

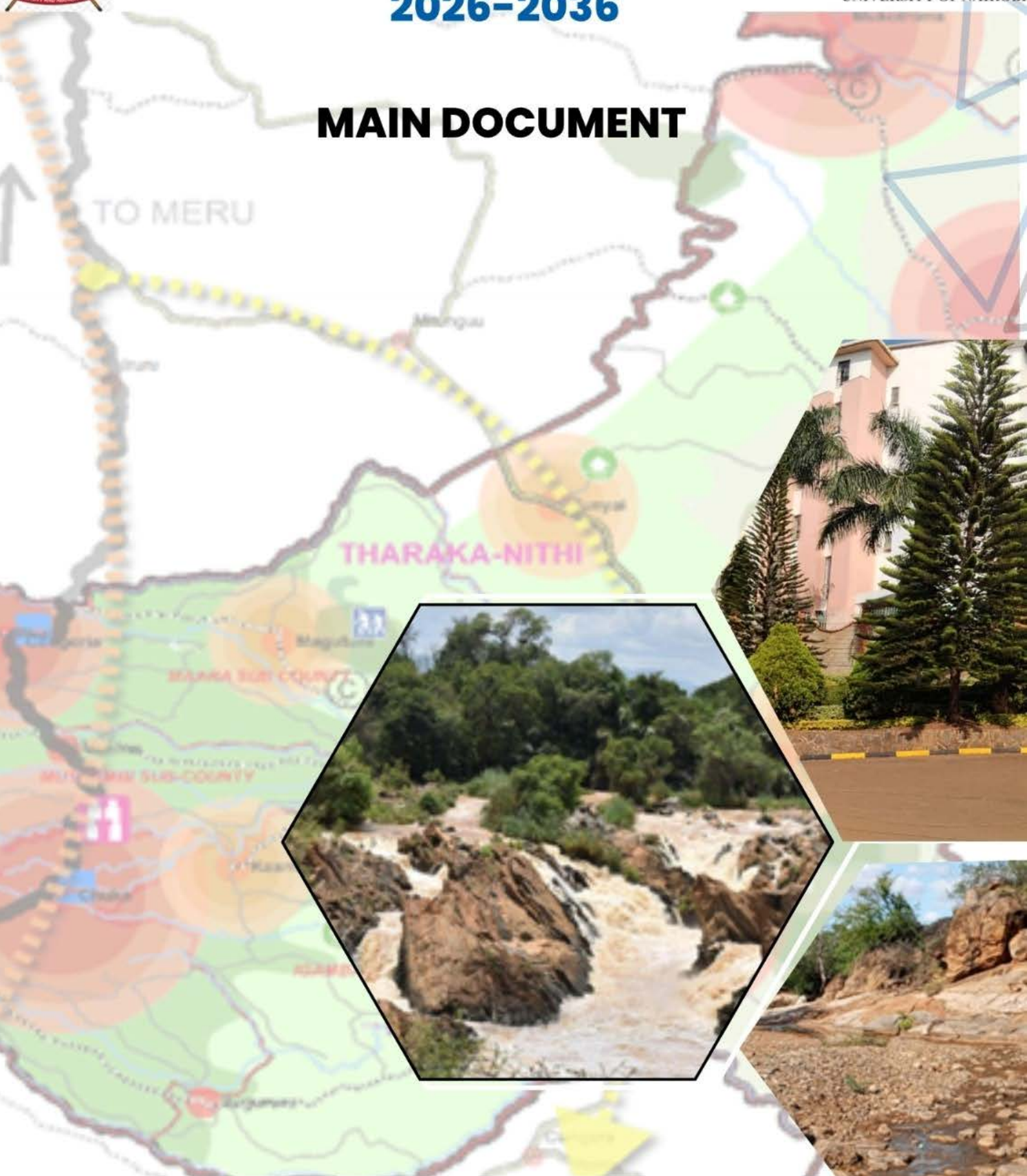


THARAKA NITHI COUNTY SPATIAL PLAN (CSP) 2026-2036



UNIVERSITY OF NAIROBI

MAIN DOCUMENT



JUNE 2026

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We regret any errors or omissions that may have been unwillingly made.

PLAN APPROVAL

CERTIFICATE

I certify that the plan has been prepared as per Section 110 of the County Governments Act, 2012 (Act No. 17 of 2012), The Physical and Land Use Planning Act, 2019 and Planning standards and guidelines.

