk centres
- Establishment of a mango; fish; bixa factories
- Additional health/educational facilities
- Introduction of Afforestation programs

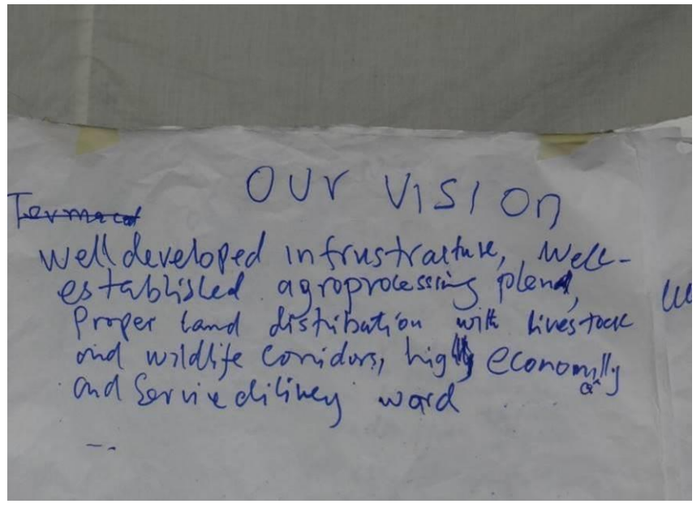
Figure 93: Proposed interventions to identified challenges in Mkunumbi Ward



Source: CURP

The residents then were tasked to come up with a vision of the ward they would like to live in the next ten years which they identified as follows:

Figure 94: The common shared vision for the people of Mkunumbi Ward

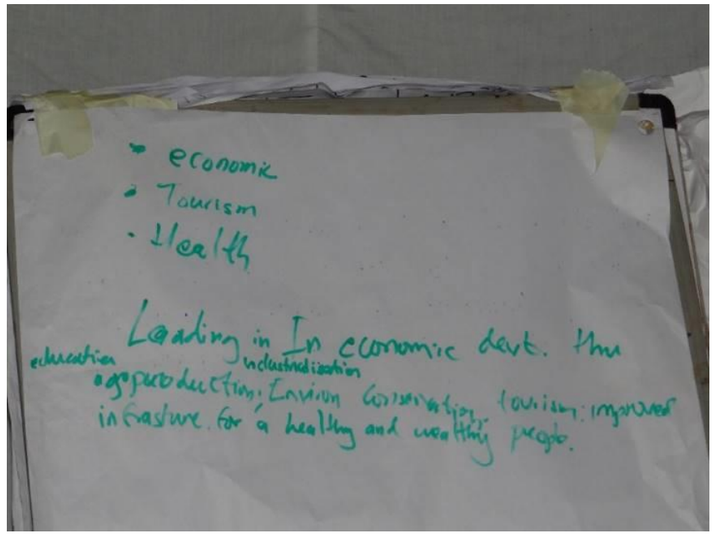


Source: CURP

A Mkunumbi ward with Well-developed infrastructure; agro processing Plant; proper land distribution with livestock and wildlife corridors; high economically and serviced ward.

Given the similarities of the three proximal wards, they were tasked to give a shared vision of the three wards which they derived as follows:

Figure 95: The shared combined vision for Bahari; Hongwe; and Mkunumbi Wards



Source: CURP

A leading County in economic development through education; agro-production; environmental conservation; tourism; with improved infrastructure for a healthy and wealthy people.

19TH MAY FGDS IN MKOMANI WARD

On this date, residents of Mkomani Ward; Hindi Ward; and Shella Ward were hosted for an FGD in a hotel in Lamu Island. The deliberations just as earlier discussed were conducted based on ward and presented as follows:

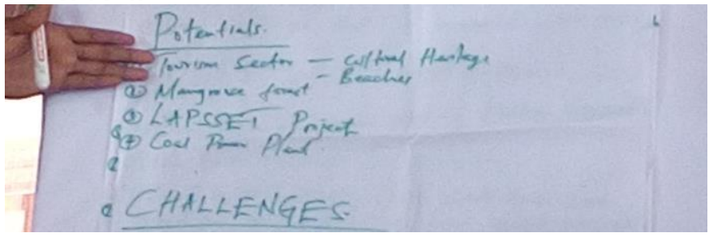
Figure 96: The FGD participants being briefed



Source: CURP

The first group to do their presentation was the group from Mkomani Ward who presented their potentials as follows:

Figure 97: Mkomani Ward resources/potentials as identified by the residents

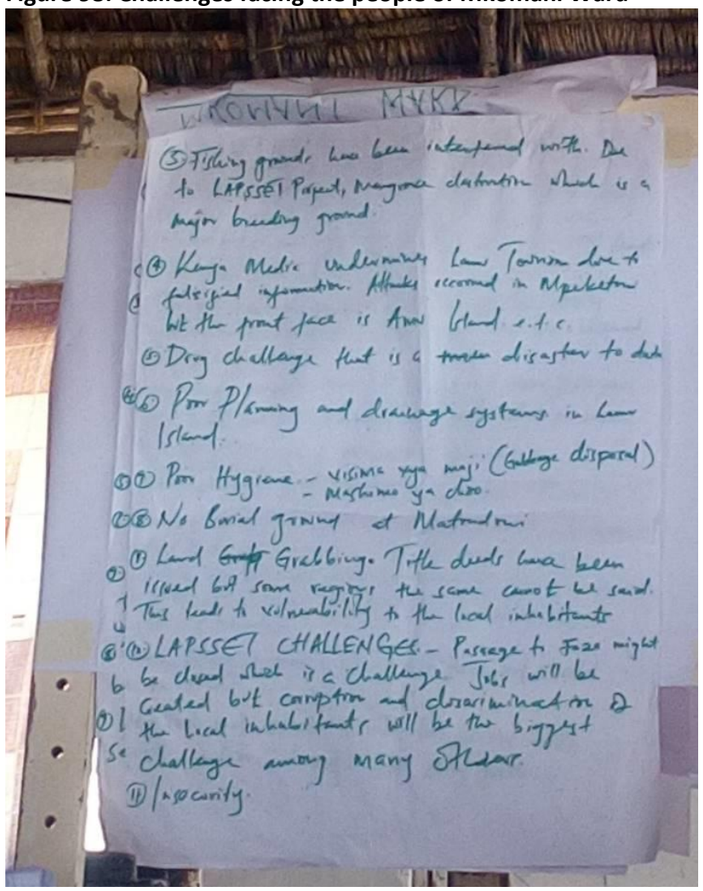


Source: CURP

- Tourism
- Mangrove forests
- LAPPSET/coal power Plant
- Cultural heritage

The group also discussed and presented the challenges they are faced with as a Ward and presented them as follows:

Figure 98: Challenges facing the people of Mkomani Ward

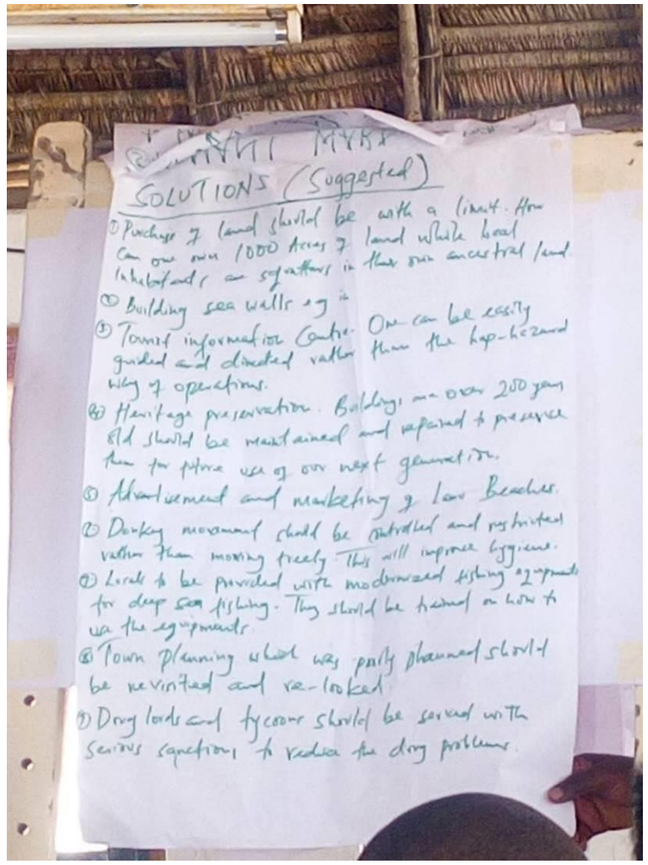


Source: CURP

- Land grabbing
- Insecurity
- Neo colonialism- by Europeans in the hotel industry where it was indicated that most local residents don't benefit from the local tourism as all logistics are Planned ahead by the hotel owners.
- Fishing grounds have been encroached on
- Kenyan media depicting Lamu in a negative way
- Drug menace
- Poor solid waste disposal
- Poor storm water drainage
- No cemetery at Matondoni

The challenges were then followed by proposed interventions from the group as follows:

Figure 99: Proposed interventions to challenges in Mkomani Ward



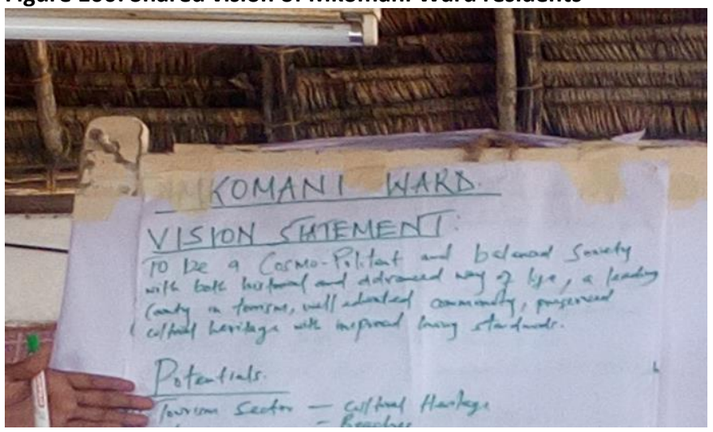
Source: CURP

- Purchase land with limits
- Build sea walls
- Tourist information centre- to be easily guided; tourist police
- Heritage preservation
- Advertisement and marketing of Lamu beaches
- Donkey movement should be controlled/restricted- to curb hygiene; design a place to hold them
- Modern fishing techniques
- Proper Planning

- Drug lords to be sanctioned/ no bonds to curb drug menace

The Mkomani group then shared their shared vision for the County they would want to live in. This was presented as follows:

Figure 100: Shared vision of Mkomani Ward residents



Source: CURP

To be a cosmopolitan and balanced society with both historical and advanced way of life, a leading County in tourism, well-educated community, preserved cultural heritage

SHELLA WARD

The group was addressed and taken through the modalities of the discussion on what was expected at the end of the deliberations. They presented their concerns as follows:

Figure 101: The consultant team with participants from the Shella-Manda community



Source: CURP

After time having their deliberations, the group presentd their strengths and opportunities as follows:

- Historical sites
- Healthy environment
- Good collaboration of people
- Sand dunes
- Strong winds- wind power
- Fertile soils
- Enough food for livestock during rainy season
- Ocean- open beach

After presenting their potential strengths and resources, the group proceeded to present the challenges they are faced with daily as follows:

- Roaming of donkeys at night
- Insecurity: short sea wall also contributes to insecurity; less tourists
- Unemployment
- Poor roads
- Pollution
- Water scarcity- especially in Kihobe, Mararani, Manda
- Land issues
- Lack of market for fish
- Marginalization- Shella is the least beneficiary with a 2 Million budget only
- Electricity problems
- Opinions of the people brought out through public participation are not used

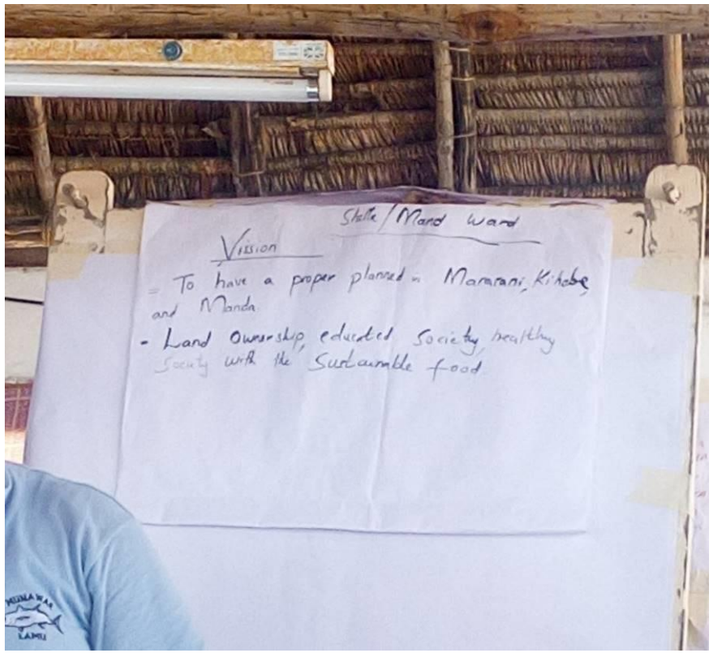
Figure 102: A participant of the Shella-Manda ward presenting their grievances



Source: CURP

The group later proceeded to present their vision as follows:

Figure 103: The shared vision for the people of Shella-Manda Ward



Source: CURP

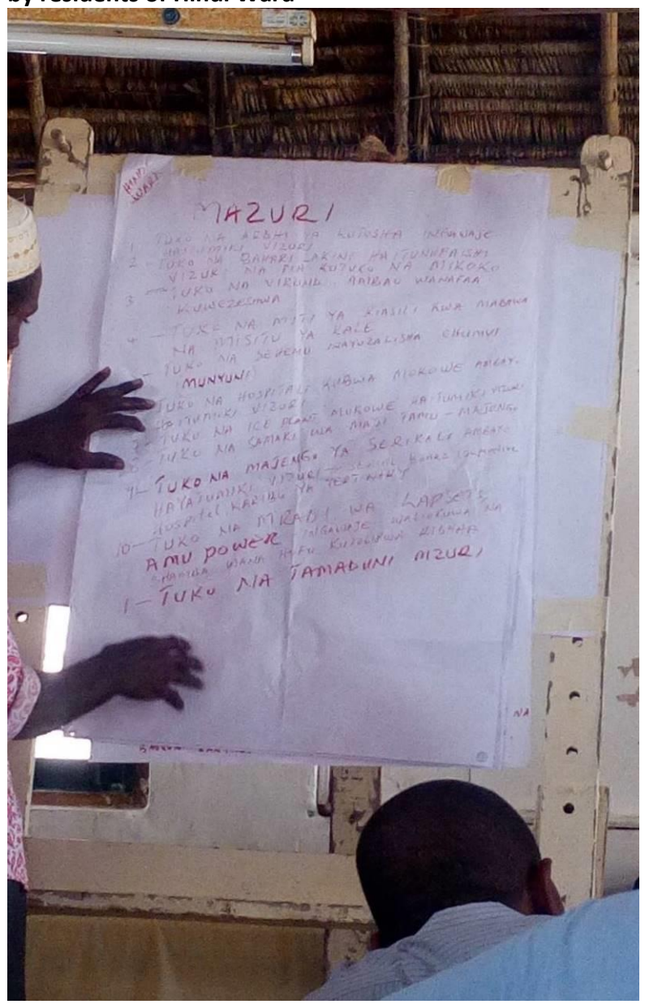
A proper Plan for Mararani, Manda, Kihobe; regularized land ownership, educated society, healthy society with sustainable food

HINDI WARD

The Consultant then engaged with the residents of Hindi Ward in an FGD where the following were presented. Their potential strengths and resources were identified as follow:

- Availability of land for both farming and livestock keeping
- The LAPSSET project and the coal power Plant
- There are forests- terrestrial and marine
- There are community groups
- Salt pans
- There is a big hospital in Mokowe- not used well
- There is an ice Plant, although it is run down
- Availability of Administration offices
- Fishing
- Culture
- There are roads
- There is human capital
- Murram- building materials
- There is a beach/ocean

Figure 104: The potential strengths and resources as identified by residents of Hindi Ward



