



KIRINYAGA COUNTY SPATIAL PLAN

2021 - 2031

KIRINYAGA RISING



PREFACE

Kirinyaga County established by the Constitution of Kenya 2010, is one of the five counties within the central region of Kenya.

Kirinyaga County has many natural resources, most of which are underutilized or un-exploited. Major urban areas in Kirinyaga County include; Kerugoya, Kutus, Wanguru, Kianyaga, Kagumo, Sagana, Makutano, Kagio, Kibingoti and PI (Near Embu Town). Urban areas in Kirinyaga County are exposing linear/ ribbon development. The organic growth is as a result of high population growth that is not commensurate with infrastructure, service provision and employment creation. Most towns are characterized by serious urban sprawl, urban poverty, unemployment, informality and environmental deterioration, rapid and illegal land subdivisions, mushrooming of informal settlements and lack of recreational facilities.

The county is considered the basket of Kenya's major cash crops, coffee and tea. However, the high population growth rate is affecting agricultural productivity which is most evident through uneconomical subdivision of agricultural land for settlement. If this pattern of unsustainable land use proceeds unchecked, this would lead to National food insecurity, diminishing agricultural lands sizes, rural poverty and poor state of infrastructure and services.

In the absence of a County Spatial Plan, county development efforts particularly in infrastructure and services are hampered by lack of clear, consistent investment policy framework. There is no framework for sectoral coordination. The county lacks a legal spatial development framework for making decisions.


In light of the above, there is an urgent need to provide a County Spatial Plan as a framework for planning, so as to develop the County with acceptable standards and services, and good urban form. The focus of the County Spatial plan is to integrate physical, economic, social, cultural, and environmental development and also strengthen institutional establishment and fully tap the County potential by identification of the thrust areas, phasing of development, implementation strategies, resource mobilization and prioritization of the development initiatives.

As per the statutory provision of the County Government Act, 2012, the County Government of Kirinyaga desires to prepare a CSP for the area of jurisdiction in order to fill the legal requirements but also to guide development of the county for next 10 years. The plan is required to be prepared to translate broad implementable planning proposals.

APPROVAL & CERTIFICATION

PREPARED BY:

This plan is prepared with my professional guidance as a Registered Physical Planner under commission from the Kirinyaga County Government, and as provided for in the Physical and Land Use Planning Act 2019 and having met the requirements of Section 21 of the Physical Planners Registration Act----



Plan. Henry M. Mwau (RPP.0031)


Consultants Team leader and Registered Physical Planner

15/03/2024

Date

CERTIFIED BY:

I certify that this plan has been prepared in accordance with procedural and substantive provisions of the relevant planning statutes and in observance of all requisite procedures and standards.



Signature


18/3/2024

Date

(Registered Physical Planner and County Director of Physical Planning)

RECOMMENDED BY:

This plan is developed by the County Executive Committee pursuant to Section 110(3) of the County Governments Act and is hereby recommended for approval by the County Assembly of Kirinyaga.



County Executive Committee

Rev. Samuel Kanjobe (CECM, Lands, Physical Planning and Urban Development)

MIN. CGK/CECM/4/25/
09/03/24

Minute Number

19/03/2024

Date

APPROVED BY:

Pursuant to the legislative authority granted in Article 185(4) of the Constitution of Kenya and function designated in Section 8(1)e of the County Governments Act, the Kirinyaga County Assembly hereby approves this plan.

CAK/2024/0024

Hansard Number:

6th May, 2024

Date

ENDORSED BY:

The County endorses this plan, as approved, and commits its effort and resources towards the realization of envisaged outcomes, and for the benefit of the People of Kirinyaga County.



H.E. Anne Mumbi Waiguru, E.G.H
Governor, Kirinyaga County

27/05/2024

Date

FOREWORD

Article 42 of the Constitution of Kenya 2010 provides for right to a clean and healthy environment to every Kenyan. In enabling realization of this fundamental human right, County Governments are vested by the constitution's fourth schedule to plan and develop their respective areas of jurisdiction. This is actualised through drawing from provisions of the County Government Act No.11 of 2012 which expounds on County planning.

The County Government Act, 2012 (Amended 2020) in section 110 requires County Governments to prepare a ten-year GIS-based County Spatial Plan (CSP) for their respective areas of jurisdiction as a prerequisite for public funding from the national treasury. The purpose of CSP is to integrate economic, physical, social, environmental and spatial aspects of development. It is therefore with much pleasure that we present the Kirinyaga County Spatial Plan (2021-2031), which is a Ten- Year Development Blue – Print.

The plan provides a broad framework for governance and distribution of the county's resources and functions in order to achieve both national and county development objectives. It also permits the county government to improve the coordination of sectoral programs and initiatives, as well as reduce duplication of efforts and wastage of resources.

Kirinyaga County located in the greater Mt Kenya region is arguably one of the leading agricultural hubs in Kenya. The County has a tropical climate and an equatorial rainfall pattern which is influenced by Mt. Kenya. The county spans from the peak of Mt Kenya to the lower altitude Mwea plains adjacent to the Tana River creating three ecological zones: lowland areas, midland areas and highland areas. The lowland zone is characterized by gentle rolling plains that cover the majority of Mwea constituency. Ndia, Gichugu, and Kirinyaga Central are among the constituencies in the midland zone. The highland zone covers the upper sections of Ndia, Gichugu, and Kirinyaga Central constituencies.

Similarly, the county is endowed with diverse climate therefore producing a wide range of crops for domestic and commercial use. The main crops are tea, coffee, rice, banana, and horticultural produce. While rice grows in the plains of Mwea, tea and coffee grow in the upper parts. However, the County still faces various socio-economic challenges which have been a focus of attention of the CSP.

The CSP framework harnesses the county's rich resource endowment to address the various development challenges and to create opportunities throughout the entire county with focus on subcounty and ward level programmes and priorities thus enhancing implementation at the lower levels.

Finally, I reiterate my government's commitment to the implementation of the plan.



H.E. Anne Waiguru, E.G.H.
Governor,
Kirinyaga County.

ACKNOWLEDGEMENTS

The Kirinyaga County Spatial Plan 2021-2031 was formulated in a participatory process which brought together various stakeholders. The County Government through the County Executive Committee and the County Executive Committee Member for Lands, Physical Planning and Urban Development initiated and guided the process of preparation of the CSP.

The participatory approach encompassed stakeholders from different sectors including the National Government, County directorates, service providers, professional bodies, business associations, faith-based associations, civil societies, resident associations, special groups, academia & research, administration & security, opinion leaders, livestock keepers/farmers and land owners. Their involvement was instrumental in curving the outcome of this Plan and the County Government appreciates their contribution and commitment.

To the multi-sectoral team comprising of the County's key sector departments formed for the purpose of preparation of this plan under the guidance of the County Director of Physical Planning, much gratitude is directed to you for your tireless input.

Much appreciation goes to the people of Kirinyaga County who turned up in good numbers in the several sessions whenever called upon to present their views and comments regarding various aspects of the plan. The CSP carries the evidence of their contribution and we therefore thank them for their positivity and openness.

We wish to extend our gratitude to the National Land Commission (NLC) who in their oversight role kept pushing us to deliver on the Plan. The support accorded by United Nations Food and Agriculture Organization (FAO) through the Digital Land Governance Program in capacity development and support in finalization of the Plan.

We acknowledge the consultant's unhinged efforts that ensured a successful completion of the CSP and even so approached the process with absolute professionalism. The support of the County Executive, the County Assembly and the entire Kirinyaga administration cannot go unnoticed. To these groups, we can only say a big thank you.



Chief Officer, Lands and Physical Planning,

County Government of Kirinyaga.

EXECUTIVE SUMMARY

The County Spatial Plan is a strategic vision of making Kirinyaga the leading agricultural, industrial, tourism, wellness and economic hub and provides the strategies for realization of the vision. The plan is a ten-year framework with a mid-term review and covers the entire territory of Kirinyaga County totalling to approximately 1,482 Km². The Plan has been prepared in fulfilment of the legal requirements of the County Governments Act, 2012 and the guided by the procedure and process as provided by the repealed Physical Planning Act, Cap 286 and the Physical and Land Use Planning Act, 2019.

Since introduction in 2013, Kirinyaga county has recorded tremendous transformation in key areas such as infrastructure and social services. The growth has been hinged primarily on the vision of the county leadership as espoused by the County Integrated Development Plans (CIDP). Despite the recorded growth, there is potential for enhanced growth rate with a comprehensive planning framework. The County Spatial Plan is integral in grounding the CIDP as well as coordinating the sectors.

The purpose of the Plan is to provide a county spatial structure that defines how the space is utilized to ensure optimal and sustainable use of land and land-based resources. It will also provide the desired coordinating framework for the sectors in the county and between county and national government and its agencies. This will facilitate the attainment of national, social, economic and environmental goals and objectives but also the achievement by mainstreaming national and county policies. This will Fast-track the realization of national development goals as well as land policy principles of efficiency, equity, sustainability and productivity. Further, the Plan provides sector development strategies to deal with challenges of infrastructure, water and sanitation, social services, human settlement, economy, environment and natural resources and governance.

To support the realization of the Vision, the Plan has set out the following specific objectives: -

- Provide an integrated spatial framework for Kirinyaga County that promotes economic efficiency, regional competitiveness and sustainable development;
- Develop an accurate and up-to-date county GIS Database to support plan-making process and facilitate future land management and administration;
- Harmonize and localize strategic national and regional policies and spatial requirements;
- Identification of resources and outlining strategies for management and utilization;
- Develop functional and well linked rural and urban systems for social and economic activities;

- Provide basis for efficient and cost-effective delivery of infrastructure services;
- Formulating strategies to improve transport and communication networks and linkages;
- Enhance environmental protection and conservation;
- Develop a framework to catalyze county economic growth that will enhance job creation and improve quality of life; and
- Identify strategic intervention areas and priority spending areas for Kirinyaga County.

Further, the Plan aims to promote the principles of sustainable urbanization through compact cities which entail delineating urban boundaries, smart and green urban growth to promote health and aesthetics, sustainable development for posterity, liveability and efficiency among others as guided by the mountain cities blueprint.

The Plan is organized into eleven chapters under two broad sections of introduction, context and analysis and plan proposals and implementation.

Chapter 1 outlines the vision, objectives and scope of the plan while chapter 2 outlines the planning context under the planning area, methodology and process and linkage to other plans. Chapter 3 provides the detailed analysis of the county profile in the context of opportunities, strengths and challenges while chapter 4 provides a synthesis of the planning issues identified.

Chapter 5 presents the structuring elements for the county in form of physiographic and man-made features which builds into chapter 6 which provides the development scenarios. Chapter 7 presents the development proposals in the form of development strategies along the major sectors. Chapter 8 provides the county spatial structure which sets the spatial direction for the county.

Chapter 9 presents the identified projects implementation plan including the phased approach while chapter 10 provides the costing of the plan implementation through the Capital Investment Plan. Chapter 11 provides for the Monitoring and evaluation framework including indicators for evaluation during the midterm review while chapter 12 provides a conclusion for the report.

Recognizing the diverse resource endowment and development levels of the various parts of the county, the CSP seeks to achieve equitable distribution of resources for development across the sub-counties and wards

Mr. Murage Muraguri,
County Director, Physical Planning,
County Government of Kirinyaga

PLANNING TEAM

Supervisory Team- County Government of Kirinyaga		
No	Name	Designation
1.	Samuel Kanjobe	CECM- Lands, Physical Planning & Urban Development
2.	Fredrick Fundi	Chief Officer, Lands, Physical Planning & Urban Development
3.	Plan. Daniel Muraguri	County Director Physical Planning
4.	Mwai Ngunyi	County Director- Lands, Survey and GIS
5.	Paul Muchira	Municipal Manager- Kerugoya Kutus Municipality
6.	William Mutege	Senior Physical Planner
7.	Frinah Esther Wambui	County Physical Planner
8.	Ernest Kinuthia	County Physical Planning Assistant
9.	Jeff Thamaini	Physical Planning Intern
10.	John Makumi	Former Chief Officer, Lands, Physical Planning & Urban Dev
11.	Plan. Caroline Mathenge	Former Director Physical Planning
12.	Plan. William Loka	Former, County Physical Planner
Consulting Team – Real Plan Consultants Ltd		
No	Name	Designation
13.	Plan Henry Mwau	Lead Consultant
14.	Kennedy Kubasu	Project Surveyor
15.	George Mbate	Economist
16.	Prof. Johnstone Kiamba	Sociologist and Environmental Expert
17.	Plan Allan Muthoka	Physical Planner
18.	Plan Peter Kaberere	Physical Planner
19.	David Musyoki	GIS Expert
20.	Ochieng MC Okeyo	Digital mapping and GIS expert
21.	Mark Muthoka	Assistant Planner
22.	Roseline Moseti	Assistant Planner
23.	Daisy Chepkemei	Assistant Planner
24.	Eve Murithi	Assistant Planner
25.	Raya Aboud	Assistant Planner
26.	Mercy Kirema	Assistant Environmental expert

TABLE OF CONTENTS

Preface.....	i
Approval & Certification.....	ii
Foreword	iii
Acknowledgements.....	iii
Executive Summary.....	v
Planning Team	vii
Table of Contents	viii
List of Figures	xv
List of Tables	xvii
List of Maps.....	xxi
List of Abbreviations.....	xxiii
CHAPTER 1.....	1
BACKGROUND	1
1.1 CSP Vision.....	1
1.2 Project Objectives.....	1
1.3 Scope of the Plan.....	2
1.3.1 Land Use Plan	2
1.3.2 Economic Development Strategy.....	2
1.3.3 Infrastructure Development Strategy.....	2
1.3.4 Environmental Management Strategy.....	3
1.3.5 Implementation Strategy	3
1.4 Report Structure	3
1.5 Conclusion.....	3
CHAPTER 2.....	4
PLANNING CONTEXT	4
2.1 Project Area.....	4
2.2 Administrative Units.....	7
2.3 Methodology	11
2.3.1 Digital Topographical Mapping	11
2.3.2 Planning Process	15
2.4 Public Participation.....	18
2.4.1 Stakeholders Analysis.....	18

2.4.2 Awareness, Visioning and Situational Analysis Validation Workshops.....	19
2.4.3 Focus Group Discussion	21
2.4.4 Draft Plan Validation Workshops.....	21
2.4.5 Final Plan Workshops	28
2.4.6 Public Notices.....	28
2.5 Policy and Legal Framework	29
2.5.1 Policy Framework.....	29
2.5.2 Legal Framework.....	31
2.6 Link to Other Plans.....	34
2.6.1 National Spatial Plan (2015 – 2045).....	34
2.6.2 Urban Development Plans	34
2.7 Conclusion.....	35
CHAPTER 3.....	36
SITUATIONAL ANALYSIS	36
3.1 Physical and Natural Environment.....	36
3.1.1 Physiographic Characteristics	36
3.1.2 Natural Resources.....	46
3.1.3 Natural Calamities.....	52
3.1.4 Pollution.....	53
3.1.5 Emerging Planning Issues and Opportunitites.....	53
3.2 Demography.....	54
3.2.1 Population Size and Distribution	54
3.2.2 Urban Population.....	55
3.2.3 Population Structure	57
3.2.4 Population Density and Distribution	59
3.2.5 Persons with Disability	61
3.2.6 Literacy Levels.....	61
3.2.7 Employment Rate.....	62
3.2.8 Mortality	62
3.2.9 Fertility	62
3.2.10 Migration	62
3.2.11 Emerging Planning Issues and Opportunities.....	63
3.3 Economic Base.....	63

3.3.1 Agriculture.....	63
3.3.2 Trade and Commerce	77
3.3.3 Industrial Development.....	81
3.3.4 Mining	84
3.3.5 Tourism	85
3.3.6 Revenue.....	94
3.3.7 Emerging Planning Issues and Opportunities.....	95
3.4 Land	97
3.4.1 Land Tenure	97
3.4.2 Land Use.....	99
3.4.3 Land Values.....	102
3.4.4 Land Conflicts.....	104
3.5 Settlement Patterns.....	105
3.5.1 Trends of Human Settlements.....	106
3.6.6 Urbanization.....	111
3.6.7 Housing Characteristics	115
3.6.8 Emerging Planning Issues and Opportunities	116
3.7 Infrastructure & services	117
3.7.6 Transportation	117
3.6.2 Water	127
3.6.3 Energy.....	133
3.6.4 Waste Management	135
3.6.5 Information and Communication Technology	135
3.6.6 Social Infrastructure	136
3.6.7 Emerging Planning Issues and Opportunities.....	148
3.7 Governance	149
3.7.1 Kirinyaga County Government	150
3.7.2 National Government	152
3.7.3 Local Organizations	153
3.7.4 Emerging Planning Issues & Opportunities.....	154
3.8 Key Ongoing Projects.....	154
3.8.1 Kirinyaga Industrial and Business Park	154
3.8.2 Rehabilitation of the Nanyuki – Sagana – Nairobi Railway	159

3.8.3 Construction of Kerugoya/Kutus Water Supply And Sanitation Infrastructure	159
3.8.4 Expansion of Kenol – Nyeri Highway.....	159
3.9 Conclusion.....	160
CHAPTER 4.....	161
SUMMARY OF PLANNING ISSUES	161
CHAPTER 5.....	168
DESIGN CONSIDERATIONS.....	168
5.1 Structuring Elements	168
5.1.1 Movement System.....	168
5.1.2 Natural System	170
5.1.3 Nodal System.....	170
5.2 Existing Land Use.....	172
5.3 Land Suitability Analysis.....	172
5.4 Regional Projects.....	173
5.5 Drivers of Economy	175
CHAPTER 6.....	176
DEVELOPMENT SCENARIOS.....	176
6.1 Scenario 1: Agricultural Development	176
6.2 Scenario 2: Urban Development.....	179
6.3 Scenario 3: Eco-tourism and Conservation	180
6.4 Integrated Spatial Development Framework.....	184
6.4.1 The Protected Highlands.....	184
6.4.2 The Productive Highlands.....	184
6.4.3 The Grain Basket	185
6.4.4 Adventurous Scapes	186
6.4.5 The Activity Hubs.....	187
6.4.6 Circulation Corridors	187
6.4.7 The Mixed Farm	188
6.5 Conclusion.....	188
CHAPTER 7.....	189
SECTOR STRATEGIES.....	189
7.1 Infrastructure Development.....	189
7.1.1 Transport Plan.....	189

7.1.2 Information and Communication Technology	201
7.1.3 Energy.....	201
7.2 Water and sanitation.....	202
7.3 Social Services	202
7.3.1 Policy Direction	203
7.3.2 Education	203
7.3.3 Special Needs Education.....	205
7.3.4 Health	207
7.3.5 Rehabilitation Centres.....	212
7.3.6 Cemeteries	212
7.3.7 Firefighting Facilities.....	212
7.3.8 Social Halls.....	213
7.3.9 Youth Empowerment Hubs.....	214
7.3.10 Libraries.....	215
7.3.11 Recreation and Sport Centres.....	217
7.4 Human settlement	220
7.4.1 Urban Areas.....	220
7.4.2 Colonial Villages	228
7.4.3 Rural Landscape.....	230
7.5 Economic Development	230
7.5.1 Agriculture Development	230
7.5.2 Industrialization	233
7.5.3 Trade and Commerce	237
7.5.4 Tourism	239
7.5.5 Mining	244
7.5.6 Revitalization of Cooperative Societies.....	245
7.6 Environment and Natural Resources	247
7.6.1 Water Resources.....	247
7.6.2 Swamps.....	249
7.6.3 Forest.....	249
7.6.4 Pollution Mitigation	250
7.6.5 Soil Erosion Control	250
7.6.6 Natural Calamities.....	251

7.6.7 Solid Waste Management.....	251
7.7 Governance	258
7.7.1 Operationalization of Committees and Boards	258
7.7.2 Empowering the County Department of Land, Physical Planning and Urban Development	259
CHAPTER 8.....	260
SPATIAL LAND USE PLAN	260
8.1 County Land use plan	260
8.2 Land Use Zoning Regulations.....	268
CHAPTER 9.....	270
PROJECTS IMPLEMENTATION PLAN.....	270
9.1 National - County Government Distribution	270
9.2 Sectoral Distribution	271
9.3 Distribution by Departments.....	272
9.4 distribution by Sub-county.....	273
9.5 Desired facilities Per Ward.....	274
9.6 Rural-urban Distribution.....	276
9.7 Development corridors.....	277
9.8 Project Phasing.....	278
9.9 Youth projects.....	279
9.10 Contributions to The Big 4 Agenda.....	280
9.11 Land acquisition	281
9.11.1 Phased Land Requirement.....	282
9.11.2 Sub-County Land Requirement.....	282
CHAPTER 10.....	284
CAPITAL INVESTMENT PLAN	284
10.1 Estimated Project Cost by Sector	284
10.2 Estimated Project Cost by Sub- County	285
10.3 Projects Financing.....	285
10.4 Catalytic Projects	287
10.5 List of Projects	288
CHAPTER 11.....	306
MONITORING AND EVALUATION FRAMEWORK.....	306

CHAPTER 12.....	317
CONCLUSION.....	317
Annex 1: English Notice of Intention to Plan	318
Annex 2: Swahili Notice of Intention to Plan	319
Annex 3: County Age-Sex Composition	320
Annex 4: Revenue Collection 2013-18	321
Annex 5: Land Registration Section.....	322
Annex 6: Existing Swamps	323
Annex 7: Geodetic Control Points	326
Annex 8: Public Land Inventory (NLC)	328
Annex 9: ECDE Inventory.....	331
Annex 10: Primary Schools Inventory.....	335
Annex 11: Secondary schools inventory	339
Annex 12: Situational Analysis and Draft Plan Workshop attendance list	342
Annex 13: Final Plan Workshop attendance list.....	353

LIST OF FIGURES

Figure 1: Snippet of Wang’uru Town Satellite Imagery	12
Figure 2: Planning process.....	15
Figure 3: Consultation with the County Revenue officers.....	16
Figure 4 Public/Stakeholder Participation Structure	18
Figure 5: The Director County Planning Launching the Workshop in Mwea East.....	19
Figure 6: Sub County Administrator- Kirinyaga East Making Opening Remarks	21
Figure 7: The People’s Priorities.....	27
Figure 8: Mountain Cities Pillars.....	31
Figure 9: River Catchment Area	41
Figure 10: Distribution of Swamps by Sub-County	48
Figure 11: Rural vs Urban In 2019 Census	56
Figure 12: County Population by Gender, 2019.....	57
Figure 13: County population pyramid, 2019	58
Figure 14: County Population Composition, 2019	58
Figure 15: School Attendance Status In 2019	61
Figure 16: Crop Production Vs Cultivated Land.....	65
Figure 17: Crop Production Volume, 2020	66
Figure 18: Tea Farming in Kangaita and Kimunye	69
Figure 19: Coffee Farming in Kianyaga	70
Figure 20: Rice Paddies in Mwea	71
Figure 21: Banana Production by County	73
Figure 22: Cattle rearing in Kirinyaga Central.....	75
Figure 23: Sectorial Distribution of Industries.....	81
Figure 24: Distribution of Industries	83
Figure 25: Mount Kenya.....	85
Figure 26: Castle lodge scenic view	86
Figure 27: Thingira Cultural Village.....	87
Figure 28: Rapid Camp Sagana.....	88
Figure 29: Ndaraca ya Ngai	88
Figure 30: Types Hospitality Facilities.....	90
Figure 31: Distribution of Hospitality Facilities	90
Figure 32: Bed Capacity Distribution	92

Figure 33: Land Tenure.....	97
Figure 34: Distribution of Land Parcels by Sub-County	98
Figure 35: Land Ownership Documents	99
Figure 36: Existing Land Use Budget.....	100
Figure 37: Land Values - Commercial Plots.....	102
Figure 38: Comparison of Commercial and Residential Land Values	103
Figure 39: Main Dwelling Unit Tenure Status, 2019	115
Figure 40: Rented/provided unit/house providers.....	115
Figure 41: Road Status	122
Figure 42: Kerugoya Main Terminus	123
Figure 43: Roadside Parking at Kerugoya	124
Figure 44: Water Sources	128
Figure 45: KIRIWASCO Supply Area.....	129
Figure 46: KIRIWASCO Beneficiaries	130
Figure 47: Sources of Cooking Energy	134
Figure 48: Sources of Lighting Energy	134
Figure 49: Kerugoya County Referral Hospital	141
Figure 50: Public Health Facilities.....	141
Figure 51: Emergency Records.....	145
Figure 52: Kerugoya Public Park	147
Figure 53: Components of Functional Terminal Design	196
Figure 54: Scenic view of a tea plantation in Kirinyaga	241
Figure 55: New Purchased County Government Skip Loader & Skips	253
Figure 56: Proposed Structure of the Lands, Physical Planning & Urban Development Department	259
Figure 57: Proposed Land Use Budget	261
Figure 58: National-County Government distribution.....	270
Figure 59: Distribution of Projects by Sub-County.....	273
Figure 60: Rural-Urban Distribution.....	276
Figure 61: Projects Along Development Axis	277
Figure 62: Youth Projects	279
Figure 63: Land Requirement by Sector.....	281
Figure 64: Land Requirement by Sub- County.....	283

LIST OF TABLES

Table 1: Report Structure.....	3
Table 2: Administrative Units (Sub-counties)	7
Table 3: Administrative Units (Wards)	7
Table 4: Topo Index	11
Table 5: List of Registry Index Maps.....	12
Table 6: Summary of Stakeholders.....	18
Table 7: Stakeholder workshops.....	20
Table 8: Vision statements.....	20
Table 9: Draft Plan Proposal Workshops.....	21
Table 10: Kirinyaga Central Stakeholders' Top 10 Projects	22
Table 11: Kirinyaga Central Stakeholders' Top 10 Projects Summary	22
Table 12: Kirinyaga East Stakeholders' Top 10 Projects	23
Table 13: Kirinyaga East Stakeholders' Top 10 Projects Summary.....	23
Table 14: Kirinyaga West Stakeholders' Top 10 Projects	24
Table 15: Kirinyaga West Stakeholders' Top 10 Projects Summary.....	24
Table 16: Mwea West Stakeholders' Top 10 Projects.....	25
Table 17: Mwea West Stakeholders' Top 10 Projects Summary	25
Table 18: Mwea East Stakeholders' Top 10 Projects.....	26
Table 19: Mwea East Stakeholders' Top 10 Projects Summary	26
Table 20: The People's Priorities.....	27
Table 21: Stakeholders' Priority Summary by Sub-County.....	27
Table 22: Final CSP Workshops	28
Table 23: Previous Urban Development Plans	35
Table 24: River Catchment Area	41
Table 25: River and Catchments Areas.....	46
Table 26: Distribution of swamps by Sub-County	48
Table 27: National Forests	49
Table 28: County Forests.....	50
Table 29: Quarries.....	52

Table 30: Population Projections by Sub-County	54
Table 31: Urban Population - 2019	55
Table 32: Urban Population Projections	56
Table 33: Subcounty Population by Gender, 2019.....	57
Table 34: Population Density, 2019	59
Table 35: Persons with Disability	61
Table 36: Occupation Levels.....	62
Table 37: Cultivated Land in 2019.....	64
Table 38: Crop Production Volumes, 2020	66
Table 39: Crop Revenue, 2020	67
Table 40: Dairy Production	73
Table 41: Meat Production Volumes.....	74
Table 42: Fish Production	77
Table 43: Business Sectors	77
Table 44: No. of Licensed Business, 2019.....	78
Table 45 Industries	81
Table 46 Distribution of Industries	83
Table 47: Agricultural Processors.....	83
Table 48: List of Quarries	84
Table 49: Main Hospitality Facilities	91
Table 50: Revenue Collection 2013-18.....	94
Table 51: No of Parcels by Sub-County	98
Table 52: Average Land Sizes	98
Table 53: Existing Land Use Budget.....	99
Table 54: Land Values - Commercial Plots.....	102
Table 55: Land Values in Urban Residential and Peri-Urban Areas.....	103
Table 56: Chronology of Major Post-1900 Human Settlement Events.....	105
Table 57: List of Colonial Villages.....	108
Table 58: Village Clusters (Based on Size).....	109
Table 59: List of urban centres by ward	111
Table 60: Urban Functions.....	113
Table 61: Road Classification.....	117
Table 62: Class A - D Roads Status	117

Table 63: Class E & F Roads Status.....	119
Table 64: Institutions in the Water Sector.....	127
Table 65: KIRIWASCO Schemes	130
Table 66: KIRIWASCO Beneficiaries.....	130
Table 67: Water Demand by Sub County.....	133
Table 68: Dumpsites	135
Table 69: Distribution of the Public Education Facilities by Sub- County	136
Table 70: List of TVETs.....	136
Table 71: Distribution of the Public Health Facilities.....	141
Table 72: Distribution of Health Personnel.....	143
Table 73: Nurse Deficit Analysis	143
Table 74: Doctor Deficit Analysis.....	143
Table 75: Emergency Cases	145
Table 76: SWOT Analysis	161
Table 77: Suitability analysis	173
Table 78: Scenario 3: Proposed Tourism Zones	182
Table 79: Road Width Policy	190
Table 80: Principal Roads Interventions	192
Table 81: Upgrading of Secondary Roads (Class C & D).....	193
Table 82: Interventions on Minor Roads.....	195
Table 83: Termini Priority Matrix.....	196
Table 84: Parking Provision Guidelines.....	197
Table 85: NMT Facilities Priority Matrix	198
Table 86: Rail Transport Priority Matrix.....	199
Table 87: Air Transport Priority Matrix	199
Table 88: Newly proposed facilities.....	204
Table 89: Equipping Special Needs Facilities	205
Table 90: Improving the County Referral Hospital (Level 5)	207
Table 91: Equipping Level 4 Hospitals.....	207
Table 92: Equipping Health Centre & Dispensaries.....	208
Table 93: Upgrading of Health Facilities	208
Table 94: Completion of Dispensaries.....	210
Table 95: Other Ongoing Projects (Health Facilities).....	210

Table 96: New Health Facility	210
Table 97: Proposed Rehabilitation Centres	212
Table 98: Proposed Cemeteries	212
Table 99: Proposed Fire Stations	213
Table 100: Proposed Sub- County & Ward Social Halls	213
Table 101: Proposed Youth Empowerment Hub	214
Table 102: Proposed Libraries	215
Table 103: Proposed Recreational Facilities.....	217
Table 104: Proposed Sports Facilities	218
Table 105: Main Centres Area of Influence (Centres and Population)	220
Table 106: Main Centres Sphere of Influence	221
Table 107: Urban Hierarchy	223
Table 108: Urban Extents.....	225
Table 109: Urban Centres Planning Program	227
Table 110: Colonial Village Planning Program	229
Table 111: Industrial Development Projects	236
Table 112: Market Development Program	238
Table 113: Prioritization of Tourism Development Projects.....	244
Table 114: Prioritization of Mining Sector Projects.....	245
Table 115: Lists of Forests.....	249
Table 116: Environmental Management Matrix	254
Table 117: Proposed County Land Use Budget	261
Table 118: Land regulations	268
Table 119: Sectoral Distribution of Projects	271
Table 120: Sector projects by sub-counties.....	271
Table 121: Project by County Department.....	272
Table 122: Project by GoK Ministries	272
Table 123: Distribution of Projects by Sub-County	273
Table 124: Desired Facilities Per Ward	274
Table 125: Desired Facilities by Sector.....	275
Table 126: Rural-Urban Distribution.....	276
Table 127: Projects Along Development Axis.....	277
Table 128: Project Along Development Corridor by Sector	277

Table 129: Project Phasing	278
Table 130: Phasing by Sub-County	278
Table 131: Phasing by Sectors.....	279
Table 132: Land Requirement by Sector	281
Table 133: Phased Land Requirements.....	282
Table 134: Land Requirement by Sub-County.....	282
Table 135: Sub- County Land Requirement by Sector.....	283
Table 136: Project Cost by Sector	284

LIST OF MAPS

Map 1: Location Context	5
Map 2: Project Area.....	6
Map 3: Administrative Units.....	8
Map 4 National Government Structure	9
Map 5 Political Structure.....	10
Map 6: Soil Characteristics.....	38
Map 7: Relief	40
Map 8: Drainage Patterns.....	42
Map 9: River Catchment Areas.....	43
Map 10: Agroecological Zones.....	45
Map 11: Natural Resources	51
Map 12: Population Distribution.....	60
Map 13: County Cultivated Area.....	65
Map 14: Crop Production Areas.....	68
Map 15: Distribution of Cattle Dips	76
Map 16: Distribution of Markets	80
Map 17: Industries in Kirinyaga	82
Map 18: Hospitality Facilities.....	93
Map 19: Existing Land Use	101
Map 20: Settlement Pattern.....	107
Map 21: Colonial Villages	110
Map 22: Urban Centres	112
Map 23: Road Classification	121

Map 24: Regional Connectivity	126
Map 25: Water Reticulation Network.....	132
Map 26: Existing Primary Schools	138
Map 27: Existing Secondary Schools	139
Map 28: Existing Health Facilities.....	142
Map 29: Concept Plan (Sagana Industrial Park)	155
Map 30: Development Axis.....	169
Map 31: Structuring Elements	171
Map 32: Key Proposed & Ongoing projects.....	174
Map 33: Scenario 1: Agricultural Development	178
Map 34: Development Scenario 3: Tourism and Conservation.....	183
Map 35: Transport Corridors.....	191
Map 36: Transport Plan	200
Map 37: Educational Facilities (Proposals)	206
Map 38: Improvement of Health Facilities	211
Map 39 Social Facilities (Proposals).....	216
Map 40: Recreational Facilities (Proposals)	219
Map 41: Urbanization Strategy.....	222
Map 42 Hierarchy of Urban Centres.....	224
Map 43: Urban Limits.....	226
Map 44 Tourism Development	243
Map 45: County Integrated Land Use Plan.....	262
Map 46: Integrated Land Use Plan (Kirinyaga Central).....	263
Map 47: Integrated Land Use Plan (Kirinyaga West)	264
Map 48: Integrated Land Use Plan (Kirinyaga West)	265
Map 49: Integrated Land Use Plan Mwea East.....	266
Map 50: Integrated Land Use Plan Mwea West.....	259

LIST OF ABBREVIATIONS

ASL	Above Sea Level
CEC	County Executive Authority
CIDP	County Integrated Development Plan
CGK	County Government of Kirinyaga
CSP	County Spatial Plan
ECDE	Early Childhood Development Education
EIA	Environmental Impact Assessment
EMCA	Environmental Management and Coordination Act
EMP	Environment Management Plan
FGD	Focus Group Discussion
GDP	Gross Domestic Product
GoK	Government of Kenya
GIS	Geographical Information System
GPS	Geographical Positioning System
HEP	Hydro Electric Power
KALRO	Kenya Agricultural and Livestock Research Organization
KCB	Kenya Commercial Bank
KeNHA	Kenya National Highways Authority
KEMRI	Kenya Medical Research Institute
KeRRA	Kenya Rural Roads Authority
KFS	Kenya Forest Service
KIRIWASCO	Kirinyaga Water and Sanitation Company
KNBS	Kenya National Bureau of Statistics
KURA	Kenya Urban Roads Authority
KWS	Kenya Wildlife Service
LEDP	Local Economic Development Plan
LSK	Law Society of Kenya
MIAD	Mwea Irrigation Agricultural Development
M&E	Monitoring and Evaluation
NEMA	National Environmental Authority
NGAO	National Government Administration Officers
NGO	Non-governmental Organization
NIA	National Irrigation Authority
NLC	National Land Commission

NSP	National Spatial Plan
PLUPA	Physical and Land Use Planning Act
PPP	Public Private Partnerships
PWD	Persons Living with Disabilities
RIM	Registry Index Map
RPC	Real Plan Consultants Ltd
SDG	Sustainable Development Goal
SME	Small and Micro Enterprises
TOR	Terms of Reference
UTM	Universal Transverse Mercator
WRA	Water Resource Authority
WRUA	Water Resource Users Association

CHAPTER 1

BACKGROUND

Since independence Kenya has grappled with numerous development challenges ranging from inadequate infrastructure, rapid population growth, environmental degradation, rapid and uncontrolled urbanization, under-utilization of natural resources, uneven distribution of resources and poor economic performance. This is due to uncoordinated development planning attributed to inadequate framework to integrate spatial and economic plans and programs.

The devolved system of government and the National Spatial Plan (NSP), 2015-2045 are key milestones towards providing a basic development framework. While devolution's ultimate objective is to decentralize resources and delivery of services, the NSP on the other hand spells out the broad and long-term spatial development direction for the country. It is in this context that the CSP has been prepared. To further contextualize the NSP and Constitution by providing a comprehensive framework defining the general development trends and strategies, within which projects and other priority programs will be implemented.

The preparation of Kirinyaga CSP (2021-2031) was commissioned by the County Government of Kirinyaga in line the County Governments Act, 2012 and Physical and Land Use Planning Act, 2019. The CSP is a spatial development framework whose objectives should reflect the desired spatial form and direction for Kirinyaga County.

1.1 CSP VISION

Emerging from a highly consultative process, the CSP's Vision is to **make Kirinyaga County a 'leading agricultural, industrial, tourism, wellness and economic hub'**. This aims to develop Kirinyaga as a well-organized and integrated county that is socio-economically sustainable with a multi-sectoral economy based on agriculture, tourism and industries working in harmony with its environment and sustainable harnessing of natural capital.

1.2 PROJECT OBJECTIVES

The main objective of the assignment is to prepare a spatial framework to guide development in Kirinyaga County for ten (10) years 2021 – 2031. The specific objectives are to;

- Provide an integrated spatial framework that promotes economic efficiency, regional competitiveness and sustainable development;
- Identify county residents' priorities through participatory planning;
- Develop an accurate and up-to-date county GIS Database to support the plan-making process and facilitate future land management and administration;
- Assess existing resources and outline strategies to sustainably utilize and manage;
- Develop functional rural and urban systems for social and economic development;
- Provide the basis for efficient and cost-effective delivery of infrastructure services;
- Formulate strategies to improve transport and communication networks and linkages;
- Enhance environmental protection and conservation;
- Localize national and regional policies;

- Develop a framework to catalyze county economic growth that will enhance job creation and improve quality of life;
- Identify strategic intervention areas and priority spending areas for the County

1.3 SCOPE OF THE PLAN

The CSP covers Kirinyaga County which is about 1,482 sq.km. It is a 10-year plan covering the period between 2021 and 2031. The plan covers various sectors including socio-economic development, natural resources, land use patterns, infrastructure, industry, human settlement and the environment. The main project outputs include the County Land Use Plan, Economic Development Strategy, Infrastructure Development Strategy and the Capital Investment Plan as discussed below;

1.3.1 Land Use Plan

The land use plan outlines the desired land use pattern and sets out guidelines for land use management. Various land use zones were delineated and the broad development control regulations formulated. The zones include residential, commercial, industrial, conservation, agricultural, public utilities, public purpose and transportation zones.

Colonial villages were identified and mapped. In addition, a program for their planning has been formulated covering the 10-year period.

1.3.2 Economic Development Strategy

The strategy identifies the major drivers of Kirinyaga economy and analyses their distribution, production trend, returns, market, potential and threats. The economic strategy further identifies strategic interventions aimed at catalysing key sectors. Such interventions include opening up of upper east-west link road, establishment of value - addition industries, construction of a regional market at Kagio, and converting Kerugoya Urban Forest to an arboretum. It also recognizes key on-going projects such as establishment of Sagana Industrial Park, construction of Thiba Dam, and the dualling of the Kenol – Sagana – Marua Highway.

1.3.3 Infrastructure Development Strategy

Sectors covered under the infrastructure development strategy include transport, utilities, social facilities and waste management.

- The strategy provides a framework to integrate transportation networks, improve accessibility and connectivity. Although road is the most dominant means of transport, the strategy also provides measures to enhance rail and air transport.
- The Utility Improvement Strategy provides strategies for provision, distribution and management of sewerage disposal and treatment networks, water supply systems and electricity networks.
- Social Infrastructure Improvement: It provides strategies for ensuring adequate social infrastructure including educational, health, social halls, libraries, recreational and sports facilities.

- The Solid Waste Management Plan proposes measures towards innovative solid waste management. It further guides on the location of solid waste disposal and treatment sites.

1.3.4 Environmental Management Strategy

The environmental strategy seeks to ensure environmental sustainability in Kirinyaga. It pays special attention to the identification and protection of the environmentally fragile areas and endangered species. It advocates for the conservation of the natural environment and the restoration of degraded ecosystems.

1.3.5 Implementation Strategy

The proposed CSP programs and projects are prioritized in five 2-year tranches to cover the 10 years. Prioritization has been done at the county and sub-county levels to ensure equitable development. It further provides estimated costs of the projects and programs and outlines, the actors and timelines for their implementation. It is envisaged that the projects will generate socio-economic growth and development of the County.

1.4 REPORT STRUCTURE

The CSP report is presented in a technical format consisting of the following chapters;

Table 1: Report Structure

Chapter	Details
Chapter 1	Background
Chapter 2	Planning Context
Chapter 3	Situational Analysis
Chapter 4	Summary of Planning Issues
Chapter 5	Design Considerations
Chapter 6	Development Scenarios
Chapter 7	Sector Strategies
Chapter 8	Spatial Land Use Plan
Chapter 9	Projects Implementation Plan
Chapter 10	Capital Investment Plan

Source: Real Plan Consultants Limited, 2021

1.5 CONCLUSION

The discussion is a summary interpretation of the project terms of reference. The main objective is to prepare a GIS-based County Spatial Plan for Kirinyaga for a period of ten (10) years 2021 – 2031. The CSP strategies shall be implemented to achieve the desired objectives. For effective implementation, the County Government should monitor, evaluate and review the project to achieve its overall goal and specific objectives. Effective and efficient implementation would make Kirinyaga a leading agricultural, industrial, tourism, wellness and economic hub equipped with world-class infrastructure and services.

CHAPTER 2

PLANNING CONTEXT

This chapter outlines the context in which the CSP has been prepared. It discusses the regional and administrative context, the methodology and the approach employed in its preparation. The section also discusses the policy, legal and institutional framework within which the CSP is formulated.

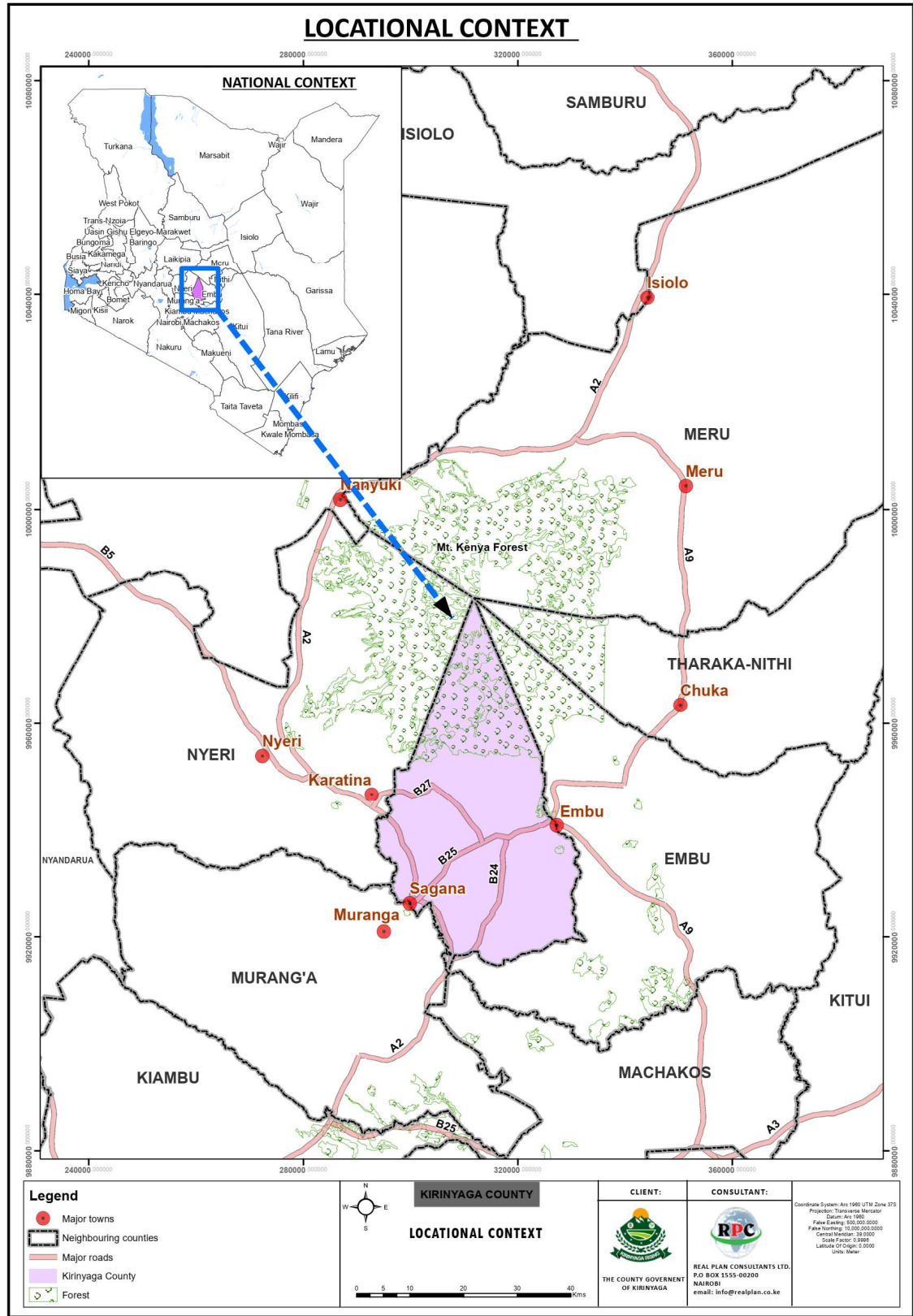
2.1 PROJECT AREA

The CSP covers Kirinyaga County, one of the 47 counties established by the Constitution of Kenya (2010). Kirinyaga is located approx. 125km northeast of Nairobi City between latitudes 0°1" and 0°40" south of the equator and longitudes 37° and 38°. The County lies between 1,158 and 5,380m above sea level in the south (Mwea) and the peak of Mt. Kenya respectively.

The County lies along the Nairobi – Makutano - Sagana – Isiolo International Trunk Road (A2). It borders Murang'a and Machakos Counties to the South, Tharaka Nithi & Meru to the north, Embu and Nyeri to the east and west respectively. The county also forms part of Mt. Kenya Forest as shown in the map below. It is endowed with six major rivers namely Sagana, Nyamindi, Rupingazi, Thiba, Ragati and Rwamuthambi all forming tributaries of River Tana.

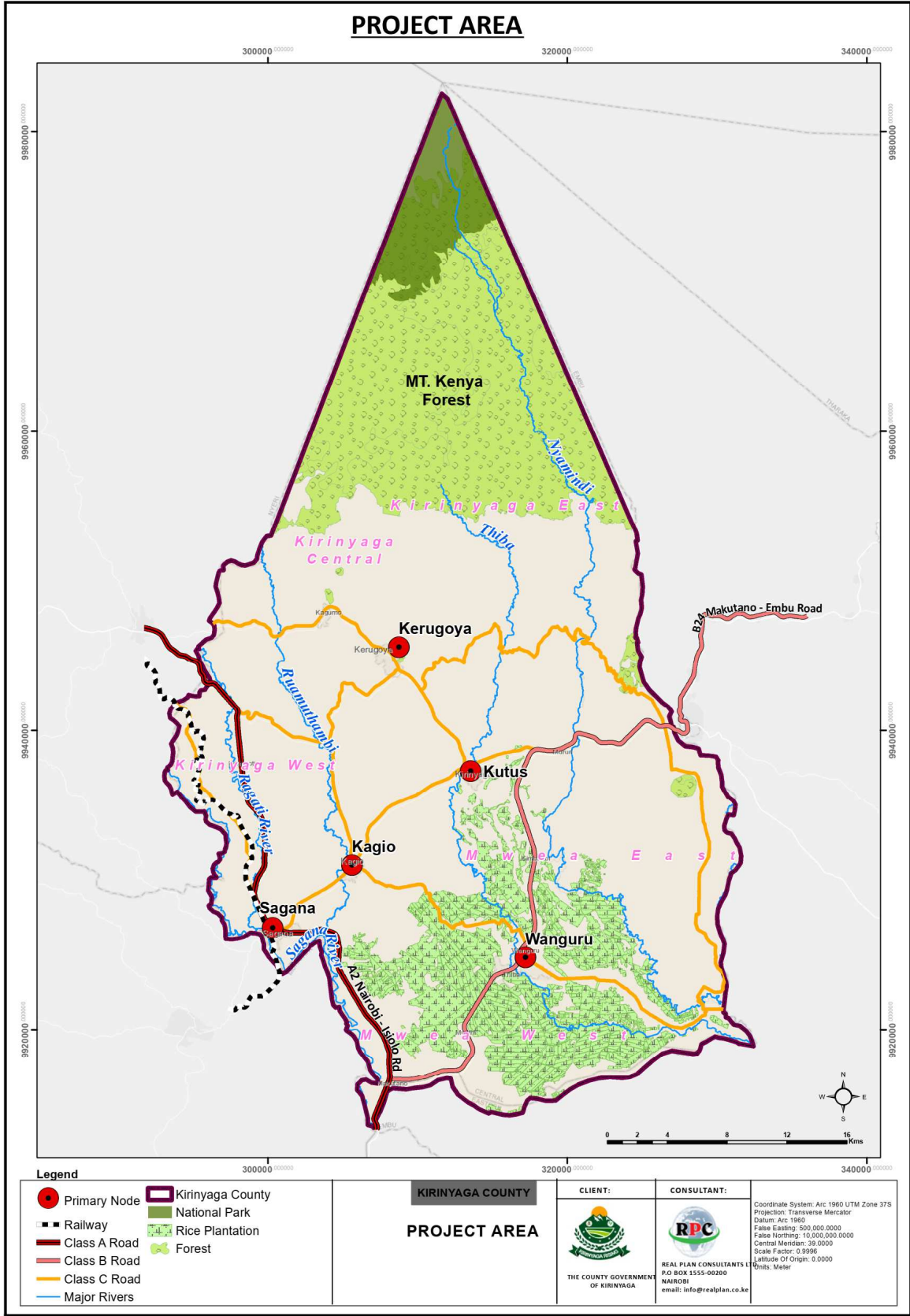
Kirinyaga's land mass covers about 1,482 sq. km. This accounts for 0.3% of the national area (569,140 sq. km). The county headquarters is based in Kerugoya-Kutus Municipality. Other major urban centres in the county are Wang'uru, Sagana, Kagio, Baricho, Kianyaga and Makutano.

Map 1: Location Context



Source: Real Plan Consultants Limited, 2021

Map 2: Project Area



Source: Real Plan Consultants Limited, 2021

2.2 ADMINISTRATIVE UNITS

Administratively, the County comprises five sub-counties namely Mwea East, Mwea West, Kirinyaga West, Central and East. Kirinyaga East is the most expansive covering 455 sq. km (31%) land while Kirinyaga West is the smallest covering 233 sq. km as shown in the table below.

Table 2: Administrative Units (Sub-counties)

Sub Counties	Headquarters	No. of Wards	Area (sq. km)	%
Kirinyaga East	Kianyaga	5	455	31
Mwea East	Wanguru	4	298	20
Mwea West	Mutithi	4	260	17
Kirinyaga Central	Kerugoya	4	235	16
Kirinyaga West	Baricho	3	233	16
Total		20	1482	100

Source: Real Plan Consultants Limited, 2021

Kirinyaga County is further delineated into 20 wards. Mwea West and East Sub-counties have 4 wards each. Kirinyaga East, Central and West have 5, 4 and 3 wards respectively as shown below.

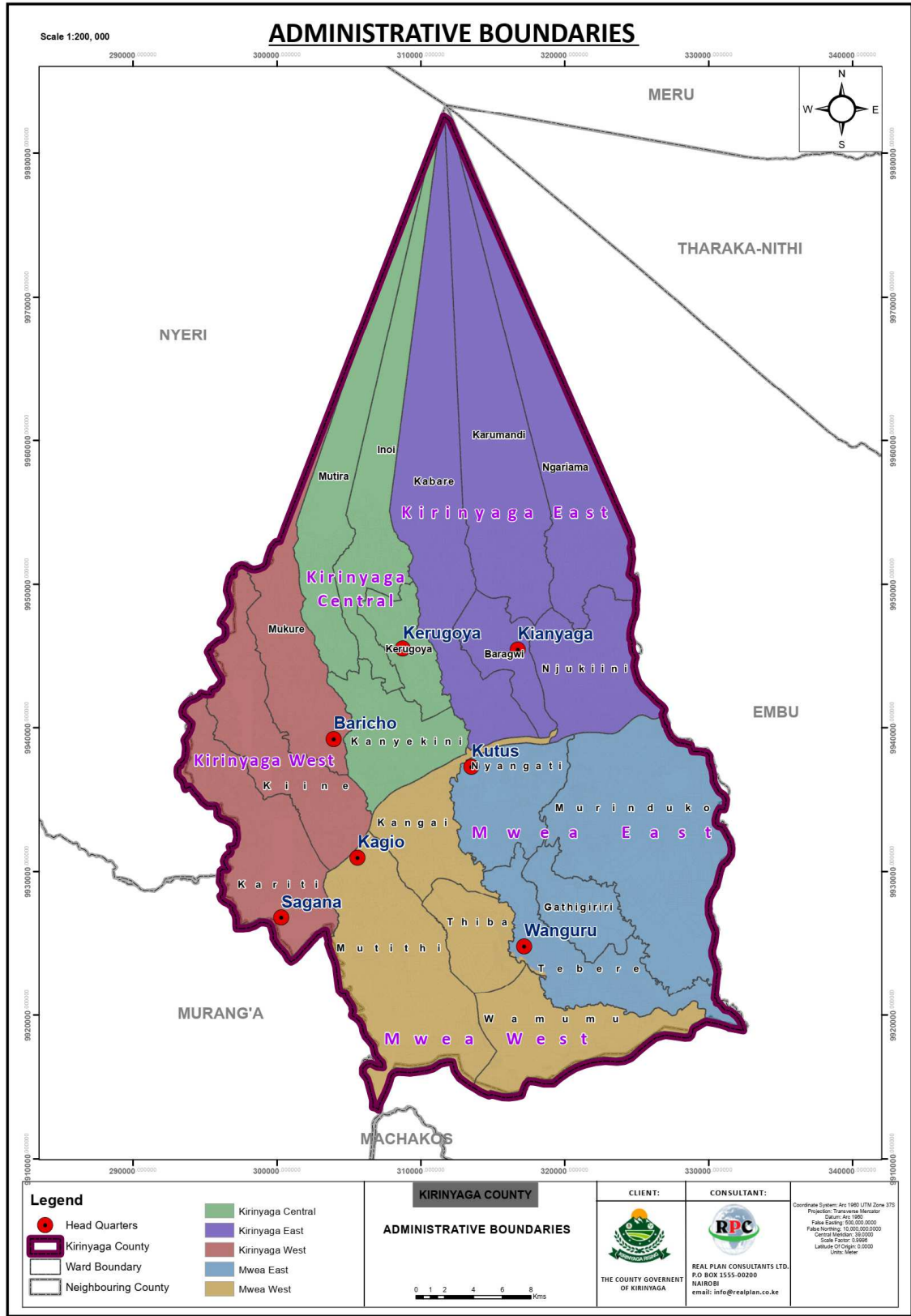
Table 3: Administrative Units (Wards)

Sub-counties	Wards	Area (sq. km)	%
Mwea West	Mutithi	116	8
	Kangai	45	3
	Thiba	35	2
	Wamumu	64	4
Mwea East	Nyangati	52	4
	Murinduko	154	10
	Gathigiriri	32	2
	Tebere	60	4
Kirinyaga East	Kabare	137	9
	Baragwi	31	2
	Njukiini	61	4
	Ngariama	101	7
	Karumandi	125	8
Kirinyaga Central	Mutira	78	5
	Kanyekini	51	3
	Kerugoya	29	2
	Inoi	77	5
Kirinyaga West	Mukure	82	6
	Kiine	82	6
	Kariti	70	5
	Total	1482	100

Source: Real Plan Consultants Limited, 2021

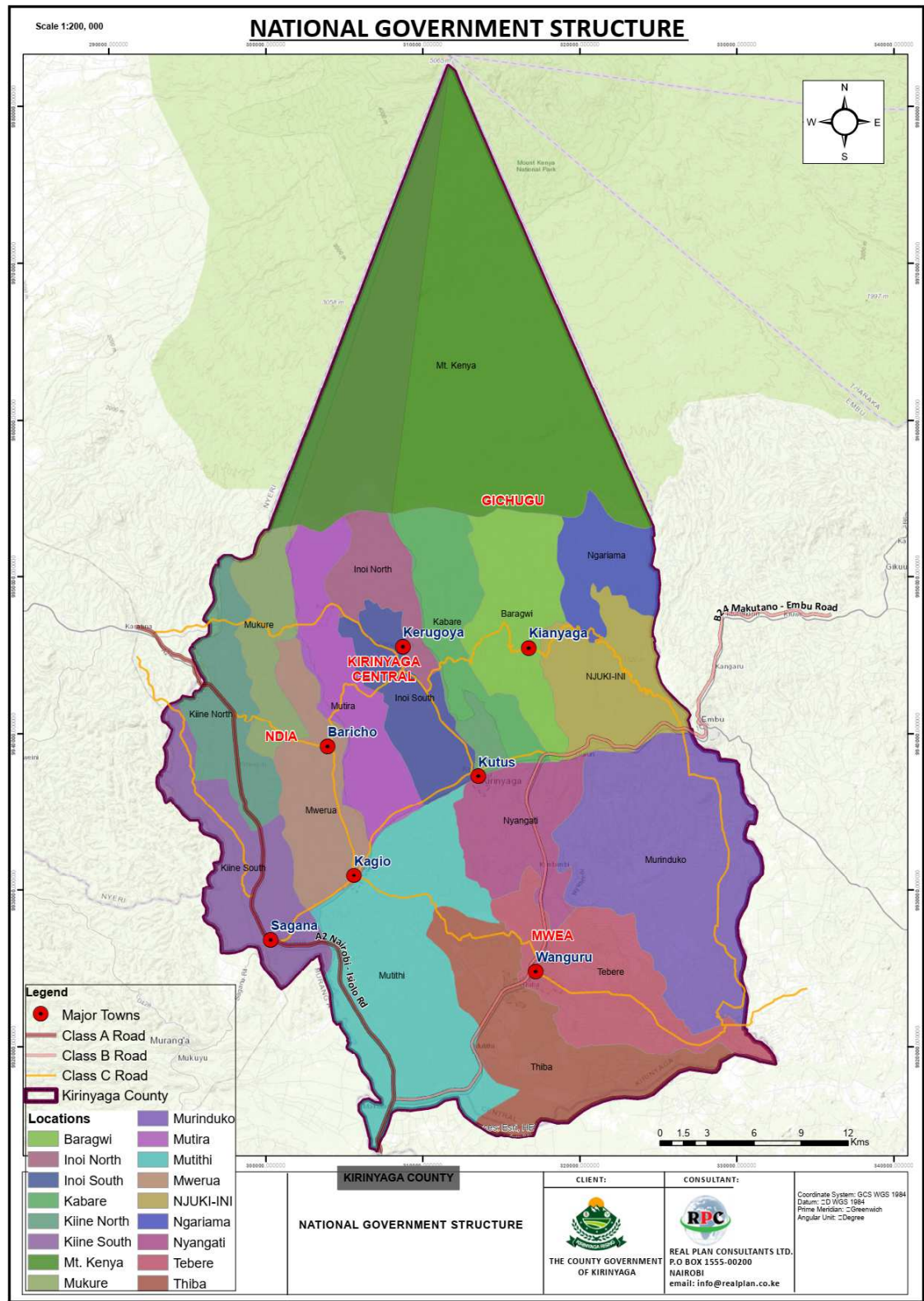
The maps overleaf show the various administrative units;

Map 3: Administrative Units



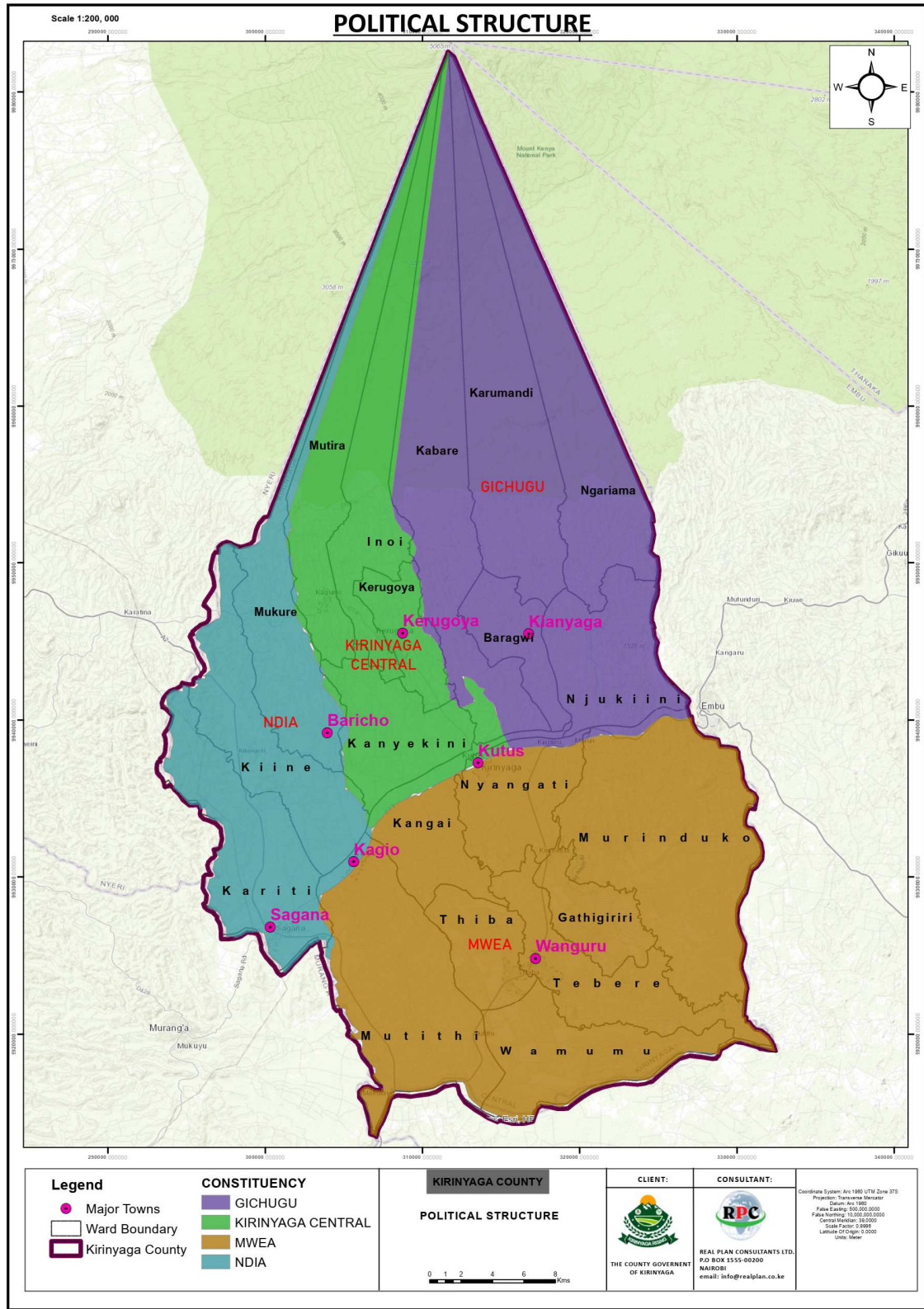
Source: Kenya GIS Data, 2021

Map 4 National Government Structure



Source: Kenya GIS Data, 2021

Map 5 Political Structure



Source: Kenya GIS Data, 2021

2.3 METHODOLOGY

The project has two main components namely digital mapping and spatial planning as discussed.

2.3.1 Digital Topographical Mapping

The major output of the digital topographical mapping process was a county base map. The mapping process entailed acquisition of satellite imagery and existing mapping and cadastral data. Other data activities included; establishment of ground control points; positioning with GPS; establishment of photo control points; survey reconnaissance; postmarking and concreting; GPS and observations; GPS computations; ground control reporting; aerial triangulation; and field verification. These data collection and recording techniques aided the presentation of final maps.

The following information was captured as shape files to give information for planning purposes:

- a. Physical infrastructure
- b. Social infrastructure
- c. Resource mapping
- d. Water resources and drainage systems
- e. Land uses/economic activities
- f. Depiction of terrain characteristics
- g. Names and annotations

2.3.1.1 Cadastral Data Acquisition

The cadastral data was identified and obtained from the Survey of Kenya. It included the following:

1. Topo-cadastral Map Sheets

Topo-cadastral map sheets covering the whole county in the scale of 1:50,000 acquired include the following:

Table 4: Topo Index

Topo-sheet name	Index to adjoining sheet
Naro Moru	121/ii
Karatina	121/iii
Kerugoya	121/iv
Murang'a	135/i
Embu	135/ii
Ithanga	135/iv

Source: Real Plan Consultants Limited, 2021

2. Registry Index Map (RIM)

The registration sections covering the county were identified and Registry Index Maps (RIMs) procured. The RIMs were scanned at 300dpi, georeferenced and digitized. Some of the RIMs obtained include:

Table 5: List of Registry Index Maps

Rim Name	Sheet Nos.
Gacharu Sub Location	3;7;10;12;13;16
Gatundu	3;4;7;8;11
Kiaguthu	4
Kiine Location	11;1;5;6;10;12;13;11
Kiine Location Sagana Sub Location	11;12;13;17
Kirimukuyu Location	3;4;5;6;7;9;10
Kirinyaga District / Makutano Market	1
Konyu Location	4;5;6;7;11
Neri-Marua	17
Ngugu-Ini	5;6;8;11;13;16;17;21;24
Ruguru Location, Kiria	5
Ruguru Location, Mbogoini	6;8
Ruguru Location, Ngandu	8
Rukanga	1;4;5;9;12a;12;13a;17;17a;18;22;25;26;28;29
Sagana	8;9
Thika Sagana	25a

Source: Real Plan Consultants Limited, 2021

2.3.1.2 Satellite Imagery Acquisition

Given the map scale of 1:2500, conventional cartographic and remote sensing rules we employed to determine the correct imagery resolution. Satellite imagery of 0.5m to 1-meter resolution was adequate for the CSP. The figure below shows a snippet of Wang'uru Town satellite image

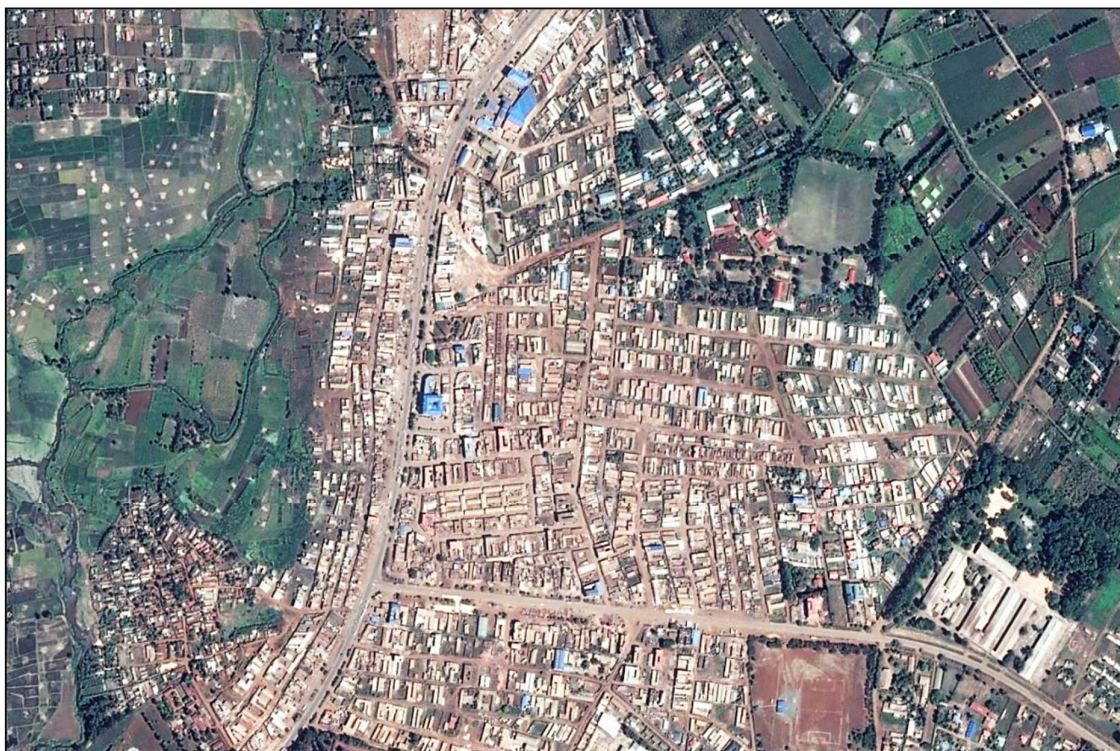


Figure 1: Snippet of Wang'uru Town Satellite Imagery

Source: Real Plan Consultants Limited, 2021

2.3.1.3 Pillar Cards

The following pillars were identified on Topo-sheets 121/II (Naro Moru); 121/III (Karatina); 121/IV (Kerugoya); 135/I (Murang'a); 135/II (Embu); and 135/IV (Ithanga). The corresponding pillar cards were also obtained. The data on the absolute location of the geodetic control points is vital for land survey activities, mainly subdivision and re-establishment of fixed boundaries. The control points can be used as a base to densify an area of interest with primary controls. For this process, the pillars were used for re-geo-referencing of the satellite imagery.

The tabulated data on the geodetic control points within Kirinyaga is annexed to the report.

Results and Findings

- Most pillars had been tampered with and were not in a usable condition
- The pillars in usable condition were those recently established during road surveys and those in remote and inaccessible areas.

2.3.1.4 Feature Extraction

Satellite imagery of 0.5m spatial resolution was re-projected to Arc1960 UTM Zone 37M/South to fit the local datum. It was further controlled using the Survey of Kenya geodetic pillars within Kirinyaga. Feature extraction was done through on-screen digitization methods.

Digitization Process - Using state-of-the-art technology, heads-up/on-screen digitization was employed. The process is as follows:

Step 1: The method involved scanning hardcopy topographical, Topo-cadastral, FR and RIM maps or images into a computerized workstation.

Step 2: Before the digitization process commenced, features to be captured were classified into three main forms/shapes. That is points, lines and polygons.

- Points – These are features without any dimensional direction such as boreholes, trees, poles, spot heights etc.
- Lines – These are features with one-dimensional direction such as Rivers, Roads, Electricity lines, Pipelines, Canals etc.
- Polygons – These are features with multi-dimensional directions such as Buildings, Forests, Water bodies, Parcels etc.

Step 3: Shape files (Points, Lines, and Polygons) are then created within the Arc Catalogue, for the features identified to be vectorized. All these features are then added to the data view of the ArcGIS software and set on an editing mode.

Step 4: Feature extraction - The digitizer/cursor is then directed to accurately trace the features as points, lines, or polygons using ArcGIS software.

2.3.1.5 Sheet Layout

The final map sheets are of a size agreed with the client. All sheets are aligned parallel to specified lines of latitude and longitude and joined with the sheet edges. The following information is shown in the margin of each sheet:

- Sheet number and title
- Scale in representative fraction.
- North arrow
- Grid values
- Corner Easting and Northing values
- Contour interval and height datum
- Compilation notes
- Index to adjacent sheets
- Client's name
- Consultant's acknowledgment
- A legend

2.3.1.6 Outputs

The final products are:

- Satellite imagery/Aerial photography in both hard copy and a digital copy that is geo-referenced and rectified.
- Ground control points approved by the director of surveys
- Preliminary maps
- The cadastral layer of the registered land parcels
- Final digital maps and hard copies

2.3.1.7 Survey Standard and Accuracies

All the controls are tied to the National Grid (UTM) as per the Survey Act and Relevant regulations. They are as follows:

- The GPS controls are fixed to geodetic accuracies better than 0.03m within the shortest period.
- Contours are generated correctly to a root mean square error of better than one-third of the contour interval.
- Spot heights are corrected to a root mean square error of better than one-quarter of the contour interval.
- Grid lines and control points are drawn to better than $\pm 0.2\text{mm}$ root mean square error.

Points of detail are plotted in their true positions at a map scale to better than $\pm 0.3\text{mm}$ root mean square error.

2.3.2 Planning Process

The planning process was undertaken in five broad phases namely; Inception, Situational Analysis, Draft Plan Proposals, Final Plan Preparation and Plan Approval. Stakeholders' participation was an integral part of all these phases as shown below.

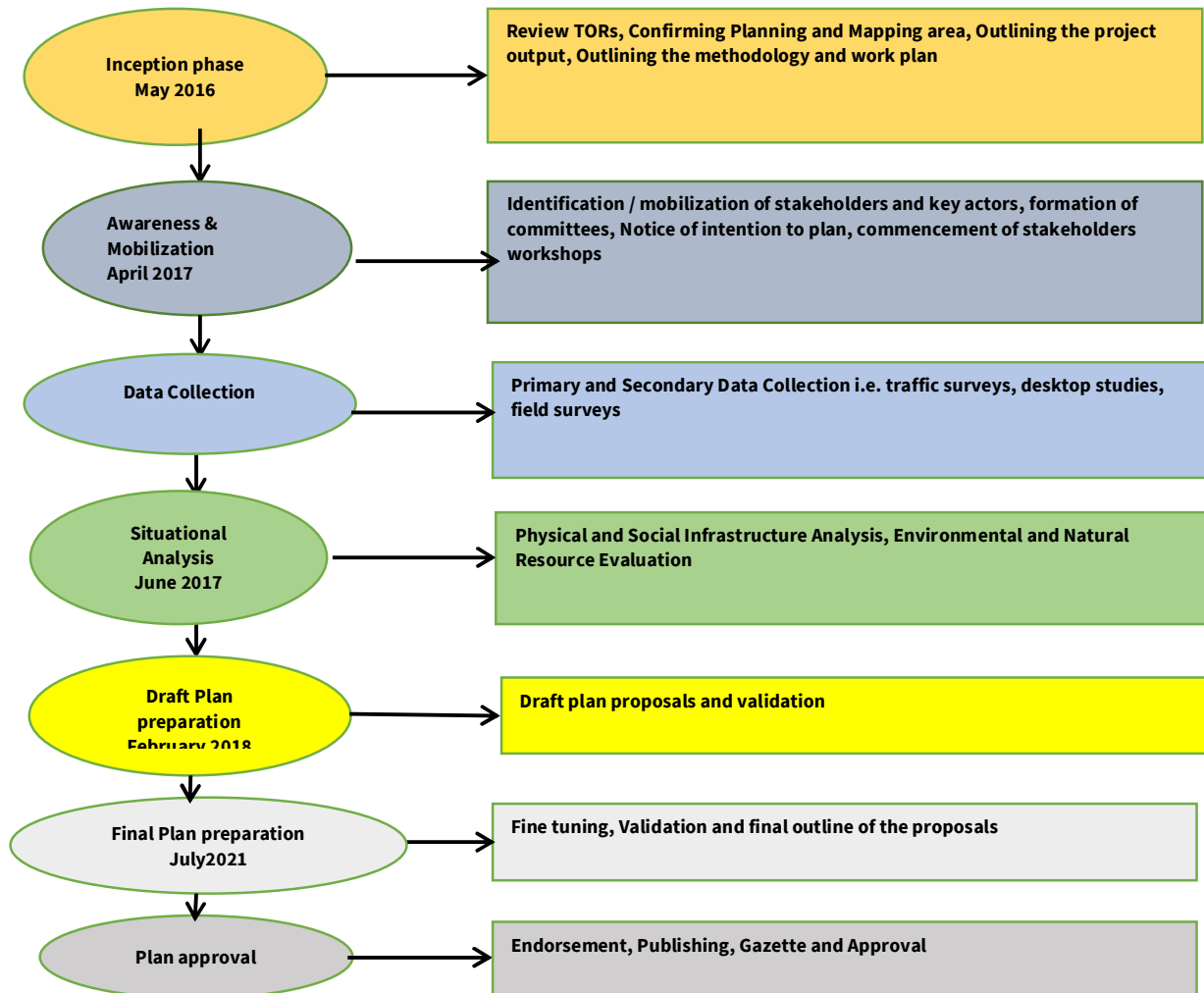


Figure 2: Planning process

Source: Real Plan Consultants Limited, 2021

2.3.2.1 Inception

This included project commencement activities such as contract signing, introduction meetings, data need assessment and reconnaissance visit. The purpose of the reconnaissance visit was to enable familiarization with the county area and key stakeholders. This was followed by stakeholder identification, stakeholder analysis, formation of project committee, preparation, evaluation and approval of the inception report.

The consultants and the County team jointly undertook the stakeholder analysis to ensure effective representation in all development sectors. The Notice of Intention to Plan was also published in the Daily Nation and Taifa Leo papers.

Awareness & Mobilization: The inception phase also involved a series of workshops to introduce the project team to stakeholders, sensitize stakeholders on the project outputs and planning processes. It also entailed the presentation of preliminary situational analysis findings, validation of the findings, identification of problems and opportunities and visioning.

The first sensitization workshop brought together sub-county and ward administrators who assisted in the finalization of the stakeholder identification process. To achieve effective public engagement, forums were organized at the sub-county level. These workshops paved the way to proceed to the situational analysis phase.

2.3.2.3 Situational analysis

The situational analysis phase sought to prepare a profile for Kirinyaga County. It sought to identify the county characteristics, challenges and opportunities. It also aimed at bringing out the competitive advantages of the sub-counties.

Sectors covered are physical and natural environment; population and demography; infrastructure and services; land, housing and human settlements; and economic characteristics. The phase involved the collection, compilation, and analysis of secondary and primary data. Primary data sources included field and office visits.

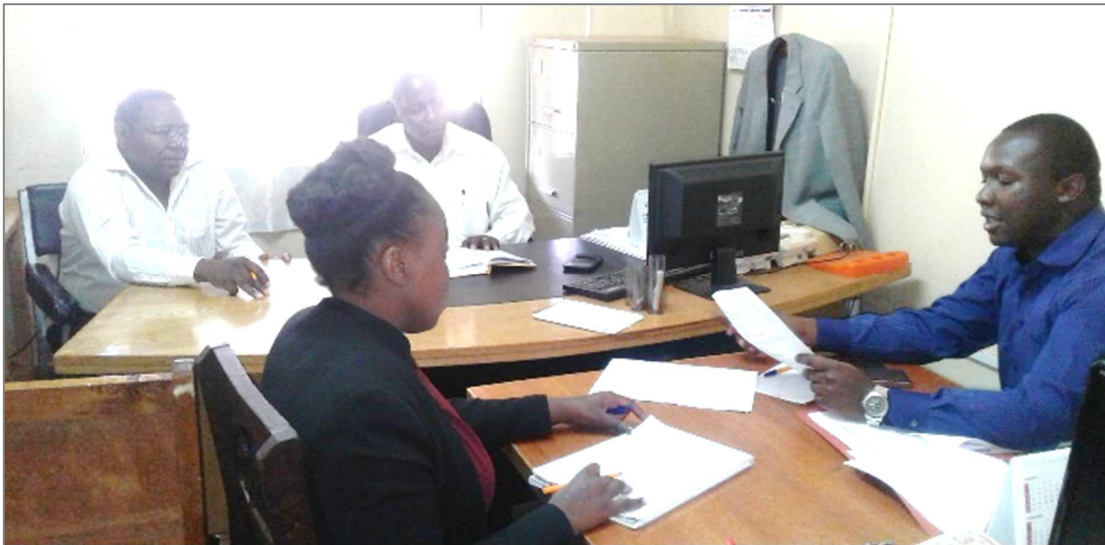


Figure 3: Consultation with the County Revenue officers

Source: Field Survey, 2019

The offices visited included: Lands, Physical Planning, Education, Trade, Transport, Infrastructure, Agriculture, Livestock, Fisheries, Tourism, Disaster Management, Social Services Departments of the National and County Departments. Other agencies visited are KERRA, NLC, NEMA, WRA, KIRIWASCO, KALRO and KNBS. The team also organized ward-based focus group discussions (during stakeholder workshops) to obtain relevant data.

Secondary data collection involved reviewing the policy and legal frameworks that govern County Spatial Planning and those that regulate resource use and management. Documents reviewed include SDGs, The Constitution of Kenya 2010, Kenya 2030 Vision, National Spatial Plan, County Government Act, Physical and Land Use Planning Act, Urban Areas and Cities Act, National Land Policy, The Big Four Agenda and Kirinyaga Mountain Cities Blueprint among others. Previous Plans were also reviewed to understand the existing boundaries, land uses, and implementation status.

The data obtained was analysed thematically and a situational analysis report compiled and submitted for technical evaluation. This formed the basis on which the Kirinyaga CSP was prepared to provide an integrated long-term vision for the growth and development of the County.

2.3.2.4 Draft County Spatial Plan Proposals

This phase involved modelling and scenario building based on the situational analysis findings. Various development models were considered to inform the selection of the best-case scenario/preferred model. The development proposals took cognizance of the strengths, resources, weaknesses, challenges, and threats in the county. The CSP seeks to build on the comparative advantages of the five sub-counties.

A Draft Proposal Report was compiled and subjected to scrutiny by the technical team. The report was later presented and validated by stakeholders during the Draft Plan Proposal Stakeholder Workshops organized at the sub-county level.

2.3.2.5 Final County Spatial Plan

Based on the comments and suggestions obtained during the public consultative forums and the county technical meetings the final CSP report was compiled. Later on, final rounds of public participation (final stakeholder workshop) were held to present the final CSP Report and obtain final stakeholder comments.

Upon incorporation of comments, the CEC in charge Physical and Land Use Planning shall issue a notice of completion and invite comments and views from the general public as required by the Physical and Land Use Planning Act of 2019. The CSP shall also be circulated to all relevant National and County Government ministries, agencies and parastatals for comments.

2.3.2.6 Plan Approval

Next, the CSP will be submitted to the CEC member in charge of Physical Planning for discussion by the Executive. Upon approval by the County Executive, the plan will be presented to the County Assembly through the Town Planning Committee for deliberation, approval, and thereafter for adoption by the Governor.

2.4 PUBLIC PARTICIPATION

One of the project tasks was to convene stakeholder meetings and workshops to create awareness on the CSP, identify citizens' development priorities and promote plan ownership. Public participation is also a requirement of the Constitution (2010), the Physical and Land Use Planning Act (2019), the County Governments Act (2012), and the Public Participation Act (2013). To achieve effective public engagement the model below was adopted;

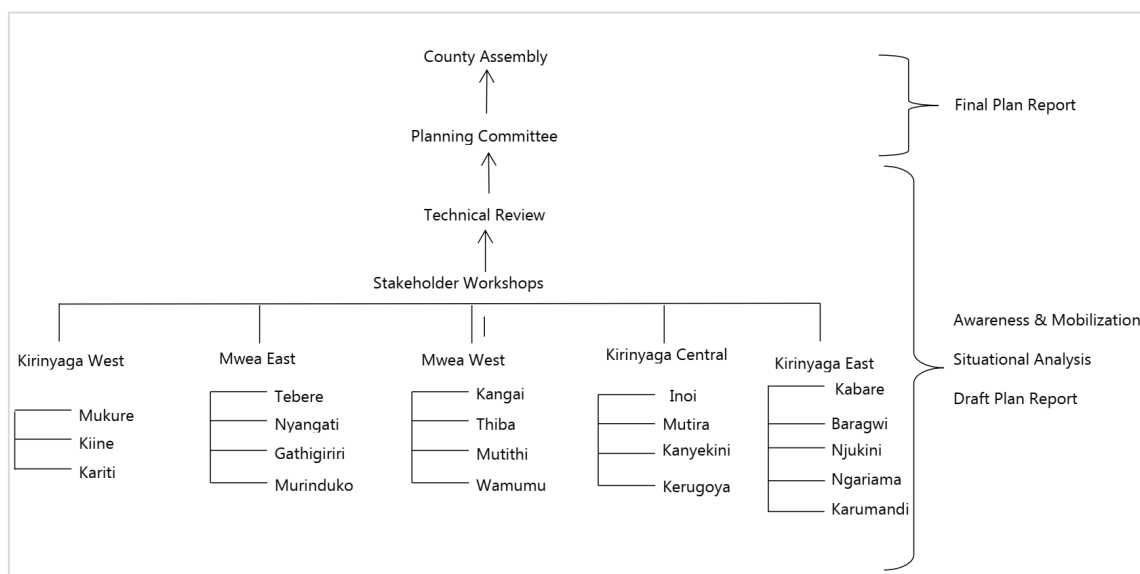


Figure 4 Public/Stakeholder Participation Structure

Source: Real Plan Consultants Limited, 2021

The following activities were undertaken;

1. Mapping, analysis and mobilization of stakeholders
2. Local stakeholder workshops
3. Ward-based focus group discussions
4. Technical meetings
5. Media notices

Numerous activities were carried out as elaborated herein.

2.4.1 Stakeholders Analysis

At the inception, stakeholders were jointly identified and mapped by the consultant, the County Director of Physical Planning, Sub-counties and Ward Administrators. A summary is shown below.

Table 6: Summary of Stakeholders

Category	Details
National Government	Land Registrar, Surveyor, NEMA, WRA, Director of Education, NLC, KWS, KFS
County Directorates	Land, Surveying, Physical planning, Agriculture & Livestock, Economic planning, Water, Revenue, Industrialisation, Education, Roads & Public Works

Category	Details
Service Providers	KeRRA, KIRIWASCO, Solid Waste Management, Kenya Power, KeNHA, NIA
Professional Bodies	Planners Rep, Surveyors, Engineers, Architects, Land, Economist, LSK rep, Bank association, Industries association, Hotel association
Business Associations	Matatu Owners, Small Scale Traders, Hawkers Association, Chamber of commerce, Bodaboda Association, Market association, Juakali artisans
Faith-Based Organizations	Churches, Muslims, Hindu
Civil Societies	Gender-Based Civil Societies, media
Resident Associations	Informal settlement (colonial villages) Estate association/ reps, Nyumba Kumi reps
Special Groups	Women, Youth, Persons with Disability
Academia & research	KALRO, Kirinyaga technical university
Administration & Security	Deputy County Commissioners, Area Chiefs
Opinion leaders	Miiri-Gakenda, Ward Admin, Kirinyaga Socio-economic, Forum, CDF reps
Livestock Keepers/Farmers	Farmers groups, Cooperatives societies
Land Owners Associations	

Source: Real Plan Consultants Limited, 2017

2.4.2 Awareness, Visioning and Situational Analysis Validation Workshops

The purpose was to create awareness about the preparation of the CSP; introduce the planning team (County and Consultants); present preliminary situational analysis findings; and develop a common CSP vision statement.



Figure 5: The Director County Planning Launching the Workshop in Mwea East

Source: Field Survey, 2017

The first workshop brought together Sub-counties and Ward Administrators. It is during this workshop that stakeholder identification was finalized. The second series of workshops held at Sub-counties level targeted local stakeholders. Five workshops were organized as shown in the schedule below.

Table 7: Stakeholder workshops

Workshop	Venue	Date
Ward Administrators	PCEA Hall, Kutus	13 th March 2017
Kirinyaga Central	Catholic Hall, Kerugoya	20 th March 2017
Kirinyaga West	Social Hall, Baricho	21 st March 2017
Kirinyaga East	ACK Hall, Kianyaga	22 nd March 2017
Mwea West	NIA Conference Hall, Kiangai	23 rd March 2017
Mwea East	Starehe Centre, Wang'uru	24 th March 2017

Source: Real Plan Consultants Limited, 2017

During the workshops, the stakeholders participated in ward-based focus group discussions. They identified problems and opportunities in their respective wards. Visions statements for each Sub-County were later developed based on the opportunities and challenges (see the list below).

Table 8: Vision statements

Wards	Visions
	Kirinyaga Central
Mutira	Kirinyaga Central to be an industrial zone
Kanyekini	Kirinyaga Central to be an agricultural hub (tea and coffee) in the county
Inoi	Inoi ward to equip with Motorable roads
Kerugoya	Adequate social facilities such as library and health services
	Kirinyaga East
Kabare Ward	To have Kabare Ward as the most industrialized and best tourist destination
Ngariama Ward	An economically empowered community that is well connected to electricity.
Karumandi Ward	To make Karumandi ward a leading agricultural hub in the county.
Baragwi Ward	To make Baragwi ward a leading agricultural and tourism destination
	Mwea East
Gathigiriri Ward	Improve economy/standard of living/health/provision of clean drinking water
Nyangati Ward	A well-educated ward with clean water, electricity and good roads
Tebere Ward	To be a county where all homesteads have access to electricity and affordable water
Murinduko Ward	High standards of living and infrastructure development
	Mwea West
Kangai ward	A county with proper roads, adequate social facilities and improved living standards
Mutithi Ward	Healthy, economically empowered county with good roads
Wamumu Ward	A leading agricultural county with proper linkage to markets
Thiba Ward	To have a healthy, socially secure, corruption-free, industrialized Mwea

Source: Real Plan Consultants Limited, 2017

2.4.3 Focus Group Discussion

The FGD held on 18 May 2017 at Gracia Garden Hotel in Kilimani, Nairobi involved the Kirinyaga Socio-economic Forum members. The purpose of the forum was to present the situational analysis findings and preliminary proposals and obtain comments and suggestions from the members who are key stakeholders in Kirinyaga.

2.4.4 Draft Plan Validation Workshops

The purpose was to present the draft CSP proposals, validate the proposals and obtain comments and recommendations from the stakeholders. Like the Awareness and Visioning Workshops, the workshops were held in central and accessible venues with adequate conference facilities as shown in the image below.

Five workshops were conducted at sub-county level as shown in the schedule below.

Table 9: Draft Plan Proposal Workshops

Workshop	Venue	Date	Attendants
Kirinyaga Central	CWA Hall, Kerugoya	22 nd November 2018	103
Kirinyaga West	ACK Hall, Kiburu	19 th November 2018	60
Kirinyaga East	St John Catholic Hall, Kianyaga	21 st November 2018	81
Mwea West	Miadi Hall, Kandongu	15 th November 2018	89
Mwea East	ADS Hall, Wanguru	16 th November 2018	80

Source: Real Plan Consultants Limited, 2018



Figure 6: Sub County Administrator- Kirinyaga East Making Opening Remarks

Source: Field Survey, 2018

During the Ward-based focus group discussions, the stakeholders analysed and prioritized the proposed interventions. Top 10 projects identified in every ward representing the people's wishes and aspirations are list below.

Table 10: Kirinyaga Central Stakeholders' Top 10 Projects

Inoi ward	Kanyekine ward	Kerugoya ward	Mutira ward
<ol style="list-style-type: none"> 1. Gitumbi –Kiaraita- Kangaita road 2. Kibingo ECDE 3. Kiranja Polytechnic 4. Equipping Ndimi Dispensary 5. Operationalizing Karaini Police post 6. Operationalizing Ndimi Police post 7. Waigiri – Karaini road 8. Mukinduri Kibingo road 9. Establishment of Karaini Market 10. Kibingo market construction 	<ol style="list-style-type: none"> 1. Water project 2. Feeder roads 3. Expansion of all health facilities 4. Cemetery within Kanyekine ward 5. Stadium at Mutitu 6. Market centre at Kiamuthambi 7. Police post at Ngaru 8. ECD Centres to be equipped 9. Bridges 10. Value addition for horticulture 	<ol style="list-style-type: none"> 1. Karia water project 2. Kaitheri water project 3. Kiaritha Police post 4. Construction of Kerugoya clothes market 5. Construction of Kerugoya food market 6. Kaitheri Police Post 7. Completion of Kiandieri water project 8. Completion of Thunder water project 9. Completion of Ndui-ini water project 10. Gravel Kaitheri – Kangari – Kirigo road 	<ol style="list-style-type: none"> 1. Upgrade Kagumo Health Center 2. Security post 3. ECDE centre at Kiambu 4. Polytechnic at Kagumo 5. Tertiary college at Kamuiru 6. Market at Kagumo 7. Cemetery at Kagumo 8. Construction of social hall at kagumo
Social Service=5 Roads=3 Markets=2	Water= 1 Social facilities 4 Markets= 1 Roads=2 Agriculture=1 Utilities = 1	Water = 5 Markets=2 Social services=2 Roads=1	Social facilities=6 Utility-1 Market- 1

Source: Real Plan Consultants Limited, 2018

Table 11: Kirinyaga Central Stakeholders' Top 10 Projects Summary

Sector	No.	%
Roads	6	17
Social services	17	46
Markets	6	14
Water	6	17
Utilities	2	3
Agriculture	1	3
	38	100

Source: Real Plan Consultants Limited, 2018

Table 12: Kirinyaga East Stakeholders' Top 10 Projects

Baragwi	Kabare	Karumandi	Ngariama	Njuki-ini
<ol style="list-style-type: none"> 1. Construction of Kianyaga and Kiamwathi Polytechnics 2. Upgrading and improvement of Kianjiru – Rwambiti road 3. Upgrading and improvement of Kiamwathi – Kagongo – Kianyaga road 4. Upgrading and improvement of Karia – Kiathi – Kiamwathi road 5. Upgrading and improvement of Kianyaga – Muchagara 6. Construction of Kiangurwe – Kirerema bridge at Thiba river 7. Construction of Muchugwa A&B bridge at Kandakame river 8. Construction of public toilets at Kiamwathi and Kiandai 9. Construction a social hall at Kianyaga –Youth Empowerment Hub 	<ol style="list-style-type: none"> 1. Kutus-Kiamiciri-Ithareini-Kiang'ombe-Kiangwenyi-kithuci 2. Wangatia water project/Kiamutugu 3. New ECD at wang'atia and unjiru 4. Upgrading and constructing new health facilities 5. Provide police posts at Kiangwenyi and Ithareini 6. Create value addition for agricultural products 7. Provide toilets for all market centres and ECD schools. 	<ol style="list-style-type: none"> 1. Kamagambo – Mufenesi – Muchagara – Kavote – Karumandi Road 2. Gatugira – Karumandi – Kiamutugu Road 3. Equipping ECDE centres 4. Muchagara Health Center 5. Kamweti Police Post 6. Kamugunda Police Post 7. Kianyaga – Karumandi – Kamweti Road 8. Kariru Polytechnic 9. Karumandi Social Hall 10. Construction of public toilets 	<ol style="list-style-type: none"> 1. Upgrade of Kianyaga to Githure Road 2. Upgrading of Kiamutugu Health Centre 3. Upgrading Kamwana Health Centre 4. Rehabilitation of electricity supply projects 5. Rehabilitation of Ngariama/Njuki-ini water projects 6. Upgrading of ECDE classes. 7. Kiamutugu public toilets 8. Kamwana market and Githure air markets 9. Kiambatha Polytechnic facilities 10. Wakaburu water project 	<ol style="list-style-type: none"> 1. Roads 2. Water project 3. Completion of Kimweas and Kiamumbui dispensaries 4. Construction of ECDE centres 5. Electrification 6. Milk cooler at Mbiri and setting up of value addition industries 7. Home for the destitute at Gichonjo 8. Social hall and library at Gichonjo 9. Stadium at Kanjuu 10. Recreation centre at Njuki-ini forest
Social facilities=2 Roads/bridges=6 Utilities = 1	Water= 1 Social facilities 3 Utilities = 1 Roads=1 Agriculture=1	Social facilities =6 Roads=3 Utilities = 1	Water= 2 Social facilities=4 Markets= 2 Roads=1 Utilities = 1	Water= 1 Social facilities=5 Markets= 1 Roads=1 Agriculture=1 utilities =1

Table 13: Kirinyaga East Stakeholders' Top 10 Projects Summary

Sector	No.	%
Transport	12	27
Social services	21	47
Markets	2	4
Water	3	7
Agriculture	2	4
Utilities	5	11
Total	45	100

Source: Real Plan Consultants Limited, 2018

Table 14: Kirinyaga West Stakeholders' Top 10 Projects

Kariti Wards	Kiine Ward	Mukure Ward
<ol style="list-style-type: none"> 1. Karuiru Water Project (Irrigation Water Project) 2. Wakigo water project (Irrigation Water Project) 3. Karima Rd. 4. Power Supply (Matumbuini, Nyagathi, Ngumunyu) 5. Kiajege Market (Once Biggest west of Baricho) 6. Kiangwaci- Kamoro – Mururu-ini 7. Matumbuine- Gacoro- Mung'etho Rd. 8. Mujuha foot bridge 9. Gicui – Githongori – Ngumunyu 10. Cemeteries 	<ol style="list-style-type: none"> 1. Ng'ombe nguu junction- Ngugu-ini- Kiangai- Ndima road. 2. Construction of Kibingoti Primary, Secondary and ECD centre 3. Construction of Kibingoti market 4. Completion of on-going water projects 5. Construction of Aggregation and Training Centre at KIFCO(Kibingoti) 6. Cemetery land purchase 7. Soil and Water conservation and Gully 8. Kibiringwi- Bufana-Mukangu Road 9. Kagio-Kithaka-Kiagwaci Road 10. Planning of Kibingoti, Kiangoma & Kianjai colonial villages 	<ol style="list-style-type: none"> 1. P.W.D shamba 2. Kianjanga police post 3. Baricho getuya 4. KIRIWASCO and other water projects to supply entire ward 5. Baricho health centre to be level 4 6. Gathambi stadium 7. Kiburu stadium 8. Rehabilitation centre to be provided 9. Gathambi Muragara for tarmacking
Water= 2 Markets= 1 Roads=5 Utilities = 2	Water= 1 Social facilities=1 housing= 1 Markets= 1 Roads=3 Environment = 1 Agriculture = 1 Utilities =1	Water= 1 Social facilities=6 Roads=2

Table 15: Kirinyaga West Stakeholders' Top 10 Projects Summary

Sector	No.	%
Transport	10	34
Social services	7	25
Markets	2	7
Water	4	14
Agriculture	1	3
Utilities	3	11
Environment	1	3
Housing	1	3
Total	29	100

Source: Real Plan Consultants Limited, 2018

Table 16: Mwea West Stakeholders' Top 10 Projects

Kangai	Thiba	Wamumu	Mutithi
<ol style="list-style-type: none"> 1. Kimica-Kangai-Thiba-Wang'uru Road. 2. Allocate funds for equipping of Njenga health center 3. Establish a police post at Kangai 4. Construct a polytechnic 5. Establishment of a library facility in Kangai town 6. Extension of water projects within the hinterlands. 7. Construction of ECDE facilities within the existing primary schools. 8. Planning of Colonial Villages in the priority identified above. 9. Establishment of a sports ground at Kangai 10. Completion of the existing social hall 	<ol style="list-style-type: none"> 1. Provision of clean and safe drinking water 2. Tarmacking of Wang'uru-Kagio road 3. Tarmacking of Kagio-Muthithi road 4. Tarmacking of Haraka-Kasarani-Kiuria 5. Proposed Nguka NIA store 6. Proposed Thiba NIA store 	<ol style="list-style-type: none"> 1. Withare-Kiandegwa-Ng'ang'a-Thome-Ciagini-Gategi Road. 2. North Wamumu Water Project 3. Thome Girls Secondary School 4. Upgrade Rurii dispensary to an health Centre 5. Upgrade Gatuiri Social Hall to a youth empowerment Center that is disability friendly. 6. Establishment of a police post at Ng'ang'a area 7. Planning of Colonial Villages in the priority identified above 8. Planning of the market centres in the priority identified above 9. Establishment of Wamumu NIA Stores Polytechnic 10. Rehabilitation of Gitumbi Quarry site 	<ol style="list-style-type: none"> 1.All roads to Kandongu 2.Kandongu Centre 3.Kandongu-Kirwara 4.Thiba Dam Water project 5.Kandongu Level 4 hospital 6.Kiamikuyu polytechnic 7.Ng'othi Value Addition Plant
Water= 1 Social facilities= 7 housing= 1 Roads=1	Water= 1 Social facilities=2 Roads=3	Water= 1 Social facilities= 5 housing= 1 Markets= 1 Roads=1 Environment = 1	Water= 1 Social facilities=2 Markets= 1 Roads=2 Agriculture = 1

Table 17: Mwea West Stakeholders' Top 10 Projects Summary

Sector	No.	%
Transport	7	21
Social services	16	48
Markets	2	6
Water	4	12
Agriculture	1	3
Environment	1	3
Housing	2	6
Total	33	100

Source: Real Plan Consultants Limited, 2018

Table 18: Mwea East Stakeholders' Top 10 Projects

Murinduko ward	Nyangati ward	Tebere ward	Gathigiriri ward
<ol style="list-style-type: none"> 1. Upgrading of Difathas dispensary health center (More wards & beds) 2. Proposed dispensary in Ikurungu 3. Upgrading of Murinduko health center 4. Proposed Ngucwi Polytechnic-Opening and equipping 5. Construction of ECDE centers 6. South Ngariama water project 7. Proposed markets at Itangi, Togonye, Difathas and Morgan 8. P.I-South Ngariama 9. Difathas-Kanjinji-Rianjuki 10. Ikurungu-Kithanga road 	<ol style="list-style-type: none"> 1. Kutus- Kabatiro-Kithiriti-Mosangondi Road 2. Kutus –Kiorugari-Kimbimbi-Kanjinji-P.I Road 3. Kutus- Ahiti Ndomba- Nyangati road 4. Mururi-Kangondo-Karoti-Kimbimbi Road 5. Kamiigwa-Ahiti Ndomba Road 6. Nyangati main road-Nyangati polytechnic Rd to be graded and murramed 7. Ndomba and Kianganga cattle dips to be revived 8. Parallel Lining of kamumwe irrigation water project of 5.2kilometers 9. Construction of Kianganga Police Post 	<ol style="list-style-type: none"> 1. Tarmac roads within the town 2. Enhance water connectivity 3. Upgrade Kiamanyeki dispensary 4. Wang'uru – Kagio 5. Upgrade stadium 6. Social Hall 7. Improve security 8. Improve Wang'uru junction; Kutus Rd. 9. Wang'uru – Ndindiruku link rd. 10. Primary school 	<ol style="list-style-type: none"> 1. Gathigiriri- Nyamindi- Kimbimbi road 2. Drinking water project- Mathangauta borehole 3. AP post at Kirogo 4. Upgrading of Kirogo and Matandara dispensary 5. Mahigaini open air market. 6. Rehabilitation of Kirogo cattle dip. 7. Horticultural Value addition Plant next to the cooling plant.
Water= 1 Social facilities= 5 Markets= 1 Roads=3	Water= 1 Social facilities= 1 Agriculture =1 Roads=6	Water= 1 Social facilities= 5 Roads=4	Water= 1 Agriculture= 2 Social facilities=2 Market= 1 Roads=1

Table 19: Mwea East Stakeholders' Top 10 Projects Summary

Sector	No.	%
Roads	14	39
Social services	13	36
Markets	2	6
Water	4	11
Agriculture	3	8
Total	36	100

Source: Real Plan Consultants Limited, 2018

Countywide analysis of the 10 ward projects revealed that provision of social services takes precedence for the people of Kirinyaga with 73 projects (41%). The transportation and water sectors rank second and third as shown below.

Table 20: The People's Priorities

Sector	Projects	
	No.	%
Social services	73	41
Transport	49	28
Water	21	12
Markets	13	7
Utilities	9	5
Agriculture	8	4
Housing	3	2
Environment	2	1
Total	178	100

Source: Real Plan Consultants Limited, 2018

The graph below is an illustration of the people's priorities

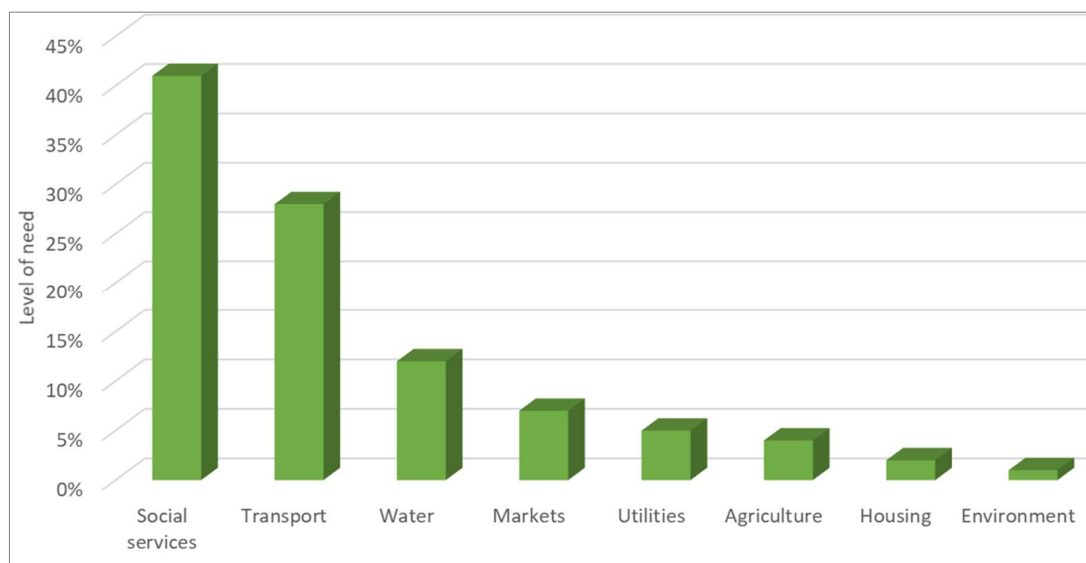


Figure 7: The People's Priorities

Source: Real Plan Consultants Limited, 2018

The table below shows the summary by sub-county level. Social services and transport sectors rank highest in the five sub-counties as priority areas.

Table 21: Stakeholders' Priority Summary by Sub-County

	Mwea East	Mwea West	Kirinyaga West	Kirinyaga East	Kirinyaga Central	Total	
Sector	No.	No.	No.	No.	No.	No.	%
Social services	13	16	7	21	16	73	41
Transport	14	7	10	12	6	49	28
Water	4	4	4	3	6	21	12
Markets	2	2	2	2	5	13	7
Utilities	-	-	3	5	1	9	5

	Mwea East	Mwea West	Kirinyaga West	Kirinyaga East	Kirinyaga Central	Total	
Agriculture	3	1	1	2	1	8	4
Housing	-	2	1	-	-	3	2
Environment	-	1	1	-	-	2	1
Total	36	33	29		35	178	100

Source: Real Plan Consultants Limited, 2018

2.4.5 Final Plan Workshops

The goal was to present the Final CSP proposals for stakeholders' validation and comments. The workshops were held in convenient venues with adequate spaces and conference facilities in the five sub-counties. The table below shows the venue, date and number of participants:

Table 22: Final CSP Workshops

Workshop	Venue	Date	Attendants
Mwea East	ADS Hall, Wanguru	5 th July 2021	86
Mwea West	Miadi Hall, Kandongu	6 th July 2021	98
Kirinyaga East	St John Catholic Hall, Kianyaga	7 th July 2021	89
Kirinyaga Central	Catholic Church Hall, Kerugoya	8 th July 2021	110
Kirinyaga West	Baricho Social Hall, Baricho	9 th July 2021	79

Source: Real Plan Consultants Limited, 2021

2.4.6 Public Notices

To sensitize and attract the involvement of the greater public, notices were published in daily newspapers. This was in *Daily Nation* and *Taifa Leo* dated 10th May 2017 (copies of the notices are annexed to the report). The notices were also simultaneously placed at strategic notice boards within the County.

2.5 POLICY AND LEGAL FRAMEWORK

This chapter presents the policy and legal framework within which the CSP has been prepared. It also evaluates past planning attempts and relevant institutional frameworks.

2.5.1 Policy Framework

Key policies reviewed include:

2.5.1.1 Sustainable Development Goals, 2015

The 17 goals are built on the successes of the Millennium Development Goals (MDGs). The Kirinyaga CSP has particularly focused on the following goals:

- Goal 6 - Clean water and sanitation
- Goal 8 - Decent work and economic growth
- Goal 9 - Industry, innovation & infrastructure
- Goal 11 - Sustainable cities & communities
- Goal 17 - Partnerships to achieve the Goals

2.5.1.2 The Kenya Vision 2030

The Kenya Vision 2030 seeks to make the country a middle-income economy by 2030. The Vision has three key pillars; Economic, Social, and Political. The pillars are aimed at making Kenya a globally competitive and prosperous nation with high quality of life for its citizens.

The economic pillar aims to improve the prosperity of all Kenyans through an economic development program. The key sectors envisaged under this pillar are; Tourism, agriculture, manufacturing, wholesale and retail trade, business process outsourcing, and financial services. The social pillar seeks to build a just and cohesive society with social equity in a clean and secure environment. This quest is the basis of transformation in eight key social sectors, namely: Education and Training; Health; Water and Sanitation; the Environment; Housing and Urbanization; as well as in Gender, Youth, Sports, and Culture. The Political pillar on the other hand seeks to realize a democratic political system founded on the rule of law and that protects the rights and freedoms of every individual in Kenya.

The Vision recognizes that urban development is critical to achieving improved standards of living. Thus, it underscores the importance of urban planning as a prerequisite to sustainable urban development. The Kirinyaga County Spatial Plan seeks to realize an orderly, liveable and harmonious environment.

2.5.1.3 The Big 4 Agenda (2018 – 2022)

The Big 4 agenda forms part of the current government's development manifesto. It aims to refocus development and optimize resource utilization. It draws development direction from Kenya Vision 2030 and identifies four priority areas namely; manufacturing, healthcare, housing and food security.

On housing, the government seeks to provide at least 500,000 affordable homes by 2022. It seeks to create 1.3 million manufacturing jobs and raise the share of the manufacturing sector from 9%

to 15% of the GDP. It is planned that at least five million square feet of industrial sheds will be established to improve cotton production.

On food security, the objective is to produce 2.76 million bags of maize, potato, rice, and feeds in 52,000 acres by the end of 2018, with an additional 70,000 acres targeted under public-private partnership for the listed crops, cotton, aquaculture and feeds production. The government also aims to establish 1,000 SMEs at the production level, and provide credit to over 20,000 individual farmers. The ultimate goal in healthcare is to provide universal health coverage for all.

The Kirinyaga CSP contributes to the achievement of the above at the County level by establishing strategies for promoting agro-industrial activities, improvement of health accessibility and improving agricultural productivity.

2.5.1.4 National Land Policy (Sessional Paper No. 3 of 2009)

This Land Policy sets out goals and directions for the management of land in Kenya. It proposes development control as a tool for ensuring equitable and sustainable use of land. The Policy recognizes Land use planning as an important tool in Land use management and development control, which can address the current challenges and create new opportunities for sustainable human settlements. The preparation of the CSP will give guidelines, which the relevant agencies can use, to achieve optimal utilization and management of land.

2.5.1.5 The National Land Use Policy, 2017

The National land use policy sets out long-term goals on land use management. It provides legal, administrative, institutional and technological frameworks for optimal use and productivity of land in a sustainable way at National, County and community levels. It advocates for the protection of water resources, biological diversity, management of environmentally significant areas and other resources of the earth. The Policy directs that wetlands shall under no circumstance be drained, users of a wetland must ensure that the overall water balance is maintained.

Kirinyaga County is endowed with numerous natural resources including ground and surface water resources, wildlife and forests. Environmental management strategies are formulated to promote protection, preservation and sustainable utilization.

2.5.1.6 National Urban Development Policy (Sessional Paper, 16, 2016)

The goal of this Policy is to promote orderly, competitive, and sustainable urban development to achieve integrated physical, social, and local economic development. Its provisions are taken into account in developing functional urban systems in Kirinyaga.

2.5.1.7 National Environmental Policy 2013

The NEP sets out various measures and actions responding to environmental challenges and issues. It provides a framework for an integrated approach to planning and sustainable management of natural resources. Further, it recognizes different vulnerable ecosystems and

posits various policies, strong institutional and governance measures to support the achievement of the desired conservation and management of resources.

2.5.1.8 Mountain Cities Blueprint 2032

The Mountain Cities Blueprint is a pioneer subnational policy paper that serves as a guiding framework to transform Kirinyaga. It is set out to create more jobs, improve access to affordable and quality healthcare, improve livelihoods, better infrastructure and empower the youth.



Figure 8: Mountain Cities Pillars

Source: Mountain Cities Blueprint, 2016

The ultimate vision is that each sub-county hosts a well-planned city that offers unique investment opportunities. Ndia Sub-County will be the industrial city as it houses the proposed industrial park in Sagana. Gichugu sub-county will be the resort city that offers tourism due to its proximity to the “Gateway of Mt. Kenya”. This is coupled with potential for other resort attractions offered by Thiba dam. Mwea is proposed as the Green City where renewable energy solutions will be offered while Kirinyaga Central is designated as the health and wellness capital.

2.5.2 Legal Framework

Key statutes guiding the CSP are highlighted below.

2.5.2.1 The Constitution of Kenya, 2010

Section 15 of the Sixth Schedule provides a mechanism for the devolution of functions from National Government to County Governments. It establishes County Government of Kirinyaga and tasks it with land use planning in its area of jurisdiction.

Article 61 classifies land ownership as public, private and community land. These three categories form the basis for administration, management and use of land. The same order will be used to manage land in Kirinyaga.

Article 60(1) gives the guidelines on how land is to be used equitably, efficiently, productively and sustainably. Article 67 establishes the NLC who among other functions has monitoring and oversight responsibilities over land use planning countrywide. Therefore, NLC has a crucial role in the preparation and implementation of CSP.

Article 42 of the Constitution provides for the right to a clean and healthy environment. This provides a basis to promote conservation and protection of ecologically fragile areas and mitigate any form of pollution.