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County Director of Physical and Land Use Planning

Tharaka Nithi County

Recommended

Signature: Date:

Njue Njagi Kaithungu

County Executive Committee Member- Agriculture, Crop Production, Livestock, Veterinary Services, Fisheries and Ecosystem Development, Water and Irrigation, Lands and Physical Planning, Environment Climate Change Mining and Natural Resources

Approval

County Assembly Hansard No..... Date.....

Approved Plan No.....

FOREWORD



A County Spatial Plan is a long-term, 10-year framework that guides how land and other resources within a county are used, developed, and conserved. It provides a broad, countywide vision for spatial development by outlining where growth should occur, where infrastructure should be prioritized, and which areas need protection due to environmental, cultural, or hazard-related considerations

The Tharaka Nithi County Spatial Plan provides a roadmap for sustainable development, balancing rapid growth from major projects with improved livelihoods, socio-economic advancement, ecosystem conservation, and cultural heritage protection. The CSP positions Tharaka Nithi County as Kenya's new growth frontier that leaves no one behind. The plan will ensure that economic development, natural heritage, and community well-being remain balanced and sustainable.

The county has undergone significant transformation driven by infrastructure and socio-economic development. However, moving forward, the pressures of rapid population growth, climate change, and the emerging needs of the people of Tharaka Nithi require this plan to provide an appropriate development direction.

The CSP was guided by an Integrated and multi-sectoral Approach that aligned various sectoral issues. The priority was climate resilience, equitable development, and heritage preservation. The process was driven by multi-level stakeholder engagement, from national agencies to local fishermen, ensuring every voice shapes the plan

The Tharaka Nithi County Spatial Plan (TNCSP) (2026-2036) has been prepared in line with section 110(1) of the County Government Act of 2012. The Plan also relates to the National Spatial Plan (NSP) through the flagship projects under Vision 2030. It is anchored in the medium-term expenditure framework.

The CSP will ensure that the county budgeting process aligns with planned development activities and the Kenyan government's development agenda. The plan will guide the county's development programs, projects, and budgets and ensure integrated sectoral coordination across plans and policies.

The CSP will also ensure equitable development that leaves no one behind. The Plan links to various county plans, including the county integrated development plan (2023-2028), sectoral plans, the county budgeting process, and other lower-level plans.

Therefore, I make a clarion call to the people of Tharaka Nithi to carry out development in line with the CSP and other plans. This will transform our county and leave no one behind.

Signature:

H. E. ONESMUS MUTHOMI NJUKI
GOVERNOR, THARAKA NITHI COUNTY

PREFACE



The preparation of the Tharaka Nithi County Spatial Plan (CSP) commenced in 2019. However, the COVID-19 pandemic disrupted activities in 2020 and 2021. Following the resumption of activities in 2023, the planning process progressed smoothly with active stakeholder participation. Through consultations, the County Government and stakeholders developed a shared vision and strategic development framework for the county. The plan identifies key projects, strategies, and interventions that will guide subsequent planning instruments, including the County Integrated Development Plan (CIDP) and County Sectoral Plans.

The CSP is prepared in accordance with the County Government Act of 2012 and the Physical and Land Use Planning Act of 2019, which require county governments to prepare County Spatial Plans and physical and land use development plans.

The plan is anchored in principles and development models aimed at addressing spatial disparities within and between various sub-counties and wards in the county. To address uneven development, it proposes policies and interventions that promote balanced growth and expand economic opportunities across all regions. A key objective is the equitable distribution of development projects, investments, and services.

The CSP incorporates strategies for agricultural development, tourism, conservation, urbanization, human settlements, and industrialization. Industrialization is envisaged as a driver of agricultural transformation through value addition, improved land use, and better land management. The promotion of agro-processing and other primary industries is expected to stimulate economic growth and create employment opportunities.

In tourism, the plan leverages the county's position within the Mount Kenya tourism circuit by strengthening linkages with Mount Kenya, Meru National Park, and the protected areas of Isiolo and Mwingi. It also proposes developing resort and cultural towns along the Ura Gate corridor to diversify tourism and support local economic development.

The CSP was developed through an extensive participatory process in line with the Constitution of Kenya, 2010. Stakeholder consultations were conducted at the ward level and were supported by diagnostic studies on physiography, natural resources, infrastructure, land-use and land-cover change, settlement patterns, demographics, rural development, urbanization, and governance. Technical consultations with county departments provided iterative feedback that helped refine the plan and build consensus. The completed CSP was subsequently submitted to the County Assembly for deliberation and approval.