Source: CURP

The group also presented the challenges they area faced with within the Ward as follows:

- Unpaved roads-Mokowe- Hindi; Mokowe-Msa; Bargoni-Mingini
- Human-wildlife conflicts
- Livestock-farmers' conflicts
- Environmental degradation
- Lack of land ownership; Land grabbing-community land in Marma/Bargoni has been grabbed
- Poor solid waste disposal- no dumpsite
- Inadequate health & educational facilities
- Water shortage and Poor water distribution.
- Lack of market and holding ground for farmers
- No cold storage

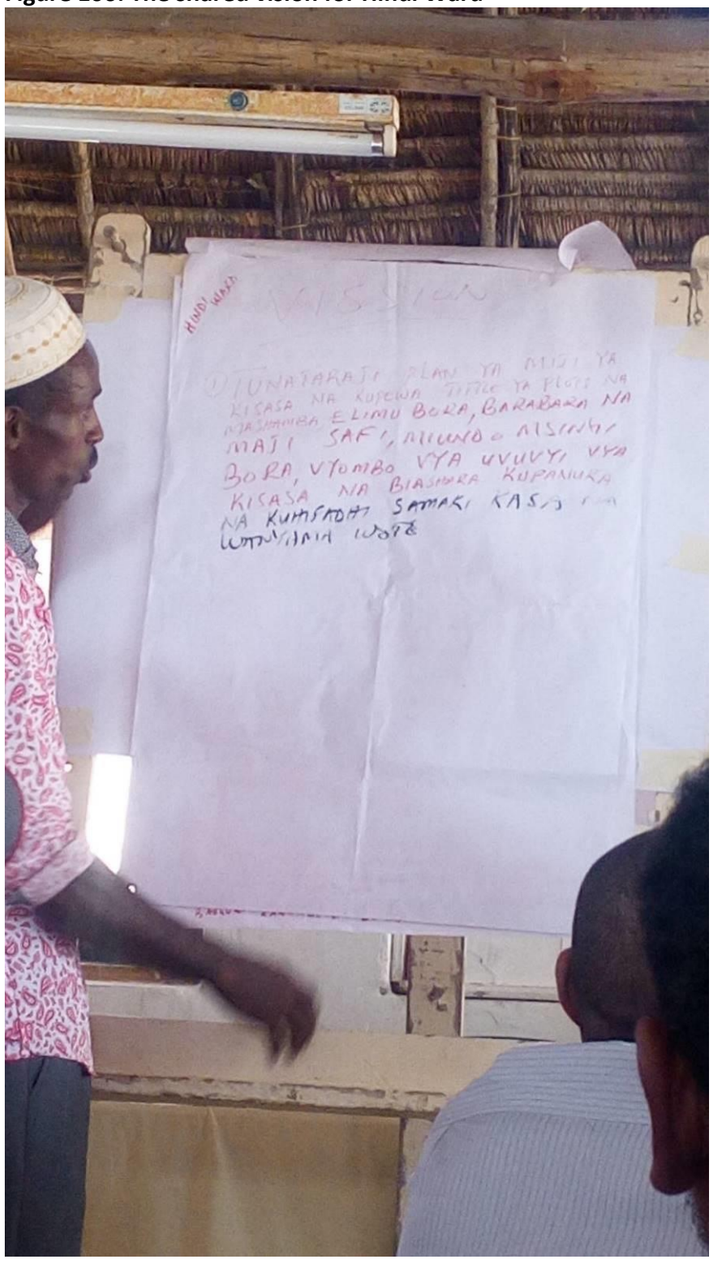
Figure 105:Challenges presented by the people of Hindi Ward



Source: CURP

After the deliberations, the group presented their shared vision for the Ward which was presented as follows:

Figure 106: The shared vision for Hindi Ward



Source: CURP

A Hindi with good roads, a healthy population that is well educated, economically vibrant and conserves and uses the environment sustainably.

20TH MAY SESSION WITH THE CONSERVATION GROUPS

On this date, the consultant team had discussions with different participants of conservation groups to discuss the conservation the agenda for the County. The groups were either representatives drawn from:

- Community development on matters conservation
- Heritage, culture & Tourism group
- Natural environment and biodiversity group

All these groups were to check on matters relating to conservation to be integrated in theCSP. They were availed with a matrix which they were supposed to fill. Most of the issues raised were directly or indirectly incorporated in the Plan to make sense to the spatial Planning process.

Figure 107: Participants of the conservation groups workshop









Source: CURP

30TH MAY - 3RD OF JUNE (NLC DELIBERATIONS)

During this workshop, the consultant had the time to organize what was collected during fieldwork and hold discussions with representatives of NLC experts on land matters.

Figure 108: The lead consultant exchanging words with Dr. Musoga of the NLC



Figure 109: other participants in the workshop



Source: CURP

As an output of this workshop, a final approach and outline to the Plan format was arrived at and agreed upon.

10TH JULY PRESENTATION AT NLC

On this date, a preliminary Plan presentation was done to the NLC as the key stakeholders and the authority that had given the Planning guidelines to affirm everything was in line as earlier agreed.

Figure 110: Participants of the meeting following on presentations and giving their comments





Source: CURP

The outcome of this meeting was that the Plan was being pursued in manner that was acceptable and all indications was the final output would be appropriate and acceptable. Key Planning points were also pointed out that would later enrich the Plan towards finalization of the first zero draft which would be later presented to the County Government technical officers for their comments.

2ND OF AUGUST LAMU COUNTY GOVERNMENT TECHNICAL OFFICERS & WWF PRESENTATION AND COMMENTS





Source: CURP

This was the first engagement with the Lamu County Government technical officers on the Plan presentation. The participants gave both their objective and professional opinions with regards to how the Planning process was taking shape. They also appreciated the commendable work the consultant had done upto that point. The deficiences of the report and Plan according to them were recorded and later incorporated in the Planning document.

8TH OF AUGUST LAMU COUNTY GOVERNMENT EXECUTIVE PRESENTATION AND COMMENTS

The meeting and discussion forum was attended by H.E the Governor, the County Secretary and other top members of the executive. Also, directors of various departments in the County Government were present in the meeting to highlight on key issues facing their departments arising from the report presentation. The highlights of the meetings were as follows:





Arising form the discussions with the Executive, it was agreed that matters of disaster chain management and climate change needed to be incorporated in the Plan and hence the over emphasis on conservation of Lamu County. It was also pointed out that the Consultant could rather adopt a few scenarios for population in the County to take to account the in-migration trends. This was arrived at when the executive felt that the nationally tabulated figures of growth rate for the County were misleading.

It was also pointed out that the productive scapes concept be reviewed to incorporate Amu Ranch around Mkunumbi as part of the punctured scapes concept as that is where most wild animals in the County were found.

It was also agreed that the Plan should propose projects that take into account the design of the LAPSSET road-rail-pipe corridor on the upper side of the County towards Garissa where the wildlife movement corridors towards the southern parts of the County were designated. The designs were to be made such that they are animal friendly to allow their unhindered movement. It was also agreed that matters of health, sewer & sanitation needed to come out well on the Manda Action Plan.

It was also raised that if the Plan had the scope to raise revenue issues within the Planning framework it would be important as Lamu receives the least amount of funds from the National Government. It was agreed that if the Plan would help the County Government to identify channels of raising more funds and resource mobilization it would be very acceptable.

14TH - 17TH OF NOVEMBER (WWF, LAPSSET AUTHORITY, CGL, AND CURP)

The deliberations were conducted through a three working days workshop where representatives of the Consultant Team, WWF, the LAPSSET Authority, the County Government, and Howard Humphreys & Atkins were present. The deliberations mainly revolved around reviewing the comments the Consultant had received from WWF's conservation consultant Dr. Holness.

Figure 111: Representatives of the various institutions who took part in the workshop



Source: CURP

The deliberations were coordinated by the WWF representatives and the consultant was tasked to respond to all the comments accordingly in the review of the zero-draft report earlier presented.

Figure 112: A representative of WWF taking the participants through the comments





Source: CURP

Most of the comments were incorporated in the report accordingly and others responded to for concurrence with the consultant.

DECEMBER 7TH - 9TH: 2ND LAMU COUNTY TECHNICAL OFFICERS WORKSHOP

These deliberations were held at Mpeketoni, British Hotel. The consultant team and Lamu County Government Technical officers led by the Director, Planning were present.

Figure 113: Members of the Economic sector in a working session



Source: CURP

The main objective of these deliberations was to receive comments from the officers on the submitted Spatial Plan Draft Report. On that regard, the participants were divided into five different groups based on the departments they represented in the County to consolidate the issues they had identified or found missing in the report to be presented on the following day. The groups were:

- Population, Community Development, & Governance
- Transport, Infrastructure, and services
- Economic Sector (Investments, Finance, County Revenue & Expenditure, Fisheries, Tourism, and Agriculture)
- Land, Housing & Human settlement
- Geology, soils, minerals, Environment biodiversity & Natural Resources

Figure 114: Land, Housing & Human settlement group in action



Source: CURP

The discussions were then followed by various group presentations where key issues and proposals identified were put forward. The consultant was then tasked to incorporate all the issues raised during the three day workshop in the report. This was achieved and all comments were addressed accordingly.

Figure 115: A member of the Environmental and biodiversity group presenting their output



Source: CURP

Additionally, through the open session, it was proposed that the consultant should categorize the tourism promoted by the CSP as tourism is diverse ranging from:

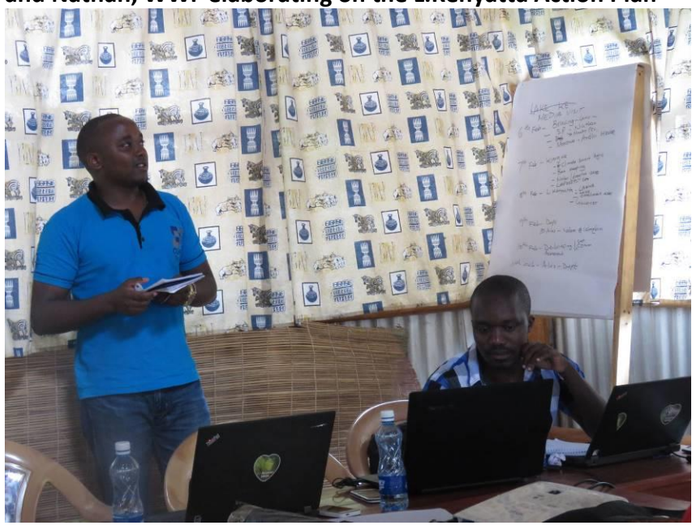
- Nature based tourism
- Heritage & Cultural oriented tourism
- As well as to have a tourism management Plan in the proposed tourism circuit

The CSP endeavored to achieve this though not explicitily categorized as so, but tourism promoted in different zones of the County as proposed in this Plan represent the above categories.

JANUARY30TH - 2ND FEBRUARY 2017: LAMU COUNTY RESOURCE NETWORK, CIVIL SOCIETY ORGANIZATIONS WORKSHOP

On these dates, the consultant team had discussions with the Civil Society Organization representatives in Lamu County who are incharge of the Natural Resource Network. The CSP progress to that end including the Lake Kenyatta Action Plan was presented to them for their understanding and input.

Figure 116: A member of the Consultant Team (Samuel Mburu) taking the participants through the presentation: Below, Samuel and Nathan, WWF elaborating on the L.Kenyatta Action Plan







After the presentations, the CSO representatives were then allowed to comment and give further input to the Plan on what the Consultant may have not incorporated. These comments were later incorporated in the Plan and the community was later tasked to validate what the consultant had done.

Figure 117: A participant, Nasra Omar putting forward her Group's input to be incorporated in the CSP



During this workshop, the CSO representatives were also tasked with the process of helping the consultant on the prioritization of the projects that were previously identified for the Capital Investment Framework. This was achieved on the second day of the workshop and the Consultant was able to finally reflect the aspirations of the community on the CIP project prioritization. Most important, the participants indicated great concurrence with the direction the CSP was taking and though that it was ready for adoption and implementation once the input they had put forward were incorporate

MARCH 24TH: LAMU COUNTY GOVERNMENT EXECUTIVE ARM (PRESENTATION OF THE FINAL DRAFT)

On this date, the Consultant team met in Shella, Msafini Hotel to do a presentation to the County Executive team led by H.E. The Governor Issa Timammy to receive their comments on the final draft of the CSP and consequently validate or invalidate it.

Figure 118: H.E. The Governor, Issa Timamy (Centre) with the County Secretary and the CECm incharge Lands & Physical Planning Ministry Madam Amina Masoud. Below: Department heads from different Ministries in the County Government





The participants were then given a chance to air the shortcomings of the CSP and add extra input that needed to be incorporated in the final report of the CSP.

Figure 119: H.E. The Governor Issa Timamy airing his views on the final draft of the CSP



The Governor appreciated the Consultant Team for the elaborate work done and the ideal programmes and projects proposed in the Plan. Of particular interest to the Governor and other senior members of the Executive team was that the population figures projected in the CSP did not actually reflect the true situation on ground. It was however agreed that, as per principle, the only statistical data that that the consultant would use were the records from KNBS National Census or Statistical Abstracts as had been adopted in the report. However, the Consultant acknowledged that while making the land use proposals, they had considered alternative tentative population figures as those projected by the LAPSSET Authority in their growth projections of the County

Figure 120: A participant representing the livestock department airing his views.



The proposals made in the Plan were very acceptable to the participants in this meeting. Nonetheless, dissatisfaction was expressed by the Director of fisheries in the County by noting that much less had been done on the bit of Marine Planning. The consultant acknowledged this as a real challenge by noting that the discipline of Marine Spatial Planning was entirely another discipline all the same. It was agreed that the consultant did not have the resources considering the huge monetary activities involved and the requisite experience or technical capacity to carry out the activity entirely. However, it was agreed that whichever information on Marine Spatial Planning that was available from the Ministry or WWF be availed for our incorporation in the CSP. The information on turtle distribution, coral reefs, fish landing sites, and breeding grounds was later availed and incorporated in the final output of the CSP.

At the end of the meeting, the County Government Executive approved and validated the CSP on condition that the comments raised were incorporated in the final output.

APRIL 10TH: COMMUNITY VALIDATION WORKSHOP, WITU WARD

On this date, the Consultant team *(comprising of WWF representatives involved in the process, County Government officials, and the Lead consultant team from CURP)* kickstarted their first community validation workshop in Witu Ward. The main aim of this meeting and other subsequent meetings that followed in different wards in the County was to highlight the issues the people had raised and how most of those issues were responded to in the CSP document.

Figure 121: Planner Charles Osengo from the Consultant team introducing the Consultant team to the participants of the Meeting. Below: Participants following through the presentation

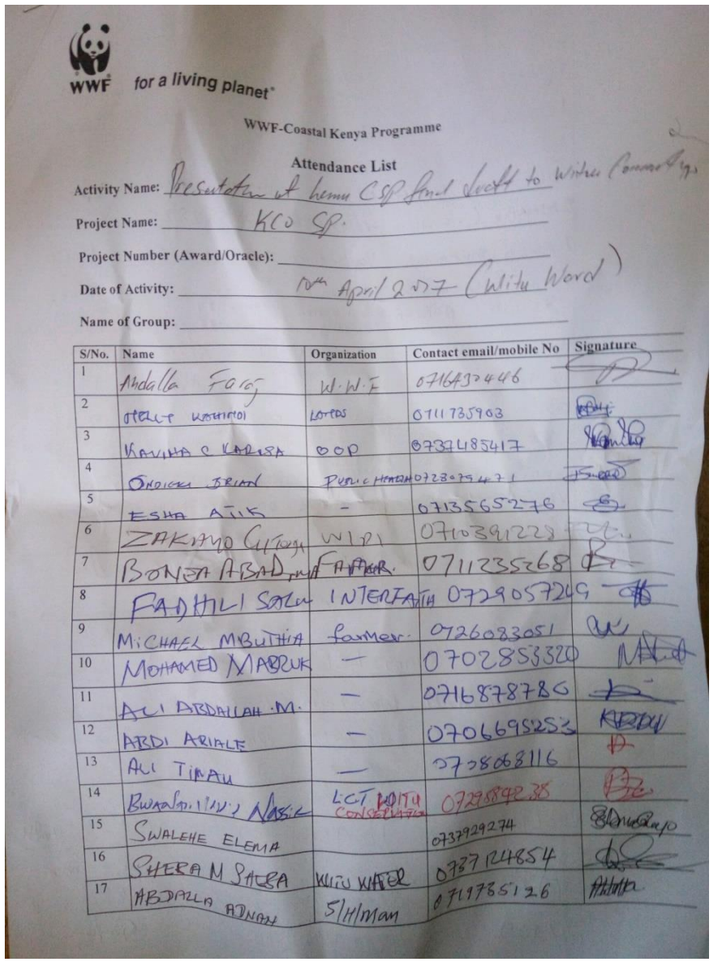






After the presentation, the participants were happy that most of the issues raised had been addressed in the CSP. Nonetheless, they raised a few comments including regularizing settlements such Pangani into settlement schemes. Additionally, they indicated there was need to construct schools and hospitals in Nagele and Pangani for example. Of importance to the people of Witu Ward is that land tenure would be regularized and the Plan implemented. To this effect, they proposed that a team be constituted comprising of the County Government, the Consultant, the Community members, and relevant stakeholders to oversee the implementation of the Plan.