Article 43 states that everyone has a right to clean and safe water in adequate quantities. Further, Section 22 indicates the functions of the National Government to protect water, securing sufficient residual water, hydraulic engineering, and safety of dams.

2.5.2.2 Physical and Land Use Planning Act (2019)

The law was enacted in 2019 to regulate Physical and Land Use Planning activities in Kenya. It gives power to County Governments to regulate development within their areas of jurisdiction. It empowers the CEC in charge of Physical Planning to prepare County Physical and Land Use Plan and Local Physical and Land Use Plans.

The Act establishes the County Physical and Land Use Planning Consultative Forum and the office of the County Director of Physical and Land Use Planning. Other institutions established include the National Physical and Land Use Planning Forum, the office of the Director-General of Physical and Land Use Planning and the Inter-County Physical and Land Use Planning Consultative Forum. PLUPA gives guidance on the objectives, scope, content, preparation and approval processes of the various plans.

Section 56 empowers the County Government to carry out development control to promote proper and orderly development. In doing so, the County Government may consider and approve all development applications and grant all development permissions.

2.5.2.3 Urban Areas and Cities Act, No. 13 of 2011 (Amended in 2019)

This is an Act of parliament that was formulated pursuant to Article 184 of the Constitution. The Law provides for classification and establishment of urban areas and cities; governance and management of urban areas and cities; delivery of services; integrated development planning; financial provisions; and transitional provisions.

UACA defines the levels/types of urban areas. It also outlines the minimum requirements for urban areas to be conferred the status of Cities, Municipalities, Towns, and Market Centres.

2.5.2.4 County Governments Act, 2012 (Amended 2020)

The Act requires County Governments to prepare County Spatial Plans for their respective areas of jurisdiction as a prerequisite for public funding from the national treasury. The CSP is supposed to integrate economic, physical, social, environmental and spatial aspects of development. It states that a County Planning Unit shall prepare the plan and will be binding to all sub-units within the County.

The Act further establishes the County Executive Committee. Among other roles, the CEC is to monitor the process of formulation and adoption of the integrated development plans within the County.

2.5.2.5 EMCA, 1999 (Amended 2015)

The act establishes the legal and institutional framework for the management of the environment and integration of environmental considerations into Kenya's overall economic and social development.

Section 58 requires that every development likely to have an impact on the environment should be subjected to an EIA. The EIA should be submitted to NEMA before it is undertaken regardless of other licenses. The second schedule of the Act also requires that any activity that is out of character with its surroundings undergoes an EIA.

EMCA guide that Strategic Environmental Assessment (SEA) be done to integrate environmental considerations into policies, plans and programs such as the CSP.

2.5.2.6 National Land Commission Act, 2012

Section 5 gives NLC the responsibility of managing and administering all unregistered trust land and unregistered community land on behalf of the County Government.

The Commission also forms County Land Management Boards to manage public land within the counties. This means that NLC is an important stakeholder in the process of preparing this CSP as an oversight authority.

The preparation of the CSP is also guided by Spatial Planning Guidelines (2018) and the CSP Format Guide (2018) prepared by NLC and Council of Governor.

2.5.2.7 Water Act, 2016

It provides for the regulation, management, and development of water resources; the regulation, and management of water supply and sewerage services; and the establishment and running of institutions involved in water services.

The act gives the responsibility of appointing water service providers to the Water Resources Authority (WRA), Water Services Regulatory Board (WSRB), Water Appeal Board (WAB), and Water Services Trust Fund (WSTF). The agencies are responsible for better water supply, financing, and sewerage services provision.

It gives priority to the use of the abstraction of water for domestic purposes over other uses such as irrigation. It establishes WRUAs, which are community-based associations for collective management of water resources.

2.5.2.8 Public Health Act, Cap 242

The statute makes provision for securing and maintaining the health of the public. It provides standards and guidelines for a clean and liveable environment, effective ventilation, and sustainable developments. Occupational licenses of buildings are also provided.

2.4.2.9 Land Act No.6 of 2012

The Land Act gives effect to Article 68 of the Constitution that calls for revision, consolidation, and rationalization of land laws to provide for sustainable administration and management of land and land-based resources. The Act calls for equal recognition and enforcement of land rights arising under all tenure systems. It advocates for sustainable and productive management of land

resources; transparent and cost-effective administration of land; conservation and protection of ecologically sensitive areas; encouragement of communities to settle land disputes through recognized local community initiatives, among other principles.

It provides for compulsory acquisition of land for public purposes or in the public interest as related to and necessary for the fulfilment of the stated public purpose. It lays mechanisms for proper notification and compensation of the private landowner(s). Since development has overtaken planning in many parts of the county, planning is one of the reasons for which land may be acquired.

2.5.2.10 Forest Conservation and Management Act 2016

The Act provides for the establishment, development, sustainable management, conservation, and rational utilization of forest resources for socio-economic development. It recognizes that forests play a vital role in the stabilization of soils and groundwater, thereby supporting the conduct of reliable agricultural activities. It agrees that forests play a crucial role in protecting water catchments and moderating climate by absorbing greenhouse gases. The Act recognizes that forests provide the main locus of Kenya's biological diversity and a major habitat for wildlife.

2.6 LINK TO OTHER PLANS

2.6.1 National Spatial Plan (2015 – 2045)

The National Spatial Plan (NSP) is a spatial framework to enhance economic efficiency, global competitiveness, balanced regional development, liveable and functional human settlements, and environmental sustainability in Kenya. It forms a benchmark for lower-level plans, including CSPs and Local Area Development Plans.

The plan zones Kirinyaga as a High Potential Rain-fed Agricultural region. It also identifies its potential in irrigated agriculture, Mwea as a key rice basket for the country and the enormous potential in eco-tourism. It proposes the following strategies that the CSP has further detailed.

- Infrastructure provision to support value addition initiatives and human settlement
- Conservation of water towers and resources
- Small and medium urban centres development
- Rural development through the provision of infrastructure, agricultural sector development and related economic activities
- Development and rehabilitation of key infrastructure in underserved locations
- Conservation of wildlife and forest resources

2.6.2 Urban Development Plans

Table 23 below shows the urban planning attempts in Kirinyaga. It is noteworthy that most urban plans are out of date and were neither approved nor implemented. The preparation of Kerugoya – Kutus Municipality Spatial Plan is on-going. The CSP and other plans prepared must be approved to facilitate successful implementation. Besides the CSP, Local Physical and Land Use

Development Plans must be prepared and implemented effectively as enshrined in the Kenyan Law.

Kerugoya-Kutus Municipality Spatial Plan (2020-2030) - The plan being prepared concurrently with the CSP is aimed at defining a vision for the future growth of the Municipality for the planning period. It will provide an overall integrated physical framework for urban growth and provide a basis for coordinated programming of projects and budgeting.

Table 23: Previous Urban Development Plans

NO	Town	Plan	Year
1	Kerugoya - Kutus	Municipal Spatial Plan	2020 – 2030
2	Kagio	Short Term Development Plan	1987
3	Makutano	Revised Development Plan	1994
4	Kerugoya- Kutus	Short Term Development Plan	1994
5	Kiangai	Development Plan	2001
6	Kianyaga	Short Term Development Plan	2006
7	Sagana	Development Plan	2007
8	Kibirigwi	Short Term Development Plan	2007
9	Wang'uru	Zoning Plan	2008
10	Kerugoya	Zoning Plan	2009
11	Baricho	Zoning Plan	2011
12	Kagumo	Development Plan	Unknown

Source: Department of Lands, Physical Planning & Urban Development, 2021

2.7 CONCLUSION

The methodology applied in the preparation of the CSP was systematic as guided by planning law and practice in Kenya. Key components included digital topographic mapping and spatial planning activities. The methodology was executed into six phases as mentioned earlier to deliver the outputs.

Plan formulation is a legal process guided by the Constitution of Kenya, 2010, the Physical and Land Use Planning Act (2019), Urban Areas and Cities Act, 2011 (Amended in 2019), and County Government Act, 2012, (Amended 2020). Public participation was integrated into the process to propel community-based planning initiatives which are easier to realize and implement as they are community-driven.

CHAPTER 3

SITUATIONAL ANALYSIS

This chapter presents the prevailing situation in Kirinyaga County. It highlights the potentials, opportunities, threats, and weaknesses under seven sectors. The analysis provides an appreciation of the opportunities leveraged and challenges addressed by the CSP.

3.1 PHYSICAL AND NATURAL ENVIRONMENT

This section seeks to understand the physical and natural environment. It covers physiographical characteristics, natural resources, natural calamities, and pollution.

3.1.1 Physiographic Characteristics

The section discusses climate, topography, geology, soils, vegetation, hydrology and drainage, and their implication to the CSP.

3.1.1.1 Climate

The County has a tropical climate and an equatorial rainfall pattern. The climate is influenced by Mt Kenya that covers the northern part of the county. Kirinyaga lies on the windward side of the mountain. Generally, the higher the mountain the cooler and wetter the climate becomes.

a. Rainfall

Kirinyaga has two rainy seasons. The maximum rainfall amounts are received in March to May during the long rains. The CIDP (2013-2017) indicates that the average amount of rainfall during this period is registered at 2,146mm. The short rains average is between 1,212 mm and occurs from October to November. Rainfall amounts decline from the high-altitude slopes of Mt. Kenya towards the Semi-arid zones in the eastern parts of Mwea. The mean average rainfall amounts are about 2,000 mm around the high-altitude areas and between 750 -900mm around the lower-lying areas of Mwea.

The amount of rainfall in the upper and midlands areas sufficiently supports rain-fed agriculture, unlike the lower areas. Rainfall patterns in the lower areas are unreliable due to varying precipitation. Consequently, residents depend on irrigated agriculture. On the other hand, the higher areas depend on rain-fed agriculture. However, overtime rainfall patterns have changed: where upper areas experience inadequate and unreliable rainfall, which has resulted in dependence on irrigation to bridge the gap. This can be attributed to global warming and climate change.

b. Temperatures

The temperatures range from a mean of 13.7°C in the upper zones to 30.3°C in the lower zones during the hot season.

c. Wind Patterns, Direction and Speed

Kirinyaga experiences strong winds throughout the year with common prevailing monsoon winds (south-easterlies) while the north-easterlies are dominant in January and February. Wind Sector

prospectus by the Ministry of Energy in 2013 shows the mean annual wind as 7.41 m/s. In terms of wind speed classes, it lies in Class III, a high potential zone for wind energy production.

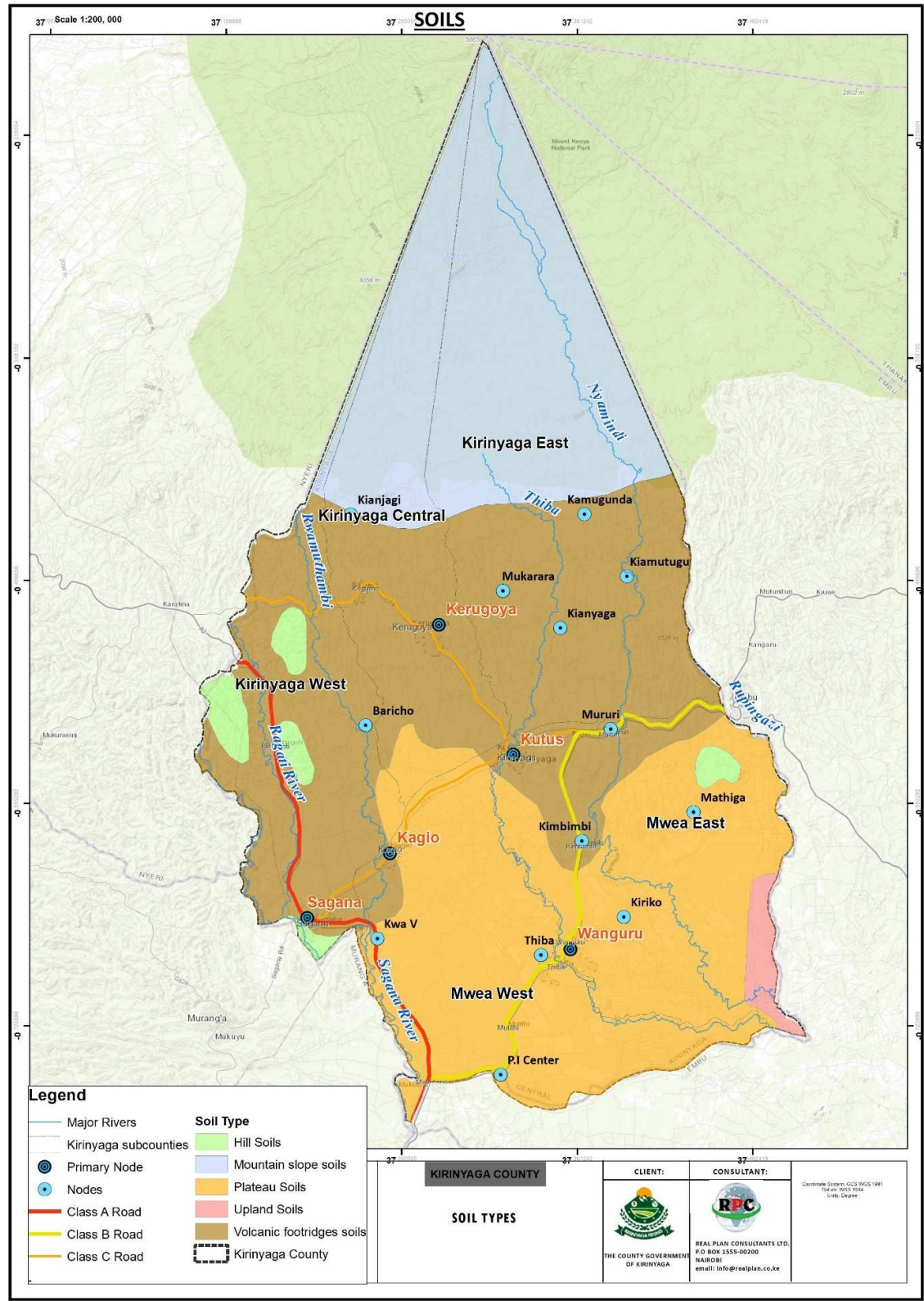
3.1.1.2 Geology and Soils

Kirinyaga County is geologically characterized by a system of volcanic rocks consisting of olivine basalts and basaltic agglomerates. This explains the formation of magnificent natural features such as Ndaraca ya Ngai, (God's bridge) along Nyamindi River, and the seven spectacular waterfalls within the county.

The soils in the county vary greatly in terms of depth, chemical composition, and physical properties. The types of soil are based on the type of rocks formed hence constitute similar chemical properties to the rocks. The soil types include; mountain slope soils (too steep for cultivation), volcanic footbridge soils (fertile but very erodible), upland soils (mainly low infertility), hill soils (stony and shallow), and plateau soils (low to moderate fertility) distributed as shown above.

The soils are distributed as shown in the map below;

Map 6: Soil Characteristics



Source: Farm Management Handbook, 2009

3.1.1.3 Topography

The County lies between 5,380m ASL at the peak of Mt. Kenya and 1,158m in the Mwea area offering a diverse landscape of opportunities. The mountain area is characterized by prominent features from the peak, hanging and V-shaped valley. The snow melting from the mountain forms the water tower for the rivers that drain in the county and other areas. The snow flows in natural streams that form a radial drainage system and drop to rivers with large volumes downstream.

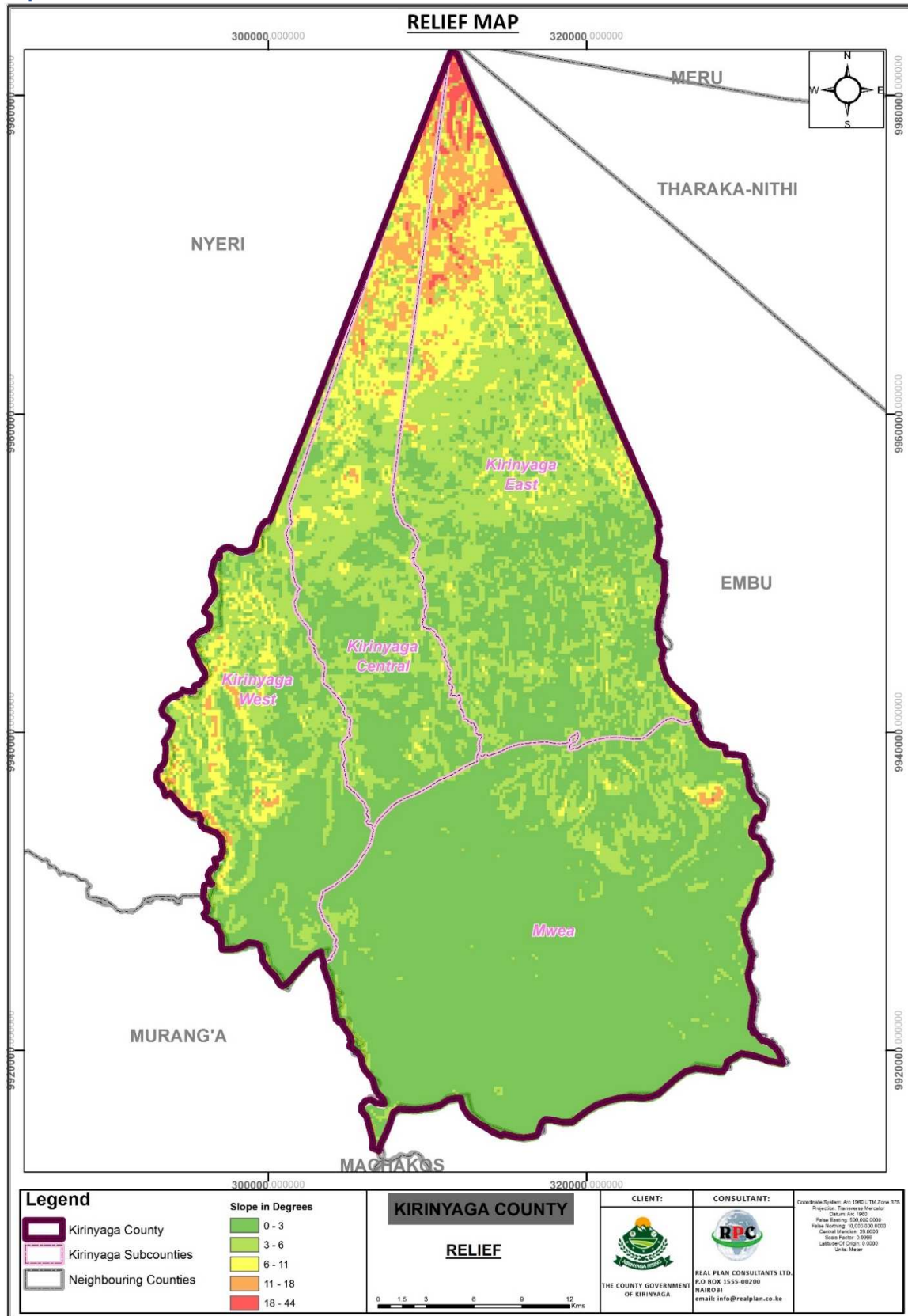
According to the CIDP (2018-2022), Kirinyaga has three zones namely lowland (1158m-2000m ASL), Midland (2001m – 3400m above sea level) and the highland areas (3401-5380m above sea level). The highlands cover the upper sections of Kirinyaga West, East and Central Sub-counties whose terrain is ideal for agriculture and tourist activities.

The lower region is characterized by gently rolling plains making them suitable lands for rice irrigation fields and cultivation of other crops.

The flat terrain predisposes the lower areas to floods while the rugged terrain in areas such as Kiangwaci are causes of landslides.

The county terrain is analysed in the map below;

Map 7: Relief



Source: Real Plan Consultants Limited, 2021

3.1.1.4 Hydrology and Drainage

The County is endowed with six major rivers that drain from north to south direction into Tana River. These rivers include Sagana, Nyamindi, Rupingazi, Thiba, Rwamuthambi, and Ragati. The rivers form radial and dendritic drainage systems and are fairly well distributed across the 4 sub-counties. Apart from being the major drainage canals, the rivers are also important sources of domestic and irrigation water.

Their catchment areas are defined as shown in the map below. River Thiba accounts for the largest area at 636km², 43% of the county. It covers parts of Mwea East, Mwea West, Kirinyaga East, and Central sub-counties. Nyamindi ranks second covering 377km² (25%), serving Mwea East and Kirinyaga East as shown in the table below.

Table 24: River Catchment Area

River	Catchment area (km ²)	%
Thiba river	636	43
Nyamindi	377	25
Rwamuthambi	218	15
Sagana	125	8
Ragati	66	5
Rupingazi	60	4
	1,482	100

Source: Real Plan Consultants Limited, 2021

Rupingazi covers the smallest area with 60km² (4%) while Rwamuthambi, Sagana, and Ragati account for 15%, 8%, and 5% respectively.

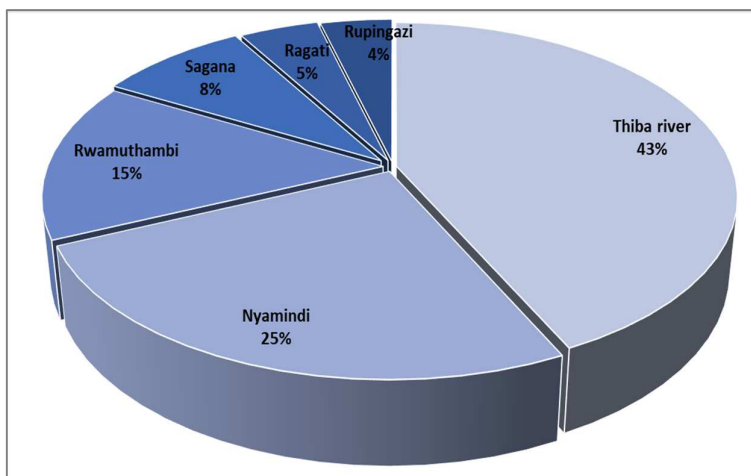
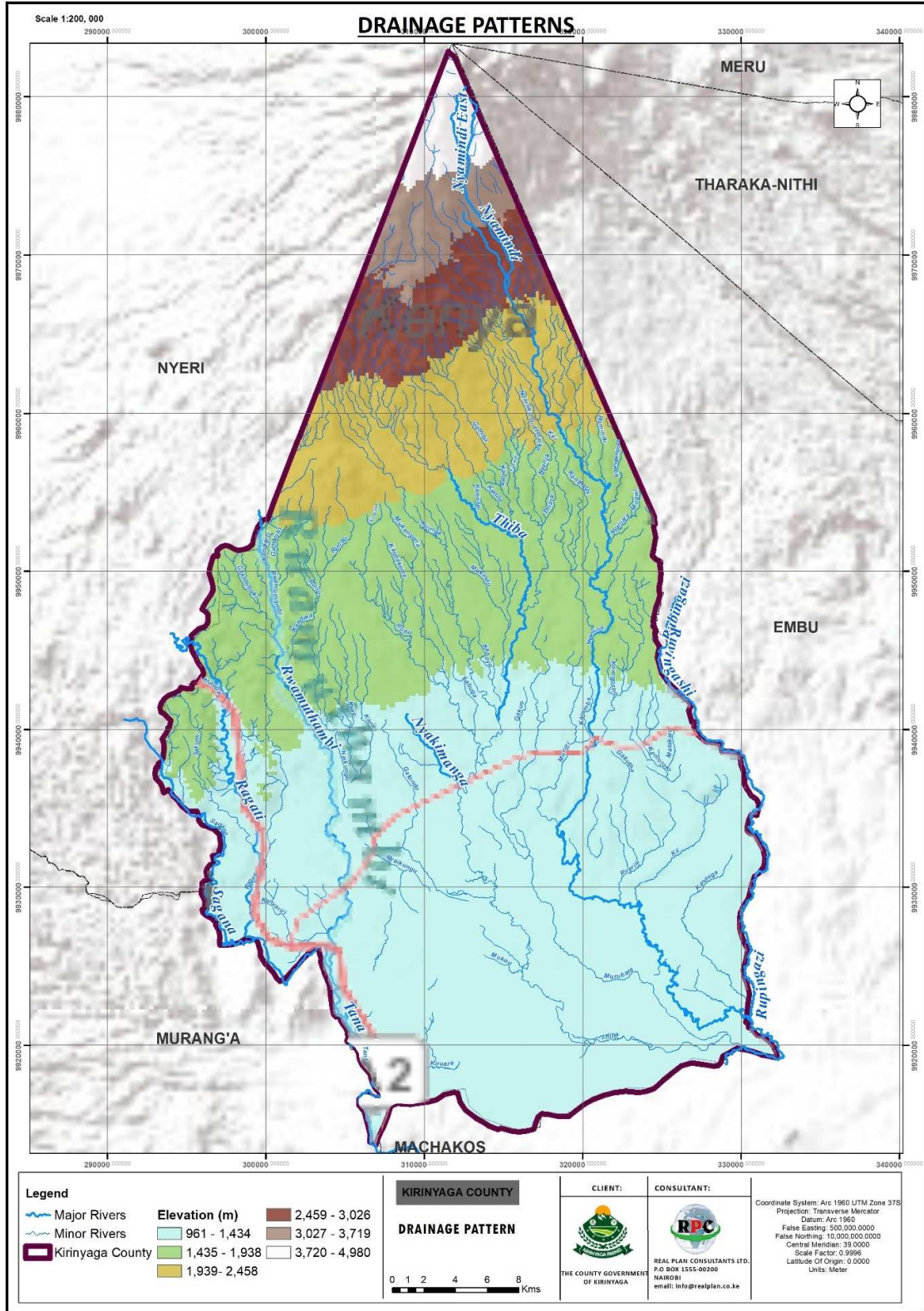


Figure 9: River Catchment Area

Source: Real Plan Consultants Limited, 2021

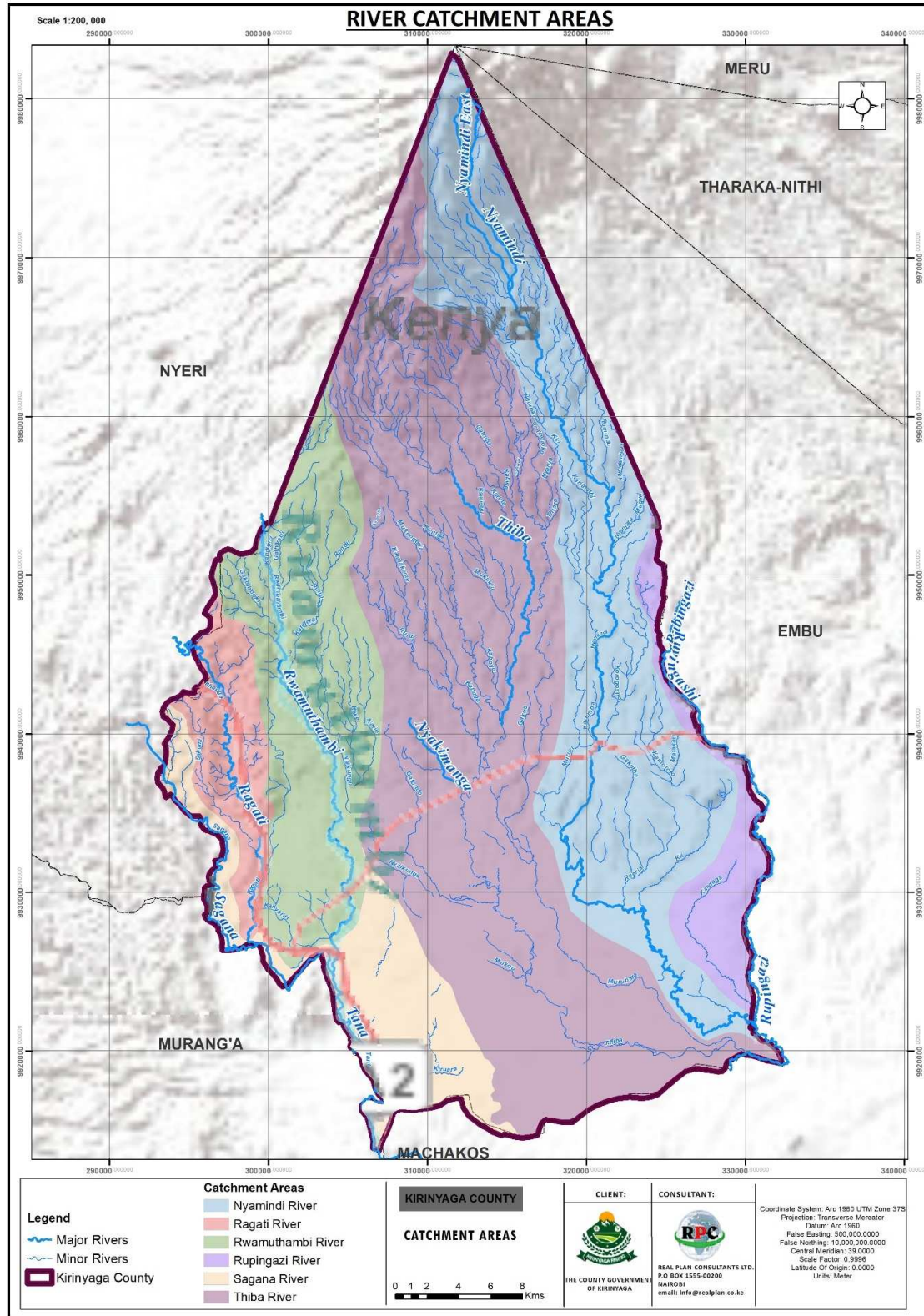
Other key hydrological features in the County include swamps, wetland, and water pans. The optimal utilization of these water resources will boost agricultural production and contribute to sustainable economic development. The natural drainage pattern and river catchment areas maps are shown below.

Map 8: Drainage Patterns



Source: Real Plan Consultants Limited, 2021

Map 9: River Catchment Areas



Source: Real Plan Consultants Limited, 2021

3.1.1.5 Agro-ecological characteristics

Agro-ecology defines the relationship between agriculture and the physical environment in terms of climate, topography and geology. Agro-ecological zones refer to areas exhibiting similar climatic, topographical, or geological characteristics that determine their ability to support rain-fed agriculture. The County is divided into three broad ecological zones discussed below.

The lowland areas - (Cotton and marginal cotton zone) that fall between 1158m to 2000m ASL. The lowland area is characterized by gently rolling plains that cover most of Mwea.

The midland areas - (Coffee -tea zone, main Coffee zone, marginal coffee zone, and sunflower-maize zone) that lie between 2000m to 3400m ASL. The midland area includes parts of Ndia, Gichugu and Kirinyaga Central sub-counties.

The highland areas - Covers Mt Kenya region, forest zone and tea dairy zone falling between 3400m to 5380m ASL. The highland area covers the upper areas of Ndia, Gichugu and Kirinyaga central and the whole of the mountain area. Ecological zones are further divided into sub-zones depending on characteristics as follows.

The highland areas are categorized into forest and tea zones as discussed below.

Mt Kenya Zone (forest zone): This zone is situated in the northern part of the County and has the highest elevation with an altitude of 2070 – 2400m. The zone has Annual rainfall ranging between 1080 -2000mm and an annual temperature of 12.8– 15.0 °C. Climatic conditions are favourable for artificial pastures. Forest reserves are ecologically more advisable in the zone.

Tea Zone: The altitude of the tea-dairy zone is between 1770 and 1590m. The annual rainfall is between 2000 and 1750 mm while temperatures are between 17.7 and 15.8 °C.

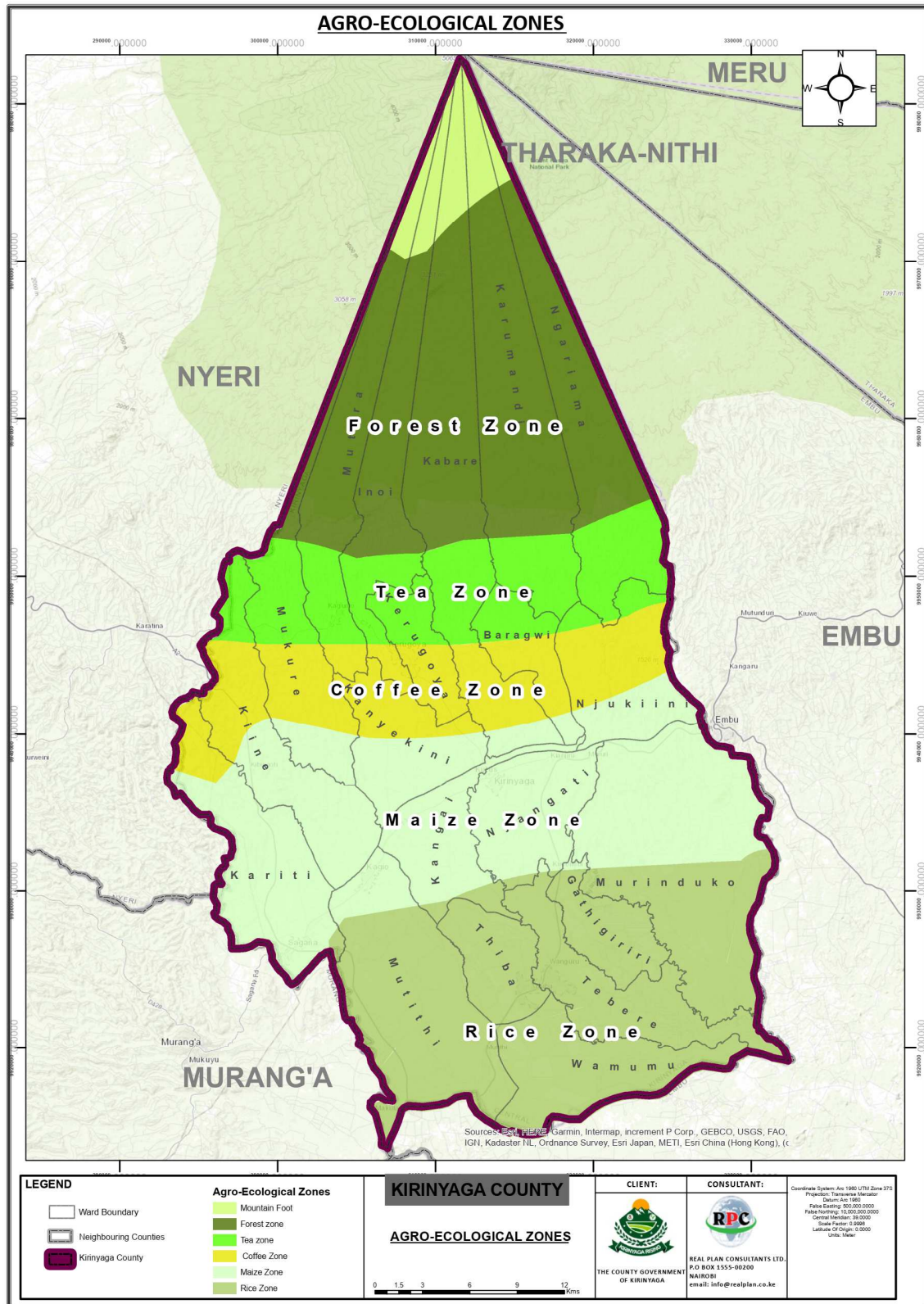
The midland zone covers main coffee zone and maize zone as highlighted below.

Main Coffee Zone: The Main Coffee Zone is characterized by a medium to long cropping season and intermediate rains. The mean annual rainfall is between 1220 – 1500 mm, the mean annual temperature is between 19.0 –20.1 °C and the altitude ranges from 1400 – 1580m above sea level.

Maize Zone: The maize zone is within the marginal coffee zone, with a medium to short and a short cropping season. The zone is ideal for cereal and legume-growing especially in the period during the 1st and 2nd rainy seasons. The mean annual rainfall amount is between 1100 – 1250 mm and the annual temperature ranges from 20.1– 20.6 °C. The climatic characteristics are temperate and sub-humid.

The lowland area covers the **irrigated rice zone**. The altitude ranges between 1090 and 1220m and the annual rainfall is between 800 – 950mm and the temperature is 21.2 –22.0°C. This zone has warm and transitional climatic characteristics. Climatic conditions are fair for pigeon peas, good for sisal and very good for rice.

Map 10: Agro ecological Zones



Source: Farm Management Handbook, 2009

3.1.2 Natural Resources

These are naturally existing resources that if unsustainably used may become extinct as they are non-renewable and irreplaceable. They support the ecosystem and contribute to the county's socio-economic growth. The county's natural resources are broadly categorized into water resources, wetlands, forests, and minerals.

3.1.2.1 Water Resources

The responsibility of managing water resources within the County primarily lies with the Water Resources Authority (WRA), The County Government, Water Resource Users Associations (WRUA), Water Services Regulatory Board (WSRB), Water Appeal Board (WAB) and Water Services Trust Fund (WSTF).

Water resources play a dynamic role in the lives of flora and fauna. They are important for human survival, social economic development, a healthy ecosystem, and sustainable development. It is an irreplaceable resource, therefore, the need for its conservation and protection. Water resources if soundly protected and utilized, can boost agricultural production in the County as well as contribute to sustainable economic development and poverty reduction. Water resources in Kirinyaga mainly consist of rivers, streams, and springs as elaborated below.

Rivers - The County is endowed with numerous rivers and streams whose main origin is Mount Kenya. There are six key rivers namely Sagana, Nyamindi, Rupingazi, Thiba, Rwamuthambi and Ragati that drain into River Tana. Other rivers include; Kii, Rueria, Kandega, Kamororo, Kanyariri, Kiwe, Karie, Rundu, Mukengeria, Kangaita, Mukindu, Ruiru. The six major rivers are well distributed fairly serving the entire county as shown in the table below.

Table 25: River and Catchments Areas

River	Catchment Areas
1. Thiba	Mwea West & East, Kirinyaga Central & East
2. Sagana	Kirinyaga West
3. Rwamuthambi	Mwea West Kirinyaga Central & West
4. Nyamindi	Kirinyaga East & Mwea East
5. Ragati	Kirinyaga West
6. Rupingazi	Mwea East & Kirinyaga East

Source: Real Plan Consultants Limited, 2021

These rivers are used for domestic, agricultural and industrial uses. Agricultural use is mainly irrigation where water is diverted to the farm via farrows. On the other hand, factories use water to clean coffee berries and cooling of machines. Examples of such industries are Riakiania and Getuya coffee factories that use water from Rwamuthambi River.

Water for the purposes referred above is harvested using reservoirs or water intakes constructed along the unregulated rivers. The high rate of water abstraction is attributed to the reduced water volumes of rivers. According to the Water Resource Authority, 2019, Kirinyaga had more than 1000 water abstraction points where most are unregulated. A report prepared by the County

Department of Environment (2017) on Rwamuthambi River Protection, Rehabilitation, and Recovery, the river has more than 40 intakes and the highest proportion is unregulated. Other issues highlighted by the report include illegal logging along the river system and farming on riparian land disrupting the river ecosystem.

There are nine WRUAs responsible for the management of these water resources, namely Upper Nyamindi, Lower Nyamindi, Upper Thiba, Lower Thiba, Kirwara, Kiwe, Rwamuthambi, Upper Rupingazi, and Lower Rupingazi.

Carbonated water springs: This refers to springs whose water has been infused with carbon dioxide under pressure. Carbonated water is also referred to as sparkling water, fizzy water or seltzer water. According to a report prepared by the County Department of Environment assessing carbonated water points in 2017, Kirinyaga has four springs namely Ngaru in Kanyekine, Ithareini in Kabare, Kaboru, and Ngungu adjacent to Ngungu Coffee Factory.

The water is mainly used for drinking and cooking because locals believe that it is of medicinal value. However, if properly utilized the spring could be of socio-economic benefit to the county.

Carbonated water has a variety of uses, which include cooking, used as a diluent, mixed with alcoholic beverages, topping of drink and providing a degree of fizz e.g., in Coca Cola drinks, consumed as an alternative to soft drinks where the water is mixed with fruits of different flavours.

Key challenges facing water resources in Kirinyaga are:

1. Encroachment

The County's main source of income and employment is agriculture. Thus, increased demand for cultivation land has led to encroachment of riparian corridors. This has led to the loss of flora and fauna, which has consequently compromised the river ecosystem.

2. Pollution

Pollution from point and non-point sources is threatening the quality of water. Point source pollution stems from the dumping of solid waste in Rivers as witnessed in Thiba River as it passes through Kutus town. Non-point pollution is a result of excessive use of agrochemicals and Pesticides in Mwea irrigation scheme.

3. Reduced Water Volumes

This challenge has affected all rivers within Kirinyaga County. The primary causes are abstraction, tree logging, and climate change. The climate change phenomenon has resulted in increased atmospheric temperatures through the process of global warming. This global challenge has led to the rapid loss of water from rivers and other exposed water resources. Over-abstraction of river water due to increased demand for domestic and agricultural use has also caused reduced water volumes. WRA estimates that there are more than 1000 water abstraction points within the county. Local rivers such as Rwamuthambi, Rundu, Mukengeria, Rutuwe, and Kanda-Kaame are most affected.

4. Logging

Natural resources coexist among themselves. Every part of the resource is much crucial for the existence of the other and maintenance of the eco-system balance. Trees are very crucial in conserving water resources. Trees and vegetation within the river sources, catchment areas and along the riverbanks conserve the water resources through a reduction in evaporation rate, and soil erosion, filtering water thus reducing siltation and play a role in the rain forming process. Logging exposes water to direct sunlight thus increasing the rate of evaporation. It also facilitates erosion where the bank is left bare. This is a major problem in Kirinyaga where people are allowed to harvest trees by institutions concerned interfering with natural ecosystem balance.

3.1.2.2 Swamps

A swamp is an area of low-lying, uncultivated ground where water collects. They act as aquifers for groundwater, prevent clogging of lakes and habitats for different species. They store water and serve as discharge areas hence controlling flooding.

Kirinyaga has 74 swamps where the majority have been encroached by human activities mainly farming. Kirinyaga East accounts for the highest number (41) followed by Mwea (28), Kirinyaga West (17) and Kirinyaga Central (7) as shown in table 26 below.

Table 26: Distribution of swamps by Sub-County

Sub County	No	%
Kirinyaga East	30	41
Mwea East and West	21	28
Kirinyaga West	17	23
Kirinyaga Central	6	8
Total	74	87

Source: Real Plan Consultants Limited, 2021

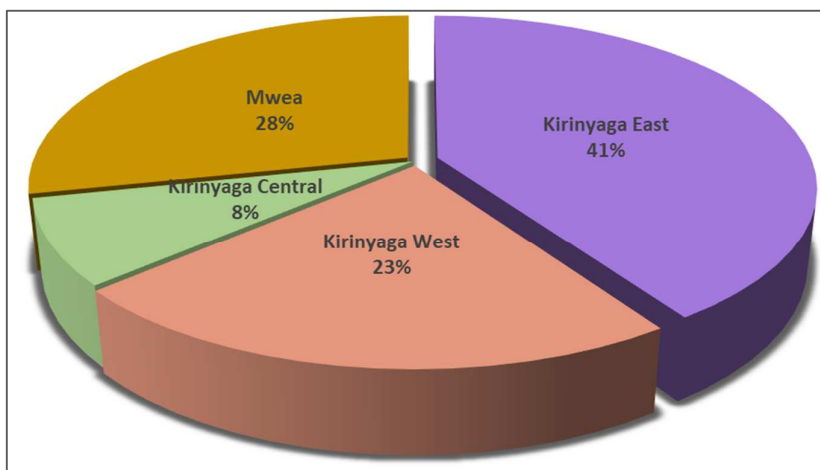


Figure 10: Distribution of Swamps by Sub-County

Source: Real Plan Consultants Limited, 2021

A detailed list of swamps is annexed to the report.

Challenges facing Swamps in Kirinyaga are;

Uncontrolled Draining: The major threat to swamps is uncontrolled reclamation to serve as agricultural land. Local farmers use reclaimed land for farming of rice, arrowroot, sugarcane, and horticultural crops. This amounts to the destruction of these invaluable water resources. This results to death of flora and fauna inhabiting the wetlands and eventually causing an ecosystem imbalance.

Pollution is a mounting concern as it affects swamps, which are sources of domestic water. Run-off from farms deposit the fertilizers and pesticides used in the farms to the swamps which pose a threat to human life of those consuming water from the swamps and the biodiversity in the swamps. The most affected swamps are Kimorori, Nyaikungu, Nguka, and Kimbimbi.

Climate Change: This global menace is also taking its toll on local wetlands. Increase in local temperature is causing excessive evaporation in the wetlands hence escalating they're drying up.

Encroachment: Swamps such as Gikumbo and Irura have been encroached by farming activities. This is due to their richness in nutrients and increase in demand for more land for agricultural practices. This has resulted in depletion of these resources compromising their ability to perform their eco-functions.

3.1.2.3 Forests/Tree cover

A forest is a large area dominated by trees, either natural or planted, private or public. Kirinyaga has several National and County Forests. National forests include Mt. Kenya, Kathandiani, Njukiini, Murinduko Hill and Kamuruana Hill. Mt. Kenya Forest is the largest and is in section Kangaita and Castle Forest as shown in the table below.

Table 27: National Forests

Name	Location	Size (Ha)	Reservation	Current Use
Kangaita forest	Mt Kenya forest (Kangaita)	4,737,151	Natural/Gazetted	Wildlife, forest conservation and management
Castle forest	Mt Kenya forest (Kimunye Area)	15,970	Natural/Gazetted	Wildlife, forest conservation and management
Kathandiani	Karumandi	9358	Natural/Gazetted	Wildlife, forest conservation and management
Njukiini	Njukiini	574	Gazetted	Wildlife, forest conservation and management
Murinduko Hill forest	South Ngariama	202	Gazetted	Forestry & wildlife services
Kamuruana Hill	Karaini	23	Gazetted	Forestry & wildlife services

Source: Kenya Forest Services, 2019

County forests constitute forests managed and conserved by the county government. They include wood lots, natural forests, and county tree nurseries on public land. The county has eleven forests and tree nurseries. The forests are threatened by encroachment, insecurity of tenure, tree logging, vegetation clearance for farming and settlement among other human activities.

Table 28: County Forests

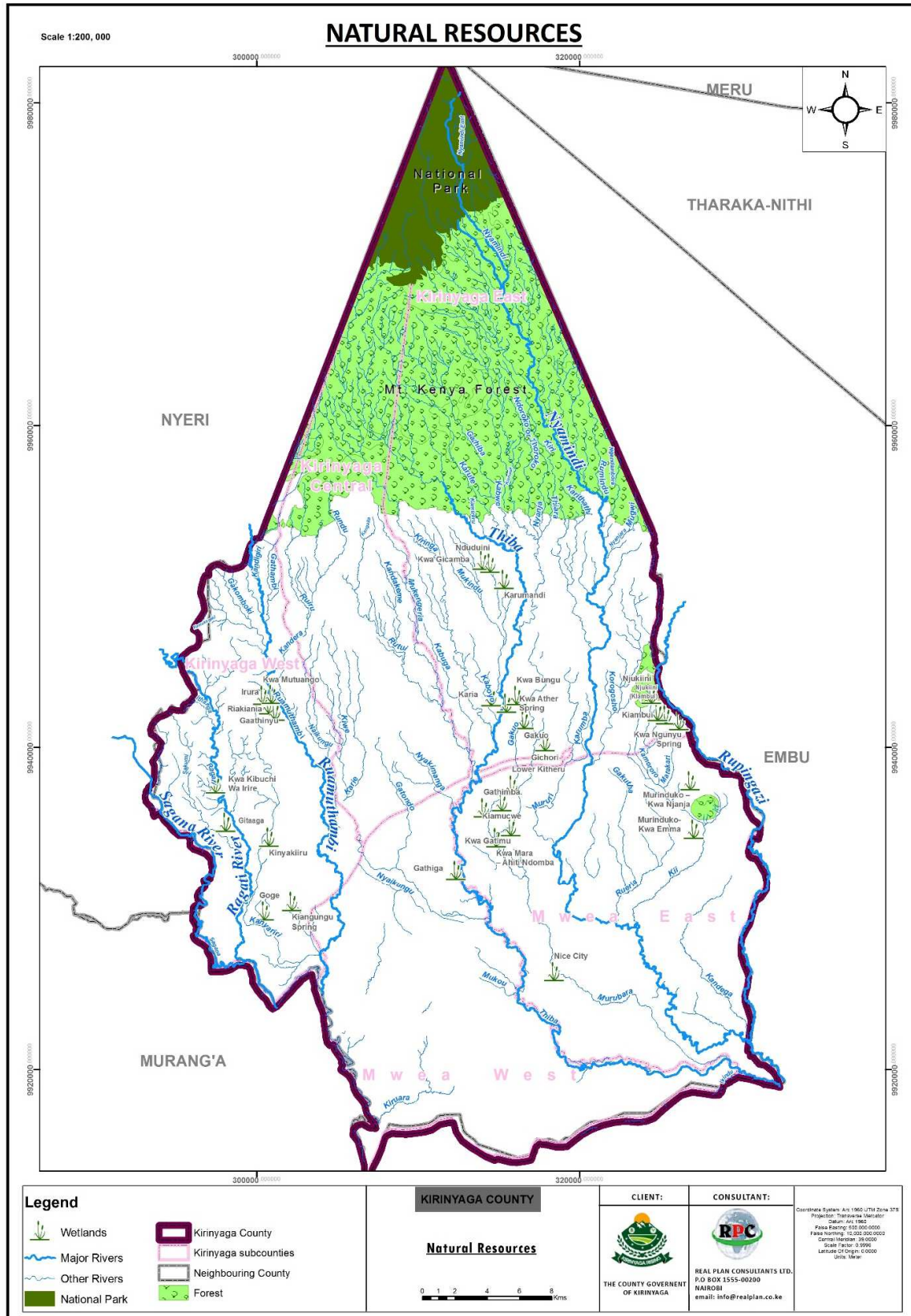
Name	Location	Size (acres)	Reservation	Current Use	Status
Kimbimbi tree Nursery	Kimbimbi	2.5	County tree nursery	Tree nursery/ farming	Unregistered
Tebere forest	Tebere- Mikimani	5		Agriculture	Contested
Marura forest	Tebere next to Mwea Irrigation Authority	2.5	Tree nursery/	Forest/ tree nursery/ farming	Unregistered
Gathigiriri forest	Mwea- Gathigi village	52		Forest reserve	Contested
Baricho tree nursery	Baricho next to Ndia Sub County hospital	2	County tree nursery	Partly tree nursery	Mwerua/Kitaki/87 (Partly individually owned)
Karimandu forest	Kanyekini	4	Forest reserve	Forest reserve	
Kianyaga Tree Nursery		3.0	County tree nursery	Forest reserve	Registered
Staff House Tebere	Mwea Divisional headquarters staff quarter	0.5	Tebere forest staff quarter	Occupied by AP police	Occupied by AP
Kerugoya Urban Forest	Kerugoya next to DCs office	13	Forest reserve	Forest reserve/	Registered
Kerugoya Tree Nursery	Next to Kerugoya prison land	2	County tree nursery		Individually owned
Mutitu Forest	Kanyekini	2	County tree nursery	Individually owned/ tree nursery establishment	Contested
Murinduko Tree Nursery	Murinduko	4	Tree Nursery	Tree Nursery	Contested

Source: Kenya Forest Services, 2019

There is also considerable tree cover on private land consisting of forests and strips along privately owned lands. Most properties are lined with planted strips of trees especially the popular *Grevillea* species. The dominant tree species is *Grevillea* used for timber, animal feeding, and cooking fuel. Forest plays a vital role in economic health benefits, goods benefits, timber, fuel, by-products, ecological benefits; carbon storage, generation of oxygen, water, and air purification, habitats, social and cultural benefits; recreation, traditional resources and spiritually. The ecological functions of forests include;

- ⇒ **Carbon absorption:** Trees absorb carbon and exhale oxygen, which the animals and humans breathe.
- ⇒ **Water and Air Purification:** Trees catch and soak in a wide range of airborne pollutants such as carbon monoxide, sulphur dioxide, and nitrogen dioxide.
- ⇒ **Habitats-** they act as homes for animals and people especially the indigenous whose survival depends almost entirely on native woods and many more live along or near forest fringes.
- ⇒ Flood control - Trees help the ground absorb flash floods which reduces soil erosion and property destruction by slowing the flow.
- ⇒ **Aquifer recharge** - Forests hold runoff rather than letting it flow on the surface, but they cannot absorb all of it. Water that gets past their roots seeps down into aquifers, replenishing groundwater that is important for drinking, sanitation, and irrigation.

Map 11: Natural Resources



Source: Real Plan Consultants Limited, 2019

3.1.2.4 Flora and Fauna

These are the plants and animals, which are key components of the ecosystem. Kirinyaga is endowed with a variety of fauna such as buffalos, elephants, monkeys, baboons, hippopotamus, crocodiles and birds; horn bird and guinea fowls while flora includes; Meru oak, cotton and Albizzia. These species make the county a potential tourist destination. However, some species are faced by the possibility of extinction due to poaching for ivory, tusks, skin, and meat

3.1.2.5 Minerals

According the County Department of Environment and Natural Resources (2019), Kirinyaga is endowed with quarry resources generating building blocks, ballast, and murram that are mainly found in Mwea area.

The county has eight quarries as shown in the table below.

Table 29: Quarries

Quarry	Location	Size	Ownership	Status	Resources extracted
Ukenye	Mutithi	Large	Private	Active	Block, ballast, red soil
Ngege	Mutithi	Large	Private	Active	Blocks, ballast, murram, red soil
Kiathumbi	Kagio	Medium	Private	Active	Blocks, ballast
Kinji	Kiine	Small	Private	Active	Blocks, ballast
Shamrock/Gatithi	Gatithi	Small	Public	Extinct and dormant	Ballast
Riamugaa	Kiine	Medium	Private	Active	Red soil
Kanjingi	South Ngariama	Large	Public	Active	Murram, ballast
Ngucui	Ngurubani	Large		Active	Blocks, ballast, sand, murram

Source: Real Plan Consultants Limited, 2021

Challenges facing the quarries are poor access roads making it difficult to transport the materials and poor sanitation facilities due to lack of toilets and water points. Other challenges associated with the quarries are loss of lives due to landslides and rock falls.

The county is also endowed with clay rich in aluminium in Kibirigwi area. Although the clay is currently used in making simple clay items, with proper technology it can be used to prepare porcelain utensils to fetch better returns.

3.1.3 Natural Calamities

Flooding and landslides are the main calamities occurring in Kirinyaga. According to the County Disaster Management Department, flooding is frequent in Kianjaga in Baricho, Githongo in Thiba,

Ngomongo in Kutus, Ng'othi, Rukanga and Mutithi in Kirinyaga West and Ikurungu in South Ngariama. This is attributed to the poor drainage and nature of the terrain, which causes riverine floods. On the other hand, landslides mainly occur in Kibingoti and Kibirigwi during the long rains. Other potential disasters are drought and forest fires. They pose challenges such as; loss of lives and properties, disrupt agricultural activities and destroy infrastructure.

Despite the ill effects of flooding, they bring about several benefits such as;

1. Nutrient provision- Floods provide nutrients to agricultural crops through deposition of fertile soils and soils in places that were low in soil fertility and bare lands. This makes the soil more fertile and increases agricultural production.
2. Renewal of wetlands- Floods inundate wetlands with fresh waste, carry and deposit nutrient-rich sediments that support both plant and animal life in wetlands. The nutrients deposited to support the lives of flora and fauna.
3. Replenish and recharge groundwater- The floodwater seeps into the ground and recharges the underground aquifers, which supply natural springs, rivers, and lakes with fresh water.

Challenges associated with disasters include-

1. Loss of property and lives
2. Destruction of transport and communication networks

3.1.4 Pollution

Pollution is the introduction of contaminants into the natural environment resulting in changes in the environment. The type of pollution experienced in the County is water pollution and more so on rivers especially Thiba. Taking into account the dominance of agricultural activities in the county and chemical usage in the farms, the practice is to consider the main water pollutant. The water pollutants are:

- Fertilizers and Herbicides used in the farms - The chemicals are deposited into the rivers during surface runoff and contaminate the aquifers when they seep into the ground.
- Effluent discharge- Liquid waste disposed into the water bodies contaminate the water affecting its quality.
- Dumping of waste especially plastics.
- Industrial waste- Waste from the industries. Due to lack of sewer system, most of the industries in the County discharge their effluent into the nearest rivers.

These pollutants contain harmful chemicals and toxins, which make the water poisonous for aquatic animals and plants. They also cause eutrophication as they increase nutrient levels in the water body, therefore, depleting oxygen levels, which leads to the loss of lives of animals and plants.

3.1.5 Emerging Planning Issues and Opportunities

The emerging planning issues and opportunities in this chapter are summarized below

Challenges	Opportunities
<ul style="list-style-type: none"> • Encroachment of river, wetlands and forests by human activities • Pollution of rivers by point and non-point sources in urban areas, industrial and agricultural zones • Reduced water volumes due to over-abstraction, logging and climate change • Insecurity of tenure, grabbing and encroachment of county forests • Unregulated quarrying and sand harvesting • Frequent landslides in Kibingoti and flooding in Kianyaga, Githongo, Ng'othi, Mutithi and Ikurungu • The deep and fertile soils in the mid and upper agricultural zones are susceptible to erosion • Rainfall patterns in the lower areas such as Mwea are unreliable due to the varying precipitation • The flat terrain is a major cause of frequent flooding experienced in the lower areas • The rugged terrain in areas such as Kiangwaci in the upper part is a cause for the numerous landslides. 	<ul style="list-style-type: none"> • Presence of natural resource including water, forest, wetlands, wildlife, mineral and land • Kirinyaga has high potential for agroforestry • High potential for tourism if the resources are well managed, marketed and packaged • The climate, deep and fertile soils are favourable for agriculture especially in the mid and upper zones • Kirinyaga has six major rivers distribute fairly well that are important sources of water for various purposes • The snow melting from the mountain form the water tower for the rivers draining into the county and other areas • The undulating hills and landscapes in the highlands offer scenic views • The presence of magnificent geological features such as Ndaraca ya Ngai along Nyamindi River and spectacular waterfalls in the county

3.2 DEMOGRAPHY

Population parameters examined include size, distribution, and demographic characteristics.

3.2.1 Population Size and Distribution

According to the 2019 Kenya Population and Housing Census, the population of Kirinyaga County was 610,411. This accounted for 1.3% of the national population. With an annual County population growth rate of 1.5%, the County population is estimated at 628,861 in 2021, and 729,819 in 2031. The breakdown and projections by sub-county are shown below.

Table 30: Population Projections by Sub-County

Subcounty	2019 census	Projection		
		2021	2026	2031
Kirinyaga central	122,810	126,120	136,300	146834

Kirinyaga East	135,559	139,212	150,450	162,077
Kirinyaga West	114,660	117,750	127,255	137,090
Mwea East	132,554	136,126	147,114	158,484
Mwea West	104,828	107,653	116,343	125,334
Total	610,411	628,861	677,462	729,819

Source: Real Plan Consultants Limited, 2021

By 2031, Kirinyaga East is projected to be the most populated at 162,077 followed by Mwea East at 158,484 while Mwea West will have the least population estimated at 125,334. The existence of good infrastructure (roads, water, and electricity) and agriculture potential zones have greatly influenced population distribution in the County. Higher population clusters are found around urban areas and Mwea which hosts the irrigation scheme.

3.2.2 Urban Population

The County's urban population was estimated at 136,224 in the 2019 Housing and Population Census. This represents 22% of the county population as shown in the chart below. This population was distributed in major urban centres as shown in the table below. Wang'uru has the highest population accounting for 38% of the urban population following by Kerugoya at 22%.

Table 31: Urban Population - 2019

Urban area	Male	Female	Total
Wang'uru	24,846	26,868	51,722
Kerugoya	14,474	15,571	30,045
Kagio	6,294	7,663	13,961
Sagana	5,462	5,741	11,203
Kutus	4,441	4,702	9,143
Kimbimbi	3,221	3,604	6,826
Kagumo	1,702	1,971	3,673
Kianyaga	1,375	1,649	2,973
Total	64,925	71,286	136,224

Source: KNBS, 2019

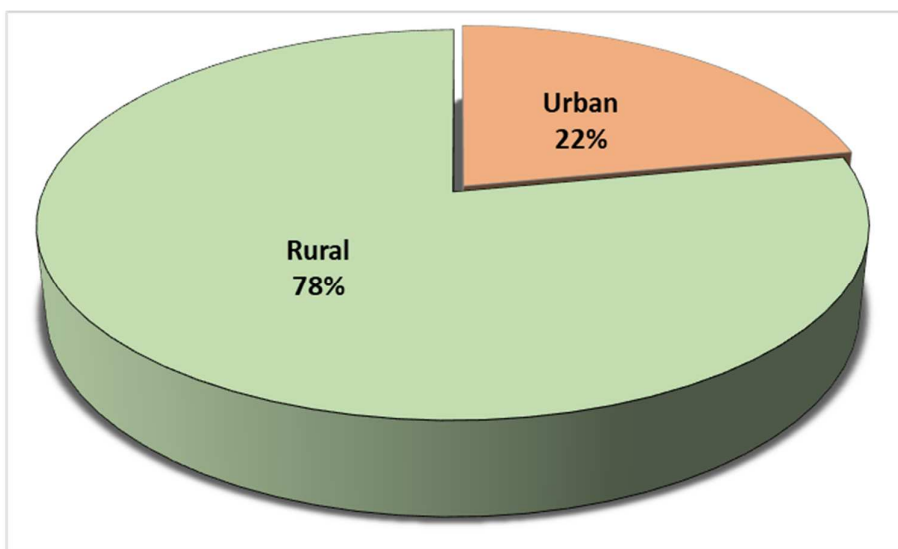


Figure 11: Rural vs Urban In 2019 Census

Source: KNBS, 2019

Using the World Bank 2015 indicators, National Annual Urban Population Growth Rate of 4.3%, it is estimated that the urban population will rise to 225,770 by 2031. This will represent 31% of the projected county population in 2031. Urban population growth will result in a subsequent increase in demand for infrastructure, pressure on land, and the need for more employment opportunities. Likely implications are encroachment of agricultural land by urban activities, increased urban poverty, overstretching of existing infrastructure, and the emergence of slums/informal settlements if appropriate measures are not enforced.

The table below shows the projected county urban population by 2026 and 2031 for the main urban areas highlighted in the 2019 Housing and Population Census.

Table 32: Urban Population Projections

Urban area	2019 census	Projections		
		2021	2026	2031
Wang'uru	51,722	56266	69449	85721
Kerugoya	30,045	32684	40342	49795
Kagio	13,961	15187	18746	23138
Sagana	11,203	12187	15043	18567
Kutus	9,143	9946	12277	15153
Kimbimbi	6,826	7426	9166	11313
Kagumo	3,673	3996	4932	6087
Kianyaga	2,973	3234	3992	4927
Others	6,678	7265	8967	11068
Total	136,224	148191	182913	225770

Source: Real Plan Consultants Limited, 2021

The dominance of Wang'uru is attributed to the central and strategic location along a major transit corridor and the lucrative rice business offering numerous opportunities. On the other hand, the function of Kerugoya as a headquarters for numerous government administrations and

institutions has influenced its primacy. It is important to note that Kerugoya – Kutus is presently a municipality which could further spur growth.

3.2.3 Population Structure

According to the National Housing and Population Census, 2019, the age-sex composition in Kirinyaga is as shown below. The female population is slightly higher at 308,369 which accounts for 51% while the male population is estimated at 302,001 (49%).

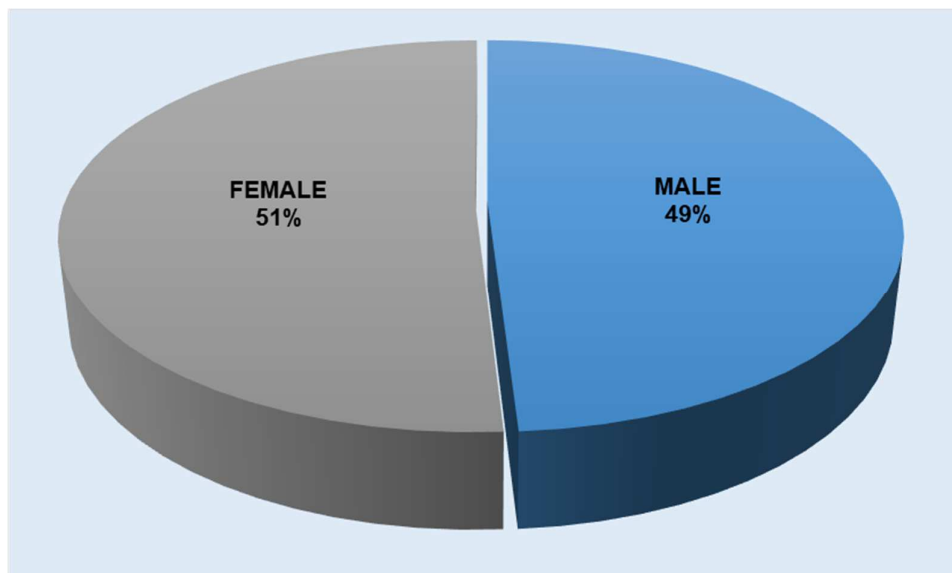


Figure 12: County Population by Gender, 2019

Source: KNBS, 2019

The gender ratio at the county level is duplicated at the sub-county level, apart from Mwea East where the male population is slightly higher. The table below shows the distribution of sub-county population by gender in 2019.

Table 33: Sub County Population by Gender, 2019

Sub County	Male	Female	Total
Kirinyaga central	60,160	62,645	122,810
Kirinyaga East	67,031	68,514	135,559
Kirinyaga West	56,154	58,502	114,660
Mwea East	66,432	66,114	132,554
Mwea West	52,228	52,594	104,828
Total	302,001	308,369	610,411

Source: KNBS, 2019

Figure 13 below illustrates the age-sex composition in the county in 2019. It shows that majority of the population are young people. The population decrease as age increases. However, the variation at age-groups 20-24Yrs and 25-29Yrs could be explained by the common scenario where youths move to major urban areas (such as Nairobi & Mombasa) for higher learning and in search of employment.

It is also important to note that the life expectancy of women in the county relatively higher compared to that of men.

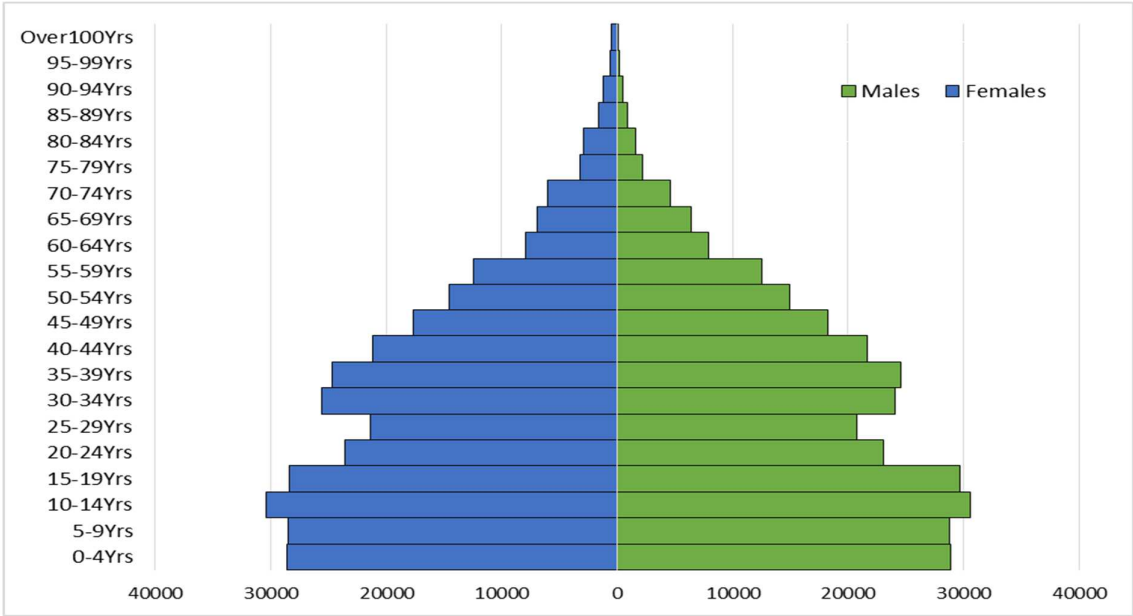


Figure 13: County population pyramid, 2019

Source: KNBS, 2019

The structure shows a young population (under 35 years) constituting 61% of the county population. Further analysis reveals that the working population (age 20 – 59) and school-going population (age 5 – 19) account for the highest proportion at 53% and 29% respectively. Others include children under the age of five and senior citizens (60 years and above) accounting for 9% each (see the chart below).

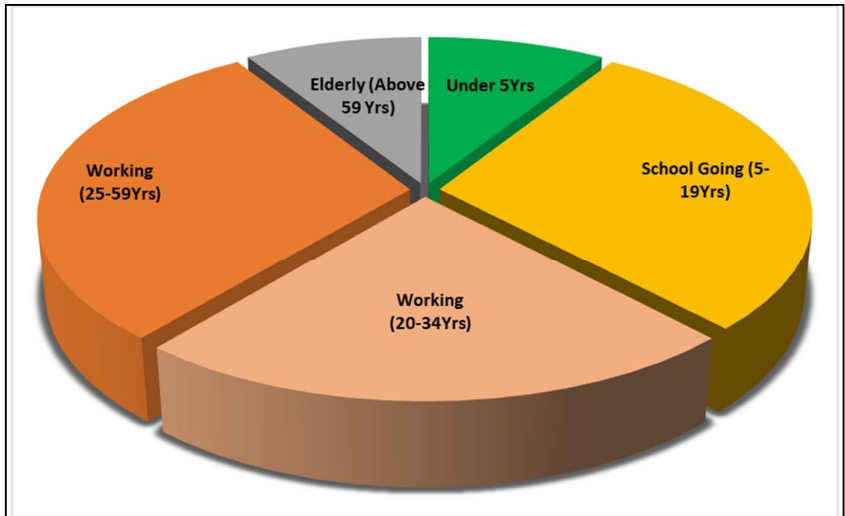


Figure 14: County Population Composition, 2019

Source: KNBS, 2019

While the working population is considered economically productive the young population translates to an increase in demand for education services, sports and recreational facilities, and youth empowerment centres. Health services are also necessary with a special focus on maternal health. This also requires a concerted effort to invest in job creation to avoid social ills attributed to unemployed youths.

The elderly population (over 59 years) are considered vulnerable hence the need for better health facilities and elderly facilities.

3.2.4 Population Density and Distribution

According to the 2019 Housing and Population Census, Kirinyaga is among the most densely populated rural county in Kenya with 413 people/km². This is higher than the national density of 82 people/km². The highest population densities are also evident along major transport corridors and around urban areas due to access to services.

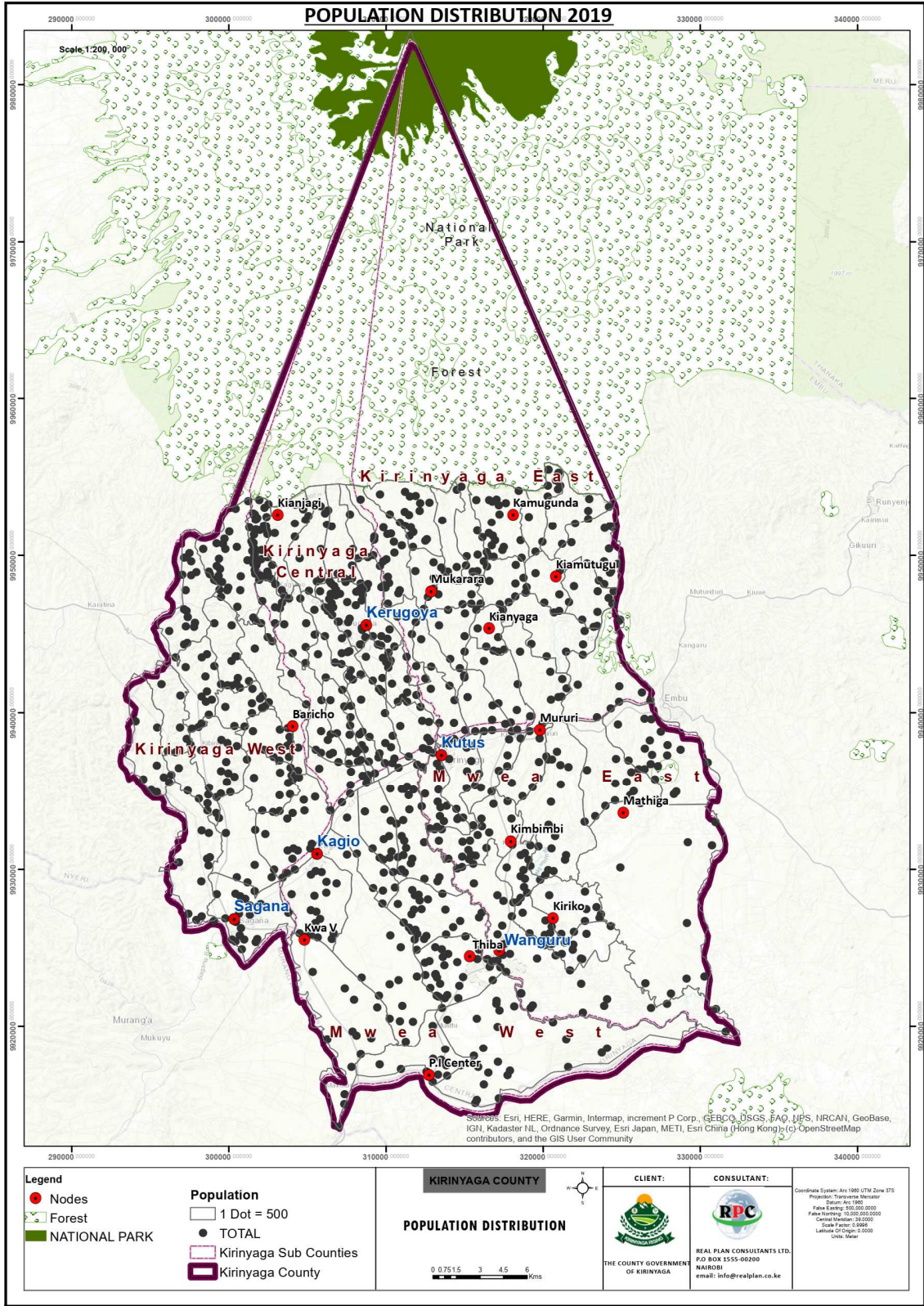
The County density is expected to increase, considering the projected population of 729,819 by 2031. It is important to note that an increase in population density will translate to increased demand/pressure on land hence the need to put in place relevant strategies for posterity.

Table 34: Population Density, 2019

Sub-county	Area (sq.km)	Persons per sq.km
Kirinyaga central	153	800
Kirinyaga East	232	585
Kirinyaga West	208	552
Mwea East	303	437
Mwea West	239	438
Mt. Kenya Forest	70	0
Total	1482	413

Source: KNBS, 2019

Map 12: Population Distribution



Source: Real Plan Consultants Limited, 2021

3.2.5 Persons with Disability

According to the 2019 census, Kirinyaga has 18,875 persons living with disabilities, about 3% of the county population. There are more females (11,594) than males (7,279). The most common disability is mobility (9,275) followed by visual impairment at 6,219). The table below summarizes the distribution of PWD according to the 2019 census.

Table 35: Persons with Disability

Disability	Male	Female	Total
Visual	2,201	4,018	6,219
Hearing	933	1,359	2,292
Mobility	3,019	6,254	9,275
Cognition	2,009	2,958	4,967
Self-care	1,360	1,655	3,016
Communication	1,058	960	2,019
Total	7,279	11,594	18,875

Source: KNBS, 2019

The presence of persons living with disabilities translates to demand for special facilities and infrastructure in the county. This includes scrutinizing or reviewing of building regulations, educational institutions and urban infrastructure to make provisions for this vulnerable group.

3.2.6 Literacy Levels

Literacy level is defined as those who can read and write. Literacy levels stand at 78.4%. However, there exists a disparity between males and females with literacy levels of 81% and 75% respectively.

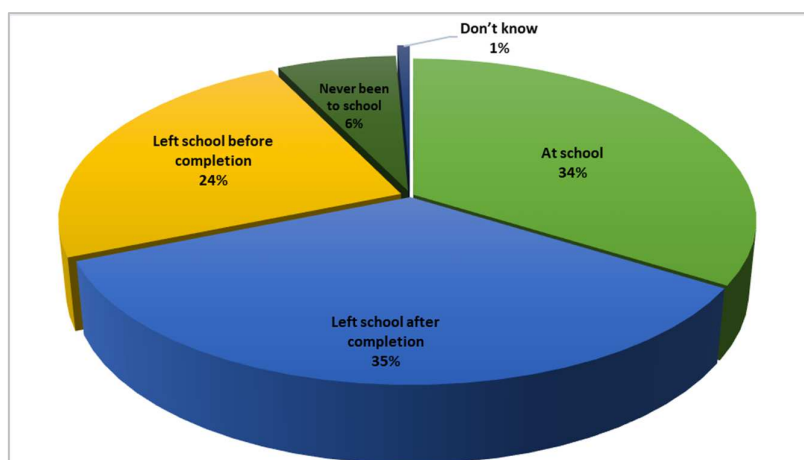


Figure 15: School Attendance Status In 2019

Source: KNBS, 2019

According to the 2019 Housing and Population Census, the status of learning institution attendance in the county is shown below. Those who left school after completion account for the highest population at 199,413 (34.9%) followed by those at school at 193,518 (33.9%) and people who left school before completion accounting for 136,968 (24%). Those who've never attended school were 37,445 (6.6%). It is important to note that over 66% of those who have never attended school are women.

3.2.7 Employment Rate

According to the KNBS report on Exploring Kenya's Inequality – Kirinyaga County, 2013, the occupation levels of the working population are as shown in the table below.

Table 36: Occupation Levels

Sub County	Work for pay	Family business	Family agricultural holding	Intern	Retired	Fulltime student	Incapacitated	Unemployed	No. of individuals
Mwea East & West	29%	13.8%	42.5%	0.7%	2.1%	8.4%	0.3%	3.1%	114994
Kirinyaga east	18.7%	11.2%	55.4%	0.5%	2.1%	9.4%	0.4%	2.4%	77165
Kirinyaga central	29.5%	12.1%	41.2%	0.7%	2.3%	10.8%	0.4%	3.1%	69071
Kirinyaga west	23.5%	12.3%	44.8%	0.7%	2.6%	11.8%	0.5%	3.9%	59591
Kirinyaga County	25.6%	12.5%	45.7%	0.7%	2.2%	9.8%	0.4%	3.1%	320821

Source: KNBS, 2019

3.2.8 Mortality

Mortality rates for any population can be interpreted from a variety of viewpoints such as infant mortality; child mortality, cohort-specific mortality, and general population mortality. The analysis of a population's mortality enables the relevant authorities to make sound decisions related to levels of educational attainment, public health, child and maternal health, economic status among others.

The estimated number of deaths in Kirinyaga is 265 and 263 males and females respectively per 1000 persons while the national rate is 348 males and 313 females. Infant mortality has consistently declined to 42/1000 live births which is better than the national average of 52/1000 live births. The County has a low death and infant mortality rate, which might reflect better access to healthcare. This could further be lowered by increasing access to more advanced medical care in line with Vision 2030 and SDGs.

3.2.9 Fertility

The county fertility rate is currently 2.3 children per woman, a decline from 3.4 in 2009. This can be associated with increased access to family planning services and the use of contraceptives by over 81% of the married population. The county fertility rate is much lower compared to the national rate of 3.9 children per woman.

3.2.10 Migration

The County population is relatively cosmopolitan. Historically, people settled here are from various parts of the country such as Meru, Embu, Kitui, Machakos and Nyeri. However, compared to other areas, Mwea is more cosmopolitan.

Like most rural areas countrywide, rural-urban migration to major towns such as Nairobi, Embu, and Thika is the most common form of migration. It is seasonal and most evident over the

weekends when residents move to Kirinyaga and other counties (Nyeri, Meru, and Embu) from major urban areas and travel back on Sunday evenings. This has significantly contributed to the growth of Wanguru and Makutano-Sagana-Kibirigwi corridors.

Daily movement of population is also evident in the county as the dominance of urban centres as centres of employment emerges over time. There is significant movement from the rural areas to the centres. Internally movement is notable along the Kerugoya – Kutus corridor which connects the two major county urban nodes.

3.2.11 Emerging Planning Issues and Opportunities

The table below summarizes the planning issues and opportunities emerging from the population and demography discussion.

Challenges	Opportunities
<ol style="list-style-type: none"> 1. A youthful population translating to high demand for social facilities such as sports and recreational services 2. The county has a high population density, a reflection of the pressure on land 3. 	<ol style="list-style-type: none"> 1. Availability of skilled and semi-skilled labour owing to the high literacy level of the residents 2. A youthful population (below 35 years) constituting over 65% of the county population 3. The working population (economically productive) account for 54% of the population 4. The season migration mostly evident during weekends when residents move to Kirinyaga and other counties (Nyeri, Meru & Embu) from major urban areas and travel back on Sunday has significantly contributed to the development of Wanguru and Makutano-Sagana-Kibirigwi corridor

3.3 ECONOMIC BASE

The county economy is anchored on agriculture, industries, hospitality, trade and commerce, and mining activities. This section analyses the economic drivers, the potential and challenges in wealth and employment creation.

3.3.1 Agriculture

As aforementioned, agriculture is the bedrock of the county economy and the source of livelihood to the majority of the population. According to the County Department of Agriculture, Kirinyaga earned KShs 22.7 billion from agriculture in 2020.

Key agricultural activities include crop farming, livestock production, fishing, and agroforestry. The most dominant practice is cash crop farming where the major crops include rice, coffee, tea, banana, and horticultural products. Dairy farming is also widely practised in the county.

According to the County Agriculture Department, the total arable land is 116,980ha, accounting for 79% of the county land. The irrigable potential land stands at 18% while only 6% of Kirinyaga's land is irrigated. The analysis above indicates that there is a high dependence on rain-fed agriculture.

According to the CIDP 2013-17, the average farm sizes are 5.2ha and 1ha for the large and small-scale farms respectively. The sizes are however under threat of reduction taking into account that the current minimum agricultural land size is as low as 0.05ha in most parts of the county. This is attributed to the rapid increase in population, inadequate development control regulation, urban sprawl, and increasing dependency. Rapid sub-division of agricultural land is a major threat to this sector. Productivity decreases with a decrease in land sizes.

3.3.1.1 Crop Farming

Owing to the diverse climate, Kirinyaga produces a wide range of crops for domestic and commercial use. The agro-ecological characteristics influence crops grown. The main cash crops are tea, coffee, rice, banana, and horticultural products. While rice grows in the plains of Mwea, tea and coffee grow in the upper parts.

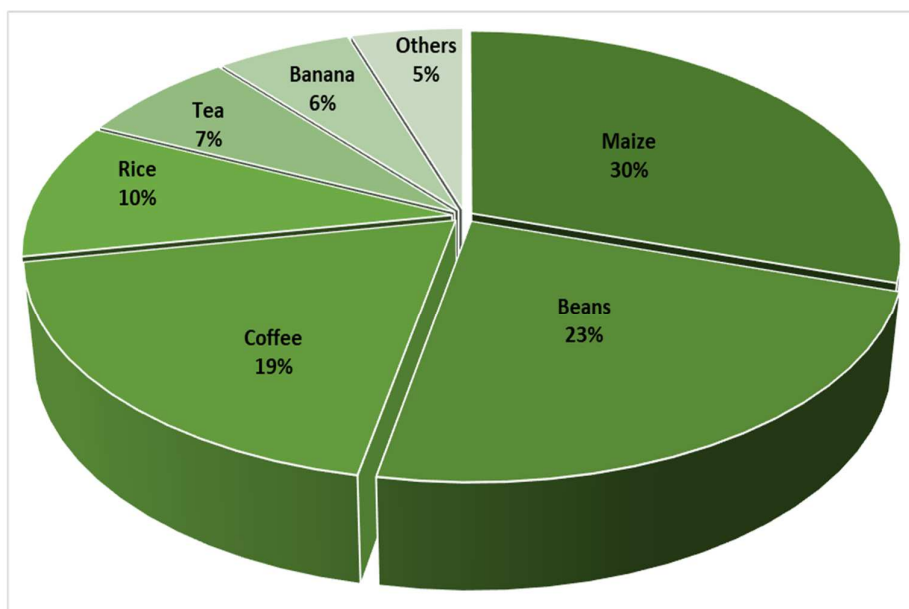
a. Cultivated Land

The cumulative area under cultivation (in 2019) as shown in table 37 is estimated at 103,350ha where maize accounts for the largest area (30%) followed by bean and coffee at 23% and 19% respectively. Other key crops include rice covering 10%, tea, and banana with 7% and 6% respectively. It is important to note that most of these crops are intercropped.

Table 37: Cultivated Land in 2019

Crop	Cultivated area (ha)	%
Maize	31,156	30
Beans	23,406	23
Coffee	19,842	19
Rice	10,522	10
Tea	6,691	7
Banana	6,132	6
Tomato	2,236	2
French beans	1,703	2
Sweet potatoes	862	1
Avocado	543	1
Macadamia	205	0.2
Cotton	52	0.1
Total	103,350	100

Source: County Department of Agriculture, Livestock, Veterinary, and Fisheries, 2019



Map 13: County Cultivated Area

Source: County Department of Agriculture, Livestock, Veterinary, and Fisheries, 2019

Although it is expected that land cultivation is directly proportional to the production volume, the graph below portrays a different scenario. This could be attributed to poor farming practices due to lack of quality seeds, minimal extension services, poor choice of crop, and overdependence on rain-fed agriculture among others.

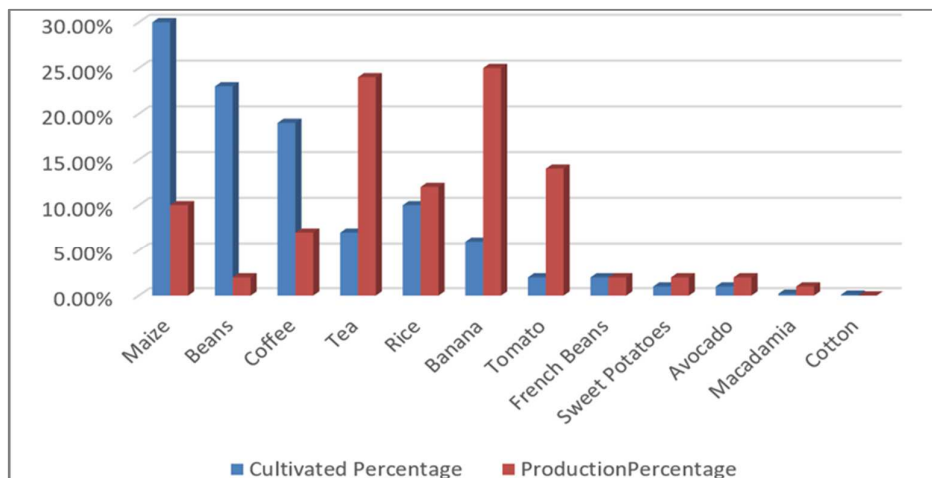


Figure 16: Crop Production Vs Cultivated Land

Source: County Department of Agriculture, Livestock, Veterinary, and Fisheries, 2019

b. Crop Production

The county produced about 1,066,113 metric tonnes in 2020. The analysis shows that Arabicum accounted for the largest proportion with 450,046 tonnes, representing 42% of the total volume. Bananas ranked second at 185,133 tonnes (17%) followed by tea, tomato, and rice at 11.9%, 6.0% and 5.7% respectively. See the graph below.

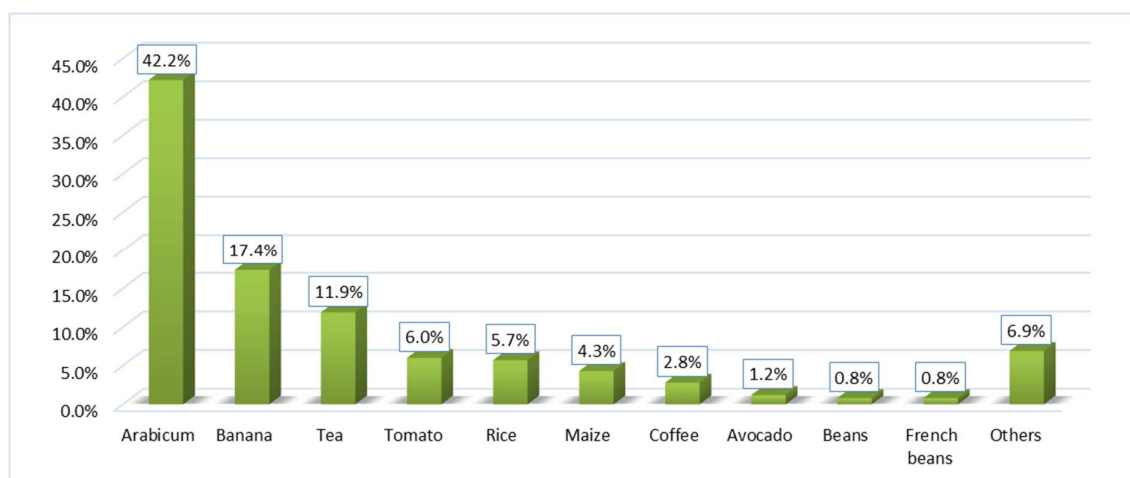


Figure 17: Crop Production Volume, 2020

Source: County Department of Agriculture, Livestock, Veterinary, and Fisheries, 2019

Other crops analysed include maize, coffee, avocado, beans, French beans, and avocado as shown in the table below.

Table 38: Crop Production Volumes, 2020

Crop	Quantity (Ton)	%
Arabicum	450,046	42.2
Banana	185,133	17.4
Tea	127,257	11.9
Tomato	64,038	6.0
Rice	60,965	5.7
Maize	46,271	4.3
Coffee	29,380	2.8
Avocado	12,940	1.2
Beans	8,994	0.8
French beans	8,249	0.8
Others	72,839	6.9
Total	1,066,113	100.0

Source: County Department of Agriculture, Livestock, Veterinary, and Fisheries, 2020

c. Crop Revenue

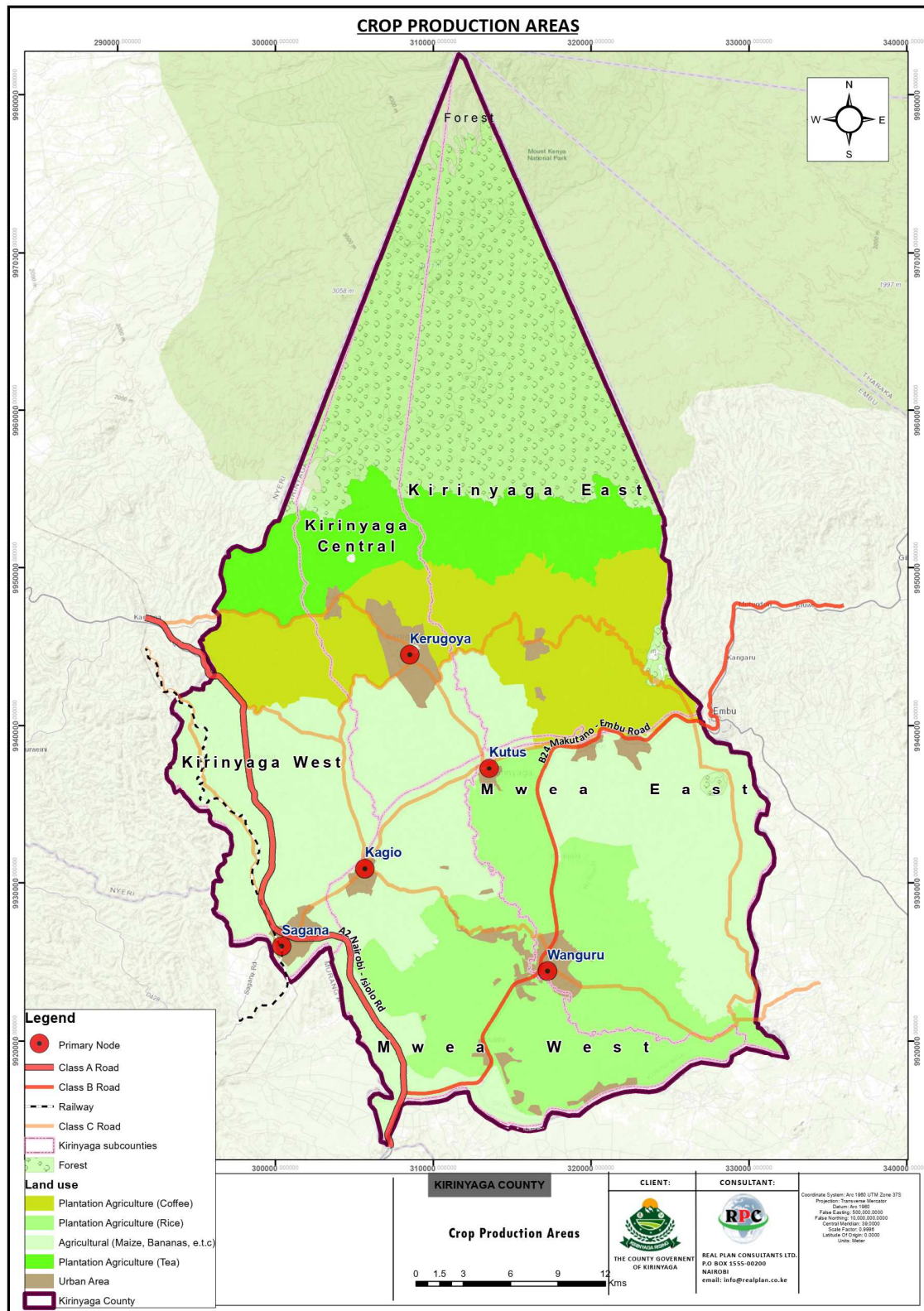
According to the County Department of Agriculture, tea, rice, coffee, banana, tomato, and maize had an estimated annual turnover is KShs 19.7 billion, accounting for 87% of the crop revenue. This shows the significance of these crops to the county economy and the need to improve the production and protecting them. Horticultural farming is also an emerging income earner for the residents, which should be encouraged to increase income among the farmers.

Table 39: Crop Revenue, 2020

No.	Crop	Value (KShs)	%
1	Tea	7,635,420,900	33.7
2	Rice	4,093,704,475	18.1
3	Coffee	2,842,106,000	12.5
4	Banana	2,248,688,000	9.9
5	Tomato	1,793,233,474	7.9
6	Maize	1,062,227,100	4.7
7	Beans	582,896,300	2.6
8	Macadamia nuts	409,850,000	1.8
9	Avocado	348,380,000	1.5
10	French beans	323,169,000	1.4
11	Potato	216,430,000	1.0
12	Others	1,109,398,301	4.9
	Total	22,665,503,550	100

Source: County Department of Agriculture, Livestock, Veterinary, and Fisheries, 2020

Map 14: Crop Production Areas



Source: County Department of Agriculture, Livestock, Veterinary, and Fisheries, 2019

Tea

Tea is grown in the upper parts of the county in Kirinyaga West, East, and Central. According to the County Department of Agriculture, Kirinyaga produced 127,257 metric tonnes, which generated KShs 7.64 billion in 2020.



Figure 18: Tea Farming in Kangaita and Kimunye

Source: County Directorate of Communication ,2019

On average, the sector generates annual revenue of KShs 4.9 billion, employing about 44,000 people. This occupies 6,691 Ha, which produces over 100,000 metric tonnes annually, an average of 15 tonnes per hectare. This has prompted the establishment of five tea-processing factories

namely Thumaita, Kimunye, Kangaita, Mununga and Thima factories managed by the Kenya Tea Development Agency (KTDA). Compared to other tea-growing counties, Kirinyaga ranks fifth after Kericho, Nandi, Kisii, and Nyeri according to the Kenya Tea Board Statistics, 2010. Despite the high returns, the tea sector is facing challenges such as declining land sizes, minimal value addition and fluctuating prices.

Coffee

Coffee is grown in the upper and middle zones of the County; Ndia, Kirinyaga Central, and Kirinyaga East sub-counties. According to the County Department of Agriculture, in 2020 the county produced 29,380 metric tonnes of coffee, generating KShs 2.84 billion.

On average, the sector produces KShs 2.4billion annually. This is dependent on the 19,842 Ha farmed which generates up to 30,000 metric tonnes. The sector employs over 76,000 people. There are two dry coffee millers managed by the Kenya Planters Co-operative Union that are located in Ndia and Baricho. The other 76 are wet mills. The farmers work with 11 coffee cooperative societies that facilitate the transportation and trade of coffee with the coffee millers.



Figure 19: Coffee Farming in Kianyinga

Source: Field Survey, 2019

The main challenges faced by this sector are declining land sizes, high cost of inputs and minimal value addition. The economic performance of coffee has had impacts on incomes, lifestyles, and livelihoods. This includes the ability of farmers to meet domestic and investment needs. This has prompted farmers to resort to alternative crops, which are more profitable such as bananas.

Rice

Rice is Kenya's third staple food after maize and wheat. Its consumption rate has been growing rapidly at approx. 12% a year compared to maize whose consumption rate grows by only 4% annually. Rice consumption in Kenya stands at 330,000 tons a year. Out of this Kenya produces only about 110,000 tons (33%) while the rest is imported. Kirinyaga produced 60,965 metric tonnes, generating KShs 4.09billion in 2020 (County Department of Agriculture, 2020). With an average production of 60,000 tons a year, Mwea accounts for more than half of the national output. The rest comes from schemes in Nyanza, Western, and Coast regions.

Mwea Irrigation Scheme is divided into 5 sections; Mwea, Thiba, Tebere, Wamumu, and Karaba. The scheme was established in the year 1954. According to the National Irrigation Authority, about 26,000 acres are currently under irrigation (22,000 acres in the main scheme & 4,000 acres in the out-growers).



Figure 20: Rice Paddies in Mwea

Source: County Directorate of Communication

Dwindling sources of water for irrigation has been a major obstacle to increasing production. However, the newly constructed Thiba Dam is envisaged to stabilize water flow and increase the current land that can be irrigated from 26,000 acres to 36,000 acres as well as allow cropping of two seasons per year. Rice production is projected to double from the current 60,000 to 160,000 tonnes a year.

Cotton

Cotton farming was profitable during the colonial and early post-colonial periods. It was practiced in Kirinyaga Central and Mwea on large scale. Through the defunct Cotton Development Authority,

farmers received cotton seeds to the tune of 1.2 tons. These seeds were distributed to about 600 farmers in areas such as Murinduko and South Ngariama. The farmers would harvest and sell the produce to Meru Ginnery at KShs 42 per kg. However, following the collapse of the cotton industry in the last few decades, farmers in Kirinyaga no longer grow cotton. Presently, cotton is grown on 52 Ha countywide. This translates to 21tonnes per year generating KShs 763,000.

The cotton ginneries and entire value chain are not operational. This is further aggravated by Kenya’s importation of attire and clothing from China, India and other countries. Kenya also imports second-hand clothing from parts of Europe and America which is a contributing factor to the decline in the domestic cotton industry.

The demand for cotton in the country is also increasing with the long-awaited closure of the EPZ window to import cotton from China and India in 2025. The revival of the cotton industry is a key strategy pursued by the CSP towards the achievement of Vision 2030. Potential large-scale production areas are Mwea, Gachoka scheme, Wamumu, Karaba, and Kagio.

Bananas

The farming of bananas is quite reputable in Kenya. In 2013, Kenya was ranked position 18 in banana production in the world with 1.2million tonnes per year valued at KShs 33.7 billion. Kirinyaga County is ranked second after Meru, producing 14% of the country’s bananas as shown in the chart below.

Data from the County Department of Agriculture shows that the county produced 185,133 metric tonnes (on 4,312ha), which generated KShs 2.25billion in 2020. Banana has the highest yield per hectare compared to other crops. Key production areas include Murinduko, Kangai, Kiangwaci, Noguchi, Karumandi and Kiamugumo.

The common banana varieties planted in the County are Grand Nain and Phil 17. The main challenge facing the banana sector is a high number of postharvest losses, which prompts the need for value addition, and the creation of a market.

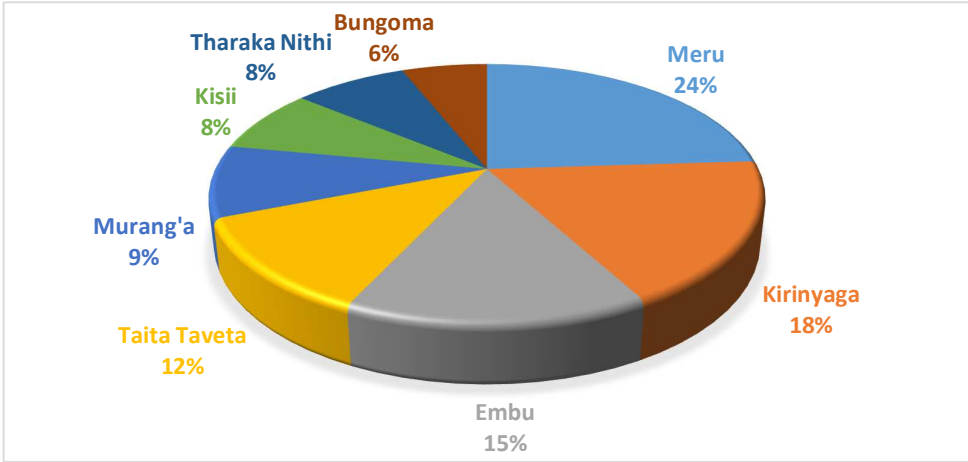


Figure 21: Banana Production by County

Source: County Department of Agriculture, Livestock, Veterinary, and Fisheries, 2018

Macadamia Nuts

Farming of macadamia is quickly gaining popularity in Kirinyaga due to the high returns and establishment of processing factories hence market availability. Some of the factories established in the county are Sagana Nuts, Amigos Nuts, Limbua Nuts, and Jungle Nuts. Limbua Nut, for instance, deals with 5,000 farmers in Githure and Kianyaga. In 2020, the county turnover of macadamia was KShs 410 million covering about 387ha of land.

Owing to the increasing demand for nuts overseas, the sector has high growth potential. Therefore, the establishment of more industries and the provision of requisite infrastructure will stabilize its growth.

Avocado

According to Kenya Agricultural and Livestock Research Organization in 2018, Kenya has 7,500 Ha under avocado and yields 81,000 tonnes annually, making it Africa's second-largest producer after South Africa. In 2020, avocado was grown in 709ha in Kirinyaga, producing 12,940 tonnes and KShs 349Million.

The crop is slowly gaining popularity due to the increased demand in the international market. Farmers in the County are slowly swapping coffee for avocado owing to the high returns. According to KARLO, a tree gives 600 fruits annually, which is about 100-150 kilos. In the local market, one fruit goes for KShs 10 meaning a tree gives KShs 6,000 if all proceeds are sold locally. One acre can accommodate approximately 50 trees. Therefore, in one year this farm will produce 30,000 fruits which if sold locally will fetch KShs 300,000.

3.3.1.2 Livestock Farming

Livestock farming constitutes the following activities: poultry farming, cattle rearing, and bee farming. According to the CIDP (2018-2022), the county has 762,682 poultry, 98,899 cattle, 73,978 goats, 13,950 sheep and 39,491 rabbits.

a) Dairy Farming

Dairy farming is common practice in the county owing to the favourable climate and pastures. According to the Department of Agriculture, the county has about 77,145 dairy cows. These account for over 86.4m litres of milk while goats produce over 5,000l annually as shown in the figure below.

Table 40: Dairy Production

Species	Milk (litre)	%
Cattle	86,366,087	99.9

Goats	5,044	0.1
Total	86,371,131	100

Source: County Department of Agriculture, Livestock, Veterinary, and Fisheries, 2019

The sector generates about KShs 3billion annually, which represents 99.9% of the dairy produce while goats yield about Ksh.0.4m

Existing dairy groups include Podago dairy group at Mutira Ward, Kirima dairy at Kabare Ward, Rungeto dairy cooperative society at Ngariama Ward, Kirinyaga dairy cooperative society at Kerugoya Ward and Rukingo dairy group at Kiine Ward. The main purchasers of milk from local farmers are Brookside and Kenya Cooperative Creameries (KCC) Ltd while the remaining milk is sold locally. The county has a high potential for further development of the dairy industry.

b) Meat Production

The beef cattle kept by local farmers include culled dairy cattle, bulls and the Zebu breed. The bulk of the cows are zebu, which is reared in the lower parts of the County. The total number of zebu cattle is estimated at 31,875. Other animals reared for meat include sheep, goats, pigs, and rabbit whose production is shown below.

Table 41: Meat Production Volumes

Species	Quantity (kg)	%
Cattle	4,000,000	63
Goats	1,719,750	27
Pigs	374,985	6
Rabbits	177,525	3
Sheep	38,476	1
Total	6,310,736	100

Source: County Department of Agriculture, Livestock, Veterinary, and Fisheries, 2018

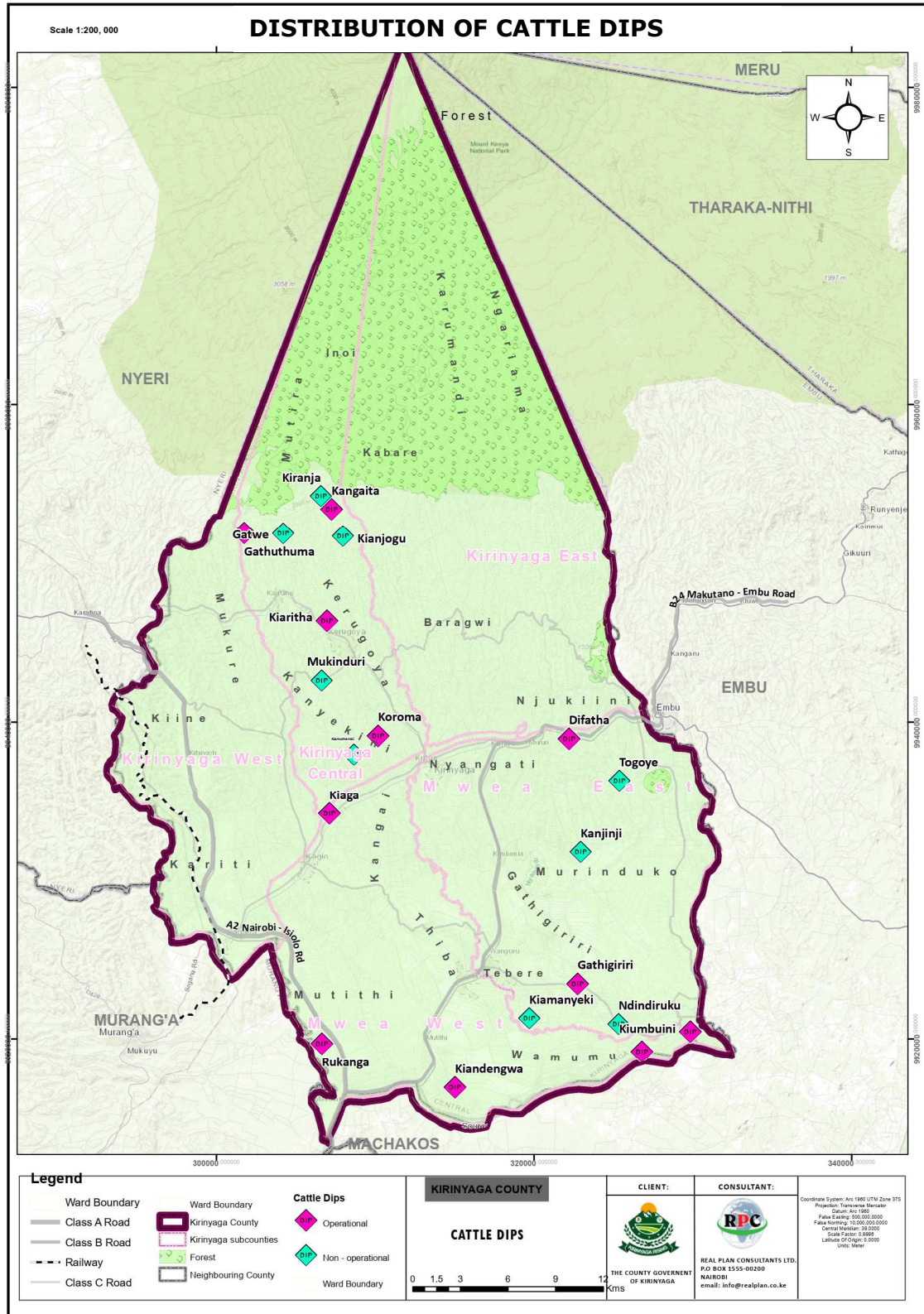


Figure 22: Cattle rearing in Kirinyaga Central

Source: Field Survey, 2019

The County has 28 cattle dips where only 7 are operational as shown on the map below. Challenges facing the cattle dips include encroachment and absence of services although most of the structures are intact.

Map 15: Distribution of Cattle Dips



Source: County Department of Agriculture, Livestock, Veterinary, and Fisheries, 2018

3.3.1.3 Aquaculture

Fish is an affordable source of protein at the household level. It is also an alternative source of income for the farmers in Kirinyaga County. Fishing is mainly practiced in Sagana.

The County has 1286 farmers with 1273 ponds where only 522 are active. The production of fish in 2018 according to the County Fisheries Department was 26.9 tonnes as shown in the table below.

Table 42: Fish Production

Sub-County	Active Ponds	Current Production (MT)	Value (Millions)	Inactive Ponds	Projected Production (MT)	Projected Value (Millions)
Kirinyaga Central	166	4.2	1.68	156	390	156
Mwea East & West	122	10.2	4.08	208	52	20.8
Kirinyaga East	115	5.4	2.16	204	51	20
Kirinyaga West	108	7.1	2.84	194	48.5	19.4
Total	511	26.9	46.76	762	541.5	216.2

Source: County Department of Agriculture, Livestock, Veterinary, and Fisheries, 2018

Water shortages due to prolonged droughts and increased water abstraction is a key challenge facing the sector. The county, however, has a high potential for aquaculture if the aforementioned challenges are addressed.

3.3.2 Trade and Commerce

This refers to the trading of goods and services. Commerce in Kirinyaga is a significant sub-sector of the economy. It is practiced countywide but mainly in urban areas, where different nodes have different levels of specialization. Common enterprises include retail shops, wholesale shops, the service sector (banks, insurance), pharmaceutical trade, hardware and construction, IT, electronics and accessories, agro-based outlets, motor vehicles, petroleum dealers among others.

According to the Kenya Chamber of Commerce, Kirinyaga has the following 14 business sectors:

Table 43: Business Sectors

Sector	Specifics
Health	Private hospitals, labs, clinics and chemists
Real estate	Developers, property, landlords, and contractors
Education	Primary School, secondary School, colleges, universities
Markets	Kerugoya, Kutus, Kagio, Wang'uru, Kianyaga, Kagumo, Sagana, Bypass
Informal sector	Retail shops, cyber, mobile banking kiosks, hawkers, Juakali, mechanics
Wholesalers/chain stores	Distributors, hardware, supermarkets, wholesalers, supplier, entrepreneurs
Professionals	Teachers, marketers, lawyers, surveyors, engineers, architects, designers, doctors, nurses, clinical officers, journalists, public relations experts

Sector	Specifics
Transport	Matatu, boda-boda, taxi
Finance sector	Banks, SACCO's, societies, cooperatives, micro-finance, bank agents, Fossa
Hotel/tourism	Restaurants, hotels, bars, camping sites, lodgings, cafes, lodges, resorts
Entertainment, talents, creative arts	Actors, theatres, poets, athletes, footballers, cyclists, comedians
Agribusiness	Tea, coffee, horticulture, banana, dairy, agro vets, rice, butcher, piggery, cotton
Industries	Export/imports, skin/hide
NGO's/Churches	

Source: Kenya Chamber of Commerce (Kirinyaga County), 2019

The level of commerce in the county was assessed by location with prominence given urban areas. Some of the area where commerce was established include Kerugoya, Wang'uru, Kagio, Kutus, Sagana, Kagumo, and Kianyaga. Other trading centres are, Kibirigwi, Kibingoti, Mutithi, PI, Mukinduri, Baricho, Kiburu, Kabare, Kiang'ombe, Kimunye, Gathoge, Njegas, Kiamuthambi, Kagumo, Kiangai, Riakiania, Togonye, Kiangwenyi, Kamweti, Kamugunda, Rwambiti, and Mutitu.

According to the County Licensing and Revenue Department 2019, informal businesses are the most dominant with 25,183 businesses, which is 70%. There are 22 Jua kali associations which represent 1,270 artisans. This underscores the need for formalizing and providing quality and affordable business areas to spur the growth of this sector.

As shown in the table below, the hospitality industry ranks second with 6,508 businesses representing 18% of the county businesses. These range from small restaurants, hotels, guest houses, camping establishments, and homestays to resorts. It is however important to note that the Sagana Corridor is an upcoming tourism and hospitality corridor with numerous tourism/hospitality infrastructure established.