Signature: _____

CECM-Department of Agriculture, Crop Production, Livestock, Veterinary Services, Fisheries & Ecosystem Development, Water & Irrigation, Lands & Physical Planning, Environment, Climate Change, Mining & Natural Resources

ACKNOWLEDGMENT

The Tharaka Nithi County Spatial Plan (2026–2036) was prepared through a collaborative, consultative, and participatory process involving local communities from both rural and urban areas of the county, national government representatives, non-governmental organizations (NGOs), and community-based organizations (CBOs).

The process also benefited from the contributions of the consultant team from the University of Nairobi, Department of Urban and Regional Planning (DURP), including fourth-year students from the 2018/2019 and 2023/2024 classes. We sincerely thank all who participated in preparing the CSP. The numerous comments and submissions received greatly enriched the plan, and every effort was made to incorporate and respond to them.

We take this opportunity to acknowledge the support and stewardship provided by the county leadership, spearheaded by H.E. the Governor, Hon. Muthomi Njuki, County Executive Committee Members (CECMs), particularly Eng. Giti, immediate former CECM for Lands, Physical Planning, Housing, Public Works, Infrastructure and Urban Development; the Chief Officers, especially the former Chief Officer for Lands, Physical Planning, Housing and Urban Development Planner Faith K. Kyunga who ably initiated and managed the process.

Profound gratitude to CECM and the Chief Officer for Lands and Physical Planning, Mr. James M. Karuku, who has passionately steered the process to completion. Many thanks to Planner Duncan Mwenda, the Assistant Director, Physical and Land Use Planning, and his technical team for always being available to support the planning team.

The document further benefited from the invaluable guidance and support of the County Assembly of Tharaka Nithi, particularly the Committee on Lands, Physical Planning and Housing led by its chairperson, as well as the Municipal Boards of Kathwana and Chuka.

I profoundly thank the Vice-Chancellors, Professor Gitahi Kiama (Former) and Professor Eng. Ayub Gitau for the great support to the planning team. We also recognize the dedicated efforts of the consultant team from the University of Nairobi, Department of Urban and Regional Planning, for professionally steering the planning process. Special appreciation goes to Prof. Peter Ngau, former principal of the College of Architecture and Engineering (CAE), who pioneered the process, contributed to the signing of the Memorandum of Agreement, and actively participated in field activities despite his demanding schedule. I also wish to thank Dr. Munyua Mwaura, who ably led the situational analysis and the visioning process. Many thanks to Associate Dean Dr. Silas Muketha, who brought the process to its conclusion. I further thank Prof. Isaac Karanja Mwangi, Dr. Fridah Mugo, and Dr. Munyua Mwaura, former chairpersons of the Department of Urban and Regional Planning, for their unwavering support. I acknowledge the current Chairman, Dr. Maurice Oyugi, for his support and participation in finalizing the plan.

Finally, these acknowledgments would not be complete without recognizing the dedication and commitment of the county and university teams who were deeply involved in the planning process and contributed significantly to the successful preparation of the County Spatial Plan. Finally, I wish to thank the residents of Tharaka Nithi County in all the wards for their relentless support and participation in preparing the Tharaka Nithi CSP (2026-2036).

Signature:

James M. Karuku, Chief Officer
Department of Lands and Physical Planning

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COUNTY TEAM

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| 8. David Migwi | Physical Planner |
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| 11. Ashford Mutembei | Land Surveyor |
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UNIVERSITY OF NAIROBI TEAM

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| 5. Dr. Rose Musyoka | Registered Planner/Land Management Expert |
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| 9. Dr. Michael Ndwiga | Economist |
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EXECUTIVE SUMMARY

A County Spatial Plan is a long-term, 10-year framework that guides how land and other resources within a county are used, developed, and conserved. It provides a broad, countywide vision for spatial development by outlining where growth should occur, where infrastructure should be prioritized, and which areas need protection due to environmental, cultural, or hazard-related considerations. It is the most critical plan, as it supports the 5-year County Integrated Development Plans (CIDPs) and County Sectoral Plans. The CSP is equally important in the development of the Intercounty Plans. The Fourth Schedule of the Constitution of Kenya confers the function of county planning on county governments.