At the end of the meeting, the participants who were about 120 in number (*see list below*) validated the Plan on condition that the comments raised would be incorporated in the Planning report.


WWF for a living planet

WWF-Coastal Kenya Programme

Attendance List

Activity Name: Presentation of Lamu CSP final draft to Witu Community

Project Name: LCO SP.

Project Number (Award/Oracle):

Date of Activity: 10th April 2017 (Witu Ward)

Name of Group:

S/No.	Name	Organization	Contact email/mobile No	Signature
1	Abdalla Faraj	W.W.F	0716437446	
2	STELLA WATHIGI	LOTOS	0711735903	
3	KAVUHA C KARISA	COP	0737485417	
4	ONDIEKI BRIAN	PUBLIC HEALTH	0728075471	
5	ESHA ATIK	–	0713565276	
6	ZAKAYO CHEGE	WLRI	0710391223	
7	BONIFACE ABAD	FARMER	0711235268	
8	FADHILI SALIM	INTERFAITH	0729057249	
9	MICHAEL MBUTHIA	farmer	0726083051	
10	MOHAMED MABRUK	–	0702853320	
11	ALI ABDALLAH M.	–	0716878786	
12	ARDI ARIALE	–	0706695253	
13	ALI TIMAU	–	0738068116	
14	BWANAMWINGI NASIC	LCT WITU CONSERVATION	0729858238	
15	SWALEHE ELEMA		0737929274	
16	SHERA M SAGA	WITU WATER	0727124854	
17	ABDALLA ADNAN	S/H/Man	0719785126	

18	TASHRIF MOHAMED	TURKANA LO WATER FORUM	0719734060	
19	FATMA DANIEL	YOUTH	0768485050	
20	BARIGE ATHMAN	MUAFAKA	0726033381	
21	ESHA ADNAN ZEIN	MMO	0720964020	
22	ZAINABU C. NYAKO	W/LEADER	0728582825	
23	RAMLA MOHAMED	Youth Rep	0795454163	
24	FATMA BAKAR	ELSA	—	
25	CECILIA W. NGANGA	Rural women Assembly	0714446927 nganga428@gmail.com	
26	FIRDAUS MOHD	TUMAINILA	0728657770	
27	ESTHER CALEB	Rural women Assembly	0726346547	
28	Eva Michael	Youth	0705245979	
29	GRACE KADOMBE	LAMU County Public Service Board TEACHER	0711396233	
30	MARIAM MOHAMED	LAMU County Public Service Board TEACHER	0719731271	
31	VICTOR. M. KWAZE	LIVESTOCK	0721825928	
32	Godu Bocha	Amani	0726346330	
33	Abdulrahman Dick	Diri	0720357405	
34	KARUKI MWENA	INTER FAITH	0712971935	
35	SALIM DHADHO	" "	0725098346	
36	SHEE AHMED HASSAN	LCB	0723210717	
37	BOAZ BADIA KUSAA	INTER FAITH	0735465434	
38	EVANS OMUNDI	YOUTH LEADER	0710682235	
39	JOSEPH MOROPEYOKA	PEACE	0707235367	
40	JOSOLIN MWASHUMBI	SETTLEMENT	0716802034	
41	KHALIF HIRBAYE	PEACE	0713947669	
42	RASHID OMAR GUYO	PEACE	0728102456	
43	SAID BOCHA	CHAIRMAN DISTRICT PEACE COMMITTEE	0790552196	
44	GODANA BONEA	HERDSMAN	0702923396	

45	ABDULRAHMAN ABDI	C.S.O.	0702999756	
46	KHADIJA BASHIR	Women Rep.	0711722408	
47	SHARIFI AZI	CHAIRMAN	0722286402	
48	IDRIS ICOLOSHO	NGO	0228516828	
49	ISLAM SAID	V. Chairman	0715335499	
50	ZEINAL-ABIDIN ATHMAN	SECRETARY/LIVESTOCK	0722215790	
51	SWALEH DABA	CHAIRMAN	0704903605	
52	MAULID BAKARI	WILD POLY	0713577869	
53	SIMON BANTIT	WILDLIFE	0714296920	
54	Mohd Abdallah Ali	Youth	0705908841	
55	Abdillahi Said		0703600600	
56	Dube Guyo			
57	ABDI YAAYE	AMANI	0710116898	
58	SAID AMIN	YOUTH	0718835518	
59	AMIR SWABRI	AMANI	0700488098	
60	FATMA BAKARI	IKHILLAS	0717951095	

Prepared by: _____ Signature: _____ Date: _____

Checked by: _____ Signature: _____ Date: _____

Approved by: _____ Signature: _____ Date: _____

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Attendance List

Activity Name: _____

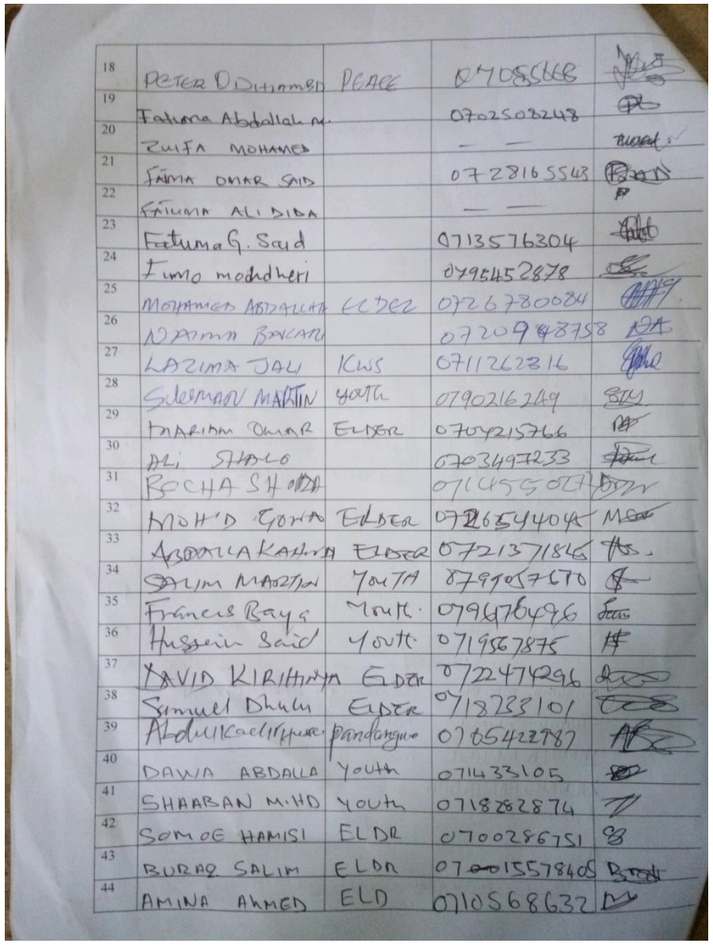
Project Name: _____

Project Number (Award/Oracle): _____

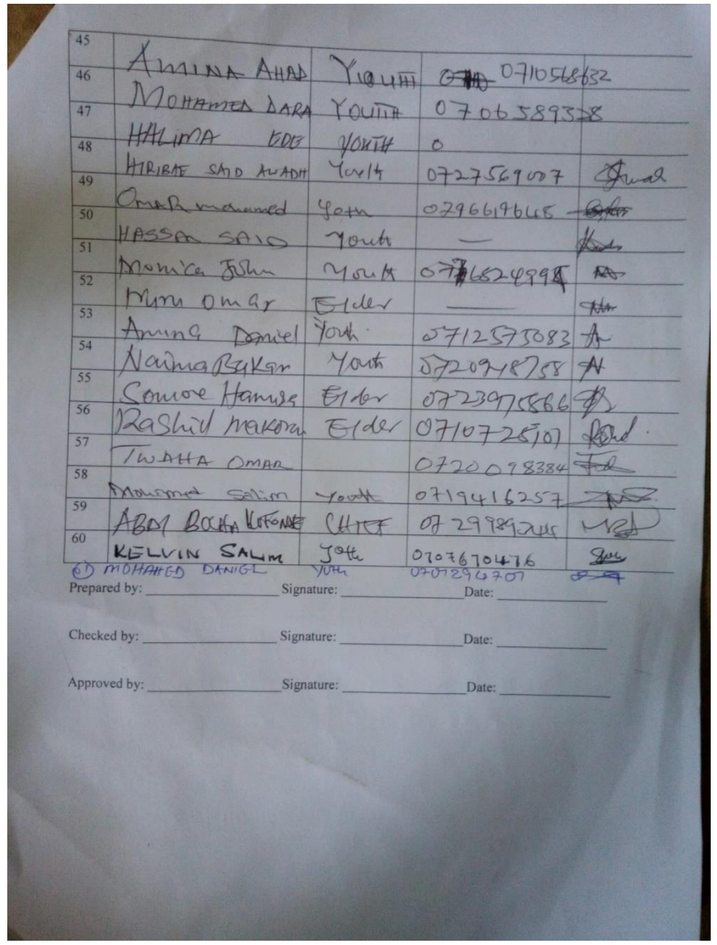
Date of Activity: _____

Name of Group: _____

S/No.	Name	Organization	Contact email/mobile No	Signature
1	KHADIJA ABDALLA	YOUTH	0725 129965	
2	ABUBAKAR HUSSEIN	ELDER	0708127913	
3	MUSA GUYO	IMAM	0727279969	
4	KUKI MAKO	ELDER	0710426039	
5	Hadija Galole		—	X
6	Esha Bonaya		—	X
7	Esha Gwadhi		07 —	X
8	MOHAMED BURU	YOUTH	0790729566	
9	TWALIBA FGO		0713284301	
10	EMANZAM MOHAMED		0724777346	
11	FATUMA MASUD	Women gro	0727417654	
12	SAUMU SALIMU	Women Group	—	X
13	JAMELA MATINI	Women Gro	—	X
14	ZAINABU HADHADHA	Women gro	—	X
15	AHMED A. ZAIN	VILLAGER	0722670082	
16	ALI FARAJ	YOUTH	0705607226	
17	ASHA ALI ABDULLAHI	Youth	0723756280	



18	PETER DDIHAMBO	PEACE	0705568	
19				
20	Fatuma Abdallah M.		0702503248	
21	ZULFA MOHAMED		— —	
22	FATUMA OMAR SAID		0728165543	
23	FATUMA ALI BIDA		— —	
24	Fatuma G. Said		0713576304	
25	Fimo moddheri		0795452878	
26	MOHAMED ABDALLA	ELDER	0726780084	
27	NDAMA BAKARI		0720948758	
28	LAZIMA JALI	KWS	0711262316	
29	SULEIMAN MARTIN	youth	0790216249	
30	MARIAM OMAR	ELDER	0707215766	
31	ALI SHALO		0703497233	
32	BOCHA SHORA		0714550774	
33	MOH'D GOMA	ELDER	0726544044	
34	ABDALLA KAHIA	ELDER	0721371846	
35	SALIM MARTIN	YOUTH	0799017670	
36	Francis Raya	Youth	0796476496	
37	Hussein Said	Youth	0719567875	
38	DAVID KIRIMANYA	ELDER	0722474296	
39	Samuel Dhalu	ELDER	0718738101	
40	Abdulkadir Mpate	pandanguo	0705422787	
41	DAWA ABDALLA	youth	0714331105	
42	SHAABAN M.HD	youth	0718282874	
43	SOMOE HAMISI	ELDR	0700286751	
44	BURAQ SALIM	ELDR	0700155784	
	AMINA AHMED	ELD	0710568632	



45	AMINA AHM	YOUTH	0710568632	
46	MOHAMED DARA	YOUTH	0706589538	
47	HALIMA EDE	YOUTH	0	
48	HIRIBAE SAID AWADH	Youth	0727569097	
49	Omar mohamed	Youth	0796619645	
50	HASSAN SAID	Youth	—	
51	Monica John	Youth	0718652499	
52	Mumo Omar	Elder	—	
53	Amina Daniel	Youth	0712575083	
54	Naima Baker	Youth	0720948758	
55	Somoe Hamisi	Elder	0723975866	
56	Rashid Mekonai	Elder	0710725101	
57	TWAHA OMAR		0720078334	
58	Mohamed Salim	Youth	0719416257	
59	ABDI BOCHA KOFONE	CHIEF	07 29897445	
60	KELVIN SALIM	Youth	0707670476	
	MOHAMED DANIEL	YOUTH	0707296707	

Prepared by: _____ Signature: _____ Date: _____

Checked by: _____ Signature: _____ Date: _____

Approved by: _____ Signature: _____ Date: _____

APRIL 11TH: COMMUNITY VALIDATION WORKSHOP, BAHARI; MKUNUMBI; AND HONGWE WARDS

On this date, the consultant had his presentation session with the residents of three cross-cutting wards being Bahari, Mkunumbi, and Hongwe. The issues they were faced with were almost synonymous and given the physical landscape of the wards, having them together posed no difficulty to successful deliberations and objectives of our meeting.

Figure 122: The Governor's P.A giving his opening remarks, and below, a photo of the participants





The presentation went smoothly and later the participants, about 160 in number (*see list below*) were given a chance to air their views on the CSP.

It was however noted that most of the issues they were raising ranging from protection of wetlands/water catchment systems, upgrading of roads, regularizing land tenure, reducing human/wildlife/pastoralists conflicts, uptake of water from river Tana for irrigation purposes was already captured in the CSP in the various proposals advanced in the report. The issue of enhancing Inter-County Development Pacts for the utilization of shared resources was emphasized and noted in the CSP document. There was expressed need for the Plan to be adopted and implemented by the County Government through oversight of the community. In that regard, the participants approved the Plan for adoption and implementation.

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WWF-Coastal Kenya Programme

Attendance List

Activity Name: Lamu CSP Final Draft Review

Project Name: KCO - SP.