Table 44: No. of Licensed Business, 2019

Sector	No. of businesses	%
1. Informal sector	25,183	70
2. Hospitality	6,508,	18
3. Finance	1,614	5
4. Agribusiness	826	2
5. Education	583	2
6. Transport	487	1
7. Health	339	1
8. Professionals	173	1
9. Markets	58	0.2
10. Wholesalers	23	0.1
Total	35,794	100

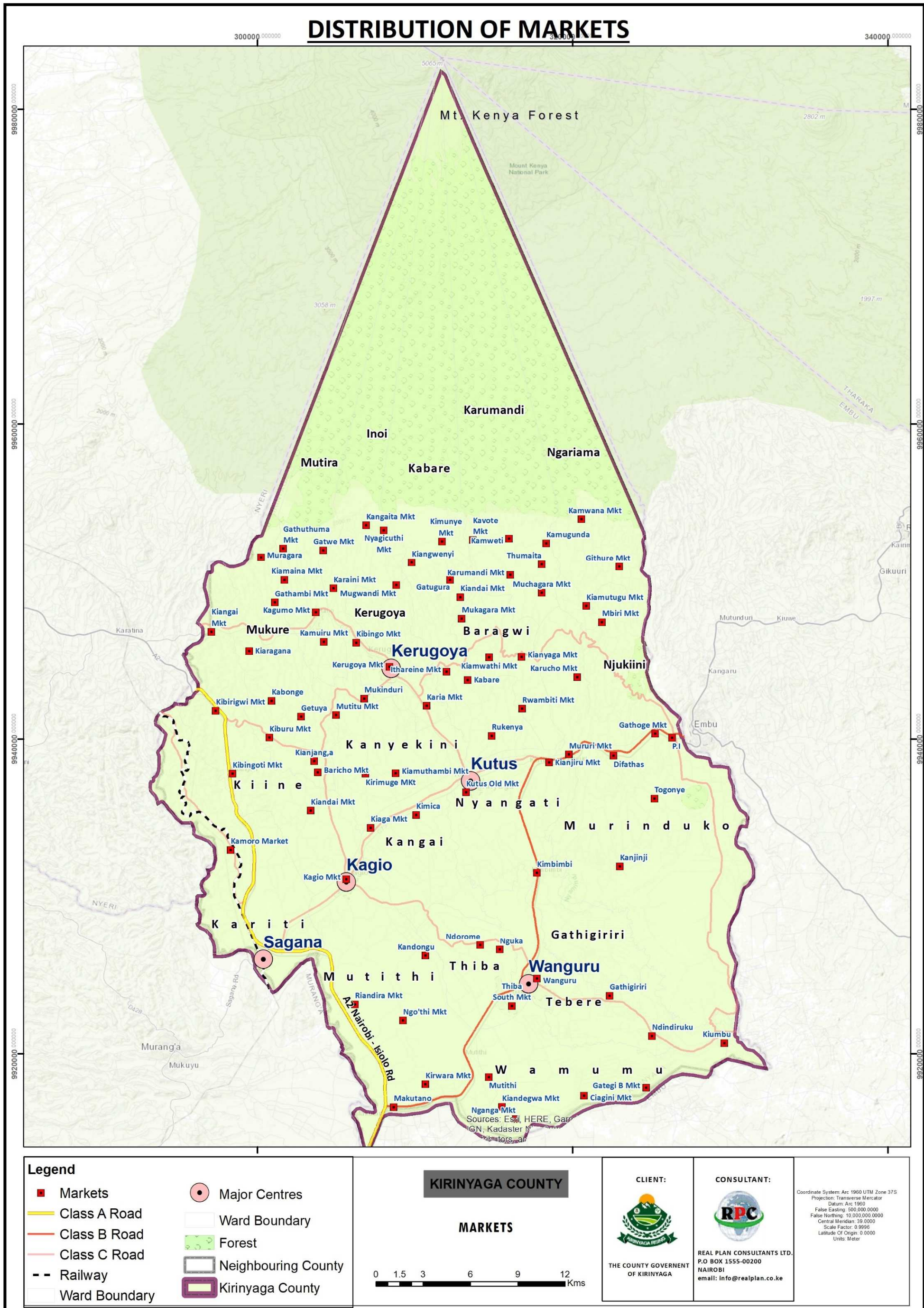
Source: County Licensing and Revenue Department, 2019

The finance sector ranks third and consists of banks, microfinance institutions, insurance companies, SACCOs and mobile banking kiosks. Cumulatively, Kirinyaga has 1,614 registered businesses in this sector. Presently, the County has 21 banks where the main institutions include Equity, Co-operative, KCB and Barclays (Absa). Others include 8 microfinance institutions, 18 building societies, 5 insurance companies and 58 agent banks. A vibrant finance sector is a necessary ingredient and an indicator of a growing economy.

Open-air markets form an integral part of the county's economic base. Kirinyaga has 86 markets concentrated in urban areas and distributed as shown in map below. The open-air markets form the geographical centres around which most urban areas are developed. They mainly deal in agricultural products supported by a wide range of activities from wholesale and retail shops, mobile and agent banking services, transport terminus, cyber cafes and boutiques among others. Although considered informal, open-air markets are significant employment areas and provide markets for products locally and regionally. However, most of these facilities are underdeveloped and inadequately provided with infrastructure.

The map below shows the existing 86 markets (food, cloths, and domestic items) in Kirinyaga County.

Map 16: Distribution of Markets



Source: Real Plan Consultants Limited, 2021

3.3.3 Industrial Development

Kirinyaga has 111 industries specializing mainly in agricultural products including tea, coffee, nuts, rice, maize and livestock (see table below). They account for about 97% of industrial activities countywide.

Table 45 Industries

Category	No. of Industries	%
Tea industries	5	5
Coffee industries	78	70
Nut industries	4	4
Rice Millers	12	11
Maize millers	4	4
Livestock industries	4	4
Power pole plant	1	1
Steel mill	1	1
Water bottling	1	1
Bricks and blocks plant	1	1
Total	111	100

Source: Department of Commerce and Industry, 2019

It is worth noting that all the above industries source their raw materials in Kirinyaga. This is an indication of the agro-based industrial potential in the county.

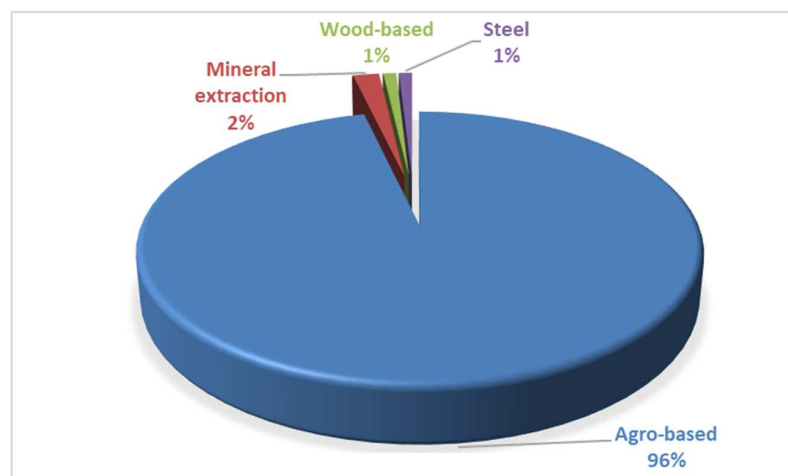
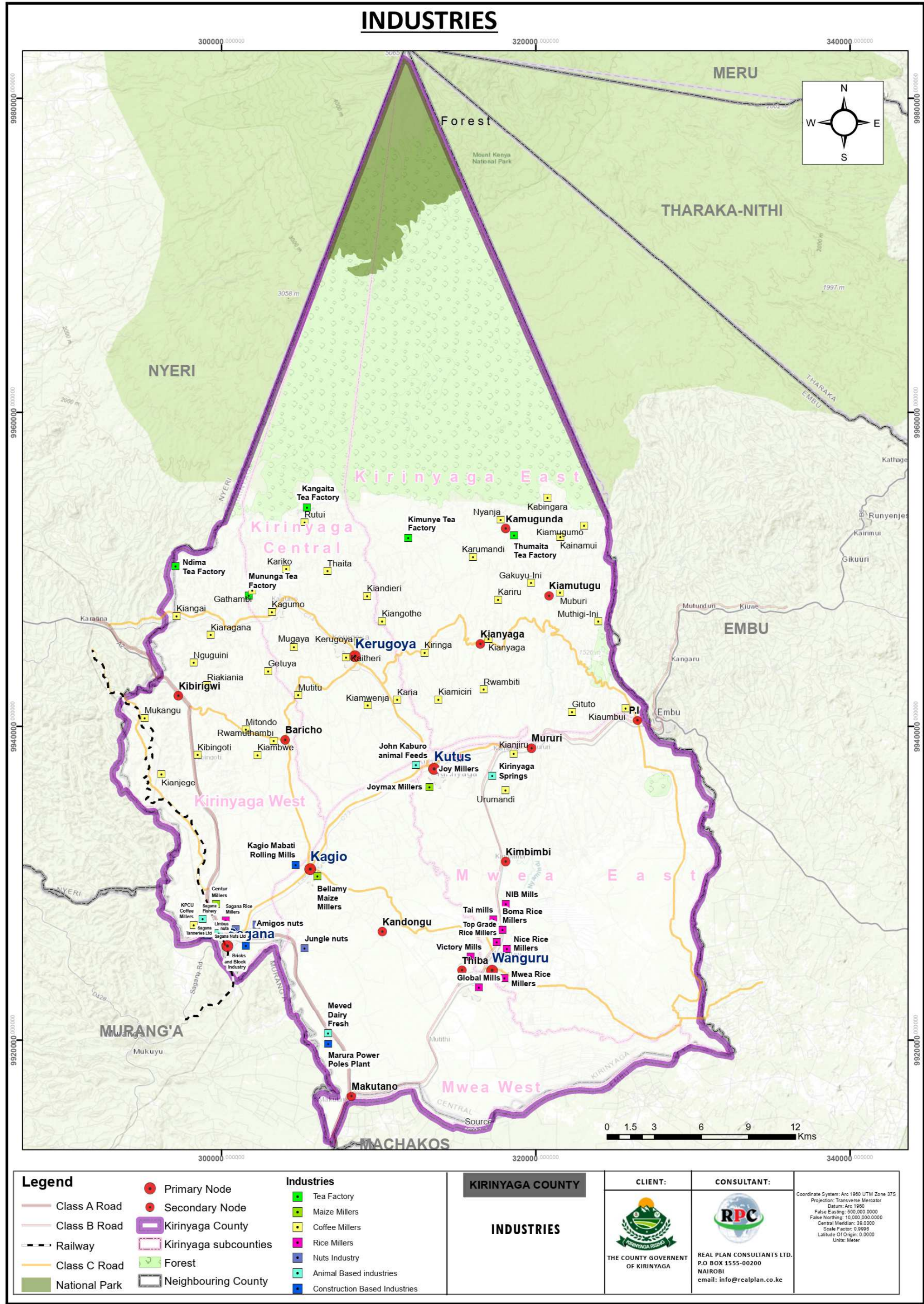


Figure 23: Sectorial Distribution of Industries

Source: Department of Commerce and Industry, 2019

Most of the factories (coffee & tea accounting for 75%) produce semi-finished products which are exported. As a result, they do not fetch optimal prices. Therefore, there is need for factories to refine and package end products for optimum returns and the creation of more employment opportunities. The county has potential for more industries especially avocados, tomatoes, bananas and milk products.

Map 17: Industries in Kirinyaga



Source: Department of Commerce and Industry, 2019

The location of industries is influenced by the availability and location of raw materials. Most are located in the production areas as shown in the map above. The following table shows the distribution of industries in the sub-counties

Table 46 Distribution of Industries

Sub-County	No.	%
Kirinyaga East	42	39
Kirinyaga West	26	24
Kirinyaga Central	21	19
Mwea East and West	20	18
Total	109	100

Source: Real Plan Consultants Limited, 2021

Kirinyaga East accounts for the bulk of industries with 42 (39%) which can be explained by the existence of numerous coffee wet mills. On the other hand, Mwea accounts for the lowest number but most diverse industries dealing in rice, maize, nuts and dairy among others.

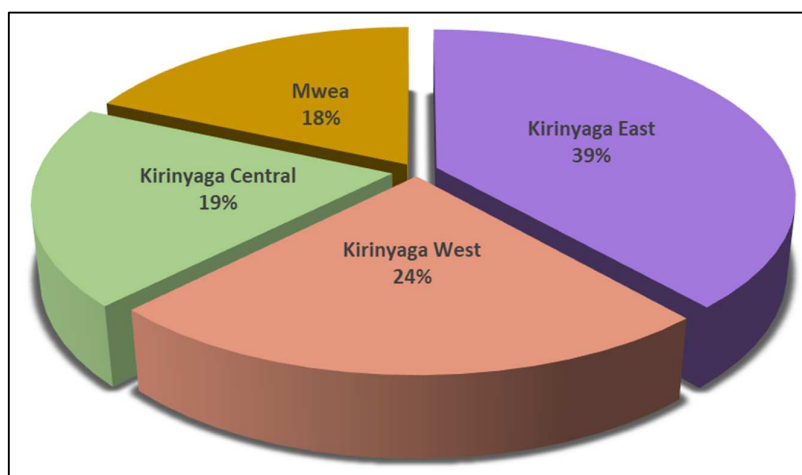


Figure 24: Distribution of Industries

Source: Real Plan Consultants Limited, 2021

According to the County Revenue Department (2019), agriculture processors are categorized into mega, large, medium and small processors as shown in the table below.

Table 47: Agricultural Processors

Type	Employees	No.
Mega	>50	18
Large	25-50	28
Medium	11-25	10
Small	<10	1,920

Source: County Revenue Department, 2019

The above analysis shows the increase in the number of industries as size and capacity reduces. There is need to empower the smaller industries and provide incentives for growth.

The Juakali industry is also a potential sector, which can be empowered and formalized to generate more quality, refined and affordable products for the growing market.

3.3.4 Mining

There are various quarries in the county, which provide construction materials (see the table below). Ballast mining yields about 456,000 tons yearly while sand mining yields about 294,000 tons annually.

Table 48: List of Quarries

Quarry Name	Location	Status	Ownership	Size	Products
Ukenye	Mutithi	active	Private	Large	Ballast, Red soil, Blocks
Ngenye	Mutithi	Inactive	Private	Large	Blocks, Murram, Ballast, Red soil
Kiamuthambi	Mwea	Active	Private	Medium	Blocks, ballast
Kinji	Kiini,	Active	Private	Small	Blocks, Ballast
Gatithi	Mwea	Inactive	Public	Small	Ballast, Blocks
Riamugaa	Kiini,	Active	Private	Medium	Red soil
Kanjinji	South Ngariama,	Active	Public	Large	Murram, Ballast
Ngucui	Ngurubani	Active	Private	Large	Blocks, Ballast, Sand, murram

Source: Directorate of Environment, Energy and Natural Resources, 2016

Carbonated water is also another resource available in the county. It is present in underground aquifers located in Ngaru, Kiamutugu and Gichugu areas. It is however yet to be exploited due to inadequate technical capacity and the small quantities.

Aluminium-rich clay is also found in the Kibirigwi area. However, the resource has not been fully utilized taking into account that the locals use it in making traditional pottery items.

Challenges facing the mining industry in the County include:

- ⇒ Minimal mapping, surveys, and studies to establish the existing mineral deposits in the county
- ⇒ Mining activities are carried out informally without regulation or licensing
- ⇒ Poor access roads to quarries
- ⇒ Poor sanitation due to lack of water and sanitation facilities in the various sites
- ⇒ Inadequate drainage systems leading to flooding hence breeding grounds for mosquitoes
- ⇒ Minimal capacity to carry out technological surveys and exploitation of minerals.
- ⇒ Lack of clear legal frameworks to carry out large-scale mining.
- ⇒ Mining activities on rivers Mukengeria and Kiringa are rampant which poses an environmental hazard.
- ⇒ The threats facing the quarries include: landslides, rock falls, and blasting effects
- ⇒ Open disused quarries and mining extraction pits pose environmental, safety and health risk

3.3.5 Tourism

Tourism is earmarked as one of the six key growth sectors of the economic pillar of Vision 2030. In the national context, Kirinyaga is positioned within the Mount Kenya region tourist circuit. The circuit follows the Nairobi – Mt Longonot – Hell’s Gate – Lake Naivasha – Lake Nakuru – Laikipia Plateau – Samburu National Reserve – Meru National Park – Mt Kenya – Aberdare’s route.

The county is endowed with numerous high potential tourists’ attraction sites and hospitality facilities. Statistics from Kirinyaga County Annual Development Plan, 2018-2019 show that Kirinyaga received 903 tourists in 2018. This consisted of 147 international tourists and 756 local tourists translating to 300M in revenue.

3.3.5.1 Tourism Sites

They include forests, national park, heritage and cultural sites, unique natural features, and wildlife resources as discussed below.

a) Mt. Kenya

Kirinyaga is home to part of Mt. Kenya towering at 5,199M above sea level. Mt. Kenya’s breathtaking view with its white snow-capped peaks, hanging and V-shaped valleys and well-endowed thick indigenous forest with unique species makes it a major tourist destination. The forest covers 350.7 Km² and is inhabited by a variety of wildlife including elephants, buffaloes, monkeys, bushbucks, and colourful birds. Its prominent features from the peaks, hanging, and V-shaped valleys give a great experience for mountain climbers.



Figure 25: Mount Kenya

Source: County Directorate of Communication

Kirinyaga is home to over 17 waterfalls found along the course of the six major rivers as they cascade from the mountaintop. Climbing Mount Kenya from Kirinyaga is via the “Kamweti” route starting from Castle Forest Lodge. It is the old elephant pathways through dense rain and bamboo forests to the highland swamps and moorlands. At Mackinder’s camp, the route meets all other routes for the final climb conquering point Lenana. The highest mountaintops of Mt. Kenya – Batian at 5,199m and Nelion at 5,188m. Point Lenana at 4,985m, the third highest summit.

b) Castle Forest Lodge

The lodge is located in Kamweti and accessed through the Mt. Kenya Kamweti route. The Castle Forest Lodge hosted King George and Queen Elizabeth II during the colonial era. The hotel has good views of Mt Kenya, waterfalls and bird watching sites. Visitors also enjoy watching wildlife from the castle as they water in the nearby water pool.



Figure 26: Castle lodge scenic view

Source: County Directorate of Communication

c) Thingira Cultural Village

Built on an 18 hectares piece of land, Thingira village is the gateway to Kirinyaga County and teaches the origin and traditions of Kikuyu, Meru, Kamba, and Embu tribes. It is located within a semi-arid area of rocky indigenous acacia thicket along the Nairobi – Embu highway across the Tana River Bridge near Makutano junction.

Thingira village serves a delicacy of traditional cuisines such as mukimo, muthokoi, and fermented porridge in the traditional cookware and cutlery. Traditional liquor, (Kalubu) is served in horns while guests are seated on three-legged stools. Visitors experience the traditional attire, as well as

the mud huts that are ringed in the compound according to their tribe of origin. In addition, a nature trail leads to the shores of the Tana River. Guests also enjoy various species of birds and animals including hippos and crocodiles.



Figure 27: Thingira Cultural Village

Source: Field Survey, 2019

d) Green Algae and Ornamental Fish Farm in Kariti, Sagana

The Green Algae Highland Fish Farm located in Sagana is the leading producer of ornamental fish. The farm has about twelve species of ornamental fish. The farm also produces fish for consumption (food fish). The farm hosts visitors from all over the world who are interested in fish farming and to admire the view of unique species of fish. University students also make educational tours to the farm.

e) Rapid camp Sagana

Rapids Camp is situated on the border between Kirinyaga and Murang'a Counties. The camp has a river frontage of about 450m and the largest waterfall (in terms of volume) in Kenya. This is combined with huge boulders (rocks) perfect for rock climbing and 4 acres of neatly manicured lawns which makes it an ideal adventure camp.

Activities at the camp include bungee jumping, canoe kayaking, white water rafting, team building activities, camping, rapids river trekking, and chopper trips.



Figure 28: Rapid Camp Sagana

Source: www.tripadvisor.com

f) Ndaraca ya Ngai

This is a natural bridge, a cave with two openings and a river flowing through it. The hidden path inside is through rock formations. This was a Mau-Mau hideaway from the British. Only the locals were aware of its existence.



Figure 29: Ndaraca ya Ngai

Source: Field Survey, 2019

g) Mwomboko Kenya dancers

This dancing troupe was formed in the 1940s. The group resides from Mukuura, Ndia – in Kirinyaga County and consists of 12 members, 5 men, and 7 women. The name comes from the Kikuyu traditional dance known as Mwomboko. The group educates the public on the Kikuyu culture through dance and music.

Other tourists' attraction destinations in the County include:

- ⇒ Agro-tourism – attracts Mwea Marathon: The event is used to display the beauty of Mwea and the vast rice paddies. The theme of the marathon is “smell the rice” and attracts more than 10,000 athletes every year.
- ⇒ There are numerous species of birds in the Mwea rice farms towards the harvest period. These are migratory from Brazil and South Africa. Though colourful to watch, they are disastrous.
- ⇒ Bird conservation, shooting and watching at Mwea,
- ⇒ Mystery caves, Mwea National Reserve & Riagitugu Cultural Centre in Kagio
- ⇒ Camping sites along river Sagana & Crocodile farm in Makutano town
- ⇒ Ornamental fish farm in Sagana & Mwea bird watching Conservatory
- ⇒ Munyu medicinal lime (Carbonated water springs) - they are about 8 in number
- ⇒ Kariro elephant's footprints on stones
- ⇒ More than 20 waterfalls each with unique history and features
- ⇒ River Nyamindi the only glacial river in Kenya with clear ice-cold water throughout the year characterized by caves and sharp rocks.
- ⇒ Kamuruana Hill towards Kangaita – to be developed into a camping site
- ⇒ Kerugoya Urban Forest which has been proposed as an arboretum
- ⇒ Kathandaini forest & African curio shops at Rukanga and Kibingoti.
- ⇒ Rice, Coffee, Tea, and Horticultural farms

3.3.5.2 Hospitality Industry

The hospitality industry in Kirinyaga is not well developed but has great potential if appropriate strategies are established. According to the County Tourism Department, 2019 Kirinyaga has 115 hotels, guest houses, camping establishments, and homestays distributed as shown in the chart below. Although homestay facilities take up the bulk at 30%, hotels have higher capacity in terms of accommodation and conferences facilities.

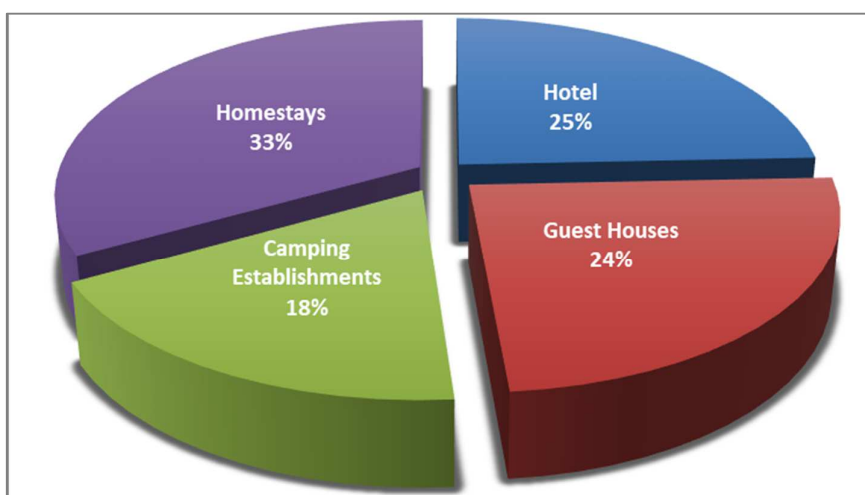


Figure 30: Types Hospitality Facilities

Source: County Department of Tourism, 2019

Majority of these facilities are located within the major towns (Kerugoya, Sagana, Kutus, and Kagio) and along with beautiful sceneries such as along River Sagana as shown in the table below.

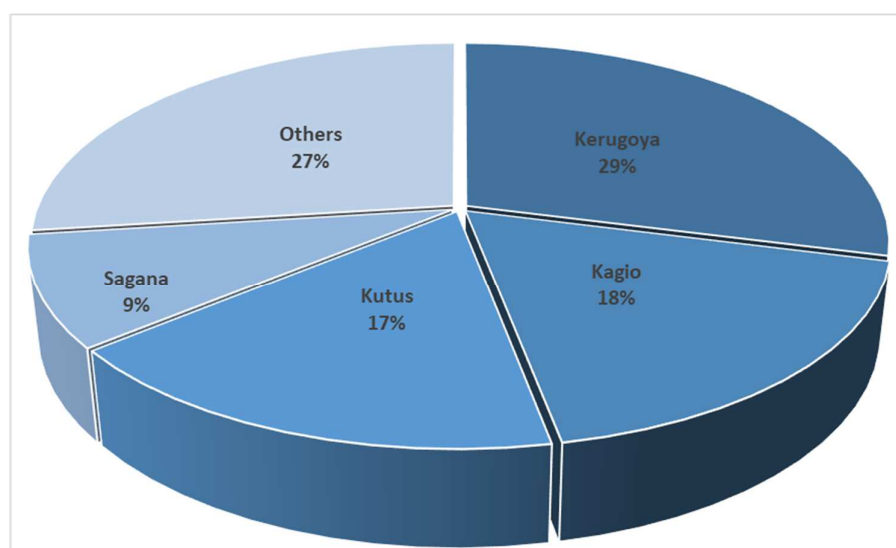


Figure 31: Distribution of Hospitality Facilities

Source: County Department of Tourism, 2019

Taking into account the main hospitality facilities (see the table below) Sagana is emerging as a hospitality belt with over 50% of hotels. This can be attributed to the natural features (such as River Sagana), the panoramic views, its location along the Central tourism circuit and the transiting international trunk road that offers a variety of clients.

Table 49: Main Hospitality Facilities

Facility Name	Location	Description
1. Sagana Gateway Resort	Sagana	The resort offers conference, accommodation and restaurant services
2. Nokras Riverine Hotel and SPA	Sagana	Offers accommodation, restaurant and conference facilities
3. Jangwani Camp	Sagana	Accommodation is offered in tented camps. It also offers restaurant services
4. The Great Sagana Resort	Sagana	The resort offers conference, accommodation and restaurant services
5. Tim step Hotel and Campsite	Sagana	This facility is unique as it offers sites for picnics, retreats, camping and water sports such as kayaking and rafting
6. Tetura Luxury Camp	Sagana	The accommodation comes with a patio, bike hire services, and conference and events facilities
7. Savage Wilderness	Sagana	Offers variety of adventure activities such as water rafting, hiking, and cycling.
8. Rapids Camp	Sagana	It is renowned for team building, camping and water sports
9. Havila Resort	Sagana	It sits on 40 acres of land. It is known for hosting the 2015 Rio De Janeiro Olympic Games qualifiers. The African team played canoeing and kayaking. Rafting is being considered as a third sport
10. Bekam Hotel	Kerugoya	Offers a wide variety of accommodation facilities
11. JMB Highway Motel	Kerugoya	Offers restaurant and accommodation facilities
12. Starwood Hotel	Kerugoya	The hotel offers restaurant, accommodation, conference and outdoor activity facilities
13. Roswam Hotel	Kerugoya	Offers classy conference and accommodation facilities
14. Nice Digital Hotel	Mwea	Popularly known as 'happiness paradise' offers conference and accommodation facilities
15. Icon Leisure Lodge	Kutus	Offers accommodation and restaurant facilities
16. Palm dew	PI	Offers bed and breakfast facilities
17. Oriental Palace Hotel	PI	Offers bed and breakfast facilities
18. Castle Forest Lodge	Kamweti	The lodge hosted King George and Queen Elizabeth II during the colonial era. Offers luxury accommodation utilities

Source: County Department of Tourism, 2019

The hospitality bed capacity is estimated at 884 where hotels and resorts account for 451, accounting for 51% of the total. Guest houses rank second with 231 (26%) followed by camping establishments and homestays at 126 (14%) and homestays with 76 (9%) as shown below.

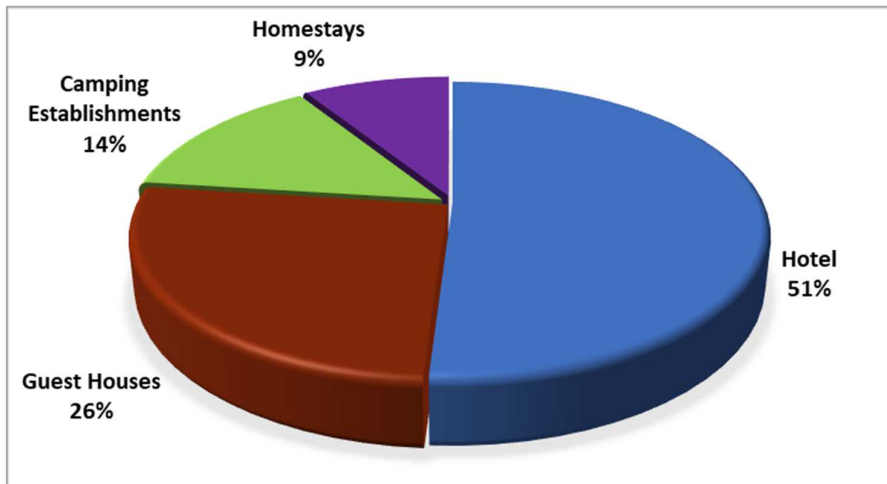
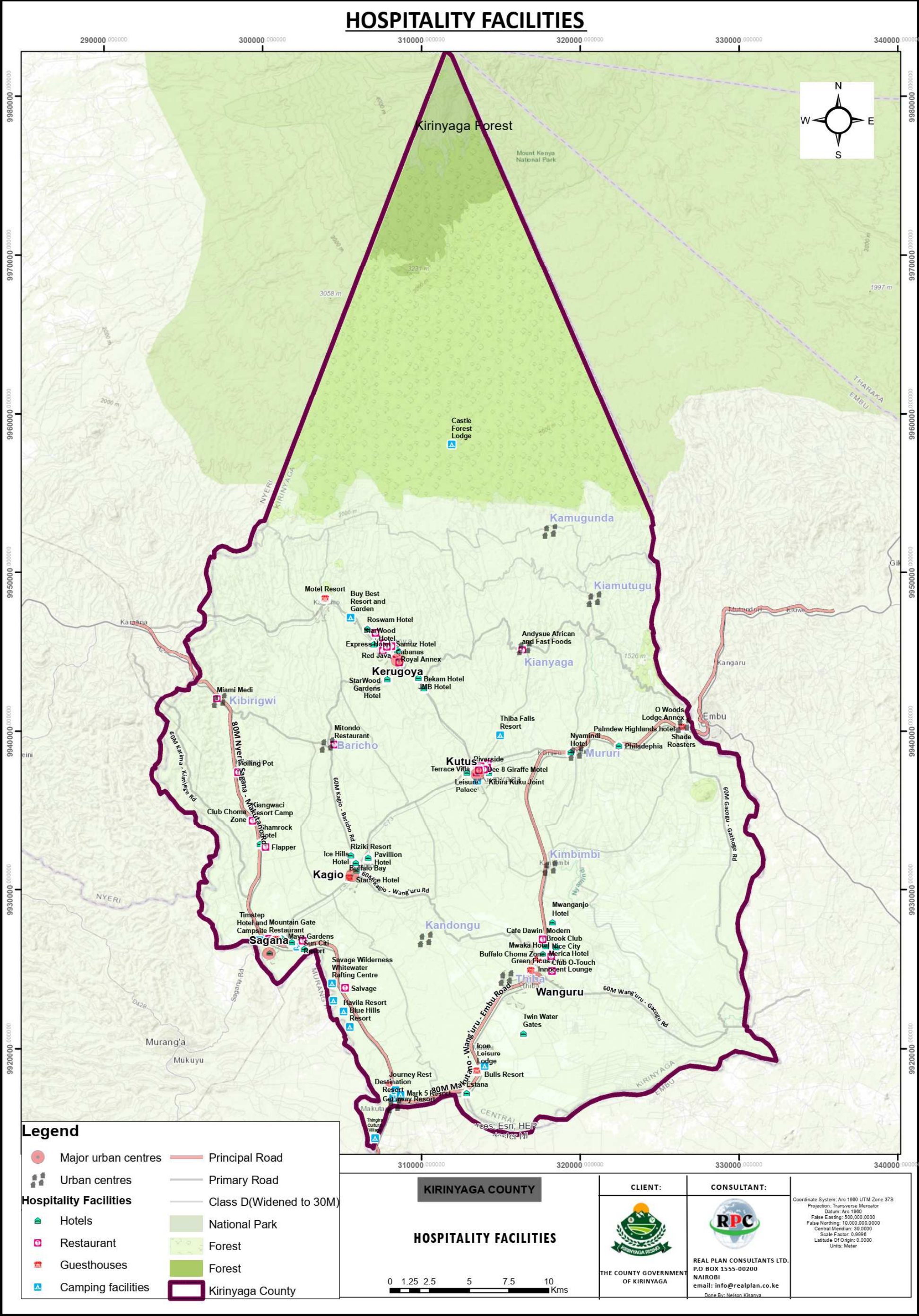


Figure 32: Bed Capacity Distribution

Source: County Department of Tourism, 2019

This capacity is however not sufficient taking into account the tourism potential of the county. Hence there is a need to encourage the growth of this sector in order to sufficiently supply these requisite infrastructures in the development of tourism.

Map 18: Hospitality Facilities



Source: Real Plan Consultants Limited, 2021

Key issues facing the tourism and hospitality industry are;

- Poor infrastructure development including hotel facilities (accommodation facilities) and a good network of roads in high potential areas
- Untapped and underdeveloped tourism potential areas such as Kamweti Route and River Nyamindi the only glacial river in Kenya.
- Inadequate incentives are given to tourism and hospitality investors
- Poor marketing of tourism and hospitality resources in Kirinyaga
- Poor management of various tourist attractions and sites
- Human-wildlife conflict
- Encroachment to natural resources by human settlements and agricultural activities.
- Erosion of local culture due to modernism
- Cultural heritage sites are inadequately maintained. The qualities of these sites need to be diversified and packaged appropriately as a tourist destination
- The participation of the locals in tourism is limited hence minimal benefits
- Lack of a county tourism policy and unclear institutional framework of the tourism sector

3.3.6 Revenue

The County collects revenue from markets, business permits, liquor licenses, parking fees, property rates, development application fees, advertisement, and public health services among others.

As evident on the table below, the County's revenue has been increasing over time but the County is yet to achieve its target due to numerous challenges.

Table 50: Revenue Collection 2013-18

Revenue source	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18
Revenue collected	235,814,804	309,539,918	390,377,140	320,638,298	344,408,120
Revenue target	200,000,000	422,454,650	500,000,000	743,239,866	600,000,000
Target achievement	117.91%	73.27%	78.08%	43.14%	57.40%

Source: County Licensing and Revenue Department, 2019

The challenges include:

- Poor working environments where some markets are neither roofed nor paved. The traders are exposed to the harsh weather conditions which highly affect their sales
- The exploitation of the farmers by the cooperative societies
- Lack of knowledge on utilization of credit has led to farmers making losses
- Presence of unplanned markets
- Poor structuring of the markets
- Lack of connectivity between the farmers and the consumers

3.3.7 Emerging Planning Issues and Opportunities

Sector	Challenges	Opportunities
Agriculture	<ol style="list-style-type: none"> 1. Rapid subdivision of agricultural land threatens productivity. The minimum land sizes in most areas are 0.05ha which is uneconomical 2. The low production volumes are attributed to the poor farming practices 3. Minimum value addition for agricultural produces hence low returns for farmers and government 4. Poor economic performance of main crops such as coffee has negatively impacted livelihoods 5. Owing to the increasing population and urban sprawl the agricultural land sizes are rapidly declining 6. Dwindling water for irrigation purpose 7. Prolonged droughts and increased water abstraction upstream 8. The collapse of the cotton industry 9. Unreliable market system 10. Poor access roads in agricultural zones 	<ol style="list-style-type: none"> 1. Over 79% of the county land mass is arable but only 70% of this is under food or cash crop 2. The area under cash crop account 38% while food crop occupies the rest 3. Land with irrigable potential stand at 18% of the county but only 6% is utilized 4. Owing to the diverse climate, Kirinyaga produces a wide variety of crops such coffee, tea, bananas, rice and horticultural products 5. Potential diversification from the common crops to avocado, macadamia, banana and horticultural farming 6. The high demand for rice since it is the second staple food after maize in Kenya 7. The ongoing construction of Thiba Dam 8. High potential for large scale production of cotton in former farms in Gachoka, Karaba, Wamumu and Kagio
Trade	<ol style="list-style-type: none"> 1. Limited access to local, regional and international market 2. Minimal uptake and integration of the technology by businesses 3. High number of informal business due to inadequate affordable business premises and limited capital 4. The open-air markets are underdeveloped and inadequately furnished with support infrastructure 	<ol style="list-style-type: none"> 1. Strategic location along major transport corridors i.e. A2, B6 and Meter Gauge Rail 2. Rapidly growing urban areas provide opportunities for a wide variety of lucrative businesses 3. Availability of spaces set aside for open area markets 4. Availability of support infrastructure such as financial institutions, security forces and devolved unit
Industrial	<ul style="list-style-type: none"> • Most industries produce semi-finished products which are exported as raw-materials and don't fetch optimal prices • Apart from the proposed Sagana Industrial Park, the county lacks land designated for industrial purpose • High cost of energy/electricity 	<ul style="list-style-type: none"> • High potential for agro-based and value addition industries for avocado, tomato, banana, coffee, tea and horticultural products • The proposed Kirinyaga Industrial and Business Park in Sagana provide an opportunity • The presence of trunk transport

Sector	Challenges	Opportunities
	<ul style="list-style-type: none"> Possible conflict between proposed Sagana Industrial Park with the emerging hospitality/tourism belt in Sagana area Possible industrial effluent disposal challenges Poor connectivity in agricultural areas (sources of raw material) due to poor roads 	<ul style="list-style-type: none"> infrastructure i.e. A2, B6 and old railway under rehabilitation Availability of youthful skilled and semi-skilled labour in the county and environs Opportunity to re-establish the collapsed cotton industries
Mining	<ul style="list-style-type: none"> Scanty information on mining activities in Kirinyaga Sand mining has caused increased siltation of rivers such as Mukengeria and Kiringa Possible landslides, blasting and rock falls are threats facing quarries Inadequate drainage systems leading to flooding hence breeding grounds for mosquitos 	<ul style="list-style-type: none"> Untapped potential of carbonated water springs in Gichugu and aluminium rich clay in Kibiringwi Mining of construction materials including ballast, blocks, sand and red soil
Tourism	<ul style="list-style-type: none"> Poor marketing of tourism and hospitality industries Minimal tourism infrastructure including hotels and road networks in high potential areas Encroachment of natural resources by human settlements and agricultural activities Minimal information on the tourism sector in the county to inform policies and strategies Poor management and packaging of most heritage & tourist sites Erosion of local culture by modernism Lack of a County Tourism Policy and unclear institutional framework of the tourism sector 	<ul style="list-style-type: none"> Location of the county within the Mt. Kenya region tourist circuit in the national context High potential and diverse tourist attraction sites Great potential for hospitality industry along Sagana Belt Untapped and undeveloped tourism potential areas such as Kamweti Route and River Nyamindi (the only glacier river in Kenya)

Source: Real Plan Consultants Limited, 2021

3.4 LAND

Land alongside capital and labour are the three factors of production in classical economics. They are also essential inputs for the establishment of human settlements, livestock keeping, and crop production. Land use in Kirinyaga County forms the backbone upon which most of the economic activities are based. It also provides substantial economic and social benefits for the well-being of the whole population.

Out of the total area of the county, arable land covers approximately 116,980 Ha, which represents about 79%. According to the CIDP 2012-17, the average farm size for large-scale farms is 5.2 Ha and 1 Ha for small-scale farms. However, this is changing due to population increase and the family members fragment land for inheritance.

3.4.1 Land Tenure

Land in Kenya is classified as public, private and community land as defined in Section 61 of the Constitution. Actual data on land classification statistics in Kirinyaga is not available. Estimates by the Department of Lands indicate a ratio of 20% to 80% distribution of Public to Private land in the county. Data collected from the Lands Department indicates that Kirinyaga does not have any community land.

Section 62 of the Constitution of Kenya, states that public land is land that is vested in and held by the National and County Government in trust for the residents and administered on their behalf by the NLC. Public Land in Kirinyaga includes gazetted forest land, gazetted national park, county forests, rivers, water catchment areas, all roads, public institution lands including schools, hospitals, government, and state agency occupied land among others. NLC is in the process of compiling a comprehensive inventory of all public land within the county.

Private land refers to land held or owned by individuals, groups, organizations, and entities legally or customarily governed by sets of relationships. Such land is held on either freehold or leasehold land tenure. According to the CIDP (2012-17), approx. 70% of land in Kirinyaga is freehold while leasehold covers approximately 10%. It is noteworthy that most of the leases are yet to be registered hence landowners currently possess allotment letters. Most of the lessees are farmers in Mwea Irrigation Scheme, who cultivate land owned by the National Irrigation Authority.

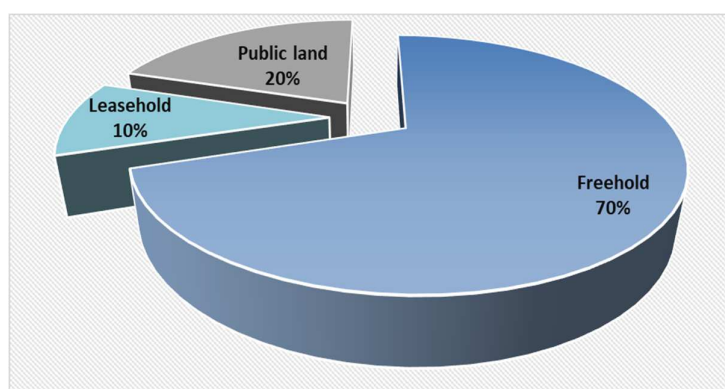


Figure 33: Land Tenure

Source: CIDP (2012- 2017)

Kirinyaga has 69 land registration sections, five of which are in townships (see annexes). There are 116,796 registered parcels (see the table below). Among the sub-counties Kirinyaga East accounts for the largest number of parcels at 31,940, 27.3%. Mwea east ranks second with 24,512 parcels despite it being the most expansive sub-county.

Table 51: No of Parcels by Sub-County

Sub-county	No.	%
Kirinyaga West	23,367	20
Mwea East	24,512	20.9
Mwea West	16,797	14.5
Kirinyaga East	31,940	27.3
Kirinyaga Central	20,180	17.3
Total	116796	100

Source: Survey of Kenya, 2015

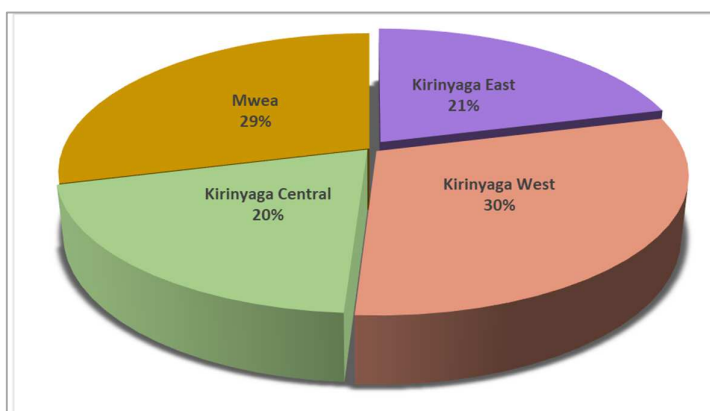


Figure 34: Distribution of Land Parcels by Sub-County

Source: Survey of Kenya, 2015

Using the above data against the total land area including conservation areas, the average land size in Kirinyaga is 1.3ha. Mwea sub-county has the largest parcels with an average size of 1.7 ha while Kirinyaga East has the smallest sizes at 0.9ha. This could mean that the Kirinyaga East has the most subdivided lands.

Table 52: Average Land Sizes

Sub-county	Area (ha)	No. of parcels	Average Area (ha)
Kirinyaga West	45,500	23,367	1.3
Mwea East	29,861	24,512	1.2
Mwea West	25,984	16,797	1.5
Kirinyaga East	23,300	31,940	0.9
Kirinyaga Central	23,500	20,180	1.0
Total	148,200	116796	1.3

Source: Survey of Kenya, 2015

From the survey, approximately 67% of landowners have title deeds and allotment letters while the remaining proportion has no legal documents. The Lack of legal documents in the County can be attributed to factors such as customary land inheritance, previous land administration regimes and disputes.

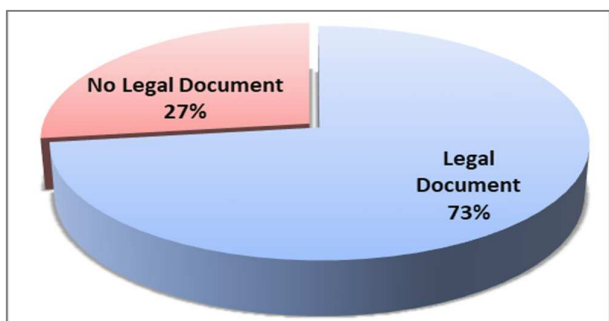


Figure 35: Land Ownership Documents

Source: Survey of Kenya, 2015

3.4.2 Land Use

Kirinyaga is predominantly rural accounting for 92% of the landmass. This is because the county is largely rural while the Mt. Kenya Forest covers a significant section. Urbanized areas cover about 8% of the county (see the chart below). However, with a rapidly growing urban population, it is expected that demand for urban space will consequently increase. This necessitates the establishment of development plans to protect the agricultural and environmental fragile areas while promoting sustainable urbanization. Further analysis revealed that agriculture is the most dominant use of occupying 1030km², representing 69% of the County land as shown below. Conservation ranks second at 343km² (23%) followed by urban areas at 110km² (8%). See the table below.

Table 53: Existing Land Use Budget

Categories	Land use	Area (km ²)	%
Non-urbanised	Agriculture	1030	69
	Conservation	343	23
Urbanised	Urban areas	58	4
	Public purpose	52	4
	Total	148,200	100

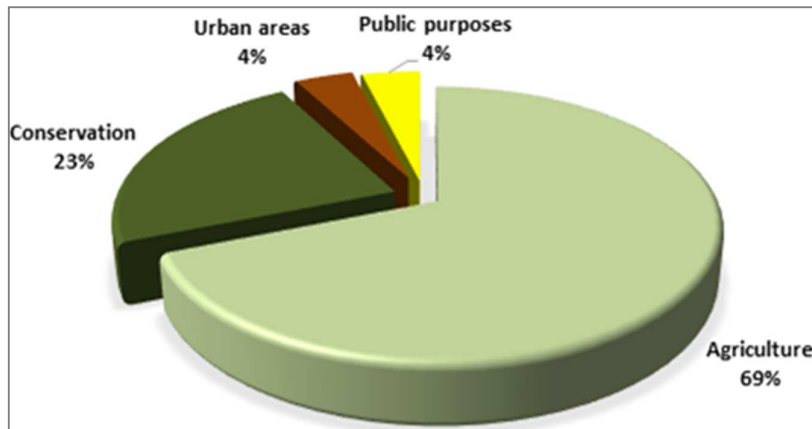
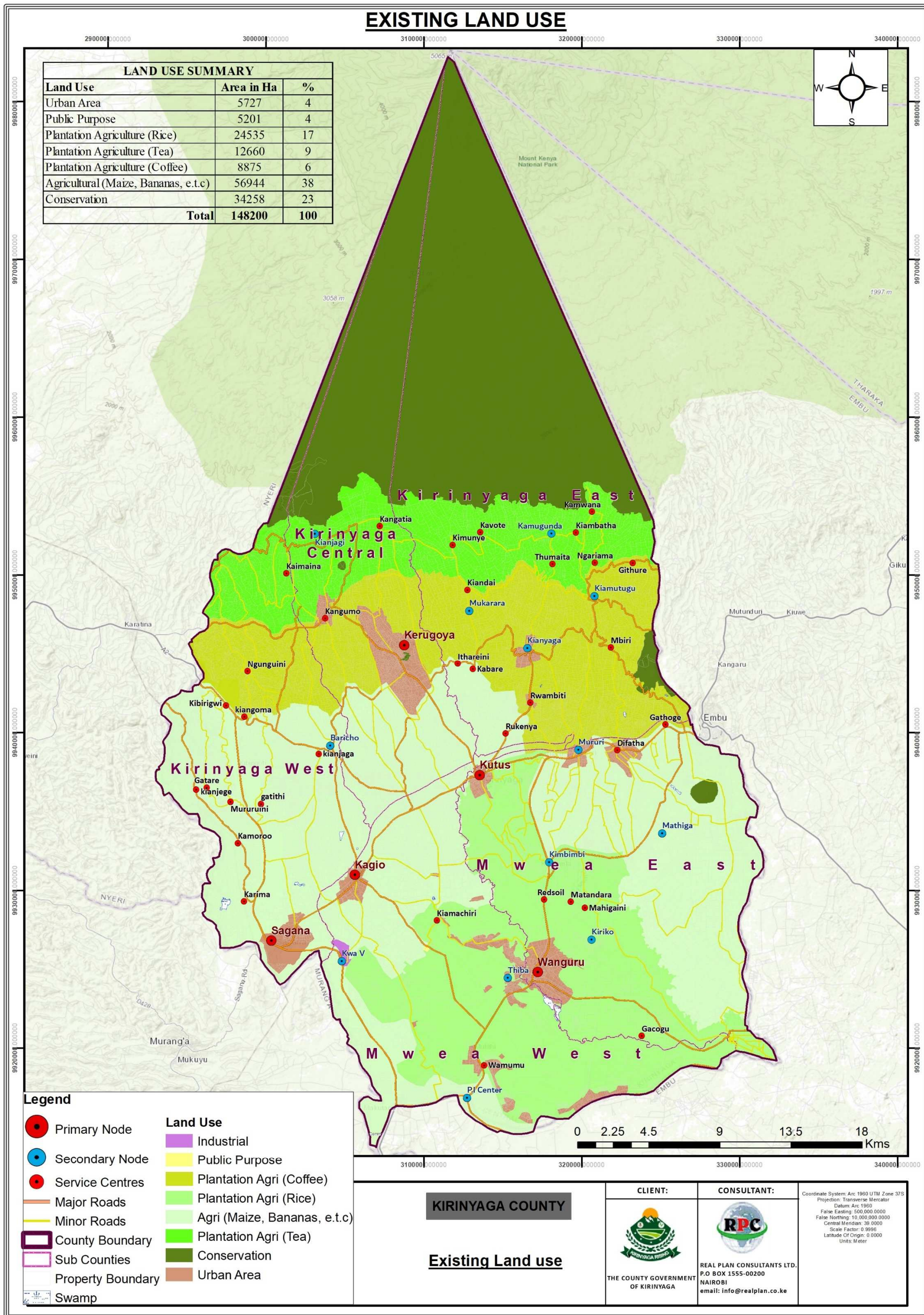


Figure 36: Existing Land Use Budget

Source: Real Plan Consultants, 2019

Map 19: Existing Land Use



Source: Real Plan Consultants Limited, 2019

3.4.3 Land Values

According to the field survey, most of the Land in the county is ancestral and continues to be passed down to through generations. However, in urban areas the situation is different. Land transactions are popular and a key factor of production within the urban and rural economy. Different locations provide different development potentials. This is indicated by the land values in different areas as determined during the data collection phase.

The land value data used below was obtained from land selling agents in March 2019. The County Land Valuation roll was unavailable.

Commercial plots: Land values are highest in the urban areas due to the concentration of prime commercial activities coupled with infrastructural facilities. Main urban areas attract higher values compared to smaller centres.

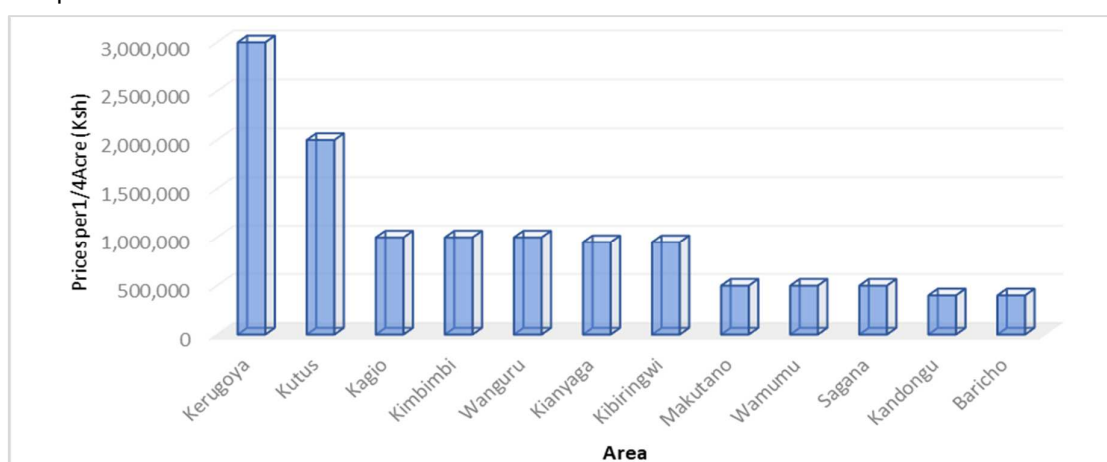


Figure 37: Land Values - Commercial Plots

Source: Land agents, 2019

The table below shows the commercial land values of main urban centres. Hinterland Areas located far away from urban centres with poor infrastructure and services have low priced plots.

Table 54: Land Values - Commercial Plots

Area	1/8 Acre(0.05Ha)	1/4Acre(0.1Ha)	1/2Acre(0.2Ha)
Kerugoya	3,000,000	4,500,000	N/A
Kutus	2,000,000	4,500,000	N/A
Kagio	1,000,000	2,000,000	N/A
Kimbimbi	1,000,000	1,500,000	1,700,000
Wanguru	1,000,000	1,600,000	N/A
Kianyaga	950,000	1,400,000	2,000,000
Kibiringwi	950,000	1,400,000	N/A
Makutano	500,000	800,000	1,400,000
Wamumu	500,000	1,000,000	1,700,000
Sagana	500,000	1,000,000	2,000,000
Kandongu	400,000	800,000	1,200,000
Baricho	400,000	600,000	1,000,000

Source: Land agents, 2019

Residential land prices vary from KShs 200,000 in smaller urban centres to about 1,000,000 in the Kerugoya for a plot of 0.045 Ha, which is the most common size. Peri-urban residential plots have lower values due to proximity to the towns (centre of activities). The table below shows the variation in value for residential and commercial plots.

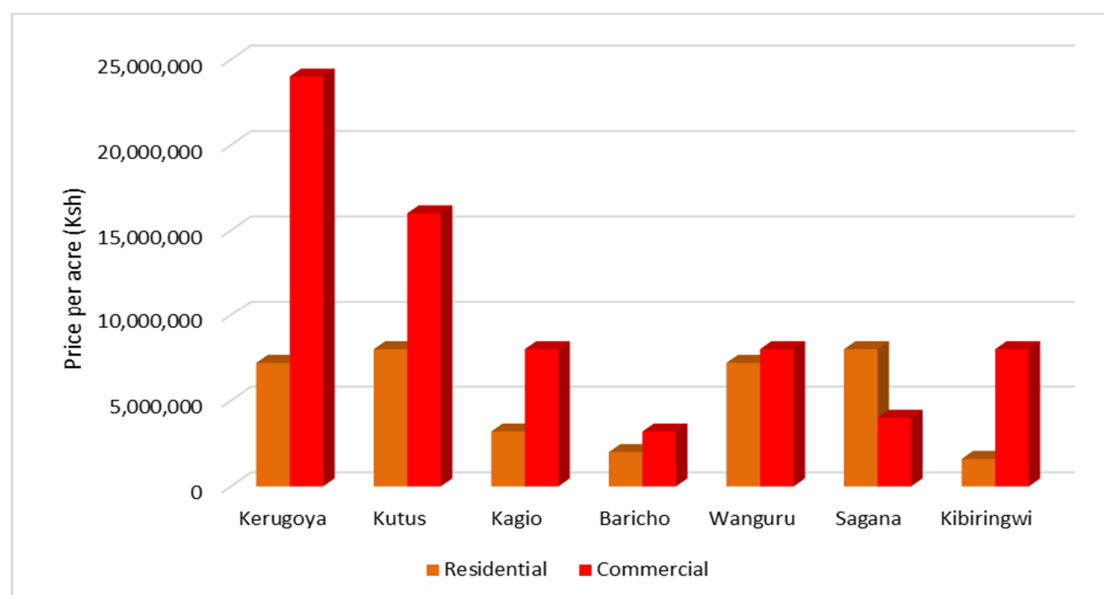


Figure 38: Comparison of Commercial and Residential Land Values

Source: Land agents, 2019

The table below shows the values in urban residential and peri-urban areas for the various land sizes.

Table 55: Land Values in Urban Residential and Peri-Urban Areas

Area	Urban Residential			Peri Urban residential	
	1/8 Acre	1/4Acre	1/2Acre	1/8Acre	1Acre
Kerugoya	900,000	1,200,000 1,500,000	2,500,000 (not common)	500,000	2,000,000
Kutus	1,000,000		Not Available	400,000	1,600,000
Kagio	400,000	800,000	1,200,000	500,000	1,000,000
Baricho	250,000	500,000	1,000,000	600,000	1,200,000
Wanguru (around nice)	800,000 1,000,000	1,500,000	Not Available	800,000	3,200,000
Sagana	1,000,000	1,800,000	Not Available		
Kibiringwi	200,000	400,000	800,000		

Source: Land agents, 2019

Agricultural land prices range about 800,000 to 1,200,000 per acre in Mwea east, Mwea west and Kirinyaga west while Kirinyaga central the price is approximately 4,000,000 per acre.

3.4.4 Land Conflicts

Land conflicts are a common occurrence in the county. Areas most affected include parts of red soil, South Ngariama, Kerugoya, and Kutus towns as elaborated below.

3.4.4.1 South Ngariama Ranch

South Ngariama ranch settlement scheme is one of the dispute areas. The land measures approx. 17,000 acres and was set apart and leased to South Ngariama Cooperative society in 1968 for 20 years. It expired in 1988, and the land reverted to the County Council following a court directive after a failed renewal of the lease.

In 1997, leaders of Kirinyaga found it ideal to subdivide and allocate the land to the needy people in Kirinyaga district. The people of Kirinyaga were grouped in 9 clans within the 20 wards. After the formation of the different committees, application and vetting of for allocation, the council approved the allocation and people settled on the land. However, disagreements on the process emerged between the groups, which led to court battles.

3.4.4.2 Urban Land Conflicts

These conflicts are common in Kutus and Kerugoya. In 1973, the defunct County Council of Kirinyaga approved the acquisition of land for purposes of expansion /creation of towns and public utilities. The council compensated the landowners and they vacated the lands. The vendors of the land executed the transfers and deposited them with the Chief Land Registrar for execution in favour of the council.

However, it is reported that the transfer process was never completed and the transfer documents were lost. Some vendors got wind of the situation and filed suits against the buyer (Council) to clear restriction on the land and general damages for trespass.

Later some of the parcels were sold to third parties, while other plots have been subdivided. Several initiatives by the Council to resolve the matter through the office of the Commissioner of Lands have not succeeded. A task force set up by Provincial Commissioner in 1994 to look into the matter determined there was overwhelming evidence as claimed by the council. The above account has been documented on a Report on Land Allocation for South Ngariama presented to the Office of the Deputy Prime minister and Minister for Local Government.

The impact of the conflicts is evident in the towns such as Kutus where the majority of parcels around the Core town are undeveloped. These conflicts continue to hamper urban development in other towns as well.

3.4.4.3 Transfer of Council Lands

County Council of Kirinyaga witnessed the irregular transfer of council lands to individuals. However, it is reported that at the land registry there are no records of these transactions. The cases of such transfers are documented in the Report on Land Allocation for South Ngariama presented to the Office of the Deputy Prime minister and Minister for local government.

3.4.4.4 Landlessness

Historically, cases of landlessness have existed in the county. Such cases prompted the subdivision of the South Ngariama land by the county council so as to settle landless persons.

Presently, cases of landlessness in the upper parts of the county are unpronounced since most of the land is ancestral; and have been passed down from one generation to the next over past years. The lower parts of the county comprising Mwea Constituency is affected by issues of landlessness as most of the land is owned by NIA. Therefore, farmers lease the land which is under irrigation.

It is estimated that Approx. 10,000 people in the County are landless and live as squatters. The landless households are distributed in various settlement schemes especially in South Ngariama Ranch settlement scheme, Mwea Constituency where they were settled in 2007.

3.5 SETTLEMENT PATTERNS

Human settlements are defined as man-made systems within which people live, from the most primitive to the most developed. Pre-historic human activities and settlements occurred in fertile areas, supported agriculture, human habitation, infrastructure services, and natural resources. Other factors, which have varying effects on human settlements include; the areas' latitude, elevation, topography and land use. The historical chronology of human settlement in Kirinyaga is outlined below.

Table 56: Chronology of Major Post-1900 Human Settlement Events

Year	Occurrences
1909	Famine in Wangara
1912	Native Tribunal court established
	Mutira mission started
1918	Famine in Kimotho
1922	Kerugoya Township started
1923	CCM Kerugoya mission was built
1925	Thika Nanyuki Railway
1927	Kerugoya Hospital opened
1927	First Aeroplane cited
1933	Cotton planted at Kandondo
1933	A wave of immigration from Kiambu and Nyeri to (Ahoi)
1934	Coffee planted at Kithunguri block
	The famine of Karugia Mithuru
	A wave of immigration from Machakos and Kitui to Mwea
1940	Kerugoya factory started
	Sagana bridge was built
1941	Karatina factory started
1948	End of Kerugoya & Karatina factory
1952	State of emergency declared
1953	Formation of home guards and building of post in sub-locations

Source: Extracted from KNBS 1999 Census

3.5.1 Trends of Human Settlements

Settlements can be classified as either rural or urban. Rural settlements are found beyond designated urban areas. These include rural, market and local centres which are predominantly agriculture-based.

Modern-day Human settlement Structures in Kirinyaga are greatly influenced by the proximity to infrastructure network (roads, water, and electricity), agricultural potential and markets for goods and services. The settlements have generally assumed linear patterns along the major transportation corridors, which form the development axis.

High settlement clusters are also found in Mwea and lower parts of Kirinyaga Central, Kirinyaga East, and West Sub-Counties. The attraction is toward the high potential for agricultural production. Sparse settlement patterns are in areas of upper Kirinyaga East, Central and West Sub-Counties especially the tea-growing zone. These areas are adjacent to the national park, where no settlements are established at all.

As outlined above, the area's agro-ecological zone is a critical factor in determining how the communities living in the area use the land for socio-cultural and economic development.

3.5.1.1 Rural Settlements

These are composed of areas located in the countryside. According to the 2019 census, 78% of the county population resides in rural areas. This is influenced by the main economic activity which is agriculture. Therefore, rural settlements are supported by sufficient rainfall, irrigation water sources, and fertile soils. The Irrigated agricultural schemes (especially in Mwea) form part of rural settlements. The rural area forms the food basket for Kirinyaga and the country at large.

Rural settlements are generally characterized by modest housing conditions, undeveloped infrastructure, poor level of services, limited access to social services and increased environmental exploitation. Human settlements are evenly distributed in rural areas except in Mwea Region. This is attributed to the presence of the Irrigation Scheme, which has caused cluster settlements in designated areas.

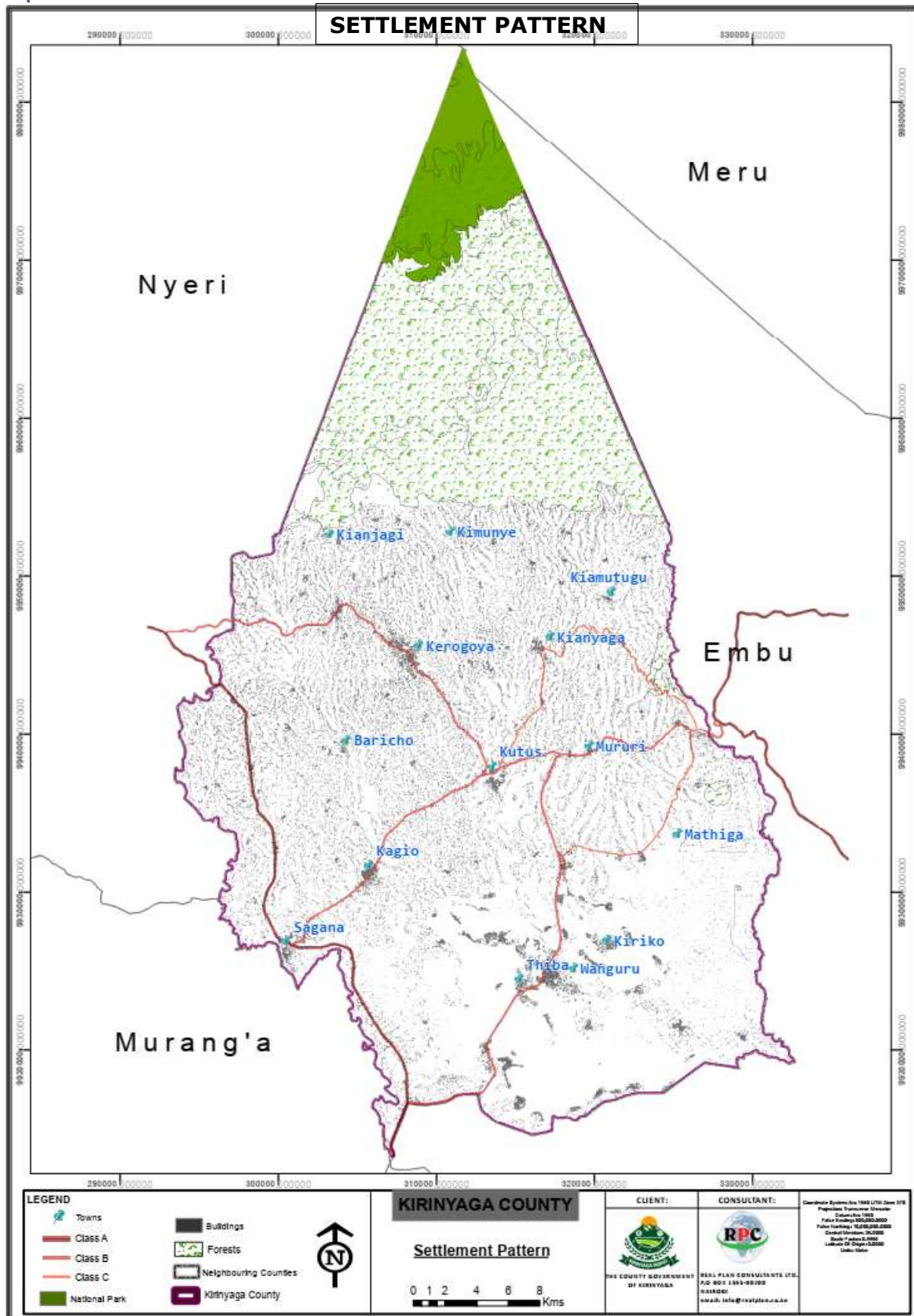
3.5.1.2 Urban Settlements

Kirinyaga has more than 130 urban centres of various sizes and functions. According to the 2019 census, 22% of the county population resides in urban areas. This number is expected to rise owing to the high rate of rural-urban migration.

The urban settlements vary in size, nature, and function. These centres attract settlements due to favourable infrastructure and services, economic activities, markets, jobs and development opportunities.

The map below shows the human settlement pattern in the county.

Map 20: Settlement Pattern



Source: Real Plan Consultants Limited, 2019

3.5.1.3 Colonial Villages

Informal settlements are a global human settlement challenge that requires continuous efforts to address. Common challenges include housing quality, connectivity, security of land tenure and environmental health.

In Kirinyaga, informal settlements were established as colonial villages where landless persons and detainees were resettled. The state of the villages has deteriorated over time as they continue to face multiple challenges. These include urban poverty, inadequate domestic water supply, poor storm water drainage, insecure land tenure, informal housing, poor sanitation, poor quality housing, income inequalities, environmental challenges, poor solid waste management and illegal/irregular land occupancy.

Kirinyaga has 123 colonial villages which are spread in all the 5 sub-counties. Mwea West has 17, Mwea East 29, Kirinyaga East has 30, Kirinyaga Central has 23, Kirinyaga West has 24 villages (see the table below).

Table 57: List of Colonial Villages

Mwea West	Mwea East	Kirinyaga East	Kirinyaga Central	Kirinyaga West
1. Mutithi	1. Nyamindi	1. Kianyaga	1. Kangaita B	1. Gitagura
2. Thiba A	2. Ndindiruku	2. Kangaita	2. KiamainaA	2. Kiangweci
3. Thiba B	3. Kiamucege	3. Rukenya	3. Kiandieri	3. Kibingoti
4. Kangai	4. Mahigaini,	4. Kiamutungu	4. Gatwe	4. Kiburu
5. Kirwara	5. Redsoil	5. Kamwana	5. Thaita	5. Kibiringwi
6. Kiaga	6. Gathigiriri	6. Kavote	6. Kitieri	6. Kiandai
7. Rukanga	7. Kamwana	7. Rwambati	7. Mutira	7. Kamuthonga
8. Kandongu	8. Kirogo	8. Kiandai	8. Kaimuru	8. Kiangai
9. Mbitikita	9. Kimbimbi	9. Kabare	9. Kirimunge	9. Karima
10. Kariua	10. Kiriko,	10. Karumandi	10. Mikinduni	10. Rukanga
11. Marura	11. Migingo	11. Kareithi	11. Blue canyon	11. Kiangema
12. Kiumbu	12. Kiamanyeki	12. Muchagara	12. Karia	12. Mathia
13. Karii	13. Mururi	13. Kamugonda	13. Muthu	13. Riamugaa
14. Ngomongo	14. Wanguru mjini	14. Thumaita	14. Kiangwenja	14. Kariini
15. Riandira	15. Kutus mjini	15. Kanjuu	15. Kibingo	15. Kanjai
16. Kimica	16. Difathas	16. Mukarara	16. Kaboni	16. Gatare
17. Kiamichiri	17. Bahati	17. Kiarani	17. Kianga	17. Ngoka
	18. Kiorugari	18. Githure	18. Kiamuthambi	18. Mugetho
	19. Matandara	19. Gathathe	19. Karaini	19. Gitaraga
	20. Gachigiria	20. Ithare-ini	20. Kiawakara	20. Kiinji
	21. Mathangauta	21. Muri falls	21. Old Kangaita	21. Muririini
	22. Broko	22. Ngariama	22. New Kangaita	22. Thanju
	23. Kibathera	23. Kamweti	23. Kiaritha	23. Gacharu
	24. Kianguni	24. Gathoge B		24. Sagana mjini
	25. Murinduko	25. Karia		
	26. Kianjiri	26. Mbiri		
	27. Gathoge A	27. Kianduma		
	28. Mathiga	28. Kiundani		
	29. Githogondo	29. Gatugura		
		30. Kiumbati		

Source: County Department of Land & Physical Planning, 2017

The table below shows village clusters based on size. The village sizes range from 0.9 to 0.005 sq. km. cumulatively; the villages occupy about 17.5 sq. km.

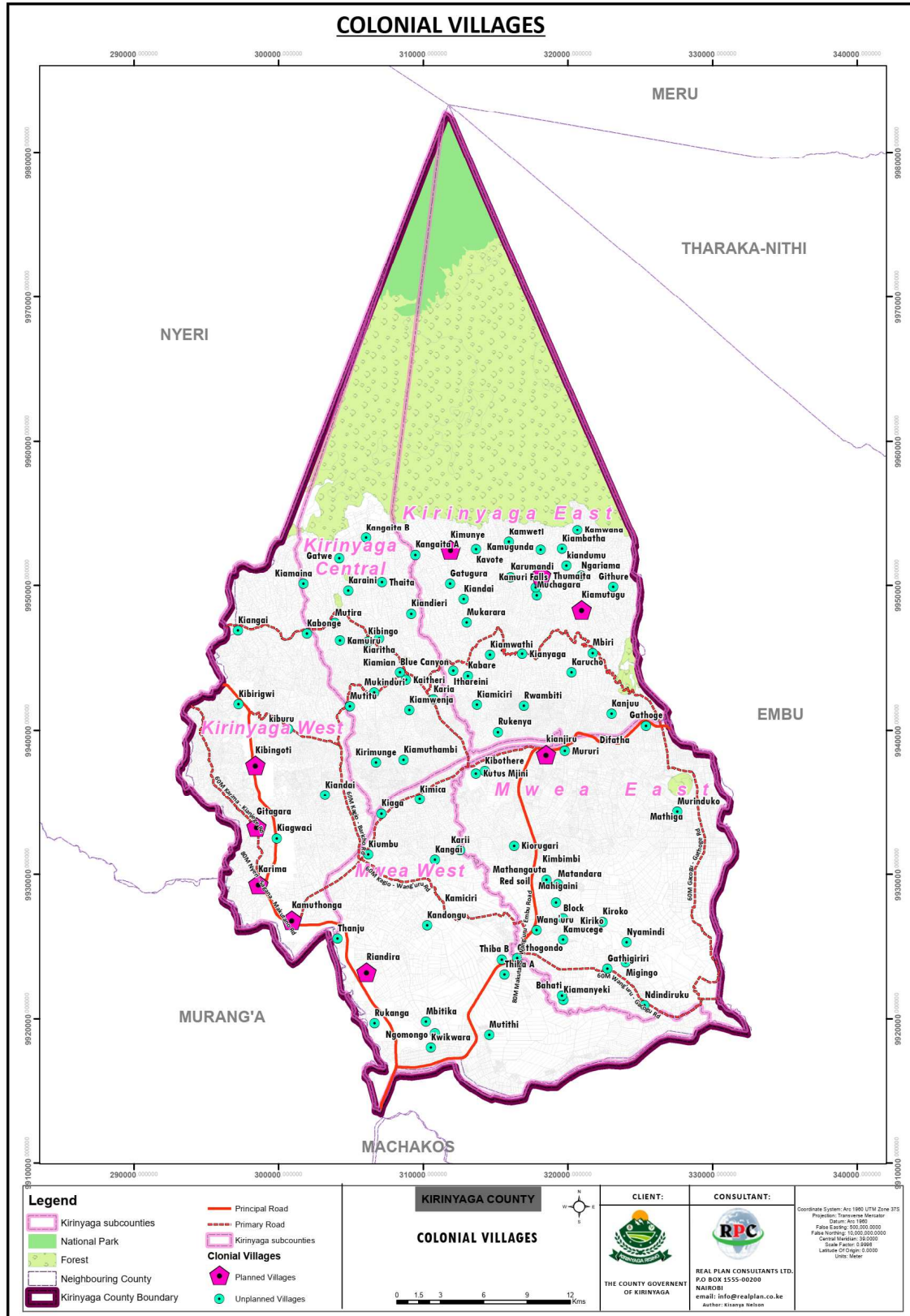
Table 58: Village Clusters (Based on Size)

Size (Ha)	Colonial Villages	%
Above 20	Thiba A, Mutithi, Thiba B, Nyamindi, Ndindiruku, Kiamucege, Kianyaga, Kangatia, Rukenya, Kiamutungu, Kangaita B, Kiaritha, and Gitagura	13.6
14- 20	Mahigaini, Redsoil, Gathigiriri, Kamwana, Kirogo, Kimbimbi, Kiriko, Migingo, Kiamachiri, Kiamanyeki, Mururi, Wanguru, Kamwana, Kavote, Rwambati, Kiandai, Kabare, Karumandi, Kareithi, Muchagara, Kiandieri, Gatwe, Thaita, Kitieri, Kiangweci, Kibingoti, Kiburu, Kibirigwi	29.1
11 – 13	Kandongu, Kutus, Mbitikita, Difathas, Githogondo, Bahati, Kiorugari, Matandara, Gachigiria, Mathangauta, Kamugonda, Thumaita, Kanjuu, Mukarara, Kiarani, Githure, Gathathe, Ithare-ini, Mutira, Kaimuru, Kirimunge, Mikinduni, Kiandai, and Kiangai	24.7
5 – 10	Broko, Kibathera, Kianguni, Murinduko, Kiumbu, Karii, Kianjiri, Kimica Thanju, Ngomongo, Gathoge A, Riandira, Mathiga, Muri falls, Ngariama, Kamweti, Gathoge B, Karia, Mbiri, Blue canyon, Karia, Muthu, Kiangwenja and Kibingo	25.2
Below 5	Kaboni, Kianga, Kiamuthambi, Kianduma, Kiundani, Gatugura, Kiumbati, Karima and Rukanga.	8

Source: Real Plan Consultants Limited, 2017

The county government is in the process of preparing development plans for 15 villages namely; Kamuthonga, Karima, Kianjiru, Thumaita, Gatugura, Kiang'ombe, Githogondo, Kibingoti, Nyagithuci, Ndindiruku, Kiuria, Kiumbu, Kimunye, Kiarukungu and Riandira.

Map 21: Colonial Villages



Source: County Department of Land & Physical Planning, 2017

3.6.6 Urbanization

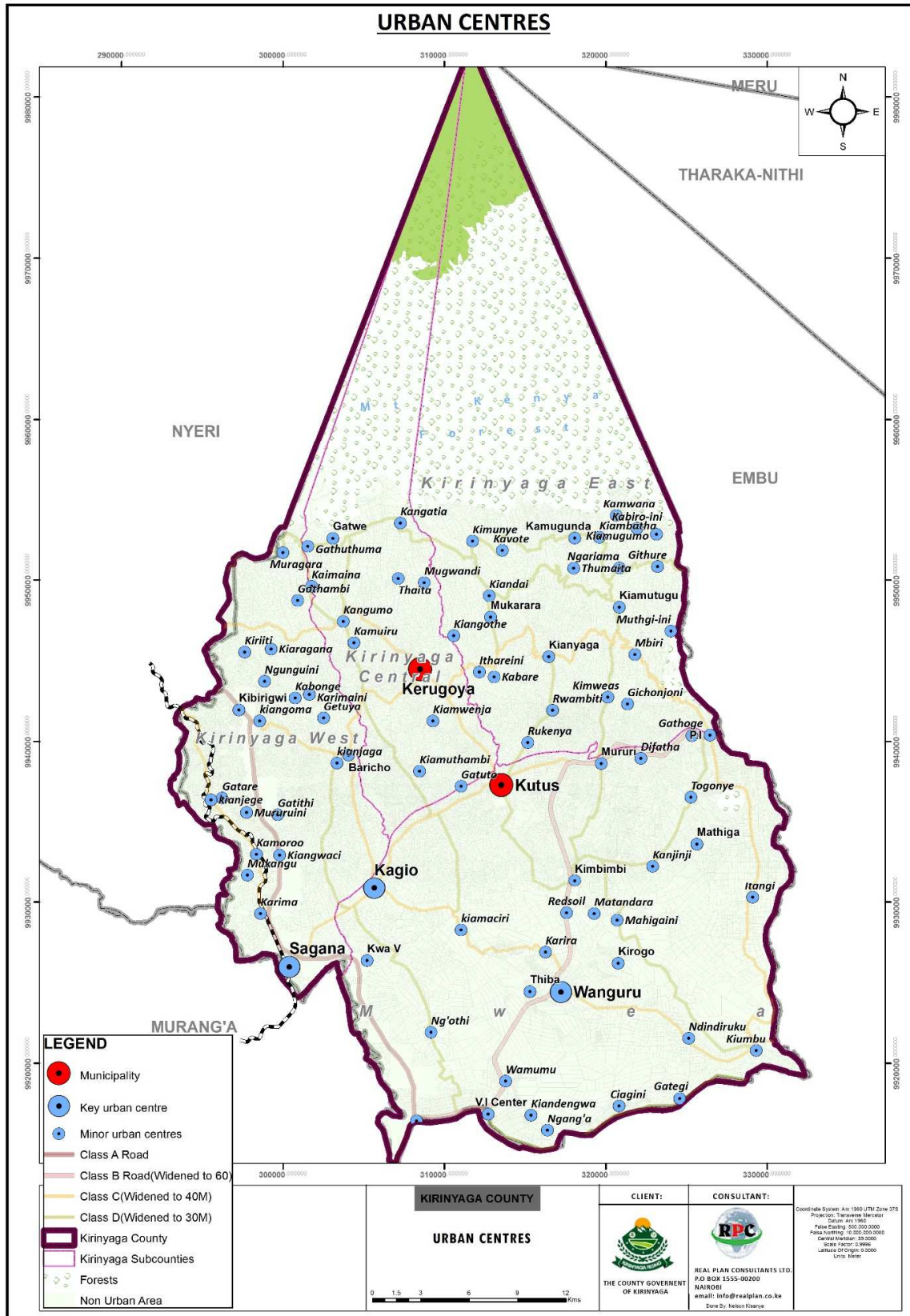
Land use analysis reveals that urbanized areas cover about 8% of Kirinyaga against an urbanized population of 22%. Population Projections indicate in the year 2031, at least 225,770 persons representing 31% of the population will be urban dwellers. Currently, there are more than 130 urban centres distributed as shown below.

Table 59: List of urban centres by ward

Kirinyaga East	Kirinyaga Central	Kirinyaga West	Mwea East	Mwea West
<u>Baragwi Ward</u> 1. Kianyaga 2. Kiamwathi 3. Kiandai 4. Kianjiru 5. Kirigu 6. Mburi	<u>Inoi Ward</u> 1. Kangaita Old 2. Kibingo 3. Karaini 4. Gitumbi 5. Kangaita(Nyagithuchi) 6. Mugwandi 7. Kianjogu	<u>Kariti Ward</u> 1. Sagana 2. Kiangwaci 3. Kianjege 4. Kamoro 5. Mururu-Ini 6. Mukangu 7. Karima 8. Mung'etho	<u>Gathigiriri Ward</u> 1. Kirogo 2. Redsoil 3. Mahigaini 4. Gathigiriri 5. Kamucege	<u>Mutithi Ward</u> 1. Kandongu 2. Makutano 3. Mutithi 4. Vi
<u>Kabare Ward</u> 1. Kutus Old Market 2. Kimunye 3. Gatugura 4. Kianguenyi 5. Ithareini 6. Mukarara 7. Kabare 8. Kiamiciri 9. Kiangothe 10. Kithuci	<u>Kanyekine Ward</u> 1. Kiamuthambi 2. Kiamwenja 3. Mukinduri 4. Mutitu 5. Kirimunge 6. Gatuto 7. Kiaga 8. Kianjege 9. Kiarura 10. Thangari	<u>Kiine Ward</u> 1. Kagio 2. Kibingoti 3. Kiangai 4. Kibiringwi 5. Kiandaimuru 6. Riamugaa 7. Ngugu-Ini 8. Mathai 9. Kianwe 10. Kanjai	<u>Murinduko Ward</u> 1. P.I 2. Difathas 3. Togonye 4. Itangi 5. Ikurungu 6. Morgan 7. Mumbu	<u>Kangai Ward</u> 1. Kangai 2. Kimica
<u>Karumandi Ward</u> 1. Karumandi 2. Kamugunda 3. Muchagara 4. Kamweti 5. Kavote 6. Kamagambo 7. Thumaita	<u>Kerugoya Ward</u> Kerugoya Town Karia Kiandieri Kaitheri Kiaritha	<u>Mukure Ward</u> 1. Baricho 2. Kiburu 3. Riakiania 4. Gathambi 5. Kiaragana 6. Thiguku 7. Kabonge 8. Gathambi 9. Muragara	<u>Nyakati Ward</u> 1. Kutus 2. Kimbimbi 3. Kianjiru 4. Mururi	<u>Thiba Ward</u> 1. Thiba North/South 2. Ndorome 3. Karira 4. Kangiciri 5. Maendeleo
<u>Ngariama Ward</u> 1. Kiamutugu 2. Githure 3. Kamwana 4. Kiandumu 5. Ngariama 6. Kiamugumo 7. Kiambatha 8. Kabiro-Ini	<u>Mutira Ward</u> 1. Kagumo 2. Gatwe 3. Kamuiru 4. Gathuthuma 5. Kiamaina		<u>Tebere Ward</u> 1. Wang'uru 2. Kiumbu 3. Methuthiine 4. Kima-Ini 5. Kiarokungu 6. Kiamanyeki 7. Ndindiruku	<u>Wamumu Ward</u> 1. Air Market 2. Mutithi 3. Ciagiina 4. Gategi
<u>Njuki-ini Ward</u> 1. Mbiri 2. Gathoge 3. Muthigi-Ini 4. Gichonjo 5. Karucho 6. Mururi 7. Kimweas 8. Kanjuu 9. P.I 10. Mburi				

Source: Real Plan Consultants Limited, 2017

Map 22: Urban Centres



Source: Real Plan Consultants Limited, 2017

Urban areas serve different functions i.e., administrative, commercial, residential, industrial, transit, institutional and agricultural depending on their size, level infrastructure, locations, size catchment population and resources available.

As the county headquarters, Kerugoya-Kutus has been conferred the status of a municipality. Other high-ranking urban areas are Wang'uru, Sagana and Kagio towns. They serve as the major commercial, administrative, transit, and institutional centres. Others key centres include Makutano, Baricho, Kianyaga, Kandongu, and Kimbimbi. The table below shows the various urban functions.

Table 60: Urban Functions

Functions	Urban Centre
Administrative	Kerugoya-Kutus, Kianyaga, Baricho, Kandongu
Commerce	Wang'uru, Kerugoya, Makutano, Sagana, Kibingoti, Kibirigwi
Agricultural	Kagio, P.I, Kiamutugu, Wanguru
Transit /Corridor Towns-	Makutano, Sagana, Wanguru, Kagio, Kibirigwi, Kibingoti
Institutional	Kerugoya, Kutus, Kianyaga, Kimbimbi,

Source: Real Plan Consultants Limited, 2021

Wang'uru is the most populated town. Its growth is attributed to the expansive Mwea Irrigation Scheme. Kerugoya-Kutus is the second-largest urban area. Its development has been influenced by the administrative (County and National Government) functions it provides.

Urbanization in Kirinyaga County has been moderate with its growth attributed to its population catchment, agricultural productivity, transportation, administration, and tourism activities, the proliferation of urban settlements and conversion of agricultural land to alternative uses.

Emigration from Kirinyaga has partly affected urbanization as the youthful population move to other towns. Although immigration into Kirinyaga occurs due to employment opportunities, emigration is however higher.

Urbanization poses various socio-economic, spatial development and governance challenges. These include

- Insufficient planning and lack of basic services such as sewerage and solid waste management systems
- Increased urban poverty
- Urban informality including hawkers, informal trade
- The urban sprawl of settlements and encroachment of agricultural spaces
- Uncontrolled and planned developments
- Encroachment on road reserves and fragile ecosystem
- Inadequately serviced developments (water, sanitation, telecommunication, drainage, solid waste management, power, social facilities).

- Deficits in social infrastructure such as health, educational, recreational and sports facilities

3.6.7 Housing Characteristics

According to the 2019 KPHC, the proportion of households owning dwelling units was 70% while those occupying rented/provided dwelling units were 30%. At the sub-county level, Mwea East has the lowest number (54%) of households owning dwelling units while Kirinyaga Central has the most (83%) households owning dwelling units.

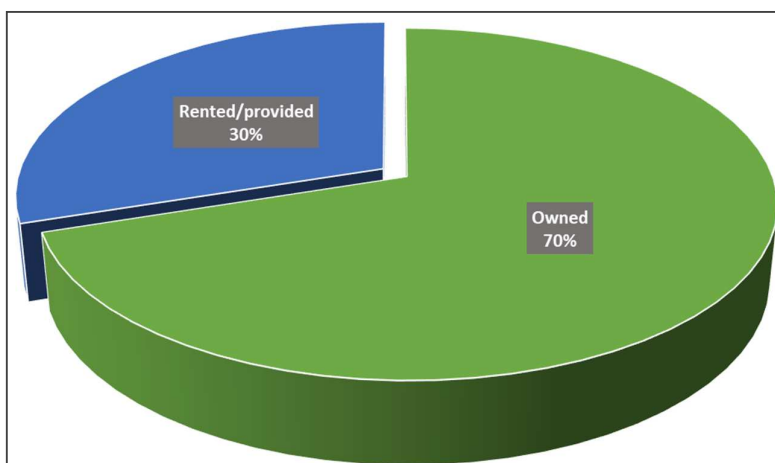


Figure 39: Main Dwelling Unit Tenure Status, 2019

Source: KNBS, 2019

The KPHC data shows that 93.4% (57,282) of rental/provided dwelling units providers are Individuals followed by National Government (1,397) and private companies (1,392). Other providers are Parastatal (517), faith-based organizations (449) and the County Government (288) as shown in the figure below.

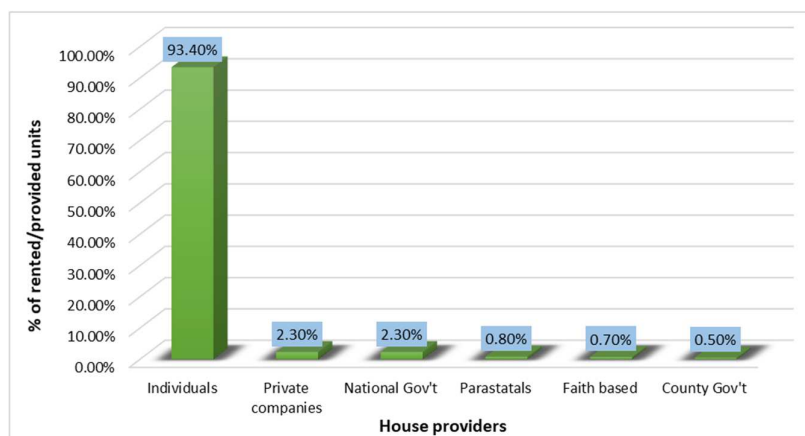


Figure 40: Rented/provided unit/house providers

Source: KNBS, 2019

Housing typologies & materials: The common types of houses in Kirinyaga are homesteads (farmhouses) row houses, bungalows, maisonettes, and flats. The 2019 KPHC revealed that 95% of units have iron sheets as the main roofing material. Other roofing materials used include concrete (2.2%), asbestos sheets (1.5%), versatile (0.7%), tiles (0.2%), nylon/tin cans/dung/mud (0.3%).

Nylon, tin cans, dung and mud are low-quality roofing materials and cannot constitute a decent house.

The dominant material used for wall construction in Kirinyaga is timber at 27.5% followed by stone with cement (24.1%), concrete (12.1%), mud/dung (10.4%) and bricks (9.4%). Other wall materials used include cover adobe (4.7%), iron sheets (3.8%) offcuts (2.9%), uncovered adobe (2.2%), stone with mud (1.9%) and plywood/cardboard (0.3%). It is important to note that bulk of mud/dung houses in the county are situated in Mwea where 22% and 14% of Mwea East and West respectively are made of this wall material.

3.6.8 Emerging Planning Issues and Opportunities

The summary of emerging planning challenges and opportunities are listed in the table below

Sector	Challenges	Opportunities
Land	<ul style="list-style-type: none"> • Lack of a comprehensive inventory of public land showing the location, acreage and registration status • About 30% of landowners don't possess land ownership documents • Encroachment of agricultural land by urban activities due to rapid population increase and urban sprawl • Unplanned urban areas are characterized by poor roads network, land conflicts, uncoordinated development, inadequate services and urban poverty • Land conflicts in Redsoil, South Ngariama, Kerugoya and Kutus • About 10,000 people in Kirinyaga are landless and live as squatters • Uneconomical subdivision of land in rural areas (food baskets) hence declining productivity 	<ul style="list-style-type: none"> • The county occupies a landmass of 116approx. 1482 square km endowed with enormous resources • High potential agricultural land accounting for over 70% of the county landmass • The flexibility of the private land tenure system
Human settlements	<ul style="list-style-type: none"> • Mushrooming of informal settlements inform of colonial villages • Insufficient infrastructure in rural and urban areas (including colonial villages) • Insecurity of tenure & poorly planned settlement in colonial villages 	<ul style="list-style-type: none"> • Presence of numerous hierarchical urban areas that serve various functions • The strategic location of urban areas along major transport corridors • Availability of rural areas that purely serve as agricultural zones • The county is currently preparing an Integrated Strategic Urban Development Plan for Kerugoya Kutus Municipality

Source: Real Plan Consultants Limited, 2021

3.7 INFRASTRUCTURE & SERVICES

The section summarizes the state of transport, energy, water supply, waste management, and markets. It outlines the current challenges, potentials and identifies areas of intervention. It recognizes that the level of infrastructure development is a key pillar to the development and economic well-being of the county.

3.7.6 Transportation

Spatial distribution of resources and socio-economic activities interact through various linkages. These linkages include transport corridors connecting spatially dispersed resources in the County. These interactions and linkages influence growth patterns. The transportation system in the county is classified into road, air, and rail. Of the three categories, the road is the most dominant means of transport countywide.

3.7.6.1 Road Network

This is the main mode of transportation in Kirinyaga. The county has an established road network measuring 8,178 km and is classified as shown in the table.

Table 61: Road Classification

Road type	Classes	No	Length (Km)	Agency
International trunk	A	1	36	KeNHA
National truck	B	2	87	KeNHA
Primary	C	8	215	KeRRA
Secondary	D	20	189	KeRRA
Minor roads	E	15	81	County
Minor roads	F	16	107	County
Unclassified roads	-	-	7,463	County

Source: Kenya Roads Board, 2021

The table below shows the condition, length, and areas served by the class A-D roads in the county. These constitute International Trunk roads (Class A) and National Trunk (Class B) which connects the county to other countries and counties. Classes C and D serve as sub-county feeders' roads and link key urban centres in the County. Notably, some of these key corridors are currently unpaved, which is a key impediment to growth, mobility, and connectivity in such areas.

Table 62: Class A – D Roads Status

Code	Road Name	Condition	Length (Km)	Sub-Counties Served
A2	Nairobi –Karatina	Paved	36	Mwea West and Kirinyaga West
B24	Makutano-Embu	Paved	39	K-West, Mwea West & East,
B25	Sagana – Kagio – Kutus – Kianjiru	Paved	24	Kirinyaga West, Central, Mwea West

Code	Road Name	Condition	Length (Km)	Sub-Counties Served
B27	Kutus-Kerugoya – Kagumo – Karatina,	Paved	24	Kirinyaga Central & West
C396	Kamunyaka (Nyeri) – Gathuthuma – Gatwe – Kimunye – Thumaita – Githure – Runyenjes (Embu)	Partially paved	37	Kirinyaga East, Central & West
C403	Gatugura – Muchagara – Kiamutugu – Muthegeini – Embu	Paving ongoing	20	Kirinyaga East
C526	Kutus – Kianyaga – Mbiri – PI – Togonye – Kimbimbi	Partially paved	43	Kirinyaga East and Mwea East
C528	Ngirambu – Kiamutugu – Ngariama	Partially paved	5	Kirinyaga East
C527	Kerugoya-Baricho-Kagio	Paved	18	Kirinyaga central and West
	Kagio – Kandongu-Mutithi	Tarmac on-going	13	Mwea West
C399	Kibirigwi – Baricho – Kiaga – Kandongu – Kimicha – Wanguru – Kiumbu – Kangeta (Embu)	Partially paved	48	Kirinyaga West, Mwea East and West
C402	Makutano – Karaba – Gatuiri – Gategi – Makima (Embu)	Murram	16	Mwea West
C507	Karima (Sagana) – Kianjege West – Mukangu – Karatina	Paved	15	Kirinyaga West
D1368	Mururi – Ngucui – Mahigaini – Nyamindi – Kiumbu-ini	Murram	26	Mwea East
D1369	Kagio – Ng’othi – Kikwara – Makutano	Murram	17	Mwea West
D1370	Kutus – Ithareini – Kiang’ombe – Kiangwenyi	Murram	15	Kirinyaga Central and East
D1371	Kabare – Mukarara – Kimunye – Forest	Paved	14	Kirinyaga East
D1372	Kagumo – Mutitu – Kianjege – Kiamuthambi	Paved	12	Kirinyaga Central
D1373	Kerugoya – Ithareini – Kabare – Kianyaga	Paved	11	Kirinyaga Central and East
D1374	Thiguku – Kiandai – Kathaka – Kagio	Murram	11	Mwea West
D1375	Baricho – Getuya – Mutira	Murram	10	Kirinyaga West
D1376	Kiburu – Riakiania – Kabonge – Murunga	Paved	9	Kirinyaga West

Code	Road Name	Condition	Length (Km)	Sub-Counties Served
D1377	Kiburu – Nguguini – Kianwe – Kiangai	Murram	8	Kirinyaga West
D1378	Kagumo – Karaini – Mburoku – Kangaita	Paved	7	Kirinyaga Central
D1379	Kutus – Karie	Murram	6	Mwea West
D1380	Kerugoya – Thaita – Kangaita	Partially	9	Kirinyaga Central
D1381	Kerugoya – Kiandieri – C396 (Near Kangaita)	Paved	10	Kirinyaga Central
D1382	Kagumo – Kiamaina – Gathuthuma	Murram	5	Kirinyaga Central
D1383	Kagumo – Gatwe	Murram	5	Kirinyaga Central
D1384	Kutus urban	Murram	4	Mwea East
D1385	Kutus – Ahiti Ndomba Prim	Murram	3	Mwea East
D1386	Ngaru – Kiamuthambi – C399	Paved	5	Kirinyaga Central
D1387	Kerugoya urban road	Paved	2	Kirinyaga Central

Source: Real Plan Consultants Limited, 2021

Other classified roads include Classes E and F, constituting roads mainly at sub-county and ward level. The county has 15 and 16 class E and F roads measuring 81km and 107km respectively.

Table 63: Class E & F Roads Status

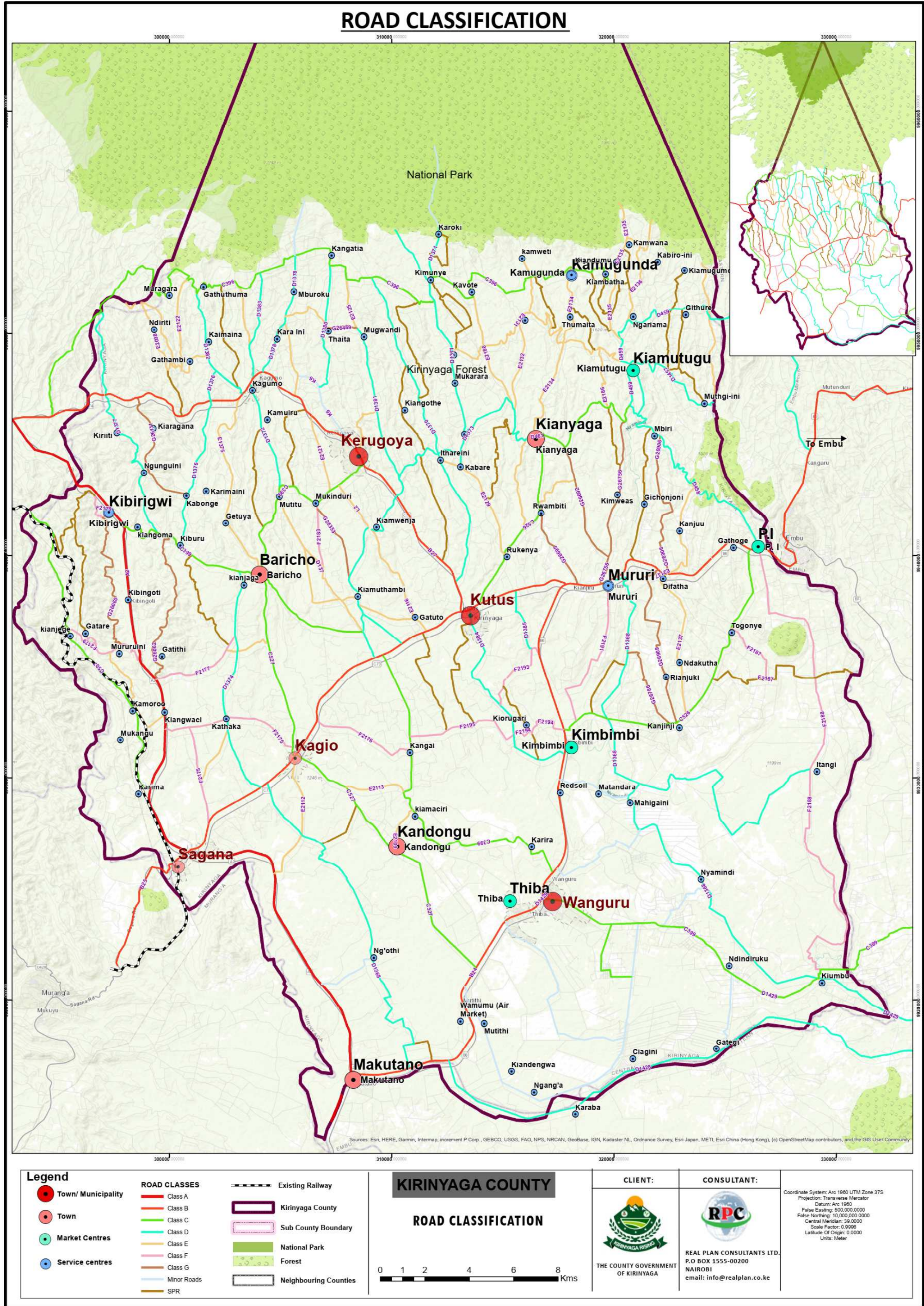
Code	Road Name	Condition	Length (Km)	Sub-Counties Served
E2098	Nderiti – Gathambi	Murram	8	Kirinyaga West
E2113	C527 – C399 (Near Kandongu)	Murram	6	Mwea West
E2112	Kagio – Thanju Pri	Murram	6	Mwea West
E2115	Kandongu – Marira	Murram	2	Mwea West
E2116	Gatuto – Ngaru	Murram	6	Kirinyaga Central
E2122	Gathambi – Murugara	Murram	8	Kirinyaga West
E2129	Kabare – Rukenya ECDE	Murram	5	Kirinyaga East
E2131	Kimbimbi – Kathiri Catholic ECDE	Murram	6	Mwea East
E2132	Karumandi – D1373 (Near Kiamwathi)	Murram	4	Kirinyaga East
E2133	Kianyaga – Rwambiti	Murram	4	Kirinyaga East
E2134	Kianyaga – Muchagara – Thumaita	Murram	9	Kirinyaga East
E2135	Forest Edge – Kamwana – Kiandumu – Kiamutugu	Murram	6	Kirinyaga East

Code	Road Name	Condition	Length (Km)	Sub-Counties Served
E2136	Ngariama – Kamwana	Murram	4	Kirinyaga East
E2137	Difathas – Ndakutha – Kanjinji	Murram	7	Mwea East
F2174	Sagana – Gitaragu	Murram	11	Kirinyaga West
F2175	Sagana – Kiangwaci	Murram	6	Kirinyaga West
F2176	Kangai –Kagio	Murram	5	Mwea West
F2177	Kiandai – Kirimunge – Kiangwaci	Murram	5	Kirinyaga West
F2179	Kibirigwi – Gatare – Mururuini	Murram	4	Kirinyaga West
F2180	Kiamuthambi – Kirimunge – D1372 (Near Kianjege)	Murram	5	Kirinyaga Central
F2181	Kirimunge – Kianjege	Murram	1	Kirinyaga Central
F2182	Kiamuthambi – Gatuto	Murram	3	Kirinyaga Central
F2183	Kianjege – Mukinduri	Murram	3	Kirinyaga Central
F2187	Togonye – Mumbuini	Murram	8	Mwea East
F2188	PI – Mumbuini – Mahigaini	Earth	24	Mwea East
F2190	Mutithi – Air market – Thome – Gategi	Murram	15	Mwea West
F2191	Mururi – Kimbimbi	Earth	7	Mwea East
F2194	Kimbimbi – Kiorugari	Earth	3	Mwea East
F2195	Kiorugari – Karie – Kangai	Earth	2	Mwea East/West
F2196	Karie – Gatuto	Earth	5	Mwea East

Source: Real Plan Consultants Limited, 2021

It is important to note that movement and connectedness of the county are also hindered by the minimal provision of the east to west link roads especially in the upper areas. Most of the roads are in the north-south direction as shown in the figure below. Therefore, it is necessary to create such link roads to ease access and improve mobility to open and spur the county economy.

Map 23: Road Classification



Source: Kenya Roads Board, 2021

Road Conditions

The county has about 334km of paved roads distributed in County. This accounts for 47% of the classified roads (Class A - F). Besides the paved roads, there are several on-going projects aimed at tarmacking 15 roads accounting for 93km, 13% of classified roads. Therefore about 40% of classified roads are not tarmacked.

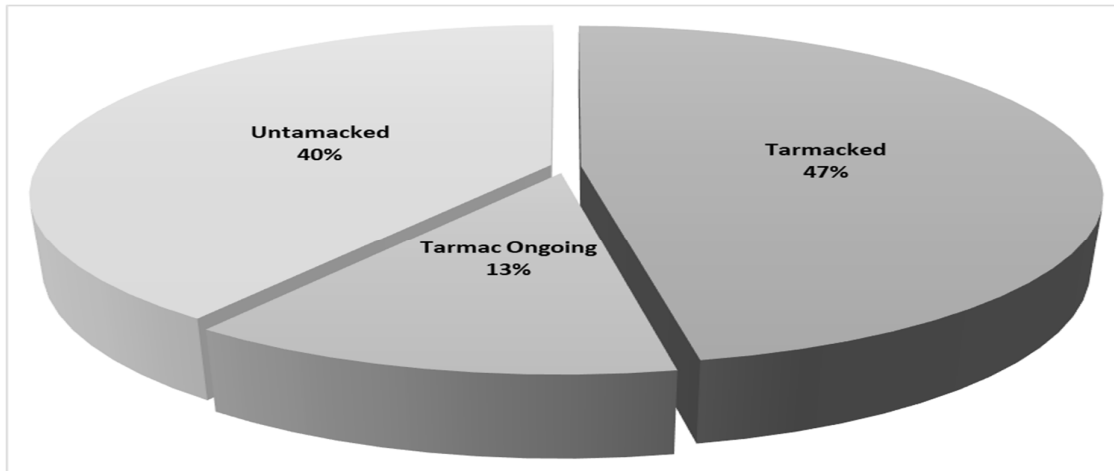


Figure 41: Road Status

Source: Real Plan Consultants Limited, 2021

Apart from the paved roads and those whose tarmacking is on-going; all other roads are either murram or earth roads. The gravel and earth surfaced roads are generally in poor condition resulting from poor maintenance, poor drainage, and unstable soils. They are hardly Motorable during the rainy seasons. This affects the transportation of goods and services and the general economic performance of the County. Road infrastructure development in the County will boost the economic performance of the County and ensure it is well planned and implemented.

b. Public Transport

Public transport modes in Kirinyaga include Matatu, buses, taxis, and motorcycles organized in groups and SACCOs. Among the various modes, Matatu is the most dominant plying inter or intra-county routes. Major Matatu SACCOs include Kukena, 2NK, Karombu, 4NTE, Mt. Kenya, Supreme, Kenya Mpya, Emuki, Ketna, Memba, and Neno. The SACCOs operate over 2000 vehicles where Kukena is leading with over 700 vehicles.

Most active public transport routes are Kerugoya-Kutus-Embu, Kerugoya-Kutus-Mwea-Nairobi, Kerugoya-Kutus-Kagio-Sagana, Kerugoya-Kagumo-Karatina, Kutus-Kianyaga, Kagio-Baricho-Kerugoya, Embu-Mwea-Nairobi and Nyeri-Sagana-Makutano-Nairobi. Taking into account the activity intensity on these routes, infrastructure must be well-developed

This sector has employed 5,000 persons as drivers, conductors, terminal managers, and parcel attendants. This sector has further been boosted by relatively affordable boda-boda services. Bodaboda are also highly mobile and move travellers and goods to precise destinations in the urban and remote areas.

c. Terminus

Road transport is also supported by other auxiliary facilities such as bus parks and parking mainly provided in urban areas. Main Matatu termini are located in Kerugoya and Kutus serving intra and inter-county routes. Matatus (7-14 sitter) and probbox vehicles are the main PSVs operating within the termini. The facilities are well paved and the vehicles are well organized but space is inadequate considering the traffic volumes. This leads to congestion at the entrance and exit points.

Other terminals are situated in Kagio, Wang'uru, Kagumo, and Sagana while towns such as Baricho, Makutano, P.I, Kimunye, Kianyaga, Kimbimbi, Kianjagi and V.I lack the facility.



Figure 42: Kerugoya Main Terminus

Source: Field Survey, 2017

There are numerous boda-boda stages in Kerugoya town mainly situated along major road junctions within the town.

Parking spaces – The county government has provided space for parking in Kutus and Kagio. Motorists in other urban areas mainly rely on roadside parking. This has however not resulted in traffic congestion taking into account the low traffic volumes in these towns. However, as the towns experience growth these facilities should be provided to ensure order.



Figure 43: Roadside Parking at Kerugoya



Source: Field Survey, 2017

3.6.1.2 Rail Transport

The revived old meter gauge railway line that runs from Nairobi – Sagana – Nanyuki runs along the western edge of the county with support station at Sagana. Reviving the old rail is likely to benefit the region (including Kirinyaga) in the following:

- The region will be linked to the Mombasa – Nairobi – Kisumu development corridor as well as the upcoming LAPPSET Corridor. The revived rail will serve as a link for the two corridors;
- It provides an alternative and affordable means of moving bulky goods which is likely to spur industrial development and better profits to farmers;
- Improved logistics which is a crucial enabler of any vibrant economy;
- Stimulation of commercial activities with the stations such as Sagana becoming economic hubs;
- Moving fuel safely at reduced cost to the region and beyond; and
- An alternative public transport means

There is a need to integrate the rail with road network in order to provide a functional and efficient transportation system.

3.6.1.3 Air Transport

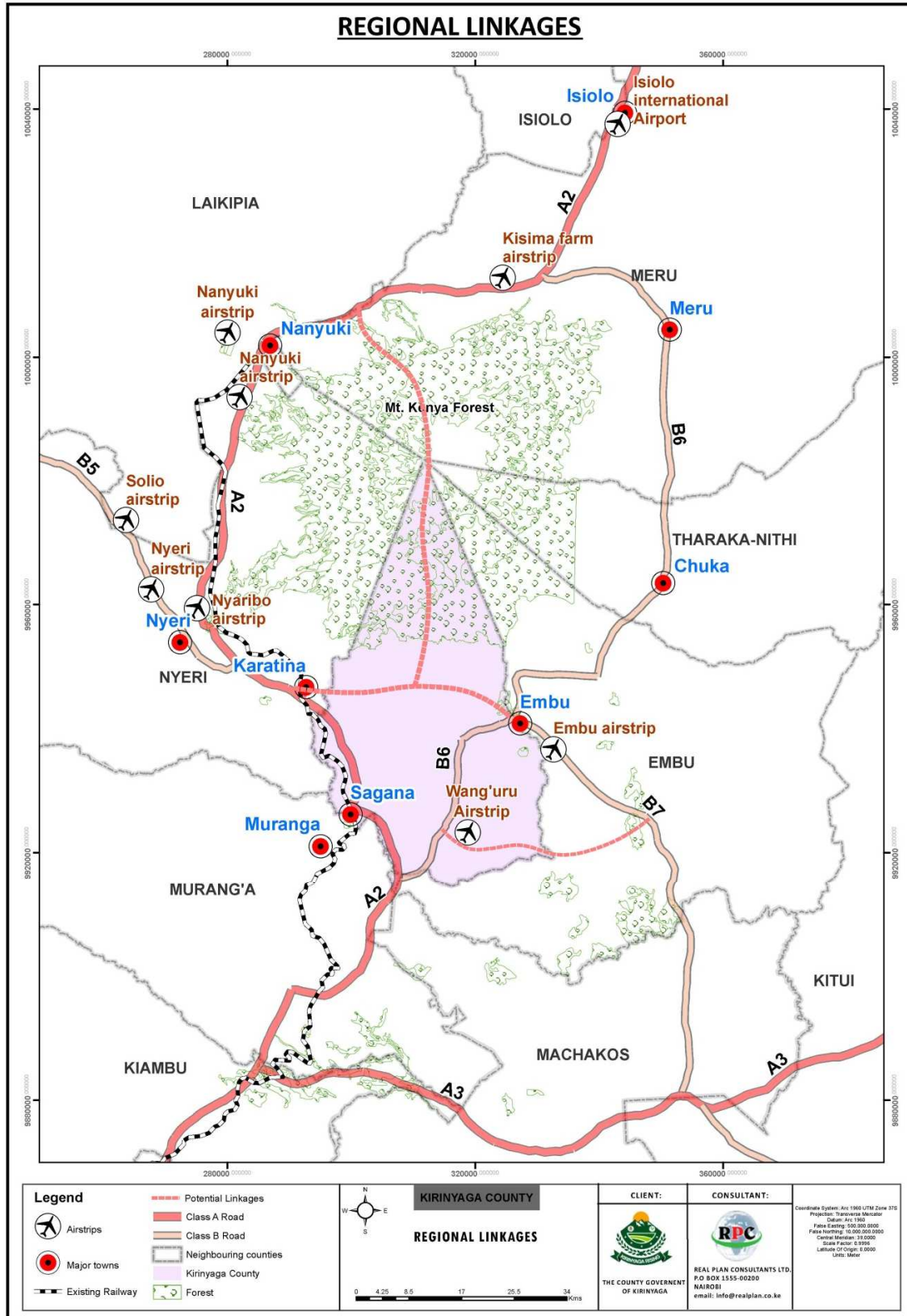
The county has an airstrip in Wang'uru, which is generally underutilized. Evidently, there is a need to develop an integrated transport system in Kirinyaga, in order to improve transportation efficiency and effectiveness.

Key issues and challenges affecting the transportation sector across the sub-counties include:

- Murram and earth roads in poor condition form the majority of roads. These roads are impassable during wet seasons which limit the agricultural potential of the County as well as hindering accessibility to other social services like, schools, security, and health.