Project Number (Award/Oracle):

Date of Activity: 11th April 2017 (Completed)

Name of Group: Community Rep

S/No.	Name	Organization	Contact email/mobile No	Signatur
1	AMIN MOHAMMED	MKUNUMBI	0713616678	
2	ALI YUSUF	BAHARI	0716802869	
3	MOSES MUIRURI	MAJEMBENI	0727554840	
4	JOSEPHINE WAMBUA	BAHARI	0725035438	
5	FLORA -N- MWAISIY	NAIROBI AREA	0710383579	
6	JANE GACHERU	BAHARI	0720967492	
7	HAMIS MOHAMED	"	0726301389	
8	CHORO K MAGJO	"	0726790469	
9	Hon James Skomy	MCA	0725236175	
10	FRIDAH NJERI	Bahari Ward Admin Office	0718 198929	
11	Samuel Muchiri	[illegible]	0704568447	
12	ERASTUS GATHO	HONGWE	0706794512	
13	Mohamed Adam	Mkunumbi	0725458695	
14	Stella Fattaka	BAHARI	0721106155	
15	JOICE WAMBUA MWANGI	BAHARI	0719185481	
16	MACHARIA SIMON	HONGWE	0727011154	
17	JOHN MBURU	HONGWE	0722347606	

	NAME	AREA	PHONE NO	Signature
	JAVANSON GICHIMU	L. AMU	0713112705	
	Fatma Hussein	BAHARI	0717404001	
	Rosemary Mwatha	Bahari	0722256103	
	Mary N. Kariuki	Uzima	0710633357	
	Regina Mkatha	Lakeside	0728057896	
	Rachowambui	BAHARI	0720803899	
	Simon Njoroge	MKUNUMBI	0726291998	
	Julius Kithinji	Bahari	0712679448	
	Joseph Kiongo Mbomahi		0700013589	
	SAIDI ZIRO AKIBA	MKUNUMBI	0710809666	
	GERALD MURIRA	Sikomani	0702264939	
	GEOFFY KITHURE	SIKOMANI	—	
	COSMAS M MAWORA	BAHARI	0784909030	
	SUSAN W. GAITHO	BAHARI	0726076009	
	GEORGE N. MWAURA	BAHARI	0729682393	
	SAMUEL NJOROGE NJUKI	BAHARI	0716368683	
	JULIUS GITARI NJAU	E.T.C	0726712275	
	ATHMAN BAKARI KALÉ	MKUNUMBI	0705665276	
	SULEIMAN HASHIM ALI	MKUNUMBI	0700891890	
	OSMAN ABDI ALI	MKUNUMBI	0725789986	
	JUWEAIR ALI MOHAMED	"	0723944765	
	David Maina Mwaggi	MKUNU	0712513393	
	Mwanashani Said	Mtuuni	0791164469	
	Mwanaesha Dabo	Mkunu	0703892650	
	AMANI BARKE OMAR	MKUNUMBI	0714256747	
	TAWHIDA ABDALLA	MKUNUMBI	0725133301	
	Charity N. Maina	L. Side	0729310447	

	NAME	AREA	PHONE NO	SIGN
45	Priscilla Wambui	Bahari	0710341870	
46	GRACE WACUKA	Bahari	0718194936	
47	Mary Njuguna	Hongwe	0712050014	
48	Elijah Bonaya	Mkunumbi	0727871063	
49	PAUL MACHARIA	HONGWE	0711320853	
50	MARCELLA LOIMA	MKUNUMBI	0711594136	
51	ALI Hassan Abdi	Mkunumbi	0727203378	
52	PENINAH WANJIKU	BAHARI	0705656229	
53	LUCY WANJIKU	BAHARI	0723858471	LUCY
54	Abdullahi M Rashid	MKunumbi	0708840970	
55	PAUL NGUNG	BH	0725772608	
56	LAURENE K.	BH	0722-16465	
57	MARGARET NJOK	TOWN	0724544426	
58	PAUL KAWERU	HONGWE	0707-916-087	
59	James Mungai	HONGWE	0710842124	
60	JOSEPH KINYUA	center	0711771709	
61	STEPHEN N. MBUVI	CENTRAL	0727982566	
62	JULIANA WANJIRU	Hongwe	0702123662	
63	ERICK Tuwett	CENTRAL	0722903418	
64	Jephtha Makoba	Central	0717697526	
65	AMIN MOHAMMED	MKUNUMBI	0713616678	
66	ALEX KAMAGETHE	BAHARI	0722494479	
67	ALI YUSUF	TOWN	0716802869	
68	FATUMA SWABRI	MKUNUMBI	0716916844	FATM
69	MOSES MUIRURI	MAJEMBENI	0727554840	
70	FLORA -N- MWAITHI	N. AREA	0710383579	
71	LUCY W. NJUHIGI	MDAMBWE	0716294470	
72				

	NAME	AREA	PHONE NO	SIGN
73	David Mutuma	Lake	0726817314	
74	MICHAEL WAWERU	BOMANI	0715957391	
75	WILSON MATHUNGE	KIMANI	0724006320	
76	ANNA HALAKO DAVID	MKB	0708506660	
77	GEOFFREY N. WANJOHI	MAJEMBENI	0710764809	
78	TIMA OMAR	MKU	0701272702	
79	MARGARET MUTHONI	BAHARI	0728366603	
80	Tabitha wairimu	Bahari	0717257922	
81	Hawaa Tadicha	Bahari	0717059250	
82	VERONICA IYIRU	MKU	0701874768	
83	MARIA NJOKI	MKU	8336896	
84	AMINA TADICHA	MKU	28687695	
85	ISSACK MOHAMED	MKU	20345420	
86	BENARD MUCHIRI	HONGWE	0702476922	
87	Samuel Mutiie	Hongwe	0717154369	
88	JAFFAR ALI MOHIS	MKUNUMBI	0729751905	
89	William MATHUMIMA	BARI	0722828920	
90	ANTONY MAINA N.	Bahari	0726038432	
91	MOHAMED BAITE	MKOMAMBI	0717336960	
92	MOHAMED PIKA	MKUMBI	0717697039	
93	DAUDI	MBUTHA	0718742602	
94	Abdullahi Sakite	Mkunbi	0702064799	
95	GEORGE MWANGI	BAHARI	0707947277	
96	JULIUS N KIMOTHO	BAHARI	0724902368	
97	JORAM N Wangila	S'nabio	0727204203	
98	AGNES WANJIKU	BAHARI	0707947456	
99	ANN NJERI M	HONGWE	0701271251	

	NAME	AREA	TELEPHONE NO	SIGN
100	Elud muthama	Homwa	0716417319	
101	CALEB MWELESA	BAHARI	0733 135 411	
102	ELIZABETH NAIMA	BAHARI	0715569987	
103	FRANCIS NJUGUNA	HONGWE	0728904273	
104	Alios Karen	Hongwe	0714471032	
105	HASSAN ROBS	MKUNUMBI	0725515295	
106	WILLIES MUINENE	HONGWE	0711956972	
107	MARGARET WAMAINA	BAHARI	0716139588	
108	DANIEL MUCHINA	HONGWE	0723260301	
109	STEPHEN MBOGA	BARAKA	0723091865	
110	PHILIP KABUKI	MPK	0702-072-814	
111	CLEMENT MBUGUA	MKUNUMBI	0701027858	
112	ATHE MBUGUA	HONGWE	0725822282	
113	Joseph kumeh	Bahari	0701643799	
114	ESTHER MUTHONI	BAHARI	0724-144276	
115	JANE WANGECHI	BAHARI	0723321326	
116	NJERIOTH NYAMBURA	BAHARI	0725061307	
117	Abbdi Kalify	Bahari	0710425889	
118	SUSAN K FALAMA	MKUNUMBI	0716822170	
119	Pauline Wanja	Bahari	0713907019	
120	Teresia Njeri	Bahari	0724149493	

Prepared by: _____ Signature: _____ Date: _____

Checked by: _____ Signature: _____ Date: _____

Approved by: _____ Signature: _____ Date: _____

WWF for a living planet®

WWF-Coastal Kenya Programme

Attendance List

Activity Name: _____

Project Name: _____

Project Number (Award/Oracle): _____

Date of Activity: _____

Name of Group: _____

S/No.	Name	Organization	Contact email/mobile No	Signature
1	Theresa K. Mutiri	Hongwe ward	0711755612	
2	BETINA WAMUYU	HONGWE WARD	0700128179	
3	Beth Njeng	Mapenya	0716110923	
4	ANN MUTHONI	BAHARI	0715744080	
5	RAHAB WAMBUI	BAHARI	0723671725	
6	GRACE WANJIKU	BAHARI	0725486189	
7	MARY REHEMA	BAHARI	0717660969	
8	PETER KINYANJUI	HONGWE	0701643802	
9	MONICA WANJIKU	HONGWE	0704273047	
10	Josoph Choge	Hongwe	0713647091	
11	MAHMOUD OMAR	KWS	0721113808	
12	SIMON MATHENGE	HONGWE	0729894035	
13	Elizabeth mugure	Hagwe	0705704724	
14	SAIDI YUSUF ALI	CHEKELE	0703432130	
15	FRANCIS K. WANGARI	BAHARI	0676493935	
16	SUSAN NGWENYI	BAHARI	0726638322	
17	HAWAA HUSSEIN	BAHAR	0714042668	

18	MELLY KATHEDI	MPKS	0711735903	
19	Jonathan Chebaia	MPKS	0721616455	
20	ZAKAYO WAMAINA	HONGWE	0724739719	
21	AHMED JAMAH	MPKS	0711753592	
22	Philip Ethuyi	Central	0728707245	
23	Margaret Mwangi	Central	0728072987	
24	FRANCIS MWANGEKA	2nd MMI	0715252017	
25	ELIZABETH LOITUIRA	SAMAMA	-	
26	JOHN KIGOTHO	MAPENYA	0728584619	
27	Elizabeth Kenya	mapenya	0718196898	
28	ISAAC M. MWAPAPA	HONGWE	0723285755	
29	AZIZ MWAKA MCHAI	Mapenya	0711777775	
30	John M. Njuguna	Hongwe	0726801216	
31	MAGDALINE WANJAU	HONGWE	0719685164	
32	Samuel Kiragu	Hongwe	0728584634	
33	Jotham M. Kimani	Hongwe	0720278440	
34	GERALD KIOBOBI	EMMARI TOLO	0722161588	
35	Omar A. Mohamed	NDAMBWE	0710961842	
36	Abdillah Yusuf	Mapenya	0728419649	
37	TABITHA M. MWANGI	HONGWE	0728767254	
38	TABITHA WAITHERA MWANGI	HONGWE	0701460577	
39	Hanna Wangari Gitau	Hongwe	0710974305	
40	Esther Wamuyu	Hongwe	0725755761	
41				
42				
43				
44				

APRIL 12TH: COMMUNITY VALIDATION WORKSHOP, FAZA WARD

On this date, the Consultant team visited Pate Island and held the presentation meeting in Faza Social Hall with about 102 residents of Faza Ward.

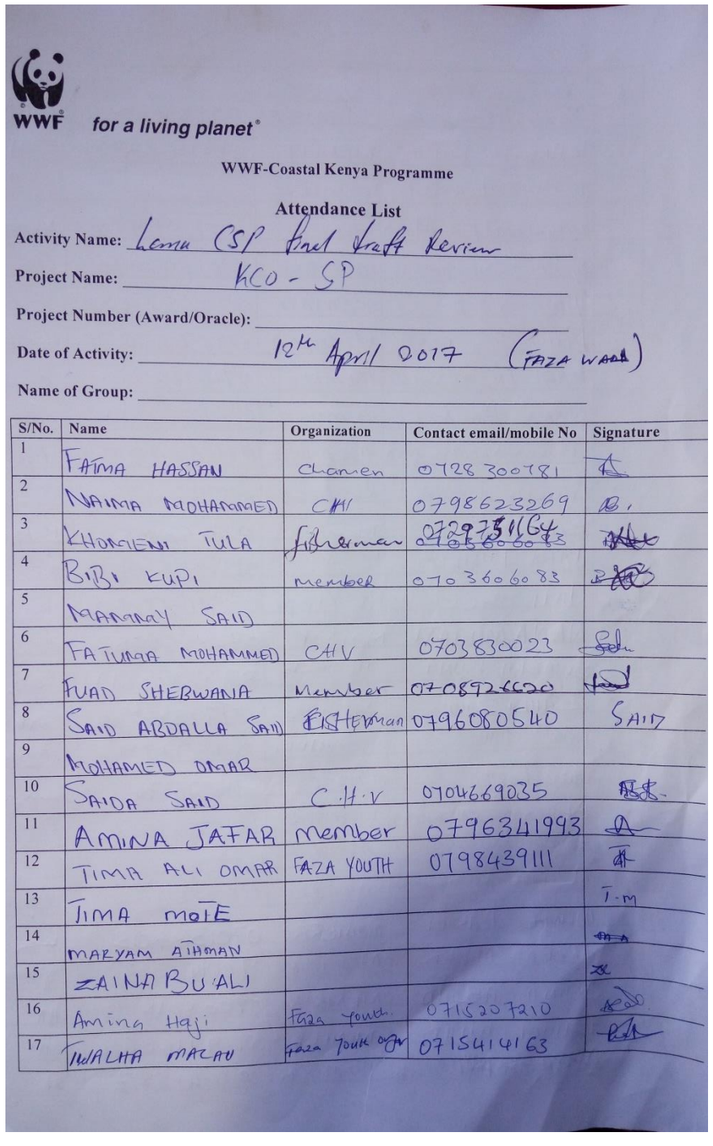
Figure 123: The participants of the meeting in Faza Ward





The presentation to the residents was done successfully and the residents were given a chance to air their views in an open plenary session. They acknowledged that much work had already been done by the consultant and most of their issues addressed accordingly. Most of the issues raised revolved around the fishing economy in the various villages in the island, accordingly, ways to boost the economy ranging from cold storage facilities, ban on night fishing were highly emphasized. This was already captured in the CSP where a chain of fish cold storage facilities was already proposed in various settlements in the island. Additionally, Kizingitini village is being advanced by the CSP as a gateway to the fishing economy in the island where a huge fish market and processing plants are anticipated. Other issues ranged from improving road conditions, construction of sea walls in certain villages, compensation procedures from development projects happening within the island among others. All these issues were incorporated accordingly into the Planning report of the CSP through various proposals advanced for various settlements.

The participants highly noted the inadequacy of the implementing authorities to implement the past planned and present projects. They approved and validated thie CSP for adoption and implementation. The list of the participants who validated the CSP is below:



WWF for a living planet®

WWF-Coastal Kenya Programme

Attendance List

Activity Name: Lamu CSP final draft Review

Project Name: KCO - SP

Project Number (Award/Oracle):

Date of Activity: 12th April 2017 (FAZA WARD)

Name of Group:

S/No.	Name	Organization	Contact email/mobile No	Signature
1	FATMA HASSAN	Chamen	0728 300781	
2	NAIMA MOHAMMED	CHV	0798623269	
3	KHOMEINI TULA	fisherman	0729731164	
4	BIBI KUPI	member	0703606083	
5	MAMMAY SAID			
6	FATUMA MOHAMMED	CHV	0703830023	
7	FUAD SHERWANIA	Member	0708726020	
8	SAID ABDALLA SAID	FISHERMAN	0796080540	
9	MOHAMED OMAR			
10	SAIDA SAID	C.H.V	0704669035	
11	AMINA JAFAR	member	0796341993	
12	TIMA ALI OMAR	FAZA YOUTH	0798439111	
13	TIMA MOIE			
14	MARYAM AIHMAN			
15	ZAINA BU'ALI			
16	Amina Haji	Faza Youth	0715207210	
17	TWALHA MACAU	Faza Youth org	0715414163	

18	NIYA ABUBAKAR	MEMBER	0712547590	
19	KHADIJA KURAE	MEMBER	0727523653	
20	AIZHA LAMBA	MEMBER		
21	INYAHAMADI Athman	ANISAA MEMBER	0712919782	INYAHAM
22	HUSNA SOMBWANA	MEMBER	0701646096	
23	TIMA SAID	MEMBER	0708571656	
24	RUKIYA OMAR	MEMBER	0707451078	
25	KABLIYA ABSHIR	MEMBER	0724905310	
26	NANA BAKARI	MEMBER	0738340854	
27	MWANAKOMBO ABUD	MEMBER	0711624085	
28	FATUMA HASSAN	MEMBER	0728300781	
29	[illegible]	[illegible]	[illegible]	
30	JAHA HUSSEIN	MEMBER KIZ SHABA	072800356?	
31	UMI SHEE	MEMBER	0724613062	
32	NANA MUHAJI	MEMBER	0723586567	
33	SWABRA BUNU	MEMBER	0701423997	
34	ZAHRA ZAID	MEMBER	0720517296	
35	NOOR MOH'D	MEMBER	0703577951	
36	TIMA KOMBO	MEMBER	0718328374	TIMAKA.
37	REHEMA SHEBWANA	MEMBER	—	
38	NYAHASANI HUSSEIN	MEMBER	—	
39	MWAMAKA CHAK	MEMBER	0712857460	
40	HALIMA BAKARI	MEMBER	0701344013	
41	RAFA ABOUD	MEMBER	0700146203	
42	AMINA ABOUD	MEMBER	0700501803	
43	BATULI MAJID	MEMBER	0729916062	
44	SHAHASI NDAMUNA	MEMBER	0111141887	

45	Somaa BAMKUA	CHV	0798320872	
46	FATUMA HUSSEIN	FAZA Youth	0710283719	
47	TIMA ALI ABDALLA		0708570800	
48	MARIAMU SHALO	C-H-V	0716369286	
49	ZUHURA BAKARI	CHV	0724611133	
50	ESHA M. HAMISA		0716161579	ESHA
51	KHADIJA ABOUD	-	0729256221	
52	TIMA SOMBWANA	CHV	0716771884	
53	NAIMA ALI	CHV	0715413922	
54	ABUBAKAR ABDALLA	CHV	0796861944	
55	Khamis Ahmed	FAZA Youth	0715626034	
56	FARAJ ALI FARAJ	F.T.O	0704344480	
57	Yussuf Athman	FAZA	—	
58	ABUDI KASSIM	FAZA	0710347226	
59	HUSSEN BWANAKOMBO	TEACHER	0710 414741	
60	MOHAMED BWANAREHEMA	PATE	0719796829	
61	ABDALLAH ABDULRAHMAN	PATE	0704672627	
62	FAUZI BUNU	Tchumbuni	0706703320	
63	ARFUNI SHEKALE	KIZINGITINI	0726958794	
64	ABUU M. SHEE	SIU	0723879408	
65	FUAD BADI	CHG	0727374017	
66	MOHAMED YUSUF	SHANGA	0717781309	
67	ATHMAN AHMED MOH'D	SHANGA	0717240551	
68	MADI ALI MADI	SHANGA	0715122247	
69	ABOUD MUHEMED	PATE	0701515443	
70	MOH BADI ALI	PATE	0707708090	
71	MOHAMED ABYBAD	PATE	— — —	
72				

73	SAUM DUMILA	mwalimu	0726 [illegible]	
74	ALI OMAR ABDALLA	mwalimu	0728866306	
75	HUSSEIN SHARIF	mwalimu	0720754055	
76	SWABIR MOHAMED	MWALIMU	0728613799	
77	KASSIM ABUBAKAR	MWALIMU	0705045976	
78	KASUID BAKARI	Fishermen		
79	AHMED SHEBE SHA	Mwalimu	0713500893	
80	NASRU MOHAMED	BODA	0714514492	
81	MOHAMED MBKIANA	Fishermen		
82	ABUU OMAR	Fisherman	0720488686	
83	Ahmed bakar	Fisherman	0705498732	
84	SOMBWANA ALI		0729032568	
85	MOHAMED ABDALLA	SECRETARY	0724396365	
86	MOHAMED BUNU	SECURITY	0705015106	
87	ALI Athman	Farmer.	0728370681	
88	KUMBO ALI KOMBO	Fisherman	0706352307	
89	FADHIL ALI	BODA	0714040495	
90	MADI ABUBAKAR	Fisherman	0716618726	
91	HALIMA IDHIRARY	SECRETARY	0790768419	
92	AHMED BADI	SEREMALA	0716778419	
93	MBWARAHALI ATHMAN	Farmer	0796861676	MBWARA
94	MOHAMED HUSSEIN	TEACHER	0796861676	
95	ISSA HASSAN	BMU Secretary	0718967318	
96	BAKALIM MOH'D	Dealer	0717447621	
97	BWANA TWAHIR	Fisher	0726276800	
98	SUEIB MOHD	Fish		
99	ATHMAN MAKAZ	Fish		

100				
101	IHUREYA HASSAN	10391279	0700365929	IHS
102	MALIMA HUSSEIN			
103	BAKARI BUNU	B.M.U	0718291221	Bakari
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Prepared by: _____ Signature: _____ Date: _____

Checked by: _____ Signature: _____ Date: _____

Approved by: _____ Signature: _____ Date: _____

APRIL 13TH: COMMUNITY VALIDATION WORKSHOP, KIUNGA WARD

On this date, the consultant team went to Kiunga Ward and held a meeting in Kiunga Social Hall, Kiunga village.

Figure 124: The Ward administrator introducing the consultant team and County Government officials present. Below: The participants present in the meeting





The residents were taken through the presentation and later given a chance to comment on the CSP output. Among other things that strongly came out, the issue of land tenure security came out as the main issue the Ward is faced with. The members expressed the need to be allocated land titles for land they owned. Additionally, the use of KWS (Dodori National Reserve) and KFS (Boni-Lungi Forest ecosystem) owned land came out as a serious issue for consideration in the CSP. It was outright that the CSP may not explicitly dictate the use over this land since they are gazette and owned by duly recognized government bodies. However, the CSP proposed that all the settlements within these reserves/forests be integrated in their management as the residents still held the historical indigenous land rights in their respective settlement patterns. In that regard, more consultative engagements need to be pro-actively advanced by the County Government, the KWS/KFS, and the respective community members in the various settlements within Kiunga Ward.

Nonetheless, the residents were impressed by the milestones the CSP had achieved through the projects/programmes it was advancing in their other livelihood sectors within the Ward. Consequently, they raised no objection to its implementation and adoption as a working manual for the County Government. The participants present during the deliberations are presented below:

WWF for a living planet®

WWF-Coastal Kenya Programme

Attendance List

Activity Name: Stakeholder Consultation at Final Lamu CSP

Project Name: KCD - SP

Project Number (Award/Oracle): 10003780 - 102392

Date of Activity: 13th April 2017

Name of Group: _____

S/No.	Name	Organization	Contact email/mobile No	Signature
1	ABU BWANA	CHAIRMAN KIUNGA	0721758404	
2	SADDAM MUHASHAM	BUSSNES MUN	0714221814	
3	MOHAMED FAMAU	C.H.W	-	
4	Mohamed Mbd	MANGROVE DEALER/KIUNGA	-	
5	RWANA NIMAN	CRAB DEALER/KIUNGA	0716809185	
6	HUSSEIN ISLAM	FISHERMAN KIUNGA	0705 905 067	
7	ALI BAHERO		0728163883	
8	SAUL YUSUF SAID.		0717008435	
9	Hussein Jirimotuma		0705588674	
10	Athman Ali	Kiunga Cow Buyers	0725691058	
11	SUSSI SITEBUNA	KUBU-LEP	0715577849	
12	Mohamed Hassan	MKOKONI	0710842157	
13	HAMZA CALI	NDAU		
14	OMAR SHEEDAH	NDAU	0728044821	
15	ALI BUNU FAMAU	TEACHER	0728841661	
16	MAHMOUD OMAR	KIUNGA	0797937306	
17	AITHMAN MOHAMED	MKOKONI	0723506322	

18	BAKAR MOHAMMED	MKOKONI	0713358491	
19	BWANA KOMBO BWA	KIKIAYUU	0705834846	
20	MOHAMED SABIRI	MKOKONI	0724454309	
21	NOHA JIRIMO	FARMER KIUNGA	—	M.J.RIMO
22	OMAR MJAHID	"	—	
23	FAKII MJAHID	"		
24	NOHA MAHADHI	"	0[illegible]	
25	MOH MBWAMBO	"	0700351115	
26	ZUB SHAHIBU	"	0711570674	
27	Bwana Mbwana	Kiwayuu	0712527382	
28	Sharif mwalimu	Kiwayuu	0705628694	
29	MOHAMED AMIN BWA	Kiwayuu	0718258010	
30	HUSSEIN ABDI	SALALA	0704273498	
31	HAMID HUSSEIN	KIUNGA	0723314461	
32	Ali Kea Ali	Kiunga	0724859450	
33	Ahmed M. Kombo	Kiunga	0718304328	
34	FELIX NZUNGI	ISHAKANI	0725-248826	
35	KARIUKI NGUNJIRI	KIUNGA	0727831277	
36	JOSEPH NDOLO	Kiunga	0727-824444	
37	MARIA DUNSTANS	KIUNGA	0712917229	
38	CHARO KATAWA	AP 1/0 Kiunga	0715578226	
39	ALI SAHI VAS	Broadband communication	0728014445	
40	OMAR AL	ISHAKANI	0724146774	

Prepared by: _____ Signature: _____ Date: _____

Checked by: _____ Signature: _____ Date: _____

Approved by: _____ Signature: _____ Date: _____

WWF for a living planet®

WWF-Coastal Kenya Programme

Attendance List

Activity Name: _____

Project Name: _____

Project Number (Award/Oracle): _____

Date of Activity: _____

Name of Group: _____

S/No.	Name	Organization	Contact email/mobile No	Signature
1	NASSIR HASSAN	KIUNGA	0728070555	
2	[illegible]	Kiunga	0796766667	
3	Mohamed Badru	A/chief	0728991533	
4	Aboud A. Faruk	chief ndau	0728921074	
5	MOHAMED A. BADI	A/CHIEF	0704923850	
6	ZULEKHA MOHAMED	KIUNGA	0701252038	
7	KHADIJA MOHAMED [illegible]	ISHAKANI	0705779248	
8	KHADIJA MOHAMED BAKAR	RES'KIAMBONI	0618583578	
9	fauziya Shariff	Kiunga	2	
10	TIMA AHMED	Kiunga		
11	AMINA TWAHIR	Kiunga	0712007805	
12	TWAHIRA ISSA	Kiunga	0716107902	
13	HINDU MOHAMMED	KIEMBONI	0704670124	
14	MAIMUNA MOHAMMED	Kiunga	0714104508	
15	DAHARIA ALI	KIUNGA	0791154752	
16	DAKANEY IBRAHIM	KIUNGA	0712576180	
17	MAANA MUHAMED	KUNGA	0728948614	

18	WARDA YUSUF	KIEMBONI	0799154722	
19	HAFSWA SWABIR	KIEMBONI	0702911505	
20	IKA MBWARAMAH	KIEMBONI	0788070505	
21	SAIDA MUHIDIN	NDAU	0726865034	
22	FAHIMA MUHAJI	NDAU	0728549103	
23	NASRA ABDALLAH	KIUNGA	0796694589	
24	UMI MBWARA HAJI	RUBU	0797041819	
25	ATHMAN ABASS	Kiunga		
26	MOMARI LALI	KIUNGA	0729221228	
27	HALIMA IDHIRARI	NDAU	0790768419	
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Prepared by: _____ Signature: _____ Date: _____

Checked by: _____ Signature: _____ Date: _____

Approved by: _____ Signature: _____ Date: _____

APRIL 15TH: COMMUNITY VALIDATION WORKSHOP, HINDI; AND BASUBA WARDS

On this date, the consultant team held a meeting with residents of Hindi and Basuba Wards in Hindi Town. The participants were about 180 in number.

Figure 125: Members of the consultant team and County Government officials. Below, some of the participants present in the meeting





After the presentation, the participants were given a chance to air their views and add give their general comments on the CSP.

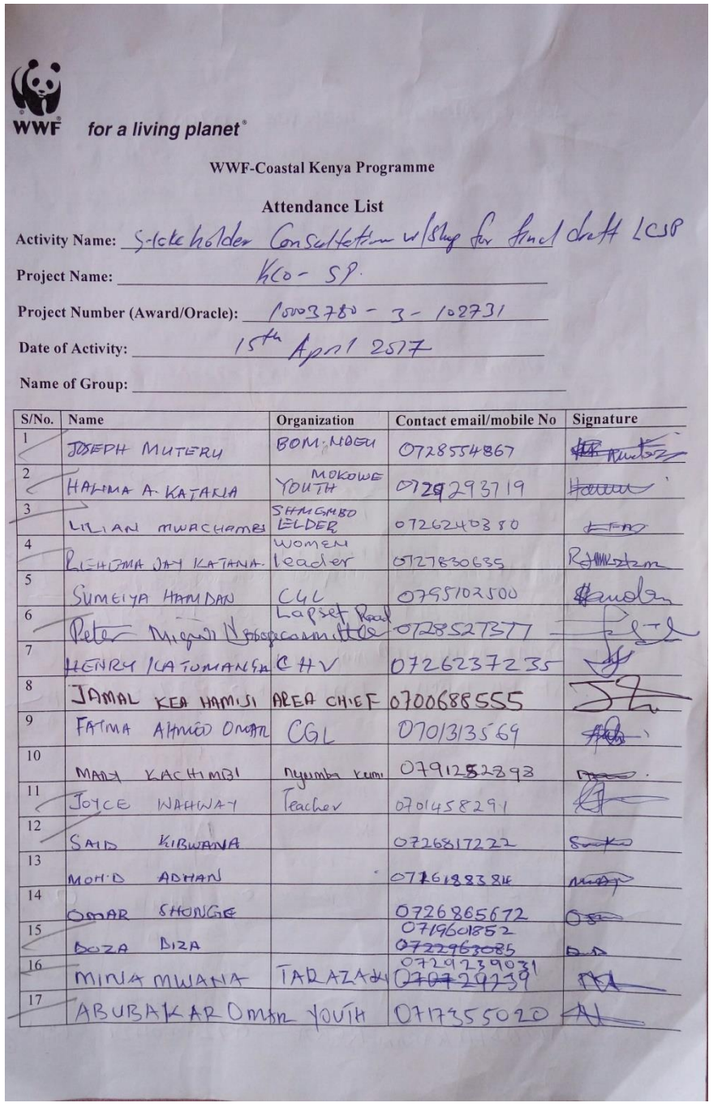
Figure 126: A participant from Basuba Ward giving his comments



Generally, there was a wide acceptance of the milestones the CSP had achieved and the programs and projects that were being advanced in the report. However, land ownership and security of tenure was evidently a big issue especially for the residents of Basuba Ward. It was argued that the Boni Forest land was originally their land and it hence needed to be allocated back to them. This was an issue that the CSP could not explicitly solve but as a measure, proposals have been made in the CSP where the County Government is encouraged to engage the KFS in integrating the locals in the management and utilization of the forest resource without entirely imposing restrictions over use of the resource.

Hindi Ward residents expressed concerns on the LAPSSET development project and what it meant to their land given that most of them still had no title deeds for their lands. These concerns were however addressed in the CSP where survey of land and issuance of titles within the County is highly recommended. Other concerns ranged from the need to have better access roads, to improved access to health and educational facilities, and the provision of water. The CSP tried to respond to some of these issues by proposing gravelling as the lowest standard of all roads within the County, proposing an increase in the number of health and educational facilities in the Ward. In improving the provision of water in the ward, the CSP has promoted better rain water harvesting techniques which is currently not an explored option by installing of homestead water tanks, construction of djabias, and possibly uptake of water from river Tana, an endeavor that is currently being explored by the County Government. Considerably, it is also argued in the CSP that once water is available for the LAPSSET development tapped from the High Grand Falls dam in Makueni County, this water will have to be distributed to residents of the County and at least Hindi Ward will be the immediate beneficiaries of such an endeavor.