- The high rate of urbanization and increasing car ownership hence the need to provide more space for parking spaces and terminal facilities.
- Widespread encroachment of road reserves especially in rural areas hinders accessibility. This is manifested by farming on the roadsides, blockage of culverts and roadside development.
- Existing urban centres are not well planned leading to poor urban morphology and road linkages
- Narrow roads especially in town centres which creates a traffic challenge created by the increasing population of people and cars within towns
- Inadequate terminal facilities
- Lack of NMT facilities (Non-integrated transportation modes)

Map 24: Regional Connectivity



Source: Real Plan Consultants Limited, 2021

3.6.2 Water

Kirinyaga is endowed with numerous sources of surface and groundwater due to its location in the Mt. Kenya Water Tower. Water in the county is mainly used for domestic, irrigation, industrial and institutional purposes. The water sector is managed and regulated by WRA, County Water Department, KIRIWASCO, Tana Water Board and NIA. Each authority plays a specific role as shown in the table below

Table 64: Institutions in the Water Sector

Name of Institution	Responsibility
Kirinyaga Water and Sanitation Company (KIRIWASCO)	<ul style="list-style-type: none"> Provision of water and sanitation services, ensuring good customer relations and sensitization. Adequate maintenance of assets and reaching a performance level set by regulation
Water Services Regulatory Board (WASREB)	<ul style="list-style-type: none"> Regulation and monitoring of service provision (Water Services Boards and Providers) Issuing of licenses to Water Services Boards Setting standards for the provision of water services Developing guidelines (water tariffs etc.)
Water Resources Management Authority (WRA)	<ul style="list-style-type: none"> Responsible for the Management and conservation of water resources WRA office registers and ensures legal security for the WRUA
Water Services Boards (WSBs)	<ul style="list-style-type: none"> Efficient and economical provision of water services Developing water and sewer facilities, investment planning and implementation Rehabilitation and replacement of infrastructure Applying regulations on water services and tariffs Procuring and leasing water and sewerage facilities. Contracting Water Service Providers (WSPs)
National Irrigation Authority	<ul style="list-style-type: none"> Provide water for irrigation Provide primary and secondary infrastructure
County Water Department	<ul style="list-style-type: none"> Overall supervision Implementation of water projects
Tana water service board	<ul style="list-style-type: none"> Providing economical and efficient Water and Sewerage Services Increase access to safe, adequate and sustainable water & sewer License water service providers
Water Resource User Association (WRUA)	<ul style="list-style-type: none"> Facilitate everybody in the river sub-catchment with sufficient and good quality water supply Conservation of the available water catchment

Source: Real Plan Consultants Limited, 2021

3.6.2.1 Water Sources

Water sources are either improved or unimproved water sources. Improved water sources comprise protected springs, protected wells, boreholes, piped water into dwellings and rainwater collection. Unimproved water sources include ponds, dams, lakes, rivers/streams, unprotected wells, water vendors, etc.

Kirinyaga is endowed with 6 main rivers (Thiba, Nyamindi, Rupingazi, Sagana, Rwamuthambi, and Ragati) and over 800 natural streams emanating from Mt. Kenya Water Tower. Other water sources include springs, boreholes, and wells. According to the 2019 Census, about 96,088 households (47.2%) use piped water for drinking while 56,594 households (27.8%) drink water from streams and rivers as shown in the graph below. It is important to note that Mwea West has the highest proportion of households using river water at 48.8% and the lowest households using piped water at 26%.

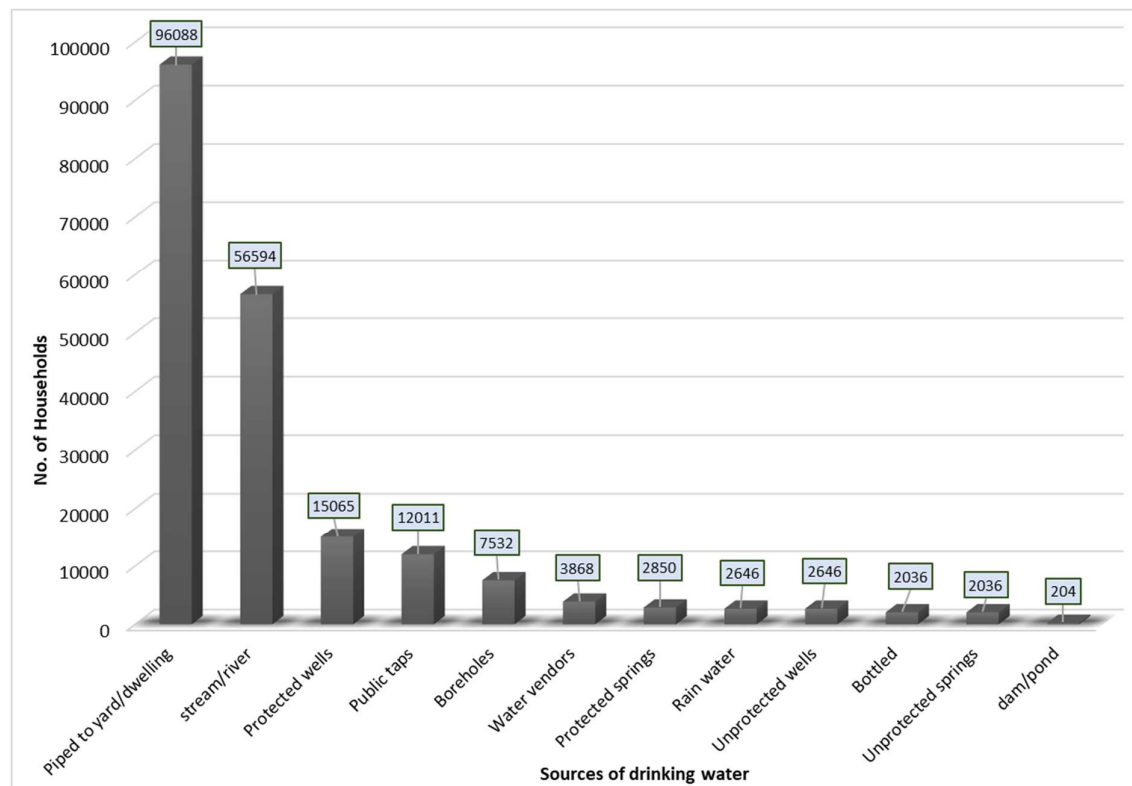


Figure 44: Water Sources

Source: KNBS 2019 Census

Canals are also used to harvest water for irrigation purposes mainly in large agricultural schemes such as Mwea.

In Kirinyaga, water sources include rivers, protected and unprotected springs, water pans, boreholes, or rainwater. These water sources are on the verge of depletion since their current use exceeds natural recharge.

According to the report on Exploring Kenya's Inequality- Kirinyaga County, 2013 about 70% of the residents use improved waters sources while the remaining use unimproved sources. Kirinyaga

Central has the highest share of residents using improved sources of water at 82% while Mwea West has the lowest access to improved water sources at 47%.

3.6.2.2 Water Supply

There are numerous water service providers in the county. They include Kirinyaga Water and Sewerage Company (KIRIWASCO), Rukagina Water and Sanitation Company and Gichugu Water Trust. Kirinyaga also has hundreds of community water projects minimally supervised by relevant authorities.

i) National Irrigation Authority (NIA)

The National Irrigation Authority is responsible for primary and secondary water infrastructure at the Mwea Irrigation Scheme. The Scheme, which currently covers 26,000 acres and serving over 7022 households/farmers, draws water from and Nyamindi Rivers. However, the amount of water supplied is unknown.

ii) Community Water Projects

These are community water-based projects that harvest water for domestic and irrigation purposes. According to WRA (2019) abstraction data, there are hundreds of community water projects distributed all over the county (the list of water abstraction point is attached to the report). It is important to note that most of the projects are unregulated and the water supplied or abstracted is unknown. A key challenge associated with this is reduced water volume and over-supply of water in some areas. For instance, there are cases where a single household is served by several projects.

iii) KIRIWASCO

It is the largest water service provider with a supply area of approx. 1075km² accounting for 76% of the county.

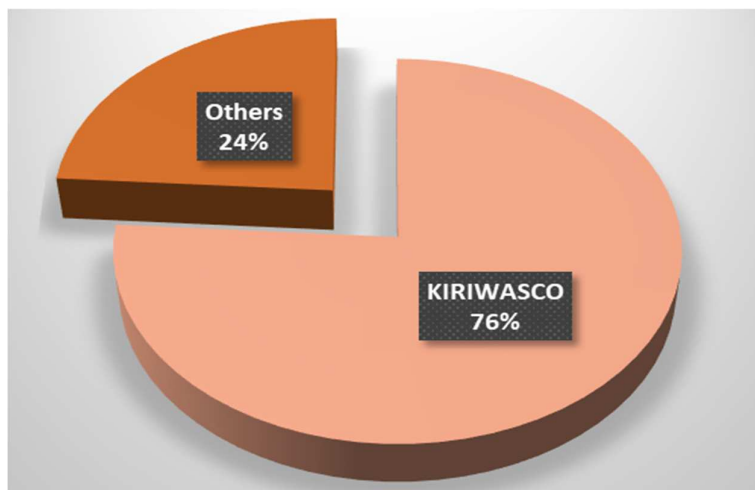


Figure 45: KIRIWASCO Supply Area

Source: KIRIWASCO, 2019

The supply area is divided into four schemes namely Kerugoya, Sagana, Ndia and Mwea as shown in the table below.

Table 65: KIRIWASCO Schemes

Scheme	Sub-counties served	Annual supply (m ³)	Area (Km ²)
Kerugoya	Kirinyaga Central & Mwea West	1,447,844	109
Sagana	Kirinyaga West & Mwea West	887,301	202
Ndia	Kirinyaga West & Central	3,024,993	205
Wanguru	Mwea East	579,398	559
Total		5,939,536	1,075

Source: KIRIWASCO, 2019

The company supplies approx. 5.9 million m³ annually where the Ndia scheme accounts for 24% of the water supplied (see the table above). As of 2019, the total number of beneficiaries of KIRIWASCO stood at 17,909. Out of the total, domestic users accounted for 94% while businesses, institutions, and industries accounted for 6% as shown below.

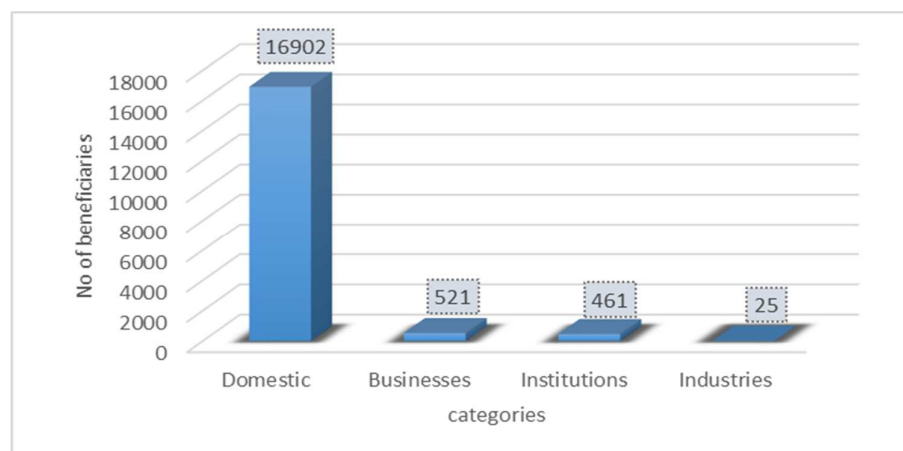


Figure 46: KIRIWASCO Beneficiaries

Source: KIRIWASCO, 2019

The table below further breaks down the 17,909 beneficiaries.

Table 66: KIRIWASCO Beneficiaries

Category	Particulars	No	%
Domestic	Domestic	14,970	84
	Flat Rates	253	1
	MD Flat Rates	11	0.1
	Multi-Dwelling	1,668	9
Businesses	Bank	34	0.2
	Car wash	23	0.1
	Commercial	433	2
	Company	20	0.1
	Water kiosks	11	0.1

Category	Particulars	No	%
Institutions	G.O.K.	100	1
	Hospitals	35	0.2
	Institutions	20	0.1
	Private Schools	42	0.2
	Public Toilets	2	0.01
	Schools	59	0.3
	Religious Institutions	203	1
Industries	Industries	25	0.1
	Total	17,909	100

Source: KIRIWASCO, 2019

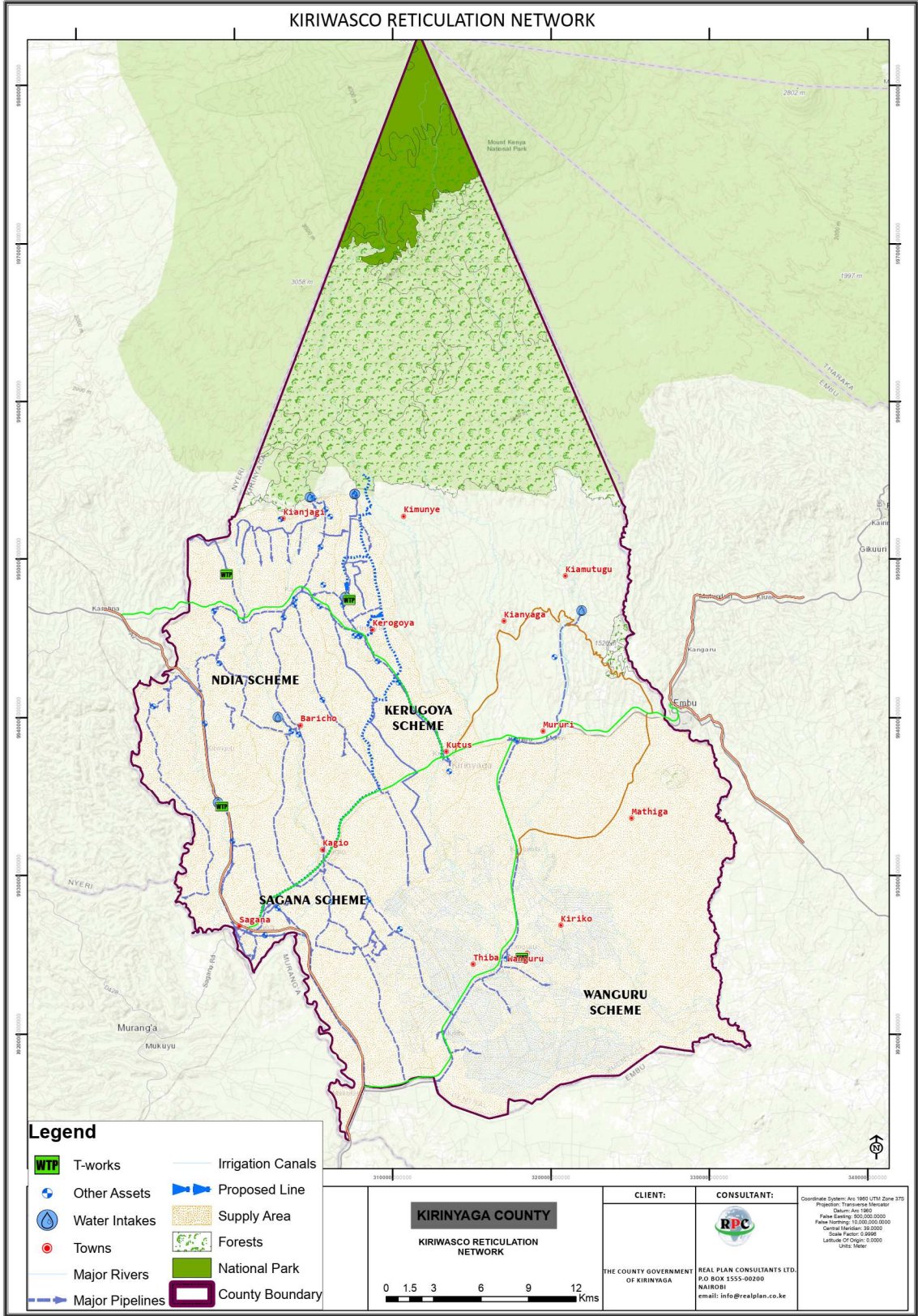
KIRIWASCO draws its water from seven rivers all emanating from Mt. Kenya, which serves as the main catchment area for the water provided. These rivers are Rundu, Rutui, Mukengeria, Ragati, Kururu, Thiba and Rwamuthambi.

The company has seven trunk pipelines transiting its supply area. They include Ndiriti, Mukengeria, Rundu, Ragati, Rutui and Giothoro pipelines. There also are plans to construct a 50km long pipeline as shown in the figure below.

Notably, there are sections within the KIRIWASCO area of jurisdiction (particularly Mwea East) that are not connected to the trunk pipeline. There is a need to extend the trunk pipeline to such areas.

It is also important to note that community water projects are operating within the KIRIWASCO supply area.

Map 25: Water Reticulation Network



Source: KIRIWASCO, 2019

3.6.2.3 Water Demand

This refers to the amount of water required by an individual or institution to carry out their daily water requirements sufficiently and comfortably. The water demand of any given population can be determined by various factors including;

- Population size – The larger the population, the more the water demand
- Level of urbanization/ industrialization- Urbanized areas such as towns and industries consume more water compared to rural areas
- Livelihood/ activities of the population- Areas that people practice animal/ fish rearing may demand more water

Using the National average of 46 litres (0.046 m³) per capita per day, the County demand is estimated at 30,162 m³ per person per day in 2020 and 35,782 m³ per day by 2030.

Due to the expansiveness of larger Mwea, it is expected to account for the largest proportion as shown in the table below.

Table 67: Water Demand by Sub County

Sub-county	2010	2015	2020	2025	2030
Kirinyaga central	5311	5853	6474	7085	7705
Kirinyaga West	5867	6486	7157	7843	8540
Kirinyaga East	4684	5163	5687	6228	6781
Mwea East & West	8970	9888	10842	11790	12755
Total	24,851	27,417	30,159	32,945	35,782

Source: Real Plan Consultants Limited, 2021

However, the figures have a bias towards domestic needs, ignorant of other factors that may influence water demand such as level of urbanization and livelihood. For instance, it has not put irrigation and industrial needs into consideration.

Key water issues include:

- a) Outdated and overwhelmed water treatment plants; this has affected the supply of safe and clean water for domestic use.
- b) Water catchment encroachment and degradation occasioned by deforestation leading to decreased water levels and high sediment loads in rivers. For example, areas such as; Mukure, Kagio, Nyangati, Kabare and Inoi area and Kerugoya town.
- c) Poor distribution of piped water with very limited reticulation particularly in the urban areas.
- d) Unauthorized river abstraction upstream hence affecting water flow downstream for example in areas such as Kanyekini and Kangai and thus less water abstraction by the service providers.

3.6.3 Energy

According to the 2019 Census, the major source of cooking energy in the county is firewood used by approx. 65% households. It is followed by LPG gas accounting for 24%, paraffin and charcoal at 6% and 4% respectively. This means on 24% of the county population is using clean cooking energy other sources are either non-renewable or carbon-based. A major consequence of using

firewood and charcoal as the main sources of cooking energy is deforestation. These sources are easily depletable and unsustainable.

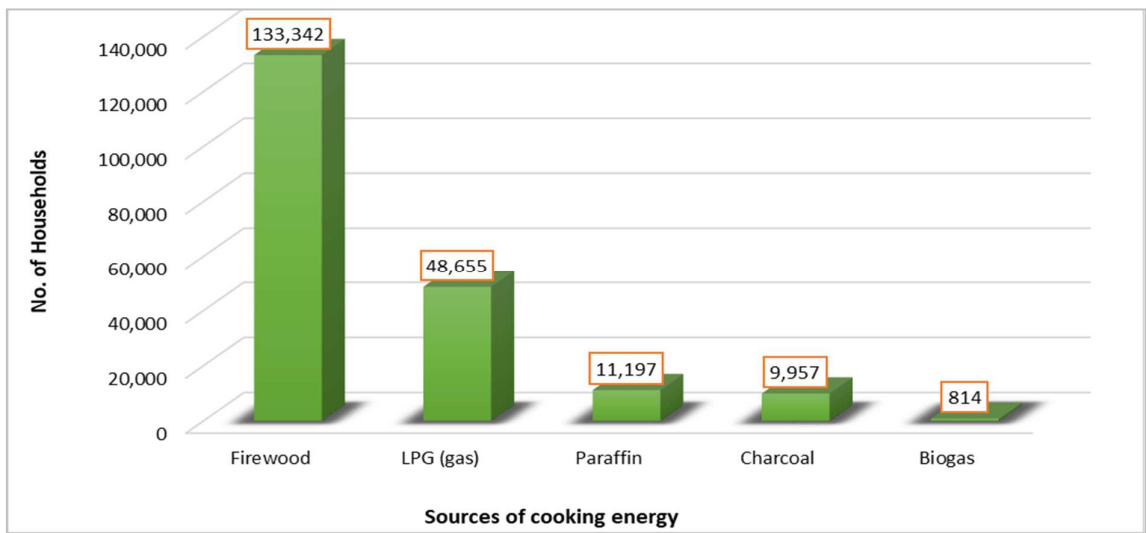


Figure 47: Sources of Cooking Energy

Source: KNBS 2019 Census

The census results show that 132,935 households (65%) use electricity as a source of lighting energy followed by paraffin and solar at 45,194 (22%) and 18,304 (9%) respectively. Other sources include charged/dry cell torch, candle, charged battery and wood.

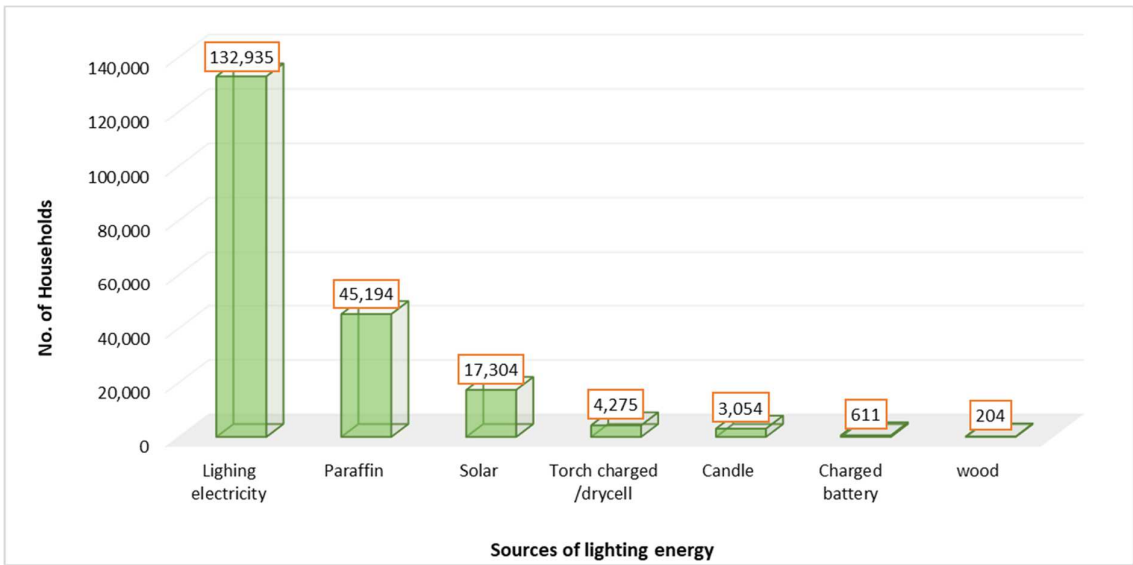


Figure 48: Sources of Lighting Energy

Source: KNBS 2019 Census

According to the CIDP 2018-22, major towns and urban centres are connected to electricity. However, up to 40 trading centres have no electricity connection. Similarly, 11,652 rural homes are not connected to the National grid. To promote agro-industrialization (which is a potentially major catalytic venture in the county), electrification needs to be extended to the rural areas and the trading centres.

3.6.4 Waste Management

Solid waste is collected in the various towns by county-owned tractors and lorries and dumped in various dumpsites (see the table below).

Table 68: Dumpsites

Dumpsite	Description of location
1. Kerugoya	The land is located next to Kerugoya Cemetery and Urban Forest
2. Kabatiro	The land is located 1 km from Kutus ACK Church.
3. Murubara Dumpsite	The land is located at Mwea near Nice Rice Mills
4. Kagio Dumpsite	The land is located behind Kagio town next to Kagio swamp
5. Wanguru Dumpsite	The land is located near Ngurubani Secondary School
6. Kiamathatua	The land is located 1 km off Kutus Kagio road near Kiamathatua area

Source: NEMA, 2019

The County, however, lacks NEMA-approved dumpsites. The dumpsite in Kerugoya is part of the Kerugoya Urban Forest Reserve; the facility in Sagana is located on a railway reserve while in Kutus it is a private quarry pit for murram. Minimal maintenance, waste recycling or processing activities are undertaken. In response to this, the county has proposed the decommissioning, clearing and greening of Kerugoya, Murubara, Kagio, and Kiamathatua Dumpsites to retain and redesign the 15 acres Kabatiro facility as the county dumpsite.

The county also has numerous waste collection points in most urban centres. Presently, the government is replacing the old concrete-made collection points with more efficient skip loaders. About 150 skip loaders are required countywide over the next 3 years, however, only 42 have been provided. In the rural zones, households dispose of solid waste into compost pits while others burn it. There is a general need for an improved solid waste management system in the county.

3.6.5 Information and Communication Technology

ICT has the potential to increase efficiency in service delivery and create dynamic and sustainable growth in Kirinyaga. According to the County Government of Kirinyaga ICT Roadmap 2015-2020, the mobile phone coverage stands at 99 percent while the number of fixed lines stands at 693 units. There are 5 sub-post offices and 14 cyber-cafes. There is also an increase in the use of computers and the internet in government offices, private businesses and homes due to the availability of portable modems and the affordability of computers and laptops

Five (5) private courier services operate in the county most of which are linked to the Public Service Vehicles (PSV). The courier services deliver parcels to and from major towns around the country and include Kukuena Travellers SACCO, 4NTE Sacco, 2NK Sacco, Karombu Sacco, Emuki Sacco, Mt. Kenya SACCO, Supreme SACCO, G4S courier services and Wells-Fargo courier services.

3.6.6 Social Infrastructure

These include education, health, security, firefighting, cemeteries, sports, and recreational facilities.

3.6.6.1 Education

Kirinyaga has 198 public pre-schools/ECDE Centres with a teacher population of 358 and an enrolment of 14,700 pupils. It has 406 primary schools with a teacher to pupil ratio of 1:38. Out of the total, 199 are public while 207 are privately owned with 2,916 teachers and an enrolment of 111,400 students, as at 2019. The privately owned facilities as at 2023 were 294.

The county has 154 secondary schools, out of which 139 are public with a teacher-to-student ratio of 1:29. It has 1,329 teachers while student enrolment stands at 39,988. Kirinyaga also has 16 youth polytechnics and 4 institutions of higher learning (Kirinyaga University, TESCO College, AHITI Ndomba and Kamwetii ATC Colleges).

Table 69: Distribution of the Public Education Facilities by Sub-County

Sub-County	Facility			
	ECDE	Primary	Secondary	Polytechnic
Kirinyaga Central	34	35	36	3
Kirinyaga West	41	42	32	3
Kirinyaga East	46	51	39	3
Mwea East	42	39	24	4
Mwea West	35	32	23	3
Total	198	199	154	16

Source: County Department of Education, 2019

The analysis shows Kirinyaga Central will have a deficit of six (6) primary schools while Mwea will require an additional secondary school before 2030. Other sub-counties will be adequately served by end of the planning horizon.

Table 70: List of TVETs

Name	Status	Ward	Issue/Challenge
1. Ndia Technical Institute		Kariti	
2. Gathigiriri National Polytechnic		Gathigiriri	Not operationalized
3. Kaitheri	Boarding	Kerugoya	-
4. Mutitu	Boarding	Kanyekini	-
5. Kiamuthambi	Day	Kanyekini	-
6. Kiambwe	Day	Mukure	-
7. Kibingoti	Day	Kiine	-

8. Ndiriti	Day	Mukure	-
9. Kiambatha	Day	Ngariama	-
10. Kamiigua	Day	Kabare	-
11. Mucii wa Urata	Boarding	Tebere	Poor access road
12. Kiamikuyu	Day	Mutithi	-
13. Thome	Day	Wamumu	Construction of dormitories
14. Nyangati	Day	Nyangati	Poor access road
15. Ngucui	Day	Mutithi	-
16. Kiamwathi	Day	Baragwi	-
17. Kimweas	Day	Njukiini	-
18. Nguka	Day	Thiba	Not operationalized

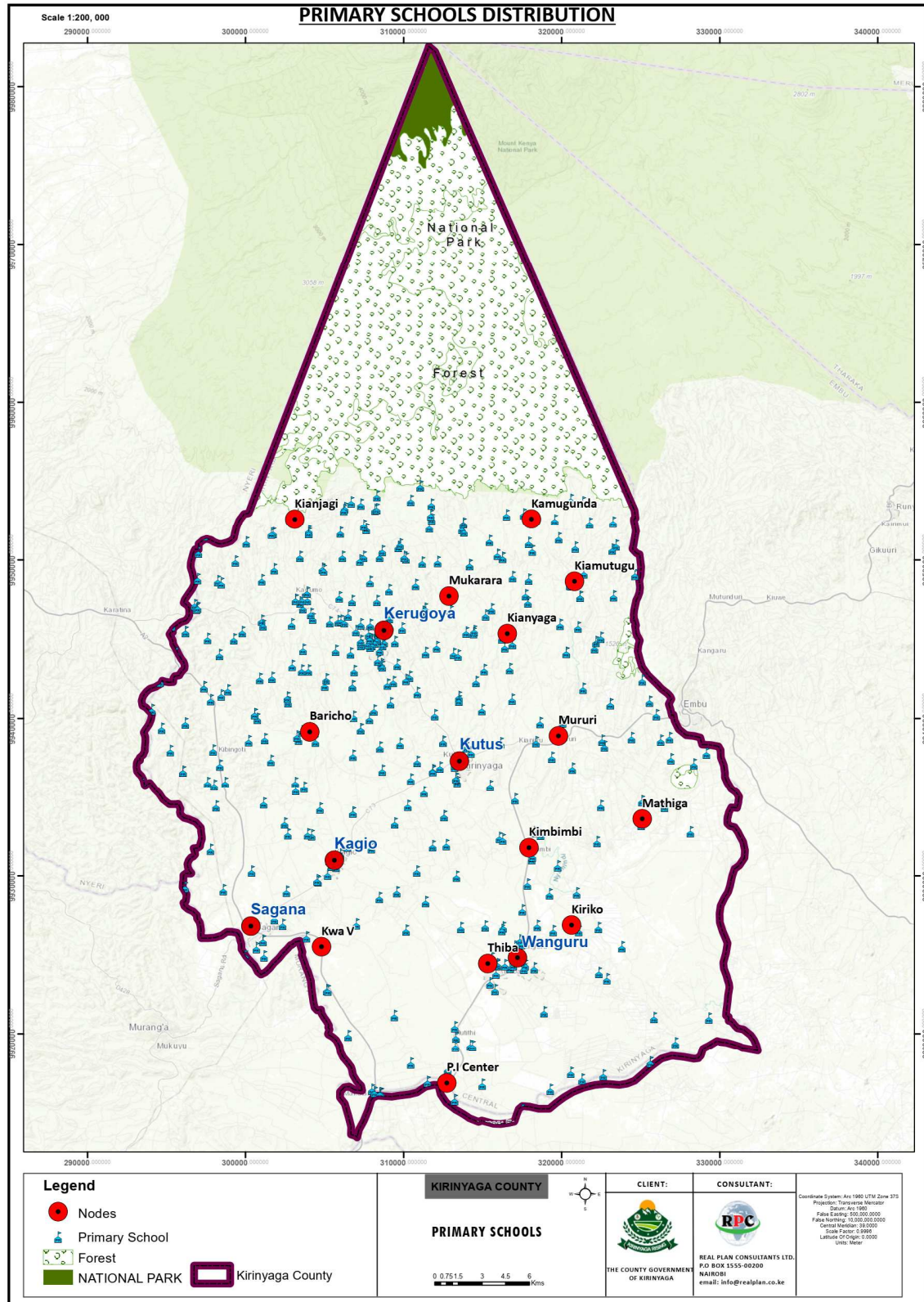
Source: County Department of Education, 2019

Every ward should be served by a vocational training centre (VTC), therefore about 6 VTCs will be required.

Special needs: According to the 2019 National census, Kirinyaga County has about 18,875 persons living with disabilities. The right to education is entitled to each person as outlined in the 2010 Constitution. In this regard, the county has established three special needs schools namely Kerugoya School of the Deaf, Mbui-Njeru School for the Blind and Nyaikungu Special School. Besides the three institutions, all primary schools have a special unit attached to them.

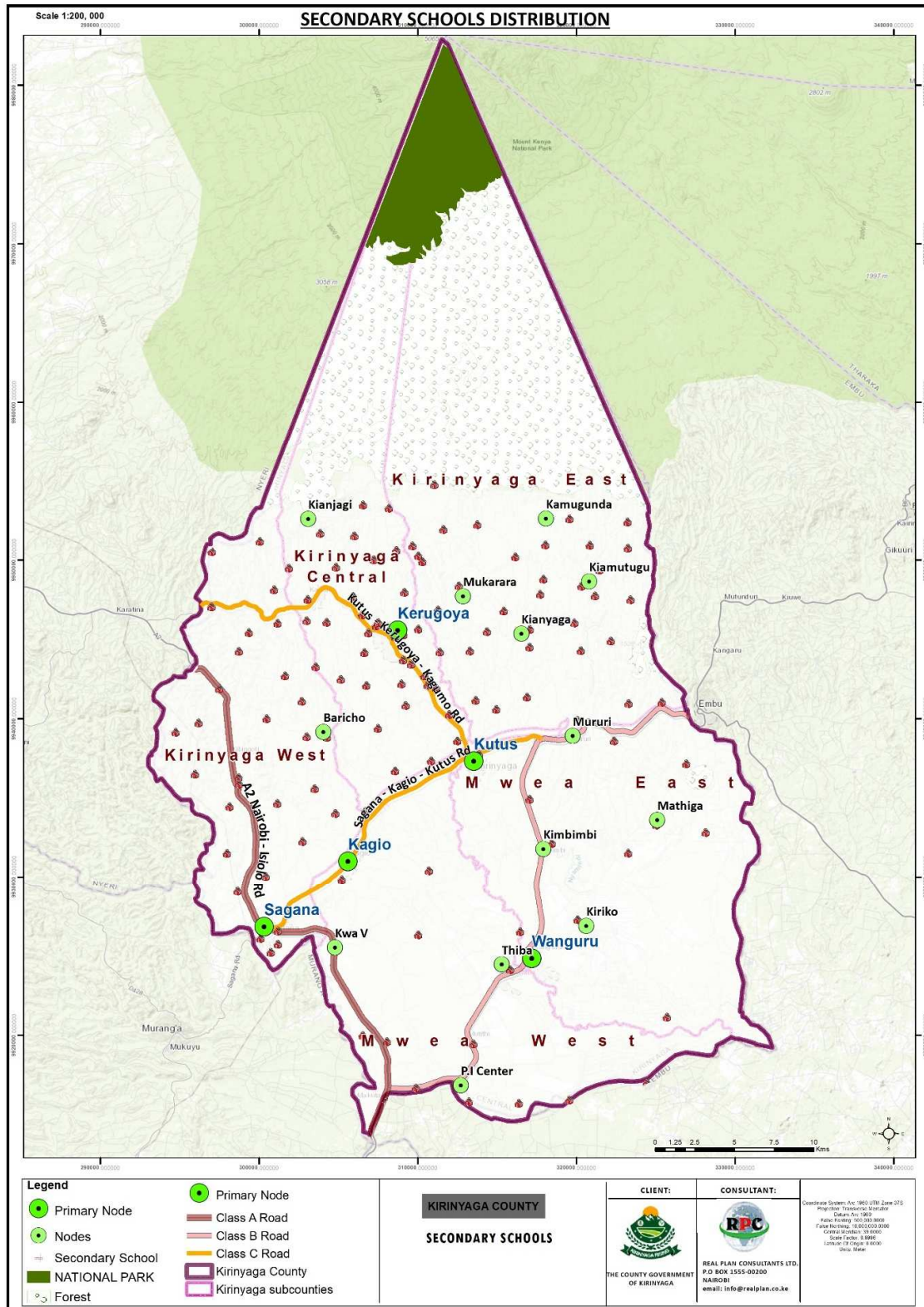
However, the facilities have inadequate trained personnel and equipment (such as braille keyboards and hearing aids). These facilities are also overcrowded. The county lacks special needs facilities at secondary school level. As a result, the local population seeks education from neighbouring counties such as Embu.

Map 26: Existing Primary Schools



Source: Kenya GIS Data, 2019

Map 27: Existing Secondary Schools



Source: Kenya GIS Data, 2019

3.6.6.2 Health Services

Provision of primary healthcare to all citizens is one of the Sustainable Development Goals and one of the current government Big Four Agendas. The health sector's core function is to lower morbidity from common diseases, reduce infant mortality and ensure the county has a healthy population. Health services within Kirinyaga County are provided in 166 public and private facilities.

a. Public Facilities

These constitute 65 health institutions managed by the Ministry of Health categorized into Level 5 (county referral hospital), Level 4 (sub-county hospitals), health centres and dispensaries. The Kerugoya County Referral Hospital is the only Level 5 facility serving the County. The County Government under the vision of Her Excellency Governor Anne Waiguru has transformed the facility to be an Ultra-modern well-equipped facility in line with the Mountain Cities blueprint of development of Kerugoya as a wellness hub.



Figure 49: Kerugoya County Referral Hospital

Source: Directorate of Communication

Sub-county hospitals include Kimbimbi, Kianyaga, Sagana and Baricho serving Mwea East, Kirinyaga East, and West Sub-counties. There is a need to equip the level four facilities with the necessary equipment. Kirinyaga is also served by health centres and dispensaries (see table below)

Table 71: Distribution of the Public Health Facilities

Category	Kirinyaga Central	Kirinyaga East	Kirinyaga West	Mwea East	Mwea West
Level five	1	0	0	0	0
Level four	0	1	2	1	0
Health Centre	4	3	4	4	7
Dispensary	12	7	9	10	2
Total	17	11	15	15	9

Source: County Department of Health, 2017



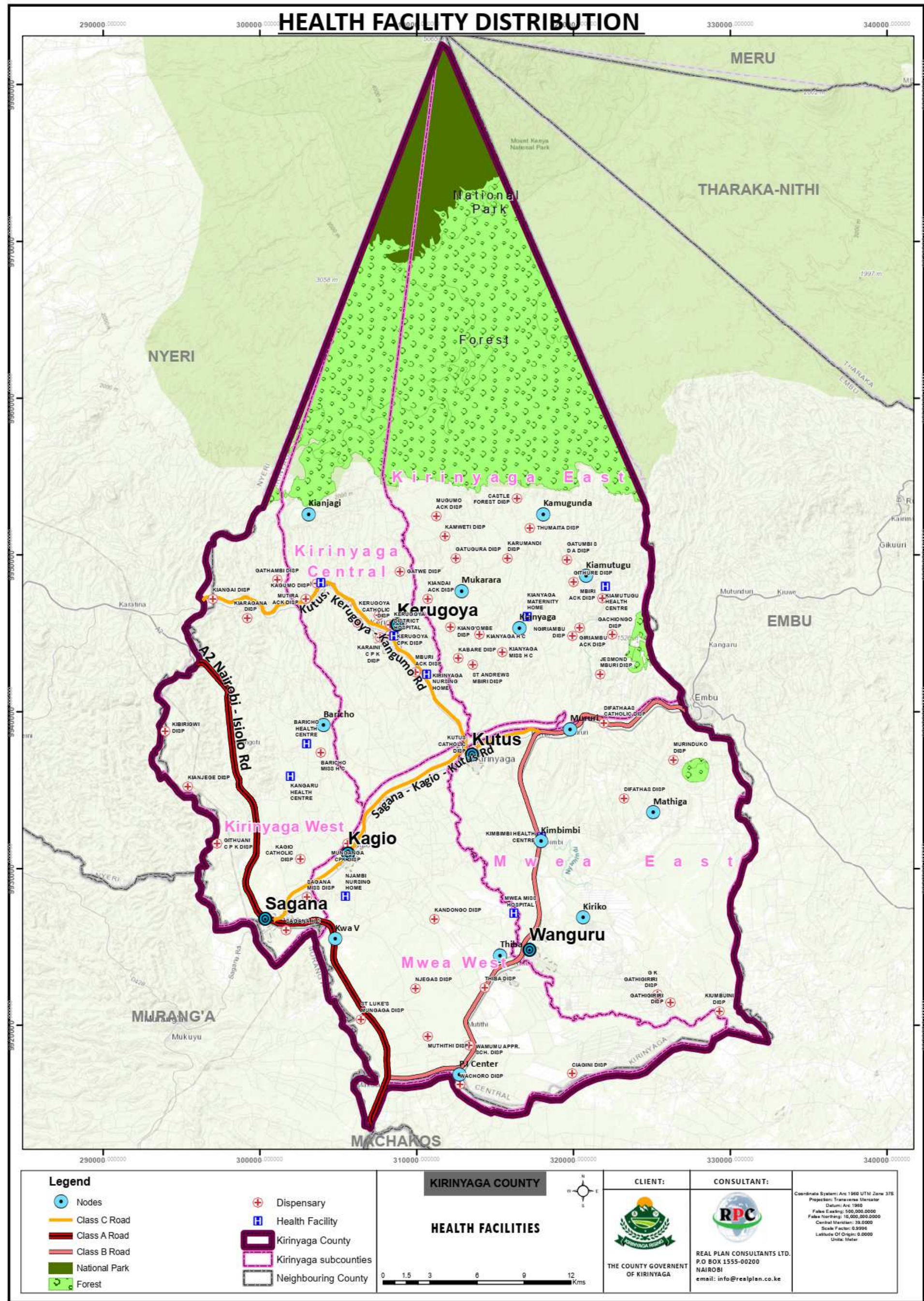
Figure 50: Public Health Facilities

Source: Field Survey, 2017

b. Private Health Facilities

The private sector also plays a major role in healthcare provision with over 60 facilities distributed countywide. The county also has 22 facilities managed by non-profit or faith-based organizations.

Map 28: Existing Health Facilities



Source: Real Plan Consultants Limited, 2023

c. Personnel

The total bed capacity stands at 764 while the doctor population ratio is 1:36,339 against the national ratio, which is at 1: 16,000. This is against the WHO standard provisions of one doctor and three nurses per 1000 population. The current distribution of health personnel in the county, as well as the deficit analysis, is as shown in the tables below: -

Table 72: Distribution of Health Personnel

Sub County	Doctors	Pharmacist	Dental Dept.	Nurses	Clinical Officer	Public Health	Medical Social Workers
Kirinyaga Central	37	6	2	198	30	13	5
Kirinyaga West	4	0	3	66	22	18	4
Kirinyaga East	7	2	2	72	22	14	1
Mwea East	16	4	0	76	26	17	3
Mwea West	0	0	0	44	11	13	2
Total	64	12	7	456	111	75	15

Source: County Department of Health, 2017

Table 73: Nurse Deficit Analysis

Sub County	2009			2020		2025		2030	
	Pop.	Nurses	Deficit	Pop.	Deficit	Pop.	Deficit	Pop.	Deficit
Kirinyaga Central	113,281	198	-142	140,729	-82	154,023	-40	167,310	-40
Kirinyaga West	99,500	66	-232	123,635	-73	135,390	-35	147,411	-37
Kirinyaga East	124,651	72	-302	155,581	-93	170,490	-45	185,653	-46
Mwea East and West	190,448	120	-451	235,694	-136	256,312	-63	277,291	-63

Source: County Department of Health, 2017

Table 74: Doctor Deficit Analysis

Sub County	2009			2020		2025		2030	
	Pop.	Doctors	Deficit	Pop.	Deficit	Pop.	Deficit	Pop.	Deficit
Kirinyaga Central	113,281	37	-76	140,729	-28	154,023	-13	167,310	-13
Kirinyaga West	99,500	4	-96	123,635	-23	135,390	-12	147,411	-12
Kirinyaga East	124,651	7	-117	155,581	-32	170,490	-14	185,653	-16
Mwea East and West	190,448	16	-174	235,694	-46	256,312	-20	277,291	-21

Source: County Department of Health, 2017

The average distance to the nearest health facility in the County is 5km, which is relatively acceptable. While the facilities are adequate in number, there is a need to furnish and staff them appropriately.

d. Morbidity

The prevalent diseases in Kirinyaga are diseases of the respiratory and digestive system, skin diseases, Arthritis, Urinary Tract Infection, Diarrhoea, HIV/AIDs, eye infections, dental disorders, ear infections/ conditions, Malaria and Pneumonia.

3.6.6.3 Cemeteries and Crematoriums

The county currently has a single cemetery located at Kerugoya next to the urban forest. Taking into account the rural nature of the county and traditions most residents prefer burying the dead in their ancestral lands. However, with the growing urban population, there is a need to provide adequate facilities.

3.6.6.4 Security Installations

Six (6) police stations at Kerugoya, Kianyaga, Wang'uru, Kagio, Baricho, and Sagana serve the county. There are numerous police posts and AP camps distributed countywide. Apart from a few police posts and stations, there is generally a shortage of law enforcement officers, equipment and vehicles. There is a need to provide increased security services.

The county has a high court located in Kerugoya Town. It is supported by three magistrate courts, an Environment Land Court and a Children Magistrate Court situated in Kerugoya. There are additional magistrate courts in Baricho, Wang'uru, and Kianyaga. Kirinyaga also has two prisons namely Kerugoya and Gathigiriri Prisons and Wamumu Approved School.

The facilities are however inadequate and insecurity has been a challenge in the county. The high number of unemployed youths, the emergence of sects, drug abuse, and family feuds compound it.

3.6.6.5 Fire-Fighting and Emergency Response Facilities

The County Fire Department is located in Kerugoya town. It is equipped with one active fire engine (with a capacity of 500litres of water) while the other two are grounded. The analysis revealed the need to upgrade the current station to County HQ and establish fire stations and sub-station in major urban areas.

According to the Emergency Department fires are the most frequent incident occurring in Kirinyaga accounting for 59% of cases reported during the 2016-18 period. Commercial areas and schools follow it. Main fire causes are gas cylinder explosions and electricity/power circuit failure. Mwea is prone to fires especially in colonial villages due to clustered settlements.

Therefore, key challenges facing the sector are

- Lack of a designated workstation
- There is no County Disaster Management Bill
- Inadequate funds to carry out building inspections
- Inadequate personnel, firefighting equipment's command vehicle.

- Lack of fire hydrants in towns making it difficult to control fire incidences

Table 75: Emergency Cases

Incidents	Frequency No.
Fires	153
• Residential houses	80
• Commercial	35
• Cow barns	11
• Factory	3
• Schools	22
• Electricity transformers	1
• Hospitals	1
Special Service Emergency	41
• Road Traffic Accidents	21
• PIT latrine	3
• Wells	3
• Quarry swamps	5

• Drowning	3
• Floods	4
• Rescue Mission	2
Non- Emergency Services	50
• Inspection	8
• Awareness	12
• Supply of water	10
False Alarms	15
• Good Intent	12
• Malicious	3
Total	259

Source: County Disaster Management Department, 2019

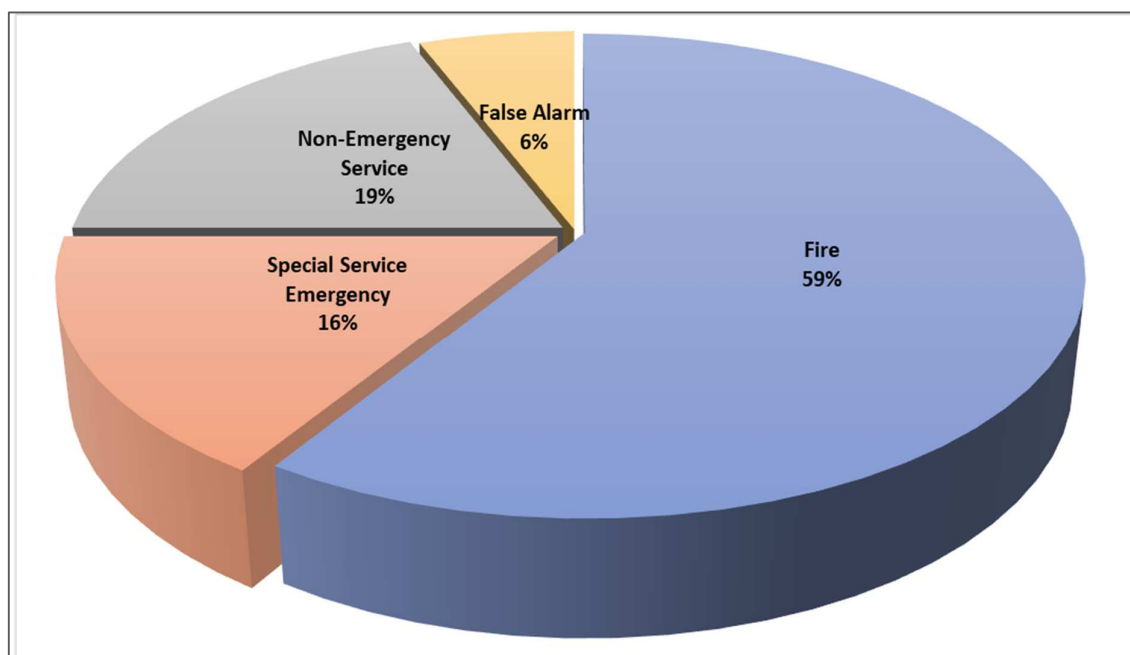


Figure 51: Emergency Records

Source: County Disaster Management Department, 2019

3.6.6.8 Recreational

Recreational spaces are areas of natural, semi-natural or planted space set aside for human enjoyment. Kirinyaga has a single public park located in Kerugoya town. However, taking into account the catchment population for Kerugoya town, the facility is inadequate. Therefore, sports facilities such as stadia and playgrounds mainly serve this function. However, with the growing

urban population, there is a need to provide adequate recreational to enhance social cohesion and integration.



Figure 52: Kerugoya Public Park

Source: Field Survey, 2019

3.6.6.6 Sports

Public stadia are located in Kerugoya, Kianyaga and Wang'uru, Gichugu and Sagana Railways. The stadiums host local events such as football, athletics, volleyball, volleyball, music concerts, military recruitment, and political rallies among others. Kirinyaga also has numerous playgrounds which are mainly within school.

However, the above facilities are undeveloped and are poorly managed thus cannot support the development of sports. Hence there is need to develop the existing facilities (indoor and outdoor) to support talent development and diversify revenue-generating activities.

3.6.6.7 Social Hall

Kirinyaga County has 15 public social halls located at Kiriko, Mathanguata, Matandara, Mwathaini, Kariko, Kangai, Gatwe, Kiorugari, Ndindiruku, Thiba, Mbui Njeru, Kwibota, and Thome. The majority of these social halls are situated in Mwea East and West Sub-counties. Some of the challenges noted include:

1. The existing facilities are inadequate and poorly managed
2. Kirinyaga Central lacks a public social hall hence the need to provide one
3. The existing facilities are underutilized considering they are only used during major meetings
4. The county has no designated spaces to establish public social halls

There also exist numerous private social halls countywide mainly owned by churches such as the Roman Catholic and ACK.

3.6.7 Emerging Planning Issues and Opportunities

This table presents the summary of emerging planning challenges and opportunities in the infrastructure and services discussions.

Sector	Challenges	Opportunities
Transport	<ul style="list-style-type: none"> • Inadequate east-west link roads countywide • Inadequate provision of NMT in urban areas • Insufficient termini facilities that include parking and Matatu terminus in urban areas • Gravel and earth roads that make up 60% of classified roads are in deplorable condition • The county has Mwea Airstrip that is not functional and located in a rapidly urbanizing area likely to deter its functionality and possible expansion • Widespread encroachment of road reserves especially in rural areas hindering accessibility • Present of narrow roads in urban areas 	<ul style="list-style-type: none"> • Presence of major transport that connect Kirinyaga to national and international destinations • Presence of an established road network measuring 8,175km with 1,751km classified • The rehabilitation of the old Nairobi – Sagana – Nanyuki Rail will provide an affordable alternative for moving bulky agricultural produce • The proposed expansion of Kenol – Sagana – Nyeri into a dual carriage
Water	<ul style="list-style-type: none"> • Unregulated river water abstraction • Over-abstraction of river water, according to WRA (2018) the county accounts for over 2000 abstractions • Sources are on the verge of depletion since current use exceeds natural recharge • Frequent domestic water shortages despite location within Mt. Kenya Water Tower • Water shortages in Mwea Irrigation Scheme • The designated KIRIWASCO supply area is 76% of the county but some areas especially Mwea are not connected to the trunk waterline • Water demand is expected to increase due to urbanization, industrialization and population growth • Encroachment, pollution and degradation of water catchments occasioned by human activities 	<ul style="list-style-type: none"> • The county is endowed with enormous natural ground and surface water resources • Potential for rain and stormwater at small and large scale • A well-established and equipped water and sanitation company (KIRIWASCO) • The ongoing construction of Thiba Dam in Rukenya • The proposed construction of Kerugoya-Kutus water supply and sanitation infrastructure to cover Kerugoya, Kutus, Sagana, Kagio and Kandongu.

Sector	Challenges	Opportunities
	<ul style="list-style-type: none"> Poor distribution of piped water with very limited reticulation particularly in urban areas and Mwea 	
Energy	<ul style="list-style-type: none"> Over-reliance on non-renewable and non-green energy sources threatening depletion and environmental degradation Some areas such as Njukiini, Ngariama, Mutumbuini, Nyangati and Ngumunyu are not connected to national grid High cost of installing electricity, solar and biogas 	<ul style="list-style-type: none"> Most areas are connected to the national grid Kirinyaga has abundant green energy (HEP, solar and Biogas) potential
Solid & liquid waste	<ul style="list-style-type: none"> Existing dumpsites are not NEMA approved Minimal maintenance, waste recycling and processing The absence of an appropriate medical waste management system Inadequate sewer services 	<ul style="list-style-type: none"> The county has six dumpsites The county is in the process of replacing concrete waste collections points with 150 skippers in urban areas The proposed construction of Kerugoya-Kutus water supply and sanitation infrastructure
Social facilities	<ul style="list-style-type: none"> Shortage of facilities in the present and future Minimal provision of special needs institutions Inadequately maintained and equipped social facilities Absence of proper waste disposal management system in health facilities A young population translates to high demand for sports, education, youth empowerment and recreation facilities among others Inadequately provided infrastructure such as roads, electricity and classrooms Encroachment and grabbing of land occupied by public facilities such as schools, health facilities, social halls etc Lack of library facilities 	<ul style="list-style-type: none"> Well-established facilities at ECDE, primary, secondary, technical and college levels

Source; Real Plan Consultants Limited, 2021

3.7 GOVERNANCE

Governance is crucial for the success of the formulation and implementation of the CSP. Its goal is to guarantee inclusive and sustainable socio-economic transformation. An analysis of the

governance framework and capacity to implement the Kirinyaga County Spatial Plan is therefore vital to the planning process.

Main institutional actors in Kirinyaga County consist of the National Government and the Kirinyaga County Government. They guide the role of other actors like development partners, private sector and civil societies (NGOs, CBOs and FBOs).

3.7.1 Kirinyaga County Government

The County Government of Kirinyaga has jurisdiction over Kirinyaga County. The Constitution of Kenya in Schedule Four allocates the following functions to the County Government;

- ⇒ Agriculture including crop and animal husbandary; livestock sale yards; county abattoirs; disease control and fisheries
- ⇒ County health services including health facilities, ambulance services, promotion of primary health, veterinary services, cemetery facilities, solid waste management
- ⇒ Control of air pollution, noise pollution and outdoor advertising
- ⇒ Cultural activities, public entertainment and public amenities including cinemas, museums, libraries, sports and cultural activities and facilities, county parks and recreational facilities
- ⇒ County transport including county roads, traffic, parking and public transport
- ⇒ Animal control and welfare
- ⇒ Trade development and regulation including; markets, trade licenses (excluding professionals), fair trading practices, local tourism and cooperatives
- ⇒ County Planning and development including; statistics, land survey, mapping, housing,
- ⇒ Pre-primary education, village polytechnics, homecraft centres and childcare facilities
- ⇒ Implementation of specific GOK policies on natural resources and environmental conservation including forestry, soil and water conservation
- ⇒ County public works and services
- ⇒ Fire fighting services and disaster management
- ⇒ Control of drugs and pornography
- ⇒ Ensuring and coordinating the participation of communities in governance

Kirinyaga County is the custodian of the plan. It was charged with the provision of technical support to the project steering committee that aided the plan preparation process. In addition, it offered logistical support and administrative services needed by the project team and consultants. The County Government is also key in the plan approval and implementation stages.

The two arms of the county government are involved as follows.

3.7.1.1 Executive Arm

The CEC is the administrative arm of the County Government. It is in charge of monitoring plan preparation and overseeing its implementation hence mandated by law to ensure the SP aligns to the county development aspirations. Kirinyaga County Executive Committee, appointed by the

Governor, comprises nine members and is the highest policy-making organ of the county. Each County Executive Committee Member is responsible for the departments listed below:

1. Land, Physical Planning and Urban development
2. Education and public service
3. Gender and social services
4. Youth and sports
5. Water, Environment and Natural Resources
6. Transport and Public works
7. Agriculture
8. Health and Sanitation
9. Cooperatives and Trade

The County Executive Committee (CEC) member in charge of Lands, Physical Planning and Urban development is the policy head on matters related to planning. The member oversees planning matters and is responsible for submitting the CSP to the County Assembly for approval.

Specifically, the Chief Executive Committee Member in charge of Land, Housing and Physical Planning is the overall team leader, assisted by the Chief Officer and the Director of Physical Planning who is the contact person.

3.7.1.2 The County Assembly

The County Assembly is a legislative organ that plays an oversight role on all County public institutions. It approves the budget and plans prepared by the County Executive Committee including spatial plans. The County Assembly is crucial within the devolution process as they are lawmakers and are the legal representatives of the community at the county level.

Lands & Physical Planning Committee is one of the sectoral committees in the County Assembly of Kirinyaga. The land and planning committee is mandated to investigate study and review as well as make reports and recommendations to the County Assembly on all matters related to county planning and development. Upon completion and validation by stakeholders, the committee will receive the CSP and table it in the assembly for discussion and approval.

c) The County Directorate of Physical Planning

The Director of Physical Planning heads this directorate. The Director of Physical Planning is the adviser to the County Government on all matters relating to Physical Planning, the technical head in the preparation CSP and the contact person for all matters on plan preparation. The Director establishes the link between the planning department and other County, National Government, Parastatal and NGO offices. The director is required to organize workshops, invite stakeholders and facilitate the proceedings of the workshops.

The Directorate of Physical Planning is also in charge of implementing, evaluating and monitoring the CSP. Its current capacity is however not adequate to effectively implement the CSP hence the need to empower it by equipping it with relevant equipment and expertise.

d) Sub-County and Ward Administrators

Sub-county and ward administrators are in charge of coordination, management and supervision of the general administrative functions at the sub-county Unit. This includes grass-roots mobilization, venue arrangements, developmental activities to empower the community and coordination of citizen participation in the development of policies, plans and delivery of services.

e) Municipal Board

The Municipal board oversees the affairs of the Municipality subject to the provisions of the Urban Areas and Cities Act. This includes developing or adopting policies, plans, strategies and programs and setting targets for service delivery. The municipal board works in collaboration with relevant national and county agencies in carrying out their functions.

3.7.2 National Government

To execute its mandate efficiently, the government is structured into three arms namely; the Executive, Legislature and Judiciary. The Legislature consists of a bicameral parliament for law-making and oversight while the Judiciary is mandated with arbitration of conflicts, and protection of the Bill of Rights. The Executive consists of the President, Deputy President, Cabinet Secretaries, Constitutional Commissions and State Corporations. The functions of the National Government as outlined in the fourth schedule of Constitution, 2010 are;

- ⇒ Foreign affairs, foreign policy and international trade
- ⇒ The use of international waters and water resources
- ⇒ Immigration and citizenship
- ⇒ Language policy, promotion of official and local languages
- ⇒ Courts, National defence and police services
- ⇒ National economic policy and planning
- ⇒ Monetary policy, currency and banking
- ⇒ National statistics and data on population, economy and society
- ⇒ Intellectual property rights and labour standard
- ⇒ Consumer protection including standards for social security and professional pension plan
- ⇒ Education policy, standards, curricula, examination and granting university charters
- ⇒ University, tertiary educational institutions, institutions of research and higher learning, primary schools, special education, secondary schools
- ⇒ Promotion of sports and sports education
- ⇒ Transport and communication
- ⇒ National public works and housing policy
- ⇒ General principles of land planning and coordination of planning by counties
- ⇒ Protection of the environment and natural resources
- ⇒ National referral health facilities and disaster management
- ⇒ Ancient and historical monuments of national importance
- ⇒ National elections
- ⇒ Health, veterinary and agricultural policy

- ⇒ Energy policy including electricity and gas reticulation and regulation
- ⇒ Public investment, national betting, casinos and other forms of gambling
- ⇒ Tourism policy and development

Therefore, the National Government has a vital role to discharge in the preparation and implementation of the Kirinyaga County Spatial Plan. Some of the key national-level institutions include:

3.7.2.1 National Land Commission

NLC has oversight responsibilities over land use planning throughout the country. Other functions are management of public land; advising the National and County Governments on land matters; recommending national land policy; conducting research on land and natural resources. The Commission is expected to play the same role during the preparation and implementation of the Kirinyaga CSP.

NLC county coordinators play an important role especially with regards to investigating land conflicts. The coordinators also give support to local communities on matters of land reforms and the guiding legal framework.

3.7.2.2 National Department of Physical Planning

According to the Physical and Land Use Planning Act of 2019, the Director-General of Physical and Land Use Planning offers policy guidelines on Physical and Land Use Planning nationwide. The department also guides the planning of strategic projects of national importance.

3.7.2.3 Other state agencies

Other critical agencies include NEMA, WARMA, Kenya Police, Ministry of Interior and Coordination, Department of Survey, Kenya Urban Roads Authority (KURA), Kenya Rural Roads Authority (KERRA), Kenya Power, Kenya Wildlife Service (KWS), Kenya Forest Service (KFS), and National Irrigation Authority. All these entities have been involved in the planning process.

It is important to note that the national administrative structure under the Ministry of Interior and Coordination is also evident in the Kirinyaga, headed by the County Commissioner. Other administrative offices in the structure are Deputy County Commissioners, Assistant County Commissioners, Chiefs and Assistant Chiefs that are also crucial.

3.7.3 Local Organizations

The local institutions to be involved in this project are Kenya Chamber of Commerce (Kirinyaga), resident associations, landowners, traders, market associations, youth and women groups, People with Disability, Matatu Owners Associations, transport SACCOs, NGOs (such as SOS Children's Villages Int'l), Opinion leaders, academic institutions, professional forums and local planning consultants. All these institutions will undertake various roles in this project. Input from local planning consultants is essential especially in identifying bottle necks in the development control process at the county level and making relevant proposals.

The roles include the provision of local information, projects prioritization, project watchdogs, project implementation and resource mobilization

3.7.4 Emerging Planning Issues & Opportunities

It is noteworthy that Kirinyaga County lacks a well-established and equipped physical and land use planning department. The department is understaffed making execution of its mandates (such as development control, preparation of physical and land use plans and implementation of the same) inefficient.

It is also important to note that the County has not constituted the County Physical and Land Use Consultative Forum and National Physical and Land Use Planning Liaison Committee as required by the Physical and Land Use Planning Act of 2019.

3.8 KEY ONGOING PROJECTS

These include previous studies, on-going and proposed projects that have informed or influenced the interventions proposed.

3.8.1 Kirinyaga Industrial and Business Park

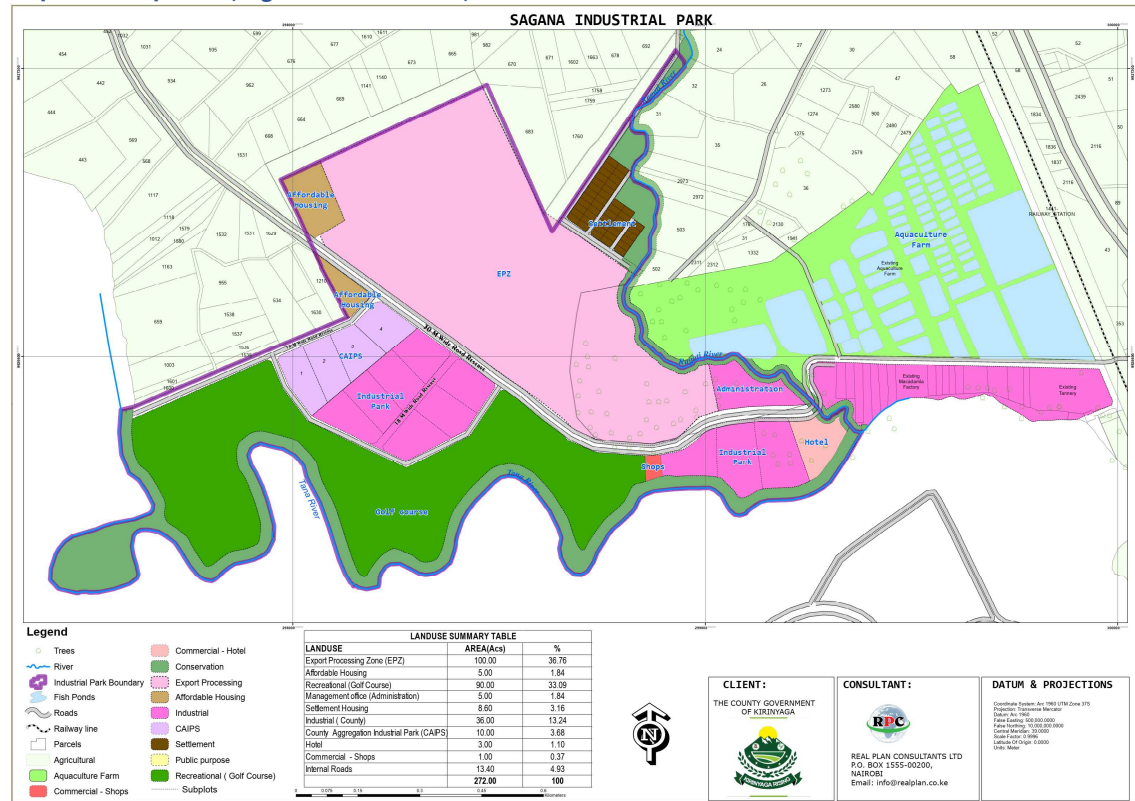
The Kirinyaga Industrial and Business Park (KIBP) is proposed in Sagana, Kirinyaga West Sub County about 119km and 26km from Nairobi and Kerugoya respectively. It is proposed to occupy 242 acres of land. The development of the park is an initiative by the County Government of Kirinyaga to utilize the diverse and rich agricultural nature of the County. It is also in a bid to enrich and empower farmers and cooperatives.

The objectives of the industrial and business park are:

- To optimize returns in the agricultural sector
- Promotion of agribusiness
- Creation of employment
- Improving the general economy of the County through value addition of agricultural produce

The proposed park is envisaged to achieve the above objectives through offering facilities for specialized: agro-processing; agro-logistics and storage; farm machinery, equipment and services centre; social services; and general trading/ business/ commercial services.

Map 29: Concept Plan (Sagana Industrial Park)



Source: County Land & Physical Planning, 2021

3.8.1.1 Suitability

The location of the industrial park was influenced by the availability of land and proximity to Sagana River which will provide water key for running industrial activities. Additionally, it is located near the old one-meter-gauge rail (rehabilitation underway) and the international trunk road, A2. This provides ease and efficiency of transportation of bulky raw materials and ready goods.

The industrial park is most suitable due to the rich agricultural resource. The county is home to a wide array of agricultural produce from crops to livestock. The horticultural sector is set to benefit the most from this development. The proposal also presents an opportunity for the value-addition of agricultural products such as banana, rice, coffee, avocado and tea.

Sagana is prominently known for its emerging hospitality industry. The Park and hospitality zone are complementary uses in that each attracts a possible market for the other. The influx of guests will allow more people to learn about the industrial park creating business and investment opportunities. On the other hand, workers, investors, visitors and tourists are potential clients for the growing hospitality industry. However, the two uses could also be conflicting if proper planning and implementation are not undertaken.

3.8.1.2 Project impacts

Like other major developments, the proposed industrial park is expected to have both positive and negative impacts. Under this section, the impacts are categorized into construction and implementation phases.

a. Construction phase

The positive impacts include:

- **Creation of employment:** The proposed industrial park is envisioned to employ a wide range of people. The list of beneficiaries includes professionals such as engineers, project managers and casual workers who will do the actual construction. Demand for complementary services such as kiosks, hotels and security personnel are expected to increase. This is expected to benefit the local population.
- **Marketing of construction materials:** The project requires diverse construction materials including sand, soil, ballast and cement. Some of these materials are readily available in Kirinyaga. It is thus expected that such materials will be source locally. The effect is an improvement of livelihoods for those working in the quarries. This will positively impact the local economy.
- **Infrastructure development:** The proposed industrial park is a large-scale investment that is set to attract huge infrastructural investments. Residents will benefit from the construction of roads, sewage, drainage, water and energy infrastructure. Taking into account the magnitude of the project, a 25m road is proposed to serve the facility. This will provide adequate space for motorized traffic, pedestrians and trunk utilities. The old railway (Nairobi – Nanyuki) also runs along the site under consideration. Its rehabilitation provides an affordable and convenient means of transporting bulky goods.
- **Economic growth in the project environs:** Influx of construction workers means they require accommodation and other basics. This presents a good opportunity for locals to invest in housing units to rent out to the crew.

Negative impacts during the construction phase are highlighted below:

- **Loss of flora and fauna:** Construction will lead to clearing of existing vegetation cover which will affect the area's biodiversity and ecosystem. It will interfere with the natural and original aesthetic setting of the site. Due to clearing of natural habitats migration of fauna to more conducive environment is expected.

Mitigation measures include sparing trees and shrubs where possible. Replanting of the trees should also be done once construction is complete to restore tree cover and redeem the aesthetic component of the site.

- **Noise pollution:** Construction activities such as concrete mixing, plant erection, foundation works, and movement of vehicles and operation of construction equipment generate high levels of noise. These include. This will expose the workers and those within the project

vicinity to risks of hearing disorders and discomfort. High noise levels are also known to influence wildlife behaviours.

Mitigation measures include provision of earplugs to the workers, buffering of the industrial park to reduce noise, ensuring that machines used meet the requisite noise emission levels and construction to be done mainly during the day.

- **Dust pollution:** The potential dust sources associated with construction activities are loading and unloading of the materials, topsoil removal, travel over unpaved roads and wind erosion etc. Among all the construction activities, site formation has the highest potential for causing dust nuisance to the nearby air-sensitive locations. Exhaust emissions from vehicles and equipment deployed during the construction phase is also likely to result in marginal increase in the levels of SO₂, NO_x, SPM, CO and un-burnt hydrocarbons. The impact is generally confined to the project area and is expected to be negligible outside the park boundaries.

Mitigation measures include erection of dust nets around the site, sprinkling of water on main roads to suppress dust, all vehicles carrying materials will be covered with tarpaulin and planting a tree buffer around the site.

- **Increase in traffic:** Vehicular traffic from trucks ferrying construction materials to and from the site is expected to increase. Pedestrian traffic is also set to increase due to employment of various workers. This provides a potential for conflict between the different modes of transport.

Mitigation measures include providing adequate space for access and circulation. The 25m access and road and 12m circulation roads within the project area will ensure that the heavy trucks can also move through the site with ease. The provided roads will also incorporate pedestrian and cycling lanes for protection of those using non-motorized transport.

- **Solid waste generation:** The generation of solid waste is inevitable in a construction site. Waste during construction is generated from excavated materials, bricks, tiles, wood, vegetation and demolition waste from site clearance to mention but a few. This waste must be anticipated and mitigation measures put in place.

Mitigation measures for this include recycling of the viable waste materials, storage of the waste within the site and employing integrated solid waste management and disposal.

- **Accidental spills and leakages:** Spillage of substances such as vehicle fuel and oil and greases have a direct and immediate impact on water resources and flora and fauna.

Mitigation measures recommended for the spillage accidents are maintenance of all vehicles and machines, proper storage of chemicals, and establishment of drainage channels to dispose of meteoric water.

- **Workers/ public accidents:** Construction inevitably exposes workers to accidents. The risks come from accidental falls and hurt from heavy hand tools. There will also be an increased risk

of traffic accidents where delays and diversions are imposed or altered without adequate warning

Mitigation measures include training the workers on occupational safety and health, erecting signs and providing proper gear for the workers.

b. Operation phase

The positive impact during the operation phase includes:

- **Economic growth and empowerment** - The establishment of the industrial and business park will allow for quick and easy manufacture of agricultural produce. This will provide a ready market for the farmers' produce reducing post-harvest losses. It will also facilitate value addition which is set to increase income from agriculture.
- **Utilization of local resources** - As aforesaid, the aim of the County Government of Kirinyaga in setting up the industrial park is utilization of local resources. Kirinyaga County is home to an enormous variety of agricultural products. In a bid to strengthen and empower the farmers and cooperatives, raw materials for the park shall be outsourced directly from the locals.
- **Creation of employment** - The industries will produce a wide range of products. It will hence employ a variety of professionals and workers. Similar to the construction phase, employment will be outsourced hence economically empowering the community.
- **Community development** - The investors have to provide requisite facilities with the establishment of the park. These are mostly social facilities. These may include facilities such as recreational parks and dispensaries. The master plan may also provide housing for the staff meaning community members who get jobs in the park will also get good housing. The development of infrastructure such as roads and electricity will also benefit the community immensely.

The negative impacts are briefly discussed below

- **Traffic generation** - This will be as a result of deliverance of raw materials and dispatching of produced goods. This is envisioned to be done by heavy trucks. Increase in people working in the industrial area will also increase private vehicular traffic and pedestrian traffic. Without proper management, there will be conflicts between the different modes of transport.

Mitigation measures: adhering to the standards by the Physical Planning Handbook regarding roads widths. This includes a 25m main access road and 12m circulation roads. Provision of two exit points to ensure one is available in case there is traffic in the other one.

- **Increased infrastructural demand** - With the industrial park in operation, there will be increased demand for infrastructure and utilities. Electricity demand is set to rise significantly. This may put a strain on the National Grid.

Mitigation measures: Due to the project area's proximity to River Sagana, the Government can tap into it for hydroelectric power generation solely for the park. If excess is generated, it can

always be channelled into the National grid. The management should also consider utilization of solar energy.

- **Environmental pollution** - Traditional industries are known for environmental pollution through emission of greenhouse gases and haphazard disposal of industrial waste. This has over time led to climate change and global warming which has, in turn, had adverse effects on the environment.

Mitigation measures: adopt an eco-friendly approach to development of the industrial park. This will aid in reducing carbon emissions. Investment in eco-friendly investments will also reduce the energy used and facilitate industrial symbiosis.

3.8.2 Rehabilitation of the Nanyuki – Sagana – Nairobi Railway

The National Government is in the process of reviving the 240km Nairobi to Nanyuki meter gauge rail to stimulate development in the central region. Reviving the old rail is likely to benefit the region (including Kirinyaga) in the following:

- The region will be linked to the Mombasa – Nairobi – Kisumu development corridor as well as the upcoming LAPPSET Corridor. The revived rail will serve as a link for the two corridors;
- It provides an alternative and affordable means of moving bulky goods which is likely to spur industrial development and better profits to farmers;
- Improved logistics which is a crucial enabler of any vibrant economy;
- Stimulation of commercial activities with the stations such as Sagana becoming economic hubs;
- Moving fuel safely at reduced cost to the region and beyond; and
- An alternative public transport means

There is a need to integrate rail with road network to provide a functional and efficient transportation system.

3.8.3 Construction of Kerugoya/Kutus Water Supply And Sanitation Infrastructure

The project has two components; water and sewerage component, each with construction projects meant to facilitate clean water supply and sewage treatment. The project seeks to improve the sanitation situation in Kerugoya and Kutus towns through construction of new 3,700m³ /day sewerage treatment facility. This will avail adequate, affordable and sustainable water services for productive economic activities. The project is expected to generate minimal negative impacts.

3.8.4 Expansion of Kenol – Nyeri Highway

This entails expansion of the Kenol – Sagana – Nyeri Highway into a dual carriage road by the National Government. The road is expected to be a major boost to the region especially considering that it is a major development corridor. It is also important to note that the project is expected to cause minimal negative environmental impacts in construction and operation phases.

3.9 CONCLUSION

The County has a profound history in terms of development. The colonists had a great interest in the region due to its strategic location at the foothills of Mt Kenya and rich arable land, which gives the County great potential in agriculture. The climate and agro-ecological zones also favour diverse farming practices. Today Kirinyaga is an agricultural economy whose major crops are tea, coffee, rice, horticulture and bananas. However, the agro-based industry has not been optimally utilized. There exist numerous opportunities towards improved production, large-scale production, value addition, development of agro-based industries and efficient marketing. The CSP will propose various plans and strategies towards full realization of a more vibrant Kirinyaga guided by efficient land use and sector integration. The plan shall also seek to revive old dwindling resources such as coffee and cotton production as well as venture into new frontiers such as tourism and industrialization.

The natural resources and environmentally fragile areas (rivers, forests and wetlands) in the county are now more than ever facing threats from unregulated human activity. These included forests, rivers and wetlands. It is thus important for the CSP to develop various plans and strategies to protect these resources as they provide the social-economic lifeline of the county.

The coverage of goods roads is low thus hindering effective linkages and efficient movement of goods, services and persons. Despite these challenges there exist numerous opportunities towards the on-going rehabilitation of the old railway that will provide an affordable and alternative means for transporting bulky goods and passengers. Provision of an integrated movement system is necessary. Such a system would incorporate some of the existing unexploited resources such as air and rail transport as well as the undeveloped agricultural areas to provide proper infrastructure for the growing urban centres.

Despite numerous water sources in the county, a significant proportion of households is not connected. Liquid and solid waste is inadequately managed due to minimal infrastructure. The planned construction of Kerugoya/Kutus water supply and sanitation infrastructure will respond to sanitation issues within the Municipality. The CSP will devise prompt mitigation measures as well as long term plan of sustainable waste management that would attract other benefits including the options of energy and fertilizer production.

Kirinyaga has numerous urban centres with different levels of infrastructure, services and functions. The main driving force behind urbanization is the baseline population. Urbanization holds positive and negative effects within an economy. These negative effects may be detrimental to socio-economic development. Some of the challenges in Kirinyaga include an increase in informal settlements, rising inequalities, insecurity of tenure, urban sprawl, inadequate infrastructure and services and inadequate county revenues.

CHAPTER 4

SUMMARY OF PLANNING ISSUES

The summarized planning issues are presented in SWOT analysis format based on the thematic areas discussed in the situational analysis. These sectors include physiographic characteristics, population and demography; economic base; land; human settlements; infrastructure and services; environment and natural resources; and governance. The analysis forms the basis of spatial development proposals.

Table 76: SWOT Analysis

Physiographic characteristics	
Strength	Weaknesses
<ol style="list-style-type: none"> 1. The diverse altitude and terrain provides a wide range of opportunities such agriculture to tourism 2. The soils emanating from volcanic activities are fertile and valuable for agricultural use 3. The diverse climate allows the country to provide various crops such as coffee, tea, banana and a wide range of crops grown for commercial and domestic purpose 	<ol style="list-style-type: none"> 1. The deep and fertile soils in the mid and upper agricultural zones are susceptible to erosion 2. Rainfall patterns in the lower areas such as Mwea are unreliable and inadequate for agricultural activities 3. The flat terrain is a major cause of frequent flooding experienced in the lower areas 4. The rugged terrain in areas such as Kiangwaci in the upper part is a cause for the numerous landslides.
Opportunities	Threats
<ol style="list-style-type: none"> 1. The magnificent natural geological features such as Ndaraca ya Ngai, River Nyamindi and the seven waterfalls combine with prominent mountain features (peak, hanging and v-shaped valleys) are ideal tourist destinations 2. The lower region is characterized by flat terrain making them suitable lands for irrigation 	<ol style="list-style-type: none"> 1. The changing climatic pattern in the upper and mid zones has resulted in inadequate and unreliable rainfall which has negatively affected agricultural productivity and increased dependence on irrigation
Population and Demographic characteristics	
Strengths	Weaknesses
<ol style="list-style-type: none"> 1. A youthful population (below 35 years) constituting over 65% of the county population 2. The working population (economically productive) account for 54% of the population 	<ol style="list-style-type: none"> 1. The high population density is a reflection of the pressure on land 2. A youthful population translates to high demand for social facilities such as schools, sports and recreational services
Opportunities	Threats
<ol style="list-style-type: none"> 1. Availability of skilled and semi-skilled labour 	<ol style="list-style-type: none"> 1. High rates of unemployment especially among the youth

<p>owing to the high literacy level of the residents</p> <p>2. The season migration mostly evident during weekends when residents move to Kirinyaga and other counties (Nyeri, Meru & Embu) from major urban areas and travel back on Sunday has significantly contributed to development of Mwea and Sagana-Kibiringwi corridor</p>	
Agriculture	
Strengths	Weaknesses
<p>1. Over 79% of the county landmass is arable but only 70% of this is under food or cash crop</p> <p>2. The area under cash crop account 38% while food crop occupies the rest</p> <p>3. Owing to the diverse climate, Kirinyaga produces a wide variety of crops such as coffee, tea, bananas, rice and horticultural products</p>	<p>1. Low production volumes that are attributed to the poor farming practices</p> <p>2. Minimum value addition for agricultural produces hence low returns for farmers and government</p> <p>3. Poor economic performance of main crops such as coffee has negatively impacted livelihoods</p> <p>4. The collapse of the cotton industry</p> <p>5. Unreliable market system for agricultural produce hence low returns to the farmers due to low prices and wasted produce</p>
Opportunities	Threats
<p>1. Land with irrigable potential stands at 18% of the county but only 6% is utilized</p> <p>2. Potential diversification from the common crops to avocado, macadamia, banana and horticultural farming</p> <p>3. The high demand for rice since it is the second staple food after maize in Kenya</p> <p>4. The ongoing construction of Thiba Dam</p> <p>5. High potential for large scale production of cotton in former farms in Gachoka, Karaba, Wamumu and Kagio</p>	<p>3. Rapid subdivision of agricultural land threatens productivity. The minimum land size in most areas is 0.05ha which is uneconomical</p> <p>4. Owing to the increasing population and urban sprawl the agricultural land sizes are rapidly declining</p> <p>5. Prolonged droughts and increased water abstraction upstream</p> <p>6. Dwindling water for irrigation purposes</p> <p>7. Poor access roads in agricultural zones (minimal urban-rural linkage)</p>
Trade and commerce	
Strengths	Weakness
<p>1. Strategic location along major transport corridors i.e. A2, B6 and Meter Gauge Rail</p> <p>2. Rapidly growing urban areas provide opportunities for a wide variety of lucrative businesses</p> <p>3. Availability of spaces set aside for open area markets</p>	<p>1. Limited access to local, regional and international market</p> <p>2. Minimal uptake and integration of the technology by businesses</p> <p>3. High number of informal business due to inadequate affordable business premises and limited capital</p>

4. Availability of support infrastructure such as financial institutions, security forces and devolved unit	4. The open-air markets are underdeveloped and inadequately furnished with support infrastructure
Industrial	
Strengths	Weaknesses
<ol style="list-style-type: none"> 1. The presence of trunk transport infrastructure i.e. A2, B6 and old railway under rehabilitation 2. Availability of youthful skilled and semi-skilled labour in the county and environs 	<ol style="list-style-type: none"> 1. Most industries produce semi-finished products which are exported as raw materials and don't fetch optimal prices 2. Apart from the proposed Sagana Industrial Park, the county lacks land designated for industrial purpose
Opportunities	Threats
<ol style="list-style-type: none"> 3. High potential for agro-based and value addition industries for avocado, tomato, banana, coffee, tea and horticultural products 4. The proposed Kirinyaga Industrial and Business Park in Sagana provide an opportunity 5. Opportunity to re-establish the collapsed cotton industries 	<ol style="list-style-type: none"> 1. Potentially high cost of energy/electricity 2. Possible conflict between proposed Sagana Industrial Park with the emerging hospitality/tourism belt in Sagana area 3. Possible industrial effluent disposal challenges which a major threat to the environment and adjacent communities 4. Poor connectivity in agricultural areas (sources of raw material) due to poor roads
Mining	
Strengths	Weakness
<ul style="list-style-type: none"> • Availability of carbonated water springs in Gichugu and aluminium rich clay in Kibirigwi • Mining of construction materials including ballast, blocks, sand and red soil 	<ol style="list-style-type: none"> 1. Scanty information on mining activities in Kirinyaga 2. Sand mining has caused increased siltation of rivers such as Mukengeria and Kiringa 3. Inadequate drainage systems leading to flooding hence breeding grounds for mosquitos
Opportunities	Threats
<ol style="list-style-type: none"> 1. Potential for carbon water and clay industrial activities 	<ol style="list-style-type: none"> 1. Possible landslides, blasting and rockfalls are threats facing quarries
Tourism & hospitality	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Location of the county within the Mt. Kenya 	<ul style="list-style-type: none"> • Poor marketing of tourism and hospitality

<p>region tourist circuit in the national context</p> <ul style="list-style-type: none"> • Kirinyaga endowed with numerous high potential and diverse tourist attraction sites 	<p>industries</p> <ul style="list-style-type: none"> • Minimal tourism infrastructure including hotels and road networks in high potential areas • Minimal information on the tourism sector in the county to inform policies and strategies • Lack of a County Tourism Policy and unclear institutional framework of the tourism sector
Opportunities	Threats
<ul style="list-style-type: none"> • Great potential for hospitality industry along Sagana Belt • Untapped and undeveloped tourism potential areas such as Kamweti Route and River Nyamindi (the only glacier river in Kenya) 	<ul style="list-style-type: none"> • Poor management and packaging of most heritage & tourist sites • Encroachment of natural resources by human settlements and agricultural activities • Erosion of local culture by modernism
Land and land uses	
Strengths	Weaknesses
<ol style="list-style-type: none"> 1. The county occupies a landmass of approx. 1482 square km endowed with enormous resources 2. High potential agricultural land accounting for over 70% of the county landmass 3. The flexibility of private land tenure system 	<ol style="list-style-type: none"> 1. Lack of a comprehensive inventory of public land showing the location, acreage and registration status 2. Unplanned urban areas are characterized by poor roads network, land conflicts, uncoordinated development, inadequate services and urban poverty 3. About 10,000 people in Kirinyaga are landless and live as squatters
Opportunities	Threats
<ol style="list-style-type: none"> 1. Zoning and formulation of land development guidelines to ensure optimal utilization of land countywide 2. Demarcating boundaries to define extent of urban areas 3. 	<ol style="list-style-type: none"> 1. About 30% of landowners don't possess land ownership documents 2. Encroachment of agricultural land by urban activities due to rapid population increase and urban sprawl 3. Land conflicts in Redsoil, South Ngariama, Kerugoya and Kutus 4. Uneconomical subdivision of land in rural area (food baskets) hence declining productivity 5. Rapid urbanization
Human settlements	
Strengths	Weakness
<ol style="list-style-type: none"> 1. Presence of numerous hierarchical urban areas that serve various functions 2. The strategic location of urban areas along 	<ol style="list-style-type: none"> 1. Insufficient infrastructure in rural and urban areas (including colonial villages) 2. Insufficient urban-rural linkage

<p>major transport corridors</p> <p>3. Availability of rural areas that purely serve as agricultural zones</p> <p>4. Availability of quarries and sand mines in the county thus support easy access to construction materials</p>	
Opportunities	Threats
<p>1. Strengthening the existing nodes/urban areas by provision of infrastructure and services to spur growth</p> <p>2. Formulation of Physical and Land Use Integrated Development Plan to ensure sustainable development of urban and rural settlements</p> <p>3. Densification of residential and commercial around the existing nodes</p>	<p>1. Insecurity of tenure & poorly planned settlement in colonial villages</p> <p>2. Mushrooming of informal settlements inform of colonial villages</p> <p>3.</p>
Transport	
Strength	Weaknesses
<ul style="list-style-type: none"> • Presence of a major transport corridor that connects Kirinyaga to national and international destinations • Presence of an established road network measuring 8,175km with 1,751km classified 	<ul style="list-style-type: none"> • Inadequate east-west link roads countywide • Inadequate provision of NMT in urban areas • Insufficient termini facilities that include parking and Matatu terminus in urban areas • Gravel and earth roads that make up 60% of classified roads are in deplorable condition • The county has Mwea Airstrip that is not functional and located in a rapidly urbanizing area likely to deter its functionality and possible expansion • Narrow roads in urban areas
Opportunities	Threats
<ul style="list-style-type: none"> • The rehabilitation of the old Nairobi – Sagana – Nanyuki Rail will provide an affordable alternative for moving bulky produce and more investment opportunities • The ongoing expansion of Kenol – Sagana – Marua Highway into a dual carriage • Establishment of the east-west link to open up the upper region of the county • Integration of the road and rail transportation system for efficiency purposes 	<ul style="list-style-type: none"> • Widespread encroachment of road reserves especially in rural areas hindering accessibility • Non-maintenance of road networks thus limiting accessibility and marketing of local produce local and externally

Energy	
Strengths	Weaknesses
<ul style="list-style-type: none"> Most areas are connected to the national grid Kirinyaga has abundant green energy (HEP, solar, and Biogas) potential 	<ul style="list-style-type: none"> Some areas such as Njukiini, Ngariama, Mutumbuini, Nyagathi and Ngumuyu are not connected to the national grid High cost of installing electricity, solar and biogas
Opportunities	Threats
	<ul style="list-style-type: none"> Over-reliance on non-renewable and non-green energy sources threatening depletion and environmental degradation
Water	
Strengths	Weaknesses
<ul style="list-style-type: none"> The county is endowed with enormous natural ground and surface water resources Potential for rain and stormwater at small and large scale A well-established and equipped water and sanitation company (KIRIWASCO) 	<ul style="list-style-type: none"> Frequent water shortages despite location within Mt. Kenya Water Tower Water shortages in Mwea Irrigation Scheme The designated KIRIWASCO supply area is 76% of the county but some areas especially Mwea are not connected to the trunk waterline Water demand is expected to increase due to urbanization, industrialization and population growth Poor distribution of piped water with very limited reticulation particularly in urban areas and Mwea
Opportunities	Threats
<ul style="list-style-type: none"> The construction of Thiba Dam in Rukenya will increase supply of irrigation water in Mwea Irrigation Scheme The construction of Kerugoya-Kutus water supply and sanitation infrastructure to cover Kerugoya, Kutus, Sagana, Kagio and Kandongu. Integrating the water reticulation system countywide to ensure regulated and efficient water supply 	<ul style="list-style-type: none"> Unregulated river water abstraction Over-abstraction of river water, according to WRA (2018) the county accounts for over 2000 abstractions Sources are at the verge of depletion since current use exceeds natural recharge Encroachment, pollution and degradation of water catchments occasioned by human activities
Solid & liquid waste	
Strengths	Weaknesses
<ul style="list-style-type: none"> The presence of six dumpsites in the county 	<ul style="list-style-type: none"> Existing dumpsites are not NEMA approved

<ul style="list-style-type: none"> The county is in the process of replacing concrete waste collections points with 150 skippers in urban areas 	<ul style="list-style-type: none"> Minimal maintenance, waste recycling and processing Unsuitable location of the Mwea, Sagana and Kerugoya dumpsite conflicting with adjacent land users The absence of an appropriate medical waste management system The county has no sewer system
Opportunities	Threats
<ul style="list-style-type: none"> Development of a waste processing plant in Kirinyaga Construction of Kerugoya-Kutus water supply and sanitation infrastructure Development of NEMA approved landfills or dumpsites Encourage and create awareness on the importance of recycling and reusing 	<ul style="list-style-type: none"> The inadequate personnel and budgetary allocation to waste management Poor maintenance and management of existing dumpsite
Natural and environmental resources	
Strengths	Weaknesses
<ul style="list-style-type: none"> Presence of natural resources including water, forest, wetlands, wildlife, mineral and land Kirinyaga has high potential for agroforestry High potential for tourism if the resources are well managed, marketed and packaged 	<ul style="list-style-type: none"> Frequent landslides in Kibingoti and flooding in Kianyaga, Githongo, Ng'othi, Mutithi and Ikurungu
Opportunities	Threats
<ul style="list-style-type: none"> Rehabilitation of wetlands and watercourses and conservation of riparian reserves Encourage agroforestry on private land especially in the upper and mid zones Development of an integrated water reticulation system for Kirinyaga Exploration of clay and other valuable minerals in Kirinyaga Growth of the tourism and hospitality industry by maintaining and marketing these resources as tourist destinations Reforestation and afforestation of county forests to increase the county forest cover 	<ul style="list-style-type: none"> Encroachment of rivers, wetlands and forests by human activities Pollution of rivers by point and non-point sources in urban areas, industrial and agricultural zones Unregulated quarrying and sand harvesting Reduced water volumes due to over-abstraction, logging and climate changes Insecurity of tenure, grabbing and encroachment of county forests

Source: Real Plan Consultants Limited, 2021

CHAPTER 5

DESIGN CONSIDERATIONS

This section discusses various components and systems defining and supporting future growth. These elements have been shaped by history, geographic setting, natural formations and settlement patterns, defining its character and development opportunities as well as its constraints. These include physical structuring elements, existing land use, suitability of development sites, drivers of the economy, on-going/proposed national and regional projects.

5.1 STRUCTURING ELEMENTS

These consists physical elements (natural and manmade features and activities) influencing the spatial form and structure of Kirinyaga. These features will either significantly deter or spur the anticipated direction of growth. They include:

5.1.1 Movement System

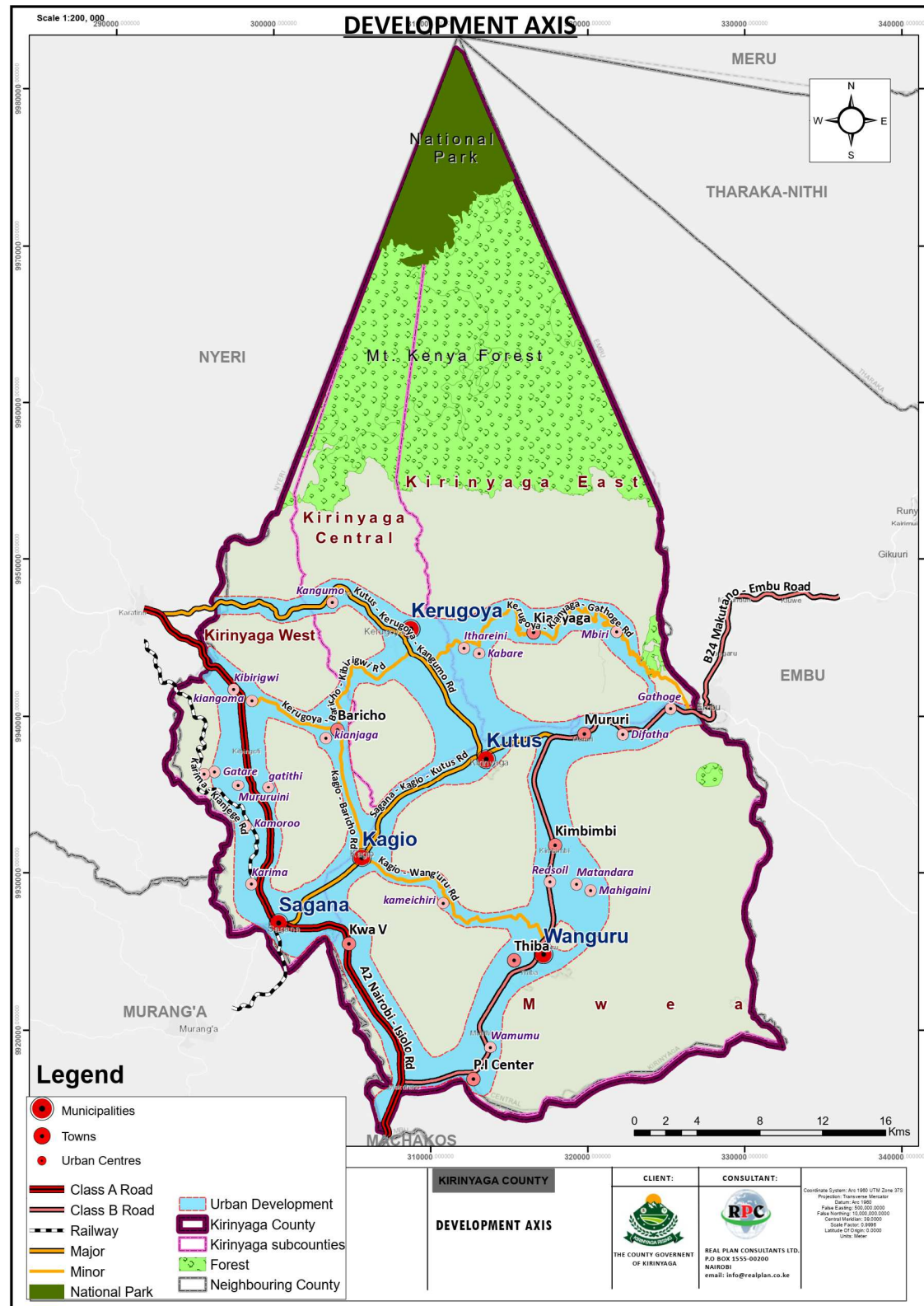
The county movement system consists of a hierarchy of roads and the newly revived meter-gauge railway system. Major corridors include Nairobi – Makutano – Sagana - Nyeri Highway (A2), Makutano – Wanguru - Embu (B6), Sagana – Kagio – Kutus – Samson Corner (B27) and Kutus – Kerugoya – Karatina (B25). The spines form major development axis where the bulk of development has been established. Majority of the population and urban areas such as Wanguru, Kutus, Kerugoya, Kagio, Sagana and Makutano are concentrated along these corridors as shown in the development axis map below. This could be attributed to enhanced access to the services, clients/consumers, markets, and suppliers hence suitable for urban-oriented investments.

The Old Railway line played a key role in the early development of Kirinyaga and especially on development of Sagana town. Therefore, the revived railway is expected to influence the nature of industrialization and urbanization along the corridor (especially Sagana).

Therefore, these major corridors will extensively inform the location and distribution of land use activities and linkages. With this in mind, the following strategies are proposed to enhance the network:

1. Enhancement of the east-west linkage to open up the upper zone by establishing a complete link road
2. The upgrading of roads to promote mobility, connectivity and efficiency whilst spurring growth
3. The development of a series of secondary routes that form cross linkages and connections the primary routes; improving access to and linkages between envisaged hierarchies of nodes.

Map 30: Development Axis



Source: Real Plan Consultants Limited, 2021

5.1.2 Natural System

The natural system in Kirinyaga consists of forests and rivers. Mount Kenya Forest is the most dominant natural resource, covering over 20 percent of the county. It is of significant economic and natural importance. Owing to the sensitive and fragile nature of the resource, it is designated as a conservation area to safeguard it from encroachment by human activities. Mount Kenya forest which is part of the National Park is thus a major structuring element which serves as a barrier to upward settlements. It is also a catchment area and a habitat of various biodiversity hence the need to safeguard its ecosystem.

Kirinyaga also has 6 major rivers and numerous other tributaries all emanating from Mt. Kenya and generally drain from north to south direction in Tana River. These rivers include Sagana, Nyamindi, Rupingazi, Thiba, Rwamuthambi and Ragati. As domestic and agricultural water sources, the rivers have spatially influenced the location of farms and settlement. For instance, the Mwea Irrigation Scheme depends on Thiba and Nyamindi Rivers. Due to their sensitivity ecosystem, the CIP seeks to conserve them by delineation and rehabilitation of riparian.

5.1.3 Nodal System

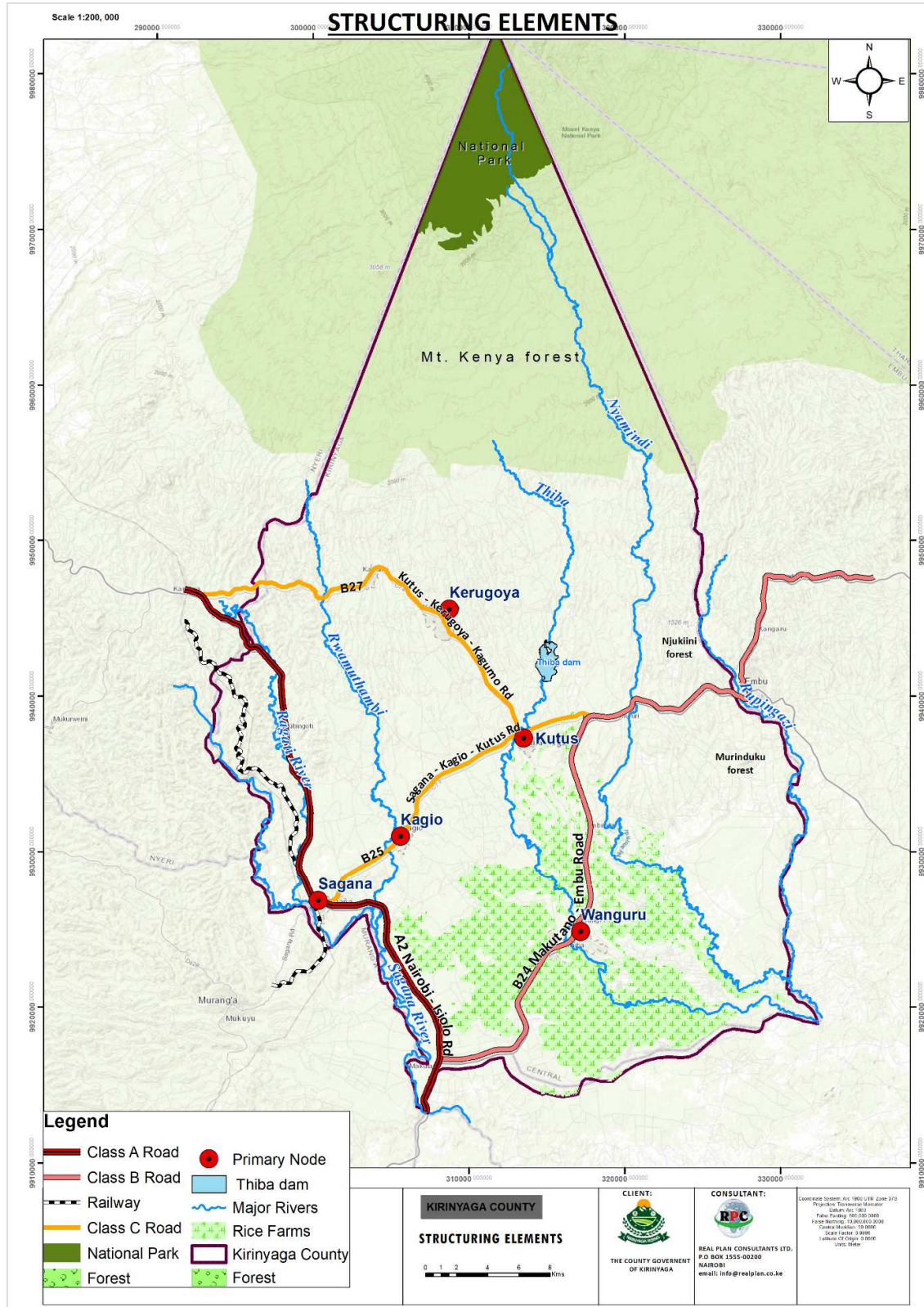
Urban nodes are significant growth points that promote productivity and ensure the spread effect of the developments are widely diffused. Urban areas are known engines and drivers of socio-economic development. The growth nodes however ought to be well networked to propel efficient linkages between the varying hierarchies. Kirinyaga has seven major nodes namely Wang'uru, Kerugoya, Sagana, Kagio, Kianyaga, Kimbimbi and Kutus. They have the highest concentration of urban activities compared to the rest. Such activities include commercial, institutional, administrative, industrial, residential, public facilities and infrastructure.

In terms of structure, a consolidated and connected urban system anchored on the major urban nodes highlighted and supported by a hierarchy of centres is proposed. The proposed hierarchy of urban areas is as listed and is aligned to the Urban Areas and Cities Act.

- ❖ Municipalities – Kerugoya-Kutus, Wang'uru and Sagana-Kagio
- ❖ Towns – Makutano, Baricho, Kianyaga and Kandongu
- ❖ Market centres – Kimbimbi, Kangaita, Kibingoti, Kangai, Kagumo, Thiba, Kimunye, Kiburu, Mutithi, Wamumu (Air Market), Kiamutugu, PI, Mbiri and Karumandi

The goal is to utilize opportunities inherent in the urban areas to improve the economy and liveability. Urban development is to be intensified and residential densities increased in municipalities and towns to accommodate growth and protect prime agricultural land. The remaining growth is to be directed into market centres and support clusters along main routes and into the hinterlands through decentralization of resources. This will contain sprawl, establish more compact development.

Map 31: Structuring Elements



Source: Real Plan Consultants Limited, 2021

5.1.4 Agro-Ecological Zones

The county area stretches from the peak of Mt Kenya to the low-lying plains of Mwea creating a diverse climatic landscape. Consequently, there exist various agro-ecological zones, which have dictated the land use structure and economic activities. The most dominant include the tea and coffee zones in the upper region and the rice zone in the Mwea area (see section 3.15). The agro-ecological characteristics have informed the broad zoning and strategies to safeguard prime agricultural land.

5.2 EXISTING LAND USE

An analysis of exiting land use has been undertaken to form an informed basis for the formulation of new proposals. The existing land pattern represents present-day human activities, economic activities, land tenure systems, distribution and resource utilization. The existing land use plan largely is influenced by agricultural production. The Proposed land use plan acknowledges the existing scenario as it seeks to find solutions to existing problems.

Kirinyaga has several institutions of strategic importance such as Animal Health & Industrial Training Institute Ndomba College, Kenya Agricultural Livestock Research Organisation located at Kimbimbi, Kenya Marine and Fisheries Research Institute (Sagana Fisheries), National Irrigation Authority and Mwea scheme. These institutions have defined the development form of the county.

The Mountain Cities blueprint a development policy guide developed by the County Government has identified several development projects. Anticipated projects include the development of an industrial/business park at Sagana on approx. 250 acres of land, development of a Golf resort, recreational canoeing course along river Sagana, development of mountain climbing routes, golf course with luxury and low-cost houses, Kerugoya-Kutus municipal plan among others.

5.3 LAND SUITABILITY ANALYSIS

Land suitability is determined by landform, vegetation cover, resource endowment, and climatic parameters. Environmentally fragile zones are not suitable for human habitation and urban development. The fragile areas are most suitable for conservation activities and sustainable economic activities to promote socio-economic transformation.

The northern part of the county (below the National Park) receives high amounts of rainfall and has favourable climatic conditions. The areas also have fertile soils. Because of this, the area is most suitable for agriculture (Tea, coffee, Dairy farming). The southern parts of the county covering Mwea have fertile soils; numerous rivers make them appropriate for irrigated agriculture and horticulture.

The central parts of the county, which are well served with trunk infrastructure, social services, administrative and political structures, are suitable for urban development. The zone continues to attract an influx of persons and resources from the agricultural hinterland creating diversified economic activities.

Kirinyaga west is traversed by a major highway leading to Nyeri, Nairobi, Isiolo and Ethiopia, the revived meter-gauge railway (Nairobi-Sagana-Nanyuki), presence of industries in Sagana and land

available for industrial development. Sagana town initially had a large presence of industries. These factors favour Sagana area as a suitable industrial development zone.

Table 77: Suitability analysis

Suitable use	Areas
Conservation areas (Fragile areas)	<ul style="list-style-type: none"> • Forests • Mount Kenya National park • Rivers and wetlands
Agricultural	<ul style="list-style-type: none"> • North of Kirinyaga East, Kirinyaga Central, and Kirinyaga West • South parts of Central Mwea
Urban development	<ul style="list-style-type: none"> • Along development axis • Central parts of Kirinyaga East, Kirinyaga Central, and Kirinyaga West
Industrial development	<ul style="list-style-type: none"> • Kirinyaga West-Sagana • Mwea- Wanguru
Tourism development	<ul style="list-style-type: none"> • Forests • Mount Kenya National park • Mwea west - Kirinyaga West (Sagana corridor) • Kirinyaga east (Thiba Dam area)

Source: Real Plan Consultants Limited, 2021

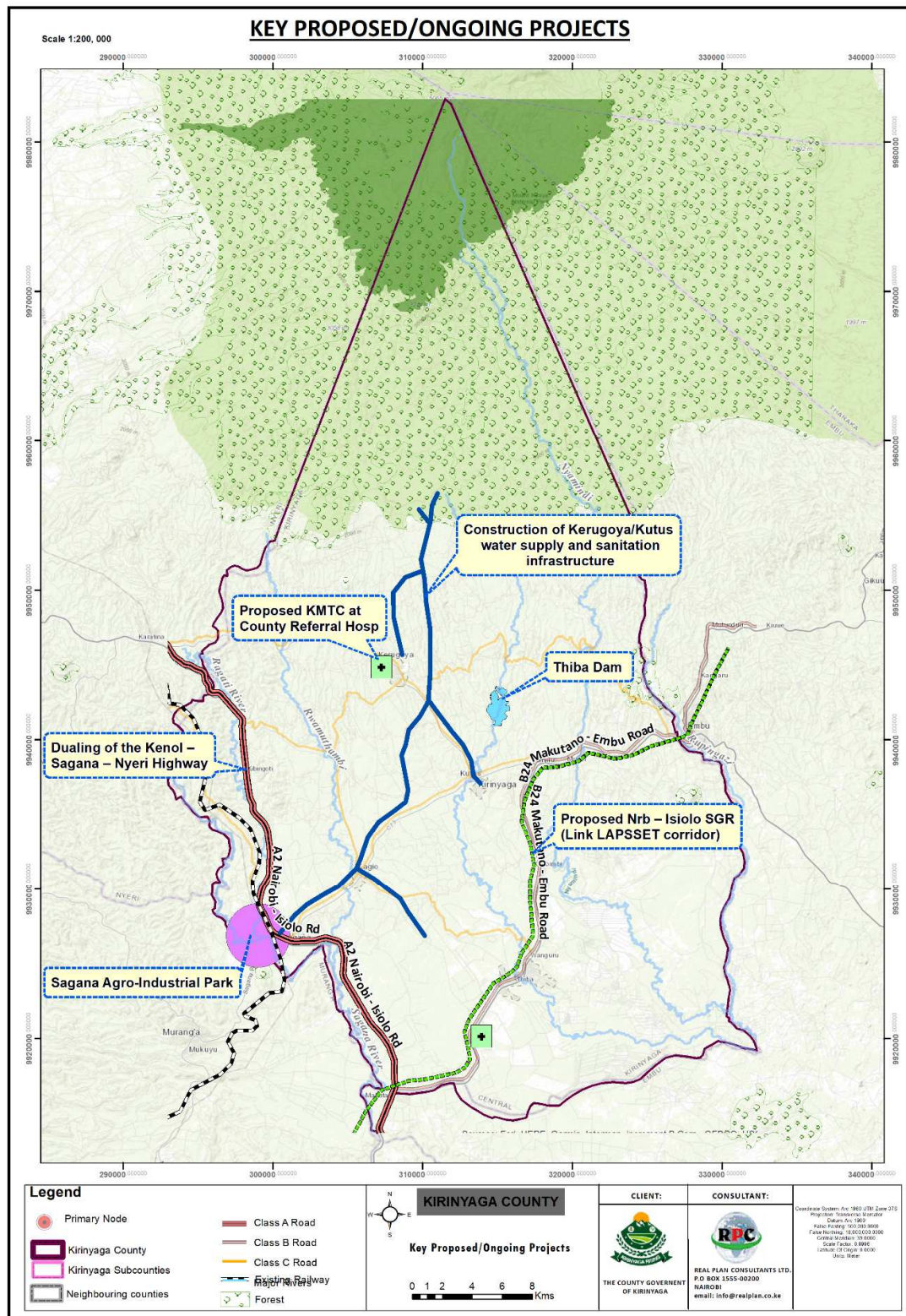
5.4 REGIONAL PROJECTS

Kirinyaga County is strategically located within the central region also referred to as the Mt Kenya region. In this context, various projects are in place within and out of the county that have a great bearing on spatial development.

Kirinyaga is the gateway from Nairobi to counties such as Nyeri, Embu, Meru and Laikipia. The county also neighbours Murang'a County. Development of the proposed dual carriage highway (A2) from Kenol through Sagana to Marua is a significant project. The Kenol –Murang'a - Sagana road also passes through the county thus placing the county in a strategic transportation corridor. The transport improvement projects once implemented will ease movement in the region, improve trade and movement of goods and persons, reduce road accidents and travel time. This major corridor links the Nairobi Metropolitan region to the LAPSSET corridor.

On-going Development of Kenya Medical research Institute at Wamumu area in Mwea is a project that will lead to urban growth around the corridor. This provides opportunities for the area.

Map 32: Key Proposed & Ongoing projects



Source: Real Plan Consultants Limited, 2021

5.5 DRIVERS OF ECONOMY

In preparing the plan, special consideration was made to the drivers of the economy. Agriculture is the major driver of the economy as it currently employs 87 % of the population. The agriculture sector is quite diversified with cash and food crops such as Tea, coffee, rice, horticulture, fruit, macadamia, banana, fish farming, dairy and poultry farming among many others. In 2018, the sector earned KShs 16.8 billion.