The meeting came to an end in the afternoon and the participants validated the CSP on condition that most of the comments they had raised would be captured in the CSP. This has already been done. The participants who validated the CSP are in the list below:



WWF for a living planet

WWF-Coastal Kenya Programme

Attendance List

Activity Name: Stakeholder Consultation w/shop for final draft LCSP

Project Name: KCO - SP

Project Number (Award/Oracle): 1000378 - 3 - 102731

Date of Activity: 15th April 2017

Name of Group:

S/No.	Name	Organization	Contact email/mobile No	Signature
1	JOSEPH MUTERU	BOM-NOGH	0728554867	
2	HALIMA A. KATANA	MOKOWE YOUTH	0729293719	
3	LILIAN MWACHAMBI	SHAMBO ELDER	0726240380	
4	RICHIMA JAY KATANA	WOMEN leader	0727830635	
5	SUMEIYA HAMDAN	CGL	0795102500	
6	Peter Mwigiri	Lapset Road Committee	0728527377	
7	HENRY KATOMANGA	CHV	0726237235	
8	JAMAL KEA HAMISI	AREA CHIEF	0700688555	
9	FATMA AHMED OMAR	CGL	0701313569	
10	MARY KACHIMBI	Nyumba Kumi	0791252393	
11	JOYCE WAHWAY	Teacher	0701458291	
12	SAID KIBWANA		0726817222	
13	MOH'D ADHAN		0726188386	
14	OMAR SHONGE		0726865672	
15	BOZA BIZA		0719601852 0722963085	
16	MINA MWANA	TARAZAKA	0729239031 0707291759	
17	ABUBAKAR OMAR	YOUTH	0717355020	

18				
19	JORIA MOHD	MOKOWE	0700331004	
20	FATMA ABUBAKAR	C.H.V MOKOWE	0728 749 477	
21	JAMILA MOH'D	MOKOWE	0722 487575	
22	ZAHARA MOH'D	C.H.V MOKOWE	0726 126210	
23	MARYAM HUSSEIN	MOKOWE	0727 697770	
24	EBLA DAHIR	MOKOWE	—	
25	MIHIA ABDI	KILIMANI	0717 046267	
26	MOHAMED ALALE	MARARANI	0700160740	
27	MOHAMED YUSUF NOOR	MILIMANI	0716268126	
28	MBARAWA ALI	SHEMUGAMBA	0726335657	
29	MOHAMED BWANAMKOMA	CIPIC	0725585477	
30	Guelu Lubo	ROKA	0702654434	
31	RAHMA ABDALLAH	BARGONI	0706 358277	
32	IBRAHIM SUEB	JAN	0720951232	
33	BULE ROBLE	HINDI	0721452978	
34	OMAR MUHUMED	MOK-KILIFI	0720596394	
35	AMINA ABULI	BARIGON	0707296528	
36	HADIJA GURAMA	MANGAI	0708073611	
37	ALI GUBO BALDO	BARIGONI	0711279550	
38	ABDALLA BEN SHEUEI	MSWAKINI/RAOKA	0722 300 409	
39	ANCENT MAKAU	MSWAKINI/BARGONI	0712957079	
40	IVANWE MUNDU LUGWE	HINDI	0725024253	
41	OMAR BASHUNE	BARGONI	0718194449	
42	SALATI TORA		0712521179	
43	Pr. Johnson K. Kimaku	MOKOWE	0729418687	
44	LAWRENCE K. TOYAH	MOKOWE	0716254880	
	AWADHI KARANI	ROKA	0726850421	

45	PETER KINORO	CHIEF	0725290981	
46	SALATI KEMA	BARIGONI		
47	CHAUSI : JUMA	BASUBA	0711391651	CHAUSI
48	TORA-WARE	BASUBA	0706068865	
49	MARIGAMU SHARIFF MARARANI		—	MARIGAMU
50	MARIKA M BISHARO	Mararani	0713238718	MARARANI
51	EKLA BWANA	BASUBA	0790998887	BASUBA
52	ABAS ALI	milimani	0740914115	milimani
53	RAHDI CHAUSI	BASUBA	0797906635	BASUBA
54	HASSAN ABDALLA	BASUBA	0798284586	
55	MOULID ASUMAN	BASUBA	0701787360	MAU
56	MOHAMED HUSSEIN	MANGAI	0707898534	
57	HENRY KURUGA M.	SINAMBIO MAGOGONI HEADMAN	0707700492 0707855555	
58	John Mugina	HINDI (NDEU)	0714782824	
59	Jano Wangaci	HINDI (NDEU)	0702654005	
60	JUDY WAMARUA	HINDI/BERBERA	0725281681	
61	MARY WANJIRU NJOROGE	HINDI (Kilimani)	0726051596	
62	MARY W NYAMBU	HINDI (Kiongoni)	0726700588	
63	Fatuma Hassan	Bangoni	0705880612	
64	MUMBI mohamed	BOKA	—	
65	Mohamed Abdulkadir	Mararani Bamburbahari	0723744410	
66	Hamisia Mohamed	Mangai	— — —	
67	Abale Yusuf	Mangai	— — — —	
68	Hashora Asman	Mararani	0717319664	
69	ALI MUSUMO	BASUBA		
70	BISHARO	BASUBA	0719548246	
71	SEROLA			
72				

73	ERASTUS MARAMBA	BARGONI	0711-155157	
74	MORRIS MCHAI	HINDI	0723-404910	
75	ISAIAH MURITHI WAHOME	HINDI	0721 132022	
76	ESHA MOHAMED	MARARANI	0711530524	
77	JUMWA	Bagdad	0713576352	
78	SOMDE OMAR	BAGDAD	0705651621	
79	ROSE AKINYI	BAGDAD	0700148704	
80	RIZIKI KOLA	ROKA	0728019167	
81	FLORENCE SIDI	MSUMARINI	0715405276	
82	LILIAN NYALE	MSUMARINI	0721752836	
83	EUNICE RUMBE	MSUMARINI	0705187750	
84	CECILIA WAITHUIRU	MSumarini	0726977780	
85	Millicent Adhiambo	Roka	0740129856	
86	DANIEL MWABIRU	KALAFU	0712709199	
87	CHARLES G. MBOKO	HINDI	0724334715	
88	SWALEH JARSU	ROKA	0712521831	
89	JAMES MWANGI	HINDI	0722697841	
90	Francis Muiruri	Hindi	0726467044	
91	Ernest Kiiru	Hindi	0715209111	
92	JOSEPH MUCHIMI	HINDI	0700777901	
93	VERONICA MWITHONI	Hindi	0715577756	
94	Paul Sitau	Mkondoni	0721187492	
95	JOSEPH WARUTHU	HINDI	0726816161	
96	THOMAS KAMAU MURIGAH	ROKA	0712900417	
97	HASSAN CHONDE	MKONDONI	0705623720	
98	Julius Njuguna	MKONDONI	0711527471	
99	SAMUEL KABOGO	MKONDONI	0718839115	

100	FRANCIS SIEMBA	BOBO	0716803067	
101				
102	SAMUEL WAHWAI	KAUTHARA	0700553945	
103	GABRIEL KIMEMIA	HINDI	0706380689	
104	SAMUEL KAHAU	HINDI	0710386377	
105	Athman Ware	Mangai	0703677307	
106	Mohamed Kitete	Basuba	0701687879	
107	Peter D Nyamai	CURP	0727 433081	
108	FREDRICK MUSORI	MKOMANI	0714452360	
109	Monicah Muthoni	MKOMANI	0716125977	
110	Stanley Mutiu	MKOMANI	0727052259	
111	William Munyaka Andeg	Msumarini	0722869099	
112	Daniel Gachigia	Msumarini	0710150792	
113	Changawa Mwaguni	Msumarini	0705620656	
114	Mwakuwa Kaise	Msumarini	0705187750	
115	PETER KINYANJUI	MSUMARINI	0729212267	
116	Harrison M Ndoro JOSEPH	Kiunga	0729 849721	
117	Mungai Kinyanjui	HINDI	0724454830	
118	David Mburu	Ndeci	0719356263	
119	DANIEL MWANGI	BOBO	0724480042	
120	CHARLES LUVANDA	UNGU	0722 482778	
121	NICHOLAS MAKANIKI	MITPE	0710939533	

Prepared by: _____ Signature: _____ Date: _____

Checked by: _____ Signature: _____ Date: _____

Approved by: _____ Signature: _____ Date: _____

WWF for a living planet®

WWF-Coastal Kenya Programme

Attendance List

Activity Name: Stakeholder Consultation W/Shop for final draft LCSP

Project Name: KCO - SP.

Project Number (Award/Oracle): 1000378 - 3 - 122731

Date of Activity: 15th April/2017.

Name of Group: _____

S/No.	Name	Organization	Contact email/mobile No	Signature
1	LUCY WAMBUI	MITPE	0796766703	Lucy
2	CHARLES LUVANDA	HINDI PASTOR	0722482778	
3	DANIEL MWANGI	BOBO	0724480042	
4	David MBURU	Ndeci	0719356263	
5	WILLIAM M. MAGIRI	INTERIOR ACC	0708582708	
6	Maingi William	Interior	0723127234	
7	HALIMA FAUL AHMED	INTERIOR	0720605719	
8	ALI J. PAKIA	INTERIOR	0729972398	
9	JAMAL ICEA	INTERIOR	0700688555	
10 6	Maingi William	Interior	0723127234	
11	Mohamed Kitete	NRT	0701687879	
12	Khalifa S. Alwy	Interior	0729751927	
13	ABDULL FADHIL	L.C.G	0705576265	
14	ALI M. BARISA	BASUBA	—	
15	AMBUA M. KITETE	MANGA	—	
16	EBLO B. BARUA	BASUBA	—	
17	MOHAMED A. DAGNE	Milimani	0716782889	
B	Rufi Ali	L.G.G	0729920209	

SIGNATURE

18	Jumale Ahmed	Milimani		
19	Asha Guyo Lacy	Mangai		
20	Julius Kawania	Kiunga		
21	John W. Kumeria	Mokowe	0729418687	
22	OMAR ALI BAKARI	BOBO	0710542705	
23	SALI AMED MAHA		0721205076	
24	KUNDY N JORAO		0799141317	
25	Daniel Muraki	Simambio	0723091981	
26	A.M. LAMU	HINDI	0732680326 5	
27	STEPHEN MUNAI	SAFARIS	0721884092	
28	Zacharia	Wrere	0795206156	
29	Abbeie Alsaid	MSUMARI	0724 09	
30	ABDULL FADHIL	L.C.G	0705576265	
31	CATHERINE WAMBUA	LAND S.	0724997643	
32	Edaa Yusuf	W.W.F. LAMU	0727410138	
33	Vincent Jose	CGL	0721---448	
34	Swabra B. Mohamed	CGL	0711273292	
35	SHEEBWAH A	Land	0711659138	
36	PAUL M. MUNYENDO	Land (LCG)	0722109479	
37	Osogo K. Charles	CURP	0721275274	
38	Samuel Mburu G.	C.U.R.P	0724292612	
39	Peter D. Nyamai	CURP	0727433 081	
40				

Prepared by: _____ Signature: _____ Date: _____

Checked by: _____ Signature: _____ Date: _____

Approved by: _____ Signature: _____ Date: _____

APRIL 18TH: COMMUNITY VALIDATION WORKSHOP, MKOMANI; AND SHELLA WARDS

On this date, the team hed the last community validation meeting with the residents of Mkomani & Shella Wards at Sun Sail Hotel in Lamu Town. The meeting was well attended with a total participation of about 120 residents.

Figure 127: The County Planner, Vincent Osewe, introducing the guests to the participants. Below, some of the participants present in the meeting





The presentation went well and the participants were later given a chance to air their views and comments on the CSP. Arising from the comments brought on the floor, there was obviously a general acceptance of the Plan which was strongly pegged on a sound implementation of the Plan.

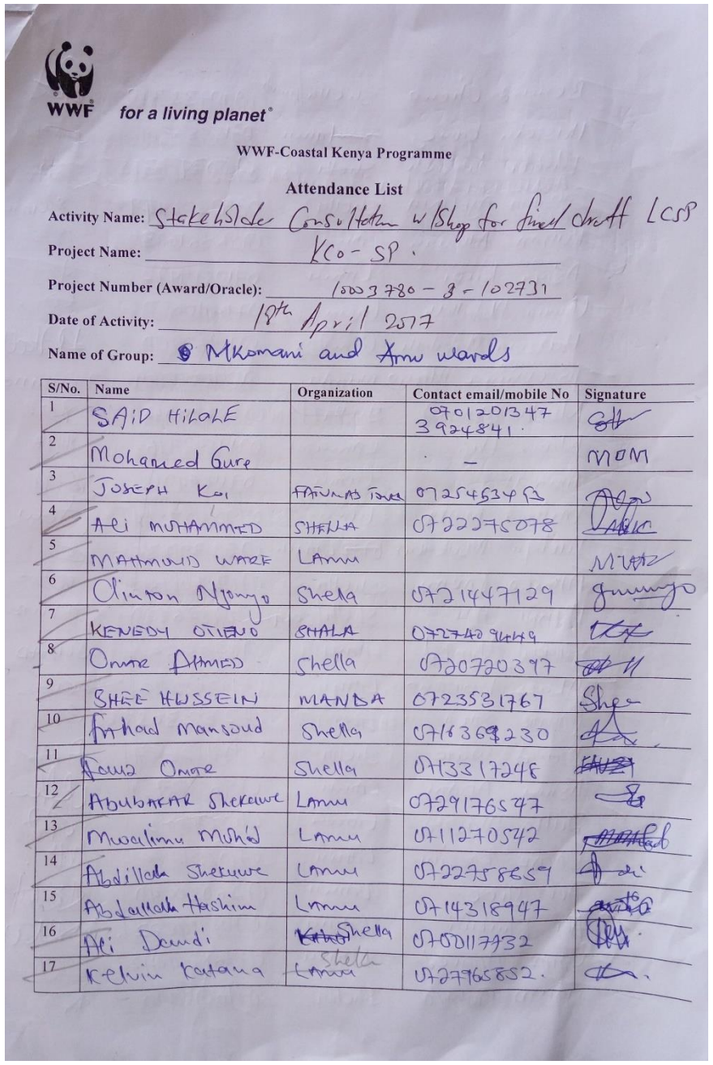
Figure 128: Participant members from Mkomani and Shella sharing their comments





One of the main issues coming out of the comments brought forward during the plenary is the issue of ensuring that the water catchment systems (sand dunes) are totally secured through some of the proposals advanced in the CSP. Also, the issue of the erosion of culture was widely discussed with most acknowledging that the heritage value of Lamu was overtaken by time and it was high time they enjoyed the benefits of modernity like motor vehicle mobility. It was argued that once the cabral path was implemented as proposed in the CSP (Lamu Island Action Plan), then it would only be viable that a few public transport vehicles be allowed within the island to ferry passengers from settlement to settlement otherwise the project would be futile. Consequently, it was agreed that this would require the interventions of the UNESCO, NMK, and the County Government to work out working models towards achieving this aspiration of the residents.

Another major issue that was highlighted were concerns expressed revolving around the Manda Island Action Plan as to how it would be actualized considering land was already owned by the indingenous people. This was however explained to them and there was an understanding of how this would work out. At the end of the meeting, the participants (*see list below*) validated the the CSP on condition that all the comments would be incorporated in the report.



WWF for a living planet

WWF-Coastal Kenya Programme

Attendance List

Activity Name: Stakeholder Consultation Wkshop for final draft LCSP

Project Name: KCo-SP.

Project Number (Award/Oracle): 10003780 - 3 - 102731

Date of Activity: 19th April 2017

Name of Group: Mkomani and Amu wards

S/No.	Name	Organization	Contact email/mobile No	Signature
1	SAID HILALE		0701201347 3924841.	
2	Mohamed Gure		-	MOM
3	JOSEPH Kai	FAUNAS Tours	0725434	
4	Ali MUHAMMED	SHELLA	0722275078	
5	MAHMOUD WARE	Lamu		MWA
6	Clinton Njonjo	Shella	0721447129	
7	KENEDY OTIENO	SHALA	0727409449	
8	Omme Ahmed	Shella	0720720397	
9	SHEE HUSSEIN	MANDA	0723531767	
10	Farhad Mansoud	Shella	0716362230	
11	Fawz Omar	Shella	0713317248	
12	Abubakar Shekuwe	Lamu	0729176547	
13	Muslimu Mshawl	Lamu	0711270542	
14	Abdillahi Shekuwe	Lamu	0722758659	
15	Abdallah Hashim	Lamu	0714318947	
16	Ali Daudi	Shella	0750117732	
17	Kelvin Katana	Shella Lamu	0727965852.	