The second key consideration is urbanization. With increasing urbanization, majority of the population will increasingly settle in the urban areas. According to the Vision 2030, urban population nationally is projected at over 50%. Planning will therefore emphasize on enabling urban centres to keep pace with the projected population.

The small and medium scale enterprises in the county are vital drivers of the economy. Registered SMEs in the county are approx. 35,800 generating 493 million per annum. The Informal sector is another driver of the economy that employs a significant number of unskilled and semi-skilled personnel. Industrialisation is also a key sector that covers tea, coffee, rice milling, macadamia, horticulture among others. This sector has large potential and a critical driver moving forward.

The emerging tourism sector contributes to the economy and has a much larger potential if fully harnessed. Estimates from the county revenue office approximate annual revenues of KShs. 300 million. The sector is still underdeveloped and has greater potential.

CHAPTER 6

DEVELOPMENT SCENARIOS

This is a preliminary step towards the formulation of a desirable spatial framework. Development scenarios provide a better understanding of the county for the purpose of determining an overall spatial strategy. It involves conceptualization of alternative futures for Kirinyaga anchored on the analysis and synthesis of the existing situation; and the people's development vision for the county.

The vision is to make Kirinyaga a leading agricultural, industrial, tourism, wellness and economic hub well-equipped with world-class infrastructure and services. The development alternatives are based on strategic county resources bases as well as emerging opportunities (potentials) and remedies for development challenges identified. The objectives of the development scenarios are:

1. To achieve countywide development and regional competitiveness;
2. To optimally and sustainably explore the existing county resource base;
3. To rejuvenate Kirinyaga economy;
4. To improve the quality of county space;
5. To achieve environmental sustainability

Taking into account the above, three development strategies (scenarios) are envisioned. It is envisaged that if well-thought-out, the strategies could establish a path to a prosperous county. They include;

1. Agricultural development
2. Urban development
3. Eco-tourism and conservation

The scenarios are highlighted below

6.1 SCENARIO 1: AGRICULTURAL DEVELOPMENT

Scenario 1 is built on the bedrock of the county economy, which is agriculture. It is supported by the availability of arable land, fertile soils, water, diverse and favourable climatic conditions. The path towards making Kirinyaga a leading agricultural county largely focuses on the following strategies.

- ⇒ Optimizing crop production
- ⇒ Establishment of research centres for coffee and tea production e.g. the NIA dealing with rice and Sagana Research Centre dealing with fish farming
- ⇒ Protection of agricultural lands
- ⇒ Promotion of agri-business by establishing agro-based and value addition industries
- ⇒ Enhance effective marketing systems and networks
- ⇒ Protection and utilization of water resources
- ⇒ Diversification of agricultural produce

- ⇒ Establishing adequate support infrastructure such as roads, water, electricity, and ICT infrastructure

The envisioned spatial structure for Scenario 1 is as follows;

- ⇒ It envisions five major production zones where dominant crops are tea, rice, coffee, and mixed agriculture.
- ⇒ A conservation zone covering Mt. Kenya Forest has been set aside for preservation and protection as a major water catchment area.
- ⇒ Major agro-based and value addition industries to be located in Sagana. Mwea is also an emerging value-addition zone. A few agro-based industries will also be located within production areas
- ⇒ The Nairobi – Isiolo, Makutano-Embu, Sagana – Samson Corner, Kutus – Karatina and Upper zone east-west link highlighted as corridors to enhance connectivity between production areas and the market (local and regional). The old railway is equally crucial in this scenario.
- ⇒ Sagana and Kagio are envisioned as major agricultural wholesale markets

The merits and demerits of the agricultural hub development scenario are summarized below

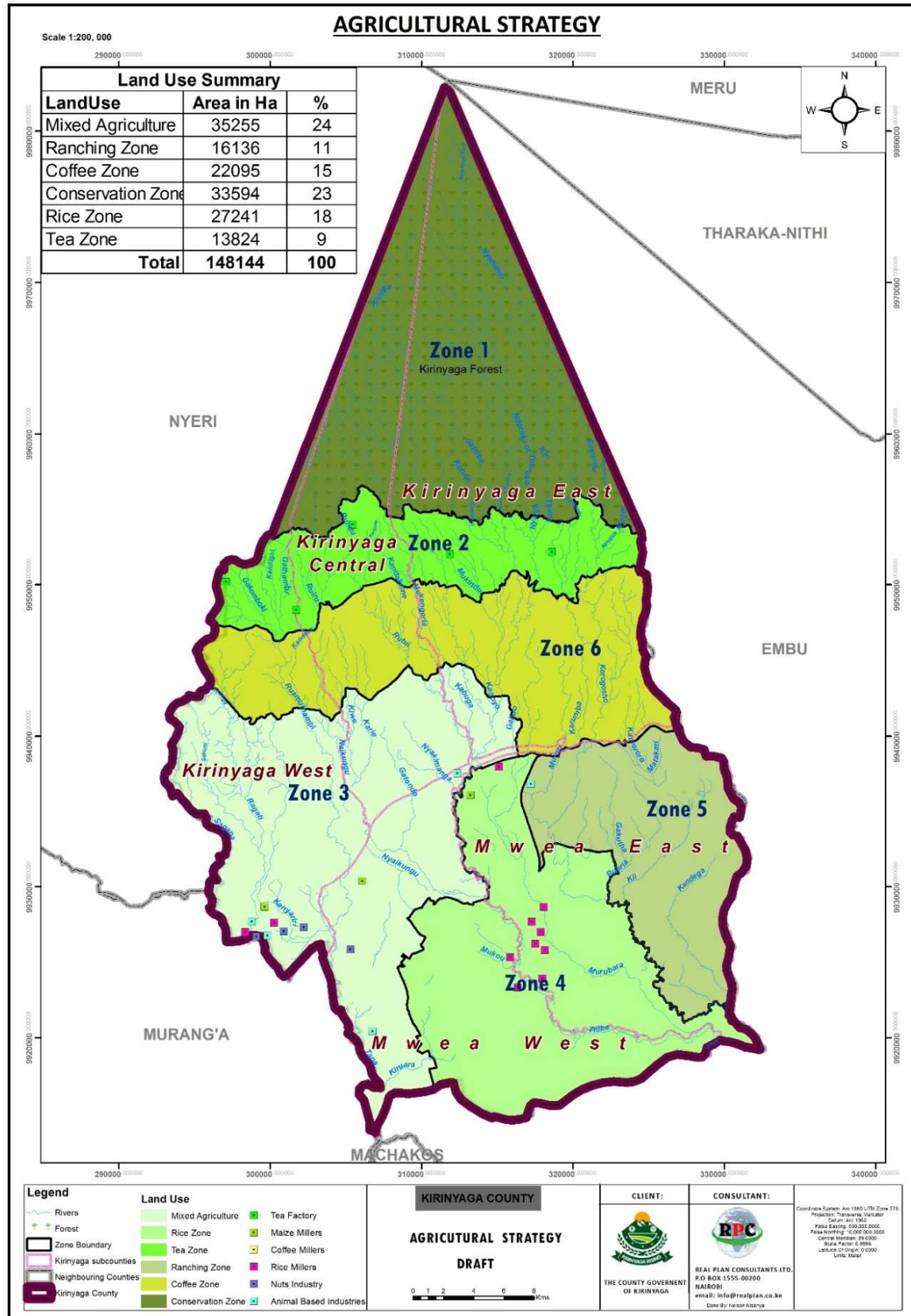
Merits

- ⇒ Protection of agricultural areas (food baskets)
- ⇒ Development of green economies
- ⇒ Contribution towards National Food security
- ⇒ Will lead to industrialization, value addition
- ⇒ Favours agribusiness
- ⇒ Limited land transformations

Demerits

- ⇒ High dependency on Agrarian economy
- ⇒ Limited variety of employment opportunities

Map 33: Scenario 1: Agricultural Development



Source: Real Plan Consultants Limited, 2021

6.2 SCENARIO 2: URBAN DEVELOPMENT

Urban areas are perceived worldwide as engines of development. This scenario seeks to propel the county's socio-economic development by promoting growth in urban centres. It intends to identify and develop a planned network of designated functional centres across Kirinyaga. It also advocates for creation of strong rural-urban linkages.

Scenario 2 is anchored on the theory of Polarisation by Francoise Perroux. The theory postulates that economic growth does not occur everywhere at once but at points (poles) of growth. These poles have driving economic activities and entities which lead to economic development. In the case of Kirinyaga, the growth poles are the numerous existing urban areas.

The urban development alternative seeks to utilize opportunities inherent in these growth poles (urban areas) towards improving economic (trade, employment) and social development (liveability) through Urban Planning and development. These initiatives are meant to guide human settlement and to realize the potential in urban areas.

The purpose is to create an enabling environment to support urbanization. This is achieved through the provision of services such as security, electricity, water, sewer services, proper urban road infrastructure, NMT facilities, functional waste collection and management, land use zoning and urban land management. The urban development strategy will focus on;

- ⇒ Undertake an inventory of the urban centers
- ⇒ Establishment of urban hierarchy and functions
- ⇒ Delineation of urban catchments
- ⇒ Establishment urban limits
- ⇒ Densification of urban development
- ⇒ Discourage establishment of new centres
- ⇒ Prioritization of the planning
- ⇒ Improving living standards of both urban and rural population
- ⇒ Creation of an enabling environment for commercial and industrialization activities
- ⇒ Strengthening of urban-rural linkages

The emerging spatial structure for this scenario has the following key components

- ⇒ Three major brown zones namely Kerugoya-Kutus, Wang'uru and Sagana-Kagio Municipalities. Kerugoya-Kutus is envisioned as an administrative centre, Wang'uru as an agricultural centre and Sagana Kagio as an industrial, logistic and agricultural centre.
- ⇒ Makutano, Kandongu, Kianyaga and Baricho to be conferred status of a town with numerous market centres. This is where excess growth from municipalities will be directed.
- ⇒ The Nairobi – Makutano – Sagana - Nanyuki Highway, Makutano – Wanguru - Embu, Sagana –Kagio – Kutus - Samson Corner, Kutus – Kerugoya – Kagumo - Karatina Roads

and the old railway line are considered key linkages between growth nodes and connectivity to the larger region.

- ⇒ The green space defined by the Mt. Kenya Forest / National Park that is set aside for conservation and eco-tourism
- ⇒ The production zones are also considered as county food baskets covering the rural agricultural hinterland

The merits of the urban development scenario are

- ⇒ Kirinyaga has numerous urban centres that are incubators of growth and development
- ⇒ Emphasizes creation of an enabling environment by the provision of Infrastructure, services and good governance
- ⇒ Urban areas support Trade, Commerce, Hospitality, service industry trade and industrialization thus generating revenues and incomes.
- ⇒ Promoting Urbanisation escalates the growth of other economic sectors.
- ⇒ Urban areas provide large employment opportunities for locals.
- ⇒ The County has adequate land for urban development and expansion as well.

6.3 SCENARIO 3: ECO-TOURISM AND CONSERVATION

The natural environment in Kirinyaga County presents numerous assets and potentials that are aesthetically appealing. The major assets and potentials include:

- ⇒ Forests including Mount Kenya forest among others (gazetted and non-gazetted).
- ⇒ Water Resources (rivers, spring, swamps, wetlands, streams)
- ⇒ Wide range of wildlife species.
- ⇒ Rich Local Culture and heritage
- ⇒ Aesthetically appealing landscape (hanging valleys, waterfalls, V-shaped valleys, etc.).
- ⇒ Agro-tourism potential

Scenario 3 targets conservation and sustainable utilization of natural resources and enhancement of tourism revenues. It promotes the establishment of tourism zones around existing facilities, Promotion of tourism sector as well as the development of new tourism niches. New tourism niches include county tourism circuit, Adventure tourism destinations (water sports, Zip-lining, mountain climbing, hiking, motorsport circuits, cycling), forest eco-tourism facilities, resort city concept (golf estates, resorts and conferencing), wellness concepts, County Archive and museum centres among others.

Tourism resources when properly utilized can improve the incomes and livelihoods of the communities. This sector has the potential to create multiplier benefits trickling down to other economic sectors. These include support services such as banking, Tours and travel agencies, agriculture supply, transportation, leisure and entertainment industries.

The following strategies are recommended to support the tourism and conservation sector to achieve its full potential.

- ⇒ Conservation of Natural Resources
- ⇒ Sustainable utilization of resources
- ⇒ Value addition to the existing sites
- ⇒ Diversification of activities within a site (sports tourism and education tourism together)
- ⇒ Provision of supporting services in the existing sites, for example, having quality hospitality services around them.
- ⇒ Exploring new tourist attraction sites and areas
- ⇒ Establishment of tourism zones
- ⇒ Establish an International Golf Resort in Kirinyaga East
- ⇒ Opening up of the Kamwetii route
- ⇒ Establishment of an eco-tourism corridor at the edge of Mt. Kenya Forest
- ⇒ Establish an arboretum in Kerugoya Forest

Merits of eco-tourism and conservation scenario include:

- ⇒ The County has potential to be a major tourist destination (globally and nationally) that is not fully utilized.
- ⇒ The tourism sector could be a major source of revenue for local communities and county government.
- ⇒ The eco-tourism sector would form a big market for the consumption of local produce and products.
- ⇒ Tourism promotes environmental conservation, wildlife conservation and preservation of cultural practices, heritage and other historical sites.
- ⇒ Eco-tourism will provide employment opportunities for the local communities hence improving their living standards.
- ⇒ Kirinyaga is strategically located in proximity to major tourist attractions. E.g. Mount Kenya which is a UNESCO Heritage site, Mt. Kenya National Park, forests, scenic areas etc
- ⇒ Availability of existing tourism hospitality services in the county (hotels, tours and travel, holiday homes).
- ⇒ The county has huge potential for diversification of tourism sites and activities.

Demerits of this scenario are

- ⇒ Likely erosion of culture
- ⇒ Possible encroachment and disruption of natural ecosystem by the tourism infrastructure

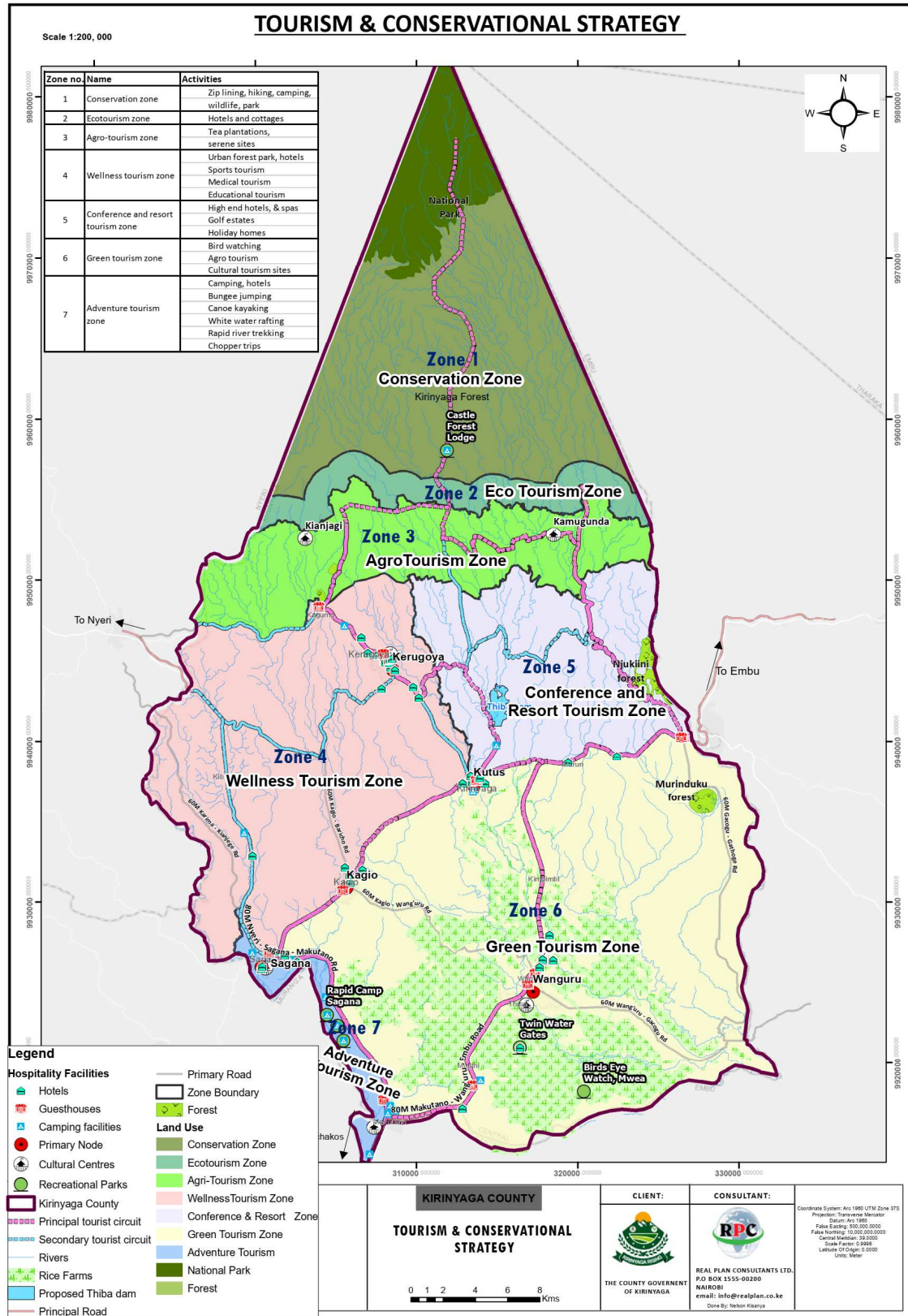
Based on the resources and potentials, Kirinyaga is zoned into the following tourism zones and activities:

Table 78: Scenario 3: Proposed Tourism Zones

Zone No.	Name	Activities
1	Conservation zone	Thick Forests – Nature trails, Hiking and mountain climbing, Zip lining, hiking, camping, Wildlife, park, Research works
2	Ecotourism zone	Thick natural forest, Hotels and cottages
3	Agro-tourism	Tea plantations, serene sites
4	Wellness tourism zone	Urban forests – arboretum, hospitality facilities, medical tourism, educational tourism
5	Conference and resort tourism zone	Thiba Dam scene views, high-end hotels & spas, golf estates, holiday homes
6	Green tourism zone	Scenic rice plantations, Bird watching, Cultural tourism
7	Adventure tourism	Camping, hotels, bungee jumping, canoe kayaking, white water rafting, rapid river trekking, chopper trips

Source: Real Plan Consultants Limited, 2021

Map 34: Development Scenario 3: Tourism and Conservation



Source: Real Plan Consultants Limited, 2021

6.4 INTEGRATED SPATIAL DEVELOPMENT FRAMEWORK

The Integrated Spatial Development Framework for Kirinyaga has integrated the 3 development scenarios/strategies analysed. It has the following key spatial components.

6.4.1 The Protected Highlands

This refers to Mt. Kenya Forest and the Alpine zone covering the northern part of Kirinyaga. Mt. Kenya is also known as Kirinyaga which means the dwelling place of God in Kikuyu language. This was where the Kikuyu Community offered their prayers to God hence considered sacred. The fragile resource shared by several counties is a major water tower. It is a catchment area for Sagana, Rupingazi, Ragati, Rwamuthambi, Nyamindi and Thiba Rivers serving Kirinyaga and Kenya at large. The 350km² thick indigenous forest is inhabited by a variety of wildlife. This coupled with prominent features such as the peaks, hanging and V-shaped valleys make it a major tourist attraction. Although Kirinyaga is dominantly agricultural, Mt Kenya Forests serves major lung for the region.

The zoning of these areas for conservation allows its protection, preservation and sustainable development having in mind its fragile nature. Towards sustainable utilization of the protected resource, the following is recommended:

1. Marketing of the Kamweti Mt. Kenya route to increase tourism activities in Kirinyaga
2. Provide an ecotourism belt that allows development of regulated tourism infrastructure (as in the case of Mara National Reserve.)
3. Establish the east-west link road in the upper zone to improve access to the resources.

6.4.2 The Productive Highlands

The productive highlands refer to the tea and coffee areas located below the Mt. Kenya Forest. This region is characterized by highly fertile and deep soils, the dependence of rain-fed agriculture, high altitude and dominance of a single crop. It covers the northern parts of Kirinyaga East, Central and West Sub-counties. The area has seventy-six (76) wet mills and two (2) dry coffee millers within the coffee zone and five tea processing factories. According to the County Agricultural data, in 2020 tea earned the county KShs. 7.6 billion while coffee revenue on the other hand is estimated at KShs. 2.8 billion. Cumulatively, the two cash crops account for more than 46% of the crop revenue in the same year.

Despite the Kirinyaga (Kenya) coffee and tea ranking high (in terms of quality) internationally, the two crops have been underperforming economically in recent years. This is mainly attributed to the national policies, failed institutional frameworks and international market. Other key challenges in the region are declining land sizes, minimal value addition (hence minimal returns), poor road network, increased poverty levels (due to low returns) and lack of diversification. Towards improving the quality of life, strict development control regarding agricultural land has been proposed. The objective is to minimize conversion to other competing land uses and subdivision of agricultural land into uneconomical sizes.

Value-added tea and coffee could fetch five times more income than the growers are presently getting. Therefore, establishment of a gourmet coffee breweries and high-quality tea processing plant in Sagana is recommended. Value addition and storage facilities for milk and bananas produced in the region and Kirinyaga at large are also proposed to encourage diversification. The goal is to reduce overdependence on the main crops. The establishment of the proposed east-west linkage in the region will promote mobility and accessibility. Other proposals include the completion of roads under construction and paving of the following secondary accesses

- ❖ E622: Kianjiru – Karusa – D458 (near Kiamutugu)
- ❖ D461: Kabare – Kianyaga - D458 (near Kiamutugu)
- ❖ E607: Kiburu – Nguguini – Kiriti – Kiangai – E617 (Proposed east-west link road)
- ❖ Kerugoya – Kiandieri – Mugwandi – E616 (Near Kangaita)

This will ease the movement of raw materials to the factories, produce to the market and access to farm inputs.

6.4.3 The Grain Basket

The grain basket concept refers to the rice-growing area of Mwea. It largely focuses on the Mwea Irrigation Scheme, whose inception was in 1954. The area lies along the drainage basins of Rivers Thiba and Nyamindi, the main sources of water. Rainfall patterns in Mwea are relatively low (annual average of 750mm) and unreliable hence the dependence on irrigation. The scheme area is characterized by a flat terrain hence susceptible to flooding and ideal for flood/basin irrigation systems. It is predominantly covered with black cotton soils, with a few raised spots of red soil. Rice paddies have been developed on the low areas that are covered with black cotton soils while the high spots covered with red soils are reserved for settlement and production of upland crops. Crops grown here include tomatoes, onions, French Beans, Maize and other horticultural crops. Small-scale livestock keeping is also common.

The irrigation scheme was conceived during the colonial period when numerous detention camps with thousands of African inmates were located in Mwea and the larger region. The scheme thus provided ‘useful’ work for the detainees. It was developed into one-acre units for rice farming, all in black cotton soil. This was handed over to the detainees (on lease), where each had four one-acre plots to grow rice only. Each was given extra land to grow vegetables and a free house at the nearby village. This led to the emergence of what is currently known as colonial villages. The state of the villages has deteriorated over time and continues to face multiple issues. Common challenges include overcrowding due to increased population, poor quality of housing, connectivity issues, insecurity of tenure and environmental health concerns.

Mwea Irrigation Scheme that is under the National Irrigation Authority covers about 26,000 acres and has potential of up to 10,000 acres for expansion. However, this is constrained by lack of sufficient water for irrigation. Therefore, in a bid to improve the reliability of irrigation water and increase the area under irrigation, The Authority under the Mwea Irrigation Development Project is: Constructing the Thiba Dam and canal way and; Undertaking the construction works for irrigation and drainage facilities in the expansion area (Mutithi section covering 10,000 acres)

The newly constructed Thiba dam will provide water storage capacity of 11,200,000m³ to enable expansion of the area under irrigation to 35,000 acres as well as allowing two crop yields per year. The development will increase production of rice to approximately 160,000 tons thus increase the income generated by farmers from sale of paddy rice to KShs. 12 billion and revenue generated from the production and value addition chain.

The objective of the grain basket concept is to safeguard this high potential land to enhance food security and increase returns. Therefore, it is zoned for agricultural use. To avert encroachment by urban activities, urban limits have been set and development of planned, smart and compact urban developments encouraged.

The completion of tarmacking of Kagio-Makutano, Kagio-Kandongu-Mutithi and Kagio – Wanguru Roads is crucial. In the same spirit, tarmacking of Mutithi – Kiandegwa – Gategi – Ndindiruku Road, Kimbimbi – Mahigaini – Nyamindi – Kombuini Road and Kagio – Kangai – Kimbimbi road has been recommended. Numerous minor roads are also set for graveling. The objective is to open up an area that lags behind in terms of development by enhancing access to basic services and farm inputs, strengthening urban-rural linkages and enhancing access to local and regional markets.

The mapping and preparation of an inventory of all colonial villages in Kirinyaga has been done. Additionally, preparation of comprehensive and integrated physical and land use plans for identified colonial villages is proposed in phases. The interventions are geared towards developing colonial villages into eco-villages. This will present a road map towards provision of quality housing; adequate infrastructure and services promote environmental health and contain the sprawl of settlements.

6.4.4 Adventurous Scapes

The situational analysis brings out the Sagana Belt as an emerging tourism and hospitality corridor. It is estimated that over 50 percent of major hospitality facilities and tourism infrastructure are located in this area. Examples of such facilities include Sagana Gateway Resort, Nokras Riverine Hotel and SPA, The Great Sagana Resort, Jangwani, Tim Step Hotel and Campsite, Tetura Luxury Camp, Savage Wilderness, Rapid Camp and Havila Resort.

This is attributed to the prominent features of River Sagana, the panoramic views, its location along the Central Tourism Circuit and the transiting International Trunk Road that offers a variety of clients. Sagana River is however the major attraction resource whose features allow activities such as bungee jumping, canoe kayaking, white water rafting, team building activities, camping and rapids river trekking. The resource provides wide water frontages (up to 450m) and the largest waterfalls in Kenya (in terms of volume). This is combined with huge boulders (rocks) perfect for rock climbing and nature trails. The area is ideal for adventure.

The proposed Kirinyaga Industrial and Business Park in Sagana complements the concept in that each attracts a possible market for the other. The workers, investors and visitors are potential clients for the hospitality industry. The reviving of the old railway will further complement the belt by providing an alternative, convenient and affordable public transport network.

Zoning it for eco-tourism creates an opportunity to safeguard this unique belt. Measures to combat river pollution, over-abstraction of river water and degradation of river riparian and ecosystem have been provided for rivers countywide.

6.4.5 The Activity Hubs

The activity hubs concept refers to major urban development in Kirinyaga namely Kerugoya, Kutus, Wang'uru, Kagio and Sagana. These have the highest concentration of urban activities i.e., commercial, residential, industrial, institutional, public facilities, soft and physical infrastructure. Other important urban areas include Kimbimbi, Makutano, Baricho, Kianyaga and Kandongu. The urban areas are key drivers of socio-economic transformation in the county.

In terms of structure, a consolidated and connected urban system anchored on the major urban nodes highlighted and supported by a hierarchy of centres is proposed. Towards promoting service delivery, the efficiency of urban management and elimination unnecessary competition merging of Kerugoya/Kutus and Sagana/Kagio is recommended. The proposed hierarchy of urban areas is as listed and is aligned to the Urban Areas and Cities Act.

1. Municipalities – Kerugoya-Kutus, Wang'uru and Sagana-Kagio
2. Towns – Makutano, Baricho, Kianyaga and Kandongu
3. Market centres – Kimbimbi, Kangaita, Kibingoti, Kangai, Kagumo, Thiba, Kimunye, Kiburu, Mutithi, Wamumu (Air Market), Kiamutugu, PI, Mbiri and Karumandi

The goal is to utilize opportunities inherent in the urban areas to improve the economy and liveability. Therefore, the three proposed municipalities will be anchored, planned and developed as follows. This is in line with the Mountain Cities Blueprint.

1. Kerugoya-Kutus will serve as an administrative and wellness centre
2. Wang'uru is proposed as an agricultural/commercial town
3. Sagana-Kagio as an industrial, commercial and transit town

Owing to the function of Kirinyaga as Kenyas food basket, development of well-planned, smart and compact urban areas is crucial. Urban development is to be intensified and residential densities increased in municipalities and towns to accommodate growth and protect prime agricultural land. The remaining growth is to be directed into market centres and support clusters along main routes and the hinterlands through decentralization of resources. This will contain sprawl, establish more compact development. Demarcation of urban extents/limits has also been done.

6.4.6 Circulation Corridors

The movement system consists of a network of roads that significantly shape the county's direction of growth. They represent the major development/economic corridors. This is due to the guaranteed accessibility that has gradually attracted development and increased concentration of activities. The concept pays special attention to the following roads: Nairobi – Sagana –Nanyuki (A2), Makutano – Wang'uru – Embu (B6), Sagana – Kutus – Samson Corner (C73) and Kutus – Kerugoya – Karatina (C74). As earlier noted, the four corridors form the major development axis where the bulk of development is established.

The main goal of the CSP is to enhance mobility, connectivity and efficiency whilst spurring growth and promoting inclusivity in the county. Towards achieving this goal, there are plans by the National Government (KENHA) to expand the Kenol – Sagana – Nyeri Highway into a dual carriage. The road is expected to be a major boost to the region considering it is a major development corridor. Owing to the foreseen significance of the B6, C73 and C74 gradual expansion into dual carriage roads is recommended where phase one is the acquisition of the road reserve within the CSP period. The enhancement of east-west linkage to open up the upper zone by establishing a complete link road has been proposed. Further, the development of a series of secondary routes to form cross-linkages and connections with primary routes has been proposed. The secondary roads will improve linkage between envisaged hierarchy of nodes and their hinterlands.

The old meter gauge rail running from Nairobi to Nanyuki through Kirinyaga is currently undergoing rehabilitation. The railway played a major role in the early development of Kirinyaga (particularly Sagana) and the same is expected once it is revived. A modern station and market are proposed at Sagana. This is likely to stimulate economic activities making it an economic, tourism and industrial hub. The road and railway system must be integrated to function seamlessly.

6.4.7 The Mixed Farm

This concept refers to the midlands covering the lower areas of Kirinyaga West and Central Sub-counties. It also stretches to the upper areas of Mwea West. The climatic conditions are temperate and sub-humid and ideal for a wide variety of agricultural activities undertaken here. These activities include crop, dairy, poultry and fish farming hence the mixed farm concept. Bananas, maize, coffee, avocado, macadamia and horticultural produce such as tomatoes, French beans, cabbages and passion fruits are among crops grown. The goal is to focus on the strength to improve the livelihood of the locals.

Over time rainfall patterns have changed where upper and midland areas experience inadequate and unreliable rainfall. This could be attributed to global warming and climate change. In this case, irrigation is recommended to bridge the gap. Greenhouse farming is also encouraged to optimize on usage of water and scarce agricultural land while increasing productivity. Like other agricultural areas, the existence and optimal utilization of this region is threatened by increasing population, sprawling urban activities, reducing land sizes, minimal value addition, inadequate support infrastructure, unreliable market and outdated farming methods. In response, relevant interventions such as zoning area for agricultural purposes, establishment of value addition plants in Sagana, upgrading of secondary roads to tarmac and gravel and integration of water reticulation system among others are proposed.

6.5 CONCLUSION

The discussion on development scenarios and integrated spatial development framework has informed the formulation of the desired Kirinyaga Land Use Plan and Land Development Control Regulations

CHAPTER 7

SECTOR STRATEGIES

This chapter presents the proposed sectoral policies, strategies and actions. The goal is to address the development issues identified while leveraging on the opportunities brought out in the situational analysis. The sectoral proposals are geared towards realizing the CSP vision of making a leading agricultural, industrial, tourism and economic hub well-equipped with world-class infrastructure and services. Thematic areas identified include:

7.1 INFRASTRUCTURE DEVELOPMENT

The provision of infrastructure is essential to improving the standards of living. It improves the competitiveness of its economy, the quality of life and the delivery of public services. This enhances the attractiveness of a place to live and do business.

7.1.1 Transport Plan

Transportation is important for connecting people to opportunities such as getting residents to work, education and training, connecting businesses with suppliers and customers, linking farmers to the market, connecting industries to raw materials, as well as providing easy access for tourists and visitors to get to events, leisure activities and shopping.

The success of the county economy depends on a well-connected, integrated and quality transportation network so that people will choose to live, visit, invest and set up businesses. The main objective is to enhance intra and inter-county accessibility, enhance the movement of persons, goods and services, and link the various activity areas and sectors.

7.1.1.1 Policy Direction

- Ensure minimum standard for class A, B, C, D and crucial link roads within the county is tarmac with frequent maintenance. The minimum standard for all other roads is gravel with frequent maintenance before and after rainy seasons.
- Upgrading to bitumen status all roads with Municipalities, Towns and Market Centres
- Enhancement of mobility and linkage countywide especially remote areas to open them up for development
- Ensure development of walkable urban areas towards realizing social justice and equity for non-motorized users and persons with disabilities
- Integrate existing and proposed road, rail and air transportation systems to achieve efficiency
- Ensure construction of resilient and climate-proof road infrastructure that can withstand harsh climatic conditions
- Provision of alternative means of transportation to compliment road transport
- The minimum road width of access to any property is recommended at 9M, and others as shown in the table below

Table 79: Road Width Policy

	Road	Recommended min. width (m)
1	Class A	60
2	Class B	40
3	Class C	25
4	Class D	25
5	Class E & Special purpose	20
6	Commercial street	15
7	Industrial areas	15
8	Residential street	12
9	Public facility access street	12
10	Property access road	9

Source: Kenya Roads Board, 2019

7.1.1.2 Strategies

The following key strategies are adopted to leverage the opportunities and counter the challenges identified.

- ☐ Establishment of an elaborate road network
- ☐ Identification of missing link roads
- ☐ Upgrading, widening and maintenance of roads
- ☐ Promote development of public transport
- ☐ Establishments of terminal facilities
- ☐ Provision of NMT facilities
- ☐ Construction of key junctions
- ☐ Revitalization and upgrading of meter gauge rail and Mwea Airstrip
- ☐ Integration of rail and road transport at Sagana

7.1.1.3 Transportation Corridors

The proposed transportation plan for Kirinyaga County seeks to promote the following movement corridors. These are the main channels where people, goods and services are ferried. The corridors as earlier highlighted, significantly influence development growth, mobility, accessibility and opening up of remote areas. Therefore, measures have been established to promote efficiency in the existing corridors and opening up new corridors. The corridors are in two categories:

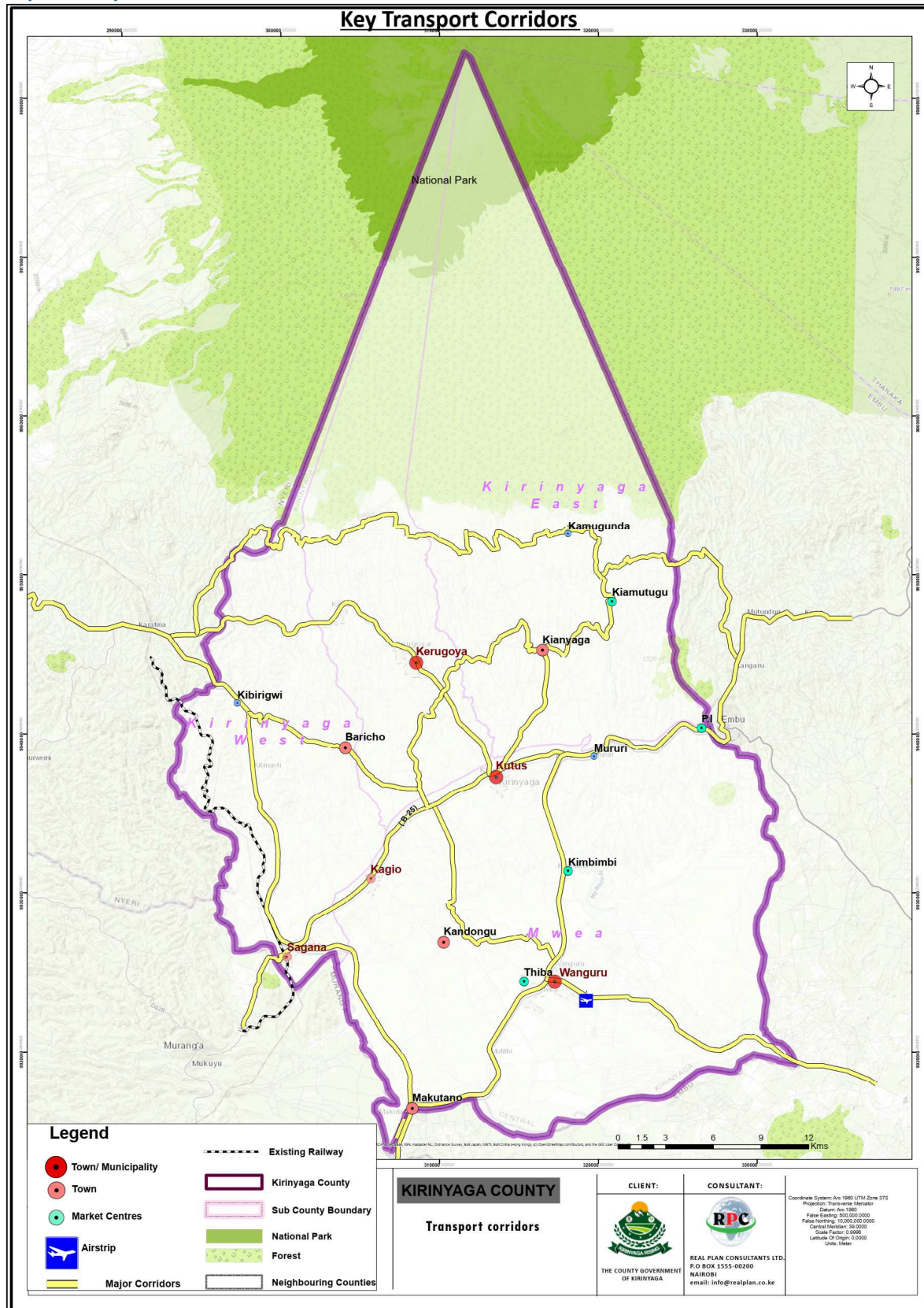
Key corridors include:

- Kenol – Makutano – Sagana – Karatina Highway & Nairobi – Sagana – Nanyuki Railway
- Makutano –Wanguru - Embu
- Sagana – Kagio - Kutus
- Kutus – Kerugoya – Kagumo - Karatina

The Minor corridors include 2 new corridors proposed for establishment as outlined

- Kerugoya – Baricho – Kagio
- Kiamutugu – Kimunye – Kangaita – Gatwe – Karatina (opens up the tourism and upper agricultural area, and links Embu, Kirinyaga, and Nyeri Counties)
- Wanguru – Kiumbu – Kangeta – Gachoka (A9)

Map 35: Transport Corridors



Source: Real Plan Consultants Limited, 2021

7.1.1.4 Road Network

An elaborate countywide road network consisting of principal roads, secondary roads and other road categories is proposed as elaborated.

a. Principal Roads

These constitute the four major roads namely A2, B6, B25 and B27. These are currently the busiest and more traffic is expected to significantly increase due to the functions they serve. Notably, the roads transit major urban centres in the county such as Wang'uru, Sagana, Kutus, Kerugoya and Kagio whose rapid growth is anticipated. Therefore, the following is proposed:

Table 80: Principal Roads Interventions

Road	Description	Length (km)	width (m)	Proposals	Priority	Year
A2	Nairobi – Sagana – Nyeri	36	60	<ul style="list-style-type: none"> Upgrade to dual carriage Provide service roads Upgrading of Makutano and Sagana Junctions to an interchange Provide footbridges at Sagana, Makutano and other urban centres 	1	2019/21
B24	Makutano - Embu	39	40	<ul style="list-style-type: none"> Widen to 60m Upgrade to dual carriage Provide service roads Upgrading of Wanguru Junctions to medium capacity junctions Provide a footbridge & walkways at Wang'uru and other urban areas 	3	2023/25
B27	Kutus – Kerugoya – Karatina	24	40	<ul style="list-style-type: none"> Upgrade to dual carriage Provide service roads in urban areas Provision of a medium-capacity junction at C74 junction in Kutus Provide provision of NMT facilities crossings zones and walkways in urbanized areas 	4	2025/27
B25	Sagana – Kutus – Samson Corner	24	40	<ul style="list-style-type: none"> Upgrade to dual carriage Provide service roads in urban areas Provision of a medium-capacity junction at C74 junction in Kutus Provide provision of NMT facilities crossings zones and walkways in urbanized areas 	5	2027/29

Source: Real Plan Consultants Limited, 2021

b. Secondary Roads (Class C & D)

These roads connect market centres or high classes' roads. They mainly constitute class C and D roads whose interventions are;

- Tarmacking of all secondary roads & completion of tarmacking projects underway
- Class C and D roads to be at least 25m wide. The reserve can be increased in urbanized areas
- Roads marking and Installation of signage to improve safety;
- Installation of professionally designed drainage infrastructure to fit each case and eliminate flooding challenges;
- Installation of NMT facilities with well-designed tree lines within urbanized areas

Table 81: Upgrading of Secondary Roads (Class C & D)

Code	Road Name	Condition	Proposal	Length (Km)	Proposed width	Sub-Counties Served	Priority
C396	Kamunyaka (Nyeri) – Gathuthuma – Gatwe – Kangaita	Not paved	Upgrade to bitumen & expansion	23	25	Kirinyaga Central & West & Nyeri	1
	Kangaita - Kimunye	Paved	Road expansion	8	25	Kirinyaga East & Central	-
	Kimunye – Thumaita – Githure – Runyenjes (Embu)	Not paved	Upgrade to bitumen & expansion	19	25	Kirinyaga East & Embu	1
C403	Gatugura – Muchagara – Kiamutugu – Muthigaini - Embu	Paving on-going	Complete on-going upgrade to bitumen	20	25	Kirinyaga East	1
C526	Kianyaga – Mbiri – PI	Paving on-going	Complete on-going upgrade to bitumen	14	25	Kirinyaga East	1
	PI – Togonye - Kimbimbi	Not paved	Upgrade to bitumen status	16	25	Mwea East	1
C528	Ngiriambo – Kiamutugu	Paved	-	2	25	Kirinyaga East	-
	Kiamutugu – Ngariama	Paving on-going	Complete on-going upgrade to bitumen	3	25	Kirinyaga East	1
C527	Kagio – Kandongu-Mutithi	Tarmac on-going	Complete on-going upgrade to bitumen	13	25	Mwea West	1
C527	Kagio – Kandongu-Mutithi	Tarmac on-going	Complete on-going upgrade to bitumen	13	25	Mwea West	1
C399	Kiaga – Kangai – Nguka - Wanguru	Not Paved	Upgrade to bitumen	17	25	Mwea East and West	2
	Kiumbu – Kangeta - A9(Embu)	Not paved	Upgrade to bitumen & expansion	12	25	Mwea East	2
C402	Makutano – Karaba – Gatuiru – Gategi – Makima (Embu)	Murram	upgrade to bitumen	16	25	Mwea West	2
D1368	Mururi – Ngucui – Mahigaini – Nyamindi – Kiumbuini	Murram	Upgrade to bitumen	26	25	Mwea East	2

Code	Road Name	Condition	Proposal	Length (Km)	Proposed width	Sub-Counties Served	Priority
D1369	Kagio – Ng’othi - Kikwara – Makutano	Murram	Upgrade to bitumen	17	25	Mwea West	3
D1370	Kutus – Ithareini – Kiang’ombe - Kiangwenyi	Murram	Upgrade to bitumen	15	25	Kirinyaga Central and East	4
D1374	Thiguku – Kiandai – Kathaka - Kagio	Murram	Upgrade to bitumen	11	25	Mwea West	5
D1375	Baricho – Getuya - Mutira	Murram	Upgrade to bitumen	10	25	Kirinyaga West	3
D1377	Kiburu – Nguguini – Kianwe - Kiangai	Murram	Upgrade to bitumen	8	25	Kirinyaga West	4
D1379	Kutus – Karie	Murram	Upgrade to bitumen	6	25	Mwea West	5
D1380	Kerugoya – Thaita - Kangaita	Murram	Upgrade to bitumen	9	25	Kirinyaga Central	4
D1382	Kagumo – Kiamaina - Gathuthuma	Murram	Upgrade to bitumen	5	25	Kirinyaga Central	3
D1383	Kagumo - Gatwe	Murram	Upgrade to bitumen	5	25	Kirinyaga Central	2
D1384 + E2139	Kutus urban	Murram	Upgrade to bitumen	4	25	Mwea East	1
	D1384 – Kimbimbi	Murram	Upgrade to bitumen	4	25	Mwea East	1
D1385	Kutus – Ahiti Ndomba Prim	Murram	Upgrade to bitumen	3	25	Mwea East	1

Source: Real Plan Consultants Limited, 2021

c. Minor Roads

These are roads linking minor centres to market centres and higher classes of roads which are significant in opening up rural areas. Key proposals include:

- Upgrade to murram in the short-term
- Gradual tarmacking of class E and key Special Purpose roads in the longterm
- Completion of tarmacking projects underway
- Installation of standard drainage infrastructure that are professionally designed to fit each case and eliminate flooding challenges;
- Installation of NMT facilities with well-designed tree lines within urbanized areas
- The minimum road width of access to any property is recommended at 9M.

Table 82: Interventions on Minor Roads

Code	Road Name	Condition	Proposal	Length (Km)	Proposed width	Sub-Counties Served	Priority
E2135	Forest Edge – Kamwana – Kiandumu – Kiamutugu	Murram	Upgrade to bitumen	6	20	Kirinyaga East	2
E2137	Difathas – Ndakutha - Kanjinji	Murram	Upgrade to bitumen	7	20	Mwea East	3
F2176	Kangai -Kagio	Murram	Upgrade to bitumen	5	20	Mwea West	5
F2177 + G26162	Kiandai – Kiinya Kiiru- Kiangwaci	Murram	Upgrade to bitumen	5	20	Kirinyaga West	5
	Kiandai - Kiandai	Earth	Upgrade to bitumen	2	20	Kirinyaga West	5
F2179	Kibirigwi – Gatere – Mururuini	Murram	Upgrade to bitumen	4	20	Kirinyaga West	4
F2187	Togonye - Mumbuini	Murram	Upgrade to bitumen	8	20	Mwea East	5
F2188	PI – Mumbuini - Mahigaini	Earth	Upgrade to bitumen	24	20	Mwea East	3
F2190	Mutithi – Air market – Thome – Gategi	Murram	Upgrade to bitumen	15	20	Mwea West	3
F2194	Kimbimbi - Kiorugari	Earth	Upgrade to bitumen	3	20	Mwea East	4
F2195	Kiorugari – Karie - Kangai	Earth	Upgrade to bitumen	2	20	Mwea East/West	4
G26692	Mururi – Kianyaga	Earth	Upgrade to bitumen	6	20	Kirinyaga East	4
G26906	Difathas - Mbiri	Earth	Upgrade to bitumen	7	20	Kirinyaga East	5
-	Ciagini - Kiamanyeki	Earth	Upgrade to bitumen	13	15	Mwea West	4

Source: Real Plan Consultants Limited, 2021

d. Terminals Facilities

An integral factor in improving a transport system's success is the quality of the convenient transfer and the movement of passengers within a terminal space. However, as revealed by the situational analysis, this is not the case in Kirinyaga. While in some towns the facilities provided are deficient in requisite equipment in others these facilities are not provided despite the evident need for such infrastructure.

Taking into account the ballooning urban population, the following recommendations towards the provision of terminal facilities are made.

1. Redesigning and expansion of existing terminals.
2. Establishment of new facilities in large urban areas
3. Provision of minor terminus in market centres
4. Provision of adequate bus stops in unclassified centres and along major public transport routes
5. Integrated use of terminal facilities
6. Provision of NMT terminus in strategic areas within the urban areas

Key components to consider while designing the terminal facilities according to Transit Capacity and Quality of Service Manual – 2nd Edition, Part 7 are shown in the figure below:

TERMINAL CAPACITY	The number of bus berths that need to be planned to cater to projected peak-hour demand
PASSENGER LEVEL OF SERVICE	The level of service a passenger receives on the journey between the entry / exit points of the terminal and the boarding platforms
ACCESSIBILITY	Accessibility for buses entails the location of entrance and exit points, ensuring convenient and unhindered access to the terminal facilities that propagate unobstructed, convenient, and universal accessibility while boarding and alighting at platforms
COMMUTER SAFETY	The design of high-visibility spaces to minimise pedestrian-vehicle points of conflict, particularly the high occurrence of conflict during platform transfers.
PASSENGER AMENITIES	The provision of facilities such as toilets, payphones, drinking water, and visible signage to add to passenger convenience

Figure 53: Components of Functional Terminal Design

Source: Transit Capacity and Quality of Service Manual, PART 7

The prioritization matrix is as shown below:

Table 83: Termini Priority Matrix

Action/policy	Priority	Name	Sub County	Timeline
Re-design and expansion	1	Sagana	Kirinyaga West	2021/23
	2	Kerugoya	Kirinyaga Central	2023/25
	3	Kutus	Mwea East	2025/27
	4	Kagio	Mwea West	2027/29
Establishment of new modern terminus	1	Makutano	Mwea West	2021/23
	3	Kianyaga	Kirinyaga East	2025/27
	5	Baricho	Kirinyaga West	2029/31
Construction of minor terminus	1	Kibingoti	K-East	2021/23
	2	Kagumo	K-Central	2023/25
	3	Kimbimbi	Mwea West	2025/27

Action/policy	Priority	Name	Sub County	Timeline
	3	Air Market	Mwea East	2025/27
	4	Kiamutugu	K-West	2027/29
		PI	Mwea West	
		Kimunye	K-West	
	5	Difatha	Mwea West	2029/31
		Kangaita	K-Central	
		Kiburu	K-East	

Source: Real Plan Consultants Limited, 2021

e. Parking Spaces

Parking is important, though often neglected, element of the urban transportation system. It plays a key role in mode choice and travel behaviour, consumes a large amount of urban and suburban land, and has significant direct and indirect impacts on the environment. Taking into account the county urbanization trend, there is need to prepare a parking management framework. Other proposals are;

- Prohibit parking along major arteries/primary access roads
- Make provision of parking space a requirement at development approval stage using the following Physical Planning Handbook guidelines.

Table 84: Parking Provision Guidelines

Usage	One Car space for every usage
Residential	One space for every 4 bedsitters One space for every 2 one-bedroom units One space for every 2-bedroom unit Two spaces for every 3-bedroom unit 3 spaces for every 4-bedroom unit
Hotels	1 for 5 rooms
Specialized market place	50 to 60 sq. m of covered area
Market	30 to 50 sq. of covered area
Office and Administration	50 to 60 sq. m of covered area
Hotel	5 to 8 beds
School	(a) 0.5 classroom/secondary school and above (b) 1.0 classroom/ below secondary school level
Restaurant, Cinema and Theatre	12 seats
Mosque / churches	10 to 12 prayer spaces
Hospital	5 to 10 beds
Sports field	10 to 20 seats or spectators
Industrial establishment and workshops	6 to 10 workers

Source: Real Plan Consultants Limited, 2021

f. Non-Motorized Transport

NMT is an effective form of mobility for short trips and connectivity to the mass transportation systems. It provides efficient mobility with low investment, improves access, creates livelihoods

and is a low carbon emitter. The five essential attributes of effective NMT facilities are directness, coherency, comfort, attractiveness and safety.

As revealed by the situational analysis, NMT facilities are not adequately provided in the county. Therefore, the following is recommended;

- Development of a non-motorized transport policy for Kirinyaga County to promote accessibility, convenience and safety for road users
- Establishment of paved pedestrian walkways, street lighting and rest benches in all streets/roads in municipalities, towns and market centres. Priority areas are Kerugoya, Wang'uru, Kutus and Kagio.
- Construction of footbridges at Wanguru, Sagana, Makutano, Kibingoti, Kibirigwi
- All new roads in urban areas should be designed with provisions for pedestrians

Table 85: NMT Facilities Priority Matrix

Action/policy	Priority	Urban centre	Sub County	Timeline
Development of a county NMT Policy	1	-	-	2021/23
Establishment of pedestrian walkways in all streets/roads	1-3	Kutus	Mwea East	2021/27
	1-3	Kerugoya	Kirinyaga Central	2021/27
	1-3	Wanguru	Mwea East	2021/27
	2-4	Sagana	Kirinyaga West	2023/29
	2-4	Kagio	Mwea West	2023/29
Construction of footbridges	1	Makutano	Mwea West	2021/23
	1	Sagana	Kirinyaga East	2021/23
	1	Kibingoti	Kirinyaga West	2021/23
	1	Kibirigwi	Kirinyaga West	2021/23
	2	Wanguru	Mwea East	2023/25

Source: Real Plan Consultants Limited, 2021

Other recommendations are:

- Provide roadside trees and shades with benches at frequent intervals to provide continuous protection of NMT users from sun, rain and wind.
- Progressively remove on-street parking and give space to cyclists and pedestrians or planted /open public space areas;
- Provide crosswalks (raised zebra crossings) of at least 2m width at all intersections (signalized and uncontrolled) and frequent intervals in midblock locations. At locations with either high motor vehicle speeds or heavy pedestrian volumes, such crossings will be elevated to the height of the adjacent footpath (100 – 150mm) with ramps for motorized vehicles to mount the crosswalk. Ramps should not be too steep for the disabled
- Maintain landscaping so that vegetation and trees do not block visibility at crossings
- Traffic signs and advert poles should not be located in the middle of NMT lanes
- Traffic signal alert for the blind should be provided and be audible
- Children, the elderly and persons with disabilities should be taken into account during design

- Implement and maintain street lighting for NMT paths. Solar panels can be used to light the streets.
- Provide garbage/trash bins and drainage facilities along NMT routes.
- Establish an authority responsible for NMT, known to the community to enable reporting of concerns by residents.
- Provide public toilets and wash areas along NMT route.
- Review existing By-laws to ensure that traders and owners of private properties maintain the area free of litter. Owners and occupants of private property adjacent to NMT paths will be required to keep the path and adjoining gutter to the centre of the road litter-free.
- NMT users will be made responsible to keep their spaces clean by using trash baskets to be provided.
- Exception is made for a fence or wall, which should not exceed 1.4m (4.6 Ft) in height, or a portico, porch, step.

7.1.1.2 Rail Transport

Following the reviving of the Nairobi – Sagana – Nanyuki Old Meter-Gauge Rail and the various railway stations including Sagana, the following is recommended:

- Provision of a multi-modal terminus (freight terminus, matatu and railway station) at Sagana to serve the proposed industrial park and passengers
- Integration of the rail and road system by provision of well-maintained link roads.

Table 86: Rail Transport Priority Matrix

Action/policy	Priority	Urban area	Sub County	Timeline
Construction of multi-modal terminus with freight, Matatu and railway terminus	1	Sagana	Kirinyaga West	2021/23

Source: Real Plan Consultants Limited, 2021

7.1.1.3 Air Transport

Air transport is an important enabler to achieving economic growth and development. It provides vital connectivity on a national, regional and international scale, and helps generate trade, promotes tourism and creates employment opportunities. In light of this desired end, the CSP proposes the revitalization and upgrading of the existing Mwea Airstrip to provide a standard runway. Other requisite facilities include terminus and car parking spaces.

This airstrip serves a hinterland of immense agricultural potential and can go a long way in promoting transportation of fruits, fresh produce and cut flowers. To achieve this, securing of adequate land for this purpose through acquisition is recommended. Adequate connectivity to the Isiolo International Airport and Nairobi JKIA is recommended.

Table 87: Air Transport Priority Matrix

Action/policy	Priority	Urban centre	Sub County	Timeline
Reviving and upgrading of Mwea Airstrip	1	Wanguru	Mwea East	2021/23

Source: Real Plan Consultants Limited, 2021

TRANSPORT PLAN

Legend:

- Town/ Municipality
- Town
- Market Centres
- Service centres
- Airstrip
- Junctions upgrade
- Proposed Interchange
- Proposed Termini
- Proposed Foot bridge
- Proposed for Gravelling
- Proposed Dual Carriage
- Bitumen Status
- Upgrade to Bitumen
- Existing Railway
- Kirinyaga County
- Sub County Boundary
- National Park
- Forest
- Neighbouring Counties

Client: THE COUNTY GOVERNMENT OF KIRINYAGA

Consultant: REAL PLAN CONSULTANTS LTD.
P.O BOX 1555-00200
NAIROBI
email: info@realplan.co.ke

Coordinate System: Arc 1960 UTM Zone 37S
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 10,000,000.0000
Central Meridian: 39.0000
Scale Factor: 0.9998
Latitude Of Origin: 0.0000
Units: Meter

— { 200 } —

7.1.2 Information and Communication Technology

Kirinyaga is fairly supplied with ICT infrastructure including telephone and mobile phone networks, television, radio transmission stations, print media, internet and postal service. To better the sector, the following is proposed;

- The construction of a comprehensive trunk cable channel in urbanized and public purpose areas. The trunk channel will reduce incidences of frequent excavations
- Provision of trunk fibre optic in the proposed municipalities and towns by 2023.

7.1.3 Energy

Energy is essential to economic, social development and the improvement of lifestyles. Energy is an important development indicator, which provides vital inputs for economic development. The County has abundant green energy potential (HEP, wind and solar), which remains untapped. The energy harnessed from these renewable sources could solve the most prominent energy-related problem (Shortage and limited distribution of Power).

The challenges facing this sector include;

- Inadequate coverage of electricity network;
- High cost of electricity installation;
- Vandalism of electrical infrastructure hence inefficient service delivery.
- Inadequate resources to harness readily available and solar energy.
- Over-reliance on the non-renewable sources of energy (demand for charcoal threatening forest cover hence environmental destruction).
- Reluctance to diversify on energy sources to reduce over-dependence on hydro-power.

7.1.3.1 Policy Direction

- Ensure 100% electrification of the county by 2023
- Promote accessibility to electricity by all residents by localizing the rural electrification program
- Prioritize and encourage green energy generation by focusing on solar energy, value addition of rice husk, biogas from organic waste and convert solid waste to energy

7.1.3.2 Proposals

- Enhance efficient and fast connection of electricity in the following areas;
 - Njukiini and Ngariama in Kirinyaga East (2019-21)
 - Matumbuini, Nyagathi and Ngumunyu in Kariti Ward, Kirinyaga West (2019-21)
- Establish a plant to convert solid waste to energy (briquettes or biogas) at Wanguru and Kutus solid waste management sites
- Promotion of public-private partnership investments in green renewable energy
- Feasibility studies on the HEP potential of the numerous waterfalls in Kirinyaga
- County Government and Kenya Power to put in place a power supply program that connects key strategic investment areas

- Provision and respect of wayleave spaces have been observed and protected.

7.2 WATER AND SANITATION

Water is at the core of sustainable development and is critical for socio-economic development, healthy ecosystems and for human survival itself. It is also a finite and irreplaceable resource fundamental to human well-being. It is only renewable if well managed. Kirinyaga is endowed with enormous sources of surface and groundwater due to its location in the Mt. Kenya Water Tower. Water in the county is mainly used for domestic, irrigation, industrial and institutional purposes.

7.2.1 Policy Direction

- Promote rain and stormwater harvesting in the county at large and small scale
- Promote accessibility to clean water by all residents as per the Bill of Rights
- Promote sustainable utilization of water resources

7.2.2 Long-term Strategies

- Completion of the ongoing construction of Kerugoya/Kutus water supply and sanitation infrastructure
- Completion of countywide domestic supply infrastructure to ensure households have easy access to water.
- Completion of Thiba Dam to serve the Mwea Irrigation Scheme
- Considering the various stakeholders in the waters sector and the interconnected issues facing the water sector, the establishment of Multi-agency taskforces is recommended. The task force mandate to include
 - ❖ Develop water management and investment plan for Kirinyaga
 - ❖ Prepare an inventory of water sources, abstraction points, supply lines, areas and number of people served, service providers
 - ❖ Integrating the existing water infrastructure to increase efficiency and functionality
 - ❖ Consider establishment of water trunk lines based on the six river catchment zones (Thiba, Nyamindi, Rwamuthambi, Ragati & Rupingazi) with adequate water treatment plants
 - ❖ Prohibit direct water abstraction by individuals or institutions
 - ❖ Strengthening water catchment management model by adopting the WRUAs Model
 - ❖ Establish water meters to account for consumption
 - ❖ Establish KIRIWASCO as the overall body in charge of water services countywide
 - ❖ Develop a functional sanitation /sewerage system to mitigate the pollution
 - ❖ Set rainwater and storm water harvesting system/provisions as a requirement at development approval stage

7.3 SOCIAL SERVICES

Social services refer to a range of facilities that include education, health, security, social halls, cemeteries, faith, emerging facilities and sports facilities. The facilities play an important role in developing strong and inclusive communities. It can provide opportunities to bring different groups of people together, contributing to social integration and the desirability of a place.

7.3.1 Policy Direction

- Promote planning of all institutional land to ensure optimal utilization of land (preparation of master and site plans)
- Widening of main access roads to public institutions to minimum 12M width and upgrade to murrum (all-weather road and well-drained)
- Encourage vertical development and sharing of facilities by public institutions towards promoting optimal use of available land
- Encourage uptake of technology and access to internet by all public institutions
- Ensure integration of special needs units and infrastructure
- Ensure gender sensitivity and consideration of persons with disability in design and provision of social services.
- Safeguard institutional land by surveying, registration and titling

7.3.2 Education

The government has embarked on programs such as the free education program, bursary and subsidy programs to enhance access to basic education. However, the quality of education is still relatively low and requires significant investments over the next decade. Kirinyaga has 198 ECDE, 199 Primary schools, 154 secondary schools and 16 technical and vocational training institutes. The privately owned facilities as at 2019 stood at 207. The challenges identified are:

1. Inadequacy of infrastructure such as roads and power
2. Encroachment and grabbing of school land
3. Poorly equipped institutions e.g. poor structures
4. Drop in students enrolment
5. Poor performance in secondary school
6. Low enrolment of Girl child in secondary school .

Considering the challenges highlighted the following is recommended;

a. Retention of Existing Facilities

This entails retention of the current 198 ECDEs, 199 primary schools, 154 secondary schools and 16 vocational training institutes (see the attached list in the annex). All existing facilities will be protected. This is justified by the fact that the institutions are already established. Private facilities are rapidly increasing and are currently at 294 as at 2023.

b. Integrating Primary and ECDE Facilities

Provision of ECDE services and infrastructure in all primary schools is recommended as a measure to bridge the existing ECDE deficit. A smooth transition to primary school is among the benefits accrued from this strategy.

c. Equipping the Existing Facilities

This entails carrying out a comprehensive exercise to establish the condition of all educational institutions. Key parameters to evaluate include status/sufficiency of classrooms, administrative blocks, laboratories, sanitary blocks, special needs facilities, dormitories, studio rooms,

playgrounds and other basic facilities. It is recommended that all institutions are equipped with adequate requisite facilities e.g., a classroom should accommodate a maximum of 45 persons.

d. Construction of New Institutions

New facilities have been proposed to respond to the deficit as shown in the table below:

Table 88: Newly proposed facilities

Proposal	Ward	Sub-county	Priority	Period
Establishment of Vocational Training Centres	Murinduko	Mwea East	1	2021/23
	Mutira	Kirinyaga Central	1	2021//23
	Kangai	Mwea West	2	2023/25
	Karumandi	Kirinyaga East	4	2027/29
	Inoi	Kirinyaga Central	5	2029/31
Reviving of existing facilities Thanju VTC	Kariti	Kirinyaga West	1	2021/23

Source: Real Plan Consultants Limited, 2021

e. Upgrading Vocational Training Centres to Technical and Vocational Colleges

The following vocational training centres are proposed for upgrading to technical and vocation colleges to offer diploma and certificate courses.

Proposal	Ward	Sub-county	Priority	Period
Upgrade to county technical institute	Kaitheri Polytechnic	Kirinyaga Central	1	2021/23
Operationalization of the Gathigiriri National Technical Institute	Gathigiriri	Mwea East	1	Ongoing
Equipping Mucii wa Urata with sufficient boarding facilities	Tebere	Mwea East	1	2021/23

Source: Real Plan Consultants Limited, 2021

f. Optimal Use of Existing Facilities

This will be achieved by ensuring maximum densification and utilization of the education facilities. Therefore, high-rise developments and increasing the no of streams are encouraged. ECDE centres to have three streams and primary secondary to have four and five streams respectively as the maximum.

Proposal	Ward	Sub-county	Priority	Period
Reviving of existing facilities Thanju VTC	Kariti	Kirinyaga West	1	2021/23

Source: Real Plan Consultants Limited, 2021

g. Titling of Institutional land

In effort to address concerns of encroachment into school land, surveying, registration and obtaining of ownership documents is recommended for all public schools. This will reaffirm the security of tenure for such institutions.

h. Other Proposals

- Gradual provision of boarding facilities in all technical and vocational training centres in Kirinyaga
- Upgrading to murram of all access roads to public ECDE, Primary, Secondary, and TVETS
- Encourage water harvesting in public institutions

- Ensure water and electricity connectivity to all public institutions
- Encourage uptake of technology and connectivity to the internet of all public educational institutions

7.3.3 Special Needs Education

In 2019, the county had 18,875 persons living with disabilities. This population constitutes persons with hearing, visual, speech and physical impairments among others. In with the Bill of Rights, each citizen is entitled to equal opportunity including education. Special needs schools such as Kerugoya School of the Deaf, Mbui-Njeru School for the Blind and Nyaikungu Special School are provided in this respect. The government has also established Special Needs Units in every primary school. The sector encounters the following challenges;

- Inadequate facilities for the disabled
- Insufficient schools for the different needs
- Inadequate staff within the special needs facilities.

Strategies proposed to respond to the above challenges include:

a) Equip the existing facilities to adequately serve their functions

There is need to equip the primary school special units with the required equipment such as braille keyboards, hearing aids and friendly sanitation blocks to ensure quality delivery of service. Kerugoya School of the deaf should also be equipped to adequately accommodate the population.

Table 89: Equipping Special Needs Facilities

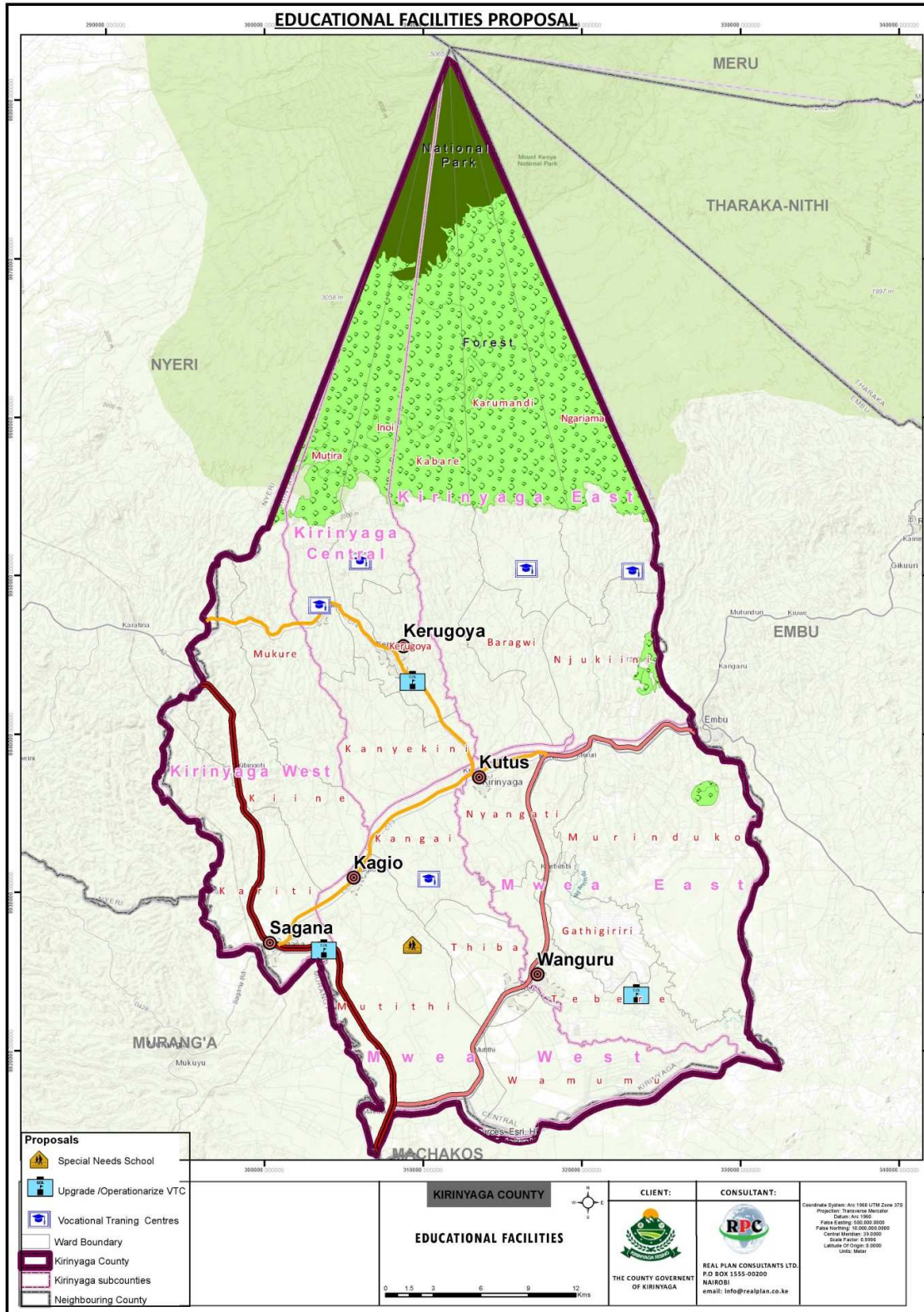
Proposal	Location	Sub-county	Priority	Period
Provision of Boarding Facilities	Special Needs Primary school at Kandongu	Mwea West	1	2021/23
Equipping of special needs facilities and infrastructure such as sanitary blocks, pavements,	199 Primary Schools (20 every year)	Entire County	1-5	2021-31

Source: Real Plan Consultants Limited, 2021

b) Incorporate special needs unit all education facilities

While most primary schools have special units, no secondary school is equipped with special units hence the minimal transition to secondary level. It is in this respect that provision of special units is encouraged in ECDEs, secondary schools and TVETS to achieve equal opportunity for all. It is important to note that this will necessitate the provision of extra infrastructures such as classrooms and sanitary blocks.

Map 37: Educational Facilities (Proposals)



Source: Real Plan Consultants Limited, 2021

7.3.4 Health

The county is served by 81 public health facilities distributed as follows; one county referral Hospital (level 5), four sub-county hospitals (level 4), 22 health centres and 54 dispensaries. The major challenges facing the sector are;

- The deficit analysis revealed a need to provide more and upgrade the existing facilities.
- Inadequate health facilities
- Inadequately equipped and maintained facilities
- Inadequate health workers,
- Inadequate maternity wards

Strategies recommended are

- Provision of level 4 in every sub-county
- Equipping facilities with requisite infrastructure (to fit their status)
- Surveying and titling of all institutions
- Facility master planning
- Completion of ongoing projects
- Capacity building of health workers and community
- Appropriate and equitable distribution of health workers and facilities
- The need for the county to procure mosquito nets in flood prone areas including areas near Mt. Kenya Forests, Mwea, Thiba dam area, Sagana industrial park, along major rivers and marshy areas.

a. Equipping facilities with requisite infrastructure (to fit their status)

Although the following facilities have been conferred their status, analysis indicates that there is need to equip or complete the specific facilities to fit the status. These include the listed sub-county hospitals, health centres and dispensaries.

Table 90: Improving the County Referral Hospital (Level 5)

Facility	Improvement /proposal	Priority	Time Frame	Location
Kerugoya County Referral Hospital	Completion of Kerugoya Medical Complex	1	Ongoing	Kirinyaga Central
	Equip to fit the status of a level 5 Hospital (as per WHO guidelines)	1	2021-23	Kirinyaga Central
	Establish a Medical training College at Kerugoya Referral Hospital	1	2021-23	Kirinyaga Central
	Establishment of a cancer research and treatment centre at Kerugoya Referral Hospital	2	2023-25	Kirinyaga Central

Source: Real Plan Consultants Limited, 2021

Table 91: Equipping Level 4 Hospitals

Facility	Proposals	Priority	Time Frame	Location
Kianyaga Sub-	❑ Construction of male ward, paediatric ward and completion of the radiology unit	1	2021-2023	Kirinyaga East

County Hosp	<input type="checkbox"/> Gradually equip to fit the status of level 4 facility (as per WHO guidelines)	2/3	2023-2027	
Sagana Sub-County Hosp	<input type="checkbox"/> Construction and equipping of a theatre, male ward and kitchen	1	2021-2023	Kirinyaga West
	<input type="checkbox"/> Gradually equip to fit the status of level 4 facility	2/3	2023-2027	
Kimbimbi Sub-County Hosp	<input type="checkbox"/> Renovation of Harambee ward, outpatient block and provision of a casualty	1	2021-2023	Mwea East
	<input type="checkbox"/> Gradually equip to fit the status of level 4 facility	2/3	2023-2027	
Baricho Sub-County Hosp	<input type="checkbox"/> Renovation of Harambee ward, outpatient block and provision of a casualty	1	2021-2023	Kirinyaga west
	<input type="checkbox"/> Gradually equip to fit the status of level 4 facility	2/3	2023-2027	

Source: Real Plan Consultants Limited, 2021

Table 92: Equipping Health Centre & Dispensaries

Facility	Proposals	Priority	Time Frame	Location
Health Centres in the County	<input type="checkbox"/> Gradually equip to fit the status of health centre (level 3) as per the provisions of WHO and Ministry of Health guidelines <ul style="list-style-type: none"> ❖ Bed capacity (15) ❖ Maternity, ❖ 2 medical officers, ❖ 6 General CO (Diploma) 	1-5	2021-2031	Countywide
Dispensaries in the County	<input type="checkbox"/> Gradually equip to fit the status of Level 2 Facilities	1-5	2021-2031	Countywide
	<input type="checkbox"/> Completion of Kimweas and Kiaumbui dispensaries	1	2021-23	Kirinyaga East
Priority Facilities				
Kandongu H/C	<input type="checkbox"/> Equip to fit the status of a Health Centre	1	2021-23	Mwea West
Kagumo H/C	<input type="checkbox"/> Equip to fit the status of a Health Centre	1	2021-23	Kirinyaga Central
Kiamutugu	<input type="checkbox"/> Equip to fit the status of a Health Centre	1	2021-23	Kirinyaga East
Kiburu H/C	<input type="checkbox"/> Equip to fit the status of a Health Centre	1	2021-23	Kirinyaga West
Kutus H/C	<input type="checkbox"/> Equip to fit the status of a Health Centre	2	2023-25	Mwea East
Thiba H/C	<input type="checkbox"/> Equip to fit the status of a Health Centre	2	2023-25	Mwea West
Kiumbu H/C	<input type="checkbox"/> Equip to fit the status of a Health Centre	2	2023-25	Mwea East
Kiaragana H/C	<input type="checkbox"/> Equip to fit the status of a Health Centre	2	2023-25	Kirinyaga West
Mukangu H/C	<input type="checkbox"/> Equip to fit the status of a Health Centre	3	2023-25	Kirinyaga West
Togonye H/C	<input type="checkbox"/> Equip to fit the status of a Health Centre	3	2023-25	Mwea East
Murinduko H/C	<input type="checkbox"/> Equip to fit the status of a Health Centre	3	2023-25	Mwea East
Karimaini Disp	<input type="checkbox"/> Equip to fit the status of a Dispensary	1	2021-23	Kirinyaga West
Kianjege Disp	<input type="checkbox"/> Equip to fit the status of a Dispensary	1	2021-23	Kirinyaga West

Source: Real Plan Consultants Limited, 2021

b. Upgrade existing facilities

Taking into account the expected increase in population the following facilities are proposed for upgrading

Table 93: Upgrading of Health Facilities

Priority	Proposal	Facility	Sub County	Time frame
1	Upgrade to Level 4 Hospital	Mutithi Health Centre	Mwea West	2021-23

2	Upgrade to Health Centre (Level 3)	Karima Dispensary	Kirinyaga West	2023-25
3	Upgrade to Health Centre (Level 3)	Kianjege Disp	Kirinyaga East	2025/27
4	Upgrade to Health Centre (Level 3)	Kiamuthambi Disp	Kirinyaga Central	2027/29
4	Upgrade to Health Centre (Level 3)	Munyaki Hospital	Mwea East	2027/29
5	Upgrade to Health Centre (Level 3)	Wamumu Disp	Mwea West	2029/31
5	Upgrade to Health Centre (Level 3)	Kianjege West Disp	Kirinyaga West	2029/31

Source: Real Plan Consultants Limited, 2021

c. Completion of ongoing projects

The following projects that seek to provide dispensaries are recommended for completion:

Table 94: Completion of Dispensaries

Priority	Facility	Ward	Sub-county	Timefram3
1	Kiandieri	Kerugoya	Kirinyaga Central	2021-23
1	Kamwana	Ngariama	Kirinyaga East	2021-23
1	Kiamugumo	Ngariama	Kirinyaga East	2021-23
1	Kimweas	Ngariama	Kirinyaga East	2021-23
1	Kiaumbui	Njukiini	Kirinyaga East	2021-23
1	Kabuti	Karumandi	Kirinyaga East	2021-23
1	Kavote	Karumandi	Kirinyaga East	2021-23
1	Muchagara	Karumandi	Kirinyaga East	2021-23
1	Kiandai	Baragwi	Kirinyaga East	2021-23
1	Kianjiru	Baragwi	Kirinyaga East	2021-23
1	Mathia	Kiine	Kirinyaga West	2021-23
1	Mururiini	Karati	Kirinyaga West	2021-23
1	Ndaba	Kangai	Mwea west	2021-23
1	Ndindiruku	Tebere	Mwea east	2021-23

Source: Real Plan Consultants Limited, 2021

Table 95: Other Ongoing Projects (Health Facilities)

Priority	Facility	Ongoing project	Location	Timeframe
1	Kerugoya Referral Hosp	Construction of the medical complex	Kirinyaga Central	2021-23
1		Fencing	Kirinyaga Central	2021-23
1	Joshua Mbai Disp	Construction of laboratory	Kirinyaga East	2021-23
1	Riakithiga Disp	Construction of laboratory	Kirinyaga East	2021-23
1	Karima Disp	Upgrading	Kirinyaga West	2021-23
1	Njegas Disp	Fencing, construction of toilets and burning chamber	Mwea West	2021-23
1	Kiamanyeki Disp	Upgrading	Mwea West	2021-23
1	Mutithi H/C	Construction of waiting bay and water tower	Mwea West	2021-23
1	Kangai H/C	Completion of wards	Mwea West	2021-23

Source: Real Plan Consultants Limited, 2021

d. Construction of new facilities

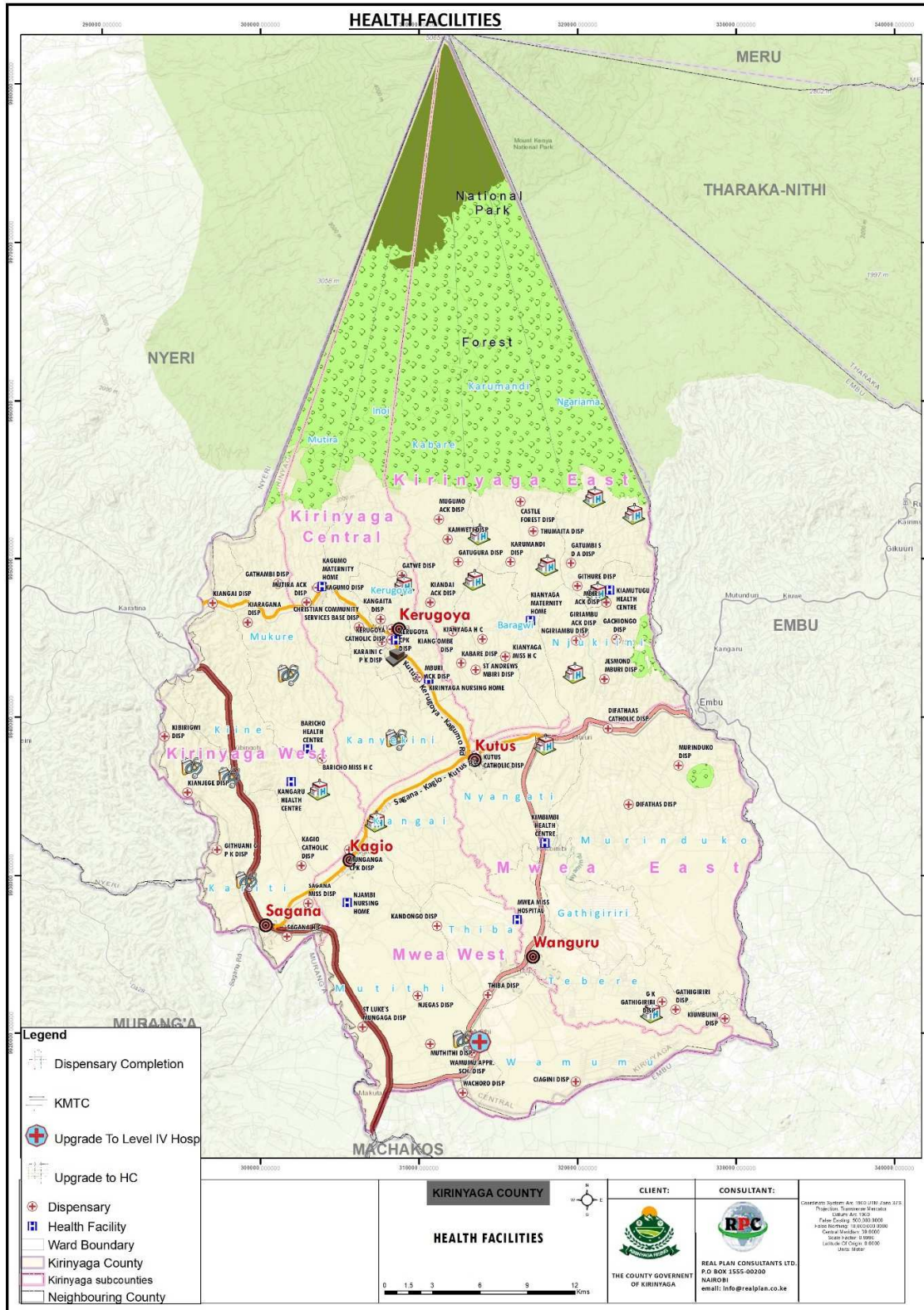
The following facilities are newly proposed to complement the existing and bridge the existing gaps:

Table 96: New Health Facility

Priority	Facility	Proposals	Location	Time Frame
1	KEMRI Wamumu	Construction of a Level 5 hospital, a medical research and teaching centre, and a medical supplies factory	Mwea West	2021-25

Source: Real Plan Consultants Limited, 2021

Map 38: Improvement of Health Facilities



Source: Real Plan Consultants Limited, 2021

7.3.5 Rehabilitation Centres

Rehabilitation centres are recommended in the major urban areas as shown below

Table 97: Proposed Rehabilitation Centres

Priority	Location	Sub County	Time Frame	Requirements
1	Wanguru	Mwea East	2021-2023	3ha
2	Sagana- Kagio	Kirinyaga West	2025-2027	3ha
3	Kianyaga	Kirinyaga East	2027-2029	3ha
4	Kerugoya- Kutus	Kirinyaga Central	2029-2031	3ha

Source: Real Plan Consultants Limited, 2021

7.3.6 Cemeteries

Situational analysis shows that the need to provide cemetery facilities owing to the high rates of urbanization and the growing colonial villages. Increasing population will also increase demand for agricultural land thus raising the need for shift burial sites to well designate urban-based cemeteries. The provision of cemeteries is based on the urban clusters as shown in the table below. This is to avoid setting aside land for a cemetery for each urban centre given the scarcity of land. Cemeteries are allocated to serve a catchment area and not each settlement.

Table 98: Proposed Cemeteries

Priority	Location/Area	Size (ha)	Time-frame	Sub-County
1	Kerugoya-Kutus	10 ha	2021-23	Kirinyaga Central
2	Wang'uru	10 ha	2023-25	Mwea
2	Kianyaga	5ha	2023-25	Kirinyaga East
4	Kagio-Sagana	10 ha	2027-29	Kirinyaga West

Source: Real Plan Consultants Limited, 2021

Wang'uru, Kerugoya, and Sagana due to the high population will require a land size of 10ha. The other towns will need 5Ha to serve the population within the towns and their environs.

Development of the cemeteries will require feasibility study to select the most appropriate site. Some of the issues that must be addressed include land acquisition and NEMA's approval.

7.3.7 Firefighting Facilities

Kirinyaga County has a fire department. It is located at the Ministry of transports and works in Kerugoya town. The department has 3 trucks with 2 non-functional. Each truck has a capacity of 500 Litre of water. Challenges facing the fire department include:

1. Lack of a designated workstation.
2. Inadequate fire equipment's like fire engines in Kerugoya fire department.

3. Inadequate firemen personnel.
4. Poor maintenance of the present fire equipment in the county department.
5. There is no existing County fire bill to guide the management of fire outbreaks.
6. Inadequate funds to carry out building inspections on disaster management
7. Lack of fire hydrants in towns making it difficult to control fire incidences

It is proposed that the proposed Kutus County Fire Station be developed into a full Fire Agency composed of the numerous departments: planning, disaster management, hazardous aerial management, disaster rescue, emergency medical service, civilian coordination, rescue command, secretariat, personnel, fire investigation, training and education. Fire sub-stations will be provided in main urban centres as shown below.

Table 99: Proposed Fire Stations

Priority	Location	Proposals	Time-frame	Requirements	Sub-County
1	Kutus	Construction of the proposed County fire station	2021-23	-	Mwea East
1	Kerugoya	Fire-substation	2021-23	-	Kirinyaga Central
2	Wang'uru	Provide a fire sub-station	2023-25	0.4ha	Mwea East/West
3	Kagio-Sagana	Provide a fire sub-station	2025-27	0.4ha	Kirinyaga West
5	Kianyaga	Provide a fire sub-station	2029-31	0.4ha	Kirinyaga East

Source: Real Plan Consultants Limited, 2021

7.3.8 Social Halls

Kirinyaga County has several public and private social halls. However, they should be properly maintained and densified to enhance functionality and diversified interactions. Social halls and community centres are essential in an area. They provide a platform for the community to meet, interact and undertake different activities giving room for peaceful living within a neighbourhood. The social halls can be used to conduct meetings, public forums, community ceremonies and even government functions. Some challenges Kirinyaga County faces in the social hall sector are:

1. Inadequate social halls
2. Present social halls are too small and cannot accommodate a large number
3. Lack of public social halls that are free for the community
4. Poor maintenance of the social halls and some are not equipped

The construction of sub-county and ward social halls is recommended as follows, overleaf:

Table 100: Proposed Sub- County & Ward Social Halls

Facility	Priority	Location	Location	Time Frame
Establishment of	1	Baricho	Kirinyaga West	2021-23

Facility	Priority	Location	Location	Time Frame
Sub- County Social Halls	1	Kerugoya	Kirinyaga Central	2021-23
	1	Wang'uru	Mwea East	2021-23
	1	Kianyaga	Kirinyaga East	2021-23
	2	Kandongu	Mwea West	2023-25
Establishment of Ward Social Halls	2	Makutano	Mwea West	2023-25
	2	Kangaita	Kirinyaga Central	2023-25
	2	Sagana	Kirinyaga West	2023-25
	3	Kiamutugu	Kirinyaga East	2025-27
	3	Kimbimbi	Mwea East	2025-27
	3	Kagumo	Kirinyaga Central	2025-27
	3	Kimunye	Kirinyaga East	2025-27
	3	Kangai	Mwea West	2025-27
	4	Kiburu	Kirinyaga West	2027-29
	4	PI	Mwea East	2027-29
	4	Thiba	Mwea West	2027-29
	4	Karumandi	Kirinyaga East	2027-29
	5	Kibingoti	Kirinyaga West	2029-31
	5	Wamumu	Mwea West	2029-31
	5	Ngurubani	Mwea East	
	5	Mbiri	Kirinyaga East	2029-31

Source: Real Plan Consultants Limited, 2021

7.3.9 Youth Empowerment Hubs

The main objective is to improve the quality of life by providing facilities for empowering the community's (especially the youth's) social and economic development. Youth Empowerment hubs are envisioned to promote talent development; social integration and cohesion; youth empowerment; youth employability; and skill development including ICT. The social halls are to be designed to accommodate conferencing facilities, art rooms, theatre centre, apprenticeship rooms for ICT lab, carpentry or metalwork classes, catering and have a peer and counselling room. This will help to utilize space and encourage mix-use development and save space as land is scarce.

Table 101: Proposed Youth Empowerment Hub

Priority	Location	Sub-county	Period	Requirements
1	Wanguru	Mwea East	2021-23	0.4ha
2	Sagana-Kagio	Kirinyaga West	2027-29	0.4ha

3	Kerugoya-Kutus	Kirinyaga Central	2023-25	0.4ha
4	Kianyaga	Kirinyaga East	2025-27	0.4ha
5	Kandongu	Mwea West	2029-31	0.4ha

Source: Real Plan Consultants Limited, 2021

7.3.10 Libraries

Libraries are a source of information and a referencing point for a community that intends to expand its knowledge. The presence of a library can give chance to increase personnel in different professions, given the presence of a peaceful place to read. Kirinyaga County has neither a public nor a community library. To effectively provide library services, the following is recommended:

- Establishment of a modern county library in Kerugoya-Kutus
- Establishment of modern county facilities in Wang'uru, Kagio-Sagana and Kianyaga
- Provision of library services in social halls/community centres
- Formulation of policies to enhance proper management of the library
- Encourage education and religious institutions to establish a library.

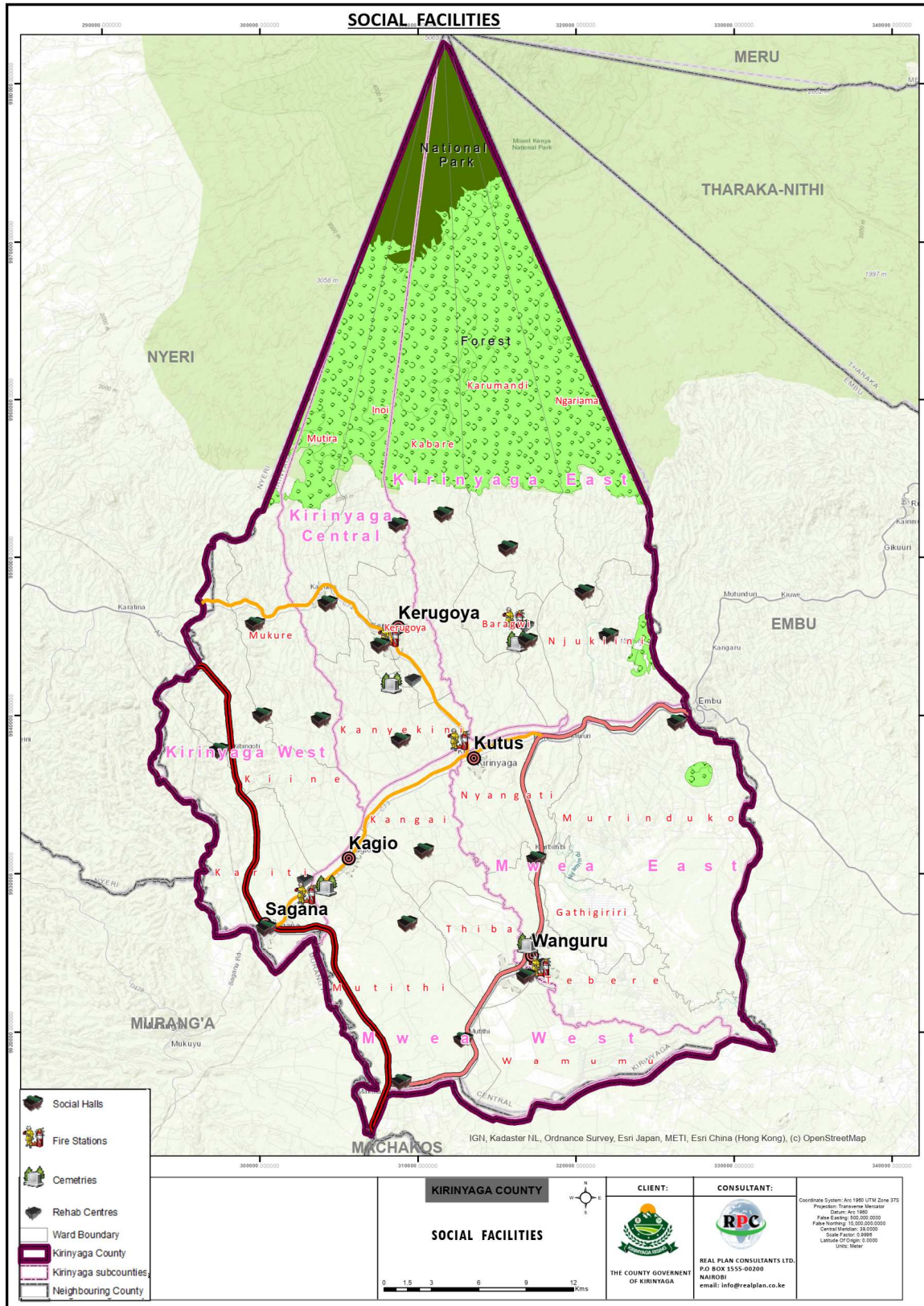
The table below summarizes the proposed libraries.

Table 102: Proposed Libraries

Proposals	Priority	Location	Time-frame	Requirement
Establish a modern county library	1	Kerugoya-Kutus	2025-27	0.4ha
Establish modern libraries	2	Wang'uru	2022-25	0.2ha
	3	Kagio-Sagana	2027-29	0.2ha
	4	Kianyaga	2027-29	0.2ha

Source: Real Plan Consultants Limited, 2021

Map 39 Social Facilities (Proposals)



Source: Real Plan Consultants Limited, 2021

7.3.11 Recreation and Sport Centres

Kirinyaga County has stadia though not developed. The Wang'uru Stadium renovations has recently been completed. Other stadium grounds are Kerugoya, Baricho, Gichugu, Kianyaga and Sagana Railways stadia.

Key challenges facing the recreational, sports and games facilities are:

- The facilities are not developed/equipped
- They are under-utilized

The following is proposed:

- Develop the main stadium (10,000-seater) in Kerugoya - Kutus municipalities with changing rooms, sanitary blocks, offices, etc
- Develop mini-stadiums in proposed Wanguru and Sagana-Kagio Municipality (5,000)
- Provide adequate playgrounds/recreational in proposed towns and market centres
- Provide adequate public recreational parks in proposed municipalities, towns and market centres
- Develop Kerugoya Urban Forest as an arboretum
- Prepare an inventory of public playgrounds (size, registration status and location) countywide
- Surveying and titling of all existing playgrounds countywide
- Leveling and fencing of all playgrounds countywide

Table 103: Proposed Recreational Facilities

Priority	Sub-County	Stadium	Time-frame	Requirement
	Development of the county stadium (10,000-seater standard stadium)			
1	Kirinyaga Central	Kerugoya-Kutus	2021-25	3 ha
	Develop mini-stadiums (5,000-seater standard stadium)			
1	Mwea West	Wanguru	2021-23 (ongoing)	3 ha
5	Kirinyaga West	Kagio-Sagana	2029-2031	3 ha
	Establish modern playground			
2	Kirinyaga East	Kianyaga	2023-25	1ha
3	Mwea West	Kandongu	2025-27	1ha
4	Kirinyaga West	Baricho	2027-29	1ha
4	Mwea West	Makutano	2027-29	1ha

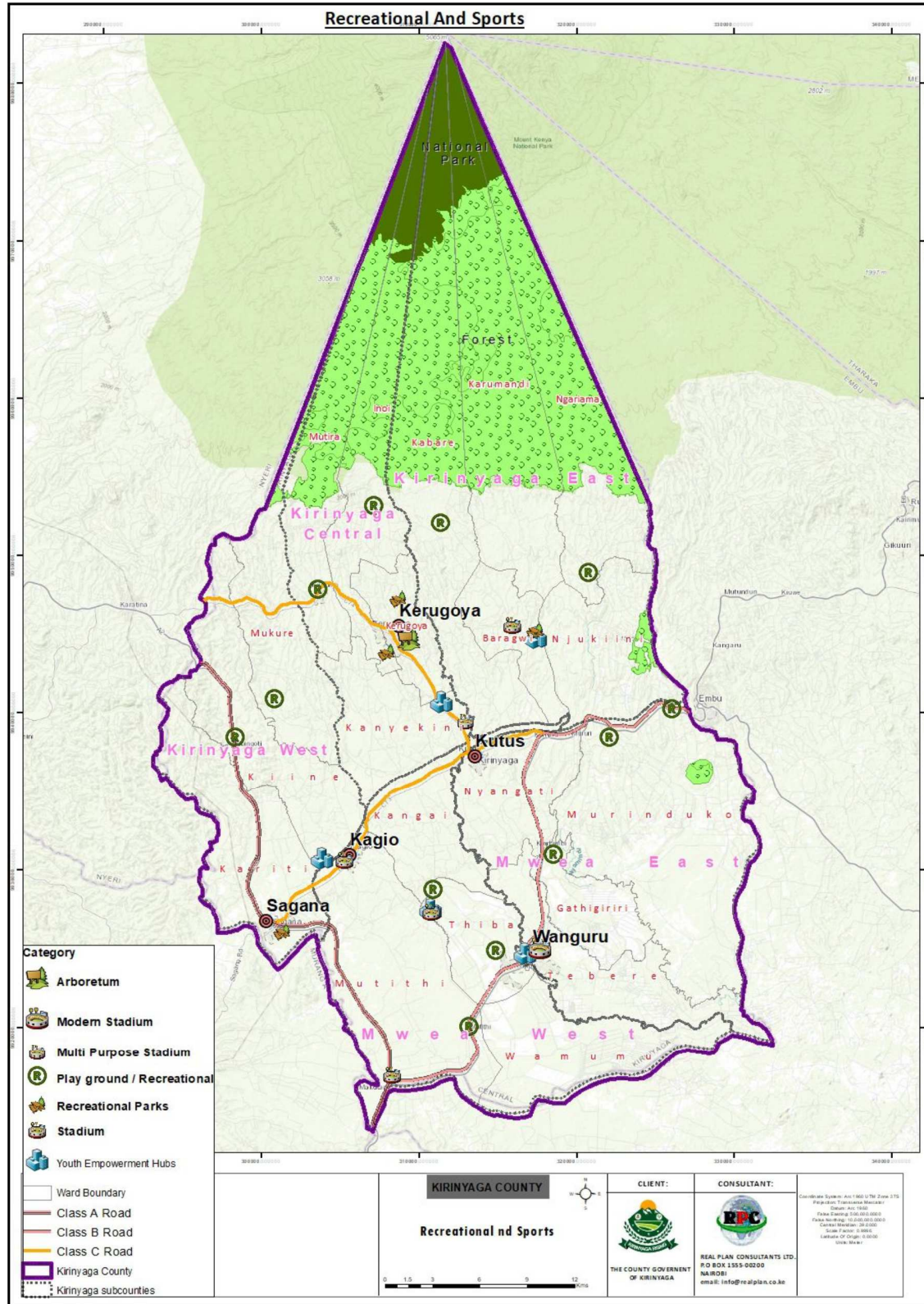
Source: Real Plan Consultants Limited, 2021

Table 104: Proposed Sports Facilities

Priority	Location	Time-frame	Requirement
	Provision of playgrounds/recreation facilities		
2	Kutus	2023-25	0.8ha
2	Kangaita	2023-25	0.8ha
2	Kimunye	2023-25	0.8ha
2	Difathas	2023-25	0.8ha
2	Thiba	2023-25	0.8ha
3	Kibingoti	2025-27	0.8ha
3	Kagumo	2025-27	0.8ha
3	Kiamutugu	2025-27	0.8ha
4	Kimbimbi	2027-29	0.8ha
4	Air Market	2027-29	0.8ha
4	Kiburu	2027-29	0.8ha
5	Karumandi	2029-31	0.8ha
5	PI	2029-31	0.8ha
5	Kangai	2029-31	0.8ha
	Provision of public recreational parks		
1	Kerugoya-Kutus	2021-23	1ha
2	Wanguru	2023-25	1ha
1	Kagio-Sagana	2025-27	1ha
4	Kianyaga	2027-29	0.6ha
	Development into arboretum		
1	Kerugoya- Urban Forest	2021-23	-

Source: Real Plan Consultants Limited, 2021

Map 40: Recreational Facilities (Proposals)



Source: Real Plan Consultants Limited, 2021

7.4 HUMAN SETTLEMENT

The objective is to provide functional, liveable and sustainable human settlements in Kirinyaga. The strategy focuses on urban areas, colonial villages and rural areas as discussed below.

7.4.1 Urban Areas

The proposed Urban Development Strategy aims at driving the socio-economic development for the County by promoting growth in urban centres. The strategy aims at achieving the following objectives

7.4.1.1 Delineation of Urban catchments

As part of developing the urban hierarchy, the catchment areas of key urban centres were determined. The key urban centres identified are Kerugoya, Kutus, Kagio, Sagana, Baricho and Embu (which lies outside the planning area). Analysis from the study revealed differences in the sizes of the hinterlands of the various towns as shown in the map below.

It is important to note that the concept of urban catchments is multi-level. This means the major urban catchments are made up of sub-catchments that cascade to the lowest ranking centres. The sub-catchments vary in size and are defined by natural and man-made features.

The areas for the various catchments indicating the number of centres in each, area and the estimated population achievable is outlined in the table below;

Table 105: Main Centres Area of Influence (Centres and Population)

Principal node/Cluster	No. of centres	%	Area of influence (Ha)	%	Threshold population	%
Kutus*	7	5	8790	8	56,000	13
Wanguru	32	25	34813	30	106,000	25
Kianyaga	26	20	17002	15	39,000	9
Kerugoya	24	18	15720	14	75,000	17
Kagio	19	15	14219	12	78,000	18
Sagana	13	10	14098	12	63,000	15
Embu*	9	7	9780	9	12,000	3
Total	130	100	114423	100	429,000	100

Source: Real Plan Consultants Limited, 2021

Wang'uru has the largest sphere of influence at 34,813ha, which accounts for 30% of the county landmass. Kianyaga ranks second followed by Kerugoya with 17,002ha and 15,720ha respectively.

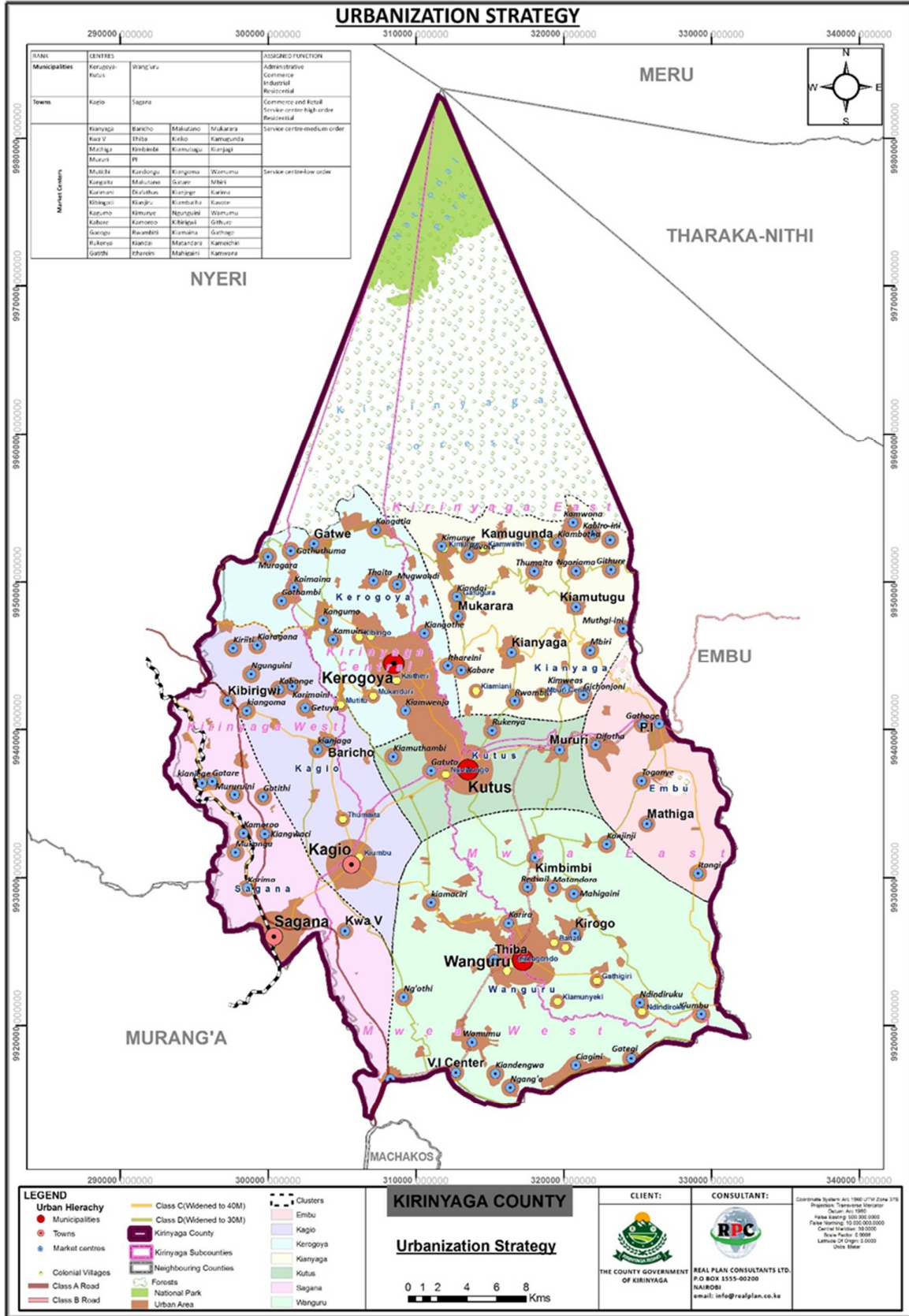
Besides the sizes, the centres within each catchment area were also identified (see the table below). The centres within each catchment formed a cluster dependant or gravitating towards the main centre.

Table 106: Main Centres Sphere of Influence

Principal node /Cluster	Hinterland Urban Centres				No. of centres	Area of influence (Ha)	Threshold population
Kutus	A) immediate hinterland				7	8790	56,000
	Kutus	Kianjiru	Rukenya	Kimica			
	Mururi	Gatuto	Kiamuthambi				
	B) entire county				123	105633	373,000
Wanguru	Wanguru	Gacogu	Gategi	Kiamanyeki	32	34813	106,000
	Kimbimbi	Air market	Kiandegwa	Ndindiruku			
	Kirogo	Matandara	Gathigiriri	Kandongu			
	V.I Centre	Makutano	Kamucege	Mutithi			
	Thiba	Redsoil	Kiumbu	Kangai			
	Kiamiciri	Karira	Methuthiine	Ndorome			
	Mahigaini	Ciagini	Kima-ini	Kangaciri			
	Wamumu	Ngang'a	Kiarukungu	Maendeleo			
Kianyaga	Kianyaga	Kamwana	Mbiri	Kithuci	26	17002	39,000
	Kiamutugu	Kavote	Muthigi-ini	Karumandi			
	Mukarara	Kiambatha	Ngariama	Muchagara			
	Gichonjoni	Kiamugumo	Rwambiti	Kamweti			
	Githure	Kiandai	Thumaita	Kiangothe			
	Kabare	Kimunye	Kiamaciri	Gatugura			
	Kabiro-ini	Kimweas					
Kerugoya	Kerugoya	Kagumo	Kibingo	Kimuiru	24	15720	75,000
	Gatwe	Kiamwenja	Karaini	Karira			
	Gathambi	Kiang'ombe	Kianjogu	Kiandieri			
	Gathuthuma	Mugwandi	Mukinduri	Kaitheri			
	Kaimaina	Muragara	Kiarura	Kiaritha			
	Kangaita	Thaita	Thangari	Ithareini			
Kagio	Kagio	Karimaini	Ngunguini	Mutitu	19	14219	78,000
	Baricho	Kiangoma	Kiburu	Kirimuge			
	Getuya	Kianjaga	Kiandai	Kiaga			
	Kabonge	Kiaragana	Riakiania	Kianjege			
	Kiriiti	Kiangai	Mathai Kanjai				
Sagana	Sagana	Gatithi	Kiangwaci	Mururuini	13	14098	63,000
	Kwa V	Kamororo	Kianjege West	Mung'etho			
	Gatare	Karima	Mukangu	Kibiringwi			
	Kibingoti						
Embu	Mathiga	Togonye	Ikurungu	Mumbu	9	9780	12,000
	Difatha	Itangi	Morgan	Kanjuu			
	Gathoge						
Total					130	114423	429,000

Source: Real Plan Consultants Limited, 2021

Map 41: Urbanization Strategy



Source: Real Plan Consultants Limited, 2021

7.4.1.2 Urban Hierarchy

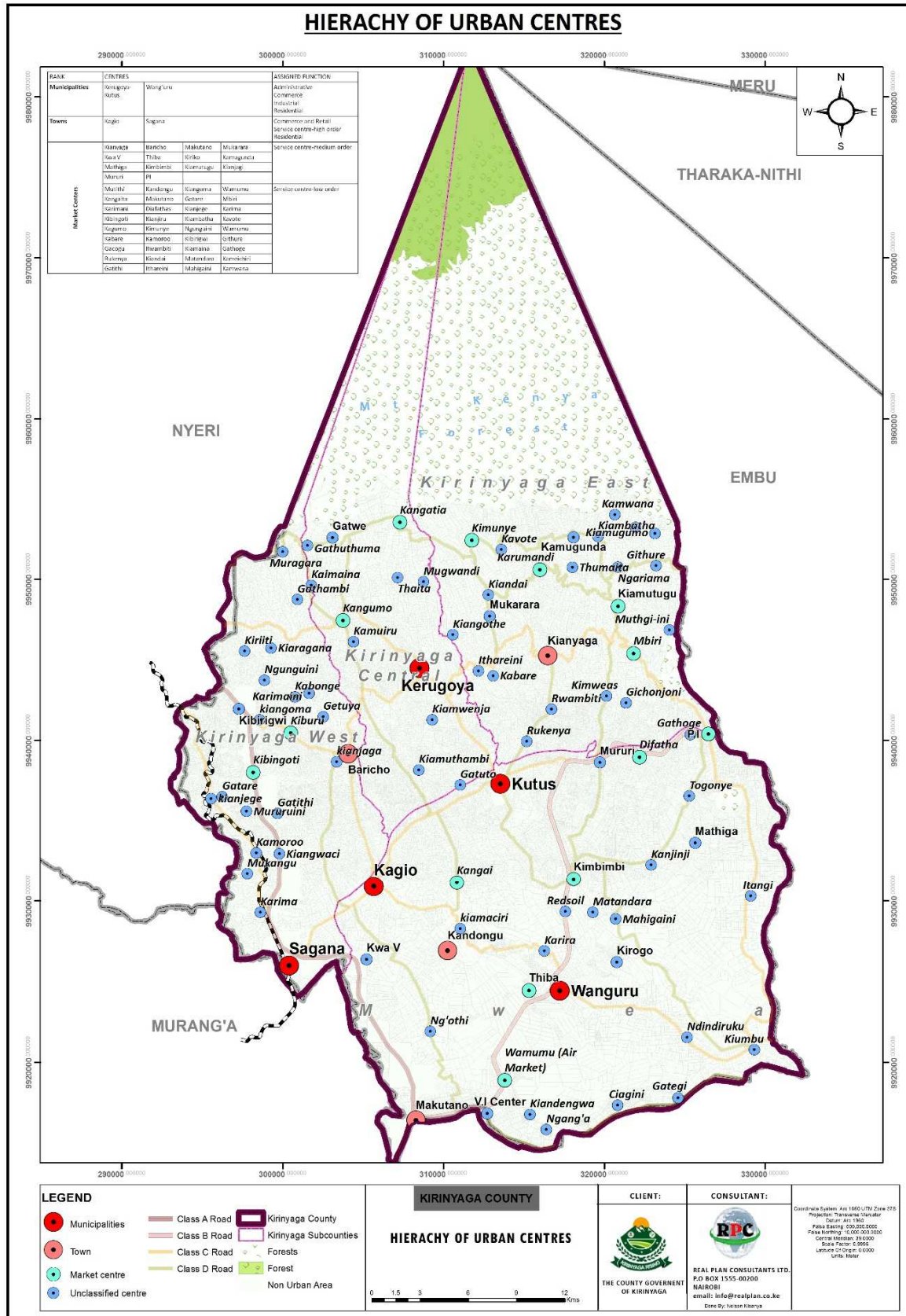
The Urban development strategy has established a hierarchy of urban areas as prescribed by the Urban Areas and Cities Act of 2011 (amendment 2019). Kirinyaga would qualify to have Municipalities, Towns and market centres. This is in line with the current National Urban dispensation that presents various opportunities for urban areas including financing, improved governance, critical infrastructure development, investment attraction and urban management. The county has an estimated 130 urban centres ranked as follows

Table 107: Urban Hierarchy

Rank	Urban Centre				Threshold Pop.
Municipalities	Wang’uru				County Headquarters Or 50,000
	Kutus-Kerugoya				
	Sagana - Kagio				
Towns	Makutano				10,000
	Baricho				
	Kianyaga				
	Kandongu				
Market Centres	Kangaita	Difathas	Kibingoti	Kangai	2,000
	Kagumo	Kimbimbi	Karumandi	Kiburu	
	Kimunye	Thiba	Mutithi	Kibirigwi	
	Kiamutugu	Wamumu (Air Market)	Pi Centre	Mbiri	
Minor Centres	Gatugura	Kaitheri	Ngariama	Kiambatha	Below 2,000
	Kiamwenja	Kianjaga	Kirimunge	Gacogu	
	Ndorome	Karira	Kiandai	Gatithi	
	Ciagini	Kibirigwi	Mahigaini	Ngunguini	
	Kiamaina	Mukinduri	Kianjiru	Kiangwaci	
	Mururi	Kamuiru	Kiamiciri	Githure	
	Kiriko	Kirogo	Karaini	Getuya	
	Gatwe	Redsoil	Itangi	Mathiga	
	Kamugunda	Ndindiruku	Karima	Kamweti	
	Thaita	Kiaga	Kianjege	Thumaita	
	Kavote	Ngang'a	Ng'othi	Kiandieri	
	Kabare	Kiandai	Kiorugari	Mukarara	
	Kamwana	Matandara	Karimaini	Kianduma	
	Karia	Kanjinji	Kiamwathi	Gathigiriri	
	Gathoge	Kirwara	Kwa V	Rwambiti	
	Kiangai	Gategi	Gitagara	Kiandegwa	
	Mutitu	Nyamindi	Mwathaini	Rukenya	
	Kabonge	Kiamanyeki	Kimica	Ithareini	
	Kiamiciri	Kibingo	Mururuini	Kamuchege	
	Gathuthuma	Muchagara	Kiangoma	Karii	
	Kiumbu	Karucho	Togonye	Thanju	
	Kanjuu	Gatare	Rukanga	Ngomongo	
	Migingo	Kamororo	Mbitika	Riandira	
	Kiamuthambi	Mukangu	Kamwana		

Source: Real Plan Consultants Limited, 2021

Map 42 Hierarchy of Urban Centres



Source: Real Plan Consultants Limited, 2021

7.4.1.3 Urban growth Limits

To address the competing interests on land among various uses such as agriculture, conservation and urban development, proposals were made to set urban growth limits for urban nodes. There is need to protect encroachments into agricultural land. By setting urban growth limits, it is expected that use of land within urban areas will be optimized and densified for efficient use. Urban development is proposed to take about 17,419 hectares which constitute 12% of the county area.

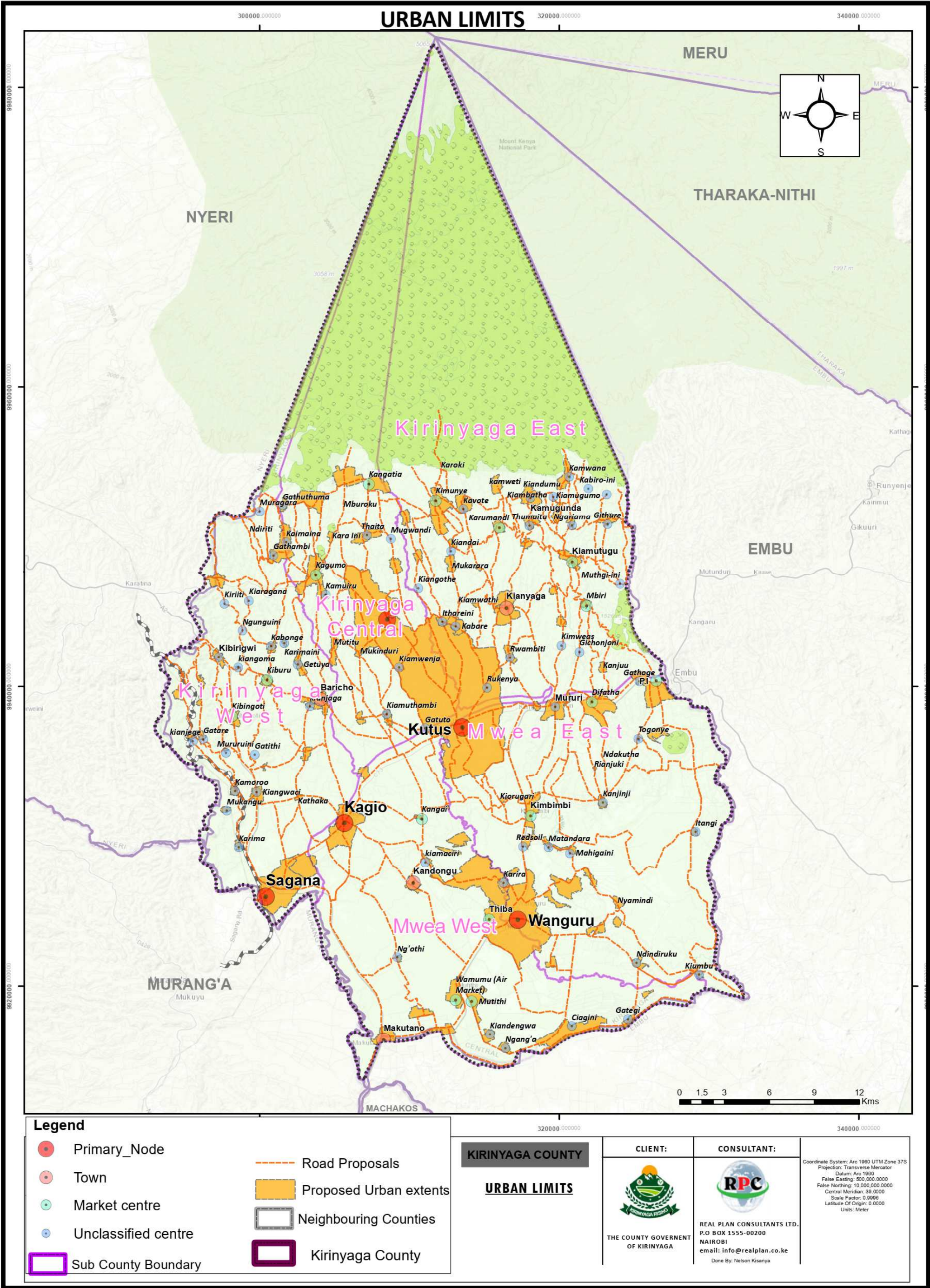
However, it is important to note that the proposed urban extents are not purely urbanized spaces but consists of built-up spaces, urban agricultural and conservation areas.

Table 108: Urban Extents

Urban centre	Area (Ha)	Urban centre	Area (Ha)	Urban centre	Area (Ha)	Urban centre	Area (Ha)
1) Kerugoya-Kutus	1585	29) Kibingoti	81	56) Kaimuiru	45	83) Kirimunge	23
2) Wang'uru	833	30) Gathoge	79	57) Kirogo	44	84) Kiandai	23
3) Sagana	678	31) Kiangai	78	58) Redsoil	43	85) Mahigaini	22
4) Kagio	444	32) Mutitu	78	59) Ndindiruku	43	86) Kianjiru	21
5) Ciagini	393	33) Kiangwaci	77	60) Kiaga	42	87) Kiamachiri	21
6) Kangaita	379	34) Githure	70	61) Ngang'a	42	88) Karaini	19
7) Kimunye	305	35) Getuya	70	62) Kiandai	41	89) Itangi	19
8) Difathas	294	36) Kandongu	66	63) Matandara	41	90) Karima	18
9) Kiamaina	293	37) Mathiga	66	64) Kanjinji	38	91) Kianjege	18
10) Kagumo	231	38) Kamweti	64	65) Kirwara	38	92) Kangai	14
11) PI Centre	229	39) Thumaita	63	66) Gategi	38	93) Ng'othi	14
12) Thiba	228	40) Kiandieri	63	67) Nyamindi	37	94) Kiorugari	11
13) Mururi	204	41) Kianyaga	61	68) Kiamanyeki	36	95) Karimaini	11
14) Kiriko	195	42) Mukarara	61	69) Kibingo	36	96) Kiamwathi	11
15) Gatwe	186	43) Kianduma	60	70) Muchangara	35	97) Kwa V	10
16) Kimbimbi	186	44) Gathigiriri	59	71) Karucho	34	98) Gitagara	9
17) Mutithi	166	45) Rwambiti	56	72) Kabonye	34	99) Mwathaini	7
18) Kamugunda	139	46) Kiandengwa	56	73) Kiamiciri	33	100) Kimica	6
19) Thaita	133	47) Rukenya	56	74) Gathuthuma	31	101) Muruini	5
20) Makutano	118	48) Ithareini	56	75) Kiumbu	31	102) Kiangoma	5
21) Kavote	115	49) Kamuchenge	55	76) Kanjuu	31	103) Togonye	5
22) Kabare	114	50) Kianjaga	55	77) Mbiri	30	104) Karii	5
23) Wamumu (air market)	110	51) Karira	54	78) Migingo	29	105) Thanju	4
24) Kamwana	108	52) Kibiringwi	52	79) Kiamuthambi	27	106) Ngomonyo	3
25) Kiamutugu	105	53) Karumandi	52	80) Gatara	26	107) Riandira	2
26) Baricho	102	54) Mukinduri	51	81) Kamoroo	25	108) Rukanga	1
27) Karia	101	55) Kiburu	46	82) Ngariama	24	109) Mbitika	1
28) Karia	101						

Source: Real Plan Consultants Limited, 2019

Map 43: Urban Limits



Source: Real Plan Consultants Limited, 2021

7.4.1.4 Urban Planning Program

Part of the CSP expectation is to provide a framework for the implementation of key projects such as the preparation of urban development plans. A 10 years urban planning program covering proposed municipalities, towns, market centres and minor centres is recommended below.

Table 109: Urban Centres Planning Program

Priority	Rank	Sub-county	Time frame
1	Municipalities	Wang'uru, Kutus-Kerugoya, Sagana – Kagio,	2021-2023
1	Towns	Makutano, Baricho, Kianyaga, Kandongu, Kagumo,	
2	Market centres	Kiamutugu, Kimunye, Wamumu (Air Market) Kimbimbi, PI, Kangaita, Kibingoti, Difathas, Thiba, Karumandi, Mutithi, Kangai, Kiburu, Mbiri, Mururi, Kibiringwi	2023-2025
3	Minor centres	Kaitheri, Ngariama, Kiamwenja, Kirigu, Ndorome, Ciagini, Kibirigwi, Mahigaini, Kiamaina, Kianjiru, Kiangwaci, Mururi, Kiamiciri, Kangai, Itangi, Vi, Kangaita Old, Muchagara, Kumbu, Kiburu	2025 – 2027
4	Minor centres	Kiamwathi, Kibingo, Kianjege, Kirogo, Makutano, Kutus Old market, Kiamuthambi, Riamugaa, Itangi, Kimica, Kamugunda, Karia, Gathambi, Thiguku, Karira, Githure, Gatwe, Methuthiine, Gategi, Kimweas	2027-2029
5	Minor centres	Kiambatha, Kirimunge, Karira, Kiandai, Ngunguini Mukinduri, Karaini, Kamoro, Gathigiriri, Mutithi, Gatugura, Kiangai, Togonye, Kamweti, Kiandieri, Kabonge, Kiaga, Kangiciri, Kamwana, Kamuiru, Kima-Ini, Kamucege, Gathoge, Kianjiru	2029-2031

Source: Real Plan Consultants Limited, 2021

The remaining 58 minor centres which have not been included in this planning programme are to be rolled over to the next County Spatial Plan planning period

7.4.1.5 Urban-Rural Linkages

Urban areas cannot be planned in isolation from their wider regions. Within the peri-urban and rural areas where there is limited growth, the urbanization strategy envisions a scenario where development would spread out to these areas hereby addressing inequalities. This is anchored on the Core periphery theory of John R. Friedman which postulates the existence of core regions where there is a concentration of growth poles hereby referred to as the driving area. The hinterland areas located in the periphery of core areas are referred to as the driven area.

The theory suggests that the core regions deprive the peripheral areas of resources, raw materials and labour in the short-term leading to decline and underdevelopment. However, in the long term, the core regions expand into the peripheral regions due to expanding economies thus creating increased employment opportunities, economic, social and infrastructure development. The peripheral area can thus become part of or at par with the core region.

Similarly, in Kirinyaga urbanization makes the fortunes of rural and urban areas more interdependent. Rural Kirinyaga provides natural resources, energy, water and food to urban areas, which provide markets, financial resources and technical expertise to rural communities. Small towns play a crucial role as intermediary locations.

7.4.1.6 Improving Living Standards

Key actions included implementation of proposed urban projects; creation of employment; provision of basic social services; and establishment of affordable housing programs by public sector.

- Employment creation.
- Provision of social facilities
- Establishment of housing needs for provision by both private sectors.
- Establishment of affordable housing schemes in Kerugoya, Kianyaga, Wanguru, Wamumu and Sagana

7.4.1.7 Creating enabling environment

This entails infrastructure service provision; development of the Sagana Industrial Park; development of Special Economic Zones and industrial parks; and encouragement of rural industrialization.

7.4.1.8 Strengthening Urban-Rural Linkages

The following shall be carried out; upgrade of road networks, Development of Integrated public transport system, revive and rehabilitate Rail transport, and revive and rehabilitate Mwea airstrip

7.4.2 Colonial Villages

Kirinyaga County has 123 colonial villages. As established earlier, colonial villages have deteriorated and are faced with multiple challenges such as insecure land tenure, poverty, inadequate water supply, poor stormwater drainage, informal housing, poor sanitation, poor quality housing, environmental challenges, and inadequate solid waste management.

Towards improving the current state, the planning and surveying of the villages are recommended. The Physical and Land Use Development Plans for the Villages will provide for;

- Survey and issuance of titles for the settlements
- Adequate space for utilities such as energy, solid waste transfer sites and storm water channels
- Designation and protection of public spaces and social facilities such as schools, health facilities, administrative offices, playgrounds and recreational parks
- Develop the colonial villages as eco-villages to restore and regenerate the social and natural environments
- Guide infrastructure development
 - ❖ Establish functional roads network to enhance mobility and connectivity
 - ❖ Provide storm drainage network,
 - ❖ Guide provision of water infrastructure,

- ❖ Enhance liquid and solid waste management
- ❖ Adequate circulation system where roads are at least 9m wide
- Environmental sustainability
 - ❖ Protection of rivers,
 - ❖ Efficient waste management,
 - ❖ Guide afforestation programs,
- Preservation and protection of heritage and cultural sites.

Therefore, the following is recommended

- Completion of the ongoing planning and surveying of colonial villages under the National Government (National Irrigation Authority)
- A 10 years planning and surveying program covering the unplanned 123 colonial villages under the County Government as provided below.

Table 110: Colonial Village Planning Program

Priority	Mwea West	Mwea East	Kirinyaga East	Kirinyaga Central	Kirinyaga West	Timeframe
1	Mutithi Thiba A Thiba B Kangai	Nyamindi Ndindiruku Kiamucege Mahigaini, Redsoil	Kianyaga Kangatia Rukenya Kiamutungu Kamwana Kavote	Kangaita B Kiaritha Kiandieri Old Kangaita New Kangaita	Gatugura Kiangwaci Riamugaa Gacharu	2021-23
2	Kirwara Kiaga Rukanga	Gathigiriri, Kirogo, Kimbimbi Kiriko, Kamwana Migingo,	Rwambati Kiandai Kabare Karumandi Kareithi Muchagara	Gatwe Thaita Kitieri Mutira	Kibingoti Kiburu Thanju Ngoka Kariine Kanjai	2023-25
3	Kandongu Mbitikita Kariua Marura	Kiamanyeki Mururi Wanguru mjini Kutus mjini Difatha	Kamugonda Thumaita Kanjuu Mukarara Kiarani Githure	Kaimuru Kirimunge Mikinduni Blue canyon	Kibirigwi Kiandai Gatare Mururiini Mathia Kiangema	2025-27
4	Kiumbu Karii Ngomongo	Bahati Kiorugari Matandara Gachigiria Mathangauta Broko	Gathathe Ithare-ini Muri falls Ngariama Kamweti Gathoge B	Karia muthu Kiangwenja Kibingo	Kamuthonga Kiangai Gitaraga Sagana Mjini	2027-29
5	Riandira Kimica Kiamichiri	Kibathera Kianguni Murinduko Kianjiru Gathoge A Mathiga Githogondo	Karia Mbiri Kianduma Kiundani Gatugura Kiumbati	Kaboni Kianga Kiamuthambi Karaini Kiawakara Kiamaina A	Karima Rukanga Kiinji Mugetho	2029-31

Source: Real Plan Consultants Limited, 2021

7.4.3 Rural Landscape

This refers to agricultural areas where the design is traditional and covers the greater proportion of the County. The rural landscape emanates from the native settlements and settlement schemes such as South Ngariama Scheme. The goal is to improve income generation, access to services, and improved quality of life. Therefore, the following is recommended;

- Containment of urban areas reduce encroachment into prime agricultural land (elaborated in section 5.4.1.4)
- Agricultural development by protecting agricultural land, promoting value-addition, enhancing production as elaborated under the agricultural development strategy (section 5.5.1)
- Establishment of rural-urban linkages to enhance access to market, services, farm outputs as elaborated in section 5.4.1.6 under the urbanization strategy
- Encourage more nucleated settlements in agricultural land to minimize scattered rural homesteads along the landscape

7.5 ECONOMIC DEVELOPMENT

The economic development strategy integrates different sectoral perspectives aimed at making the county's economy diversified, competitive and sustainable. Key focus sectors include agriculture, tourism, industrialization, mining, commerce and trade.

7.5.1 Agriculture Development

Vision 2030 recognizes agriculture as a key sector towards realizing the 10% annual economic growth. Kirinyaga is endowed with fertile soils and favourable climate allowing production of diverse agricultural products. Agriculture is a source of livelihood for the majority of the county population. Activities undertaken in this sector include crop farming, livestock production, fishing and agro-forestry.

It is in this light that the CSP seeks to transform agriculture into a modern and commercially oriented sector. Emphasis is placed on increasing productivity; at the same time expand processing activities. The aim is to improve crop yield, make use of currently uncultivated land, expanding irrigated areas and better branding of Kirinyaga products.

The main objectives of the agricultural strategy are;

- Increased productivity
- Creation of employment
- Improved quality of life for County's residents
- Ensure food security

The key strategies under agricultural development include:

7.5.1.1 Protection of Agricultural Land

Steady reduction and fragmentation of agricultural land by the increasing population and rapid urbanization are identified as main threats to agricultural development. It is however important to note that the urbanization and population trends are expected to continue. Vision 2030 anticipates that over 50% of the national population will be urban by 2030.

Therefore, it is imperative to pursue the following actions to safeguard the high potential agricultural land.

- Regulating subdivision and change of use of agricultural land will ensure that agricultural land retains its original use. This can be coupled with setting up minimum plot sizes for various crops
- Demarcating urban extents to eliminate encroachment by urban activities and other land use conflicts (elaborated in section 5.4.1.4)
- Diverting urbanization from high potential agricultural such as Mwea Irrigation Scheme, tea and coffee zones to more arid areas
- Adoption of proper farming methods will reduce soil degradation, erosion and improve soil quality over time. The result is improved soil fertility. Embracing organic farming will also reduce pollution.

7.5.1.2 Enhanced Value Addition

Promotion of value addition can be achieved through use of appropriate technologies creating awareness on value addition; stakeholder capacity building in value addition; generating awareness on intellectual property rights; promoting consumption of value-added products and facilitating linkages to financial institutions.

Kirinyaga County is famous for cultivation of various horticultural products. Majority of farmers sell unprocessed products, which do not yield the desired returns. Encouraging and facilitating value addition will enable farmers to increase their current earnings. An example is value addition of bananas. A single banana goes for KShs 5 but if processed to make banana chips, a packet of a chipped banana could cost for KShs 60. Interventions recommended include:

- Establishment of agro-based industries at the proposed Sagana Industrial Park. They may deal with horticultural products. Due to the perishable nature of horticultural products, there is need to set up an industry within the county. Processed products may be exported to other counties or foreign markets
- Establishment of industries in respective sub-counties as outlined in the industrialization section. An example is setting up banana value addition industries, managed by growers' associations, in the banana production areas of Kangai and Kiamutugu
- Production of refined products especially in the tea and coffee industry.

7.5.1.3 Diversification of Agriculture

Exploring alternative crops that farmers can invest in and get favourable incomes is recommended. Crop diversification will increase crop portfolio and increase and stabilize farmers' incomes. Below are some of the crops that farmers could alternatively invest in;

- i. Tomatoes - An acre of tomatoes has an input production cost ranging between KShs 200,000 and 250,000. The acre during short rains produces crop worth Ksh 950,000 while in the long rains the turnover is Ksh 1.2 Million. This means that a farmer will make a profit of at least Ksh 700,000 per annum. (Source of statistics: Ministry of Agriculture, County Government of Kirinyaga).
- ii. Arabicum (*Ornithogalum saundersiae*) is an annual flower used in fresh bouquets. According to the Horticultural Journal of Kenya, the flower is gaining popularity in Kenya due to its profitability and ease of production. It thrives at elevations ranges of 1500-2000m above sea level, with temperatures of 22-28°C and slightly acidic to neutral PH soils. On a 1/8 acre of land, the flowers can produce 6,000 stems weekly. In the market, a stem goes for Ksh 3, which translates, to Ksh 72,000 monthly for three months. In a season, a farmer could earn Ksh 216,000. The flowers grow three seasons a year, which translates to Ksh 648,000 annually.

An Arabicum growing zone is proposed in Tea Zone (Zone 2) forming a transition from tea zone to Zone 3 (Mixed agriculture use) and Zone 6 (coffee zone). A packaging and storage plant is proposed in Kimunye due to its centrality

7.5.1.4 Optimization of Agricultural Land

Intensive use of the available agricultural land is recommended. This is premised on the availability of good rainfall, fertile soils and favourable terrain conducive to the production of various types of crops. There is also need to increase the number of crops achievable in the irrigation zones. More intensive utilization of the irrigable land which stands at 18% of the county land mass is recommended.

7.5.1.5 Provision of Support Infrastructure

Provide transport connectivity from the farms to the markets. This will entail upgrading of the major roads linking to major markets. They include:

- Makutano-Kutus-Kerugoya-Kagumo Road
- Makutano- Wanguru-Embu Road
- Sagana-Kagio-Baricho Road
- Sagana-Kibiringwi Road

7.5.1.6 Enhanced Marketing

Growth of a market or a product is dependent on its visibility to the consumer. Marketing the agricultural products produced will ensure access by consumers in and outside the county. The following is recommended;

- Establishing of market/collection points to create a network of circulating the agricultural products. The collection points to be based in production areas.
- With the increasing popularity of electronic media, establishing a website and mobile apps would be key. The website will list the types of products available and can link the farmer to the customer.
- Branding of agricultural products from Kirinyaga County and marketing the brand
- Capitalizing on the Mt. Kenya Economic Bloc to achieve agriculture and agribusiness transformation.
- Adoption of technology through creation of an application that will link farmers to consumers will also market the products. The application can be downloaded on the phone ensuring all those with smart phones can access it. This will reduce amount of time spent by farmers transporting goods to the market and consumers looking for products.

7.5.1.7 Enhanced Research

- Increased funding for Kenya Agricultural and Livestock Research Organization to enhance research on new crops and livestock
- The county to pursue an MOU with KARLO to county focussed agricultural research

7.5.1.8 Credit Utilization

In promotion of agri-business, credit is a vital element. Training of farmers on how to utilize credit will ensure they maximize the finances. Additionally, establishment of Farmers' micro saving schemes would enable access to credit by members. These could utilise the merry go round approach of table banking.

7.5.2 Industrialization

Vision 2030 aims to transform Kenya into an industrializing nation that provides income to its citizens. It also recognizes the need for intensified research to increase economic development through this sector. Kirinyaga County has potential for growth in the industrial sector owing to its agrarian economy.

The Kirinyaga County Spatial Plan aims to transform the County into being highly industrialized area capitalizing on agro-industries. This is in line with the National Industrialization Policy that focuses on value addition for primary and high valued goods. The policy also aims to link the industrial sector with other complementary sectors. This sector however recognizes the challenge of lack of designated industrial land and lack of requisite infrastructure. To curb the named challenges, the policy proposals are as follows;

7.5.2.1 Decentralization of Manufacturing Industries

Presence of an industry at a town spurs its growth and development. Most industries in Kenya are concentrated in the major urban centres. This denies the smaller centres a chance to develop economically. This strategy advocates for establishment of industries in the different agricultural zones. The objectives of this strategy include;

- Boost and accelerate growth of upcoming urban centres
- Mechanisation of activities
- Advance technical knowledge
- Enhance growth of industrial innovation
- Foster urban resilience
- Establishment of agro-processing industries - Owing to the fact that Kirinyaga County is highly agricultural, most industries will be agro-based and established in their respective agro-climatic zones as listed below;
 - ❑ Banana processing industries in Sagana, Kerugoya, Baricho, Kangai, Kiamutugu
 - ❑ Banana storage facilities at collection points in Mururi and Miringa
 - ❑ Flower packaging and storage plant in Kimunye
 - ❑ Macadamia processing plant in Sagana, Kiamutugu and Githure
 - ❑ Cottage industries in sub-county headquarters
 - ❑ Horticultural products processing zone in Sagana
 - ❑ Provision of light industrial zones (juakali and garages) in Kerugoya-Kutus, Wang'uru and Kagio – Sagana.

7.5.2.2 Establishment of Cottage Industries.

These are house-based industries. They utilize locally available raw materials, labour and skills. The products from these markets also end up in the local market. Kirinyaga County has capacity for establishment of cottage industries in creating value addition on the various agricultural products. Farmers' associations can manage the cottage industries. This will make sure the farmers get all the returns.

7.5.2.3 Reindustrialization

This refers to the economic, social and political process of organizing resources for the purpose of re-establishing industries. Cotton is an industry that needs to be revived in Kenya. Kirinyaga County has only 52 Ha under cotton production. This is despite the County's potential of 10,000 Ha according to the Regional Agricultural Trade Expansion Support Programme, 2003. Collapse of the textile industry and parasites contributed to the collapse of the sector. Bollworms are the main parasites that have infested cotton plants over the years and lead to the industry's decline. Restoring Kirinyaga's once thriving cotton industry will be achieved through;

- Reviving of the cotton ginnery at Mwea.
- Establishment of more cotton industries within the proposed Sagana Industrial Park in Sagana and one at Mathiga to service Gachoka Scheme.
- Revive cotton planting in the areas of Gachoka Scheme, Wamumu, Karaba and Kwa V.
- Introduction of BT cotton seed, a genetically modified seed is resistant to bollworms.

7.5.2.4 Establishment of Industrial Parks

The National Spatial Plan highlights the need for allocation of land for the development of industries provided with planned and serviced infrastructure. Kirinyaga County currently does not have any industrial parks. This proposal will improve the economies of scale brought by the

agglomeration of industries. The objectives of this proposal are to create more employment opportunities and designated spaces for industrial activities.

To achieve greater industrialization, the county requires to;

- Provide adequate space for setting up of industrial parks. This will entail zoning of industrial zones to avoid incompatibility of land uses.
- Formulation of master plans for the industrial parks to integrate of environmental conservation and sustainability into the industrialization process.
- Provision of support infrastructure. This includes complimentary activities such as public parks, schools and hospitals to serve those working in the industrial parks.
- Establishment of smaller industrial parks in Kutus and Wanguru. This may involve partnership with private sector.

7.5.2.5 Formulation of a County Industrialization Policy

Successful economies around the world have flourished due to the presence of a policy that has guided their industrial growth process. The formulation of the National Industrialization Policy was prompted by the country's stagnant growth in the industrial sector. For the last twenty years, the country's industrial contribution to the GDP has remained at 10%.

It is therefore recommended that the county formulates a county industrialization policy that will:

- a) Outline the county's vision and the guiding principles
- b) Demarcate the various industrial zones
- c) Lay down standards of conformity for the local and small industries
- d) Develop appropriate structure of levies and incentives
- e) Ensure there is integration of industrial growth with environmental protection
- f) Provide support for planning of the industrial sector.

7.5.2.6 Diversification of Industrial Sector

Given the dominance of the agricultural sector, industrial activities may largely gravitate towards agro-based industries. Besides, Kirinyaga County is also well endowed with other resources. Some of these resources are underutilized. The following actions aim to diversity the industrial activities within Kirinyaga County:

1. Establishment of fish value addition industries. Fishing in Kirinyaga County is practiced in Sagana in small scale. Setting up value addition industries will enable farmers produce fish at large scale. The industries will be set up within the proposed Sagana Industrial Park. This will be coupled with provision of coolers and drying facilities.
2. Processing minerals to finished products that fetch more revenue.

7.5.2.7 Provision of Requisite Infrastructure

Industrial development cannot thrive without infrastructural support. Infrastructure is often termed as the 'unpaid factor of production' critical for industrial development. Considering this, interventions recommended include;

1. Reviving of the meter gauge rail to facilitate movement of raw materials, heavy equipment and processed products efficiently and affordably
2. Upgrading of roads infrastructure to link industrial plants, production areas (raw materials) and market
3. Provision of adequate subsidized/affordable energy as an incentive to industrial investors
4. Provision of stable communication systems including county fibre optic network.
5. Upgrading the Mwea Airstrip to increase its capacity to aid in transport of perishable goods.

Table 111: Industrial Development Projects

Priority	Project	Location	Sub-county	Period
1	Development of a County Industrial Policy	-	-	2021-23
1	Undertake a feasibility study for the proposed Sagana Industrial Park	Sagana	Kirinyaga West	2021-23
1	Formulation of master plan for the proposed Sagana Industrial Park	Sagana	Kirinyaga West	2021-23
1	The establishment of Sagana Industrial Park – agro-based industries and logistics facilities	Sagana	Kirinyaga West	2021-23
1	Designate smaller industrial park in Kerugoya-Kutus	Kerugoya-Kutus	Kirinyaga Central/Mwea	2021-23
1	Designate smaller industrial park in Wanguru (agro-based)	Wanguru	Mwea East/West	2021-23
1	Development of rice husk processing plant in Wanguru	Wanguru	Mwea East/West	2021-23
1	Development of Milk processing plant in Kamweti	Kamweti	Kirinyaga East	2021-23
1	Development of macadamia processing plant in Mukure	Mukure	Kirinyaga East	2021-23
2	Development of coffee processing (refined product) in Kibirigwi	Kibirigwi	Kirinyaga West	2023-25
2	Development of Banana Processing Plant in Kiamutugu	Kiamutugu	Kirinyaga East	2023-25
3	Revival of the tomato processing plant at Kagio	Kagio	Kirinyaga West/Mwea West	2025-27
3	Development of milk processing plant in Kerugoya-Kutus Municipality	Kirinyaga Central	Kirinyaga Central	2025-27
3	Development of Banana Processing Plant in Kerugoya-Kutus Municipality	Kirinyaga Central	Kirinyaga Central	2025-27
1	Establishment of Juakali zone (light industrial zone)	Kerugoya-Kutus	Kirinyaga Central	2021-23
1	Establishment of Juakali zone (light industrial zone)	Kianyaga	Kirinyaga East	2023-25
2	Establishment of Juakali zone (light industrial zone)	Wang'uru	Mwea East	2023-25
3	Establishment of Juakali zone (light industrial zone)	Baricho	Kirinyaga West	2025-27
4	Establishment of Juakali zone (light industrial zone)	Kagio - Sagana	Kirinyaga West/Mwea West	2027-29
5	Establishment of Juakali zone (light industrial zone)	Kandongu	Mwea West	2029-31

Source: Real Plan Consultants Limited, 2021

7.5.3 Trade and Commerce

Trade is a vital element of the growth and development of an area. More needs to be done since the sector is still facing numerous challenges. Hostile working environment, lack of knowledge on utilization of credit and poor structuring of markets are some of the challenges plaguing the trade sector. To alleviate the above challenges, strategies proposed are;

- Provision of supporting infrastructure
- Capacity building especially for the informal sector
- Development and growth of trade
- Strengthening of cooperative societies

7.5.3.1 Enterprise Development Capacity building

The goal of capacity building is to help individuals obtain, improve and retain skills, resources, knowledge, and tools to perform better at their work/responsibility. This strategy will be achieved through the following actions

- Offering training programmes to traders and business people. These programmes will be aimed at enlightening traders on how to maximize profits. The trainings will also avail information on how to access and utilize loans.
- Entrepreneurship development will be a part of capacity building by supporting individual businesses.

7.5.3.2 Construction and Efficient Management of Markets

Functional markets are designed to meet a community's social and economic needs. Besides construction, attention needs to be paid to market management, operations and maintenance. The following is proposed towards realizing functional markets in Kirinyaga;

- Establish a hierarchy of market facilities
- Formulate a market development programme
- Well planned modern markets with appropriate stalls and storage facilities
- Adequate internal and external circulation system
- Year round accessibility preferably by bitumen roads
- Adequate loading, unloading and parking spaces
- Effective drainage infrastructure
- Adequate sanitary facilities
- Connect piped water
- Ample lighting
- Well maintained waste management system

The proposed market development programme covering the next ten years is outlined in table below;

Table 112: Market Development Program

Priority	Kirinyaga Central	Kirinyaga West	Kirinyaga East	Mwea East	Mwea West	Period
1	Kerugoya Food Market Kerugoya Cloth Market Kagumo mixed goods Market Kangaita	Kagio Sagana Baricho Kibingoti	Kutus Old Market Kutus (Gichugu) Kiamutugu Mukarara	Wang'uru Kimbimbi Kutus	Makutano Kandongu Kangai	2021-2023
2	Mukinduri Mugwanda Kiamuthambi Karaini Market	Kiburu Riakanja Gathambi Kianjege West	Kianyaga Mururi Kathoge Karumandi Kimunye Baragwi	Riandira Gatuiru	Kiandegwa Ciagini Ng'othi	2023-2025
3.	Karia Kibingo Gatwe Gitumbi	Kiangai Kiandai Kamurugo Mukangu	Rwambiti Kamwana Mbiri Kiamwathi Karucho	Kiumbu Ndindiruku	Mutithi Thiba Gategi B	2025-2027
4	Mutitu Gathuthuma Kiaga Ngagicuthi	Kamoro Kianjang'a Muragara Ndiriti	Kiandai Kianjiru Kiangwenyi Ithareini Muchagara	Kanjinji PI Togonye	Kandongu Nguka Ndorome	2027-2029
5	Kiamaina Kirimunge Kamuiru	Kabonge Kibangu Muragara Kiaragana	Kavote Githure Rukenya Kamweti Thumaita Kamugunda	Gathigiriri	Ng'ang'a Marurumo Kirwara	2029-31

Source: Real Plan Consultants Limited, 2021

7.5.4 Tourism

Kirinyaga County is endowed with a wide range of tourist attractions site. Tourism resources when properly utilised, can improve incomes and livelihoods of the communities. This sector has potential to create multiplier benefits trickling down to other economic sectors. These include support services such as banking, Tours and travel agencies, agriculture supply, transportation, leisure and entertainment industry. The strategy aims at putting Kirinyaga County on the limelight as one of the key tourist destinations in the world. The main strategies in this sector are as follows:

- Identification and mapping of the tourist attractions
- Rehabilitation/restoration of the identified sites
- Conservation of natural Resources
- Establishment of tourism zones
- Conservation of cultural and heritage sites
- Promotion of sustainable utilization of resources
- Exploration of new sites

The following actions are recommended;

7.5.4.1 Conservation of Natural Resources

- Afforestation and reforestation programs
- Protection of natural resources e.g., fencing of Njukiini and Kerugoya forests
- Delineation of conservancy zones e.g., swampy areas
- Discourage planting of blue-gam trees along rivers
- Construction of dams
- Promote use of renewable energy in the county
- Establishment of resource and cultural Centres
- Awareness and sensitization about importance of natural resources

7.5.4.2 Sustainable Utilization of Resources

- Encourage green competitiveness among the sub-counties
- Encourage green buildings
- Sensitization of the public on going green
- Mapping and protection of open spaces
- Value addition to the existing sites
- Diversification of activities within a site (sport tourism and education tourism together)
- Provision of supporting services in the existing sites for example, having quality hospitality services around them.

7.5.4.3 Exploring New Tourist Attraction Sites and Areas

- Introduce water wildlife reserve on sections of the six major rivers within the County.
- Riparian conservation strip along all the river banks

- Introduction of cultural performance Centre's in different parts of the county to represent the local culture (see map on proposed tourist sites)
- Introducing theme parks to complement the cultural homes

7.5.4.4 Commencement of Annual Cultural Days / Festivals

Cultural festivals similar to the Annual Lamu cultural festival will keep the cultural activities alive for years. Promotion of local dialect through local radio stations, learning institutions within the cultural sites and school competitions. Encouraging the use of traditional foods and medicines, erection of monuments at major towns and centres will also attract tourists.

7.5.4.5 Identification and Gazettement of New Sites

Kirinyaga County has numerous undocumented tourism sites. Majority of the sites are not underutilised while others some are undeveloped. The identified sites should be documented and gazetted.

7.5.4.6 Diversification of Attractions

Diversification of tourism activities will increase the flow of tourists to Kirinyaga County. Introduction of more water sports not only along River Sagana among other rivers. Setting up of amusement parks and museums will provide a new way of enjoying the County's beauty and history.

7.5.4.7 Integrating Tourism with Other Sectors

Tourism cannot be addressed in isolation; it requires a symbiotic relationship between tourism and other sectors such as agriculture, transport, housing, environment, commerce, trade and industry, education, health, youth and gender. Effective proposals will entail infusing tourism to other sectors. This will ensure that tourism will benefit from the prosperity of such sectors and similarly the sectors will benefit from the growth and success of the tourism sector.

a) Transport Tourism

As noted, major transportation corridors traverse the county. This is a vital component for the development of an area. Large numbers of travellers make stopovers along the routes. Transport tourism would also target inter county traffic that is passing through Kirinyaga destined for other areas. Centres such as Wang'uru, Sagana, Kibingoti, Kibiringwi, Makutano and Magana have grown from such trade.

The route to Mt. Kenya through Kirinyaga County has a lot of potential which has not been fully utilized. Opening up the Kamwetii route- will open up Mt Kenya area and improve tourism.

This will be achieved by tarmacking of the roads leading to Kamwetii route and within the proposed tourism circuit.

Railway transport in the county will contribute to the growth of the tourism industry. The revival of railway transport in the region will result in improved socio-economic development in the area. Tourism will be one of the multiple beneficiaries.

Using the case of Mombasa region whose tourism industry got a big boost and is still reaping fruits from the SGR. The revival of the old railway line in the county is expected to give tourism a boost in Kirinyaga County and the region.

b) Agro-tourism

Demo farms attract visitors from all parts of the world and sectors ranging from students, to farmers, to tourists and investors on benchmarking trips. This provides a platform to uplift Kirinyaga's agriculture, economic and tourism base. There are 6 international demo farms in the county. The Green Algae and Ornamental fish farm in Kariti, Sagana is one of the demo farms and is an indicator of the benefits that can be derived from similar projects. The establishment of more demo farms in the region will increase the number of tourists into the County. Other high potential agro-tourism areas are Mwea rice farms, Tea and coffee zones.



Figure 54: Scenic view of a tea plantation in Kirinyaga

Source: Field Survey, 2019

c) Education Tourism

Domestic tourism plays an important role in the promotion of tourism within a region. This concept should be promoted in the county. The tourism concept should be infused into the education sector in the county. Blending the tourism concept to the younger generation will form a stronger base in the growth of tourism in the county. Educational visits/ school trips to the county's cultural and historic sites will conceive the sense of ownership and pride of the sites by the people and also promote the preservation and conservation of such sites. This will also be supplemented by the sensitization of the public on the importance of tourism sites in the county and their role in the socioeconomic wellbeing of a society/county.

d) Cultural tourism

Kirinyaga County has a rich history as it was a bedrock of the Mau-Mau. This can be evidenced by the presence of Mau-Mau caves in Kutus. The county has several cultural sites and historic sites that can promote tourism in the county. However, the county has not made use of these existing resources. Promoting tourism through the indigenous culture of the people of Kirinyaga will involve having a tailor-made tourism concept for the area.

7.5.4.8 Branding, marketing and packaging Kirinyaga

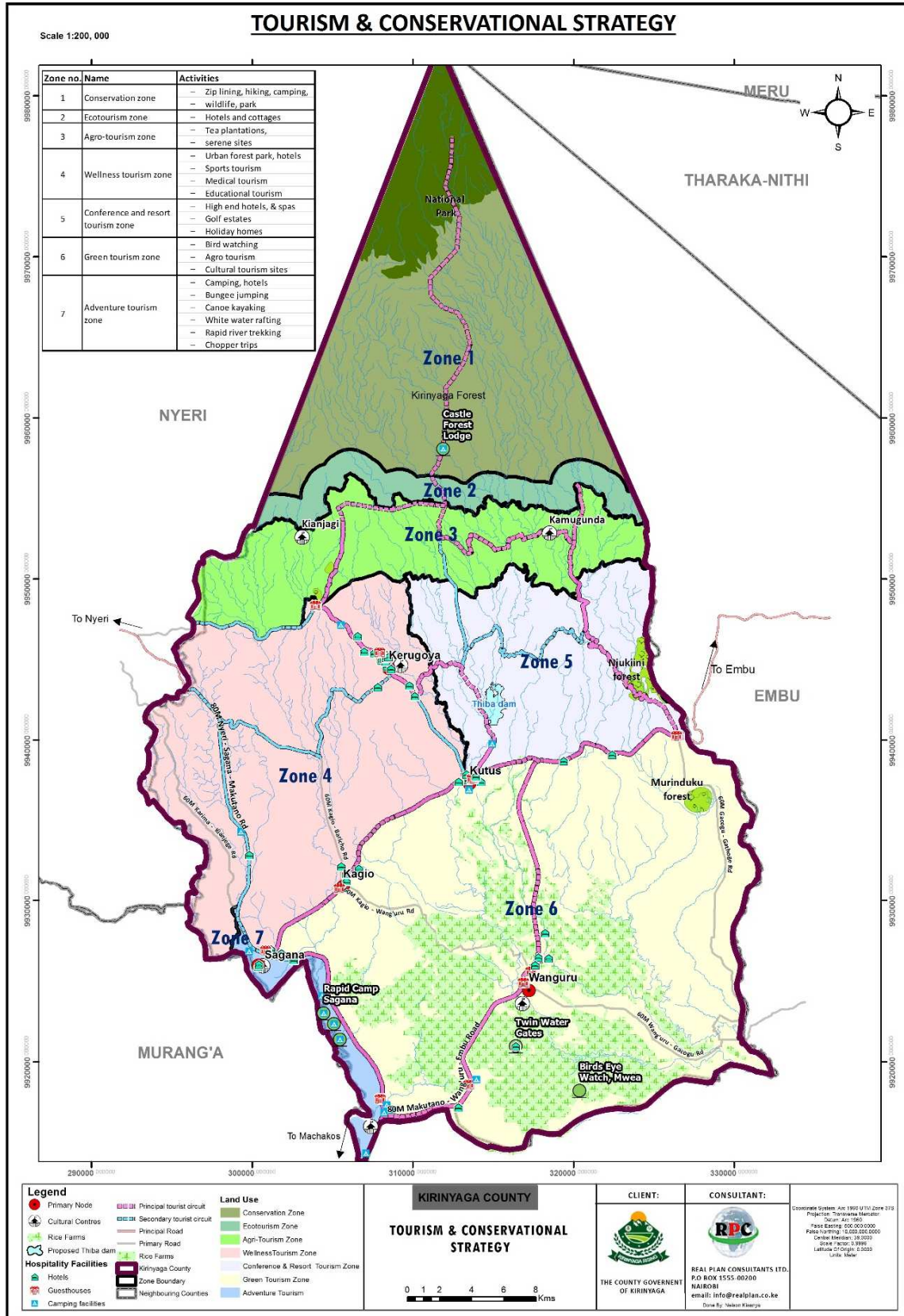
There is inadequate marketing and advertising of the tourist attractions and sites in the County. Marketing is one of the key features in the promotion of tourism industry. There is need to inform the public available tourism products. The county has not made use of advertisements as a tool to promote tourism. Once this is accomplished, there is need to brand the product.

The tourism services offered ought to be tailor-made to the county. It should be a unique tourism experience. The various entrances into Kirinyaga County will be key in advertising the richness of tourism. Similarly, the major road corridors should also be used for advertisements. Other marketing strategies will involve the preparation of tourist maps, brochures and pamphlets. The issuance of periodic tourism newsletter and inclusion in national newspapers will be a step to put Kirinyaga County in the limelight.

7.5.4.9 Proposed Tourism Zones and Circuit

There is need to establish a tourism circuit within the county which will also be connected to the Central Region Tourism Circuit. The circuit will connect the Sagana recreational zone, the Mwea rice fields, Ndaraca ya Ngai, Thiba Dam, Njuki-ini forest, Kerugoya Urban Forest, the various cultural centres, proposed and the Nyayo tea zone and will link to the Kamweti route into Mt Kenya as shown in the map below. The circuit will promote tourism in the county and in the region as a whole.

Map 44 Tourism Development



Source: Real Plan Consultants Limited, 2021

Table 113: Prioritization of Tourism Development Projects

Priority	Project	Location	Sub-county	Period
1	Development of the county tourism policy	-	-	2021/23
1	Development and marketing of the Kamweti Mt. Kenya Route	Kamweti	Kirinyaga West	2021/23
1	Developing of Kerugoya Urban Forest as an arboretum	Kerugoya	Kirinyaga Central	2021/23
1	Identification, mapping and development of the tourist attractions, cultural and heritage sites	Countywide	-	2021/23
1	Commencement of County Annual Cultural day/ festivals	Kerugoya-Kutus	Kirinyaga Central/Mwea	2021/23
1	Branding, marketing and packaging Kirinyaga as tourist destination	-	-	2021/23
2	Establishment of resort and conference centres anchored on Thiba dam	Rukenya	Kirinyaga West	2023/25
2	Establishment of the proposed eco-tourism corridor at the edge of Mt. Kenya	Mt. Kenya Forest Edge	Kirinyaga West, Central and East	2023/25
2	Establishment and marketing of the proposed tourism circuit	-	Countywide	2023/25
3	Establishment of the Kirinyaga County Museum and Cultural Centre	Wang'uru	Mwea East and West	2025/27
2	Establishment of Kirinyaga County Resort at Sagana Industrial Park	Sagana	Kirinyaga West	2023-25

Source: Real Plan Consultants Limited, 2021

7.5.5 Mining

Kirinyaga County has 8 gazetted quarries: 6 are active while the remaining 2 are inactive. The main products are ballast, sand and blocks. Carbonated water springs are an unexplored section of the sector. This has allowed illegal tapping into the springs. It is unsustainable and environmentally unfriendly. This is because exploration is done without the undertaking of an Environmental Impact Assessment.

Quarries in Kirinyaga County are facing several challenges such as inaccessibility and inappropriate working environments. This is limiting the production potential of the County. To alleviate the challenges, the following policies are proposed:

- Development of a legal framework guiding mining in the County. This is inclusive of the carbonated water springs.
- Improvement of the areas with mining resources through provision of requisite infrastructure
- Exploration and formulation of an inventory of all the areas with potential for mining resources.

Key actions

- i. Identification, mapping and documentation of all quarries and carbonated water springs.
- ii. Rehabilitation of the degraded quarries. This will entail provision of good access roads, disaster preparedness facilities and sanitation facilities.
- iii. Progressive rehabilitation of inactive quarries and exploited areas of the active quarries. This can be achieved through backfilling of the excavated areas. This will be proceeded with planting vegetation on those levelled areas. Other after uses can be recreational parks, forests and tender fruit production.
- iv. Draining of flooded quarries. Currently, they pose a health risk to workers and neighbouring communities. Ensuring continued draining of these waters will alleviate the situation.
- v. Updated system for record keeping. This includes revenue collection records. This will be coupled by frequent visits to the sites to ensure there is compliance to the County Government's by-laws.
- vi. Making rehabilitation sequences a legal requirement during the licensing process.
- vii. Harnessing of clay that is rich in aluminium to produce finer products other than pots. This can be used to produce melamine utensils
- viii. Commercial utilization of the carbonated water springs to make bottled water
- ix. Harvesting of mineral water from the natural springs to also make bottled water. The springs can also be utilised to provide water to the residents of Kirinyaga County.

Table 114: Prioritization of Mining Sector Projects

Priority	Project	Location	Sub-county	Period
1	Development of the County Mining Policy	-	-	2021/23
1	Identification, mapping and documentation of mineral deposits in Kirinyaga	Countywide	countywide	2021/23
1	Progressive rehabilitation of inactive quarries and exploited areas of the active quarries	Countywide	countywide	2021/23

Source: Real Plan Consultants Limited, 2021

7.5.6 Revitalization of Cooperative Societies

Owing to the fact that Kirinyaga County is largely agricultural, cooperative societies are the key to ensuring the growth of the trade sector through increasing agricultural returns. Cooperatives are important vehicles in economic empowerment of communities as they assist in consolidating bargaining power, resources, capital and advancing financial gains. Key actions adopted are:

- Provision of cooperative advisory services aimed at improving governance and management of the societies and efficiency in service delivery. This will entail offering trainings and deployment of extension officers to the sub-counties.

- Facilitating co-operatives' development and adoption of efficient and effective marketing systems.
- Advocating use co-operative societies to promote value addition and processing.

7.6 ENVIRONMENT AND NATURAL RESOURCES

This chapter focuses on environmental management issues. Key sectors covered are water resources, swamps (wetlands), forest, pollution mitigation and solid waste.

The main objectives are:

- To identify and map environmental fragile areas.
- To determine the major environmental challenges.
- To identify environmental management opportunities.
- To create synergy and harmony in environmental planning and management.
- To integrate environmental concerns into social-economic planning and development.
- To formulate appropriate environmental management strategies.

The plan addresses various environmental concerns such as water catchment encroachment, abstraction. Flooding, wetland encroachment, water pollution and poor solid and liquid waste management.

7.6.1 Water Resources

The County has numerous water resources including rivers which are the main source of water and springs. The main rivers are Thiba, Sagana, Rupingazi, Rwamuthambi, Nyamindi and Ragati. Nevertheless, they face challenges of encroachment and pollution.

The County Government is expected to;

- Hold county or national public water services assets on behalf of the public.
- Put in place measures for provision of water services to rural areas, which are considered not to be commercially viable for the provision of water services.
- Develop storm water management systems in built areas.

The water resource plan aims at ensuring there is sufficient supply of water to meet anticipated demands over the long-term planning period. This is in accordance with Water Act 2016, EMCA 1999 Amendment 2015 and National Land use guidelines. The plan takes cognizance of Sustainable Development Goal 6 which is to ensure availability and sustainable management of water resources. With this respect, the plan targets to achieve the following goals by the end of the planning period;

- Achieve equitable access to safe and affordable drinking water in the County.
- Improve water quality by reducing pollution, proper waste disposal and minimizing the use of farm chemicals in the County.
- Substantially increase water use efficiency across all sectors and ensure sustainable abstraction and supply of freshwater to address water demand in the County.
- Implement integrated water resources management within the County as well as through inter-boundaries transfer i.e. the Tana and Athi Rivers Development Authority (TARDA) which is responsible for projects within Tana and Athi rivers basins.
- Protect and restore existing and degraded water resources within the County.

- Support and strengthen the participation of local community in improving water management.

a. Surface Water Sources

With regard to surface water resources, it is proposed that the county shall;

- In consultation with the Water Resource Authority shall provide adequate buffer zones ranging from 6 to 30m in accordance with the Water Act 2016.
- Partner with the Water Resource User Associations (WRUAs) such as; Upper Nyamindi, Upper Thiba, Rwagucaka, Kamweti, Mukengeria and Kakinya to develop water allocation plans to minimize water use conflicts.
- Shall partner with WRUAs to identify Riparian areas which shall then be managed accordingly. This will involve the formulation of by-laws to specify activities that can be allowed in such areas.
- Maintain waste disposal systems to control river pollution.

The WRUAs on the other hand are expected to;

- Ensure best management practices that prevent pollution of rivers, streams and wetlands.
- Formulate catchment management strategy for the management, use, conservation and protection of rivers.
- Ensure maintenance of vegetation cover along the rivers to control flow of fertilizers and chemicals into waterways.
- Conduct on-farm training to catchment farmers on using sustainable practices such as increasing pasture covers, building of gabions and using of folder to improve water quality.
- Establish a comprehensive monitoring regime for rivers and streams flows and abstraction rates.
- Undertake enforcement actions on water resources management, in accordance with EMCA No.8 of 1999 Amendment 2015, Water Act 2016 and other relevant legislation. Preserve the aesthetic and biological values of the rivers and streams as part of open space system. Where possible, provide public access to these open spaces and for recreational purposes.
- Formulation of action plans to protect and sustainably utilize urbanized river sections.
- Installation of a sewer system to reduce discharge of liquid waste to rivers.

b. Ground Water Sources

The following strategies have been proposed to help manage ground water resources in Kirinyaga;

- Inventory, mapping, conservation and protection of springs countywide
- The County to build more dams and pans to boost agriculture and allow ground water recharge.

- The county shall control and regulate industrial effluent discharges by ensuring sewer systems are efficient and effective.
- NEMA and WRA to regulate the drilling of boreholes as required by law

7.6.2 Swamps

The following strategies are proposed with regard to ensuring sustainable management of swamps;

- Inventory and mapping of all existing swamps
- Surveying and titling of all public wetlands
- Repossession of all encroached swamps.
- Securing land tenure for all public swamps.
- Preservation and reclamation of swamps.
- Rehabilitate degraded wetlands through enrichment planting and controlling use to allow natural regeneration.
- Replacement of all blue gum trees/ Eucalyptus planted within and adjacent to swamps with appropriate indigenous trees such as grevillea and bamboo.

7.6.3 Forest

The proposal is to increase the county forest/tree cover by:

- Surveying, titling, repossession, protection, and intense reforestation of the County Forests covering 87.3ha of Kirinyaga. The forests are outlined in table below

Table 115: Lists of Forests

Name	Location	Size (acres)
Kimbimbi tree Nursery	Kimbimbi	2.5
Tebere forest	Tebere- Mikimani	5
Marura forest	Tebere next to Mwea Irrigation Authority	2.5
Gathigiriri forest	Mwea- Gathigi village	52
Baricho tree nursery	Baricho next to Ndia Sub County hospital	2
Karimandu forest	Kanyekini	4
Kianyaga Tree Nursery		3.0
Staff House Tebere	Mwea Divisional headquarters staff quarter	0.5
Kerugoya Urban Forest	Kerugoya next to DCs office	13
Kerugoya Tree Nursery	Next to Kerugoya prison land	2
Mutitu Forest	Kanyekini	2
Murinduko Tree Nursery	Murinduko	4

Source: Kenya Forest Service, 2021

- Afforestation of 4 dumpsites earmarked for decommissioning namely; Kerugoya, Murubara, Kagio, and Kiamathatwa.
- Encouraging agroforestry on private land by creating awareness on incentive programmes such as Climate Change Fund Initiative
- Densification and intense reforestation of natural forests i.e. Mt. Kenya (Kangaita & Castle forests), Kathandiani, Njukiini, Murinduko and Kamuruana

- Afforestation of all public facilities including open spaces, educational, health and administrative etc
- Reafforestation or planting of trees along riverine
- Regular surveillance of the forest resources.
- Strict regulation of the commercial use of forests.
- Reclamation of encroached forest areas.
- Take advantage of the national tree planting day to encourage tree planting/reafforestation initiatives.
- Conduct public campaigns on conservation and management of forests areas.
- Explore and enhance use of alternative sources of energy.
- Encourage agro-forestry and private forestry to increase vegetation cover.

7.6.4 Pollution Mitigation

Pollution Mitigation measures include;

- Secure land allocated for dumpsite and landfills through acquisition of title deeds.
- The county in liaison the water services board to develop urban sewer systems.
- The level 4 and 5 hospitals to have their own incinerators for the treatment and disposal of medical waste while all the private hospitals especially those within residential areas, to embrace a medical waste disposal system of incinerating away from the premise.
- Introduction of green agriculture technologies.
- County to acquire appropriate sites for waste disposal.

7.6.5 Soil Erosion Control

Increased population and demand for urban and agricultural generates activities that may cause of soil erosion. Soil erosion leads to loss of fertile land, desertification, increased flooding, increased pollution and sedimentation/siltation of water bodies. Causes of soil erosion and degradation include; deforestation, overgrazing, use of agrochemicals.

Soil erosion control strategies proposed include;

- Increasing vegetation cover through planting of trees to stabilize the loose soils especially on sloppy areas.
- Rehabilitation of catchment areas.
- Proper land use management techniques through training of farmers on contour farming practices and terracing of farm lands and building of gabions.
- Improve drainage systems
- Minimising cultivation along steep slopes.
- Protection of riparian areas.
- Seeking to achieve 10 per cent tree cover from the individual private farms.

7.6.6 Natural Calamities

The county has potential to be afflicted by natural disasters such as floods, landslides, forest fires and effects of climate change. It is therefore proposed that incorporation of disaster management preparedness as key to addressing the possible challenges. The strategies proposed address prevention, mitigation, preparedness, response and recovery. These strategies are:

- Identify disaster prone areas
- Identify impacts of climate change and develop climate change adaptation measures.
- Develop public awareness programs to inform public about disasters, preparedness and mitigation measures.
- Avoid known floodplains for housing and buildings with high occupancy levels.
- Establish restrictive development regulations to ensure developments meet the standards that put disaster into consideration.
- Provide storm drainage infrastructure to minimize possible flooding in identified areas, urban centres, and areas to the south.

7.6.7 Solid Waste Management

The solid waste management strategies proposed are aimed at promotion of public health, protection of environment, minimization of solid waste management costs and reduction of poverty. The following is proposed:

1. The approval and implementation of the Kirinyaga County Solid Waste Management Bill of 2020
2. Decommissioning, clearing and greening of Kerugoya, Murubara, Kagio, and Kiamathatwa Dumpsites. Upon rehabilitation the land is recommended for more optimal use.
3. Upgrading and designing of 15 acres Kabatiro and Wanguru as the County Dumpsites. This includes obtaining of the NEMA license and ensure regular environmental Audit is conducted on the disposal sites
4. Construction of waste recovery plants at Kabatiro and Wanguru Dumpsite
5. The provision of skip loaders in urbanized areas (strategically located in waste generation areas)
6. Licensing of private waste management companies to serve upcoming residential, commercial, industrial and institutional zones within urban areas
7. Industrial developers are required to undertake Environmental and Social Impact Assessment (ESIA) before commencement, conduct Annual Environmental Audits (EAs) during operational phase and obtain necessary NEMA approvals. The ESIA reports shall comprehensively indicate how specific facilities shall sustainably manage waste generated at site level.
8. Clean production is encouraged in the industrial activities to reduce the amount of waste generated
9. Installation of litter bins in proposed municipalities, towns and market centres
10. Provision of adequate and NEMA approved waste transfer vehicles
11. Ensure timely and regular waste collection

12. Encourage segregation of wastes at source
13. Set aside a county environmental day to create awareness
14. Employ modern technologies and waste management techniques to reduce environmental pollution



Figure 55: New Purchased County Government Skip Loader & Skips

Source: Field Survey, 2019

Table 116: Environmental Management Matrix

Challenges	Objectives	Strategies	Actions	Actors	Time Frame
Riparian encroachment of all rivers	<ul style="list-style-type: none"> ❑ To ensure sustainable utilization of rivers for the benefits of all citizens ❑ To ensure conservation of water catchments and control floods ❑ To ensure protection of wetland habitats 	<ul style="list-style-type: none"> ❑ Establishment of buffer zone. ❑ Establishment and enforcement of laws and policies ❑ Protection of the floodplains ❑ Public participation ❑ Pre-cautionary principle 	<ul style="list-style-type: none"> ❑ Training of personnel to protect, conserve and manage the water catchments ❑ Mapping of riparian ❑ Zoning ❑ Establishment of Environmental committees. ❑ Tree planting ❑ Terracing ❑ Promulgation of by-laws 	County Government WRA WRUAs NEMA Ministry of Environment	Continuous
River pollution of River Rutui, River Mukengeria, River Sagana, River Thiba, River Rupingazi	<ul style="list-style-type: none"> ❑ To improve the water quality ❑ To protect aquatic life ❑ To prevent and control pollution and siltation 	<ul style="list-style-type: none"> ❑ Instituting an integrated waste management system. ❑ Promoting land-use management technologies ❑ Capacity building ❑ Reduce pollution at point source. ❑ Polluter-pays principle 	<ul style="list-style-type: none"> ❑ Construction of sewer line and connecting premises to it. ❑ Establishment and operationalizing of dumpsite and landfill. ❑ River clean-up activities ❑ Provision and licensing of operational waste collecting trucks. ❑ Controlled grazing ❑ Drip irrigation practices ❑ Construction of gabions within farms to manage on-farm runoff ❑ Demarcating designated water consumption points for animals ❑ Training personnel to monitor water quality ❑ Sensitize people on proper waste disposal mechanisms. ❑ Educating on rain water harvesting at household level to provide fresh 	County Government NEMA NGOs WRA Ministry of agriculture and irrigation	Continuous

Challenges	Objectives	Strategies	Actions	Actors	Time Frame
			water <input type="checkbox"/> Building of gabions		
Water abstraction in rivers countywide	To significantly increase water use efficiency across all sectors and ensure sustainable abstraction and supply of freshwater to address water demand.	<input type="checkbox"/> Conducting a detailed water-use survey and assessment to establish water balance. <input type="checkbox"/> Rehabilitation of degraded pans and dams. <input type="checkbox"/> Demarcating designated water consumption points.	<input type="checkbox"/> Intergration of the county water supply <input type="checkbox"/> Regulation and metering of water to monitor consumption <input type="checkbox"/> Development of canals and pans. <input type="checkbox"/> Rehabilitation of pans <input type="checkbox"/> Supplying of piped water. <input type="checkbox"/> Drilling of boreholes	County Government NEMA WRA WRUA	Continuous
Ground water contamination in agricultural and urban areas	<input type="checkbox"/> To develop an effective solid waste management system. <input type="checkbox"/> To ensure clean drinking water.	<input type="checkbox"/> Increase water safety for human consumption. <input type="checkbox"/> Provide sustainable developments which ensure the water table is protected from contamination. <input type="checkbox"/> Reduce groundwater pollution	<input type="checkbox"/> Establishment of a convectional sewer system. <input type="checkbox"/> Use of organically produced pesticides and fertilizers.	County Government WRA CBOs, NGOs WRUAs KIRIWASCO NIA, Locals NEMA	5 years
Swamp encroachment and degradation	<input type="checkbox"/> To protect the eco-sensitive ecosystem. <input type="checkbox"/> To conserve the aquifers. <input type="checkbox"/> To minimize flooding. <input type="checkbox"/> To protect the aquatic life. <input type="checkbox"/> To reclaim and conserve swamps	<input type="checkbox"/> Regular monitoring and inspection of activities pertaining usage of the swamps. <input type="checkbox"/> Development of Sub Catchment Management Plan. <input type="checkbox"/> Law enforcement for swamp protection. <input type="checkbox"/> Securing tenure <input type="checkbox"/> Public participation	<input type="checkbox"/> Mapping and establishment of buffer zone. <input type="checkbox"/> Systematic replacement of blue gum trees and planting of indigenous trees such as grevillea and bamboo. <input type="checkbox"/> Awarding of title deeds	County Government of Kirinyaga KFS KEFRI WRUAs	5 years

Challenges	Objectives	Strategies	Actions	Actors	Time Frame
Flooding, Landslides and inadequate storm water in Baricho, Thiba, Kutus, Mutithi, South Ngariamama, Rukanga and Ligothi Within major urban areas. management	<ul style="list-style-type: none"> ❑ To reduce flooding ❑ To provide good storm water management systems in the urban areas. ❑ To ensure hazard preparedness. 	<ul style="list-style-type: none"> ❑ Promote water harvesting techniques ❑ Construction of storm water drainage channels ❑ Minimize effects of flooding. 	<ul style="list-style-type: none"> ❑ Construct storm water drains along all major roads and especially in the built-up areas (CBDs). ❑ Establish early warning systems to individuals living in flood prone areas. ❑ Reforestation to control surface runoff. ❑ Develop large scale water harvesting reserves through construction of flood dykes and water pans in lower areas of Mwea. ❑ Educating the residence and holding demos on hazard preparedness, prevention and mitigation measures. 	County Government of Kirinyaga. NGOs CBOs Private investors Community members	5 years
Poor solid waste management in urban areas	To resolve poor solid waste disposal and management.	<ul style="list-style-type: none"> ❑ Promote waste reuse and recycle and reduction strategies. ❑ Promote waste sorting ❑ Capacity building on waste management ❑ Enforce County by-laws on environmental management. ❑ Zoning of waste collection areas. 	<ul style="list-style-type: none"> ❑ Provision of coded waste collection bins in the urban areas. ❑ Training farmers on composting and recycling procedures. ❑ Establishment of waste sorting point. ❑ Designating solid waste dump sites and collection points. ❑ Licensing of waste transporters ❑ Training the workforce handling waste ❑ Regular clean ups 	County Government of Kirinyaga. Local residents Private waste collectors. NEMA	5 years Continuous
Deforestation Within major forests; Mt. Kenya (Kamwetii, Kamwana,	<ul style="list-style-type: none"> ❑ To protect forests from encroachment ❑ To promote alternative 	<ul style="list-style-type: none"> ❑ Establishment and enforcement of policies and laws ❑ Re-afforestation ❑ Monitoring 	<ul style="list-style-type: none"> ❑ Public sensitization on the advantages of use of green energy ❑ Educate residents on how to produce biofuel at household level 	NEMA County Government Community Forest	Continuous

Challenges	Objectives	Strategies	Actions	Actors	Time Frame
Kangaita), Kamuruana, Murinduko, Njukiini, Kathandiani.	energy sources.	<input type="checkbox"/> Planting of indigenous tree species with high survival rate. <input type="checkbox"/> Promote use of renewable energy e.g. Solar energy and Biogas.		Associations (CFAs) Kenya Forest Service (KFS) Ministry of Interior	
Poor liquid waste management in Major urban areas; Kagio, Wanguru, Kerugoya, Kutus, Sagana	<input type="checkbox"/> To ensure clean environment and conducive for living <input type="checkbox"/> To ensure Safe disposal of human waste	<input type="checkbox"/> Assessment for need of sewerage treatment plant <input type="checkbox"/> Licensing of sucker trucks.	<input type="checkbox"/> Educate rural communities on basic hygiene and sanitation. <input type="checkbox"/> Construct proper sewerage systems in all towns. <input type="checkbox"/> Regular desludging of septic tanks.	County Government KIRIWASCO NEMA Private Sector	
Soil erosion along rivers and farms	To reduce land degradation and water pollution.	<input type="checkbox"/> Increasing vegetation cover in the planning area. <input type="checkbox"/> Rehabilitation of catchments areas. <input type="checkbox"/> Proper land use management techniques.	<input type="checkbox"/> Planting trees to stabilize the loose soils especially on sloppy areas. <input type="checkbox"/> Cultivating along steep slope. <input type="checkbox"/> Train farmers on contour farming practices and terracing of farm lands to curb soil erosion. <input type="checkbox"/> Riparian pegging and River bank stabilization. <input type="checkbox"/> Sensitization and encouragement of farmers to increase tree cover on their lands.	Local residents The county Government Ministry of Environment and natural resources Ministry of Agriculture	

Source: Real Plan Consultants Limited, 2021

7.7 GOVERNANCE

Towards successful implementation of the Kirinyaga County Spatial Plan (2021 – 2031), the empowerment of the County Departments in charge of Physical and Land Use Planning and setting up of requisite institutions as required by law is paramount. The following is recommended:

7.7.1 Operationalization of Committees and Boards

This entails the composition and operationalization of institutions as anticipated in the Physical and Land Use Planning Act (PLUPA), 2019 and Urban Areas and Cities Act (UACA), 2011 (amended in 2019). This constitutes of the following committees and Boards:

7.7.1.1 County Physical and Land Use Planning Consultative Forum

Section 14 of the PLUPA, 2019 establishes the County Physical Planning and Land Use Planning Consultative Forum whose function are:

- Providing a forum for consultation on County and Inter-county Physical and Land Use Development Plans
- Promoting effective coordination and integration of physical and land development and sector planing; and
- Advising on the mobilization of adequate resources for the preparationa and implementation of physical and land use development plans and strategies

The composition of the Consultative Forum shall be as required in Section 14 (sub-section 2) of the PLUPA, 2019.

7.7.1.2 County Physical and Land Use Planning Liaison Committee

The County Physical and Land Use Planning Liaison Committee is established under Section 76 of PLUPA 2019, and its composition is spelled out in Section 76 (1-4). The functions of the Liaison Committee are as outlined.

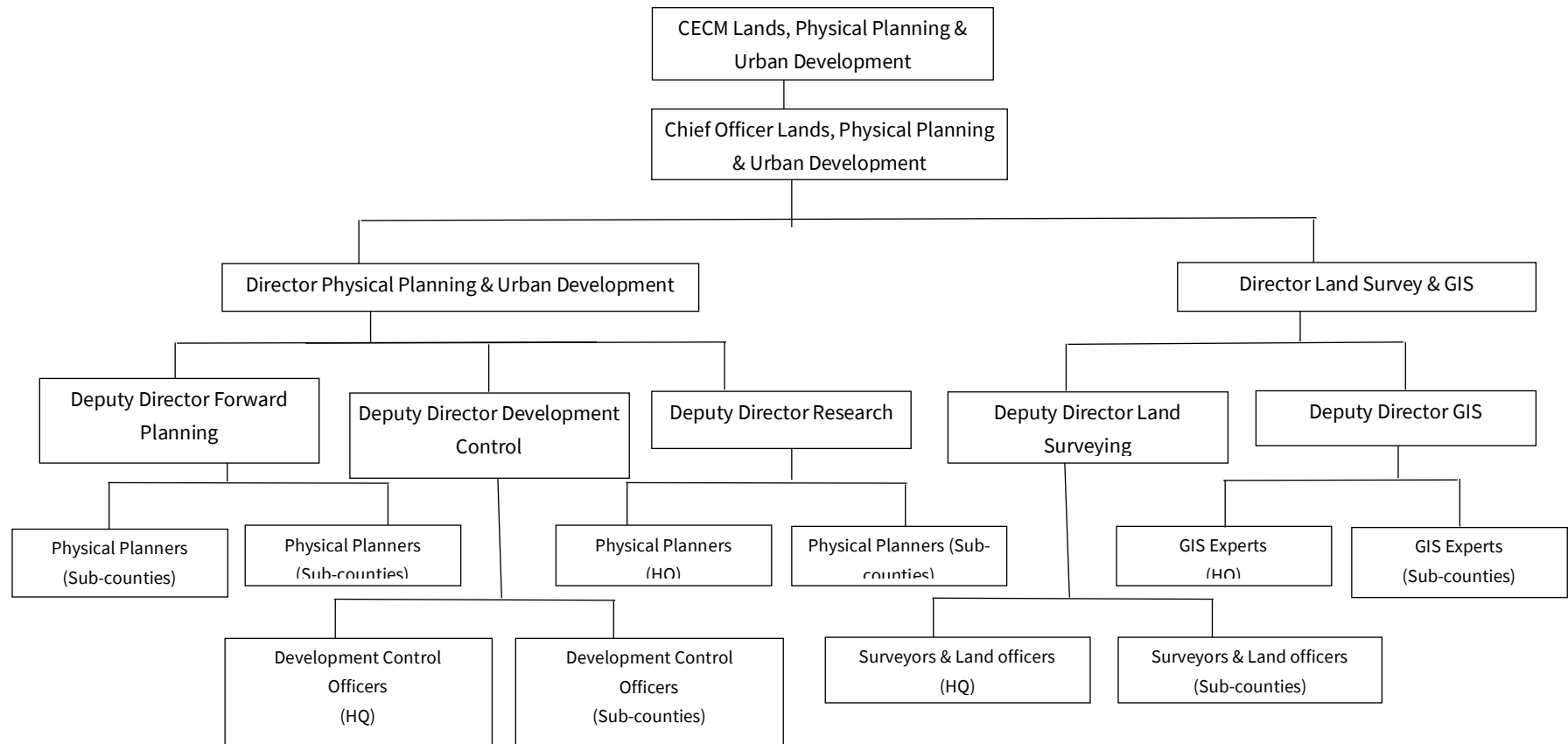
- Hear and determin complaints and claims made in respect to applications submitted to the planning authority in the county;
- Hear appeals against decisions made by the planning authority with respect to physical and land use development plans in Kirinyaga County;
- Advise the County Executive Committee Member on broad physical and land use planning policies, strategies and standards; and
- Hear appeals with respect to enforcement notices

7.7.1.3 Municipality Boards and Town Committees

This refers to Boards and Committees for proposed Municipalities (Kagio-Sagana and Wanguru) and Towns (Kianyaga, Baricho, Makutano and Kandongu). The Boards and Committees shall be constituted as provided in the Urban Areas and Cities Act of 2011 (Revised 2019).

7.7.2 Empowering the County Department of Land, Physical Planning and Urban Development

The proposal is to increase capacity of the County Department of Land, Physical Planning and Urban development for successful implementation of the CSP. This entails recruitment of adequate human resource, provision of equipment at the County level and devolving the same to the sub-counties. The offices at County and Sub-counties shall have Physical and Land Use Planners, GIS Experts and Surveyors. A functional GIS Labs also be established at the headquarters and sub-counties.



NB: Support staff to be provided at every level

Figure 56: Proposed Structure of the Lands, Physical Planning & Urban Development

Department

CHAPTER 8

SPATIAL LAND USE PLAN

This spatial development framework is built on the preferred spatial development concept presented in the previous chapter (Scenario Building). It elaborates the desired overall growth strategy and the envisioned broad land use patterns for optimal land use practices. The plan provides for a framework of land utilization.

Kirinyaga is an agricultural county that plays a significant role in Kenya's food security. The land use plan enhances this function in line with the Vision 2030, Big Four Government Agenda and the Mountain Cities Blueprint. It provides the basis for safeguarding Kirinyaga as the county's food basket.

The County Land Use Plan delineates areas for urban development guided by proposed urban hierarchy, desired urban functions, projected population demand, deficiency and adequacy of existing services where applicable. The plan formulates strategies for rural development and improves rural-urban linkages. It also aligns the overall urban functions to meet the diverse needs of the county.

The framework helps identify areas for further planning intervention giving priority areas and a timeframe for further planning. The preparation of the Land use Plan will fulfil the desire to have orderly development that guides and integrates economic, social and physical development. The plan will ensure that Kirinyaga citizens achieves optimal benefits through sustainable use of available natural and human resources, taking into consideration existing disparities and inherent competitive advantages of various regions.

8.1 COUNTY LAND USE PLAN

The Land use plan seeks to protect and conserve the green and serene nature of the county. This is evident from the proposed non-urban land use accounting for 88% of Kirinyaga. The non-urban land use comprises agricultural, eco-tourism and conservation areas. The proposed urban land is approximately 12% of the County, and accounts for proposed urban extents for the municipalities, towns, market centres and unclassified urban centres. It is important to note that the proposed urban zones are not purely urbanized but consists of built-up spaces, urban agricultural and conservation areas.

The plan delineates Kirinyaga into eight broad development zones based on critical analysis of the County's economic activities, untapped potentials and opportunities. These zones include; Conservation, Eco-tourism, agricultural (tea zone), Agricultural (coffee), agricultural (mixed zones) and urban zones as shown in the proposed land use budget below.

Table 117: Proposed County Land Use Budget

Zone No.	Land Use	Area(ha)	%
1	Conservation (Alpine)	5656	4
2	Conservation	23498	16
3 & 8	Ecotourism	6775	5
4	Agricultural (Tea)	11962	8
5	Agricultural (Coffee)	19382	13
6	Urban zones	17419	12
7	Agricultural (Mixed)	25499	17
9	Agricultural (Rice)	22572	15
10	Agricultural (Mixed)	14986	10
11	Industrial	451	0
Total		148200	100

Source: Real Plan Consultants Limited, 2021

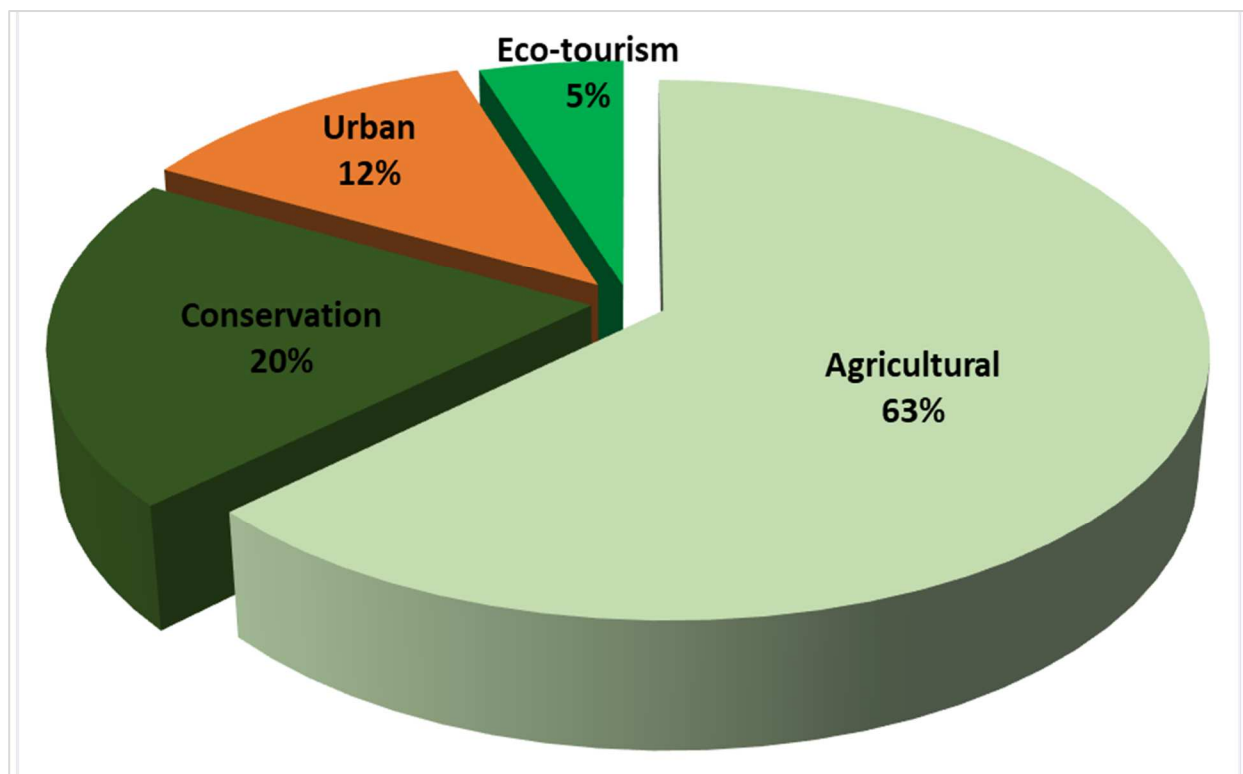
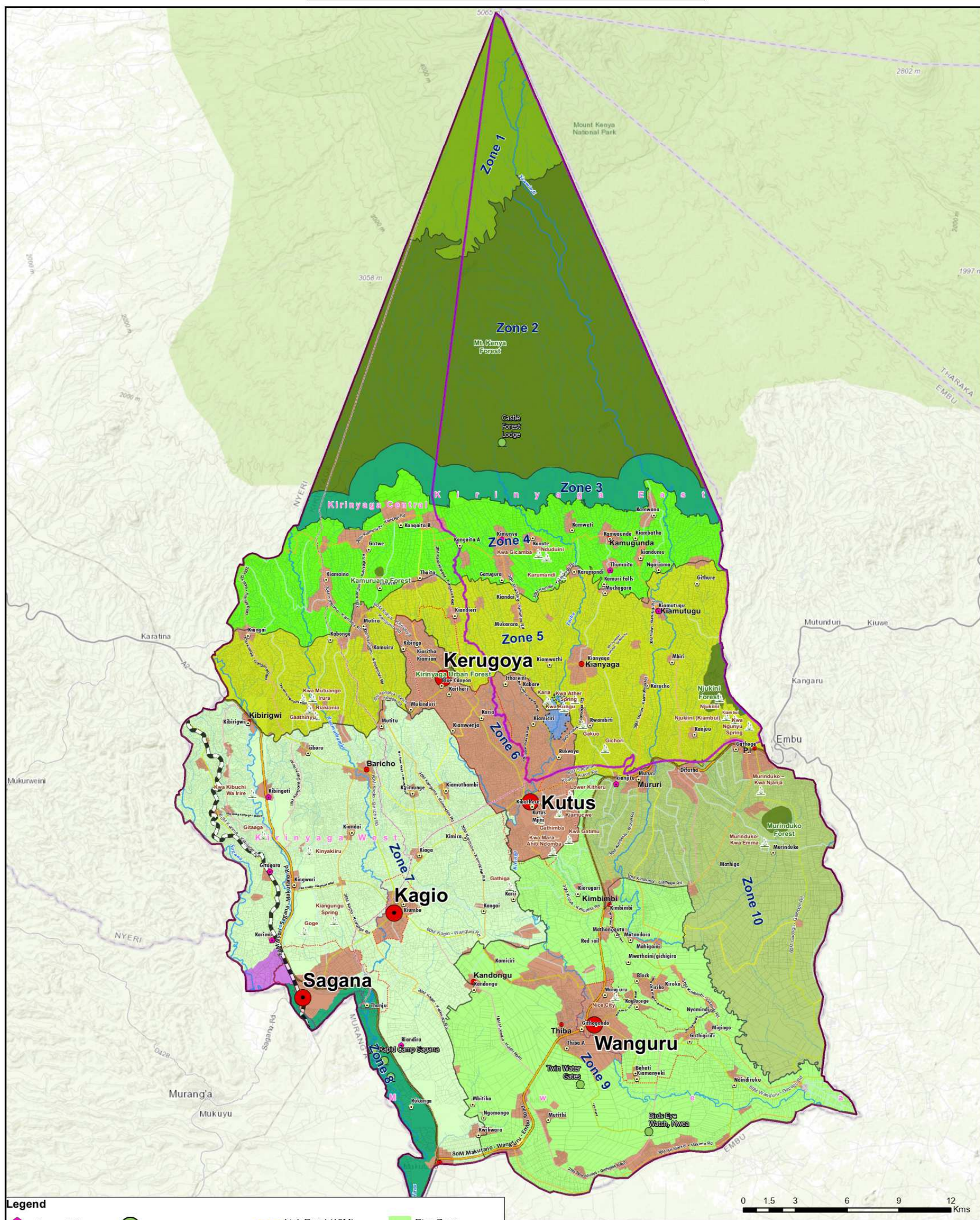
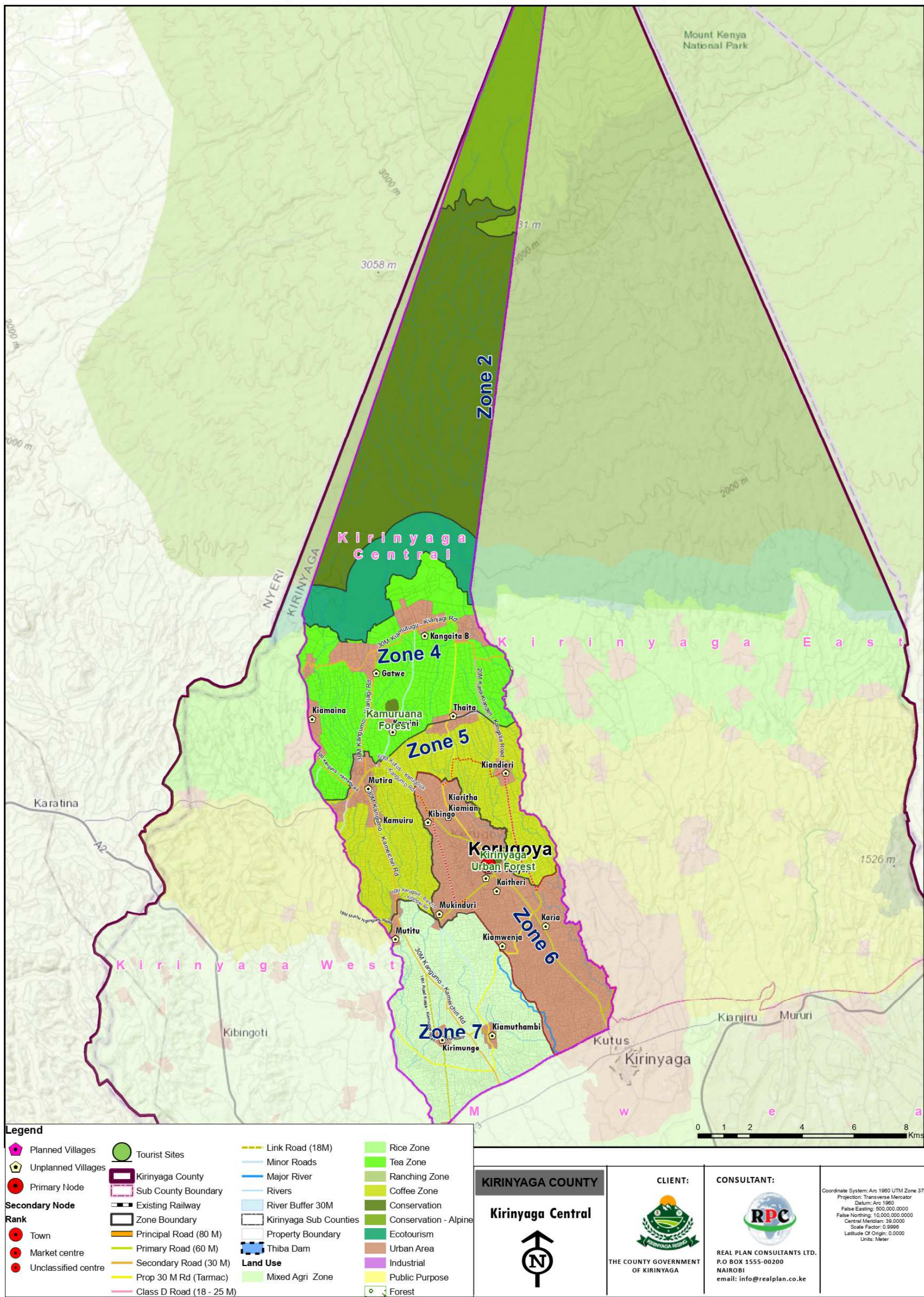


Figure 57: Proposed Land Use Budget

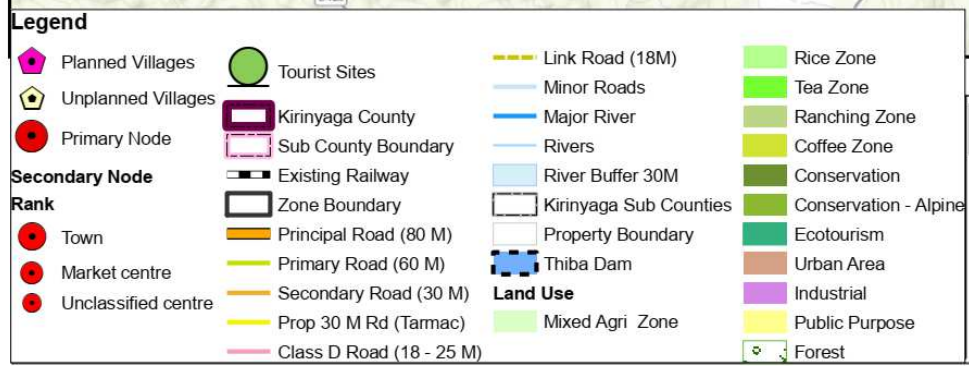
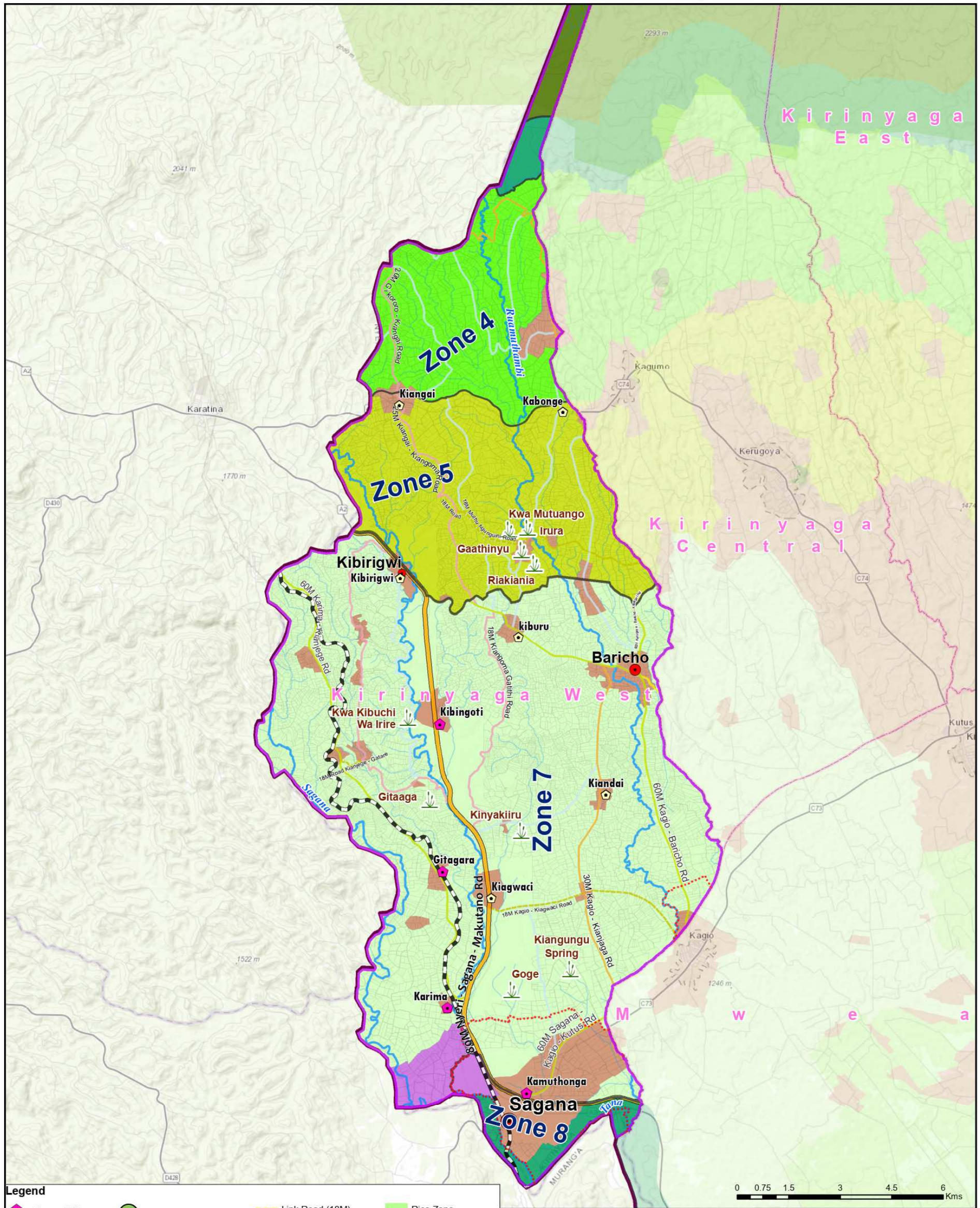
Source: Real Plan Consultants Limited, 2021



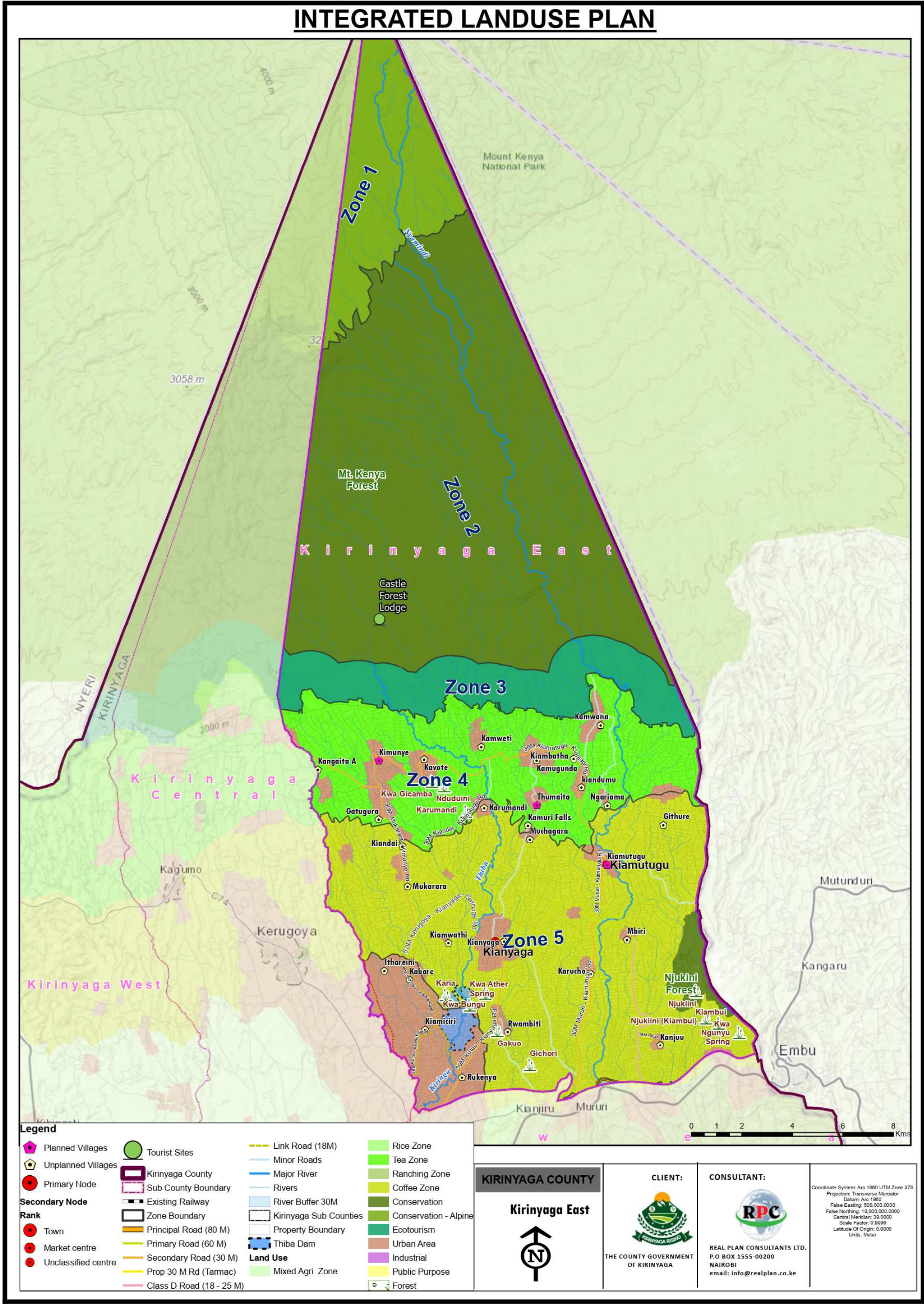
Source: Real Plan Consultants Limited, 2021



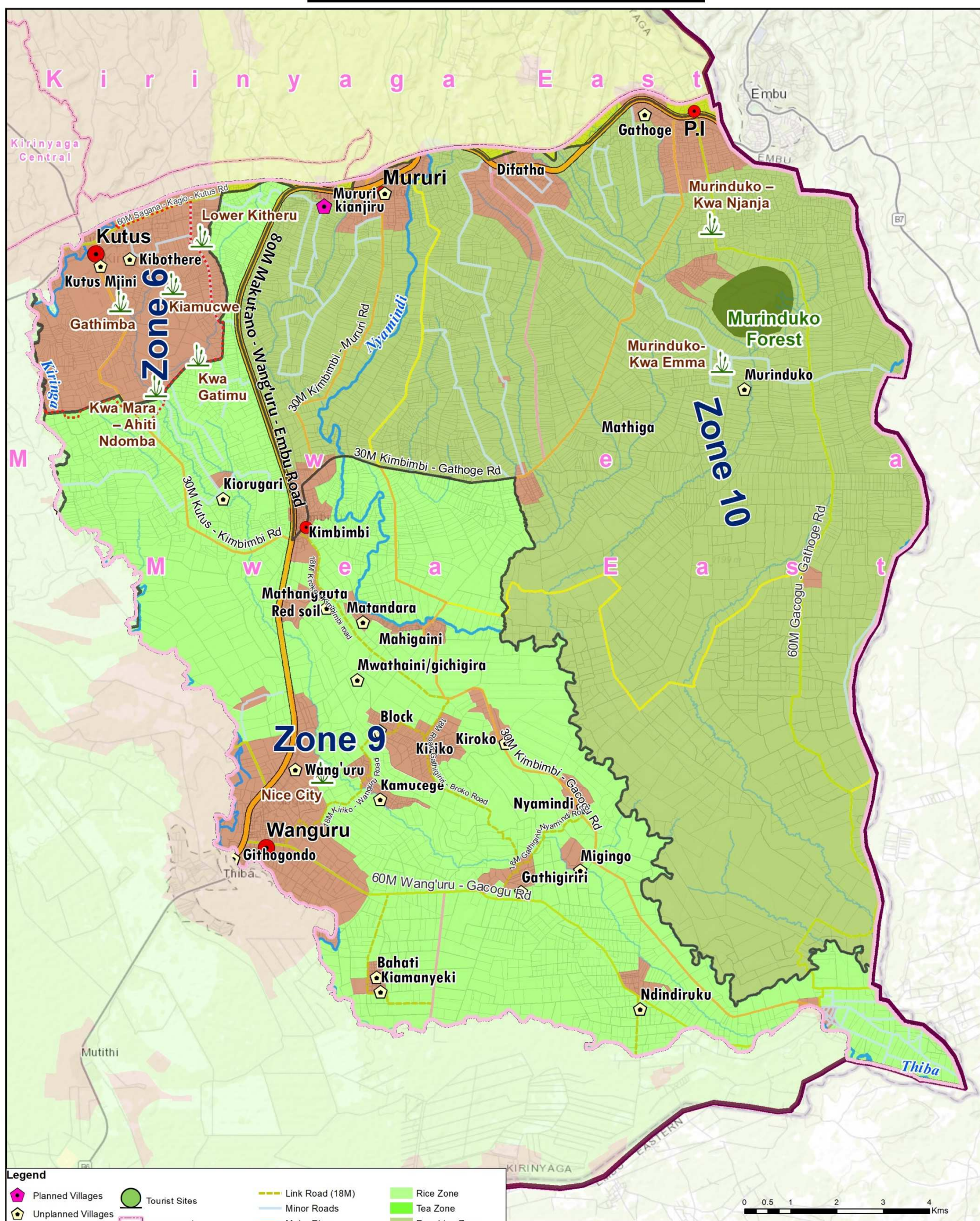
Source: Real Plan Consultants Limited, 2021



Source: Real Plan Consultants Limited, 2021

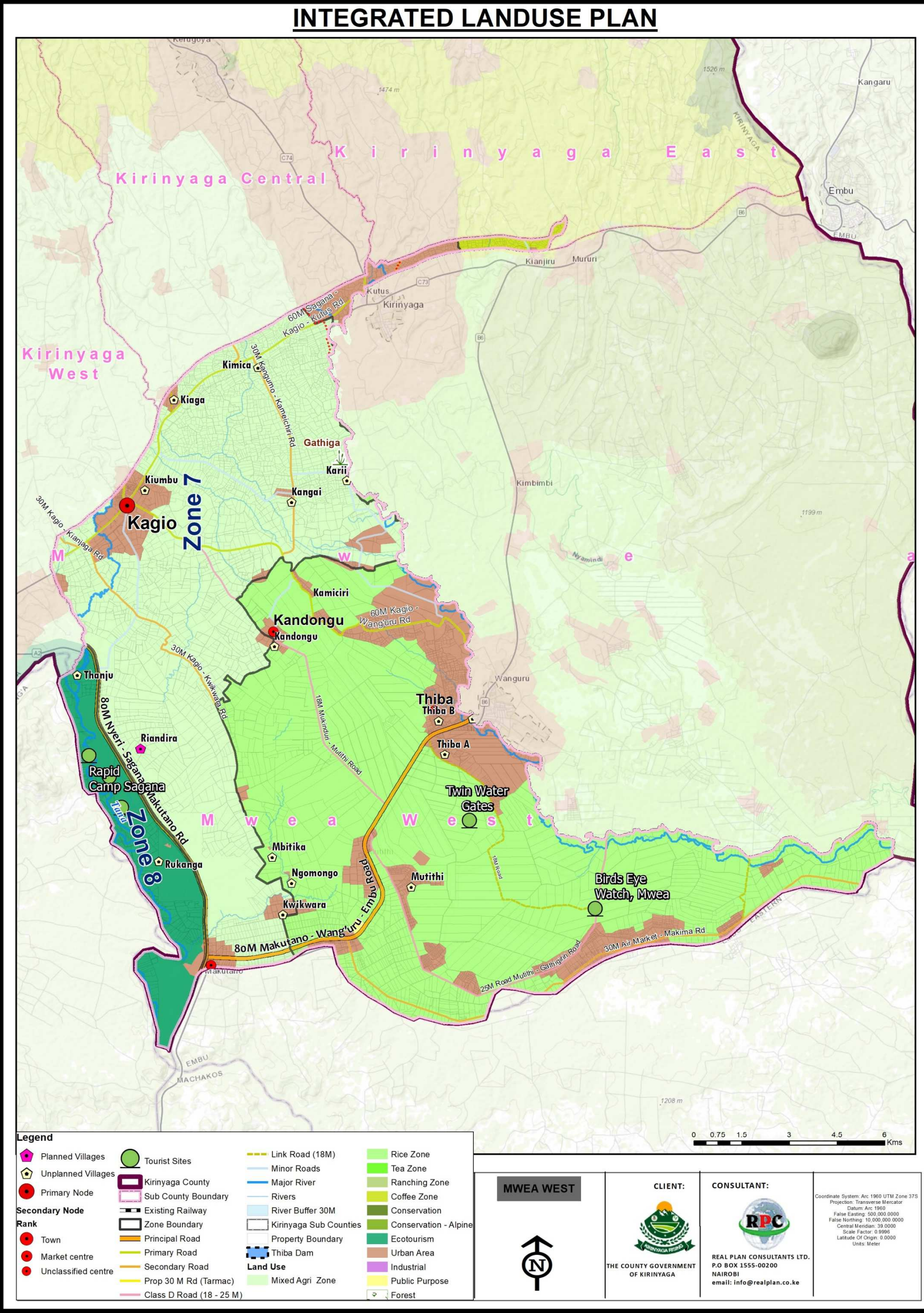


Source: Real Plan Consultants Limited, 2021



Source: Real Plan Consultants Limited, 2021

MAP 50: Land use Plan Mwea West



Source: Real Plan Consultants 2021

8.2 LAND USE ZONING REGULATIONS

Table 118: Land regulations

Land Use Zone	Defining Elements	Zone Description	Permitted Use	Land Use Regulations
Zone 1	Conservation (Alpine)	Refers to the crest of Mount Kenya National Park. It measures approximately 5656 Ha.	<ul style="list-style-type: none"> Conservation use 	<ul style="list-style-type: none"> Conservation activities. Tourism activities encouraged
Zone 2	Legally Protected Mount Kenya Forest conservation zone	Covers the Northern section of the Planning area. It is Designated for Conservational purposes and measures approximately 23,898Ha which represents 20% of the Total Planning area.	<ul style="list-style-type: none"> Wildlife Conservation and Natural Forest (Mt. Kenya) Nature Trails & mountain climbing for eco-tourism. Wildlife conservation & Recreation. 	<ul style="list-style-type: none"> All gazetted boundaries of the Zone will remain un-altered and strictly maintained as they are currently surveyed. The land shall remain unalienable Prohibit Settlements and Urban developments within zone.
Zone 3	Forest Eco-tourism conservation zone	The zone is proposed at the edge of Mount Kenya National Park. It is stretched along Kirinyaga west, central and east sub counties.	<ul style="list-style-type: none"> Eco lodges, tourist hotels, bandas Development. Access Road Development of 9m wide. Conservation and recreation. 	<ul style="list-style-type: none"> The footprint area of any Eco-lodge shall not surpass 0.45 Ha and shall the number not exceed 5. (NB: these shall be treated as conditional uses). The energy way leaves in the zone will follow the prescribed standards. All permitted uses should and must conform to all stipulated guidelines of the World Heritage Site as per the UNESCO policies. Erection of structures shall be allowed with highly controlled regulations in their building character, form, and function and sanitation management Plan. No building shall be allowed to surpass two levels in the proposed zone including the ground floor.
Zone 4	Tea zone	Covers Kirinyaga East, Central and West Sub-Counties with larger portion found in Kirinyaga East. It covers 10,205 Ha. It includes the Nyayo tea zones and other tea farms	<ul style="list-style-type: none"> Development of collection centres. Development of tea factories. Development of drying beds. 	<ul style="list-style-type: none"> Large scale agriculture (Cash crop): - minimum land size shall be 0.4Ha. Small scale agriculture: minimum land size shall be 0.1Ha Only value addition industries shall be established. Limit urban development
Zone 5	Coffee Zone	The zone is largely in Kirinyaga East Sub- County and covers part of Kirinyaga central, west and Mwea Sub-counties. The zone is characterized by coffee growing majorly due to the supportive altitude.	<ul style="list-style-type: none"> Agriculture (Agro-production; Human settlement & Urban Centres. Industrial Development Coffee drying sheds. 	<ul style="list-style-type: none"> Encourage Large scale agriculture (coffee, tea) Large scale agriculture (Cash crop): - minimum land size shall be 0.4Ha. Small scale agriculture: minimum land size shall be 0.1Ha Limit urban development to prescribed urban areas Encourage low density residential development in agricultural
Zone 6	Urbanized zone	This refers to dispersed areas occupies by urban areas. This includes major municipalities and unclassified market centres. The zone measures approximately 13,439 Ha.	<ul style="list-style-type: none"> Commercial developments Residential developments Industrial developments Public purpose facilities 	<ul style="list-style-type: none"> Encourage urban development Encourage low, medium and high density residential Minimum recommended sizes are at 0.05 ha. Subject built developments to EIA Development of integrated urban plans

Land Use Zone	Defining Elements	Zone Description	Permitted Use	Land Use Regulations
Zone 7	Mixed agriculture zone	This zone is proposed for production of maize and banana production. Found in the four sub-counties. It covers the largest portion of the County; measuring approximately 25,197 Ha. Some of the major urban centres in this zone include; Kagio, Kerugoya, Sagana etc.	<ul style="list-style-type: none"> ▪ Livestock Production; & Fisheries) ▪ Livestock and Crop Research establishments Livestock and crop Value Addition & packaging industries ▪ Human settlement & Urban Centres ▪ Agriculture production; ▪ Conservation sub-zones ▪ Industrial Development for value addition 	<ul style="list-style-type: none"> ▪ Small scale agriculture ▪ Minimum land size should be 0.2Ha. ▪ Limit urban development to prescribed urban areas ▪ Encourage low density residential development in agricultural hinterland
Zone 8	Eco-Tourism zone	Along Nairobi – Makutano – Sagana – Nanyuki Highway around Sagana	<ul style="list-style-type: none"> ▪ Conference and Recreational Resorts ▪ Industrial and Commercial developments ▪ Urban development 	<ul style="list-style-type: none"> ▪ Encourage urban development ▪ Encourage high density residential ▪ Minimum recommended sizes are at 0.05 ha. ▪ Subject built developments to EIA
Zone 9	Irrigated Agriculture Zone	Sandwiched between zones 6 and 4. It covers the better part of Mwea Constituency and measures about 27,734 Ha.	<ul style="list-style-type: none"> ▪ Commercial development ▪ Light Industrial development. ▪ Irrigated agriculture 	<ul style="list-style-type: none"> ▪ Limit urban development ▪ Encourage large scale agriculture ▪ Encourage low density residential ▪ Discourage land sub division in the rice farms ▪ Extents of colonial villages to be defined ▪ Minimum recommended sizes are at 0.1Ha.
Zone 10	Mixed agriculture and Livestock Development	Bound by Kirinyaga-Embu County boundary to the East, Kimbimbi-Mururi-Embu Road to the North and North-West. The zone covers Murinduko Ward, and measures 13,191 Ha.	<ul style="list-style-type: none"> ▪ Livestock Research establishments Livestock Value Addition & packaging industries. ▪ Modern slaughter houses or abattoirs. ▪ Animal feed warehouses. ▪ Development of water points. ▪ Public purpose –Residential Veterinary offices, schools etc. 	<ul style="list-style-type: none"> ▪ Small scale agriculture ▪ Minimum land size should be 0.2Ha. ▪ Limit urban development to prescribed urban areas ▪ Encourage low density residential development in agricultural hinterland
Zone 11	Industrial zone	Located within Sagana town is the proposed industrial park. It measures approximately 1057 Ha.	<ul style="list-style-type: none"> ▪ Mixed Industrial Park 	<ul style="list-style-type: none"> ▪ Encourage mixed use developments ▪ Encourage medium density residential ▪ Encourage high density industrial development ▪ Subject built developments to EIA and SEA Process

Source: Real Plan Consultants Limited, 2021

CHAPTER 9

PROJECTS IMPLEMENTATION PLAN

This section provides the guiding framework for implementation of the 287 projects proposed by the County Spatial Plan. The projects are detailed out per sector and sub-county, the implementing and financing agencies and in order of priority. Being a 10-year plan, the implementation framework has been designed for the same period. While the approval of the Plan was done by the Assembly in 2024, the consultant finalized the Plan in 2021 and the implementation timeframe runs from 2021 – 2031 in line with the Plan period. In view of the timelines, the implementing agencies commenced some projects. The projects implementation framework shall therefore require to be rationalized during the mid-term review.

9.1 NATIONAL - COUNTY GOVERNMENT DISTRIBUTION

The projects cut across national and county government agencies. The devolved government takes the bulk of the projects with 242, which is 84% of the CSP projects while the national government has 45 projects (16%), as shown in the chart below.

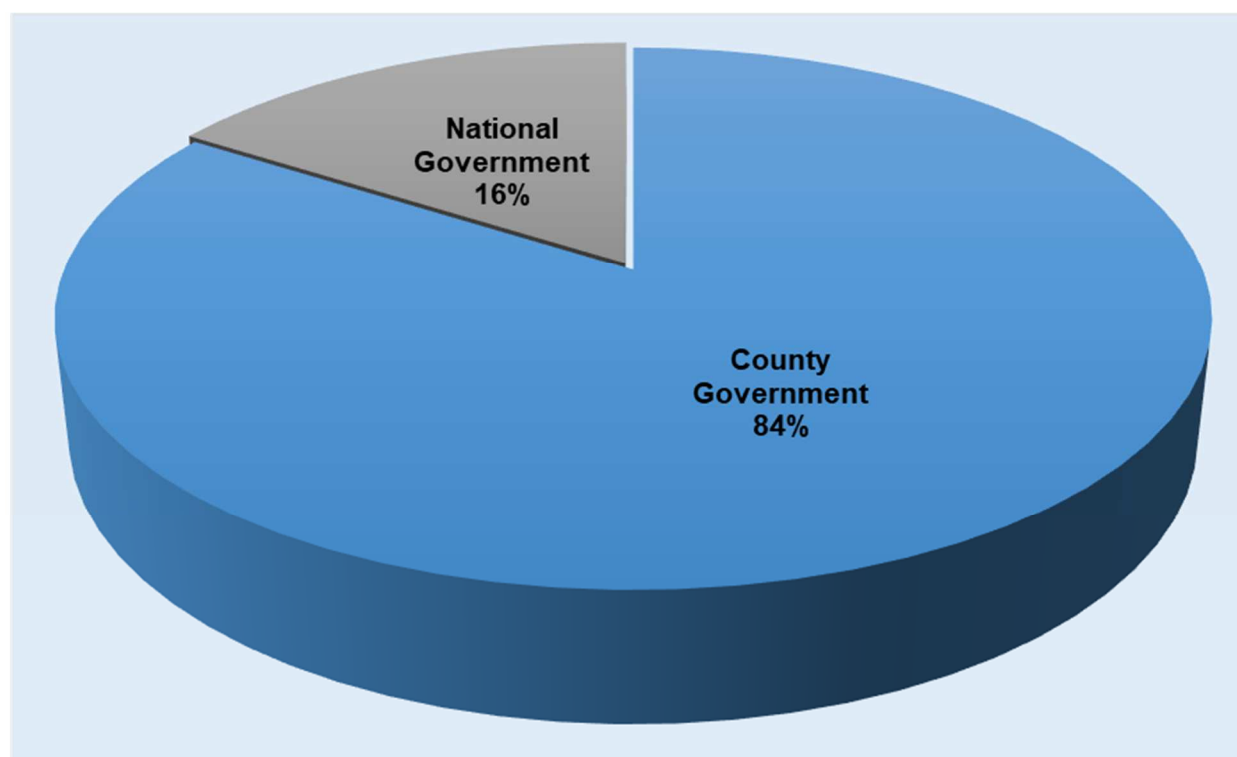


Figure 58: National-County Government distribution

Source: Real Plan Consultants Limited, 2021

9.2 SECTORAL DISTRIBUTION

Social development is the single most needy sector where the county government ought to allocate more resources. The sector accounts for 93 projects (32%). Notably, 48 projects in social services sector fall under the educational and health sector. Transportation sector ranks second with 58 projects (20%) followed by land and urban development at 34 (12%), and trade and commerce at 25 projects (9%).