18	Bernard Mtemo	Shella/Lamu	0710785790	
19	Hussein Kame	Shella Lamu	0715866814	
20	Burati Lasilu	Shella/PSM	0700387335	
21	SABRINA AJELINA	Shella	0792303479	Sabrinah
22	HUDA Athman	Lamu	0726061628	
23	Asiya Kupi	Lamu	0710579472	
24	Umm Abdallah	Lamu	0716410650	
25	Hafswa Abdallah	Lamu	0712163300	
26	Josphine Mtemo	Manda	0795509739	Josphine
27	Nuzla Mansour	Shella/PSM	0702774012	
28	Nana Haji	Lamu	0719542716	
29	Tima Haji	Lamu	0711664015	
30	Fatima Mohd	Stella Lamu	0722829544	
31	Ruciya Abubakar	Lamu	0722797358	
32	Ahmed Fredh	Shella	0704949943	
33	Idan Ali	Shella/Sern	0704528550	
34	Siaad Ahmed	Lamu	0724586612	SIAAD
35	Abass Buasomo	Lamu	0719715272	
36	Omar Sala	Stella Lamu	0723380588	
37	David Ware	Shella	0715412787	
38	Asma Adam	Lamu	0796577831	
39	Zulfa Masud	Stella Lamu	0703661823	
40	Bakar Kassim	Lamu	0710881284	
41	Ali Shee	Lamu	0726030490	
42	Ali Shuruti	Lamu	0725114822	
43	Omar Ahmed	Lamu	0716024042	
44	Mariam Gaipato	Shella	0710016710	

45	Abubakar Athman	Stella Lamu	0718505283	
46	Ibrahim musa	Lamu	0704685325	
47	Benjamin Tara	Shella	0772113543	
48	Jama Shambaro	Shella	07	
49	Mariam Matatwa	Lamu	0729611218	
50	Musarabu Msuo	Shella	0729543231	
51	Mubashir Bakar	Shella	0715422013	
52	Firdaus Hamid	Shella	0724915300	Firdaus
53	Salama Athman	Lamu	0722991428	
54	Khalifa Athman	Kipungani Lamu	0719581677	
55	Amina Omar	Kipungani Lamu	0705006273	
56	Mohammed B. Mkuu	Mukowe	0725353477	
57	Rasid Yusuf	Matondoni Lamu	0797375702	
58	Sidik Abdurehman	Shella	0713576669	
59	Sofia Ahmed	Shella	0728864458	SWAFIY
60	Nelly Kathidi	Lamu	0711735903	
61	Mshidi Athman	Shella	0722403231	
62	Athman Abdulkadir	Shella	0720613207	
63	Fuad Abubakar	Kipungani Lamu	0711571055	
64	Ibrahim Kinyanjui	Mahat Shella	0722110325	
65	Ummi Ahmed	Lamu	0726071734	
66	Omar Ahmed	Shella	0700647533	
67	Sadru Patni	PSM Lamu	0713076799	
68	Musa Ibrahim	Lamu	0720760372	
69	Yussuf Muhamed	Lamu	0719685923	
70	Fatma Omar	Lamu	0717413957	
71	Ummi Abdurahman	Shella	0728718192	FATIMA
72	Fesiwal Yassin	Lamu	0705424071	

73	PHILIP OLOO	INTERIOR Lamu	0723010221	
74	Jafar Alwy Mohd	Lamu	0723 324559	
75	Abdillahi A Bwkai	LAMU	0706536336	
76	Mohd Shekowe	Lamu	0722-241150	
77	Khalid Mohammed	Shella	0713576689	
78	Famau Athman	Lamu	0728947612	
79	Warda Omar	Lamu	0707296644	
80	PAUL M. MUNTENDO	LC & LANDS	0722109479	
81	Ibrahim Shahib	Mtangawanda	0710842198	
82	Abdi Abdillahi	Hindia	0727578167	
83				
84	LILIAN OKOTH	MAWENI	0704143452	LMD
85	Wakasi A. Arabhati	Shella	0728861471	
86	Bishar Mohamed Farah	Lamu	0714116956	
87	Aisha Ali Abubakar	Stella Lamu	0729584958	AISHA
88	Fatima A. Athman	Langoni	0724302269	
89	Rukia M. Kassim	Langoni	0700777989	
90	Tuma Ali Rasuo	Mangotsi	0720667034	TUMA
91	Mohamed Loli Kale	Mangotsi	0716365184	
92	Haidar Faki Ahmed	Lamu Chief	0720805719	
93	Abdalla Omar	Shanga	0729022592	
94	Noor Mohamed Ali	Shella	0721486561	
95	Sofia Shukal	Shella	0721511144	
96	Catherine Wambeme	Mokowe	0724 997 643	
97	Jaitun Madi	Lamu	0796299239	
98	Mohammed Ahmed	Lamu	0715761417	
99	Balo Fate	Lamu	0705402294	
	Hussein Mohamed	Lamu	0700777989	

00	Jamila Abdillah	Shella	0726612148	
101	Khadija Abdillah	Shella	0720435224	
102	SAUDA SWALE	SHELLA	0719075770	
103	RUKIA SHARIF	LAMU	0720866336	RUKIA
104	ESHA ABOUD	LAMU	0792085503	
105	Aisha Said	Shella Lamu	0705913693	
106	Warda Shaaleh	Shella lamu	0703750897	
107	JOYCE KIMANBELI	Lamu	0721744115	
108	Mohd Omar Bausi	CGL	0720540243	
109	Fatma A Omar	CGL	0701313569	
110	Nathan Mwtungs	WWF	0725948662	
111	HUSSEIN ROBLE	SECURITY	0727565707	
112	WILSON MURIGI	SECURITY	0705640100	
113	Lali Shalal	LCG	0727766368	
114	Mohamed Omar Bausi	LCG	0720540243	
115	[illegible]	Lamu	0711659137	
116	SUMEIYA HAMDAN	LCG	0795102500	
117	Swabra B Mohamed	LCG	0711273292	
118	Ezengo Charles	CURP	0728275276	
119	Samuel Mburu G.	C.U.R.P	0724292612	
120				

Prepared by: _____ Signature: _____ Date: _____

Checked by: _____ Signature: _____ Date: _____

Approved by: _____ Signature: _____ Date: _____

MAY 19TH – 20TH: PRESENTATION WORKSHOP TO THE ASSEMBLY OF LAMU

On these dates, the team had consultation meeting with the County Assembly members to deliberate on the Final Draft Report and have them put forward their input towards finalization of the report for adoption and approval.

Figure 129: Some County Assembly participants in the forum following on the directions from the Workshop Facilitator (County Planner)





The presentation was organized in three sessions and the Members of the County Assembly (MCA) were given a chance to air their views after every session.

Figure 130: Members of the County Assembly seeking a chance to present their further input to the Plan



As noted, most of the issues raised were already addressed in the CSP but special emphasis to their incorporation was brought forward by the participants.

Figure 131: Nominated MCA interogating the issue of LAPSSET in the County as addressed in the CSP



Figure 132: Elected MCA for Basuba Ward raising some points concerning his ward as addressed in the Plan



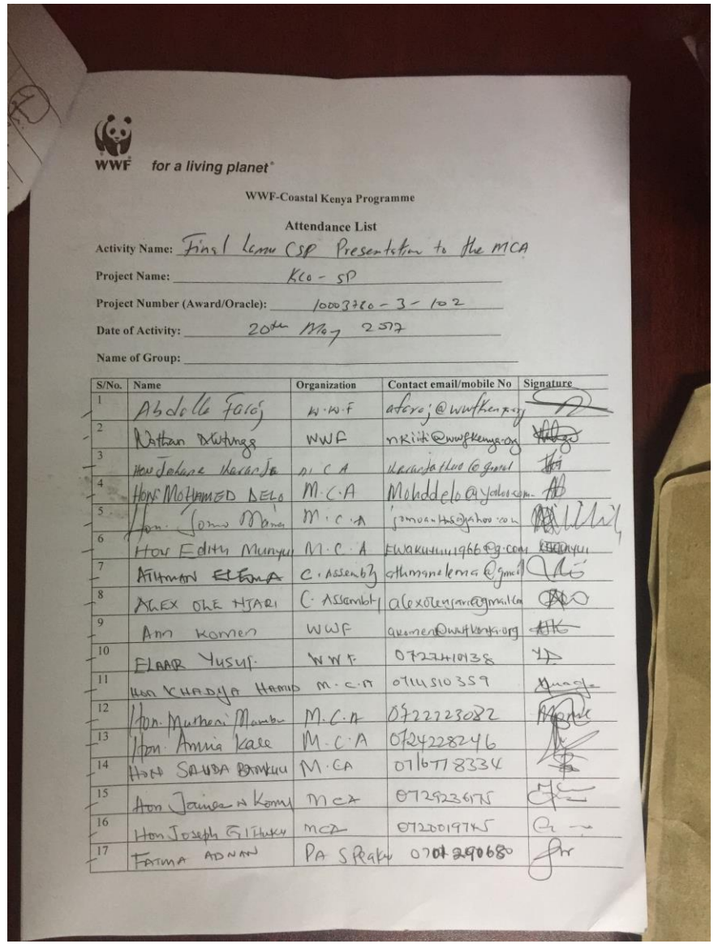
At the end of the workshop, the members of the County Assembly were asked about their collective opinion of the Plan. They endorsed the plan and promised to approve it for adoption and implementation by the County Government once it was tabled in the County Assembly.

Figure 133: The participants of the two-day workshop



After the workshop, all the comments were later incorporated in the report that was later tabled to the County Assembly for approval.

The participants in the meeting were as follows:



WWF for a living planet

WWF-Coastal Kenya Programme

Attendance List

Activity Name: Final Lamu CSP Presentation to the MCA

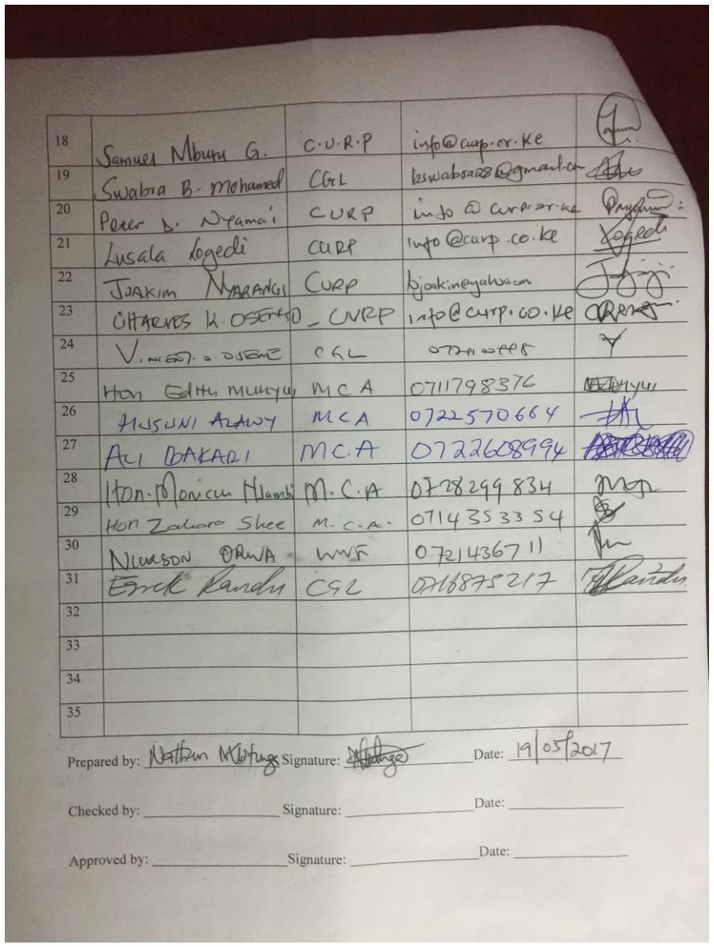
Project Name: Kco - SP

Project Number (Award/Oracle): 1000336o - 3 - 102

Date of Activity: 20th May 2017

Name of Group:

S/No.	Name	Organization	Contact email/mobile No	Signature
1	Abdalla Faraj	W.W.F	adaraj@wwfkenya.org	
2	Nathan Mwitunga	WWF	nkiti@wwfkenya.org	
3	Hon Zakaria Karanja	M.C.A	Karanjahon@gmail	
4	Hon Mohamed Abdi	M.C.A	Mohabdele@yahoo.com	
5	Hon. Jamo Mbwana	M.C.A	jamoathi@yahoo.com	
6	Hon Edith Munyu	M.C.A	EWAKUMU1966@yahoo.com	
7	Athman Elema	C. Assembly	athmanelema@gmail	
8	Alex Ole Nyari	C. Assembly	alexolenyari@gmail.com	
9	Ann Komen	WWF	akomen@wwfkenya.org	
10	Elmar Yusuf	W.W.F	0722410138	
11	Hon Khadija Hamis	M.C.M	0714510359	
12	Hon. Mwinoi Mwalu	M.C.A	0722223082	
13	Hon. Amina Kale	M.C.A	0724228246	
14	Hon Salma Bakuli	M.CA	0716778334	
15	Hon James Komu	MCA	0729236175	
16	Hon Joseph Githuku	MCA	0720019745	
17	Fatma Adnan	PA Speaker	0701 290680	



18	Samuel Mburu G.	C.U.R.P	info@curp.or.ke	
19	Swabra B. Mohamed	CGL	bswabsaa@gmail.com	
20	Peter L. Nyamai	CURP	info@curp.or.ke	
21	Lusala Logedi	CURP	info@curp.co.ke	
22	Joakim Nyaanga	Curp	bjakineya@yahoo.com	
23	Charles K. Osero	CURP	info@curp.co.ke	
24	V. Nicholas Osore	CGL	0724 [illegible]	
25	Hon Edith Munyu	M C A	0711798376	
26	Musuni Azawy	MCA	0722570664	
27	Ali Bakari	MC.A	0722608994	
28	Hon. Monicah Mbaru	M.C.A	0728299834	
29	Hon Zakaria Shee	M.C.A.	0714353354	
30	Nicholson Oduor	WWF	0721436711	
31	Erick Randu	CGL	0716875217	
32				
33				
34				
35				

Prepared by: Nathan Mwitunga Signature: Date: 19/05/2017

Checked by: Signature: Date:

Approved by: Signature: Date:

APPENDIX 2: AN INVENTORY OF THE SCHOOLS IN LAMU COUNTY

	SCHOOL	PUBLIC/PRIVATE	CONSTITUENCY	ZONE	LAND	ENROLLMENT RATE	TEACHER PUPIL RATIO	PROGRAM GOING ON
	PUBLIC PRIMARY SCHOOLS							
1.	ROKA KIBIBONI	PUBLIC	LAMU WEST	BARA	No documents	286	1:35	
2.	BARGONI	PUBLIC	LAMU WEST	BARA	No documents	234	1:35	
3.	MANDA	PUBLIC	LAMU WEST	KISIWANI	No documents	175	1:35	
4.	MATONDONI	PUBLIC	LAMU WEST	KISIWANI	No documents	238	1:35	Renovation by CDF
5.	MOKOWE ARID ZONE	PUBLIC	LAMU WEST	BARA	No documents	376	1:35	
6.	SHELLA	PUBLIC	LAMU WEST	KISIWANI	No documents	195	1:35	
7.	MAHMOUD BIN FADHIL BOYS	PUBLIC	LAMU WEST	KISIWANI	No documents	819	1:35	
8.	KAUTHARA	PUBLIC	LAMU WEST	KISIWANI	No documents	161	1:35	
9.	LAMU SPECIAL SCHOOL FOR MENTAL	PUBLIC	LAMU WEST	KISIWANI	No documents	112	1:35	
10.	MKUNGUNI	PUBLIC	LAMU WEST	BARA	No documents	80	1:35	
11.	MOKOWE	PUBLIC	LAMU WEST	BARA	No documents	501	1:35	
12.	MAHMOUD BIN FADHIL GIRLS	PUBLIC	LAMU WEST	KISIWANI	No documents	1108	1:35	
13.	WIYONI	PUBLIC	LAMU WEST	KISIWANI	No documents	436	1:35	
14.	NDEU	PUBLIC	LAMU WEST	BARA	No documents	328	1:35	
15.	HINDI	PUBLIC	LAMU WEST	BARA	No documents	290	1:35	
16.	TUMAINI SABASABA	PUBLIC	LAMU WEST	BARA	No documents	46	1:35	
17.	UNGU	PUBLIC	LAMU WEST	BARA	No documents	24	1:35	
18.	BOBO	PUBLIC	LAMU WEST	BARA	No documents	132	1:35	
19.	AMA	PUBLIC	LAMU WEST	KISIWANI	No documents	301	1:35	
20.	MANDA MAWENI	PUBLIC	LAMU WEST	KISIWANI	No documents	55	1:35	
21.	LAKE AMU	PUBLIC	LAMU WEST	KIONGWE	Allotment letter	246	1:35	
22.	HONGWE	PUBLIC	LAMU WEST	HONGWE	Allotment letter	250	1:35	
23.	SEFU	PUBLIC	LAMU WEST	HONGWE	Allotment letter	180	1:35	
24.	MUHAMARANI	PUBLIC	LAMU WEST	HONGWE	Allotment letter	356	1:35	
25.	BAHATI	PUBLIC	LAMU WEST	KIONGWE	Allotment letter	213	1:35	
26.	OCEAN VIEW	PUBLIC	LAMU WEST	KIONGWE	Allotment letter	150	1:35	
27.	BOMANI	PUBLIC	LAMU WEST	HONGWE	Allotment letter	202	1:35	
28.	MSEFUNI	PUBLIC	LAMU WEST	HONGWE	Allotment letter	138	1:35	
29.	SWABAHA	PUBLIC	LAMU WEST	KIONGWE	Allotment letter	180	1:35	
30.	KIONGWE	PUBLIC	LAMU WEST	KIONGWE	Allotment letter	336	1:35	
31.	SALAMA	PUBLIC	LAMU WEST	HONGWE	Allotment letter	207	1:35	
32.	UZIWA	PUBLIC	LAMU WEST	KIONGWE	Allotment letter	224	1:35	
33.	BAHARI	PUBLIC	LAMU WEST	KIONGWE	Allotment letter	235	1:35	
34.	TELELANI	PUBLIC	LAMU WEST	HONGWE	Allotment letter	178	1:35	
35.	MTONDONI	PUBLIC	LAMU WEST	HONGWE	No documents	273	1:35	
36.	LAKE SIDE	PUBLIC	LAMU WEST	HONGWE	No documents	83	1:35	
37.	SESE	PUBLIC	LAMU WEST	HONGWE	No documents	83	1:35	
38.	MUUNGANO	PUBLIC	LAMU WEST	KIONGWE	No documents	235	1:35	
39.	MANG'U	PUBLIC	LAMU WEST	KIONGWE	No documents	124	1:35	
40.	SINAMBIO	PUBLIC	LAMU WEST	HONGWE	No documents	532	1:35	
41.	HESHIMA	PUBLIC	LAMU WEST	HONGWE	No documents	104	1:35	