Table 119: Sectoral Distribution of Projects

No.	Sector	No.	%
1.	Social services	93	32
2.	Transportation	58	20
3.	Land & Urban Development	34	12
4.	Trade & Commerce	25	9
5.	Manufacturing	20	7
6.	Utilities	15	5
7.	Environment	12	4
8.	Tourism	11	4
9.	Capacity Building & Governance	10	3
10.	Agriculture	6	2
11.	Mining	3	1
	Total	287	100

Source: Real Plan Consultants Limited, 2021

The sectoral distribution of projects according to sub-counties is shown in the table below. According to the summary, Mwea West and Kirinyaga West account for the highest number of social services projects at 30 and 27 respectively. Under transport, Mwea East & West account for about 50% of the projects. This mainly constitutes the upgrading and tarmacking of roads, in response to the high deficits currently evident.

It is important to note that some projects such as transportation, utilities and environment stretch to more than one sub-county.

Table 120: Sector projects by sub-counties

Location	Social service	Transport	Land & urban dev	Trade	Manufacturing	Envi	Utilities	Tourism	Capacity Building	Agri	Mining
Kirinyaga West	27	14	9	5	7	10	9	8	4	5	3
Mwea East	24	18	10	5	5	11	10	6	6	6	3
Mwea West	30	16	9	5	8	9	9	5	6	5	3
Kirinyaga East	22	11	8	5	5	9	11	6	4	6	3
Kirinyaga Central	21	10	8	5	5	9	9	7	4	5	3

Source: Real Plan Consultants Limited, 2021

9.3 DISTRIBUTION BY DEPARTMENTS

The projects under the county government are distributed in the 9-county department as shown in the table below. Notably, the Department of Transport and Public Works ranks highest since their projects are mainly in the public domain. This is also significantly influenced by the prevailing state of transportation network. Therefore, more resource ought to be channelled to the department.

Table 121: Project by County Department

No.	Ministry/department	No.	%
1.	Transport and Public works	49	20
2.	Cooperatives and Trade	45	19
3.	Land, Physical Planning and Urban development	44	18
4.	Youth and Sports	23	9
5.	Health and Sanitation	36	15
6.	Education and Public Service	7	3
7.	Water, Environment and Natural Resources	12	5
8.	Gender and Social Services	9	4
9.	Agriculture & Livestock	18	7
	Total	242	100

Source: Real Plan Consultants Limited, 2021

Similarly, the National Ministry of Transport and Infrastructure account for the highest number of the GoK projects with 14, which is 29% of the total as shown in the table below.

Table 122: Project by GoK Ministries

Ministry	No.	%
1. Transport, Infrastructure, Housing, Urban Development & Public Works	14	29
2. Ministry of Tourism and Wildlife	5	10
3. Education	5	10
4. Sports, Culture and Heritage	5	10
5. Agricultura, Livestock, Fisheries and Irrigation	4	8
6. Energy	3	6
7. Petroleum and Mining	3	6
8. Environment and Forestry	4	8
9. Health	2	4
10. Land and Physical Planning	1	2
11. Water and Sanitation	1	2
12. Information, Communication and Technology	1	2

Source: Real Plan Consultants Limited, 2021

9.4 DISTRIBUTION BY SUB-COUNTY

Generally, the proposed projects are spread in all sub-counties. However, taking into account the expansive nature of Mwea, it accounts for the highest proportion of CSP projects. On the other hand, Kirinyaga Central which appears to have a head-start has a relatively lower number of projects compared to other sub-counties.

Table 123: Distribution of Projects by Sub-County

No.	Location	No.	%
1.	Mwea West	105	22
1.	Mwea East	104	21
2.	Kirinyaga West	101	21
3.	Kirinyaga East	90	19
4.	Kirinyaga Central	86	18
	Total	486	100

Source: Real Plan Consultants Limited, 2021

Also, a significant number of projects (41) cross-cut the sub-counties. These represent 14% of the total projects. It is important to note that trans-sub-county projects mainly constitute projects within municipalities, linear infrastructural and policy formulation projects.

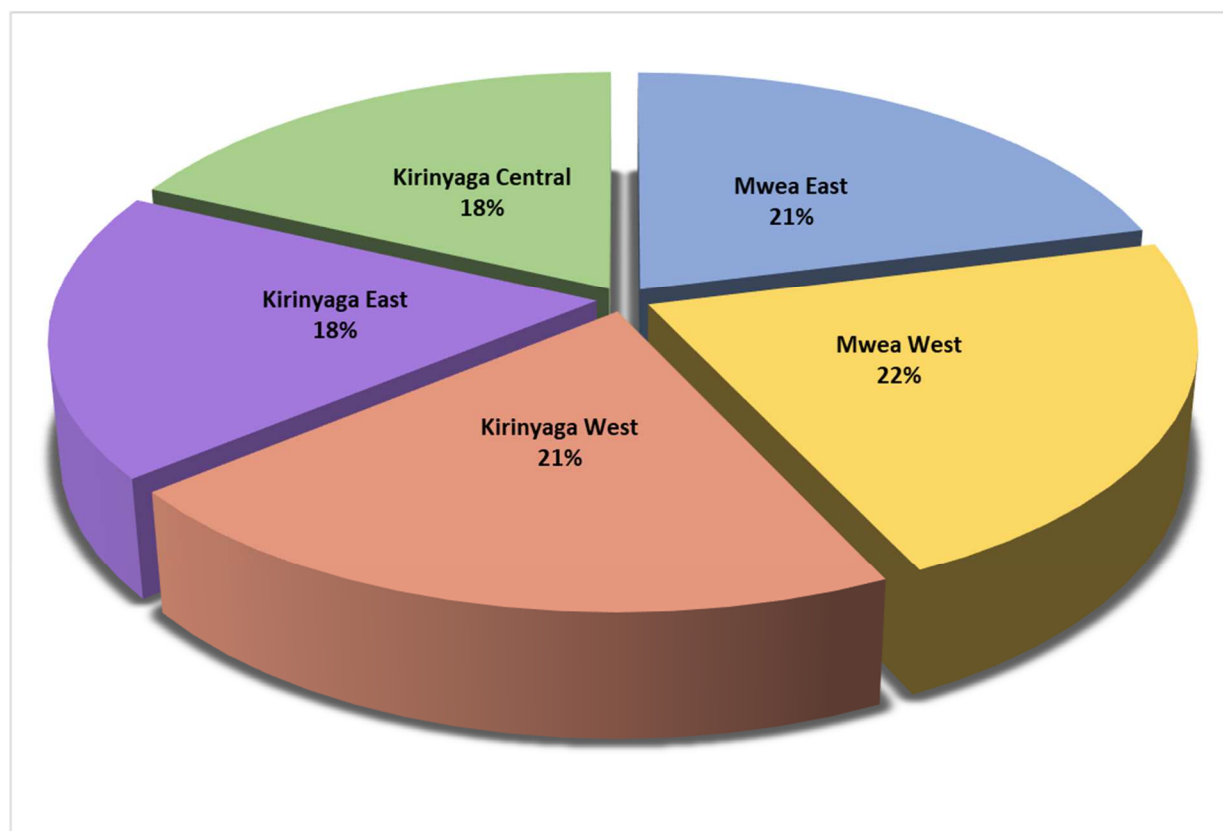


Figure 59: Distribution of Projects by Sub-County

Source: Real Plan Consultants Limited, 2021

9.5 DESIRED FACILITIES PER WARD

The distribution of projects per ward verses population generally compares favourably. About 25% of the wards have a deviation of 0, another 6 wards have a deviation of -1 while 5 have +1. The remaining 3 have a deviation of +2.

Tebere ward has a deviation of -2. This is because Wanguru town is relatively more urbanized and the settlement pattern enhances the impact of services.

Table 124: Desired Facilities Per Ward

Ward	No.	%	Pop %	Deviation
Kirinyaga Central				
1. Kerugoya	58	6	6	0
2. Kanyekine	57	6	6	0
3. Mutira	50	5	4	-1
4. Inoi	43	4	5	+1
Kirinyaga East				
5. Ngariama	48	5	3	+2
6. Kabare	61	6	7	-1
7. Baragwi	50	5	4	+1
8. Karumandi	44	4	5	-1
9. Njukiini	52	5	5	0
Kirinyaga West				
10. Kariti	72	7	5	+2
11. Kiine	80	8	8	0
12. Mukure	70	7	6	+1
Mwea West				
13. Kangai	35	3	4	-1
14. Mutithi	69	7	5	+2
15. Thiba	36	3	4	-1
16. Wamumu	29	3	3	0
Mwea East				
17. Murinduko	59	6	5	+1
18. Nyangati	57	6	5	+1
19. Gathigiriri	24	2	3	-1
20. Tebere	39	4	6	-2
Total	1033	100	100	

NB: Desired facilities include the existing and proposed facilities

Source: Real Plan Consultants Limited, 2021

The desire facilities are further broken down in the table below

Table 125: Desired Facilities by Sector

Ward	Education	Health	Other facilities	Markets	Industries	Roads	Total
Kirinyaga Central							
1. Kerugoya	29	9	6	3	4	7	58
2. Kanyekini	34	5	1	4	2	11	57
3. Mutira	26	5	1	5	5	8	50
4. Inoi	23	3	2	4	4	7	43
Kirinyaga East							
5. Ngariama	24	4	1	3	4	12	48
6. Kabare	32	6	1	5	4	13	61
7. Baragwi	25	4	5	4	2	10	50
8. Karumandi	25	4	1	3	4	7	44
9. Njukiini	27	5	1	4	4	11	52
Kirinyaga West							
10. Kariti	37	7	6	1	11	10	72
11. Kiine	46	6	1	6	6	15	80
12. Mukure	37	6	2	5	5	15	70
Mwea West							
13. Kangai	24	2	1	2	1	5	35
14. Mutithi	37	6	7	7	4	8	69
15. Thiba	24	2	2	3	2	3	36
16. Wamumu	18	4	2	4	0	1	29
Mwea East							
17. Murinduko	35	8	1	5	0	10	59
18. Nyangati	25	4	9	4	5	10	57
19. Gathigiriri	17	3	1	1	1	1	24
20. Tebere	16	3	6	3	5	6	39
Total	561	96	57	76	73	170	1033

Source: Real Plan Consultants Limited, 2021

9.6 RURAL-URBAN DISTRIBUTION

In line with the CSP strategy on urban development, which envisages a significant increase in urban population and encourages settlement in urban areas, more resources are proposed for allocation to urban-based projects as shown in the table below. The strategy seeks to ensure access to services, improved quality of life and protection of fertile agricultural land.

Table 126: Rural-Urban Distribution

Sector	No.	%
Urban	138	48
Rural	85	30
Connectivity	64	22
Total	287	100

Source: Real Plan Consultants Limited, 2021

In this regard, over 143 projects equivalent to 48% of the total are urban-related against 88 projects (30%) that are rural-based. The remaining 66 projects constitute projects linking rural and urban areas as shown in the figure below;

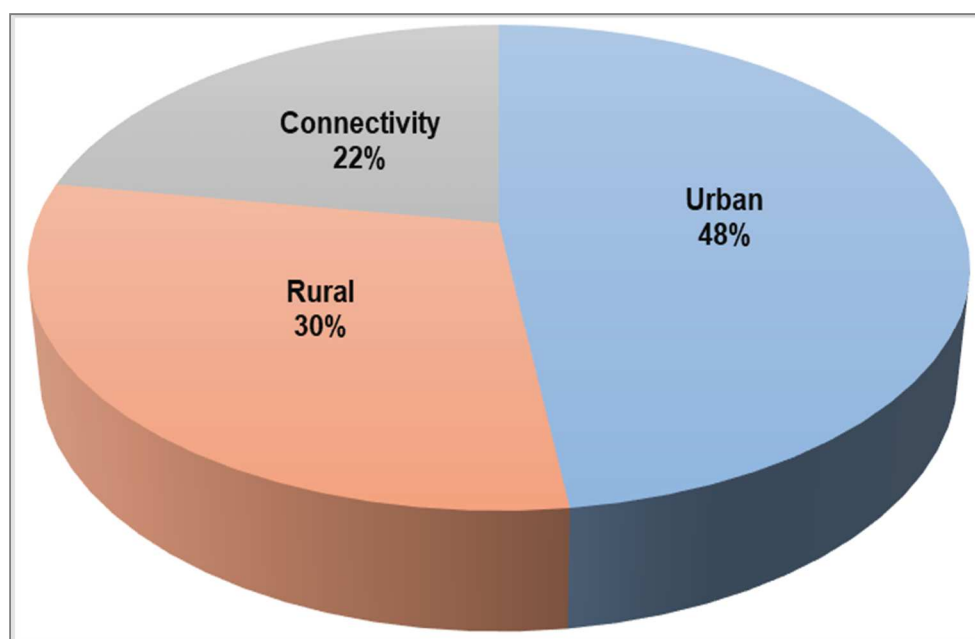


Figure 60: Rural-Urban Distribution

Source: Real Plan Consultants Limited, 2021

9.7 DEVELOPMENT CORRIDORS

Although projects are spread countywide, the development corridor that accounts for 370 sq. km (25% of the county area) takes up a significant 42% of the projects (see the table below). This is influenced by the area's vibrancy. It is expected that the concentration of activities along the axis will yield better results and free up land for other activities such as agriculture.

Table 127: Projects Along Development Axis

No.	Project	% County area	No.	%
1.	Along development axis	25	121	42
2.	Other areas	75	166	58
	Total	100	287	100

Source: Real Plan Consultants Limited, 2021

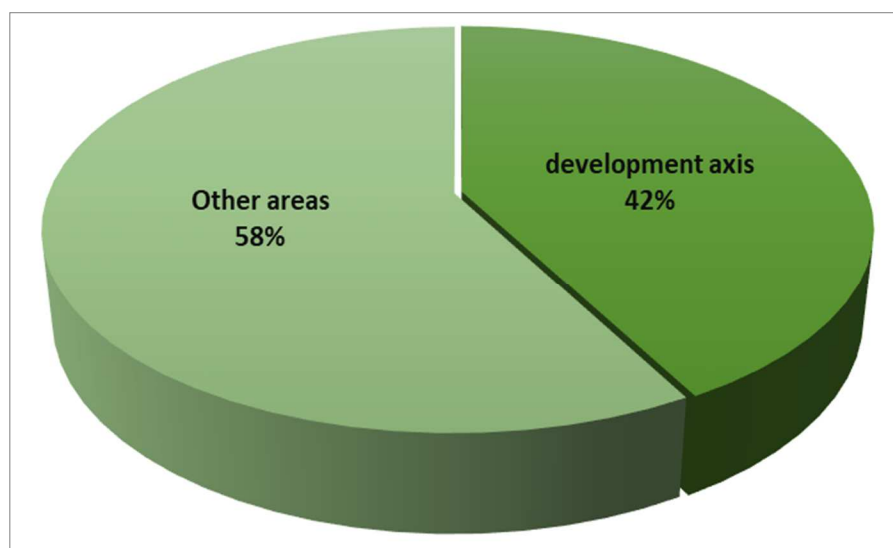


Figure 61: Projects Along Development Axis

Source: Real Plan Consultants Limited, 2021

The table below shows the distribution of the 121 projects according to the sector where social services account for the highest at 42% followed by transportation at 27%.

Table 128: Project Along Development Corridor by Sector

No.	Sector	No.	%
1.	Social service	50	42
2.	Transportation	32	27
3.	Planning	19	13
4.	Manufacturing	10	8
5.	Agriculture	6	7
6.	Environment	2	2
7.	Tourism	2	1
	Total	121	100

Source: Real Plan Consultants Limited, 2021

9.8 PROJECT PHASING

Among the 287 projects, phasing has also been done and phased in 2year tranches (2 financial years). For instance, financial years 2019/20 and 2020/21 form the phase within which priority 1 projects will be implemented. The projects are distributed across the planning period (2021-2031) as shown in the table below.

It is expected that about 28% of the projects to be complete by the end of 2023. The projects earmarked for implementation during this period are catalytic. Examples include the establishment of the Sagana Industrial Park, upgrading of key link roads and construction of strategic markets. It is important to note that all on-going projects are set to be completed during this period (this has further increased the projects in this phase).

Table 129: Project Phasing

Priority	Timeline	No.	%
Priority 1	2021-2023	81	28
Priority 2	2023-2025	65	23
Priority 3	2025-2027	50	17
Priority 4	2027-2029	41	14
Priority 5	2029-2031	35	12
Continuous		15	5
Total		287	100

Source: Real Plan Consultants Limited, 2021

The priority 1 projects are most dominant at 81 projects (28%) followed by priority 2 and 3 with 65 (23%) and 50 (17%) projects each as shown in the chart below. Priority 4 ranks fourth with 41 projects (14%) while priority 5 is fifth with 35 projects (13%). The table also shows projects, set for continuous implementation (meaning the projects shall be implemented continuously from 2021 to 2031). This accounts for 5% of the CSP projects.

According to the prioritization summary below, the projects are spread across the 10-year CSP period in all sub-counties. Priority 1 projects rank highest in every sub-county and are fairly distributed. Mwea East has the least number of projects at 32 while Mwea West accounts for the highest at 43 in priority 1. Generally, the number of projects reduces with decreasing priority.

Table 130: Phasing by Sub-County

Location	Priority 1	Priority 2	Priority 3	Priority 4	Priority 5	Continuous	Total
1. Kirinyaga West	34	22	12	16	10	7	101
2. Mwea West	43	27	14	9	6	7	104
3. Mwea East	32	20	15	13	14	7	105
4. Kirinyaga East	35	18	9	9	9	7	90
5. Kirinyaga Central	33	19	14	7	8	7	86

Source: Real Plan Consultants Limited, 2021

The prioritization has also been done for the various sectors as shown in the table below.

Table 131: Phasing by Sectors

No.	Sector	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Continuous	Total
1.	Social services	25	23	19	13	12	1	93
2.	Transportation	10	11	12	13	12	0	58
3.	Land & Urban Development	12	9	5	4	4	0	34
4.	Trade & Commerce	5	5	5	5	5	0	25
5.	Manufacturing	8	5	5	1	1	0	20
6.	Utilities	10	2	1	1	1	0	15
7.	Environment	4	3	1	0	0	4	12
8.	Tourism	3	4	1	0	0	3	11
9.	Capacity Building & Governance	3	1	1	4	0	1	10
10.	Agriculture	0	1	0	0	0	5	6
11.	Mining	1	1	0	0	0	1	3
	Total	81	65	50	41	35	15	287

Source: Real Plan Consultants Limited, 2021

9.9 YOUTH PROJECTS

The proposed CSP projects are expected to transform and positively impact the quality of life of all Kirinyaga residents notwithstanding their age, gender, location, income or social status. However, the proposals pay special attention to the youth populations, which accounts for highest proportion of the unemployed and 65% of the total population. In light of the above 111 projects, 32% of the CSP projects are set to benefit this population directly (see the figure below). Examples include proposed education, youth empowerment hubs, ICT, sports and libraries.

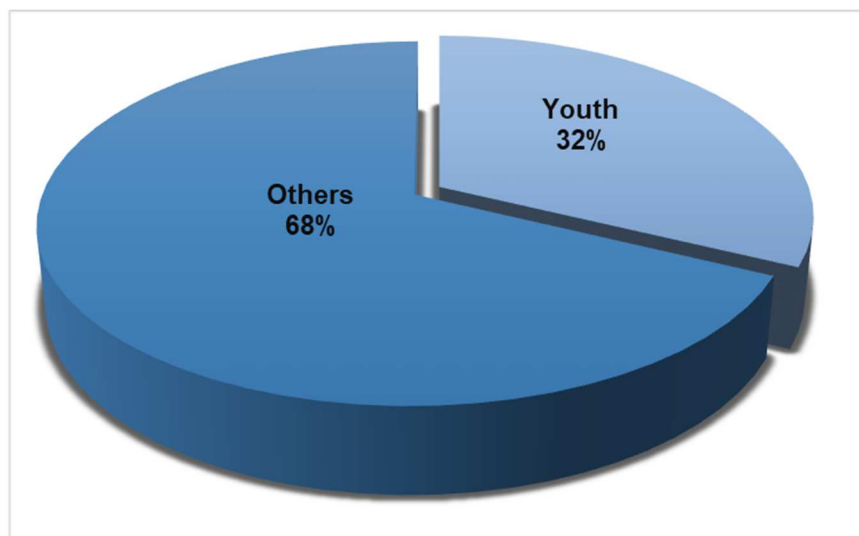


Figure 62: Youth Projects

Source: Real Plan Consultants Limited, 2021

9.10 CONTRIBUTIONS TO THE BIG 4 AGENDA

The Big 4 Agenda is a 5-year plan aimed at fast-tracking the achievement of Kenya Vision 2030. The initiative is guided by 4 main pillars: manufacturing, affordable housing, universal health care and food security. The proposals seek to realize 4 agendas through several projects.

Manufacturing: Kirinyaga County has enormous potential for agro-based industries. In light of this, the establishment of 254-acre Sagana Industrial and Office Park seeks to promote manufacturing and agro-processing of the agricultural products produced in the county. It is envisaged that the Park will offer facilities for specialized: - agro-processing; agro-logistics and storage; farm machinery, equipment and services centre; social services; and general trading/ business/ commercial services. Another transformative proposal is the establishment of 13 food processing/value-addition industries in production areas in addition to the existing 111 factories. It is important to note the existing plants are mainly coffee wet mills and tea factories. Other interventions include the provision of Mini-industrial Park at Wang'uru, the establishment of 3 Juakali zones in the proposed municipalities and the upgrading of the existing railway.

Universal health care: Health care is a primary and basic service. Accessibility is a key component of universal health care. The CSP strives to achieve this agenda mainly through the completion of 8 on-going dispensary projects, upgrading 1 health centres to Level 4 facility, and 8 dispensaries to health centres. This will add to the existing 84 health facilities in the county.

Equipping the County referral hospital to fit a level 5 status will ensure residents do not have to travel to other towns to access medical services. Finally, establishment of a Kenya Medical Training College and Kenya Medical Research Institute will enhance medical training. To implement these projects 31ha will be acquired.

Food security: Agricultural development is a key component of ensuring food security. The CSP has provided for the growth of this sector through advocating for the establishment of 13 agro-industries, provision of extension services, branding and marketing of Kirinyaga products, the establishment of county agricultural fairs, up scaling agricultural research activities, protection of agricultural lands and diversification of agricultural products will aid in up scaling agricultural production. Value addition industries will increase the number of products produced and ensure their longevity. Over 40 roads and 86 markets have been earmarked for upgrading to enhance linkages and improve livelihood.

Affordable housing: The demand for housing is rapidly increasing with the increase in population. In response, zones have been demarcated for residential purposes in major urban areas as follows: Kerugoya has 34, Kutus 26 and Sagana 11 zones.

9.11 LAND ACQUISITION

To implement the proposed CSP projects 141.14ha is required by 2031. Broadly, this land is required for 4 sectors namely social services (66ha), utilities (36.6), manufacturing (26ha) and transportation (12.8ha). Social services rank highest at 47% due to the numerous education institutions, sports, recreational, library, youth empowerment centres and social halls projects. The sector has the most projects due to the need to provide services to meet human basic needs and the focus in skill and talent development activities. Land requirement distribution is shown in the chart below.

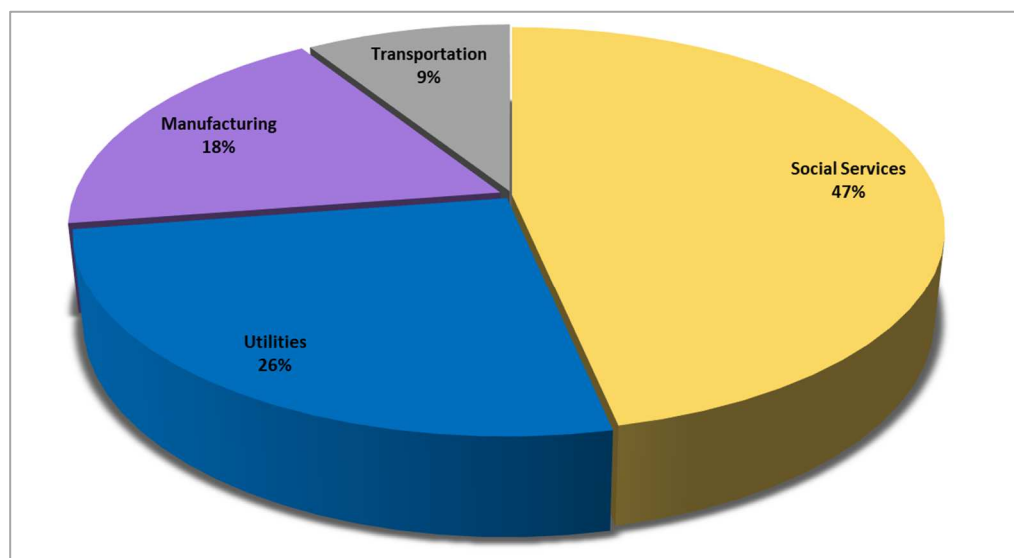


Figure 63: Land Requirement by Sector

Source: Real Plan Consultants Limited, 2021

Further breakdown of the sectoral land requirements shows that cemeteries require the highest proportion at 35ha (24.9%), followed by industries at 26ha (18.5%) and education at 20ha (14.2%) as shown in the summary table below;

Table 132: Land Requirement by Sector

No.	Sector	Land Required (Ha)	%
1.	Cemetery	35	24.9
2.	Industries	26	18.5
3.	Education	20	14.2
4.	Sports & recreation	17.8	12.7
5.	Transport	12.8	9.1
6.	Rehabilitation centres	12	8.5
7.	Social Halls	7.6	5.4
8.	Fire sub-station	1.6	1.1
9.	Health	4	2.8
10.	Youth empowerment	2	1.4
11.	library	1	0.7
12.	Museum	0.6	0.4
	Total	140.4	100.0

Source: Real Plan Consultants Limited, 2021

9.11.1 Phased Land Requirement

Land acquisition is phased according to the projects' prioritization program. Like the projects and programs, the land acquisition program is spread across the planning period (2021 -2031). According to the summary table below, about 19% of the land will be required by the end of 2023. This constitutes land for quick-win and catalytic projects.

Table 133: Phased Land Requirements

No.	Financial Year	Land Required (Ha)	%
1.	2021-2023	25	19
2.	2023-2025	28.7	21
3.	2025-2027	36.4	26
4.	2027-2029	23.7	17
5.	2029-2031	23.6	18
	Total	140.4	100

Source: Real Plan Consultants Limited, 2021

9.11.2 Sub-County Land Requirement

Land for project implementation will be required across the county. Nevertheless, Kirinyaga Central requires the highest proportion at 27% followed by Mwea East and Kirinyaga West at 23% and 19% respectively as shown in the figure below.

Table 134: Land Requirement by Sub-County

No.	Sub-County	Land Required (Ha)	%
1.	Kirinyaga Central	37.9	27
2.	Mwea East	31.3	23
3.	Kirinyaga West	27.2	19
4.	Kirinyaga East	25.1	18
5.	Mwea West	18.9	13
	Total	140.4	100

Source: Real Plan Consultants Limited, 2021

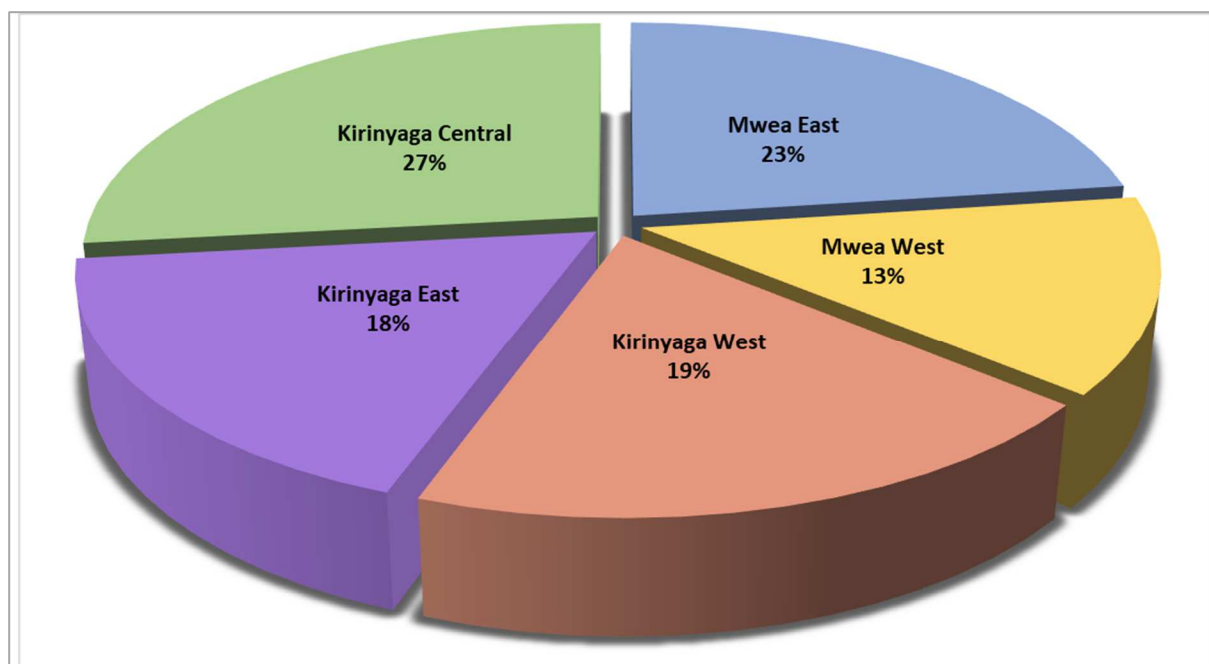


Figure 64: Land Requirement by Sub- County

Source: Real Plan Consultants Limited, 2021

The table below shows the sub-county land requirement according to the three broad sectors. Mwea is the most populous hence the need to provide more social services and facilities. This explains the land requirements in the sub-county.

Table 135: Sub- County Land Requirement by Sector

Sub-County	Social Services (Ha)	%	Utilities (Ha)	%	Manufacturing (Ha)	%	Transportation (Ha)	%
Mwea East	14.4	22	10.8	30	5	19	2.1	16
Mwea West	11.8	18	0	0	4	15	3.1	24
Kirinyaga West	6.3	10	10.4	28	6	23	4.5	35
Kirinyaga East	13.4	20	5.4	15	5	19	1.3	10
Kirinyaga Central	20.1	30	10	27	6	23	1.8	14
Total	66	100	36.6	100	26	100	12.8	100

Source: Real Plan Consultants Limited, 2021

NB: The detailed list of projects showing the project title/nature, particulars, location/sub-county, implementation period and implementing agency is annexed in the report (see annex 1).

CHAPTER 10

CAPITAL INVESTMENT PLAN

The Capital Investment Plan analysis and presents the cost of implementing the County Spatial Plan. It outlines and costs the projects the 10 years, identifies the location by Sub County, implementation period and proposed implementer/financier. The projects have been identified and prioritized in five 2-year tranches to cover the 10-year plan period.

The cost of implementing the Kirinyaga County Spatial Plan is estimated at **KShs. 61,321,800,000 (61.3 billion)**. The cost is distributed over the 10-year implementation period (5 phases), sectors (thematic areas) and over the 5 sub-counties as discussed below.

10.1 ESTIMATED PROJECT COST BY SECTOR

Project cost analysis reveals that the transportation requires the highest investment at KShs. 46.4 billion during the implementation phase. This will account for over 75.7% of the total CSP implementation cost and constitutes upgrading of road network, NMT projects, terminus facilities, air and rail transport. Transport is the backbone upon which all areas, sectors and activities are connected. Social services including education, health, sports, recreational, youth empowerment, libraries and cemetery facilities will cost approximately KShs. 7.9 billion. This is equivalent to 13.0% of the CSP Budget. The sectoral budget is presented in the table below:

Table 136: Project Cost by Sector

No.	Sector	Estimated Cost (KShs)	%
1	Transportation	46,449,000,000	75.7
2	Social services	7,962,000,000	13.0
3	Manufacturing	2,153,000,000	3.5
4	Land & Urban Development	999,000,000	1.6
5	Trade & Commerce	960,000,000	1.6
6	Environment	738,000,000	1.2
7	Tourism	703,000,000	1.1
8	Agriculture	463,000,000	0.8
9	Utilities	429,800,000	0.7
10	Capacity Building & Governance	380,000,000	0.6
11	Mining	85,000,000	0.1
	Total	61,321,800,000	100.0

Source: Real Plan Consultants Limited, 2021

10.2 ESTIMATED PROJECT COST BY SUB- COUNTY

Recognizing the diverse resource endowment and development levels of the various parts of the county, the CSP seeks to achieve equitable distribution of resources for development across the sub-counties and wards. The distribution by sub-county is shown below;

No.	Location	Estimated Cost (KShs)	%
1	Kirinyaga West	14,788,800,000	24.1
2	Mwea East	14,637,500,000	23.9
3	Mwea West	11,405,100,000	18.6
4	Kirinyaga Central	10,727,800,000	17.5
5	Kirinyaga East	9,762,600,000	15.9
	Total	61,321,800,000	100.0

Source: Real Plan Consultants Limited, 2021

10.3 PROJECTS FINANCING

Project financing for the CSP projects will require a collective effort from various National and County government departments, development partners, Private sector, Parastatals and government agencies to effectively finance and implement the projects.

County Government

The CSP is meant to guide appropriation of funds by the County government as per requirements of the County Government Act. This is achieved through implementation of listed projects. The County Government will be required to set aside substantial amounts of funds towards implementation of projects.

Enhancing own source revenue is important through initiatives such as development of markets, social halls, stadiums, recreational parks which attract user fees and levies.

The planning and designation of Municipalities and urban areas will enhance county revenue from development applications, building plans approvals, occupation certificates, business permits, licenses among others. Enhancing land tenure through issue of ownership documents will also generate land rates for increased county revenue.

National Government

National government allocations constitute a major source of income to counties which may be used for project implementation. Additionally, the County Government of Kirinyaga should enhance cooperation with the National government towards direct financing and implementation of strategic projects. This cooperation has already yielded implementation of CSP proposals such as Dualling of Kenol- Marua highway, Thiba Dam construction, Wanguru Stadium development among others.

Continuous engagements between the two levels of Government will enable budgeting and provision of resources for projects identified for under the scope of the national government. These include the affordable housing program, accompanying infrastructure, utilities and service provision, Rural electrification, Education among others.

Kirinyaga county should also leverage on its national role and importance to foster financing of key projects. The National significance of Kirinyaga includes agricultural development for food security, poverty alleviation and expansion of tea, coffee and cotton sub sectors.

As a Mt Kenya Water tower catchment and Conservation area, Kirinyaga is able to leverage on this to attract financing from carbon credits trading and the climate change fund among others.

National government agencies

National government agencies such as KENHA, KURA, KERRA, KWS, KFS, KAA, WRA, NEMA, Kenya Railways, Kenya Power etc have been identified as key actors for CSP implementation. The County government shall engage with such agencies for budgeting and resource provision for implementation of listed projects within their respective sectors.

Private Sector

The private sector has an active role to play towards financing and implementation of the CSP. The Spatial Plan presents various opportunities in the fields of Agricultural value addition, agribusiness, Manufacturing, Urban housing development, Tourism development, public transport, Mining and resource utilisation among others for private sector investments.

Youth led enterprises may also invest in waste management (recycling, cottage industries, energy generation), sports and sports science, cultural development, IT innovation and solutions.

The County government shall provide an enabling environment and incentives for private equity investments in projects listed in the CSP.

Foreign and Diaspora Investors

Foreign Direct Investment is another avenue of project financing that is available for CSP implementation. The county government may opt to market opportunities for foreign investment in various investment forums. Foreign investments may be sought in sectors such as Eco-tourism facility development, tourism circuits development, establishment of Sagana Industrial Park, Leisure and hospitality development including golf courses, rice husk energy production among others.

Diaspora investors referee to Kenya Citizens are also based overseas who may repatriate resources through investment in Kenya. Diaspora remittance contribute a significant amount of foreign capital received in Kenya annually, which has potential to drive certain CSP projects. The county government ought to explore means of packaging suitable investments for diaspora investors.

Public Private Partnerships (PPP)

Public Private Partnerships provide a financing model of CSP projects through private equity while still maintaining public interest. This model may be used innovatively to finance capital intensive projects that would otherwise require debt finance or long-term financial planning to develop. PPP are to be operated as guided by Public Private Partnership Act No14 of 2021, relevant regulations and policy statements.

The County government of Kirinyaga may utilise PPPs to accelerate project financing and implementation.

Municipal Bonds

A Municipal bond is a debt security issued by a county government towards the financing capital projects. They are ideal tools to raise funds for planned projects. Suitable projects for such financing include markets construction, urban infrastructure among others.

Municipal bonds are sold over the capital market targeting institutional and individual investors. The bond is often underwritten against County revenue which is raised through taxation and/or other county revenues.

Municipal bonds trading is regulated by the capital Markets Authority and guided by the Public Finance Management Act. Issuance of Municipal bonds would also require approval by the National government as guarantors, hence the need for close cooperation between the two levels of Government.

Partnerships with donors

The County Government of Kirinyaga may engage donor agencies in various sectors to undertake development projects as identified in the County Spatial Plan. Target programs may include Conservation, health service development, education, youth and women empowerment including skill development among others.

10.4 CATALYTIC PROJECTS

This constitutes the most impactful and transformative projects proposed under the County Spatial Plan. The CSP flagship projects are; the development of the East-West link road in the upper zone; planning, surveying and titling of colonial villages and urban centres; construction of a regional market at Kagio, construction of multi-modal terminus at Sagana; establishment of 6 agro-based industries in the agricultural production areas; upgrading of youth empowerment hubs; opening up of the Kamwet Mt. Kenya Route; and development of an arboretum at Kerugoya Urban Forest.

The list of projects, implementation timeline, implementer and project cost estimates are detailed in the table below;

10.5 LIST OF PROJECTS

No	Project	Details	Sub-county/ location	Timeframe	Implementing Agency	Unit Cost	Total Cost	Source of finance
CAPACITY BUILDING & GOVERNANCE								
1	Procurement and installation of GIS Equipment, recruiting and Training at County Headquarters (GIS Lab)	-	Kirinyaga Central & Mwea East	2021-23	County Government of Kirinyaga (CGK)	-	30,000,000	County budget
2	Construction of physical planning offices & equipping with requisite infrastructure	-	Mwea East	2027-29	CGK	-	25,000,000	County budget
3	Construction of physical planning offices & equipping with requisite infrastructure	-	Mwea West	2027-29	CGK	-	30,000,000	County budget
4	Construction of physical planning offices & equipping with requisite infrastructure	-	Kirinyaga East	2027-29	CGK	-	30,000,000	County budget
5	Construction of physical planning offices & equipping with requisite infrastructure	-	Kirinyaga West	2027-29	CGK	-	30,000,000	County budget
6	Personal emoluments for the staffing of the proposed planning office (county & sub-county)	-	Countywide	Continuous	CGK	-	10,000,000	County budget
7	Composition and operationalization of the County Physical and Land Use Planning Consultative Forum	-	Countywide	2021-23	CGK	-	10,000,000	County budget
8	Composition and operationalization of the County Physical and Land Use Planning Liaison Committee	-	Countywide	2021-23	CGK	-	15,000,000	County budget
9	Composition and operationalization of the Wang'uru Municipality Board	-	Mwea East & West	2023-25	CGK	-	100,000,000	County budget
10	Composition and operationalization of the Kagio-Sagana Municipality Board	-	Kirinyaga West & Mwea West	2025-27	CGK	-	100,000,000	County budget/Donor funding
Sectoral Total							380,000,000	
LAND AND URBAN DEVELOPMENT								
1	Preparation of Strategic Urban Development Plan for Kerugoya-Kutus Municipality	-	Kirinyaga central & Mwea East	Ongoing	CGK	-	50,000,000	County Budget

No	Project	Details	Sub-county/ location	Timeframe	Implementing Agency	Unit Cost	Total Cost	Source of finance
2	Preparation of Physical and Land Use Development Plan for Wang'uru Municipality	-	Mwea East & West	2021-23	CGK	-	80,000,000	County budget
3	Preparation of Physical and Land Use Development Plan for Sagana-Kagio Municipality	-	Kirinyaga West	2021-23	CGK	-	50,000,000	County budget
4	Preparation of Physical and Land Use Development Plan for Makutano towns	-	Mwea West	2021-23	CGK	-	40,000,000	County budget
5	Preparation of Physical and Land Use Development Plan for Baricho towns	-	Kirinyaga West	2021-23	CGK	-	35,000,000	County budget
6	Preparation of Physical and Land Use Development Plan for Kianyaga towns	-	Kirinyaga East	2021-23	CGK	-	35,000,000	County budget
7	Preparation of Physical and Land Use Development Plan for Kandongu towns	-	Mwea East	2021-23	CGK	-	35,000,000	County budget
8	Preparation of Physical and Land Use Development Plan for Kiamutugu, Kimunye, Karumandi, Mbiri Market Centres	4 Market Centres	Kirinyaga East	2023-25	CGK	-	22,000,000	County budget
9	Preparation of Physical and Land Use Development Plan for Kagumo and Kangaita Market Centres	2 Market Centres	Kirinyaga Central	2023-25	CGK	-	12,000,000	County budget
10	Preparation of Physical and Land Use Development Plan for Wamumu (Air Market), Thiba, Mutithi, Kangai Market Centres	4 Market Centres	Mwea West	2023-25	CGK	-	22,000,000	County budget
11	Preparation of Physical and Land Use Development Plan for Kimbimbi, Pi Centre, Difathas, Mururi Market Centres	4 Market Centres	Mwea East	2023-25	CGK	-	22,000,000	County budget
12	Preparation of Physical and Land Use Development Plan for Kibingoti, Kiburu, Kibiringwi Market Centres	3 Market Centres	Kirinyaga West	2023-25	CGK	-	17,000,000	County budget
13	Preparation of Physical and Land Use Development Plan for unclassified centres (10 centres per year)	10 centres per year	Countywide	2025-31	CGK	-	50,000,000	County budget
14	Preparation of Physical and Land Use Development Plan for Mutithi, Thiba A, Thiba B, Nyamindi, Ndindiruku, Kiamucege, Mahigaini, Redsoil, Kangai Colonial Villages	9 villages	Mwea West& East	2021-23	CGK	-	29,000,000	County budget
15	Preparation of Physical and Land Use Development Plan for Kianyaga, Kangatia, Rukenya, Kiamutungu, Kamwana, Kavote colonial villages	6 villages	Kirinyaga East	2021-23	CGK	-	20,000,000	County budget

No	Project	Details	Sub-county/ location	Timeframe	Implementing Agency	Unit Cost	Total Cost	Source of finance
16	Preparation of Physical and Land Use Development Plan for Kangaita B, Kiaritha, Kiandieri colonial village	3 villages	Kirinyaga central	2021-23	CGK	-	11,000,000	County budget
17	Preparation of Physical and Land Use Development Plan for Gitagura, Kiamaina, Kiangwaci, Riamugaa, Gacharu colonial villages	5 villages	Kirinyaga West	2021-23	CGK	-	17,000,000	County budget
18	Preparation of Physical and Land Use Development Plan for Kirwara, Kiaga, Rukanga, Gathigiriri, Kamwana, Kirogo, Kimbimbi, Kiriko, Migingo colonial villages	9 villages	Mwea West& East	2023-25	CGK	-	29,000,000	County budget
19	Preparation of Physical and Land Use Development Plan for Rwambati, Kiandai, Kabare, Karumandi, Kareithi, Muchagara colonial villages	6 villages	Kirinyaga East	2023-25	CGK	-	20,000,000	County budget
20	Preparation of Physical and Land Use Development Plan for Gatwe, Thaita, Kitieri, Mutira colonial villages	4 villages	Kirinyaga central	2023-25	CGK	-	14,000,000	County budget
21	Preparation of Physical and Land Use Development Plan for Kibingoti, Kiburu, Thanju and Ngoka colonial villages	4 Villages	Kirinyaga West	2023-25	CGK	-	14,000,000	County budget
22	Preparation of Physical and Land Use Development Plan for Kandongu, Mbitikita, Githogondo, Kiamachiri, Kiamanyeki, Mururi, Wanguru mjini, Kutus mjini, Difatha colonial villages	9 Villages	Mwea East & West	2025-27	CGK	-	29,000,000	County budget
23	Preparation of Physical and Land Use Development Plan for Kamugonda, Thumaita, Kanjuu, Mukarara, Kiarani, Githure colonial villages	6 villages	Kirinyaga East	2025-27	CGK	-	20,000,000	County budget
24	Preparation of Physical and Land Use Development Plan for Kaimuru, Kirimunge, Mikinduni, Blue canyon colonial villages	4 villages	Kirinyaga central	2025-27	CGK	-	14,000,000	County budget
25	Preparation of Physical and Land Use Development Plan for Kibiringwi, Kiandai, Gatara and Mururiini colonial villages	4 villages	Kirinyaga west	2025-27	CGK	-	14,000,000	County budget
26	Preparation of Physical and Land Use Development Plan for Kiumbu, Karii, Ngomongo, Bahati, Kiorugari, Matandara, Gachigiria, Mathangauta, Broko colonial villages	9 villages	Mwea East and West	2027-29	CGK	-	29,000,000	County budget
27	Preparation of Physical and Land Use Development Plan for Gathathe, Ithare-ini, Muri falls, Ngariama, Kamweti, Gathoge B colonial villages	6 villages	Kirinyaga East	2027-29	CGK	-	20,000,000	County budget

No	Project	Details	Sub-county/ location	Timeframe	Implementing Agency	Unit Cost	Total Cost	Source of finance
28	Preparation of Physical and Land Use Development Plan for Karia, muthu, Kiangwenja, Kibingo, colonial villages	4 villages	Kirinyaga Central	2027-29	CGK	-	14,000,000	County budget
29	Preparation of Physical and Land Use Development Plan for kamuthonga, Kiangai, Gitaraga, Sagana Mjini colonial villages	4 villages	Kirinyaga West	2027-29	CGK	-	14,000,000	County budget
30	Preparation of Physical and Land Use Development Plan for Riandira, Kimica, Thanju, Kibathera, Kianguni, Murinduko, Kianjiri, Gathoge A, and Mathiga colonial villages	9 villages	Mwea East and West	2029-31	CGK	-	29,000,000	County budget
31	Preparation of Physical and Land Use Development Plan for Karia, Mbiri, Kianduma, Kiundani, Gatugura, Kiumbati colonial villages	6 villages	Kirinyaga East	2029-31	CGK	-	20,000,000	County budget
32	Preparation of Physical and Land Use Development Plan for Kaboni, Kianga, and Kiamuthambi colonial villages	3 villages	Kirinyaga Central	2029-31	CGK	-	11,000,000	County budget
33	Preparation of Physical and Land Use Development Plan for Karima, Rukanga and Kiinji colonial villages	3 village	Kirinyaga West	2029-31	CGK	-	11,000,000	County budget
Sectoral Total							849,000,000	
TRANSPORTATION								
1	Upgrading A2 to dual carriage, provide service lanes, upgrade Makutano & Sagana Junctions, and construction footbridges at Sagana, Makutano and other urban centres	36km	Mwea W and Kirinyaga W	Ongoing	KENHA	-	-	National Government budget
2	Widening B24 to 60m & upgrade to dual carriage, provide service lane, upgrade Samson Junctions, construction of footbridges and walkways in Wanguru and other urban centres	39km	K-West, Mwea W & E	2023-25	KENHA	260 M	10,140,000,000	National Government budget
3	Upgrading B27 to dual carriage, provide service lanes, upgrade B25 junction	24km	Kirinyaga Central & West	2027-29	KURA/KERRA	260 M	6,240,000,000	National Government budget

No	Project	Details	Sub-county/ location	Timeframe	Implementing Agency	Unit Cost	Total Cost	Source of finance
4	Upgrading C25 to dual carriage, provide service lanes, provide NMT facilities in urban areas	24km	Kirinyaga West, Central, Mwea West	2029-31	KURA/KERRA	200 M	2,400,000,000	
5	Upgrade to bitumen and expansion of C396 (Kamunyaka (Nyeri) – Gathuthuma – Kangaita – Kimunye – Githure – Runyenjes (Embu))	50Km	Kirinyaga East, Central & West Nyeri & Embu	2023-25	KERRA	120 M	6,000,000,000	National Government budget
6	Complete ongoing tarmacking of C403 (Gatugura – Muchagara – Kiamutugu – Muthigaini – Embu)	20KM	Kirinyaga East	Ongoing	KERRA	120 M	2,400,000,000	National Government budget
7	Complete ongoing tarmacking of C526 (Kianyaga – Mbiri – PI)	14Km	Kirinyaga East	Ongoing	KERRA	120 M	1,680,000,000	National Government budget
8	Paving of C526 (PI – Togonye – Kimbimbi)	16km	Mwea East	2023-25	KERRA	80M	1,280,000,000	National Government budget
9	Complete ongoing tarmacking of C528 (Kiamutugu – Ngariama)	3km	Kirinyaga East	Ongoing	KERRA	120 M	360,000,000	National Government budget
10	Complete ongoing tarmacking of c527 (Kagio – Kandongu – Mutithi)	13km	Mwea West	Ongoing	KERRA	120 M	1,560,000,000	National Government budget
11	Upgrading to Bitumen of C399 (Section from Kiaga – Kangai – Nguka – Wanguru)	17km	Mwea West and East	2025-27	KERRA	120 M	2,040,000,000	National Government budget
12	Upgrading to Bitumen of C399 (Section from Kiumbu – Kangeta – A9 (Embu))	12km	Mwea East	2025-27	KERRA	120 M	1,440,000,000	National Government budget
13	Upgrading to Bitumen of C402 (Makutano – Karaba – Gatuiro – Gategi – Makima (Embu))	16km	Mwea East	2023-25	KERRA	120 M	1,920,000,000	National Government budget
14	Upgrading to Bitumen of D1368 (Mururi – Ngucui – Mahigaini – Nyamindi – Kiumbu-ini)	26km	Mwea East	2023-25	CGK	50M	1,300,000,000	County budget
15	Upgrading to Bitumen of D1369 (Kagio – Ng’othi - Kikwara – Makutano)	17km	Mwea West	2025-27	CGK	50M	850,000,000	County budget
16	Upgrading to Bitumen of D1370 (Kutus – Ithareini – Kiangombe - Kiangwenyi)	15km	Kirinyaga Central and East	2027-29	CGK	50M	750,000,000	County budget
16	Upgrading to Bitumen of D1374 (Thiguku – Kiandai – Kathaka – Kagio)	11km	Mwea West	2029-31	CGK	50M	550,000,000	County budget

No	Project	Details	Sub-county/ location	Timeframe	Implementing Agency	Unit Cost	Total Cost	Source of finance
17	Upgrading to Bitumen of D1375 (Baricho – Getuya - Mutira)	10km	Kirinyaga West	2025-27	CGK	50M	500,000,000	County budget
18	Upgrading to Bitumen of D1377 (Kiburu – Nguguini – Kianwe - Kiangai)	8km	Kirinyaga West	2027-29	CGK	50M	400,000,000	County budget
19	Upgrading to Bitumen of D1379 (Kutus – Karie)	6km	Mwea West	2029-31	CGK	50M	300,000,000	County budget
20	Upgrading to Bitumen of D1380 (Kerugoya – Thaita - Kangaita)	9km	Kirinyaga Central	2027-29	CGK	50M	450,000,000	County budget
21	Upgrading to Bitumen of (D1382) Kagumo – Kiamaina - Gathuthuma	5km	Kirinyaga Central	2025-27	CGK	50M	250,000,000	County budget
22	Upgrading to Bitumen of D1383 (Kagumo – Gatwe)	5km	Kirinyaga Central	2023-25	CGK	50M	250,000,000	County budget
23	Upgrading to Bitumen of D1384 (Kutus urban)	4km	Mwea East	2021-23	CGK	50M	200,000,000	County budget
24	Upgrading to Bitumen of E2139 (D1384 – Kimbimbi)	4km	Mwea East	2021-23	CGK	50M	200,000,000	County budget
25	Upgrading to Bitumen of 1385 (Kutus – Ahiti Ndomba Primary)	3km	Mwea East	2023-25	CGK	50M	150,000,000	County budget
26	Upgrading to Bitumen of E2135 (Forest Edge – Kamwana – Kiandumu – Kiamutugu)	6km	Kirinyaga East	2023-25	CGK	50M	300,000,000	County budget
27	Upgrading to Bitumen of E2137 (Difather – Ndakutha - Kanjinji)	7km	Mwea East	2025-27	CGK	50M	350,000,000	County budget
28	Upgrading to Bitumen of F176 (Kangai -Kagio)	5km	Mwea West	2029-31	CGK	16M	80,000,000	County budget
29	Upgrading to Bitumen of F2177 (Kiandai – Kirimunga - Kiangwachi)	5km	Kirinyaga West	2029-31	CGK	16M	80,000,000	County budget
30	Upgrading to Bitumen of G26162 (Kiandai - Kiandai)	2km	Kirinyaga West	2029-31	CGK	16M	32,000,000	County budget
31	Upgrading to Bitumen of F2179 (Kibiringwi – Gatara – Mururuini)	4km	Kirinyaga West	2027-29	CGK	16M	64,000,000	County budget
32	Upgrading to Bitumen of F2187 (Togonye - Mumbuini)	8km	Mwea East	2029-31	CGK	16M	128,000,000	County budget
33	Upgrading to Bitumen of F2188 (PI – Mumbuini - Mahigaini)	24km	Mwea East	2025-27	CGK	16M	384,000,000	County budget
34	Upgrading to Bitumen of F2190 (Mutithi – Air market – Thome – Gategi)	15km	Mwea West	2025-27	CGK	16M	240,000,000	County budget
35	Upgrading to Bitumen of F2194 (Kimbimbi - Kiorugari)	3km	Mwea East	2027-29	CGK	16M	48,000,000	County budget
36	Upgrading to Bitumen of F2195 (Kiorugari – Karie - Kiangai)	2km	Mwea East/West	2027-29	CGK	16M	32,000,000	County budget
37	Upgrading to Bitumen of G26692 (Mururi – Kianyaga)	6km	Kirinyaga East	2027-29	CGK	16M	96,000,000	County budget

No	Project	Details	Sub-county/ location	Timeframe	Implementing Agency	Unit Cost	Total Cost	Source of finance
38	Upgrading to Bitumen of G26906 (Difatha - Mbiri)	7km	Kirinyaga East	2029-31	CGK	16M	112,000,000	County budget
39	Upgrading to Bitumen of Ciagi-ini - Kiamanyeki	13km	Mwea West	2027-29	CGK	16M	208,000,000	County budget
40	Development of a multi-modal terminus at Sagana (railway station, bus terminus and freight terminus)	3ha	K-West	2023/25	CGK	25M	130,000,000	County budget
41	Redesign and expansion of Kerugoya terminus facility	0.8ha	K-Central	2023/25	CGK	-	25,000,000	County budget
42	Redesign and expansion of Kutus terminus facility	0.8ha	Mwea EAST	2025/27	CGK	-	25,000,000	County budget
43	Redesign and expansion of Kagio terminus facility	0.8ha	Mwea West	2027/29	CGK	-	25,000,000	County budget
44	Establishment of new modern terminus in Makutano	0.8ha	Mwea West	2021/23	CGK	-	25,000,000	County budget
45	Establishment of new terminus in Kianyaga	0.8ha	Kirinyaga East	2025/27	CGK	-	25,000,000	County budget
46	Establishment of new terminus in Baricho	0.5ha	Kirinyaga West	2029/31	CGK	-	25,000,000	County budget
47	Construction of minor terminus in Kibingoti	0.8ha	K-East	2021/23	CGK	-	25,000,000	County budget
48	Construction of minor terminus in Kagumo	0.5ha	K-Central	2023/25	CGK	-	20,000,000	County budget
49	Construction of minor terminus in Kimbimbi	0.5ha	Mwea West	2025/27	CGK	-	20,000,000	County budget
50	Construction of minor terminus in Air Market	0.5ha	Mwea East	2025/27	CGK	-	20,000,000	County budget
51	Construction of minor terminus in Kiamutugu	0.5ha	K-West	2027/29	CGK	-	20,000,000	County budget
52	Construction of minor terminus in PI	0.5ha	Mwea West	2027/29	CGK	-	20,000,000	County budget
53	Construction of minor terminus in Kimunye	0.5ha	K-West	2027/29	CGK	-	20,000,000	County budget
54	Construction of minor terminus in Difatha	0.5ha	Mwea West	2029/31	CGK	-	20,000,000	County budget
55	Construction of minor terminus in Kangaita	0.5ha	K-Central	2029/31	CGK	-	20,000,000	County budget
56	Construction of minor terminus in Kiburu	0.5ha	K-East	2029/31	CGK	-	20,000,000	County budget
57	Upgrading and reviving of Mwea airstrip	-	Mwea East	2021-23	CGK, KAA	-	200,000,000	County, National
	Sectoral Total						46,449,000,000	
	Information and communication technology							
1	Provision of trunk fibre optic cable in proposed municipalities and towns		Countywide	2021-23	CGK/GoK /Private Sector	-	300,000,000	CGK/GoK /PPP
							300,000,000	
	Energy							
1	Connecting electricity in subsidised rates in Njukiini and Ngariama	-	Kirinyaga East	2021-23	CGK/Kenya Power	15,000 last	41,500,000	County/Kenya Power

No	Project	Details	Sub-county/ location	Timeframe	Implementing Agency	Unit Cost	Total Cost	Source of finance
						mile s		
2	Connecting electricity in subsidized rates in Matumbuni, Nyagathi and Ngumunyu in Kariti	-	Kirinyaga West	2021-23	CGK/Kenya Power	-	13,300,000	County/Kenya Power
3	Feasibility studies on the HEP potential of waterfalls in Kirinyaga	-	Countywide	2023-25	CGK/Kenya Power	-	30,000,000	County/Kenya Power
							84,800,000	
Water & sanitation								
1	Construction of Kerugoya/Kutus water supply and sanitation infrastructure	-	Kirinyaga Central, East and Mwea East	Complete	CGK/KIRIWASCO	-		County budget
2	Construction of Thiba Dam to serve the Mwea Irrigation Scheme	-	Kirinyaga East	Complete	CGK/NII	-		County/GOK
3	Establishment of Multi-agency taskforces for water in the County (functions highlighted in section 7.2.2)	-	Countywide	2021-23	CGK	-	15,000,000	County budget
4	Develop a water management and investment plan for Kirinyaga that entails Prepare an inventory of water sources, abstraction points, supply lines, areas and number of people served, service providers and strategies to integrate existing resources	-	Countywide	2021-23	CGK	-	30,000,000	County budget
							45,000,000	
Education								
1	Carrying out a comprehensive exercise to establish the condition of all public educational institutions		Countywide	2021-23	CGK/Ministry of Education	-	30,000,000	County/Ministry of Education
2	Establishment of Vocational Training Centres in Murinduko Ward	4ha	Mwea East	2023/25	CGK	-	57,000,000	County budget
3	Establishment of Vocational Training Centres in Mutira Ward	4ha	Kirinyaga Central	2023-25	CGK	-	57,000,000	County budget
4	Establishment of Vocational Training Centres Kangai Ward	4ha	Mwea West	2025/27	CGK	-	57,000,000	County budget

No	Project	Details	Sub-county/ location	Timeframe	Implementing Agency	Unit Cost	Total Cost	Source of finance
5	Establishment of Vocational Training Centres Karumandi Ward	4ha	Kirinyaga East	2029/31	CGK	-	57,000,000	County budget
6	Establishment of Vocational Training Centres in Inoi Ward	4ha	Kirinyaga Central	2029/31	CGK	-	57,000,000	County budget
7	Reviving of existing facilities Thanju VTC in Kariti Ward		Kirinyaga West	2023/25	CGK	-	9,600,000	County budget
8	Operationalization of the Gathigiriri National Technical Institute		Mwea East	Ongoing	CGK	-	9,600,000	County budget
9	Provision of Boarding Facilities at the Special Needs Primary school at Kandongu		Mwea West	2021/23	CGK	-	5,000,000	County budget
10	Equipping of special needs facilities and infrastructure such as sanitary blocks, pavements, in all 199 Primary Schools	20 every year	Countywide	Continuous	CGK/Ministry of education	-	490,000,000	County/Ministry of education
							829,200,000	
	Health							
1	Establish a Medical training College at Kerugoya Referral Hospital	4ha	Kirinyaga Central	2021-23	CGK/Ministry of Health	-	1,000,000,000	County/Ministry of Health
2	Establishment of a cancer research and treatment centre at Kerugoya Referral Hospital		Kirinyaga Central	2025-27	CGK/Ministry of Health	-	300,000,000	County/Ministry of Health
3	Construction of male ward, paediatric ward and completion of radiology unit at Kianyaga Sub- County Hospital		Kirinyaga East	2021-23	CGK	-	300,000,000	County budget
4	Construction and equipping of a theatre, male ward and kitchen - Sagana Sub- County Hosp		Kirinyaga West	2023-2027	CGK	-	500,000,000	County budget
5	Renovation of Harambee ward, outpatient block and provision of a casualty - Kimbimbi Sub- County Hosp		Mwea East	2023-2027	CGK	-	70,000,000	County budget
6	Renovation of Harambee ward, outpatient block and provision of a casualty - Baricho Sub- County Hosp		Kirinyaga West	2023-2027	CGK	-	80,000,000	County budget
7	Equip to fit the status of a Health Centre - Kandongu H/C		Mwea West	2021-23	CGK	-	15,000,000	County budget
8	Equip to fit the status of a Health Centre – Kagumo H/C		Kirinyaga Central	2021-23	CGK	-	15,000,000	County budget

No	Project	Details	Sub-county/ location	Timeframe	Implementing Agency	Unit Cost	Total Cost	Source of finance
9	Equip to fit the status of a Health Centre – Kiamutugu H/C		Kirinyaga East	2021-23	CGK	-	15,000,000	County budget
10	Equip to fit the status of a Health Centre – Kiburu H/C		Kirinyaga West	2021-23	CGK	-	15,000,000	County budget
11	Equip to fit the status of a Health Centre – Kutus H/C		Mwea East	2023-25	CGK	-	15,000,000	County budget
12	Equip to fit the status of a Health Centre – Thiba H/C		Mwea West	2023-25	CGK	-	15,000,000	County budget
13	Equip to fit the status of a Health Centre – Kiumbu H/C		Mwea East	2023-25	CGK	-	15,000,000	County budget
14	Equip to fit the status of a Health Centre – Kiaragana H/C		Kirinyaga West	2023-25	CGK	-	15,000,000	County budget
15	Equip to fit the status of a Health Centre – Mukangu H/C		Kirinyaga West	2023-25	CGK	-	15,000,000	County budget
16	Equip to fit the status of a Health Centre – Togonye H/C		Mwea East	2025/27	CGK	-	15,000,000	County budget
17	Equip to fit the status of a Health Centre – Murinduko H/C		Mwea East	2025/27	CGK	-	15,000,000	County budget
18	Equip to fit the status of a Dispensary - Karimaini H/C		Kirinyaga West	2025/27	CGK	-	5,000,000	County budget
19	Equip to fit the status of a Dispensary - Kianjege Dispensary		Kirinyaga West	2025/27	CGK	-	10,000,000	County budget
20	Upgrade to Level 4 Hospital – Mutithi H/C		Mwea West	2021-23	CGK	-	200,000,000	County budget
21	Upgrade to Health Centre (Level 3) – Karima Dispensary		Kirinyaga West	2023-25	CGK	-	22,000,000	County budget
22	Upgrade to Health Centre (Level 3) – Kianjege Dispensary		Kirinyaga East	2025/27	CGK	-	22,000,000	County budget
23	Upgrade to Health Centre (Level 3) – Kiamuthambi Dispensary		Kirinyaga Central	2027/29	CGK	-	22,000,000	County budget
24	Upgrade to Health Centre (Level 3) – Munyaki Dispensary		Mwea East	2027/29	CGK	-	22,000,000	County budget
25	Upgrade to Health Centre (Level 3) – Wamumu Dispensary		Mwea West	2029/31	CGK	-	22,000,000	County budget
26	Upgrade to Health Centre (Level 3) – Kianjege West Dispensary		Kirinyaga West	2029/31	CGK	-	22,000,000	County budget
27	Construction of the medical complex and fencing of Kerugoya Referral Hospital		Kirinyaga Central	Ongoing	CGK	-	1,200,000,000	County budget
28	Construction of laboratory - Joshua Mbai Dispensary		Kirinyaga East	Ongoing	CGK	-	10,000,000	County budget
29	Construction of laboratory – Riakithiga Dispensary		Kirinyaga East	Ongoing	CGK	-	10,000,000	County budget
30	Upgrading of Karima Dispensary		Kirinyaga West	Ongoing	CGK	-	10,000,000	County budget
31	Fencing, construction of toilets and burning chamber – Njegas Dispensary		Mwea West	Ongoing	CGK	-	12,000,000	County budget

No	Project	Details	Sub-county/ location	Timeframe	Implementing Agency	Unit Cost	Total Cost	Source of finance
32	Upgrading of Kiamanyeki Dispensary		Mwea West	Ongoing	CGK	-	10,000,000	County budget
33	Construction of waiting bay and water tower – Mutithi H/C		Mwea West	Ongoing	CGK	-	800,000	County budget
34	Completion of wards – Kangai H/C		Mwea West	Ongoing	CGK	-	80,000,000	County budget
35	Construction of Rehabilitation Facility – Wanguru	3ha	Mwea East	2021-2023	CGK	-	50,000,000	County budget
36	Construction of Rehabilitation Facility – Kagio – Sagana	3ha	Kirinyaga West	2025-2027	CGK	-	50,000,000	County budget
37	Construction of Rehabilitation Facility – Kianyaga	3ha	Kirinyaga East	2027-2029	CGK	-	50,000,000	County budget
38	Construction of Rehabilitation Facility – Kerugoya – Kutus	3ha	Kirinyaga Central	2029-2031	CGK	-	50,000,000	County budget
							4,294,800,000	
Other social facilities								
1	Construction of the County Fire Station at Kutus	0.4ha	Mwea East	2021-23	CGK	-	25,000,000	County budget
2	Upgrade and equip the existing facility to fit the status of a fire substation at Kerugoya		Kirinyaga Central	2025-27	CGK	-	25,000,000	County budget
3	Construction of a fire substation in Wang'uru	0.4ha	Mwea East & West	2023-25	CGK	-	25,000,000	County budget
4	Construction of a fire substation in Kagio-Sagana	0.4ha	Mwea W & K-West	2025-27	CGK	-	25,000,000	County budget
5	Construction of a fire substation in Kianyaga	0.4ha	Kirinyaga East	2029-31	CGK	-	25,000,000	County budget
6	Construction of social halls at Baricho, Kerugoya, Wanguru/ Ngurubani, Kianyaga	0.4ha	Kirinyaga Central, West, East, Mwea East	2021-23	CGK	-	120,000,000	County budget
7	Construction of social halls at Kandongu, Makutano, Kangaita and Sagana	0.4ha	Kirinyaga Central, West, Mwea West	2023-25	CGK	-	100,000,000	County budget
8	Construction of social halls at Kiamutugu, Kimbimbi, Kagumo, and Kangai	0.4ha	Kirinyaga Central, East, Mwea West	2025-27	CGK	-	100,000,000	County budget
9	Construction of social halls at Kiburu, PI, Thiba and Karumandi	0.4ha	Kirinyaga West, East, Mwea West & East	2027-29	CGK	-	100,000,000	County budget

No	Project	Details	Sub-county/ location	Timeframe	Implementing Agency	Unit Cost	Total Cost	Source of finance
10	Construction of social halls at Kibingoti, Wamumu and Mbiri	0.4ha	Kirinyaga West, East, Mwea West	2029-31	CGK	-	60,000,000	County budget
11	Construction of youth empowerment hub at Wanguru	0.4ha	Mwea East	2021-23	CGK	-	50,000,000	County budget
12	Construction of youth empowerment hub at Sagana - Kagio	0.4ha	Kirinyaga West	2027-29	CGK	-	50,000,000	County budget
13	Construction of youth empowerment hub at Kerugoya - Kutus	0.4ha	Kirinyaga Central	2023-25	CGK	-	50,000,000	County budget
14	Construction of youth empowerment hub at Kianyaga	0.4ha	Kirinyaga East	2025-27	CGK	-	50,000,000	County budget
15	Construction of youth empowerment hub at Kandongu	0.4ha	Mwea West	2029-31	CGK	-	50,000,000	County budget
16	Construction of a County Library in Kerugoya-Kutus	0.4ha	Kiri-Central, Mwea East	2025-27	CGK	-	10,000,000	County budget
17	Establishment of a modern library in Wang'uru	0.2ha	Mwea East & West	2029-31	CGK	-	10,000,000	County budget
18	Establishment of a modern library in Kagio-Sagana	0.2ha	Kirinyaga West	2027-29	CGK	-	10,000,000	County budget
19	Establishment of a modern library in Kianyaga	0.2ha	Kirinyaga East	2027-29	CGK	-	5,000,000	County budget
20	Procurement of land & Establishment of a 10,000-seater multipurpose stadium in Kerugoya – Kutus municipality	3ha	Kirinyaga Central	2025-27	CGK	-	400,000,000	County budget
21	Establishment of a 5,000-seater multipurpose stadium in Wang'uru	3ha	Mwea West & East	Ongoing	CGK	-	400,000,000	County budget
22	Establishment of a 5,000-seater multipurpose stadium in Kagio – Sagana	3ha	Kirinyaga West	2029-31	CGK	-	200,000,000	County budget
23	Establishment of a modern playground in Kianyaga	1ha	Kirinyaga East	2023-25	CGK	-	200,000,000	County budget
24	Establish a modern playground in Kandongu	1ha	Mwea West	2025-27	CGK	-	80,000,000	County budget
25	Establish a modern playground in Baricho	1ha	Kirinyaga West	2027-29	CGK	-	80,000,000	County budget
26	Establish a modern playground in Makutano	1ha	Mwea West	2027-29	CG	-	80,000,000	County budget
27	Provide playground/recreation space in Kutus area	0.8ha	Mwea East	2023-25	CGK	-	5,000,000	County budget
28	Provide playground/recreation space in Kangaita	0.8ha	Kirinyaga Central	2023-25	CGK	-	3,000,000	County budget
29	Provide playground/recreation space in Kimunye	0.8ha	Kirinyaga East	2023-25	CGK	-	2,000,000	County budget
30	Provide playground/recreation space in Difathas	0.8ha	Mwea East	2023-25	CGK	-	3,000,000	County budget
31	Provide playground/recreation space in Thiba	0.8ha	Mwea West	2023-25	CGK	-	5,000,000	County budget
32	Provide playground/recreation space in Kibingoti	0.8ha	Kirinyaga west	2025-27	CGK	-	5,000,000	County budget
33	Provide playground/recreation space in Kagumo	0.8ha	Kirinyaga Central	2025-27	CGK	-	3,000,000	County budget
34	Provide playground/recreation space in Kiamutugu	0.8ha	Kirinyaga East	2025-27	CGK	-	5,000,000	County budget

No	Project	Details	Sub-county/ location	Timeframe	Implementing Agency	Unit Cost	Total Cost	Source of finance
35	Provide playground/recreation space in Kimbimbi	0.8ha	Mwea East	2027-29	CGK	-	3,000,000	County budget
36	Provide playground/recreation space in Air Market	0.8ha	Mwea West	2027-29	CGK	-	2,000,000	County budget
37	Provide playground/recreation space in Kiburu	0.8ha	Kirinyaga west	2027-29	CGK	-	2,000,000	County budget
38	Provide playground/recreation space in Karumandi	0.8ha	Kirinyaga East	2029-31	CGK	-	2,000,000	County budget
39	Provide playground/recreation space in PI	0.8ha	Mwea East	2029-31	CGK	-	3,000,000	County budget
40	Provide playground/recreation space in Kangai	0.8ha	Mwea West	2029-31	CGK	-	2,000,000	County budget
41	Provision of public recreational park at Kerugoya Kutus	1ha	Kiri-Central and Mwea East	2021-23	CGK	-	5,000,000	County budget
42	Provision of public recreational park at Wanguru	1ha	Mwea East and West	2023-25	CGK	-	5,000,000	County budget
43	Provision of public recreational park at Sagana-Kagio	1ha	Kirinyaga west	2025-27	CGK	-	1,000,000	County budget
44	Provision of public recreational park at Kianyaga	0.6ha	Kirinyaga East	2027-29	CGK	-	2,000,000	County budget
45	Surveying and titling of all existing playgrounds	-	Countywide	2021-23	CGK	-	30,000,000	County budget
							2,418,000,000	
Cemeteries								
1	Procurements and provision of cemetery in Kerugoya-Kutus	10ha	Kirinyaga Central, Mwea East	2021-23	CG/NEMA	-	150,000,000	County budget
2	Procurements and provision of cemetery in Wang'uru	10ha	Mwea East & West	2025-27	CG/NEMA	-	150,000,000	County budget
3	Procurements and provision of cemetery in Kagio-Sagana	10ha	Mwea W & K-West	2027-29	CG/NEMA	-	80,000,000	County budget
4	Procurements and provision of cemetery in Kianyaga	5ha	Kirinyaga East	2029-31	CG/NEMA	-	40,000,000	County budget
							420,000,000	
Agriculture								
1	Provision of extension services to farmers	-	Countywide	Continuous	CGK	-	30,000,000	County budget
2	Branding & marketing of Kirinyaga products	-	Countywide	Continuous	CGK	-	30,000,000	County budget
3	Kirinyaga County Agricultural Fair	-	Countywide	Continuous	CGK	-	100,000,000	County budget
4	Lobby for the formation & operationalization of the central economic block	-	Countywide	Continuous	CGK	-	200,000,000	County budget

No	Project	Details	Sub-county/ location	Timeframe	Implementing Agency	Unit Cost	Total Cost	Source of finance
5	The county to pursue an MOU with KARLO towards special attention to Kirinyaga agricultural research	-	Countywide	Continuous	CGK	-	3,000,000	County budget
6	Reintroduction of cotton farming	-	Kirinyaga East & Mwea East	2023-25	CGK	-	100,000,000	County budget
							463,000,000	
1	Manufacturing							
2	Development of a County Industrialization Policy	-	Countywide	2021-23	CGK	-	30,000,000	County budget
3	Undertake a feasibility study for the proposed Sagana Industrial Park	-	Kirinyaga West	2021-23	CGK, GoK, Private sector	-	1,000,000,000	County, GoK, PPP
4	Formulation of master plan and establishment of Sagana Industrial Park – agro-based industries and logistics facilities	-	Kirinyaga West	2021-23	CGK, GoK, Private sector	-	200,000,000	County, GoK, PPP
5	Designate smaller industrial park in Kerugoya-Kutus	2ha	Kirinyaga Central/Mwea	2021-23	CGK, GoK, Private sector	-	100,000,000	County, GoK, PPP
6	Designate smaller industrial park in Wanguru (agro-based)	2ha	Mwea East/West	2021-23	CGK, GoK, Private sector	-	100,000,000	County, GoK, PPP
7	Development of rice husk processing plant in Wanguru	2ha	Mwea East/West	2021-23	CGK, GoK, Private sector	-	100,000,000	County, GoK, PPP
8	Development of tomato processing plant in Sagana	2ha	Mwea West	2021-23	CGK, GoK, Private sector	-	80,000,000	County, GoK, PPP
9	Development of Milk processing plant in Kamweti	2ha	Kirinyaga East	2021-23	CGK, GoK, Private sector	-	60,000,000	County, GoK, PPP
10	Development of macadamia processing plant in Mukure	2ha	Kirinyaga East	2023-25	CGK, GoK, Private sector	-	80,000,000	County, GoK, PPP
11	Development of coffee processing (refined product) in Kibiringwi	2ha	Kirinyaga West	2025-27	CGK, GoK, Private sector	-	15,000,000	County, GoK, PPP
12	Development of Banana Processing Plant in Kiamutugu	-	Kirinyaga East	2023-25	CGK, GoK, Private sector	-	80,000,000	County, GoK, PPP
13	Revival of the tomato processing plant at Kagio	2ha	Kirinyaga West/ Mwea West	2025-27	CGK, GoK, Private sector	-	40,000,000	County, GoK, PPP
14	Development of milk processing plant in Kerugoya Kutus Municipality	2ha	Kirinyaga Central	2025-27	CGK, GoK, Private sector	-	60,000,000	County, GoK, PPP

No	Project	Details	Sub-county/ location	Timeframe	Implementing Agency	Unit Cost	Total Cost	Source of finance
15	Development of Banana Processing Plant in Kirinyaga Central	2ha	Kirinyaga Central	2025-27	CGK, GoK, Private sector	-	80,000,000	County, GoK, PPP
16	Establishment of juakali zone (light industrial zone) at Kerugoya - Kutus	1ha	Kirinyaga Central	2023-25	CGK	-	50,000,000	County budget
17	Establishment of juakali zone (light industrial zone) at Kianyaga	1ha	Kirinyaga East	2023-25	CGK	-	19,000,000	County budget
18	Establishment of juakali zone (light industrial zone) at Wanguru	1ha	Mwea East	2023-25	CGK	-	21,000,000	County budget
19	Establishment of juakali zone (light industrial zone) at Baricho	1ha	Kirinyaga West	2025-27	CGK	-	11,000,000	County budget
20	Establishment of juakali zone (light industrial zone) at Kagio - Sagana	1ha	Kirinyaga West/ Mwea West	2027-29	CGK	-	15,000,000	County budget
21	Establishment of juakali zone (light industrial zone) at Kandongu	1ha	Mwea West	2029-31	CGK	-	12,000,000	County budget
							2,153,000,000	
Trade and commerce								
1	Construction of the following markets Kerugoya Food Market, Kerugoya Cloth Market, Kagumo and Kangaita	4No	Kirinyaga central	2021-2023	CGK	-	80,000,000	County budget
2	Construction of the following markets Kagio, Sagana, Baricho and Kibingoti	4No	Kirinyaga West	2021-2023	CGK	-	80,000,000	County budget
3	Construction of the following markets Kutus Old Market, Kutus (Gichugu), Kiamutugu, Mukarara	3No	Kirinyaga East	2021-2023	CGK	-	30,000,000	County budget
4	Construction of the following markets Wanguru, Kimbimbi, Kutus	3No	Mwea East	2021-2023	CGK	-	30,000,000	County budget
5	Construction of the following markets Makutano, Kandongu, Kangai	3No	Mwea West	2021-2023	CGK	-	30,000,000	County budget
6	Construction of the following markets Mukinduri, Mugwanda, Kiamuthambi, Karaini	4No	Kirinyaga central	2023-25	CGK	-	40,000,000	County budget
7	Construction of the following markets Kiburu, Riakania, Gathambi, Kianjege West	4No	Kirinyaga West	2023-25	CGK	-	40,000,000	County budget
8	Construction of the following markets Kianyaga, Mururi, Kathoge, Karumandi, Kimunye, Baragwi	6No	Kirinyaga East	2023-25	CGK	-	40,000,000	County budget

No	Project	Details	Sub-county/ location	Timeframe	Implementing Agency	Unit Cost	Total Cost	Source of finance
9	Construction of the following markets Riandira, Gatuiri	2No	Mwea East	2023-25	CGK	-	20,000,000	County budget
10	Construction of the following markets – Kiandegwa, Ciagini, Ng'othi	3No	Mwea West	2023-25	CGK	-	30,000,000	County budget
11	Construction of the following markets – Karia, Kibingoti, Gatwe, Gitumbi	4No	Kirinyaga central	2025-27	CGK	-	40,000,000	County budget
12	Construction of the following markets – Kiangai, Kiandai, Kamurugo, Mukangu	4No	Kirinyaga West	2025-27	CGK	-	40,000,000	County budget
13	Construction of the following markets – Rwambiti, Kamwana, Mbiri, Kiamwathi, Karucho	5No	Kirinyaga East	2025-27	CGK	-	50,000,000	County budget
14	Construction of the following markets – Kiumbu, Ndindiruku	2No	Mwea East	2025-27	CGK	-	20,000,000	County budget
15	Construction of the following markets – Mutithi, Thiba and Gategi B	3No	Mwea West	2025-27	CGK	-	30,000,000	County budget
16	Construction of the following markets – Mutitu, Gathuthuma, Kiaga, Ngagicuthi	4No	Kirinyaga central	2027-29	CGK	-	40,000,000	County budget
17	Construction of the following markets – Kamoro, Kianjang'a, Muragara, Ndiriti	4No	Kirinyaga West	2027-29	CGK	-	40,000,000	County budget
18	Construction of the following markets – Kiandai, Kianjiru, Kiangwenyi, Ithareini, Muchagara	5No	Kirinyaga East	2027-29	CGK	-	50,000,000	County budget
19	Construction of the following markets – Kanjinji, PI, Togonye	3No	Mwea East	2027-29	CGK	-	30,000,000	County budget
20	Construction of the following markets –Kandongu, Nguka, Ndorome	3No	Mwea West	2027-29	CGK	-	30,000,000	County budget
21	Construction of the following markets – Kiamaina, Kirimunge, Kamuiru	3No	Kirinyaga central	2029-31	CGK	-	30,000,000	County budget
22	Construction of the following markets – Kabonge, Kibangu, Muragara, Kiaragana	4No	Kirinyaga West	2029-31	CGK	-	40,000,000	County budget
23	Construction of the following markets – Kavote, Githure, Rukenya, Kamweti, Thumaita, Kamugunda	6No	Kirinyaga East	2029-31	CGK	-	60,000,000	County budget
24	Construction of the following markets – Gathigiriri,	1No	Mwea East	2029-31	CGK	-	10,000,000	County budget
25	Construction of the following markets –Ng'ang'a, Marurumo and Kirwara	3No	Mwea West	2029-31	CGK	-	30,000,000	County budget
							960,000,000	

No	Project	Details	Sub-county/ location	Timeframe	Implementing Agency	Unit Cost	Total Cost	Source of finance
Tourism								
1	Development of the county tourism policy		-	2021/23	CGK	-	30,000,000	County budget
2	Development and marketing of the Kamweti Mt. Kenya Route		Kirinyaga West	2021/23	CGK/KFS/KWS	-	50,000,000	County, KFS, KWS
3	Developing of Kerugoya Urban Forest as an arboretum		Kirinyaga Central	2023/25	CGK	-	90,000,000	County budget
4	Identification, mapping and development of the tourist attractions, cultural and heritage sites		-	2021/23	CGK	-	80,000,000	County budget
5	Commencement of County Annual Cultural day/ festivals		Kirinyaga Central/Mwea	Continuous	CGK	-	3,000,000	County budget
6	Branding, marketing and packaging Kirinyaga as tourist destination		-	Continuous	CGK/ Ministry of Tourism	-	85,000,000	County,
7	Establishment of resort and conference centres anchored on Thiba dam		Kirinyaga West	2023/25	CGK/NIA	-	100,000,000	County, PPP
8	Establishment of the proposed eco-tourism corridor at the edge of Mt. Kenya		Kirinyaga West, Central and East	2023/25	CGK/KFS/KWS	-	100,000,000	County, KFS, KWS
9	Establishment and marketing of the proposed tourism circuit		Countywide	Continuous	CGK	-	30,000,000	County budget
10	Establishment of the Kirinyaga County Museum and Cultural Centre in Kutus	0.6ha	Mwea East	2025/27	CGK	-	105,000,000	County budget
11	Establishment of Kirinyaga County Resort at Sagana Industrial Park	-	Kirinyaga West	2023-25	CGK	-	30,000,000	County budget
							703,000,000	
Mining								
1	Development of the County Mining Policy	-	countywide	2021/23	CGK/Ministry of Petroleum and Mining	-	30,000,000	County/ Ministry of Petroleum and Mining
2	Identification, mapping and documentation of mineral deposits in Kirinyaga	-	countywide	2023/25	CGK/Ministry of Petroleum and Mining	-	15,000,000	County/ Ministry of Petroleum and Mining
3	Progressive rehabilitation of inactive quarries and exploited areas of the active quarries	-	countywide	Continuous	CGK/Ministry of Petroleum and Mining	-	40,000,000	County/ Ministry of Petroleum and

No	Project	Details	Sub-county/ location	Timeframe	Implementing Agency	Unit Cost	Total Cost	Source of finance
								Mining
							85,000,000	
	Environment							
1	Establishment of Kabatiro & Wanguru county dumpsite & construction of waste recovery plants	-	Mwea east	2021/23	CGK	-	40,000,000	County budget
2	Decommissioning, clearing and afforestation of Kiamathatwa Dumpsite in Kutus and converting it an arboretum	-	Mwea East	2021/23	CGK	-	40,000,000	County budget
3	Decommissioning, clearing and afforestation of Kagio Dumpsite	-	Kirinyaga West	2021/23	CGK	-	40,000,000	County budget
4	Mapping of flood prone areas	-	Countywide	2021/23	CGK	-	10,000,000	County budget
5	Inventory and mapping all wetlands	-	County Wide	2023-2025	CGK, WRA, NEMA	-	10,000,000	County, WRA, NEMA
6	Surveying and titling of public wetlands	-	County Wide	2023-2025	CGK, WRA, NEMA	-	30,000,000	County, WRA, NEMA
7	Rehabilitation of swamps of wetlands	-	County Wide	2025-2027	CGK, WRA, NEMA	-	260,000,000	County, WRA, NEMA
8	Surveying, Mapping and zoning of riparian in other areas	-	Countywide	2023-25	CGK, WRA, NEMA	-	15,000,000	County, WRA, NEMA
9	Provision of 15 skip loaders	15	Countywide	Continuous	CGK	7,000,000	105,000,000	County budget
10	Installation of 400 litter bins countywide	400	Countywide	Continuous	CGK	20,000	8,000,000	County budget
11	Provision of 10 NEMA approve waste trucks	10	Countywide	Continuous	CGK	9,000,000	90,000,000	County budget
12	Setting aside county environmental day annually	-	Countywide	Continuous	CGK	10,000,000	90,000,000	County budget
							738,000,000	
	GRAND TOTAL						61,321,800,000	

CHAPTER 11

MONITORING AND EVALUATION FRAMEWORK

This section provides a mechanism for progress tracking of implementation action and projects and continuous evaluation to provide feedback. This system of checks and balances is important for adaptive project management to ensure improvements in implementation.

Monitoring and Evaluation ensures projects are adequately implemented and desired benefits are achieved. M&E is a continuous process within the 10-year implementation period.

Monitoring and Evaluation Phases

The CSP project implementation programme has been prepared in 5 phases as indicated in table 129. Each phase contains 2 financial years with projects distributed across each. Monitoring and evaluation will run concurrently with major evaluation reviews undertaken during the medium term and End term (2026 and 2031 respectively).

Monitoring and Evaluation Matrix

The assessment tool below seeks to establish the level of implementation quantitatively. It enumerates actual projects implemented and draws comparative percentages against the implementation schedule on section 10.5.

	Key Result Areas	Programme	Indicators	Assessment		Total No. of Projects	Cumulative success (Percentage implemented)
				Mid-term	End term		
1.	Lands & Urban Development.	Plan Development.	No. of Planning Consultancies Procured				
			No. of Municipal plans prepared.				
			No. of towns & markets plans prepared				
			No. of colonial village plans prepared				
			No. of Plans Approved				

	Key Result Areas	Programme	Indicators	Assessment		Total No. of Projects	Cumulative success (Percentage implemented)
				Mid-term	End term		
2.	Capacity building & governance	Procurement and installation of GIS Equipment, recruiting and Training at County Headquarters (GIS Lab)	Availability of GIS equipment No. of GIS staff recruited No. of GIS staff trained				
		Construction and equipping of physical planning offices in each sub county	No. of offices constructed				
			No. of offices equipped				
		Staffing of the planning offices	No. of staff employed in the new offices				
		Operationalization CPLUP consultative forum	No. of committee members appointed				
		Operationalization CPLUP liaison committee	No. of committee members appointed				
		Establishment of municipal boards for Wanguru and Kagio-Sagana municipalities	No. of municipal boards established				

	Key Result Areas	Programme	Indicators	Assessment		Total No. of Projects	Cumulative success (Percentage implemented)
				Mid-term	End term		
3.	Transportation	Upgrading of roads	No. of dual carriage road developed No. of roads tarmacked within the County.				
		Redesign of junctions and Expansion of roads	No of Road junctions redesigned No of Road junctions upgraded No of Road widened No of additional parking bays provided No. of footbridges and walkways provided				
		Construction of Bus and Railway terminus.	Development of multi modal terminus at Sagana No. of Buses terminus expanded No. of New Buses terminus constructed No. of Minor terminus constructed				
		Air transport improvements	No. of aircrafts operating within the airstrip per year.				
4.	Information Communication Technology	Provision of trunk fibre optic cable in towns & municipalities	No. of municipalities connected No. of towns connected No. of persons/buildings connected (per town)				
5.	Energy	Connect subsidized electricity to	No. of new connections in Njukiini No. of new connections in Ngariama				

	Key Result Areas	Programme	Indicators	Assessment		Total No. of Projects	Cumulative success (Percentage implemented)
				Mid-term	End term		
		unreached areas					
		Feasibility studies on HEP potential of waterfalls in the county	No. of waterfalls selected No. of feasibility studies undertaken No. of feasibility sites approved for development				
6.	Water	Kerugoya Kutus water supply & sanitation	Procurement of contractor Completion of infrastructure construction No. of New connections to new supply lines				
		Construction of Thiba Dam	Procurement of contractor Completion of construction No. of additional land under irrigation				
		Water management and Investment Plan	No of waters sources mapped and documented No of abstraction points documented Establishment of supply lines database No of households & entities served No of service providers Completion of strategy and investment plan				

	Key Result Areas	Programme	Indicators	Assessment		Total No. of Projects	Cumulative success (Percentage implemented)
				Mid-term	End term		
7.	Education	Establishment of Vocational training Centres	No. of vocational training centres established Opening of Gathigiriri technical institute Reviving of Thanju vocational training centre				
		Special needs schools	Construction of boarding facilities in Kandongu school No. of primary schools equipped with special need facilities and infrastructure				
8.	Health	Kerugoya Referral Hospital	Construction of medical complex and wall Establish a medical training college Establish a cancer treatment centre				
		Health care facilities improvements	No. of Construction sub county hospitals upgraded No. of Health centres equipped No. of Dispensaries upgraded to Health centres No. of Health centres upgraded to Level 4 No. of Rehab facilities constructed				
9.	Environment	Clearing and afforestation of dumpsites	No. of dumpsites cleared No. of trees planted on cleared dumpsites				

	Key Result Areas	Programme	Indicators	Assessment		Total No. of Projects	Cumulative success (Percentage implemented)
				Mid-term	End term		
		Mapping of environmentally sensitive areas	Establishment of a mapping team No. of environmentally sensitive areas mapped i.e., wetlands				
		Mapping of flood prone areas	Establishment of a mapping team No. of flood prone areas studied No. of flood prone areas mapped				
		Provision of 15 skip loaders	No. of skip loaders acquired				
		Provision of 400 litterbins countywide	No. of litter bins procured No. of litterbins installed				
		Provision of 10 NEMA approved waste trucks	No. of waste trucks acquired				
10.	Other social facilities	Fire emergency preparedness -fire stations & substations	No. of fire stations constructed No. of fire stations equipped No. of staff recruited No. of fire cases resolved				
			No. of fire substations constructed No. of fire substations equipped No. of staff recruited				

	Key Result Areas	Programme	Indicators	Assessment		Total No. of Projects	Cumulative success (Percentage implemented)
				Mid-term	End term		
			No. of fire cases resolved				
		Upgrade and equip the existing facility to fit the status of a fire substation at Kerugoya	Availability of equipment No. of improvements done				
		Construction of social halls	No. of Procurements and awarded tenders No. of social halls constructed				
		Construction of youth empowerment hubs in every sub county	No. of Procured service providers No. of youth empowerment hubs constructed No. of sub counties with Youth Empowerment hubs				
		Construction of a County Library in Kerugoya-Kutus	Procurement of contractor Completion of construction Availability of books and equipment No. of staff recruited No. of users registered				
		Construction of a modern library in Wanguru, Kagio-	Procurement of contractor No. of libraries constructed				

	Key Result Areas	Programme	Indicators	Assessment		Total No. of Projects	Cumulative success (Percentage implemented)
				Mid-term	End term		
		Sagana and Kianyaga	Availability of books and equipment No. of staff recruited No. of users registered				
		Procurement of land & Establishment of a 10,000-seater multipurpose stadium in Kerugoya – Kutus municipality	Size of land procured Procurement of Contractor Completion of construction No. of activities held at the stadium				
		Establishment of modern playgrounds, recreational parks	No. of modern playgrounds established No. of recreation spaces provided No. of playgrounds provided No. of public recreation parks provided				
		Surveying and titling of all existing playgrounds	No. of existing playgrounds surveyed No. of playgrounds with titles				
11	Cemeteries	Purchase of cemeteries for 3 Municipalities and Kianyaga town	No of Land Procurements done No. of cemeteries grounds provided				

	Key Result Areas	Programme	Indicators	Assessment		Total No. of Projects	Cumulative success (Percentage implemented)
				Mid-term	End term		
12.	Agriculture	Provision of extension services	No. of extension clinics offered No. of farmers trained and assisted (per year)				
		County Agricultural Fair	Establishment of Agricultural Trade fare No. of Agricultural Trade fairs held				
		Central economic block	Establishment of Central economic block No. of Trade agreement signed No. of joint projects implemented				
		Revitalisation of Cotton farming	Establishment of cotton farming taskforce No. of new cotton farmers (per year) Annual cotton yield volume Incomes from New Cotton initiatives				
13	Manufacturing	County industrialisation policy	Publication of policy report				
		Sagana industrial park	Procurement of feasibility study experts Publication of feasibility report Procurement of Master plan experts Publication and Approval of Master Plan No. of industries established				

	Key Result Areas	Programme	Indicators	Assessment		Total No. of Projects	Cumulative success (Percentage implemented)
				Mid-term	End term		
		Establishment of Industries across Towns and Sub counties	No. of industries established No. of Milk processing plants established No. of banana processing plants established No. of Macadamia processing plants established No. of tomatoes processing plants established No. of Juakali light industrial zones established				
14	Trade and Commerce	Construction of Markets	No. of Market contractors procured No. of Markets constructed No. of new markets in operation				
15	Tourism	County tourism policy	Establishment of tourism marketing plan No. of Tourism marketing symposiums held				
		Kamweti hiking route	Establishment of route plan Development of route facilities No of guests served				
		Tourist sites	No. of Tourist sites identified No. of Tourist sites developed No. of Tourist sites in operation				

	Key Result Areas	Programme	Indicators	Assessment		Total No. of Projects	Cumulative success (Percentage implemented)
				Mid-term	End term		
			Establishment & Publication of tourism circuit plan Establishment of County Museum and Cultural centre Establishment of County Resort Establishment of County Arboretum Establishment of resort and Conference facilities around Thiba dam				
		Mt Kenya eco-tourism corridor	Establishment of eco-tourism corridor No. of agreement/ leases signed No. of facilities developed No. of Guests served (annual)				

CHAPTER 12

CONCLUSION

The CSP has been formulated to address the development challenges identified in Kirinyaga. It seeks to optimally utilize the natural and manmade resources available. Consequently, the report presents the planning interventions proposed in line with the set project deliverables and objectives.

The proposals have been guided by the data obtained during the situational analysis and public engagements. The CSP has been guided by various visions including the CPS vision set by the stakeholders, Kenya Vision 2030, and Kirinyaga Mountain Cities Blueprint 2018 - 2032. The plan envisions a leading agricultural, industrial, tourism, wellness, and economic hub well-equipped with world-class infrastructure and services. The recommendations took into consideration environmental sustainability with special attention to climate change and fragile ecosystems.

Finally, the participative approach taken during the formulation of the proposals is also advocated for during their implementation, monitoring and evaluation stage. Therefore, this CSP ensures the involvement of stakeholders in the actualization of the set goals and objectives.

ANNEX 1: ENGLISH NOTICE OF INTENTION TO PLAN

20 |

EXPRESSION
OF INTEREST



CONSULTANCY SERVICES FOR IMPLEMENTATION OF LEAN SIX SIGMA IN KENGEN: FIRMS SELECTION

TENDER REF: KGN-SBP-08-2017

1. Background

Kenya Electricity Generating Company Limited (KenGen) is a limited liability company, 70% owned by the Government of the Republic of Kenya. It is the leading electric power generation company in Kenya, producing about 75% of the electricity used in the country. KenGen has an installed capacity (name-plate rating) 1033 Megawatts (MW) and a market share of 70% from a mix of hydro, geothermal, wind and thermal generation sources, located at different parts of the country.

Consistent with its strategic initiatives of process excellence and improving organizational health while building required skills and capabilities, the Company intends to engage qualified consultancy firms to train and consult on Lean Six Sigma methodology and tools.

KenGen intends to engage a consultant with extensive experience in Lean Six Sigma (LSS) to undertake both corporate awareness and training the process teams, as well as guide the implementation of LSS programs. This will require an assessment of the current status in the Company in regard to capability to continually improve the processes.

The selected consultant shall review the current performance improvement status, propose the best fit Lean Six Sigma implementation methodology and conduct requisite trainings for the Company's top management, process owners and project implementation teams. The consultant will ensure skills transfer and guide the implementation teams and process owners on the consultation of initial identified projects and any necessary tools or methodologies.

2. Scope of work

- The scope of consultancy shall cover all KenGen operational areas, processes and interests. It shall include, but not limited to the following tasks:
- Conduct a comprehensive corporate status audit to identify the current capability to improve performance of the current business processes;
 - Prepare methodology on the strategy to implement Lean Six Sigma across KenGen, in light of the strategic direction, industry and corporate culture;
 - Undertake awareness training for the management team of about 30 members, with a minimum of two (2) days for the training session;
 - Conduct an intensive, recognised and certificate training for twelve (12) black belts, fifty (50) green belts and one hundred (100) yellow belts;
 - Lead in the development of project charters and implementation of improvement projects as selected by the Company, with at least one (1) being at the level of black belt and one at (1) green belt level as selected by the Company;
 - Coach and guide the newly trained black belts in delivery of their first improvement projects;
 - Draw up a support implementation roadmap on the overall KenGen business process improvement initiative, including the change management and communication strategy, and deployment governance.

3. Evaluation Criteria and Eligibility

The Expression of Interest must be accompanied by the consultant's qualifications, professional capabilities and details of past experience in the area of Business Process Improvement and Lean Six Sigma. Such information may include brochures, description of similar assignments, experience in similar conditions, and availability of appropriate skills among staff with their most recent profiles showing their experience, qualifications, capabilities, referees and details of past experience, especially in their area of expertise, etc. The consultant shall bid for the assignment individually or in association with other firms.

The interested firms shall provide the following specific information as well as any other relevant information:

- Name of firm that will participate in undertaking the consulting services and their role in all aspects of the consultancy services, as well as names and position(s) of authorized representatives.

- Firms that bid jointly should submit consortium agreements between the parties, with the rules of each party clearly defined. Not more than one consortium agreement of the same firm will be accepted nor firms participating individually and elsewhere bidding as partners in the JV for this tender.
- The firm(s) must provide profiles of at least 3 key personnel with a Team Lead for the project with relevant qualification and at least 3 years' experience in implementation of Lean Six Sigma.
- Provide relevant references for at least 3 similar consultancy projects done within the last ten years.
- References of at least 2 specific Lean Six Sigma implementation projects done by the proposed Team Lead in the last five years.
- Description of management/ organization structure, list of key staff relevant to the assignment and their Curriculum Vitae inclusive of staff who will monitor and give backup services.
- Evidence of Incorporation and other Statutory Registrations in Country of domicile.
- Company profile
- Information regarding any current litigation involving the consulting firm certified by a reputable law firm.

4. Clarifications

The interested parties may request for clarifications on this Expression of Interest up to seven (7) days before the submission date. Any request for clarification must be sent in writing by paper mail, facsimile, or electronic mail to:

STRATEGY DEVELOPMENT MANAGER
KENYA ELECTRICITY GENERATING COMPANY
LIMITED,
STIMA PLAZA, KOLOBOT ROAD,
P.O. BOX 47936, 00100 GPO NAIROBI,
KENYA
TEL: 254 02 366 6104

Email to: tenders@kenken.co.ke
CC: lg@kenken.co.ke; www.kenken.co.ke; www.treasurersuppliers.go.ke
This EOI can also be downloaded from our website www.kenken.co.ke and www.treasurersuppliers.go.ke. Check the websites from time to time before the closure date for any updated information through clarification/addendum.

5. Submission

The submission of the prequalification documents made in English must be received in a sealed envelope addressed to:

THE COMPANY SECRETARY & LEGAL AFFAIRS
DIRECTOR
KENYA ELECTRICITY GENERATING COMPANY
LIMITED
STIMA PLAZA, KOLOBOT ROAD,
P.O. BOX 47936, 00100 GPO NAIROBI,
KENYA.

The application (One Original and one Copy, sealed inside outer envelope marked as above, must be dropped in the tender box located on the ground floor of Stima Plaza II).

Not later than by 1000 hours (Kenyan Time) by 2nd June 2017 and clearly marked "Expression of Interest for Consultancy Services for Implementation of Lean Six Sigma". The Tender will be opened at 1430 hours the same day in presence of bidder representatives who choose to attend.

Only firms which fulfill the requirements as stated will be prequalified under this procedure will be invited to submit their technical and financial proposals in accordance with the procedures set out in the Standard Request for Proposal (SRP) 2007 edition for selection of consultants issued by the Public Procurement Regulatory Authority (PPRA) of the Government of Kenya (www.ppra.go.ke).

The consultant will be selected under the (DQRS) Quality and Cost based selection method.

SUPPLY CHAIN DIRECTOR

Wednesday May 10, 2017 | DAILY NATION

COUNTY GOVERNMENT OF KIRINYAGA



MINISTRY OF LANDS, HOUSING AND URBAN DEVELOPMENT

PUBLIC NOTICE

NOTICE OF INTENTION TO PLAN KIRINYAGA COUNTY SPATIAL PLAN (2015-2025)

Reference is made to the Constitution of Kenya articles 6, 60, 66, 67, 184, 186 and the First and Fourth Schedules; National Land Commission Act of 2012, County Government Act of 2012, Urban Areas and Cities Act of 2011, Physical Planning Act CAP 289 and other enabling legislations.

Notice is hereby given that County Government of Kirinyaga has commenced the Preparation of County Spatial Plan for the period 2015-2025. The plan covers the entire county area of approx. 1481 sq km.

The purpose of the plan is to provide a framework for integrated socio-economic development, investment and development control of the county in a sustainable environment.

It is Constitutional and statutory requirement that stakeholders and members of the general public do participate in all planning and development activities of the county. The County Government of Kirinyaga therefore invites stakeholders and members of general public to participate in the preparation of the plan. Any person or institution that wishes to participate in or has comments on the planning process can reach or may forward such comments to address below.

The County Secretary,
County Government of Kirinyaga,
P.O. Box 200-00100,
Kutus

FOOD FOR THE HUNGRY INVITATION TO BID

Founded in 1971, Food for the Hungry (FHI) is a christian relief and development organization and wishes to dispose Toyota Land Cruisers in an open bidding process. Interested buyers are required to collect bid documents after paying a non-refundable fee of KShs. 1,500 and deposit sealed bids in tender box located at FHI Kenya Nairobi office. Drivers please that four, different model, or FHI Kenya Nairobi office located in Nairobi town inside AKI compound or Soko office next to County Commissioner's office and trade office located in Nakuru town inside outside market border areas to go to reach on or before 18th May 2017.

REGISTRATION NO.	KAY 446F	KAD 382Q
MAKE	Toyota	TOYOTA
MODEL	HZ175 LAND CRUISER	HZ175 LAND CRUISER
ENGINE TYPE	180	170
DRIVEN POWER	4X4 DIESEL PROPULSION	4X4 DIESEL PROPULSION
TRANSMISSION	5 speed manual	5 speed manual
COLOR, BODY TYPE	WHITE, STATION WAGON	WHITE, PICK UP
YEAR	2004	1997
DUTY STATUS	DUTY FREE	DUTY FREE
RUNNING CONDITION	GOOD	GOOD

Viewing can be done between 9:00am to 5:00pm daily at FHI compound Nairobi. Successful bidders shall be required to pay the bid cost within 7 days after bid opening.



Do you have an event this weekend?
Let Kenyans know by Advertising with us for as low as \$450/-

Call: 0749038661/3/4

Hudson Media Group

TAIFALED Jumatano, Mei 10, 2017

Wakati huo IEBC imetangaza kampeni kuanza rasmi Mei 28

Polisi 180,000 kulinda vituo uchaguzi ujao

Na CHARLES WASONGA

NAIROBI

IDARA ya polisi itatuma maafisa 180,000 kulinda usalama kabla, wakati na baada ya uchaguzi mkuu wa Agosti 8, huku Tume Huru ya Uchaguzi na Mipaka (IEBC) ilitangaza kampeni zitaanza rasmi Mei 28.

Hii ni idadi maradufu ya maafisa 94,000 waliotumika kulinda usalama wakati wa uchaguzi mkuu wa 2013.

Inspekta Jenerali Joseph Boinnet jana alisema maafisa hao watatumia kwa pembe zote nchini kukabiliana na visa vya fujo na kila eneo litapokea idadi ya polisi kulingana na mahitaji yake ya kusalama.

"Tumefikiana na wadau wote katika mchakato huu wa Uchaguzi Mkuu kwamba jumla ya maafisa 180,000 watatumika kulinda usalama wakati wa Uchaguzi Mkuu ujao. Lakini kabla ya kuanza kibarua hicho, tutahakikisha kuwa wamepokea mafunzo maalum," akasema.

Bw Boinnet alisema idadi hiyo ya waliinda usalama itatumika maafisa kutokana vikosi vingine, kama

vile askari wa magereza, maafisa wa kulinda mistu, kati ya maafisa wengine.

Alisema hayo kuna alipongosa hafa ya uzinduzi wa mpango wa udumishi Usalama wakati wa Uchaguzi (ESAP) katika ukumbi wa Jumba la KICC, Nairobi.

Chini ya mpango huo, walioundaliwa chini ya uelekezi wa IEBC, maafisa wa usalama watakapokea mafunzo kuhusu mbinu za kudhibiti zinazohusiana na Uchaguzi Mkuu.

"Maafisa wa usalama watapeleleza mafunzo maalum kwa ajili ya kudhibiti fujo kabla, wakati na hata baada ya uchaguzi. Azma yetu ni kuhakikisha kuwa Wakenya wanatekeleza haki yao ya kikatiba katika mazingira huru," akasema Bw Boinnet.

Chini ya mpango huo, walioundaliwa 383 watapokea mafunzo jijini Nairobi kuanzia wiki hii. Baadaye, ni wakufunzi hawa watapeleleka katika mwenzo ya mashinani kuwafundisha maafisa wa usalama.

Mwenyekiti wa IEBC, Wafuata Chebukati alitoa wito kwa wanasiasa kuendesha kampeni zao kwa amani ili kutou nafasi ya wananchi kufanya masauzi ya busara wakati wa uchaguzi.

"Tunahimiza amani kampeni zitekelezane rasmi mnamo tarehe 28 mwezi huu. Nafahamu kwamba wanasiasa fulani wanachuka wakizunguka huku na huku wakidai wanaovumisha vyama vyao lakini kampeni rasmi itaanza siku hiyo na kukamilisha Agosti 6," akasema.

Naye Mwenyekiti wa Tume ya Kitaifa ya Uthiano na Utugamano (NCIC) Bw Francis Ole Kaparo aliwataka wananchi kuwakemesa wanasiasa ambao watachochea chuki wakati wa kampeni.

"Kwanza Wakenya kutowapigia makofi wanasiasa wenye taba ya kutoa matamshi ya chuki kila mara. Wawakemesa wanasiasa kama hao na kuwanyima kura siku ya uchaguzi," akasema.



Mwenyekiti wa Tume Huru ya Uchaguzi na Mipaka (IEBC) Wafuata Chebukati (kushoto) na Inspekta Jenerali wa Polisi Joseph Boinnet wakishauriana hapa jana wakati wa uzinduzi wa mpango wa utafiti usalama kabla na baada ya Uchaguzi Mkuu ujao. Picha: Jeff Angello

MUULIZE MJUJJI KOMBO

Je, una swali linalokutatiza kuhusu siasa, michezo, kilimo, hata michezo? Mjuaji Kombo atakupia iibu lakini la aina yake.



Jibu litachapishwa hapa na pia litapatikana katika tovuti ya www.swahilihub.com utakanooia picha alama hii ilivyo

KWALE

Shule nyingine yaibiwa tableti 95 katika kipindi cha wiki moja

POLISI mjini Lunga, Lunga wanachunguza kisa cha wizi wa vipokatakiishi 95 katika shule ya Meiing'i ya Mwana, Kaunti ya Kwale.

Kisa hicho kinafikisha tableti 117 ambazo zimeibiwa katika kipindi cha wiki moja, huku 22 zikitoweza katika shule moja ya Cherangany, Kaunti ya Trans nzoia.

Mikuu wa polisi Lunga Lunga, Bw Charles Ouma, alisema genge la mwanajambazi lilivunja shule hiyo jumla ya usiku na kutoroka na vitaa hivyo vya kielektroniki ambavyo hutolewa na serikali chini ya mradi wa digital wa Digital Literacy Program (DLP).

Mradi huo ni mlongoni mwa manifesto ya serikali ya Jubilee na unatekelezwa katika shule za msingi kote nchini. Mradi huo ulianzishwa Novemba 11 mwaka jana kwa wanafunzi wa darasa la kwanza.

Bw Ouma alisema kati ya tableti 95, 18 zililolewa na shirika moja lisilo la serikali la Uholanzi ili kuwasaidia wanafunzi hao wachanga kukuza ujuzi wao wa kidijitali. No Fadhi Fredrick

Bi Taifa

EMMA KAARI, 21, ni mwanafunzi jijini Nairobi. Ujauzi wake ni kuigiza, kushiriki mashindano ya urembo, kusikiliza muziki na kuogelea. Picha: Anthony



SERIKALI YA KAUNTI YA KIRINYAGA



WIZARA YA ARDHI, MAKAZI NA USTAWI WA MJI

ILANI KWA UMMA

ILANI YA NIA YA KUPANGA MPANGO WA KUPANGA NAFASI YA KAUNTI YA KIRINYAGA (2015-2025)

Kuumbatana na Ibara 6, 60, 66, 67, 184, 186 za Katiba ya Kenya na Ratiba za Kwanza na Nne; Sheria ya Tume ya Kitaifa ya Ardhi ya 2012, Sheria ya Serikali ya Kaunti ya 2012, Sheria za mawazo ya mji ya 2011, Sheria ya Mpangilio ya Matumizi ya Ardhi Kifungu cha 286 na sheria zingine.

Ilani inatolewa kuwa Serikali ya Kaunti ya Kirinyaga imeanzisha Matayarisho ya mpango wa matumizi ya ardhi ya 2015-2025. Mpango huu unahusisha kaunti yote ya takriban kilomita 1481 mraba.

Lengo la mpango huu ni kutoa muundo wa ustawi uwekezaji na udhibiti wa ustawi wa kaunti katika mazingira yanayohimiliwa.

Ni hitaji la Kikabira na kisheria kwa waashikaduu na umma kushiriki katika shughuli za mpango na ustawi katika kaunti hii. Kwa hivyo Serikali ya Kaunti ya Kirinyaga inatoa mwaliko kwa washikaduu na umma kwa jumla kushiriki katika maandazi ya mpango huu. Taasisi au mtaalamu anayelita kushiriki au kutoka mami kuhusiana na mradi huu anaweza wasaidia maoni yake kupitia anwani ifuatayo:

Katibu wa Kaunti, Serikali ya Kaunti ya Kirinyaga, S.L.P 268-00100, Kutus

ANNEX 3: County Age-Sex Composition

Age Cohort	The year 2015			The year 2020			The year 2025			The year 2030		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-4	33,379	35,139	70,518	36,362	36,103	72,465	36,883	36,599	73,482	37,819	37,506	75,325
5-9	32,218	31,964	64,182	37,052	36,776	72,828	38,203	37,918	76,121	38,842	38,539	77,381
10-14	28,965	28,235	57,200	30,753	30,348	61,101	35,456	35,039	70,495	36,614	36,195	72,809
15-19	26,756	24,106	50,862	28,401	25,674	54,075	30,243	27,739	57,982	34,977	32,218	67,195
20-24	26,960	25,608	52,568	28,587	25,556	54,143	30,407	27,354	57,761	32,430	29,701	62,131
25-29	27,129	28,468	55,597	29,211	26,893	56,104	31,001	26,923	57,924	32,984	28,900	61,884
30-34	25,397	26,574	51,971	28,133	28,710	56,843	30,299	27,235	57,534	32,160	27,331	59,491
35-39	22,375	21,772	44,147	25,043	25,626	50,669	27,753	27,800	55,553	29,918	26,441	56,359
40-44	19,427	18,192	37,619	22,739	21,178	43,917	25,495	25,064	50,559	28,284	27,272	55,556
45-49	15,412	14,991	30,403	19,035	17,873	36,908	22,330	20,927	43,257	25,082	24,859	49,941
50-54	11,815	11,807	23,622	14,496	14,213	28,709	17,958	17,041	34,999	21,116	20,029	41,145
55-59	8,072	7,954	16,026	10,822	10,597	21,419	13,328	12,834	26,162	16,561	15,458	32,019
60-64	5,730	6,450	12,180	6,922	7,618	14,540	9,323	10,244	19,567	11,525	12,481	24,006
65-69	4,293	4,514	8,807	4,723	4,735	9,458	5,746	5,654	11,400	7,784	7,677	15,461
70-74	3,407	4,369	7,776	3,870	4,843	8,713	4,298	5,150	9,448	5,278	6,235	11,513
75-79	2,238	2,664	4,902	2,563	2,972	5,535	2,949	3,362	6,311	3,318	3,644	6,962
80+	2,873	4,777	7,650	2,854	4,358	7,212	3,129	4,531	7,660	3,603	5,084	8,687
Total	298,446	297,584	596,030	331,566	324,073	655,639	364,801	351,414	716,215	398,295	379,570	777,865

Source: KNBS Analytic Report on Population Projection Volume XIV, 2012

ANNEX 4: REVENUE COLLECTION 2013-18

Revenue source	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18
Business permits	74,369,180	65,032,259.00	99,862,816	69,893,973	84,814,771
Market entrance/gate fee	35,708,298	41,809,901.00	41,519,105	34,478,330	31,035,845
Quarry cess/fee	2,879,480	5,572,820	6,557,300	5,598,180	3,425,550
parking fee	17,943,490	15,736,285	19,782,900	16,958,770	18,036,760
Property rates	23,680,540	24,067,824	41,992,781	27,876,425	27,515,987
Liquor license	-	27,286,320	44,453,876	24,271,350	32,762,220
Health (Hospitals)	25,504,177	58,305,332	67,276,306	55,414,680	73,774,016
Veterinary services	31,550	1,375,614	2,652,335	3,338,000	4,852,870
buildings plans	1,639,840	2,974,35	4,111,781	4,547,705	6,350,618
Public Health	7,355,600	17,896,050	16,539,750	17,281,820	29,738,800
Agricultural Food Authority	0	0	0	20,817,224	0
Sub division fee	0	0	1,659,860	844,100	347,100
Plot transfer fee	0	0	1,429,020	754,620	1,062,300
house rents	4,950,640	5,887,216	7,548,703	6,683,351	6,371,610
Survey fee	2,108,750	1,294,721	1,255,956	408,700	559,546
Sale of minutes		0	963,700	1,017,500	1,003,400
Advertisement		0	3,559,360	3,263,424	5,582,859
Produce cess	3,988,626	2,987,275	1,899,040	2,140,030	1,841,600
Trade-weights	651,020	1,202,550	903,060	947,660	882,010
Coop audit	0	352,515	398,800	504,745	434,400
Group registration	0	0	1,927,340	1,094,800	785,700
Refuse collection	0	0	7,423,019	2,632,321	7,496,486
Coffee cess	0	3,630,156	5,552,645	778	0
Kamweti	0	0	3,837,358	4,620,592.85	2,107,327
Other miscellaneous	35,003,613.00	34,128,723.50	7,270,329	15,249,219	3,626,345
Total	235,814,804	309,539,918	390,377,140	320,638,298	344,408,120
Revenue target	200,000,000	422,454,650	500,000,000	743,239,866	600,000,000
Target achievement	117.91%	73.27%	78.08%	43.14%	57.40%

ANNEX 5: LAND REGISTRATION SECTION

Sr.no.	registered section	No. of parcel	Sr.no.	Registered Section	No. of parcels
1.	Inoi/Kerugoya	2056	36	Kabare/Gachigi	1664
2.	Inoi/Kaitheri	771	37	Kabare/Nyangeni	1112
3.	Inoi/Ndimi	1668	38	Kabare/Mutige	528
4.	Inoi/Kamondo	680	39	Kabare/Ngiroche	1002
5.	Inoi/Kimandi	680	40	Kabare/Nyagithuci	420
6.	Inoi/Kiaga	514	41	Kabare/Kiritine	2523
7.	Inoi/Kariko	1671	42	Mwea/Mutithi/Strip	697
8.	Inoi/Mbeti	803	43	Kirinyaga/Marurumo	694
9.	Inoi/Thaita	1797	44	Kirinyaga/Gathigiriri	3301
10.	Inoi/Kiamburi	685	45	Mwea/Tebere/B	5310
11.	Mutira/Kianjege	590	46	Gichugu/Settlement/Scheme	5211
12.	Mutira/Kirimunge	850	47	Ngariama/Kabare	2544
13.	Mutira/Kathare	697	48	Ngariama/Ngiriambu	4729
14.	Mutira/Kaguyu	2592	49	Ngariama/Merichi	2410
15.	Mutira/Kanyei	1457	50	Ngariama/Thirikwa	1912
16.	Mutira/Kirunda	1258	51	Ngariama/Rungeto	1430
17.	Mutira/Kiaga	1590	52	Baragwe/Guama	2302
18.	Mutira/Kangai	1460	53	Baragwe/Thumaita	2582
19.	Mutithi/Chumbiri	792	54	Baragwe/Raimu	2445
20.	Mwerua/Kabiriri	1649	55	Baragwe/Kariru	1988
21.	Mwea/Ngucwi	1058	56	Mwerua/Mukure	1816
22.	Mwea/Mutithi/Scheme	1216	57	Mwerua/Kagio	7520
23.	Mwea/Murinduko	465	58	Mwerua/Baricho	1247
24.	Ngariama/Lower/Ngariama	1687	59	Mwerua/Kiandai	1219
25.	Kiine/Rukanga	2195	60	Mwerua/Kithumbu	1355
26.	Kiine/Kiangai	2230	61	Mwerua/Gitaku	1066
27.	Kiine/Ruiru	871	62	Mwerua/Kanyokora	1071
28.	Kiine/Thigirichi	1494	63	Mwerua/Kagioini	1715
29.	Kiine/Sagana	3308	64	Mwerua/Kabiriri/li	250
30.	Kiine/Nyangio	717		Townships	
31.	Kiine/Kibingoti/Nguguine	3254	65	Kerugoya/Township	211
32.	Kiine/Gacharu	1959	66	Kutus/Township	250
33.	Kabare/Nyangati	5839	67	Wanguru/Township	125
34.	Kabare/Mikarara	700	68	Sagana/Township	45
35.	Kabare/Njiku	1649	69	Kerugoya/Municipality	1200
				Total: 69	116,796

Source: District Land Registrar- Kirinyaga, 2015

ANNEX 6: EXISTING SWAMPS

Ward	Swamp Name	Size (Ha)	Ownership	Issues
Kirinyaga Central				
Kanyekine	Koroma	Unknown	Unknown	Grabbed
	Kimorori in Kagio	63.53	Public	Unknown
Kerugoya	Rwamara	Unknown	Unknown	Unknown
	Kieni	Unknown	Unknown	Unknown
	Kiawandii	Unknown	Unknown	Unknown
Mutira	Gikumbo near Gathuthuma Market	25.2	Public	Encroached
Kirinyaga East				
Baragwi	Wagicuna	Unknown	Private	Unknown
	Kiunyu/Gicuri in Kiamutugu market	Unknown	Public	Unknown
	Kanyururu	Unknown	Private	Unknown
	Karia aka Njiru Mbungi	Unknown	Private	Unknown
	Kwa Mitaru	Unknown	Private	Unknown
	Gichori	1.2	Private	Unknown
Kabare	Karia ka Ndambari in Karia Forest	Unknown	Unknown	Unknown
	Karia ka Kabare	Unknown	Unknown	Unknown
	Karia ka Gwakambo	Unknown	Unknown	Unknown
	Rigu	Unknown	Unknown	Unknown
	Gwa Kiragu	Unknown	Unknown	Unknown
	Kwa Ather	Unknown	Private	Unknown
	Gakuo	3km along Gakuo River	Private	Unknown
	Kwa Bungu	1.2	Private	Unknown
	Mutaga	Unknown	Unknown	Unknown
Karumandi	Gukemba	Unknown	Unknown	Unknown
	Kamugunda	Unknown	Unknown	Unknown
	Ndunduini	Unknown	Unknown	Unknown
	Gatibu	Unknown	Unknown	Unknown
	Kwa Gicamba	0.4	Private	Unknown
	Karumandi	0.4	Private	Unknown
Ngariama	Gitararu	Unknown	Unknown	Unknown
	Itetema	Unknown	Public	Unknown
	Kithuki	1.2	Public	Unknown
	Kinji	Unknown	Unknown	Unknown
Njukiini	Kwa Elias/ Karia	0.8	Unknown	Unknown
	Kwa Ngunjiri	Unknown	Unknown	Unknown
	Njukiini	1.6	Public	Unknown
	Munyu Mweru	Unknown	Unknown	Unknown

Ward	Swamp Name	Size (Ha)	Ownership	Issues
	Kiambui	0.8	Unknown	Unknown
Kirinyaga West				
Kariti	Gonga	Unknown	Private	Unknown
	Karura	Unknown	Private	Unknown
	Goge	8.1	Private/Public	Unknown
	Kiangungu	Unknown	Public	Unknown
	Gitaaga	1.2	Private	Unknown
	Kinyakiiru	4.9	Private	Unknown
	Iriariaka	Unknown	Private	Unknown
Kiine	Githogondo swamp next to kang'aru dispensary	Unknown	Private	Grabbed
	Irura/Njoga	Unknown	Unknown	Encroached
	Gikumbo	25.2	Public	Encroached
	Kwa Kibichu wa Irire	4.1	Private	Unknown
Mukure	Kiriungura	Unknown	Unknown	Unknown
	Gathiurura	Unknown	Unknown	Unknown
	Gaathinyu	0.8	Private	Unknown
	Riakiania	0.8	Private	Unknown
	Kwa Mutuango	4.1	Private	Unknown
	Gatwa	Unknown	Unknown	Unknown
Mwea East				
Gathigiriri	Kimbimbi	Unknown	Unknown	Unknown
	Gathigiriri near ACK Church	Unknown	Unknown	Unknown
	Nyamindi	Unknown	Unknown	Unknown
	Mahigaini	Unknown	Unknown	Unknown
	Bahati T-20 dam	Unknown	Unknown	Unknown
Murinduko	Difathas	Unknown	Unknown	Unknown
	Kiriani	Unknown	Unknown	Unknown
	Mirera Mamunyi	Unknown	Unknown	Unknown
	Icangi	Unknown	Unknown	Unknown
	Kwa Emma	2.0	Unknown	Unknown
	Kwa Njanja	4.1	Public	Unknown
Tebere	Nice city	2.0	Private	Unknown
Nyagati	Kiamucwe	12.1	Private	Unknown
	Lower Kitheru	10.1	Private	Unknown
	Kwa Gatimu	0.4	Private	Unknown
	Kwa Mara AHITI Ndomba	4.1	Private	Unknown
	Gathimba	4.1	Private	Unknown
Mwea West				

Ward	Swamp Name	Size (Ha)	Ownership	Issues
Kangai	Maguaji	Unknown	Unknown	Unknown
	Mumbu	Unknown	Unknown	Unknown
	Nguka	Unknown	Unknown	Unknown
	Gathiga	2.0	Private	Unknown
Location to be confirmed				
Location to be confirmed	Siranga	Unknown	Unknown	Encroached
	Kwa Rungu	Unknown	Unknown	Unknown
	Gwa Kabubwa	Unknown	Unknown	Unknown
	Karia Ka Kianyaga	Unknown	Unknown	Unknown
	Karia Ka Kajuu	Unknown	Unknown	Unknown
	Kwa Mugo wa Kithu	Unknown	Unknown	Unknown
	Kiambui	1.2	Private	Unknown
	Kwa Ngungu	Unknown	Private	Unknown
	Kitharaini	0.4	Private	Unknown
	Terrace Villa Area	1.2	Private	Unknown

Source: RPC, 2019

ANNEX 7: GEODETIC CONTROL POINTS

NAME	NORTHINGS	EASTINGS	HEIGHT(m)	NAME	NORTHINGS	EASTINGS	HEIGHT (m)
121.S.3	9,950,678.86	304,751.11	1,890.49	135.T.11	9,941,286.14	295,803.93	1,632.30
121.T.13	9,952,553.85	301,417.85	1,965.17	135.T.31	9,939,084.13	309,019.73	1,400.43
121.T.20	9,944,936.84	316,722.62	1,496.17	135.T.32	9,926,214.12	311,174.33	1,179.64
121.T.21	9,944,919.65	310,158.92	1,527.78	135.T.33	9,931,373.57	317,501.15	1,205.85
121.T.5	9,947,392.32	297,152.68	1,788.29	135.T.6	9,942,628.02	299,337.16	1,675.43
121.U.100	9,954,663.24	320,521.49	1,744.40	135.U.1	9,916,032.87	306,615.56	1,145.77
121.U.101	9,949,521.14	321,232.72	1,613.98	135.U.115	9,938,043.00	298,231.11	1,378.52
121.U.102	9,947,363.13	321,177.52	1,555.70	135.U.116	9,936,545.98	296,325.44	1,464.32
121.U.103	9,945,623.86	321,743.26	1,524.55	135.U.117	9,935,595.86	304,562.01	1,278.94
121.U.104	9,948,755.97	324,673.19	1,601.85	135.U.118	9,933,594.39	302,426.67	1,349.35
121.U.105	9,952,655.49	324,215.56	1,717.82	135.U.119	9,932,523.71	299,785.47	1,252.61
121.U.123	9,954,655.00	305,794.18	2,018.23	135.U.121	9,929,464.94	298,608.10	1,241.30
121.U.25	9,952,926.65	304,631.41	1,927.40	135.U.122	9,928,816.75	301,671.96	1,234.50
121.U.28	9,949,832.36	301,725.59	1,793.72	135.U.123	9,927,121.33	300,060.73	1,199.20
121.U.29	9,947,553.45	300,202.82	1,702.22	135.U.124	9,943,617.23	304,961.75	1,539.61
121.U.30	9,945,549.24	301,048.16	1,617.97	135.U.126	9,942,928.25	301,580.67	1,532.41
121.U.31	9,945,054.76	297,543.12	1,723.98	135.U.127	9,941,034.97	302,870.78	1,467.18
121.U.80	9,947,059.70	298,079.50	1,765.98	135.U.128	9,940,829.03	298,694.39	1,500.32
121.U.81	9,953,592.57	305,925.35	1,940.63	135.U.129	9,939,403.95	294,447.96	1,572.92
121.U.82	9,952,817.32	308,096.93	1,882.84	135.U.130	9,939,071.29	302,856.34	1,427.47
121.U.83	9,952,371.05	308,468.71	1,862.15	135.U.131	9,938,931.64	296,023.37	1,582.22
121.U.84	9,953,858.97	312,531.67	1,824.26	135.U.133	9,937,102.03	321,373.62	1,368.19
121.U.85	9,951,351.70	311,957.03	1,746.14	135.U.134	9,937,313.67	317,091.74	1,323.20
121.U.86	9,950,227.25	310,144.95	1,727.27	135.U.135	9,941,467.97	320,138.35	1,413.94
121.U.87	9,950,283.57	307,553.77	1,776.80	135.U.136	9,938,627.39	322,472.29	1,370.41
121.U.88	9,946,685.85	306,076.15	1,639.79	135.U.137	9,934,759.33	308,051.30	1,277.33
121.U.89	9,947,671.30	309,138.46	1,632.57	135.U.138	9,944,179.88	313,502.45	1,473.07
121.U.91	9,949,448.55	312,784.75	1,651.65	135.U.139	9,943,375.69	317,968.91	1,433.63
121.U.92	9,945,880.21	314,152.12	1,505.44	135.U.140	9,943,446.40	322,895.74	1,474.65
121.U.93	9,950,413.57	316,188.40	1,621.11	135.U.141	9,943,119.37	313,307.29	1,440.27
121.U.94	9,953,402.29	315,752.32	1,724.95	135.U.142	9,941,569.07	307,368.78	1,456.79
121.U.95	9,954,409.91	314,871.00	1,809.81	135.U.143	9,941,520.55	310,811.89	1,409.37
121.U.96	9,948,609.19	317,726.22	1,572.22	135.U.144	9,941,763.63	316,776.75	1,399.21
121.U.97	9,950,100.69	318,841.71	1,621.69	135.U.145	9,941,890.42	324,070.98	1,426.86
121.U.98	9,952,781.26	319,501.52	1,682.80	135.U.146	9,940,498.97	313,562.94	1,357.31
121.U.99	9,946,193.94	318,924.36	1,528.48	135.U.147	9,939,971.64	306,391.03	1,396.11
121.UT.124	9,954,664.88	310,699.12	1,893.17	135.U.148	9,938,846.08	318,438.76	1,354.99
121.UT.127	9,953,225.74	301,346.87	1,982.91	135.U.149	9,938,526.95	315,312.69	1,337.83
121.UT.128	9,953,226.84	310,809.25	1,824.14	135.U.150	9,938,186.67	312,484.25	1,311.10
121.UT.129	9,951,202.22	301,297.80	1,854.04	135.U.151	9,936,385.87	311,034.65	1,277.57
121.UT.130	9,951,187.65	310,584.75	1,755.28	135.U.152	9,937,724.83	306,646.48	1,359.26
121.UT.133	9,949,187.54	301,748.81	1,774.48	135.U.153	9,935,045.69	313,230.76	1,259.16

NAME	NORTHINGS	EASTINGS	HEIGHT(m)	NAME	NORTHINGS	EASTINGS	HEIGHT (m)
121.UT.134	9,949,088.79	310,471.32	1,663.57	135.U.154	9,932,349.86	313,333.53	1,221.46
121.UT.137	9,947,219.87	301,789.67	1,674.88	135.U.155	9,931,961.51	306,308.48	1,248.16
121.UT.138	9,947,228.38	310,782.78	1,589.17	135.U.156	9,929,898.78	310,586.20	1,209.81
121.UT.141	9,945,083.43	301,935.60	1,604.10	135.U.157	9,928,553.94	308,585.57	1,210.57
121.UT.142	9,945,179.35	311,243.96	1,497.12	135.U.158	9,925,765.74	307,489.24	1,183.90
135.U.182	9,924,241.44	324,358.17	1,121.72	135.U.159	9,927,989.52	314,991.78	1,183.17
135.U.183	9,922,122.33	327,552.61	1,119.96	135.U.160	9,920,366.49	311,402.16	1,147.15
135.U.184	9,921,209.12	329,514.92	1,094.38	135.U.161	9,928,619.34	327,697.03	1,166.32
135.U.204	9,924,924.33	304,744.63	1,163.51	135.U.162	9,940,243.09	325,117.54	1,385.59
135.U.249	9,935,132.41	295,660.97	1,425.76	135.U.163	9,938,164.86	327,209.26	1,329.99
135.U.250	9,937,174.50	296,074.89	1,493.06	135.U.164	9,936,580.68	326,461.79	1,311.01
135.U.251	9,935,029.46	299,432.35	1,403.51	135.U.166	9,935,650.30	322,995.21	1,297.78
135.U.289	9,943,549.21	308,491.99	1,507.15	135.U.167	9,934,656.95	316,890.22	1,265.04
135.U.3	9,920,123.42	306,146.95	1,144.71	135.U.168	9,934,398.83	320,254.22	1,287.23
135.U.4	9,920,366.52	311,402.13	1,147.88	135.U.169	9,933,443.27	326,487.00	1,212.25
135.S.10	9,936,916.50	314,544.82	1,312.22	135.U.170	9,933,425.75	329,205.19	1,222.52
135.UT.214	9,941,321.13	326,031.64	1,405.43	135.U.172	9,930,686.74	329,736.90	1,194.66
135.UT.252	9,933,070.14	299,734.44	1,262.97	135.U.173	9,930,731.01	323,336.79	1,169.03
135.UT.253	9,933,352.52	300,349.14	1,258.55	135.U.174	9,932,591.52	323,470.63	1,196.74
135.UT.254	9,933,147.00	300,803.15	1,259.07	135.U.175	9,930,665.75	320,063.86	1,190.79
135.UT.255	9,931,289.98	299,788.35	1,238.56	135.U.181	9,924,424.14	327,814.37	1,133.09
135.UT.256	9,931,368.32	300,332.76	1,243.43	135.U.179	9,926,788.22	322,451.21	1,146.08
135.UT.257	9,931,248.35	300,730.97	1,243.52	135.U.180	9,925,824.13	325,765.94	1,144.74
135.UT.259	9,943,294.90	302,809.81	1,550.73	121.U.19	9,945,624.11	321,742.89	
135.UT.260	9,943,215.43	311,090.50	1,430.94	121.S.4	9,950,631.55	322,988.20	
135.UT.262	9,939,346.64	311,352.04	1,334.17	135.U.82	9,929,303.54	303,800.13	

ANNEX 8: PUBLIC LAND INVENTORY (NLC)

S/No.	Name/Use of The Utility	Area (Ha)	Status
Kanyekine Location			
1	Mukinduri Village	0.8094	
2	Mukinduri Primary School	2.8328	
3	Mukinduri Secondary School	2.0234	
4	Mukinduri Cattle Dip	0.0506	
5	Kiamuthambi Ap Camp /Chief's Office	0.2023	
6	Kiamuthambi Health Centre	0.1012	
7	Kiamuthambi Cattle Dip	0.1012	
8	Kiamuthambi Market	0.2023	
9	Karimandu Forest	0.4047	
10	Kiarugu Secondary School	2.0234	
11	Mutitu Primary School	2.8328	
12	St. Mark Mutitu Secondary School	2.0234	
13	Mutitu Village	1.2141	
14	Mutitu Health Centre	0.4047	
15	Mutitu Ap Camp And Chief's Camp	0.607	
16	Mutitu Forest	0.8094	
17	Mutitu Cattle Dip	0.0506	
18	Uceru Community Health Centre	0.8094	
20	Kianjege East Primary School	2.8328	
21	Kirimunge Primary School	2.8328	
22	Njega Primary School	5.7465	
23	St. Agata Kanyeki-Ini Girls	2.0234	
24	Kirimunge Secondary School	2.0234	
25	Njega Boys Secondary School	5.6656	
26	Kirimunge Village	1.2141	
27	Kianjege Assistant / Chief's Plot	0.0506	Disputed (Not Transferred)
28	Kianjege Market Area	0.0506	Disputed (Not Transferred)
29	Kiaga Primary School	2.8328	
30	Kiaga Secondary School	2.0234	
31	Assistant Chief's Office	0.0506	
32	Kiaga Health Centre	0.4047	
33	Kimorori Farm	62.7263	Disputed
34	Kiaga Grain Drier	0.8094	
Koroma Location			
35	Ngaru Girls	2.0234	
36	Ngaru Girls	2.8328	
37	Ngaru Primary	2.0234	
38	Adult Education Group	1.62	
39	Kirima Primary School	0.4047	
40	Kirima Primary School	0.4047	
41	Gatuto Primary School	0.8094	
42	Gatuto Dispensary	0.1	
43	Koroma Cattle Dip	1.4164	Disputed
44	Assistant Chief Office	0.2023	Disputed
45	Gitwe Primary School	2.6305	
46	Gitwe Secondary School	2.0234	
47	Ngomongo Ap Camp	0.2023	

S/No.	Name/Use of The Utility	Area (Ha)	Status
48	K.T.I Ap Camp	0.2023	Disputed
49	Kirinyaga University	32.7188	
50	Karia Fish Pond	2.8328	
51	Karia Secondary School	2.8328	
52	Gakoigo Primary School	2.02	
53	Gakoigo Secondary School	2.02	
54	Kiarura Cattle Dip	0.2023	
55	Karia Cattle Dip	0.1012	Disputed
56	Karia Chiefs` Camp	0.1012	
Kerugoya Location			
57	Waigiri Primary School	4.8562	
58	Kiaritha Primary School	4.8562	
59	St. Joseph Primary School	4.8562	
60	Kaitheri Primary School	2.4281	
61	Kerugoya Stadium	4.8562	
62	Ministry Of Water	4.0469	
63	Kerugoya Girls Secondary	4.8562	
64	Kerugoya Police Line	4.8562	
65	County Assembly of Kirinyaga	3.2375	
66	Kerugoya County H/Police		
67	Housing, Law Court Huduma & Adjacent Forest	12.1406	
68	County Referral Hospital	5.6656	
69	Kerugoya Chiefs` Camp	0.3035	
70	Kiaritha Cattle Dip, Chiefs` Camp & Dispensary	0.40469	
71	Kaitheri Polytechnic	4.0469	
72	Veterinary Office	2.0234	
73	Kabumbu Cattle Dip	0.1012	
74	Kangari Cattle Dip	0.1012	Encroached
75	Kirigo Primary School & Sec	4.8562	Succession Dispute
76	Kerugoya Boys High School	9.7125	
77	Kaitheri Village	3.8445	Disputed
78	Kiandieri Primary School	2.8328	
79	Kiandieri Secondary School	2.0234	
80	Kiabarikiri Primary School	2.8328	
81	Kiabarikiri Secondary School	2.0234	
82	Kiandieri Health Centre	0.1012	
83	Kiandieri Village	0.4047	
84	Asst.Chiefs` Office	0.1012	
Inoi Location			
85	Karaini Primary School		
86	Karaini Secondary School		
87	Kariko Dispensary		
88	Kariko Chiefs` Camp		
89	Mutuma Primary School		
90	Mutuma Trinity Secondary School		
91	Karaini Cattle Dip		

S/No.	Name/Use of The Utility	Area (Ha)	Status
92	Kamuruana Forest		
93	Karaini Village		
94	Nyagithuci Village		
95	Mugwandi Secondary School		
96	Mugwandi Primary School		
97	Kianjogu Cattle Dip		
98	Kianjogu Social Hall		
99	Assistant Chiefs` Office		
100	Kangaita Open Market		
101	Kangaita Health Centre		
102	Mt. Kenya Forest		
103	Kaingaita Cattle Dip		
104	Kamuiruga Primary School		
105	Kamuiruga Secondary		
106	Kamuiruga Cattle Dip		
107	Kamuiruga Dispensary		
108	Kibingo Cattle Dip		
109	Kibingo Assistant Chiefs` Office		
110	Kibingo Market		
111	Kiawakara Chiefs` Camp		
112	Sacred Heart Kangaita Sec.School	1.958	
113	Kangaita Primary School	2.771	
114	Kiranja Primary School	1.79	
115	St. Agnes Girls - Kiranja	4.2	
116	Thaita Primary School	2.73	
117	St. John's Thaita Secondary	2.02	
118	Shauri Yako Village (Meant For G.O.K Security)	0.2023	Encroached
119	Gikomba	24.2811	Disputed
120	Kiamaina Market	0.2023	Encroached
121	Gathuthuma Primary School	1.2141	
122	Gathuthuma Secondary School	0.8094	
123	Kiamaina Primary School	2.8328	
124	Kiamaina Secondary School	2.0234	
125	Kagumo Ccm Primary School	2.8328	
126	Kagumo Ccm Secondary School	2.0234	
127	Mutira Primary School	2.8328	
128	Rev. Ngumbi Secondary School	2.0234	
129	Mutira Girls Secondary School	5.6656	
130	Mutira/Kirunda/448(Used to Be Quarry)	0.3035	
131	Kamuiru Secondary School	7.2843	
132	Kamuiru Primary School	4.8562	
133	Kiarugu Primary School	2.0234	
134	Kiarugu Secondary School	2.8328	
135	Kiamutuiru Primary/Sec. School	1.214	
136	Kamuiru Asst.Chiefs` Office	0.5	
137	Kamuiru Dispensary	0.1012	
138	Kianjagi (Wet Land)	0.2023	Encroached
139	Kiandaka	4.0469	Encroached
140	Gatwe Primary School	4.0469	
141	Gatwe Secondary School	2.0234	

ANNEX 9: ECDE INVENTORY

	ECDE Centre	Sub-County
1	Gatuto	Kirinyaga Central
2	Gitwe	Kirinyaga Central
3	Kiaga	Kirinyaga Central
4	Kiangungu	Kirinyaga Central
5	Kianjege East	Kirinyaga Central
6	Kirima	Kirinyaga Central
7	Kirimunge	Kirinyaga Central
8	Mukinduri	Kirinyaga Central
9	Mutitu	Kirinyaga Central
10	Ngaru	Kirinyaga Central
11	Njega	Kirinyaga Central
12	Kangaita	Kirinyaga Central
13	Karaini	Kirinyaga Central
14	Kiranja	Kirinyaga Central
15	Mugwandi	Kirinyaga Central
16	Mutuma	Kirinyaga Central
17	Thaita	Kirinyaga Central
18	Gakoigo	Kirinyaga Central
19	Kaitheri	Kirinyaga Central
20	Kiabarikiri	Kirinyaga Central
21	Kamuiruga	Kirinyaga Central
22	Kiandieri	Kirinyaga Central
23	Kiaritha	Kirinyaga Central
24	Kirigo	Kirinyaga Central
25	St Joseph	Kirinyaga Central
26	Waigiri	Kirinyaga Central
27	Gathuthuma	Kirinyaga Central
28	Gatwe	Kirinyaga Central
29	Kagumo Ccm	Kirinyaga Central
30	Kamuiru	Kirinyaga Central
31	Kiamaina	Kirinyaga Central
32	Kiamutuiru	Kirinyaga Central
33	Kiarugu	Kirinyaga Central
34	Mutira	Kirinyaga Central
35	Githage	Kirinyaga East
36	Kiamwathi	Kirinyaga East
37	Kiandai	Kirinyaga East
38	Kianjiru	Kirinyaga East
39	Kiathi	Kirinyaga East
40	Kiburia	Kirinyaga East
41	Raimu	Kirinyaga East
42	Rwambiti	Kirinyaga East
43	Gatugura	Kirinyaga East
44	Gatunguru	Kirinyaga East
45	Kabare	Kirinyaga East
46	Kiamiciri	Kirinyaga East
47	Kiangwenyi	Kirinyaga East
48	Kimunye	Kirinyaga East
49	Mugumo	Kirinyaga East

50	Ngungu	Kirinyaga East
51	Nyagithuci	Kirinyaga East
52	Rukenya	Kirinyaga East
53	Gikumbo	Kirinyaga East
54	Guama	Kirinyaga East
55	Kariru	Kirinyaga East
56	Karumandi South	Kirinyaga East
57	Kavote	Kirinyaga East
58	Kibaro	Kirinyaga East
59	Mucagara	Kirinyaga East
60	Nyanja	Kirinyaga East
61	Thuiya	Kirinyaga East
62	Thumaita East	Kirinyaga East
63	Kaboya	Kirinyaga East
64	Githure	Kirinyaga East
65	Gituba	Kirinyaga East
66	Kathunguri	Kirinyaga East
67	Kiambatha	Kirinyaga East
68	Kiamugumo	Kirinyaga East
69	Mwania Njau	Kirinyaga East
70	Ngariama	Kirinyaga East
71	Gacatha	Kirinyaga East
72	Gaciongo	Kirinyaga East
73	Giconjoini	Kirinyaga East
74	Kanjuu	Kirinyaga East
75	Karucho	Kirinyaga East
76	Kianyambo	Kirinyaga East
77	Kiaumbui	Kirinyaga East
78	St Philips Mburi	Kirinyaga East
79	Ngiriambu	Kirinyaga East
80	St Thomas Mburi	Kirinyaga East
81	Gakindu	Kirinyaga West
82	Githua-Ini	Kirinyaga West
83	Kahiro	Kirinyaga West
84	Kainjege West	Kirinyaga West
85	Karima	Kirinyaga West
86	Kinyakiiru	Kirinyaga West
87	Lower Sagana	Kirinyaga West
88	Mukangu	Kirinyaga West
89	Mukui	Kirinyaga West
90	Ngando	Kirinyaga West
91	Sagana Muslim	Kirinyaga West
92	Thanju	Kirinyaga West
93	Upper Sagana	Kirinyaga West
94	Gacharu	Kirinyaga West
95	Gathuthini	Kirinyaga West
96	Kahuoini	Kirinyaga West
97	Kairini	Kirinyaga West
98	Kiangoma	Kirinyaga West
99	Kathaka	Kirinyaga West

100	Kiandangae	Kirinyaga West
101	Kiangai	Kirinyaga West
102	Kianwe	Kirinyaga West
103	Kibiringwi	Kirinyaga West
104	Kiine	Kirinyaga West
105	Kiriko	Kirinyaga West
106	Mathia	Kirinyaga West
107	Nguguini	Kirinyaga West
108	Thumaita West	Kirinyaga West
109	Thunguri	Kirinyaga West
110	Gathambi	Kirinyaga West
111	Getuya	Kirinyaga West
112	Kabonge	Kirinyaga West
113	Kairungu	Kirinyaga West
114	Karimaini	Kirinyaga West
115	Kiaragana	Kirinyaga West
116	Kiburu	Kirinyaga West
117	Lower Baricho	Kirinyaga West
118	Muragara	Kirinyaga West
119	Ndigaru	Kirinyaga West
120	Ndiriti	Kirinyaga West
121	Upper Baricho	Kirinyaga West
122	Gathigiriri	Mwea East
123	Kamucege	Mwea East
124	Kirogo	Mwea East
125	Kiriko	Mwea East
126	Mathangauta	Mwea East
127	Murubara	Mwea East
128	Mahigaini	Mwea East
129	Nyamindi	Mwea East
130	Difathas	Mwea East
131	Gathigiini	Mwea East
132	Gold	Mwea East
133	Rupingazi	Mwea East
134	Ichangi	Mwea East
135	Ikurungu	Mwea East
136	Itangi	Mwea East
137	Kadawa	Mwea East
138	Karuangi	Mwea East
139	Mathiga	Mwea East
140	Miatuini	Mwea East
141	Mugambaciura	Mwea East
142	Mumbuini	Mwea East
143	Murinduko	Mwea East
144	Ngucui	Mwea East
145	Ithiga Ria Njuki	Mwea East
146	Togonye	Mwea East
147	Urumandi	Mwea East
148	Ahiti Ndomba	Mwea East
149	Gakuu	Mwea East
150	Kangondo	Mwea East

151	Kangu	Mwea East
152	Kimbimbi	Mwea East
153	Kiorugari	Mwea East
154	Kithiriti	Mwea East
155	Kutus	Mwea East
156	Mutungara	Mwea East
157	Nyangati	Mwea East
158	St Paul	Mwea East
159	Kaimanyeki	Mwea East
160	Kiarukungu	Mwea East
161	Kiumbuini	Mwea East
162	Ndindiruku	Mwea East
163	Ngurubani	Mwea East
164	Wanguru	Mwea East
165	Kianjogu	Mwea East
166	Gitoo-Ini	Mwea West
167	Kangai	Mwea West
168	Kangure	Mwea West
169	Kombui-Ni	Mwea West
170	Mianya	Mwea West
171	Ndaba	Mwea West
172	Nyaga	Mwea West
173	Kagio	Mwea West
174	Kandongu	Mwea West
175	Kangaru	Mwea West
176	Kiminji	Mwea West
177	Kianyaga	Mwea West
178	Kirwara	Mwea West
179	Mugaa	Mwea West
180	Mutithi	Mwea West
181	Ng'othi	Mwea West
182	Riandira	Mwea West
183	Rukanga	Mwea West
184	Rwang'onde	Mwea West
185	Wakaniu	Mwea West
186	Karira	Mwea West
187	Mbui-Njeru	Mwea West
188	Mukou	Mwea West
189	Mworoto	Mwea West
190	Ndorome	Mwea West
191	Nguka	Mwea West
192	Kamairungi	Mwea West
193	Nyaikungu	Mwea West
194	Thiba	Mwea West
195	Ciagini	Mwea West
196	Kiandegwa	Mwea West
197	Marurumo	Mwea West
198	Ngang'a	Mwea West
199	Rurii	Mwea West
200	Thome	Mwea West

ANNEX 10: PRIMARY SCHOOLS INVENTORY

No.	School Name	Sub County
1.	Kahiro Primary School	Kirinyaga West
2.	Gakindu Primary School	Kirinyaga West
3.	Thanju Primary School	Kirinyaga West
4.	Lower Sagana Pri	Kirinyaga West
5.	Sagana Muslim Primary School	Kirinyaga West
6.	Upper Sagana Primary School	Kirinyaga West
7.	Karima Primary School	Kirinyaga West
8.	Githuani Primary School	Kirinyaga West
9.	Gacharu Primary School	Kirinyaga West
10.	Mukui Primary School	Kirinyaga West
11.	Kianjege West Primary School	Kirinyaga West
12.	Mukangu Primary School	Kirinyaga West
13.	Kairi-Ini Primary School	Kirinyaga West
14.	Kinyakiiru Primary School	Kirinyaga West
15.	Mathia Primary School	Kirinyaga West
16.	Kiriko Primary School	Kirinyaga West
17.	Kiangai Primary School	Kirinyaga West
18.	Kianwe Primary School	Kirinyaga West
19.	Nguguini Primary School	Kirinyaga West
20.	Kahuhoini Primary School	Kirinyaga West
21.	Kiangoma Primary School	Kirinyaga West
22.	Kibiringwi Primary School	Kirinyaga West
23.	Kiine Primary School	Kirinyaga West
24.	Thumaita West Primary School	Kirinyaga West
25.	Gathuthini Primary School	Kirinyaga West
26.	Kathaka Primary School	Kirinyaga West
27.	Kiandagae Primary School	Kirinyaga West
28.	St Agnes Primary School	Kirinyaga West
29.	Lower Baricho Primary School	Kirinyaga West
30.	Upper Baricho Primary School	Kirinyaga West
31.	Ndigaru Primary School	Kirinyaga West
32.	Kairungu Primary School	Kirinyaga West
33.	Kiburu Primary School	Kirinyaga West
34.	Karimaini Primary School	Kirinyaga West
35.	Getuya Primary School	Kirinyaga West
36.	Gathambi Primary School	Kirinyaga West
37.	Muragara Primary School	Kirinyaga West
38.	Ndiriti Primary School	Kirinyaga West
39.	Kiaragana Primary School	Kirinyaga West
40.	Kabonge Primary School	Kirinyaga West
41.	Kiangai Primary School	Kirinyaga West
42.	Kahutiini Primary School	Kirinyaga West
43.	Gatuto Primary School	Kirinyaga Central
44.	Kirima Primary School	Kirinyaga Central
45.	Gitwe Primary School	Kirinyaga Central
46.	Gakoigo Primary School	Kirinyaga Central
47.	Ngaru Primary School	Kirinyaga Central
48.	Kirigo Primary School	Kirinyaga Central

No.	School Name	Sub County
49.	Kiabarikiri Primary School	Kirinyaga Central
50.	Kiandieri Primary School	Kirinyaga Central
51.	Mugwandi Primary School	Kirinyaga Central
52.	Thaita Primary School	Kirinyaga Central
53.	Kangaita Primary School	Kirinyaga Central
54.	Kirinja Primary School	Kirinyaga Central
55.	Mutuma Primary School	Kirinyaga Central
56.	Karaini Primary School	Kirinyaga Central
57.	Waigiri Primary School	Kirinyaga Central
58.	Kamuiruga Primary School	Kirinyaga Central
59.	St Michael Girls Kerugoya	Kirinyaga Central
60.	St Joseph's Primary School	Kirinyaga Central
61.	Kaitheri Primary School	Kirinyaga Central
62.	Kiaritha Primary School	Kirinyaga Central
63.	Kamuiru Primary School	Kirinyaga Central
64.	Mutira Primary School	Kirinyaga Central
65.	Ccm Kagumo	Kirinyaga Central
66.	Kiamaina Primary School	Kirinyaga Central
67.	Gathuthuma Primary School	Kirinyaga Central
68.	Gatwe Primary School	Kirinyaga Central
69.	Kiaga Primary School	Kirinyaga Central
70.	Njega Primary School	Kirinyaga Central
71.	Kiangungu Primary School	Kirinyaga Central
72.	Kirimunge Primary School	Kirinyaga Central
73.	Kianjege East Primary School	Kirinyaga Central
74.	Mutitu Primary School	Kirinyaga Central
75.	Kiarugu Primary School Mary School	Kirinyaga Central
76.	Mukindui Primary School	Kirinyaga Central
77.	Kiamutuiira Primary School	Kirinyaga Central
78.	Gacatha Primary School	Kirinyaga East
79.	Kanjuu Primary School	Kirinyaga East
80.	Kiambui Primary School	Kirinyaga East
81.	Arch-Bishop Gitari Boarding	Kirinyaga East
82.	Kianyambo Primary School	Kirinyaga East
83.	Karucho Primary School	Kirinyaga East
84.	Ngiriambu Primary School	Kirinyaga East
85.	Mwanianjau Primary School	Kirinyaga East
86.	Gituba Primary School	Kirinyaga East
87.	Gaciongo Primary School	Kirinyaga East
88.	Kathunguri Primary School	Kirinyaga East
89.	Githure Primary School	Kirinyaga East
90.	Kiamugumo Primary School	Kirinyaga East
91.	Ngariama Primary School	Kirinyaga East
92.	Kiambatha Primary School	Kirinyaga East
93.	Thumaita East Primary School	Kirinyaga East
94.	Nyanja Primary School	Kirinyaga East
95.	Kibaro Primary School	Kirinyaga East
96.	Thuiya Primary School	Kirinyaga East
97.	Rukenya Primary School	Kirinyaga East

No.	School Name	Sub County
98.	Kiamiciri Primary School	Kirinyaga East
99.	Ngungu Primary School	Kirinyaga East
100.	Ack Gatunguru Primary School	Kirinyaga East
101.	Kiangwenyi Primary School	Kirinyaga East
102.	Nyagithuci Primary School	Kirinyaga East
103.	Mugumo Primary School	Kirinyaga East
104.	Gatugura Primary School	Kirinyaga East
105.	Githage Primary School	Kirinyaga East
106.	Kiamwathi Primary School	Kirinyaga East
107.	Kiathi Primary School	Kirinyaga East
108.	Kabare Boys Primary School	Kirinyaga East
109.	St Andrews Kabare Girls	Kirinyaga East
110.	Kianjiru Primary School	Kirinyaga East
111.	Rwambiti Primary School	Kirinyaga East
112.	Raimu Primary School	Kirinyaga East
113.	Kiburia Primary School	Kirinyaga East
114.	Kariru Primary School	Kirinyaga East
115.	Mucagara Primary School	Kirinyaga East
116.	Gikumbo Primary School	Kirinyaga East
117.	Karumandi South Primary School	Kirinyaga East
118.	Kavote Primary School	Kirinyaga East
119.	Guama Primary School	Kirinyaga East
120.	St. Michael Primary School	Kirinyaga East
121.	Njukiri Primary School	Kirinyaga East
122.	Kiandai Primary School	Kirinyaga East
123.	Kimunye Primary School	Kirinyaga East
124.	Karaba Primary School	Kirinyaga East
125.	Wakaniu Primary School	Mwea
126.	Kandongu Primary School	Mwea
127.	Kianyaga Primary School	Mwea
128.	Kangaru Primary School	Mwea
129.	Kagio Primary School	Mwea
130.	Ndaba Primary School	Mwea
131.	Nyaga Primary School	Mwea
132.	Kombuini Primary School	Mwea
133.	Kangai Primary School	Mwea
134.	Kangure Primary School	Mwea
135.	Mianya Primary School	Mwea
136.	Gitooini Primary School	Mwea
137.	Riandira Primary School	Mwea
138.	Ng'othi Primary School	Mwea
139.	Rukanga Primary School	Mwea
140.	Kaminji Primary School	Mwea
141.	Mutithi Primary School	Mwea
142.	Kirwara Primary School	Mwea
143.	Difathas Primary School	Mwea
144.	Ichangi Primary School	Mwea
145.	Karuangi Primary School	Mwea
146.	Murinduko Primary School	Mwea

No.	School Name	Sub County
147.	Mugamba-Ciura	Mwea
148.	Mumbuini Primary School	Mwea
149.	Togonye Primary School	Mwea
150.	Mathiga Primary School	Mwea
151.	Ngucui Primary School	Mwea
152.	Ithiga-Ria-Njuki	Mwea
153.	Urumandi Primary School	Mwea
154.	Mutungara Primary School	Mwea
155.	Nyagati Primary School	Mwea
156.	Kimbimbi Primary School	Mwea
157.	Mathangauta Primary School	Mwea
158.	Kiorugari Primary School	Mwea
159.	St Mary's Primary School	Mwea
160.	Karira Primary School	Mwea
161.	Nguka Primary School	Mwea
162.	Ndorome Primary School	Mwea
163.	Nyaikunga Primary School	Mwea
164.	Mukou Primary School	Mwea
165.	Thiba Primary School	Mwea
166.	Mbui Njeru Primary School	Mwea
167.	Rurii Primary School	Mwea
168.	Kiandegwa Primary School	Mwea
169.	Ngurubani Primary School	Mwea
170.	Thome Primary School	Mwea
171.	Ciagini Primary School	Mwea
172.	Maruromo Primary School	Mwea
173.	Kiumbu-Ini Primary School	Mwea
174.	Ndindiuku Primary School	Mwea
175.	Gathigiriri Primary School	Mwea
176.	Nyamindi Primary School	Mwea
177.	Kirogo Primary School	Mwea
178.	Kamucege Primary School	Mwea
179.	Murubaru Primary School	Mwea
180.	Kiarukungu Primary School	Mwea
181.	Kiamanyeki Primary School	Mwea
182.	Gathigiini Primary School	Mwea
183.	Kadawa Primary School	Mwea
184.	Itangi Primary School	Mwea
185.	Ikulungu Primary School	Mwea
186.	Gold Primary School	Mwea
187.	Miatuiini Primary School	Mwea
188.	Kithiriti Primary School	Mwea
189.	St Pauls Kutus Primary School	Mwea
190.	Ahiti Ndomba Primary School	Mwea
191.	Gakuu Primary School	Mwea
192.	Kutus Primary School	Mwea
193.	Rwangondu Primary School	Mwea

ANNEX 11: SECONDARY SCHOOLS INVENTORY

No.	Name of School	Sub-county
1.	Kiburu Secondary School	Kirinyaga West
2.	St. Philips Secondary School	Kirinyaga West
3.	Karima Secondary School	Kirinyaga West
4.	Mukangu Secondary School	Kirinyaga West
5.	Thumaita West Secondary School	Kirinyaga West
6.	Kabonge Secondary School	Kirinyaga West
7.	Kiandangae Secondary School	Kirinyaga West
8.	Getuya Secondary School	Kirinyaga West
9.	Kibiringwi Girls Secondary School	Kirinyaga West
10.	Karimaini Sec	Kirinyaga West
11.	Sagana Secondary School	Kirinyaga West
12.	Kairiini Secondary School	Kirinyaga West
13.	Kiaragana Girls Secondary School	Kirinyaga West
14.	Nguguini Secondary School	Kirinyaga West
15.	Kathaka Secondary School	Kirinyaga West
16.	Baricho Boys Secondary School	Kirinyaga West
17.	Muragara Secondary School	Kirinyaga West
18.	Kiburu Girls Secondary School	Kirinyaga West
19.	Kiangai Secondary School	Kirinyaga West
20.	Mathia Secondary School	Kirinyaga West
21.	Gathambi Secondary School	Kirinyaga West
22.	Kianjege West Secondary School	Kirinyaga West
23.	Kiine Girls Secondary School	Kirinyaga West
24.	Mukui Secondary School	Kirinyaga West
25.	Bishop Ngoru Secondary School	Kirinyaga West
26.	Gakindu Secondary School	Kirinyaga West
27.	Kiine Mixed Secondary School	Kirinyaga West
28.	Kinyakiiru Secondary School	Kirinyaga West
29.	Upper Baricho Secondary School	Kirinyaga West
30.	Gacharu Secondary School	Kirinyaga West
31.	Kianjege East Girls Secondary School	Kirinyaga West
32.	Rwambiti Secondary School	Kirinyaga East
33.	Kabare Secondary School	Kirinyaga East
34.	Kavote Secondary School	Kirinyaga East
35.	Our Lady of Consolata- Rukenya	Kirinyaga East
36.	Mucagara Secondary School	Kirinyaga East
37.	Mugumo Secondary School	Kirinyaga East
38.	Kiandai Secondary School	Kirinyaga East
39.	St. Louis Nyagithuci Secondary School	Kirinyaga East
40.	Ngungu Secondary School	Kirinyaga East
41.	St. Mark's Girls Secondary School	Kirinyaga East
42.	Kianguenyi Secondary School	Kirinyaga East
43.	Kiamiciri Secondary School	Kirinyaga East
44.	Kiamwathi Secondary School	Kirinyaga East
45.	Kianyaga Secondary School	Kirinyaga East
46.	Ngiriambu Secondary School	Kirinyaga East
47.	Githure Secondary School	Kirinyaga East

No.	Name of School	Sub-county
48.	Karucho Secondary School	Kirinyaga East
49.	Mutige Secondary School	Kirinyaga East
50.	Kanjuu Secondary School	Kirinyaga East
51.	Kianyambo Secondary School	Kirinyaga East
52.	Mwanianjau Secondary School	Kirinyaga East
53.	Gatugura Secondary School	Kirinyaga East
54.	St. Anne Gituba Secondary School	Kirinyaga East
55.	Kiamugumo Secondary School	Kirinyaga East
56.	Gaciongo Secondary School	Kirinyaga East
57.	St. Mary's Karumandi Secondary School	Kirinyaga East
58.	Gacatha Secondary School	Kirinyaga East
59.	Tsubaki Kiburia Secondary School	Kirinyaga East
60.	Kimunye Secondary School	Kirinyaga East
61.	Kiamutugu Secondary School	Kirinyaga East
62.	Ngariama Secondary School	Kirinyaga East
63.	Gatunguru Secondary School	Kirinyaga East
64.	Kiaumbui Secondary School	Kirinyaga East
65.	St. Marks Girls Secondary School	Kirinyaga East
66.	St. Bakita Kiburia Secondary School	Kirinyaga East
67.	Gatugura Secondary School	Kirinyaga East
68.	Kianguenyi Secondary School	Kirinyaga East
69.	Our Lady Secondary School	Kirinyaga East
70.	St. Agatha Kanyekiini Secondary School	Kirinyaga Central
71.	Gathuthuma Secondary School	Kirinyaga Central
72.	Kagumo Girls Secondary School	Kirinyaga Central
73.	Kirimunge Secondary School	Kirinyaga Central
74.	Gakoigo Secondary School	Kirinyaga Central
75.	Kiarugu Secondary School	Kirinyaga Central
76.	Kamuiru Secondary School	Kirinyaga Central
77.	Njega Secondary School	Kirinyaga Central
78.	Gitwe Mixed Secondary School	Kirinyaga Central
79.	Kerugoya Girls	Kirinyaga Central
80.	Mutira Secondary School	Kirinyaga Central
81.	Girls Secondary School	Kirinyaga Central
82.	Ngaru Secondary School	Kirinyaga Central
83.	Kerugoya Boys Secondary School	Kirinyaga Central
84.	Canon Njumbi	Kirinyaga Central
85.	Gatwe Secondary School	Kirinyaga Central
86.	Karia Secondary School	Kirinyaga Central
87.	Sacred Heart Kangaita Secondary School	Kirinyaga Central
88.	Mugwandi Secondary School	Kirinyaga Central
89.	Kiandieri Secondary School	Kirinyaga Central
90.	Kiranja Secondary School	Kirinyaga Central
91.	Kiaga Secondary School	Kirinyaga Central
92.	St. James Kiaritha Secondary School	Kirinyaga Central
93.	St. Francis Waigiri Secondary School	Kirinyaga Central
94.	Kamuiruga Secondary School	Kirinyaga Central
95.	Kiabarikiri Secondary School	Kirinyaga Central

No.	Name of School	Sub-county
96.	Gatuto Secondary School	Kirinyaga Central
97.	Kiamutuiru Secondary School	Kirinyaga Central
98.	St. John's Thaita Secondary School	Kirinyaga Central
99.	Kirigo Secondary School	Kirinyaga Central
100.	Mukinduri Secondary School	Kirinyaga Central
101.	Kiamaina Secondary School	Kirinyaga Central
102.	Mutuma Trinity Secondary School	Kirinyaga Central
103.	St. Joseph Secondary School	Kirinyaga Central
104.	Karaini Secondary School	Kirinyaga Central
105.	Mutitu Secondary School	Kirinyaga Central
106.	Ndindiruku Secondary School	Mwea
107.	Karoti Secondary School	Mwea
108.	Wang'uru Secondary School	Mwea
109.	Tebere Secondary School	Mwea
110.	Kanjinji Secondary School	Mwea
111.	St. Peters Difathas Secondary School	Mwea
112.	St. Triza Kutus Secondary School	Mwea
113.	Nyangati Secondary School	Mwea
114.	Murinduko Secondary School	Mwea
115.	Kithiriti Secondary School	Mwea
116.	Gakuu Secondary School	Mwea
117.	Ngurubani Secondary School	Mwea
118.	Ikulungu Secondary School	Mwea
119.	Kiarukungu Secondary School	Mwea
120.	Kiorugari Secondary School	Mwea
121.	Mathangauta Secondary School	Mwea
122.	Mumbuini Secondary School	Mwea
123.	Habel Nyamu Secondary School	Mwea
124.	Good Samaritan Secondary School	Mwea
125.	Kombuini Secondary School	Mwea
126.	St. Mary's Mwea Girls Secondary School	Mwea
127.	Dr. Babla Kang'aru Secondary School	Mwea
128.	Nyaikungu Secondary School	Mwea
129.	Kangai Mixed Secondary School	Mwea
130.	St. Augustine Mwea Boys Secondary School	Mwea
131.	Nyaga Mixed Secondary School	Mwea
132.	Thiba Mixed Secondary School	Mwea
133.	Kianyaga Secondary School	Mwea
134.	Gitooini Secondary School	Mwea
135.	Nganga Secondary School	Mwea
136.	Mutithi Girls Secondary School	Mwea
137.	Mwea Boys S Secondary School	Mwea
138.	Rukanga Secondary School	Mwea

ANNEX 12: SITUATIONAL ANALYSIS AND DRAFT PLAN WORKSHOP ATTENDANCE LIST

NO.	NAME	DESIGNATION	ORGANIZATION
Kirinyaga Central			
1.	John Gacoki	Farmer	Ramini Banana Growers
2.	Gabriel Gitari	Chairman	Kaugi Men Self Help Group
3.	Simon Kinyua	Chairman	Kiriko Self Help Group
4.	Jeremiah Nyaga	Farmer	Kanyekiine Ward
5.	Paul Muriuki	Farmer	Kanyekiine Ward
6.	Gilbert Karimi	Ass. Chief	Kianjege
7.	Francis Ndambiri	Leader	Kathare
8.	Bancy Muthike	Woman Leader	Farmer
9.	Elias Maina	Member	Y.A.D Group
10.	George Mwendia	Leader	Nduini Water Project
11.	James Warui	Elder	C.B. O
12.	Rev. Peterson Kimotho	Priest	Faith
13.	Nancy Njeri	Resident	Kanyekiine Ward
14.	Edwin Macharia	Resident	Kanyekiine Ward
15.	Bernard Maina	Resident	Uchumi Bora Youth Group
16.	Raphael Muriithi	Farmer	Kanyekiine Ward
17.	Andrew Koori	Ass. Chief	Interior
18.	Joseph Kamande	Farmer	Kanyekiine Ward
19.	Loise Njeri	Business Person	Mutira Ward
20.	Evan Karimi	Farmer	Mutira Ward
21.	Mary Wakaria	Farmer	Mutira Ward
22.	Elick Mwai	Farmer	Nyumba Kumi
23.	Andrew Kamanyi	Business man	Mutira Ward
24.	John Irungu	C.I. O	KNA
25.	Wambui Muchiri	Media	Njata TV
26.	Paul Maina	Business man	Karaini
27.	Jane Wakio	Intern Planner	County Govt
28.	Ruth Karimi	Member	Kirinyaga Women Empowerment Program
29.	Andrew Wanjohi	Vice Chair	CSPC
30.	Daniel Mugo	Area Chief	NGAO
31.	Rosemary Nyaguthii	Chief	Inoi Location
32.	Justus Mwari	Ass. Chief	NGAO
33.	Keffa Ngondi	Ass. Chief	NGAO
34.	John Wanjohi	Ass. Chief	NGAO
35.	Laurent Macharia	Chief	NGAO
36.	S. G. Githii	Chief	NGAO
37.	Peter Gitau	Ass. Chief	NGAO
38.	Kinyua Makae	Driver	KUKENA
39.	Stephen Kangangi	Farmer	Kimanoi
40.	David Muriithi	Entrepreneur	Mukaja
41.	Wangenye Paul	Entrepreneur	Mashwan Lanscapers
42.	Ambrose Muriithi	Entrepreneur	Jabes Focus
43.	Bancy Wachira	Farmer	CJPC

NO.	NAME	DESIGNATION	ORGANIZATION
44.	David Wachira	Farmer	Kerugoya Ward
45.	Sicily Ndambiri	Farmer	Kerugoya Ward
46.	Zacheaus Kaburu	Business man	Kerugoya Ward
47.	Edwin Macharia	Business man	Kerugoya Ward
48.	Stephen Mbogo	Business man	Kerugoya Ward
49.	Alison Njogu	Business woman	Kerugoya Ward
50.	Lilian Nyawira	Business woman	Kerugoya Ward
51.	Alias Kamisa	Business man	Kerugoya Ward
52.	Charles Kamau	Boda-boda	Kerugoya Ward
53.	Esther Njeri	Business woman	Kerugoya Ward
54.	Moses Waweru	Business man	Kerugoya Ward
55.	Johnson Mwai	Business man	Kerugoya Ward
56.	Purity Kandia	Business woman	Kerugoya Ward
57.	Teresa Njoki	Business woman	Kerugoya Ward
58.	Bilha Nyawira	Clinic Officer	Kerugoya Hospital
59.	Patrick Gatimu	Administration Officer	KIRIWASCO
60.	Stephen Gicha	Assistant Officer	KIRIWASCO
61.	Johnson Miigwi	Chairman	Karia Shield Development
62.	Geoffrey Kibiro	Media	Radio Africa
63.	John Mwai	Member	Kerugoya -Kutus Municipal Board
64.	Joseph Gitari	Business man	Kerugoya
65.	Anthony Macharia	Resident	Kerugoya Ward
66.	Ephantus Kuria	CSO-Kirinyaga	KNBS
67.	Hezekiel Mbogo	Staff	KNBS
68.	Paul Maina	Business man	Kerugoya Ward
69.	Peter Magondu	Business man	Kerugoya Ward
70.	Dickson Muriithi	Member	Kerugoya-Kutus Municipal Board
71.	Caroline Njeri	Business woman	Kerugoya Ward
72.	Neliah Nyambara	Business woman	Kerugoya Ward
73.	Lawrence Kimotho	Opinion Leader	Kerugoya Ward
74.	Florence Muthoni	Opinion Leader	Kerugoya Ward
75.	Kane Kiama	Opinion Leader	Kerugoya Ward
76.	Wanjiru Irungu	Media	Kerugoya Ward
77.	Leonard Munene	Media	Kerugoya Ward
78.	Dedan Kagio	Opinion Leader	Kerugoya Ward
79.	Francis Mithamo	Karimandu Self Help Group	Kerugoya Ward
80.	Francis	Resident	Kerugoya Ward
81.	Fredrick Karimi	Chairperson	KCBF
82.	Anthony Mugo	Treasurer	Ndimi Community Based Organization
83.	Wilfred Githinji	Secretary	MAKI SHG
84.	Samuel Karani	Director	Good Faith Children's Home
85.	Boniface Wachira	Vice Chair	Ndimi Welfare Association
86.	Millicent Kagai	Treasurer	C.H. V
87.	Edith Miano	Member	C.H. V

NO.	NAME	DESIGNATION	ORGANIZATION
88.	Daniel Mureithi	Business man	Inoi Ward
89.	Ben Kabugi	Business man	Inoi Ward
90.	David Muriuki	Farmer	Inoi Ward
91.	Juma Githinji	Farmer	Inoi Ward
92.	Paul Ndereba	Pastor	Inoi Ward
93.	Francis Mugeru	Resident	Inoi Ward
94.	Henry Mwau	Lead Consultant	RPC
95.	Allan Muthoka	Planner	RPC
96.	Peter Kaberere	Planner	RPC
97.	Samuel Kitayi	Planner	RPC
98.	Rayan Aboud	Planner	RPC
99.	Rose Nyagah	Planner	RPC
100.	David Musyoki	Planner	RPC
101.	Mark Nzioka	Planner	RPC
102.	Eve Muriithi	Planner	RPC
103.	Raymond	Driver	RPC
Kirinyaga East			
1.	Caroline Mathenge	Director Physical Planning	County Govt. of Kirinyaga
2.	Violet Gachoki	Secretary Lands	County Govt. of Kirinyaga
3.	William Loka	Physical Planner	County Govt. of Kirinyaga
4.	Lucy Maina	Education Officer	County Govt. of Kirinyaga
5.	Grace Waragu	County Coordinator NLC	County Govt. of Kirinyaga
6.	Ernest Kiwanthai	Physical planner	County Govt. of Kirinyaga
7.	Richard Kamuku	Driver-Lands	County Govt. of Kirinyaga
8.	Mercy Mureithi	Social Officer	County Govt. of Kirinyaga
9.	Beatrice Wairimo	Environmental Officer	County Govt. of Kirinyaga
10.	Ann Muchiri	C.B.T Care Kenya Trainer	County Govt. of Kirinyaga
11.	Kennedy Kimani	Ward Admin	County Govt. of Kirinyaga
12.	Lydia Ndwiga	Sub county Livestock Officers	County Govt. of Kirinyaga
13.	David Gathoki		
14.	Robert Mugo		Gichugu
15.	Edward Mgundu	Ward Admin Kabare	Kirinyaga County Govt.
16.	Cicily Wanjiru	Supervisor	Kirinyaga County Govt.
17.	John Gichuru	Treasurer	Kiamutugu Market Committee
18.	Mwaniki	Chairman	Kiamutugu Market Committee
19.	Mrs. Njogu	Secretary	Kutus Old Town
20.	Mrs. Hellen	Chairperson	Umbrella
21.	Julia Njiru	Civil Servant	Agriculture
22.	Joseph Machiria	Civil Servant	Social Service
23.	Martin Murage	Chairperson	5K Tax
24.	Margret Gacheke	Ass. Chief	Ngariama
25.	Mr. Gitari	Ass. Chief	Ndundu-ini
26.	Rev. Hezron	Religious Leader	ACK
27.	Canon. Julius Gichohi	Religious	St. Polycup Gikonjo
28.	Bekam	Chairman	Special Group Karumandi
29.	David Gachoki	Fannid Baragwi	
30.	Aurelia Munene	Ass. Chief	Roimu Sub location
31.	Henry Wambugu	Ass. Chief	Thimu

NO.	NAME	DESIGNATION	ORGANIZATION
32.	Justine Nyaga	Ass. Chief	Gatu
33.	Cecily Wawira	CDA Women Enterprise Officer	
34.	Raphael Kenzo	Water Officer	Kianyaga Water company
35.	Stephen Githinji	Chairman	Kianyaga MFK Committee
36.	Martin Murage	Chairman	5K Taxi
37.	Martin Muriithi	Social Officer	C.D. A
38.	James Ndambiru	Opinion shapers	Gitaba Group
39.	Cicely Kuthii	Representative	Women Group
40.	Virginia Wakuthii	Treasurer	Kianjugu Mukuria Women Group
41.	Stephen Ndiga	Chairman	Slantey Business
42.	Moses Muchira	Vice-chair	Kabatia Business Group
43.	Kenneth Njagi	Chairman	Kriko Self-help group
44.	Peterson Murage	Secretary	Agriculture Kabirotini
45.	Bancy Njoki	Chairperson	
46.	Daniel Mbogo	Ward Admin	Ngariama
47.	Njogu Karengo	Opinion shaper	Kamwana Village
48.	Tiara Peter	Opinion shaper	Fortune Sacco
49.	Dominic Kariithi	Opinion shaper	Ngariama ward
50.	Robert Maingi	Opinion leader	Elder Ngariama ward
51.	Peter Kiilu	Representative	Kukena Sacco
52.	Eliud Munene	Chairman	Jubilee
53.	Haniel G. Kanja	Elder	Peace Ngariama
54.	Lazarus Njue	Elder	Peace
55.	Judy Wanjiku	Treasurer	Ngariama
56.	Jane Wakera	Secretary	Baragwi
57.	Cecily Kuthii	Elder	Ngariama
58.	Simoni Gathoni	Member	Karamani Pruning Group
59.	Isaac Mureithi	Chairman	Ngariama Progress Group
60.	Bonface Gikonjo	Social Officer	Karumandi Ward
61.	Patrick Gitaru	Social Development Officer	Kabare Ward
62.	Nahasha Gichobi	Children Service	Baragwi
63.	Habel Mugane	Chairman	Kianyigi
64.	John Murage	Secretary	5K Taxi
65.	Hellen Wanjiku	Chairlady	Opedo
66.	Benson Musuki	Operation Manager	5k Taxi
67.	Veronica Wanjiku	Secretary	Mukure
68.	Cyrus Muchiri	Reofiles warden	Karumandi
69.	Julius Njiru	Civil Servant	Agriculture Sector
Kirinyaga West			
1	Rev. Samuel Kanjobe	CECM Lands, Physical Planning & Urban Development	County Govt. of Kirinyaga
2	Caroline Mathenge	Director Physical Planning	County Govt. of Kirinyaga
3	Josphat Mwai Ngunyi	Director Lands, Survey & GIS	County Govt. of Kirinyaga
4	Lawrence Kabiru	Sub-County Administrator	County Govt. of Kirinyaga
5	Patrick Muriithi	Ward Administrator-Kiine Ward	County Govt. of Kirinyaga
6	Charles Wachira Mutugi	Ward Administrator- Mukure	County Govt. of Kirinyaga

NO.	NAME	DESIGNATION	ORGANIZATION
		Ward	
7	Doris Wambui Maina	Ward Administrator –Kariti Ward	County Govt. of Kirinyaga
8	Patrick Gichira Njue	Chairman	PWD Kirinyaga West
9	David Mugambi	Treasurer	PWD Kirinyaga West
10	Joseph Mugo	Secretary	Kiania Cabs
11	Livingstone Muriithi	Chairman	Kagio-ini/ Kanyukuva water project
12	Alfred Chomba Thigiti	Stakeholder	Kirinyaga West
13	Moses Mugo Nguru	Farmer	Mukure
14	James Mathenge	Village Elder	Muragara
15	Charles Macharia	Community Poliser	Mukure
16	John Gathiga Jeremiah	Community Leader	Church
17	Margaret Kuria	CDA	Social Services
18	Esther Murimi	CHV	Kianjang'a
19	Jane Muriithi	Farmer	Ndiriti
20	Alfred Muchomba	Senior Assistant Chief	Ministry of Interior
21	Joseph Waweru Mathenge	Farmer	C& O
22	Rosemary Mwangi	Charlady	Kariko Group
23	Grace Wangari Mwangi	Chairlady	Umoja Group
24	Pauline Wakini Njiru	Member	
25	Peter N. Gakono	Senior Assistant Chief	Ministry of Interior
26	Winfred Wambui Wachira	Member	St. John's Kiburu
27	Geoffrey Mureithi	Member	St. John's Church
28	Miriam Wangechi Wanjohi	Member	FADC
29	Evan Murani Mureithi	Member	Youth
30	Janiffer Miano	Member	Riko Women Group
31	Josphat Mwangi	Member	Gitaku Upper
32	James Thuita Wanandu	Retired Clinical Officer	Mukure Kiburu
33	Moses Kigathi	Computer Tutor	Mukure Kiburu
34	Eliphas Kang'ata		Mukure
35	Benson R. Ngiria	Farmer	Kibiringwi FCS LTD
36	Erastus Kanyora	Chairman	Kangai Health Committee
37	Hannington Mutuku	Chairman	KIFCO
38	Nancy W. Mbugua	Chairlady	HASS Avocado
39	Meti James	WAO	MOALVF
40	Stephen Mutugi Kanyi	Bishop (Clergy)	Glory Evangelistic Church
41	Evans Njogu		
42	Paul Wachira	Manager Kerugoya/ Kutus	Kirinyaga County Govt.
43	David Kariuki Mugiro	Farmer	Kariti Pioneer
44	Peninnah Wangari Maina	Business	Kianjege Widows
45	Leonard Mwangi Maina	Business	Mururi-ini
46	Richard Murage Wangari	Business	Mukui
47	Simon M. Mithibe	Peace Forum	DPC
48	Maina Karanja Kiuma	Chairman	Kianjege Dispensary
49	Nelson Muriithi	Chairman	Ngunyumu
50	Ernest Ngare	Secretary	Peace Forum
51	Sospeter Muraguri	Chairman Kianjege	Kianjege Market
52	Munira Ally	Planner	RPC
53	Allan Muthoka	Planner	RPC
54	Peter Kaberere	Planner	RPC
55	Samuel Kitayi	Planner	RPC

NO.	NAME	DESIGNATION	ORGANIZATION
56	Rose Nyaga	GIS Analysis	RPC
57	Boniface Kathuli	Urban Designer	RPC
58	Peter Onono	Urban Designer	RPC
59	Rayan S. Aboud	Planner	RPC
60	Mercy Kirema	Planner	RPC
NO.	NAME	DESIGNATION	ORGANIZATION
Mwea West			
1.	Rev. Samuel Kanjobe	CECM Lands, Physical Planning & Urban Development	County Govt. of Kirinyaga
2.	Caroline Mathenge	Director Physical Planning	County Govt. of Kirinyaga
3.	Mwai Ngunyi	Director Lands, Survey & GIS	County Govt. of Kirinyaga
4.	Dr. James Mwaura	Sub County Admin.	County Govt. of Kirinyaga
5.	Calbert M Njeru	Ward Admin. Wamumu	County Govt. of Kirinyaga
6.	Julius Wamwea	Ward Admin. Mutithi	County Govt. of Kirinyaga
7.	Francis Gate	Ward Admin. Thiba	County Govt. of Kirinyaga
8.	Gerald Njuki	Ward Admin. Kangai	County Govt. of Kirinyaga
9.	Godfrey Mithamo	Chief Wamumu Location	County Govt. of Kirinyaga
10.	Plan. Henry Mwau	Lead Consultant RPC	RPC
11.	Allan Muthoka	Planner	RPC
12.	Peter Kaberere	Planner	RPC
13.	Rayan A. Said	Planner	RPC
14.	Betty Ogato	Planner	RPC
15.	Boniface Kathuli	Urban Designer	RPC
16.	Peter Onono	Urban Designer	RPC
17.	Mercy Mirema	Environmental Planner	RPC
18.	Stephen Kyalo	Urban Designer	RPC
19.	Raymond Kitivo	Driver	RPC
20.	P.K Macharia	Peasant Farmer	Mutithi ward
21.	Michael Wachira	Ward representative	Mutithi ward
22.	Johnson Njigoya	Ward representative	Mutithi ward
23.	Virginia Wangari	PWD Representative	Mutithi ward
24.	Bernard Mugweru	Ward representative	Mutithi ward
25.	Rebecca Mutithi	Ward representative	Mutithi ward
26.	Leah Wanjiru	Ward representative	Mutithi ward
27.	Ann Ngayo	Ward representative	Mutithi ward
28.	Ann muthoni	Ward representative	Mutithi ward
29.	Julius Wamwea	Ward representative	Mutithi ward
30.	Jane Njeri	Ward representative	Mutithi ward

NO.	NAME	DESIGNATION	ORGANIZATION
31.	Patrick Mchangi	Secretary	Kandongu Business Community
32.	Peter Gichira	Boba boda Representative	Mutithi Youth Bobaboda Sacco
33.	Geoffrey Githaka	Ward representative	Mutithi ward
34.	Margaret Mwaniki	Agronomist	Mutithi ward
35.	Agnes Wanjiku	Ward representative	Mutithi ward
36.	Nicholas Irungu	Ward representative	Mutithi ward
37.	Bashir Orambui	Ward representative	Mutithi ward
38.	James Mboya	Ward representative	Mutithi ward
39.	Peter Kinyua	Ward representative	Mutithi ward
40.	Ann Murithi	Ward representative	Mutithi ward
41.	Janet Wakuthii	Ward representative	Mutithi ward
42.	Christopher Njeru Njoroge	Ward representative	Thiba Ward
43.	David Githinji	Ward representative	Thiba Ward
44.	Peter Waweru Mugo	Ward representative	Thiba Ward
45.	Faith Njoki Njeru	Ward representative	Thiba Ward
46.	Eunice Waruguru	Ward representative	Thiba Ward
47.	Judy Wairimu warui	Ward representative	Thiba Ward
48.	Margaret King'ori	Ward representative	Thiba Ward
49.	Simeon Mbugua Mwangi	Ward representative	Thiba Ward
50.	Stanley Bundi	Intern	MIAD
51.	Benard Gitau Njoroge	Ward representative	Thiba Ward
52.	Paul Muriuki Karigo	Ward representative	Thiba Ward
53.	James Njoroge	Ward representative	Thiba Ward
54.	Joseph Muriu	Ward representative	Thiba Ward
55.	Leah Gichuki	Ward representative	Thiba Ward
56.	Benjamin Waweru	Ward representative	Thiba Ward
57.	John Gikunju	Ward representative	Thiba Ward
58.	Nahashon Murithi	Ward representative	Thiba Ward
59.	Timothy Mwai	Ward representative	Thiba Ward
60.	Samuel Muchiri	Ward representative	Thiba Ward
61.	Lucy W. Murithi	Ward representative	Kangai Ward
62.	Stephen Nyaga Warui	Ward representative	Kangai Ward
63.	Moses Chomba	Ward representative	Kangai Ward
64.	Gerald Njuki	Ward representative	Kangai Ward

NO.	NAME	DESIGNATION	ORGANIZATION
65.	Robert Mucirii	Ward representative	Kangai Ward
66.	Rose Wanjiru	Ward representative	Kangai Ward
67.	Immanuel Muriuki	Ward representative	Kangai Ward
68.	Benjamin Kongo	Ward representative	Kangai Ward
69.	Charity Murage	Ward representative	Kangai Ward
70.	Ephantus Gikunju	Ward representative	Kangai Ward
71.	Daniel Kibuti	Ward representative	Kangai Ward
72.	Sophia Wambui	Ward representative	Kangai Ward
73.	Jefitha Muchiri	Ward representative	Kangai Ward
74.	Anthony Murage	Ward representative	Kangai Ward
75.	Martin Kariuki	Ward representative	Kangai Ward
76.	Francis Muriuki	Ward representative	Kangai Ward
77.	Grace W. Ngobia	Ward representative	Wamumu ward
78.	Cyrus Murimi Chomba	Ward representative	Wamumu ward
79.	Peter Karanja	Ward representative	Wamumu ward
80.	Simon Makumi	Ward representative	Wamumu ward
81.	James Mugo	Ward representative	Wamumu ward
82.	Mary Mugo	Ward representative	Wamumu ward
83.	William Waweru	Ward representative	Wamumu ward
84.	Rachael Mwangi	Ward representative	Wamumu ward
85.	Mary Muthoni	Ward representative	Wamumu ward

Mwea East			
1.	Rev. Samuel Kanjobe	CECM Lands	County Govt. of Kirinyaga
2.	Mr. Anthony Gathumbi	Chief Officer, Lands	County Govt. of Kirinyaga
3.	Caroline Mathenge	Director Physical Planning	County Govt. of Kirinyaga
4.	Mwai Ngunyi	Director Lands, Survey & GIS	County Govt. of Kirinyaga
5.	Dr. James Mwaura	Sub-County Administrator	County Govt. of Kirinyaga
6.	James S. Ireri	Sub-County water officer, Mwea	County Govt. of Kirinyaga
7.	Margaret Muhoro	Ward Administrator, Gathigiriri Ward	County Govt. of Kirinyaga
8.	Ken John Nyutu K.	Ward Administrator, Murinduko Ward	County Govt. of Kirinyaga
9.	Kaara Muriithi	Ward Administrator, Tebere Ward	County Govt. of Kirinyaga
10.	Edward Gichobi	Ward Administrator, Nyangati Ward	County Govt. of Kirinyaga

LOCAL STAKEHOLDERS			
11.	Mercy Nyawira	Farmer	Tebere Section
12.	Cyrus Kang'ara	Farmer	Tebere Section
13.	Martha Wakabari	Farmer	Mahigaini
14.	Sammy Kagito	Researcher	KALRO
15.	Dennis Muriuki Gichanga	Businessman	Mathangauta
16.	John Kimani	Center Director Rice and Cotton	KALRO Mwea
17.	James Wanjohi	Farmer	T. Five Mwathaini
18.	Rev. Phillip Maina	Pastor	A.I.P.C. A
19.	Archbishop Francis Ng'ang'a	Archbishop	A.M.O.H.G.C
20.	Harrison Mburu	CDF Member	Mwea Constituency
21.	John Hika	Farmer	Gathigiriri
22.	Margaret Wangu Muru	Farmer	Gathigiriri
23.	Patrick Nandi	Farmer	Karingiri
24.	Ephraim Njogu	Driver	PWD (KALRO)
25.	Lazaro Kioria	Farmer	Gathigiriri
26.	Mwangi Koinange	Chairman Disability	Mwea Disability Network
27.	David Casbury Githinji	Business man	Kanjinji village
28.	Samuel Masu	Businessman	Togonye village
29.	John N. Githu	Secretary	CPPWS Network
30.	Stephen Ndegwa George	Chairman	South Ngariama Dispensary
31.	Charles G. Maakenda	Farmer	South Ngariama
32.	Phylis Karinga	Opinion Leader	South Ngariama
33.	D. Gichohi Njiru	Farmer	Kamunyange
34.	Duncan Munene	Farmer	Riagiceru
35.	Mercy Wambui	Ass. Chief	Mugambaciura
36.	Evangeline Karimi Kamau	Opinion leader	Kamunyange
37.	Murira Josphat	Opinion leader	Murinduko
38.	Reuben K. Warui	Business local leader	Ngurubani market
39.	John K. Gitu	S/Charge Hand	Ministry of water and Irrigation
40.	Samuel Kaindi	Treasurer	Kiamunyeki dispensary
41.	Benson Mwangi	Farmer	Wang'uru
42.	Josphat Kabuku	Farmer	Wang'uru
43.	Richard Chomba Njagi	PWDs	Kiumbu

44.	Anthony Warui	Youth Representative, Wang'uru	Elite Group
45.	Peter Mutugi	Youth Representative, Wang'uru	Elite Group
46.	Rosemary Ndung'u	County Secretary	Maendeleo ya Wanawake
47.	Christine Njeri	Farmer	Tebere Section
48.	Stanley Ndung'u	Chairman	Kiarukungu Farmers
49.	Francis Mugo	Transport Business	Murinduko
50.	Henry Muriuki	P. An MCA Tebere	County Assembly of Kirinyaga
51.	Magu Sammy	O/A MCA Tebere	County Assembly of Kirinyaga
52.	Patrick Kariuki	Businessman	Wang'uru Market
53.	Jerusha Wanjiru	Farmer	Tebere section
54.	David Macharia	Farmer	Tebere section
55.	William Maina	Businessman	Wang'uru
56.	Paul Wainaina	Hospitality	Tebere
57.	Joseph W. Njoka	In-charge	Administration
58.	Titus Mwangi	Pastor	A.I.P.C. A
59.	Peter Kinyua	Incharge	GPF
60.	Ethan Murimi	Pastor	A.I.P.C. A
61.	Wilson Kinyua	Opinion leader	Tebere
62.	Jane Waweru	Scheme Manager	KIRIWASCO
63.	John Mbogo	Member	PWD
64.	James Mwangi	Farmer	Kithiriti
65.	Julius M. Ndukaa	Farmer	Kithiriti
66.	Silas Muriithi	Farmer	Kutus
67.	Mwajuma Gathoni Karuru	Veterinary Officer	Nyangati
68.	James Bundi Wambugu	Business Man	Nyangati
69.	Susan W. Munene	Instructor	Nyangati Youth Polytechnic
70.	Peterson Kinyua	Framer	Nyangati
CONSULTANTS TEAM			
71.	Henry Mwau	Planner	RPC
72.	Allan Muthoka	Planner	RPC
73.	Peter Kaberere	Planner	RPC
74.	Stephen Kyalo	Planner	RPC
75.	Rayan A. Said	Planner	RPC
76.	Boniface Kathuli	Urban Designer	RPC

77.	Betty Ogato	Planner	RPC
78.	Peter Onono	Urban Designer	RPC
79.	Mercy Kirema	Environmentalist	RPC
80.	Raymond Kitivo	Driver	RPC

ANNEX 13: FINAL PLAN WORKSHOP ATTENDANCE LIST

No.	Name	Designation	Organization
Kirinyaga West			
1.	John Makumi	Chief Officer Lands, Physical Planning and Housing.	Kirinyaga County
2.	Mwai Ngunyi	Director Lands, Survey and GIS	Kirinyaga County
3.	Paul Muchira	Municipal Manager	Kerugoya-Kutus Municipality
4.	Charles Wachira Mutugi	Ag. Sub-County Admin	Kirinyaga West Sub-County
5.	Doris W. Maina	Ward Administrator	Kariti Ward
6.	Patrick M. Muriithi	Ward Administrator	Kiine Ward
7.	Stephen Kinyua Mwangi	Admin. Assistant	Mukure Ward
8.	John M. Mwai	Chief	National Government
9.	Joseph Murithi Githinji	Assistant Chief	National Government
10.	Elizabeth Muthoni	Assistant Chief	National Government
11.	Josphine Kinyua	Assistant Chief	National Government
12.	Jane N. Githinji	Assistant Chief	National Government
13.	Elizabeth Wanjiku	Secretary	Kerugoya-Kutus Municipality
14.	Deborah Wanjiru Ndege	Secretary	Kerugoya-Kutus Municipality
15.	Martin Mugo	Enforcement Officer	Kerugoya-Kutus Municipality
16.	Joseph Matheka	A. O	County Government
17.	Eliud Kariuki	Deputy Director ICT	Kirinyaga County
18.	Naftaly M. Muikia	Finance & Budget Specialist	Kerugoya-Kutus Municipality
19.	Margaret w. Kuria	C.D.A	Kirinyaga West Sub-County
20.	Githaka N. Gichira	Revenue officer	Kirinyaga County
21.	John Kuria	Civil engineer	Kerugoya-Kutus Municipality
22.	Christine Kawira Nkuru	Architect	Kerugoya-Kutus Municipality
23.	Moses Murage	Quantity Surveyor	Kerugoya-Kutus Municipality
24.	Francis Kiragu N.	Chief	Thumaita Location
25.	Timothy Gachoki	Assistant Chief	National Government
26.	Brian Kariuki	Economic planner	Kirinyaga County
27.	Isaiah Mwangi	ICT	Kerugoya-Kutus Municipality
28.	Fridah Wambui	Planner	Kerugoya-Kutus Municipality
29.	Antonio Gikonyo Kariuki	Environmentalist	Kerugoya-Kutus Municipality
30.	Morris Macheru	ICT	Kirinyaga County
31.	Evan M. Mureithi	Resident	Mukure Ward
32.	Stephen Muriithi	Resident	Mukure Ward
33.	Betha Murimi	Resident	Mukure Ward
34.	Florah N. Mwangi	Resident	Mukure Ward
35.	Joseph Mugo Mutugi	Casual labourer	Mukure Ward
36.	James Ruila	Resident	Mukure Ward
37.	Grace Mwangi	Resident	Mukure Ward
38.	Pauline Wakiini	Resident	Mukure Ward

No.	Name	Designation	Organization
39.	James Mwai	Resident	Mukure Ward
40.	John Gathiga	Community Co-ordinator	Mukure Ward
41.	Pater Gichira	Resident	Mukure Ward
42.	Loise W. Mwai	Resident	Mukure Ward
43.	Titus M. Muriuki	Resident	Mukure Ward
44.	Ann W. Kinyua	Resident	Mukure Ward
45.	Miriam W. Wanjohi	Resident	Mukure Ward
46.	Jane Muriirhi	Resident	Mukure Ward
47.	Martin Munene	Resident	Mukure Ward
48.	Pauline Mugo	Resident	Mukure Ward
49.	Eunice M. Mbirui	Resident	Mukure Ward
50.	Regina N. Mukoro	Resident	Mukure Ward
51.	Jeniffer Miano	Resident	Mukure Ward
52.	Esther N. Murimi	Resident	Mukure Ward
53.	Benson R. Ngiria	Resident	Kiine Ward
54.	Nancy W. Mbugua	Resident	Kiine Ward
55.	Stephen Muriithi	Pastor	Kiine Ward
56.	Bsp. Stephen M. Kanyi	Bishop	Kiine Ward
57.	Akijah W. Mugo	Environmentalist	Kiine Ward
58.	Sicily W. Murimi	Resident	Kiine Ward
59.	Catherine Wanja	Business Woman	Kiine Ward
60.	Mary Nyawira Muriithi	Businessman	Kiine Ward
61.	Erastus Kanyora	Resident	Kiine Ward
62.	Maina Karanja Kiuma	Resident	Kariti Ward
63.	Peninnah W. Maina	Businesswoman	Kariti Ward
64.	David Kariuki	Resident	Kariti Ward
65.	Richard Kariuki	Resident	Kariti Ward
66.	Nelson Muriithi	Resident	Kariti Ward
67.	Ernest Ngare	Resident	Kariti Ward
68.	Simon M. Mithibe	Resident	Kariti Ward
69.	Harrison Mbirui	CBF	Kariti Ward
70.	Sospeter Muraguri	Resident	Kariti Ward
71.	Henry Mwau	Lead Consultant	RPC
72.	Allan Muthoka	Consultant	RPC
73.	Peter Kaberere	Consultant	RPC
74.	Mark Muthoka	Consultant	RPC
75.	Roseline Moseti	Consultant	RPC
76.	Daisy Chepkemei	Consultant	RPC
77.	David Musyoki	GIS Expert	RPC
78.	Amos Mutinda	Cartographer	RPC
79.	Nancy Thande	Consultant	RPC- Taking Minutes

No.	Name	Designation	Organization
Kirinyaga East			
1	Rev. Samuel Kanjobe	County Executive Committee Member Lands, Physical Planning and Urban Development.	County Government of Kirinyaga
2	John Makumi	Chief Officer Lands, Physical Planning and Urban Development.	Kerugoya-Kutus Municipality
3	Paul M. Muchira	Municipal Manager	Kerugoya-Kutus Municipality
4	Naftaly Muikia	Finance & Budget Officer	Kerugoya-Kutus Municipality
5	Frinah Wambui	Planner	Kerugoya-Kutus Municipality
6	Morris Macheru	ICT	County Government of Kirinyaga
7	Brian Kariuki	Economic Planner	Kerugoya-Kutus Municipality
8	Kellen Violet	Administrator	Lands
9	Elizabeth Wanjiku	Secretary	Kerugoya-Kutus Municipality
10	Eunice Waiguru	Administrator	Lands
11	Isaiah Mwangi	ICT	Kerugoya-Kutus Municipality
12	Charles Kaburu	Director	Kaburu water
13	Peter Murage	Driver	Lands
14	Rose Nyaga	Revenue Officer	Kirinyaga East Sub-County
15	Samuel Ndege	ICT Officer	Kirinyaga East Sub-County
16	Tabitha Gitari	DHO	Kirinyaga East Sub-County
17	Daniel Mbogo	Ward Administrator	Ngariama
18	Githure Mungai	Driver	County Government of Kirinyaga
19	Ann Njogu	CDA	County Government of Kirinyaga
20	Julius Muthi	CPO	Livestock
21	Henry Wambugu	Assistant Chief	Ministry of Interior and coordination
22	Justin Githanju	Assistant Chief	Ministry of Interior and coordination
23	Pauline Wawira	Assistant Chief	Ministry of Interior and coordination
24	Bonface Gachau	Personal Assistant	MCA Baragwi
25	Christine Kawira	Architect	Kerugoya-Kutus Municipality
26	Moses Murage	Quantity Surveyor	Kerugoya-Kutus Municipality

27	John Kuria	Civil Engineer	Kerugoya-Kutus Municipality
28	Ian Ngugi	Urban Planner	Kerugoya-Kutus Municipality
29	Lydia Maringa	C.P. L	County Government of Kirinyaga
30	Richard Munene	S.G. T	County Government of Kirinyaga
31	Racheal Wawira	Enforcement	County Government of Kirinyaga
32	Kennedy Kimani	Ward Administrator	County Government of Kirinyaga
33	Maina Benson	MCA	County Government of Kirinyaga
34	Beatrice Wairimu	Secretary	County Government of Kirinyaga
35	Mary Muriithi	CDA	County Government of Kirinyaga
36	Susan C. W. N	WIA	County Government of Kirinyaga
37	Paul Muchira	Municipal Manager	Kerugoya-Kutus Municipality
38	Maru Ndiga	CDA	County Government of Kirinyaga
39	John Kariuki	Education PS	County Government of Kirinyaga
40	James Mutugi	Administration	County Government of Kirinyaga
41	Pickton Kirungu	Public Health	County Government of Kirinyaga
42	Antony Kinyua	Public Health	County Government of Kirinyaga
43	Magonde Edward	Ward Administrator	County Government of Kirinyaga
44	Antony Ndubiri	Resident	Kabare
45	Agnes Wangia	Resident	Kabare
46	Janet Njeri	Resident	Kabare
47	Margaret Nyaga	Resident	Kabare
48	Mwai Ngauyu	Administrator	Kirinyaga CDF
49	Agnes Wangeci	Resident	Kabare
50	Joseph Kinyua	Retired Health Officer	Ngariama
51	Nelson Nyaga	Retired Teacher	Ngariama
52	Haniel Kanja	Pastor	Ngariama
53	Elias Mwaniki	Resident	Ngariama
54	Peter Tiara	Resident	Ngariama
55	Veronika Wanjiku	Resident	Ngariama
56	Canon Julius	Resident	Ngariama
57	Magdaline Muthoni	Resident	Ngariama

58	Robert Gichobi	Resident	Ngariama
59	Bonface Kariuki	Resident	Ngariama
60	Patrick Bundi	Resident	Ngariama
61	Obed Wachira	Resident	Ngariama
62	Kennedy Kariuki	Resident	Ngariama
63	Sicily Njoki Kibitio	Resident	Baragwi
64	Harrison Wachira	Resident	Baragwi
65	Mathew Muriithi	Resident	Baragwi
66	Eric Mwendia	Resident	Baragwi
67	Mathew Mwaniki	Resident	Baragwi
68	Edward Kwayo	Resident	Baragwi
69	John Kariuki	Resident	Baragwi
70	Allan Mwandia	Resident	Baragwi
71	Ann Njeru	Resident	Baragwi
72	Naashon Gichobi	Children service	Baragwi
73	Mathew Muriithi	Resident	Njukiini
74	Francis Bundi	Resident	Njukiini
75	Ephantus Njogu	Resident	Njukiini
76	Teresa Muriithi	Resident	Njukiini
77	Patrick Kanaiyu	Teacher	Njukiini
78	Newton Kiboti Ngare	Teacher	Njukiini
79	Kenneth Njue	Resident	Njukiini
80	Josphat Murimi	Resident	Njukiini
81	Cyrus Gachoki	Resident	Njukiini
82	David Muchiri	Resident	Njukiini
83	Alois Njiru	Resident	Njukiini
84	Henry Mwau	Lead Consultant	Real Plan Consultants (RPC)
85	Allan Muthoka	Consultant	RPC
86	Peter Kaberere	Consultant	RPC
87	Daisy Chepkemei	Consultant	RPC

88	Nancy Thande	Consultant	RPC
89	David Musyoki	GIS Expert	RPC
90	Simon Mutinda	Cartographer	RPC
91	Mark Muthoka	Consultant	RPC
92	Roseline Moragwa	Consultant	RPC- Taking Minutes
Mwea East			
1.	Rev. Samuel Kanjobe	County Executive Committee Member Lands, Physical Planning and Urban Development.	Kirinyaga County
2.	John Makumi	Chief Officer Lands	Kerugoya-Kutus Municipality
3.	Paul M. Muchira	Municipal Manager	Kerugoya-Kutus Municipality
4.	Hon. Gudson Muchina	MCA- Tebere Ward	Kirinyaga County Assembly
5.	Dr. James Mwaura	Sub-county Administrator	Mwea Sub- County
6.	Ken John Nyutu	Ward administrator	National Government
7.	Margaret Muhoro	Ward administrator	National Government
8.	Sammy Kagito	Resident Scientist	KARLO
9.	Christine Kawira Nkuru	Architect	Kerugoya-Kutus Municipality
10.	John K. Gitu	S. Charge hand	Ministry of Water
11.	Antonio G. Kariuki	Environmentalist	Kerugoya-Kutus Municipality
12.	Edward Gichobi Gatitu	Ward Administrator	National Government
13.	Morris Macheru	ICT	Kirinyaga County Government
14.	Moses Mbutu	Quantity Surveyor	Kerugoya-Kutus Municipality
15.	Ian Ngugi	Urban Planner	Kerugoya-Kutus Municipality
16.	Isaiah Mwangi	Resident	Kerugoya-Kutus Municipality
17.	John Kuria	Resident	Kerugoya-Kutus Municipality
18.	Gitura Munyi	Driver	Kerugoya-Kutus Municipality
19.	Naftali M. Muikia	Finance officer	Kerugoya-Kutus Municipality
20.	Brian Kariuki	Economic Planner	Kerugoya-Kutus Municipality
21.	Ayub Muraguri	G.D.U	Kirinyaga County Government

22.	Deborah Wanjiru	Support staff	Kerugoya-Kutus Municipality
23.	Fridah Wambui	Planner	Kerugoya-Kutus Municipality
24.	Eliud Kariuki	ICT Deputy Director	Kirinyaga County Government
25.	Peter Murago	Driver	Kirinyaga County Government
26.	Ephantus Gatu	Farmer	Gathigiriri
27.	Lydia Wangui	Resident	Gathigiriri
28.	Lazaro Kioria	Resident	Gathigiriri
29.	James Wanjohi Miano	Resident	Gathigiriri
30.	Ferister Muthoni	Resident	Gathigiriri
31.	Martha Wakabari	Resident	Gathigiriri
32.	Philip Maina Kimani	Resident	Gathigiriri
33.	Mercy Nyawira	Resident	Gathigiriri
34.	Cyrus Kangara	Resident	Gathigiriri
35.	Christine Nyokabi	Resident	Gathigiriri
36.	Dennis Gichanga	Businessman	Gathigiriri
37.	Millicent Murugi	Businessman	Gathigiriri
38.	Keziah Mwangi	Business lady	Gathigiriri
39.	Judith Kamau	Business Lady	Gathigiriri
40.	John Ndambiri	Resident	Gathigiriri
41.	James Bundi	Chairman	Mutungara IPR
42.	Susan Munene	Deputy principal	Nyangati Youth Polytechnic
43.	Mwajuma g. Karuru	Administrator	Vet- CGK
44.	Peterson Kinyua	Sport Coordinator	Nyangati
45.	Christine Wangari	Elder	Nyangati
46.	Silas Murithi	farmer	Nyangati
47.	Julius Nduko	Chairman	ACK Kithiriri
48.	Samuel Kaindi	CHV	Tebere
49.	Wilson Kinya	Elder	Tebere
50.	Stanley Ndung'u	Elder	Tebere

51.	John Waweru Mbogo	PWD Representative	Tebere
52.	Rosemary Ndung'u	Representative	Maendeleo
53.	Henry Muriuki	Resident	Tebere
54.	Peter Njuguna	Resident	Tebere
55.	Richard Chomba	Resident	Tebere
56.	Julius Mutugi	Resident	Tebere
57.	Kaki Mwaura	Resident	Tebere
58.	Charles Karuga	Resident	Tebere
59.	Paul Maina	Businessman	Tebere
60.	John Kamau	Businessman	Tebere
61.	David Muchira	Businessman	Tebere
62.	Mary Njahira	Businessman	Tebere
63.	Idi Mugo	Journalist	Standard group
64.	Elizabeth Irungu	Personal Assistant M.C. A	Kirinyaga County Assembly
65.	Mwangi Koinange	Chair PWD	Mwea Disability Network
66.	Stephen Ndegwa	Resident	South Ngariama Dispensary
67.	George Mwaura	Resident	Ichangi
68.	Casbary Githinji	Resident	Murinduko
69.	Joseph Gatu Core	Resident	Kamunyange
70.	Evangeline Karumi	Resident	Igamunyage
71.	Josphat Murira	Resident	Murinduko
72.	Charles Waweru	Resident	South Ngariama
73.	Samuel Macu	Resident	Togonye
74.	Mary Njeri	Ass. Chief	North Ngariama
75.	Eric Mwangi	Resident	Mumbu
76.	Douglas Gibochi	Resident	Riagicheru
77.	Lona Njeri K	Resident	Ngucui
78.	Henry Mwau	Principal Consultant	RPC
79.	Allan Muthoka	Consultant	RPC
80.	Peter Kaberere	Consultant	RPC

81.	Roseline Moseti	Consultant	RPC
82.	David Musyoki	GIS Expert	RPC
83.	Amos Mutinda	Cartographer	RPC
84.	Nancy Thande	Consultant	RPC- Taking Minutes
Mwea West			
1.	Rev. Samuel Kanjobe	County Executive Committee Member Lands, Physical Planning and Urban Development.	County Government of Kirinyaga
2.	John Makumi	Chief Officer Lands, Physical Planning and Urban Development.	Kerugoya-Kutus Municipality
3.	Paul M. Muchira	Municipal Manager	Kerugoya-Kutus Municipality
4.	Dr. James Mwaura	Sub-County Administrator	County Government of Kirinyaga
5.	Elizabeth Wawira	Assistant Chief	Marurumo
6.	Calbert Njeru	Administrator	County Government of Kirinyaga
7.	James Mutugi	Administrator	County Government of Kirinyaga
8.	Moses Mbutu	Quantity Surveyor	Kerugoya-Kutus Municipality
9.	John Kuria	Civil Engineer	Kerugoya-Kutus Municipality
10.	Margaret Wambui	Ward Administrator	County Government of Kirinyaga
11.	Francis Gate	Ward Administrator	County Government of Kirinyaga
12.	Julius N. Wamwea	Ward Administrator	County Government of Kirinyaga
13.	Gerald Njuki	Ward Administrator	County Government of Kirinyaga
14.	Ian Ngugi	Urban Planner	Kerugoya-Kutus Municipality
15.	Peter Murabe	Driver	County Government of Kirinyaga
16.	Martin Mugo	Enforcement Officer	Kerugoya-Kutus Municipality
17.	Antonio Gikonyo	Environmentalist	Kerugoya-Kutus Municipality
18.	Morris Mucheru	ICT	County Government of Kirinyaga
19.	Gitura Munyi	Driver	County Government of Kirinyaga
20.	George Maina	Enforcement Officer	County Government of Kirinyaga
21.	Lucy Mwaura	Secretary	MCAs Office
22.	Julius Njenga	Driver	County Government of Kirinyaga
23.	Mary W. Mwangi	Secretary	MCAs Office
24.	Elizabeth Wanjiku	Secretary	Kerugoya-Kutus Municipality
25.	Naftaly M. Muikia	Finance Officer	Kerugoya-Kutus Municipality
26.	Brian Kariuki	Economic Planner	Kerugoya-Kutus Municipality

27.	Jemimah Njogu	Secretary	Kerugoya-Kutus Municipality
28.	Fridah Wambui	Planner	Kerugoya-Kutus Municipality
29.	Geoffrey Ciira	Resident	Wamumu
30.	John Kinuthia	Resident	Wamumu
31.	Virginia Kinyua	Resident	Wamumu
32.	Joseph Kenyatta	Business	Wamumu
33.	Paul Mutunga	Youth Rep	Wamumu
34.	David Wachira	Resident	Wamumu
35.	Hezron Muchoki	Youth	Wamumu
36.	Lukas Munyi	Youth	Wamumu
37.	Florence Mugo	Resident	Marurumo
38.	Irene Muriithi	Business	Wamumu
39.	Susan N. Mwangi	Resident	Wamumu
40.	Leah Mwangi	Resident	Wamumu
41.	Christine Wangeci	Resident	Wamumu
42.	Joseph Macharia	Secretary	Maendeleo Group
43.	Kariuki Muchira	Resident	Wamumu
44.	Geoffrey Maina	Resident	Wamumu
45.	Mary Wanjiku	Business	Wamumu
46.	Lucy Wakombu	Secretary	Women Welfare
47.	Rose Wanjiru	Village I/C	Marura
48.	Joseph Ndoro	Chairman	Marura Boda
49.	Stephen Nyaga	Resident	Kangai
50.	Antony M. Mwaoro	Chair N/K Location	Kangai
51.	Benyam Korgo	Resident	Kangai
52.	Duncan Meki	Secretary	Kangai
53.	Jeftha Muchiri	Resident	Kangai
54.	Moses Chomba	Admin. Assistant	NARIAP
55.	Caroline Muithike	Resident	Kangai
56.	Josphat Mucoki	Resident	Kangai
57.	Daniel Kibuti	Resident	Kangai
58.	Charity Murage	Resident	Kangai
59.	Immanuel Muriuki	Resident	Kangai
60.	Dawson Murage	Resident	Kangai

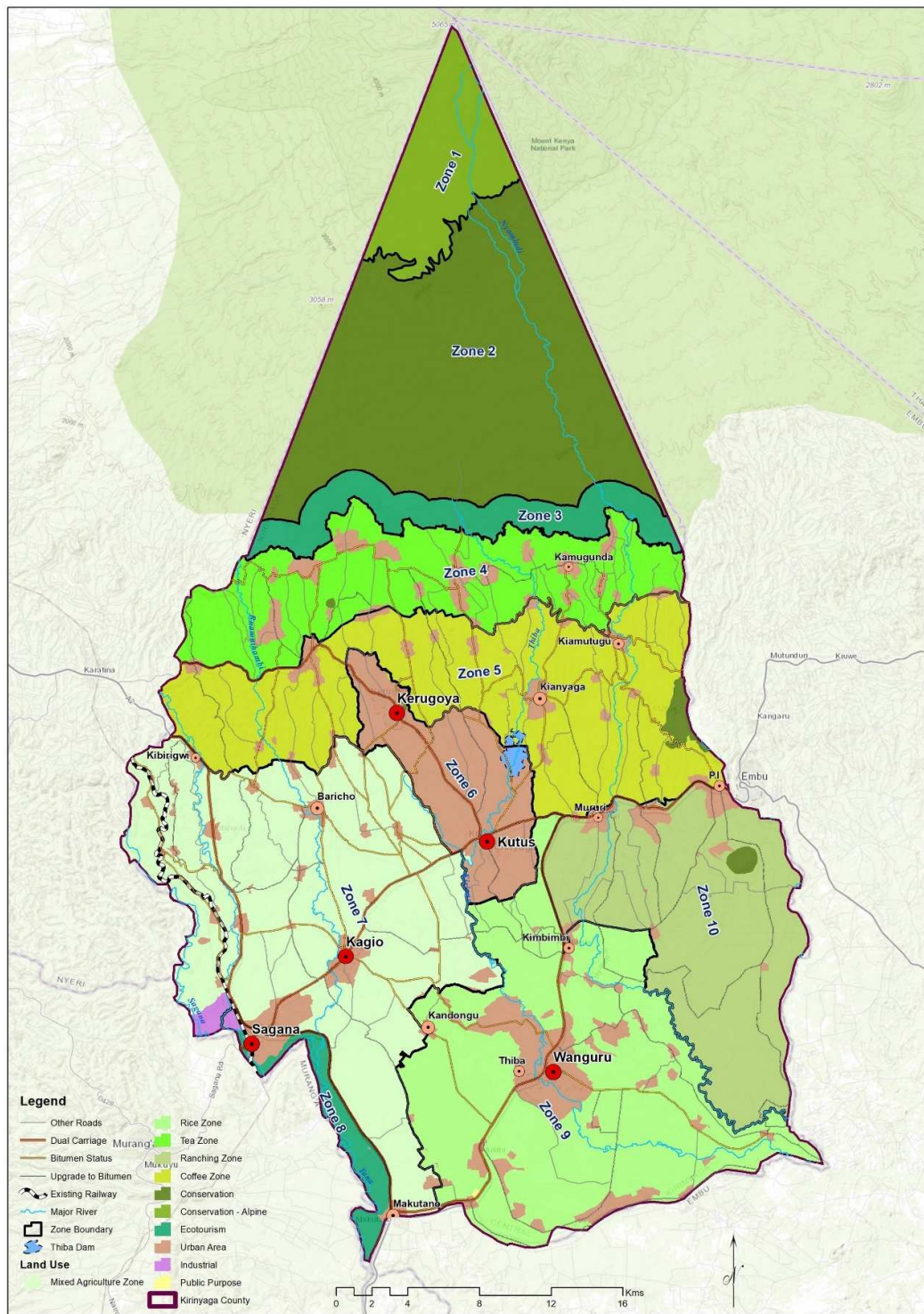
61.	Robert Muciiri	Resident	Kangai
62.	Antony Murage	Resident	Kangai
63.	James Mboya	Resident	Kangai
64.	Peter K. Macharia	Chairman	Business Community Kandongu
65.	Racheal Mwangi	Secretary	MIAD
66.	Salim Kariuki	Resident	Cereals
67.	Ann Muthoni	Support Staff	MIAD
68.	Bernard Mugweru	Chairman Social Service	Mutithi
69.	Alice Nduta	Resident	MIAD
70.	Ann Mutui	Resident	MIAD
71.	Michael Wachira	Resident	MIAD
72.	Patrick Wamweru	Resident	Kandongu
73.	Geoffrey Githaka	Resident	Mutithi
74.	Ann Ngayo	Resident	Mutithi
75.	Margaret Mwaniki	Resident	Mutithi
76.	Peter Gichira	Resident	Mutithi
77.	Peter Nyaga	Ass Chief	NGAO
78.	Virginia Wangari	Resident	PWD Chairperson
79.	Simon Mbuthi	Resident	Mutithi
80.	Simeon Mbugua	Village I/C	Muthaiga
81.	Joseph Muriu	Elder	Mbuinjeru
82.	Margaret King'ori	Resident	Thiba
83.	Eunice Waweru	Resident	Thiba
84.	Leah Wakaria	Resident	Thiba South
85.	James Mugo	Resident	Thiba South
86.	Judy Wairimu	Karira	Thiba
87.	Faith Njoki	Resident	Thiba
88.	Paul Muriuki	Resident	Thiba
89.	Christopher Njeri	Resident	Thiba
90.	David Githinji	Resident	Thiba
91.	Stanley Bundi	Intern	Nguka Store
92.	Benjamin Waweru	Resident	Nguka village
93.	James Njoroge	Resident	Kasarani
94.	Henry Mwau	Lead Consultant	Real Plan Consultants (RPC)

95.	Allan Muthoka	Consultant	RPC
96.	Peter Kaberere	Consultant	RPC
97.	Nancy Thande	Consultant	RPC
98.	David Musyoki	GIS Expert	RPC
99.	Simon Mutinda	GIS/ Cartographer	RPC
100	Roseline Moragwa	Consultant	RPC- Taking minutes
Kirinyaga Central			
No	Name	Designation	Organization
1	John B. Wachira	Chief	National government
2	Agnes Wanjiru	Asst. Chief	National government
3	Justus Mwai	Asst. Chief	National government
4	Rosemary Njeru	Chief	National government
5	Mary Mugera	Chief	National government
6	Paul Mutugindiga	Asst. Chief	National government
7	Naphtali M. Mukini	Finance and budget specialist	Kerugoya-Kutus Municipality
8	Nicholas Mkwi	N.Y.C	National government
9	Milkha Chomba	Ward administrator	County Government
10	Fridah Wambui	Planner	
11	Sheila Mwangi	Sub-county Admin	County Government
12	Samuel Gichuki	Ward administrator	County Government
13	Paul Muchira	Municipal manager	Kerugoya-Kutus Municipality
14	Naashon K. Kibicho	Asst. Chief	National Government
15	Faith M. Shakit	Planner	Geodev K. Ltd
16	Bethroser Gakonde	Chief	National Government
17	Denis Kinyua	County Information officer	County Government
18	Brian Kariuki	Economic Planner	County Government
19	Faith Nyambura	Environmentalist	County Government
20	Mary W. Muriuki	Asst. Chief	National Government
21	Christine Wanjiru	Board Member	Kerugoya Kutus Municipality
22	Isaiah Mwangi	ICT officer	Kerugoya-Kutus Municipality

23	Morris Macheru	ICT Officer	County Government
24	Christine Kawira	Architect	Kerugoya-Kutus Municipality
25	John Kuria		Kerugoya-Kutus Municipality
26	Ian Ngugi	Urban Planner	Kerugoya-Kutus Municipality
27	Daniel Mugo Kagwi	Chief	National Government
28	Moses Murage	Quantity Surveyor	Kerugoya-Kutus Municipality
29	Ruth W. Ndwiru	Chief	National government
30	Violet Kalen	Secretary	County Government
31	Elizabeth Wanjiku	Secretary	Kerugoya-Kutus Municipality
32	Eliud Kariuki	Director ICT	County Government
33	Eunice Wanjiru	CEO	Chamber of Commerce
34	John W. Ndiangui	Entrepreneur	
35	Evans Langat	ICT	Chamber Of Commerce
36	Mwai Ngunyi	Director Survey	County Government
37	Samuel Mwanji	Director	County Government
38	Teresia N. Murithi	Farmer	Kerugoya ward
39	Ambrose Muriithi	Musician	Kerugoya Ward
40	Jane Nyawira	Farmer	Kerugoya Ward
41	Alison Njogu	Farmer	Kerugoya Ward
42	Moses Waweru	Farmer	Kerugoya Ward
43	Stephen Gicheru	Farmer	Kerugoya Ward
44	Kennedy Mutugi	Entrepreneur	Kerugoya Ward
45	Sebastian Gitahi	Entrepreneur	Kerugoya Ward
46	Patrick Gitimu	Farmer	Kerugoya Ward
47	Neliah W. Shiroko	Entrepreneur	Kerugoya Ward
48	Stephen Karanja	Entrepreneur	Kerugoya Ward
49	David Muriithi	Entrepreneur	Kerugoya Ward
50	Stephen Mbogo		Kerugoya Ward
51	Sicily W. Ndambiri	Farmer	Kerugoya Ward
52	Paul Macharia		Kerugoya Ward
53	Florence Muthoni	Entrepreneur	Kerugoya Ward

54	Johnson Mwai	Carpenter	Kerugoya Ward
55	Faith Muthoni		Kerugoya Ward
56	Wambui Muchiri	Communications	Kerugoya Ward
57	Wangechi Wang'ondo	Communications	Kerugoya Ward
58	Jane Wamugambi	Communications	Kerugoya Ward
59	Kennedy Maina	Communications	Kerugoya Ward
60	Gitura Munyi	Driver	Kerugoya Ward
61	Alexander K. Maina	Driver	Kerugoya Ward
62	Ruth Muthoni	Chairperson	KWEPS
63	Loise Njeri Kinyua	Entrepreneur	Mutira Ward
64	Evans Karimi	Elder	Mutira Ward
65	Erick Mwai Karue	Chairman Nyumba kumi	Mutira Ward
66	Paul Maina	Farmer	Mutira Ward
67	Lilian Nyawira	Entrepreneur	Mutira Ward
68	Caroline Njeri	Entrepreneur	Mutira Ward
69	Bancy Muthike		Kanyekeine Ward
70	Kinyua Makae	Nyumba Kumi	Kanyekine Ward
72	Francis Mithamo Mbeki	Farmer	Kanyekine Ward
73	Bernard M. Wachira	Farmer	Kanyekine Ward
74	Elias Maina Muriuki	Y.A. D	Kanyekine Ward
75	Francis Ndambiti	Farmer	Kanyekine Ward
76	Gabriel G. Kongo	Telkom	Kanyekine Ward
78	Nancy Njeri	Entrepreneur	Kanyekine Ward
79	John Gacoki	Farmer	Kanyekine Ward
80	Jeremiah Nyagah	Farmer	Kanyekine Ward
81	Stephen Muthike	Farmer	Kanyekine Ward
82	Andrew Koori	Asst. Chief	National Government
83	Raphael Muriithi		Kanyekine Ward
84	Anthony Mugo	Farmer	Inoi Ward

	Mugwi		
85	Githinji Ngotho	Tea Farmer	Inoi Ward
86	Francis Magera	Farmer	Inoi Ward
87	David Muthii	Farmer	Inoi Ward
88	David M. Mugo	Farmer	Inoi Ward
89	Daniel M. Kabogo	Entrepreneur	Inoi Ward
90	Peter Njagi	Chief	National Government
91	Gladys Kimotho	Entrepreneur	Inoi Ward
92	Millicent Mukami	C.H. V	Inoi Ward
93	Boniface Wachira	Farmer	Inoi Ward
94	Samuel Karani Chuma	Manager	Good Faith Children's Home
95	Paul N. Kiragu	Pastor	Akorino
96	Henry Mwangi	Entrepreneur	Inoi Ward
97	Susan Njeri Ngari	Teacher	Canon
98	Edith W. Miano	Entrepreneur	Inoi Ward
99	Daniel Macharia	Entrepreneur	Inoi Ward
100	Kamau Chege	Entrepreneur	Inoi Ward
101	Benson Muriuki	Farmer	Inoi Ward
102	Jacintha Gichungi	Entrepreneur	Inoi Ward
103	Henry Mwau	Lead Expert	RPC
104	Allan Muthoka	Planner	RPC
105	Mark Nzioka	Planner	RPC
106	Roseline Moseti	Planner	RPC
107	David Musyoki	GIS expert	RPC
108	Peter Kaberere	Planner	RPC
109	Simon Mutinda	Planner	RPC
110	Daisy Chepkemei	Planner	RPC
111	Nancy Thande	Planner	RPC



County Government of Kirinyaga,
 Department of Lands, Physical Planning & Urban
 Development, P.O Box 260-10304,
 Kutus-Kenya.