42.	JERICHO	PUBLIC	LAMU WEST	HONGWE	No documents	336	1:35	
43.	ZIWANI	PUBLIC	LAMU WEST	KIONGWE	No documents	207	1:35	
44.	UZIDA	PUBLIC	LAMU WEST	HONGWE	No documents	233	1:35	
45.	MAPENYA	PUBLIC	LAMU WEST	HONGWE	No documents	90	1:35	
46.	SIKOMANI	PUBLIC	LAMU WEST	KIONGWE	No documents	176	1:35	
47.	NGOI	PUBLIC	LAMU WEST	KIONGWE	No documents	106	1:35	
48.	UMOJA	PUBLIC	LAMU WEST	HONGWE	No documents	158	1:35	
49.	MAJEMBENI	PUBLIC	LAMU WEST	HONGWE	No documents	322	1:35	
50.	MKUNUMBI	PUBLIC	LAMU WEST	HONGWE	No documents	262	1:35	
51.	JUHUDI	PUBLIC	LAMU WEST	HONGWE	No documents	133	1:35	
52.	MUGUMOINI	PUBLIC	LAMU WEST	HONGWE	No documents	232	1:35	
53.	MINI VALLEY	PUBLIC	LAMU WEST	HONGWE	No documents	412	1:35	
54.	NDAMBWE	PUBLIC	LAMU WEST	HONGWE	No documents	101	1:35	
55.	KORENI	PUBLIC	LAMU WEST	HONGWE	No documents	106	1:35	
56.	KILIMANI	PUBLIC	LAMU WEST	HONGWE	No documents	200	1:35	
57.	KANGAJA	PUBLIC	LAMU WEST	HONGWE	No documents	149	1:35	
58.	MIKINDUNI	PUBLIC	LAMU WEST	HONGWE	No documents	130	1:35	
59.	JIPENDENI	PUBLIC	LAMU WEST	WITU	No documents	106	1:35	
60.	KAKATHE	PUBLIC	LAMU WEST	WITU	No documents	103	1:35	
61.	MAISHA MASHA	PUBLIC	LAMU WEST	WITU	No documents	526	1:35	
62.	REHEMA	PUBLIC	LAMU WEST	WITU	No documents	231	1:35	
63.	BOKO	PUBLIC	LAMU WEST	WITU	No documents	205	1:35	
64.	MOA	PUBLIC	LAMU WEST	WITU	No documents	254	1:35	
65.	VIPINGONI	PUBLIC	LAMU WEST	WITU	No documents	251	1:35	
66.	DIDEWARIDE	PUBLIC	LAMU WEST	WITU	No documents	256	1:35	
67.	SENDEMKE	PUBLIC	LAMU WEST	WITU	No documents	213	1:35	
68.	WITU	PUBLIC	LAMU WEST	WITU	No documents	451	1:35	
69.	AMKENI	PUBLIC	LAMU WEST	WITU	No documents	146	1:35	
70.	MANYATTA	PUBLIC	LAMU WEST	WITU	No documents	19	1:35	
71.	PANGANI	PUBLIC	LAMU WEST	WITU	No documents	70	1:35	
72.	BARA MOYOO	PUBLIC	LAMU WEST	WITU	No documents	164	1:35	
73.	CHALALUMA	PUBLIC	LAMU WEST	WITU	No documents	193	1:35	
74.	SOROKO	PUBLIC	LAMU WEST	WITU	No documents	199	1:35	
75.	MALELI	PUBLIC	LAMU WEST	WITU	No documents	79	1:35	
76.	KATSAKAKAIRU	PUBLIC	LAMU WEST	WITU	No documents	268	1:35	
77.	PANDANGUO	PUBLIC	LAMU WEST	WITU	No documents	168	1:35	
78.	NAGELE	PUBLIC	LAMU WEST	WITU	No documents	20	1:35	
79.	SAFIRISI	PUBLIC	LAMU WEST	BARA	No documents	24	1:35	
80.	KIPUNGANI	PUBLIC	LAMU WEST	KISIWANI	No documents	94	1:35	
81.	UPENDO	PUBLIC	LAMU WEST	BARA	No documents	42	1:35	
82.	HOLY ANGELS	PUBLIC	LAMU WEST	HONGWE	No documents		1:35	
83.	LAKE KENYATTA	PUBLIC	LAMU WEST	KIONGWE	No documents	1102	1:35	
84.	TEWA	PUBLIC	LAMU WEST	KIONGWE	No documents	239	1:35	
85.	KIZINGITINI	PUBLIC	LAMU EAST	KIZINGITINI	No documents	425	1:35	
86.	TCHUNDWA	PUBLIC	LAMU EAST	FAZA	No documents	454	1:35	
87.	KIUNGA	PUBLIC	LAMU EAST	KIUNGA	No documents	457	1:35	
88.	PATTE	PUBLIC	LAMU EAST	FAZA	No documents	426	1:35	
89.	MBWAJUMWALI	PUBLIC	LAMU EAST	KIZINGITINI	No documents	446	1:35	
90.	SIYU	PUBLIC	LAMU EAST	FAZA	No documents	349	1:35	

91.	RASIINI GIRLS	PUBLIC	LAMU EAST	FAZA	No documents	292	1:35	
92.	FAZA BOYS	PUBLIC	LAMU EAST	FAZA	No documents	270	1:35	
93.	NDAU	PUBLIC	LAMU EAST	KIZINGITINI	No documents	170	1:35	
94.	MKOKONI	PUBLIC	LAMU EAST	KIZINGITINI	No documents	186	1:35	
95.	KIWAYUU	PUBLIC	LAMU EAST	KIZINGITINI	No documents	164	1:35	
96.	SHANGA	PUBLIC	LAMU EAST	FAZA	No documents	153	1:35	
97.	MTANGAWANDA	PUBLIC	LAMU EAST	FAZA	No documents	90	1:35	
98.	MYABOGI	PUBLIC	LAMU EAST	KIZINGITINI	No documents	57	1:35	
99.	MILIMANI	PUBLIC	LAMU EAST	KIUNGA	No documents	74	1:35	
100.	ISHAKANI	PUBLIC	LAMU EAST	KIUNGA	No documents	38	1:35	
101.	KIANGWE	PUBLIC	LAMU EAST	KIUNGA	No documents	84	1:35	
102.	MANGAI	PUBLIC	LAMU EAST	KIUNGA	No documents	86	1:35	
103.	BASUBA	PUBLIC	LAMU EAST	KIUNGA	No documents	63	1:35	
104.	MARARANI	PUBLIC	LAMU EAST	KIUNGA	No documents	92	1:35	
105.	KIZINGITINI GIRLS	PUBLIC	LAMU EAST	KIZINGITINI	No documents	250	1:35	
PUBLIC SECONDARY SCHOOLS								
1.	MOKOWE	PUBLIC	LAMU WEST	BARA	No documents	293	1:50	
2.	LAMU BOYS	PUBLIC	LAMU WEST	KISIWANI	No documents	387	1:50	Received 1M for infrastructure
3.	BRIGHT GIRLS SHELLA	PUBLIC	LAMU WEST	KISIWANI	Allotment letter	120	1:50	
4.	WIYONI	PUBLIC	LAMU WEST	KISIWANI	No documents	178	1:50	
5.	HINDI	PUBLIC	LAMU WEST	BARA	No documents	200	1:50	Received 1M for infrastructure
6.	MATONDONI	PUBLIC	LAMU WEST	KISIWANI	No documents	76	1:50	
7.	HONGWE	PUBLIC	LAMU WEST	HONGWE	Allotment letter	462	1:50	
8.	MPEKETONI	PUBLIC	LAMU WEST	KIONGWE	Allotment letter	640	1:50	
9.	KIONGWE	PUBLIC	LAMU WEST	KIONGWE	Allotment letter	84	1:50	
10.	MKUNUMBI	PUBLIC	LAMU WEST	HONGWE	Allotment letter	78	1:50	
11.	MAJEMBENI	PUBLIC	LAMU WEST	HONGWE	Allotment letter	112	1:50	
12.	LAKE KENYATTA	PUBLIC	LAMU WEST	HONGWE	Allotment letter	284	1:50	
13.	WITU MJINI	PUBLIC	LAMU WEST	WITU	Allotment letter	237	1:50	
14.	MOA	PUBLIC	LAMU WEST	WITU	No documents	115	1:50	
15.	WITU	PUBLIC	LAMU WEST	WITU	Allotment letter	271	1:50	
16.	LAMU GIRLS	PUBLIC	LAMU WEST	KISIWANI	No documents	485	1:50	
17.	BAHARI	PUBLIC	LAMU WEST	KIONGWE	Allotment letter	250	1:50	
18.	UZIWA	PUBLIC	LAMU WEST	KIONGWE	Allotment letter	254	1:50	
19.	FAZA	PUBLIC	LAMU EAST	FAZA	No documents	250	1:50	
20.	KIZINGITINI	PUBLIC	LAMU EAST	KIZINGITINI	No documents	177	1:60	
21.	KIUNGA	PUBLIC	LAMU EAST	KIUNGA	No documents	83	1:60	
22.	SIYU	PUBLIC	LAMU EAST	FAZA	No documents	42	1:50	

	SCHOOL	**PUBLIC/PRIVATE**	**CONSTITUENCY**	**ZONE**	**LAND**	**ENROLLMENT RATE**	**TEACHER PUPIL RATIO**	**PROGRAM GOING ON**
	PRIVATE PRIMARY SCHOOLS							
1.	AL-MAWIYA	PRIVATE	LAMU WEST	KISIWANI	No documents		1:35	
2.	STONE TOWN ACADEMY	PRIVATE	LAMU WEST	KISIWANI	No documents	413	1:35	
3.	JOY TOWNSHIP ACADEMY	PRIVATE	LAMU WEST	BARA	No documents	156	1:35	

4.	AL-FARSY MUSLIM	PRIVATE	LAMU WEST	KISIWANI	No documents	56	1:35	Developing new site
5.	FPFK MPEKETONI TUMAINI ACADEMY	PRIVATE	LAMU WEST	KIONGWE	Allotment letter	120	1:35	
6.	TAMANI JUNIOR ACADEMY	PRIVATE	LAMU WEST	HONGWE	Allotment letter	169	1:35	
7.	MPEKETONI GOODSHEPHERD	PRIVATE	LAMU WEST	KIONGWE	No documents	276	1:35	
8.	BROWN COTTAGE ACADEMY	PRIVATE	LAMU WEST	KIONGWE	No documents	298	1:35	
9.	MPEKETONI	PRIVATE	LAMU WEST	KIONGWE	No documents		1:35	
10.	SHALOM JUNIOR	PRIVATE	LAMU WEST	HONGWE	No documents	91	1:35	
11.	ST. MARY ASSUMPTION	PRIVATE	LAMU WEST	HONGWE	Allotment letter	63	1:35	
12.	SPELLING ACAD.	PRIVATE	LAMU WEST	WITU	No documents	61	1:35	
13.	AMANI	PRIVATE	LAMU WEST	WITU	No documents	19	1:35	
14.	FR. JOHN MARENGONI	PRIVATE	LAMU WEST	WITU	No documents	43	1:35	
15.	WITU BRIGHTSTAR	PRIVATE	LAMU WEST	WITU	No documents		1:35	
16.	MWANGAZA ACADEMY	PRIVATE	LAMU WEST	WITU	No documents	136	1:35	
17.	ATU-TUUR MADNUR	PRIVATE	LAMU WEST	WITU	No documents	17	1:35	
18.	AL-TWAIBA INTEGRATED SCHOOL	PRIVATE	LAMU WEST	WITU	No documents		1:35	
19.	BRIDGE INTERNATIONAL	PRIVATE	LAMU WEST	KISIWANI	No documents	197	1:35	
20.	SWAFAA ACADEMY	PRIVATE	LAMU WEST	KISIWANI	No documents	424	1:35	
21.	EBENEZER MISSION ACADEMY	PRIVATE	LAMU WEST	HONGWE	No documents	56	1:35	
22.	MARKAZ ISLAHI ISLAMIYA	PRIVATE	LAMU WEST	KISIWANI	No documents	58	1:35	
23.	AL MUNAWAR	PRIVATE	LAMU WEST	KISIWANI	No documents	35	1:35	
	PRIVATE SECONDARY SCHOOLS							
1.	SACRED HEART GIRLD	PRIVATE	LAMU WEST	KIONGWE	Allotment letter	135	1:50	
2.	BAKANJA	PRIVATE	LAMU WEST	KIONGWE	Allotment letter	260	1:50	
3.	ROYAL KIBAONI	PRIVATE	LAMU WEST	HONGWE	Title Deed	18	1:50	

APPENDIX 3: REGISTERED NUMBER OF MEDICAL PERSONNEL IN THE COUNTY

Sub County	Lamu West				Lamu East			
Type of Personnel	Male	Female	Total Numbers	Cadres per 100,000 population	Male	Female	Total Numbers	Cadres per 100,000 population
Doctors/Medical Officers	9	4	13	11	1	0	1	1
Dentists	1	0	1	1	0	0	0	0
Dental Technologists	1	0	1	1	0	0	0	0
Registered Clinical Officers (RCO)	20	12	32	27	4	0	4	3
Pharmacists	5	0	5	4	0	0	0	0
Pharmaceutical Technologists	3	3	6	5	1	2	3	3
Bsc. Nursing	2	4	6	5	0	0	0	0
Registered Nurses	22	40	62	52	23	21	44	37
Enrolled Nurses	23	38	61	51	2	0	2	2

Occupational Therapists	1	0	1	1	0	0	0	0
Physiotherapists	3	0	3	3	0	0	0	0
Orthopedic	0	0	0	0	0	1	1	1
Medical Social Workers	0	1	1	1	0	0	0	0
Plaster Technicians	0	0	0	0	0	0	0	0
Laboratory Technologist	12	2	14	12	2	1	3	3
Laboratory Technician	3	1	4	3	0	0	0	0
Health & Record Information Officers	5	0	5	4	0	0	0	0
Health & Record Information Technicians	1	0	1	1	0	1	1	1
Nutritionists	1	3	4	3	0	0	0	0
Public Health Officers	13	2	15	13	4	0	4	3
Public Health Technicians	7	0	7	6	2	0	2	2
Medical Engineering	1	3	4	3	1	0	1	1
Radiographers	3	0	3	3	0	0	0	0
Biochemists	0	0	0	0	0	0	0	0
Community Health Oral officer	1	0	1	1	0	0	0	0
Total	137	113	250	209	40	26	66	55