The Tharaka Nithi County Spatial Plan (2026–2036) was prepared under the Constitution of Kenya, 2010. The Plan sets out the strategic vision that will guide the County’s spatial development over the next ten years. The Plan follows the requirement that all county governments in Kenya prepare and implement a GIS-based ten-year County Spatial Plan pursuant to Section 110(1) of the County Government Act. The process was participatory, with the Planning Team presenting the inception, situational analysis, visioning, and draft CSP reports to the County. Validation forums were held in six counties, with the Committee on Land, Housing, Chuka Municipal Board, and Physical Planning, and the executive. Chuka is also implementing an ISUDP.

The planning process was guided by the Constitution of Kenya, Vision 2030, as well as relevant plans, policies, and regulations, including the National Spatial Plan (NSP), National Land Use Policy (2018), Sessional Paper No. 1 of 2017 on the National Land Use Policy, and the Tharaka Nithi County Integrated Development Plans (CIDPs) for 2018–2022 and 2023–2028. It was also guided by the Urban Areas and Cities Act (UACA), 2011 (Amendment) Act of 2019, the Physical and Land Use Planning Act (PLUPA), 2019, the County Governments Act, 2012, the Environmental Management and Coordination Act (EMCA), the National Land Commission Act, the Forest Conservation and Management Act, among others.

The Ward was used as a critical planning unit and, therefore, served as the unit of observation and analysis. Data were collected at the ward level and aggregated at the sub-county level. The data collection process entailed intensive collaboration, consultations, and participation by various stakeholders. It also involved the use of secondary data, including desk studies of existing public records and benchmarking against the best global practices. Spatial analysis techniques included, among others, remotely sensed satellite data, drone imagery, and aerial photography. These data were geo-referenced and analysed using GIS techniques. Trend analysis revealed various changes in land use and land cover.

The challenges, potential opportunities, threats, and weaknesses were synthesized to inform the vision, goals, objectives, strategies, and activities that constituted the key result areas (KRAs) and critical focus areas. The CSP was developed based on existing land use patterns. Transportation, human settlement, urbanization trends, environmental sensitivity, land suitability, capacity, and availability also informed the Plan. The land use framework sets out strategic policies for land allocation, utilization, and management. This includes land-use zoning, land-use and management policies, guidelines, and standards. The spirit of the land use framework is grounded in adherence to environmental conservation principles.

Spatial development alternatives included, among others, Agriculture and Rural Development, Urbanization and Industrial Development, and Eco-Tourism and Conservation Models. These aimed to achieve spatially integrated economic growth, an urbanization scenario, urbanization-led growth, where Chuka and Kathwana urban centers and other commercial nodes within the periphery drive the development agenda. The integrated model has been proposed as the preferred model as it considers all development sectors and forms a hybrid foundation for development control guidelines. It proposes an urban growth area limit defined by the urban core, the urban growth zone, the transition/urban fringe zone, and the Mt. Kenya Forest conservation zone, each with its general permitted uses. The annexures containing sub-county reports provide detailed action plans for organizing land uses and development within the urban growth areas, along with development standards, permitted and prohibited uses, and auxiliary services.

The success in the implementation of the Tharaka Nithi CSP and its attendant policy framework largely lies in the willingness and ability of the County Government, private institutions, state agencies, and the public to adapt and comply with the spatial framework, development control guidelines, and standards. The main implementation challenges likely to impact the effective realization of this Plan's vision include land ownership, where freehold land may impede planning decisions. In addition, the adjudication and registration process is incomplete in parts of the Tharaka North and South Sub-counties, which slows or hinders the implementation of development. Several implementation opportunities that can be leveraged include demonstrated goodwill from the County Government of Tharaka Nithi, local leaders, and the public of the County to take the forefront in planning and the sustainable development process for the advancement of the whole community.

While the CSP establishes the overall spatial development framework, effective planning requires understanding the unique opportunities, challenges, and development trends in each sub-county. This CSP therefore provides the evidence required to inform county-wide spatial strategies and investment priorities. The sub counties exhibit significant spatial variations in settlement patterns, infrastructure provision, environmental resources, agricultural potential, and access to social services. Various urban settlements continue to expand, while many rural settlements experience limited accessibility, inadequate water supply, poor road connectivity and vulnerability to climate-related hazards. Understanding these variations is essential for identifying development gaps and promoting equitable distribution of infrastructure and public services. Therefore, the CSP comprises sub-county-based annexure reports that analyze ward, locational, and sub-locational-level information to help identify various projects and programmes. The main report presents the policy aspect, while the subcounty reports are geared towards design-based detailed analysis. The Annexures are as follows;

Annexure	Sub-County
1.	Chuka
2.	Igambang'ombe
3.	Muthambi
4.	Maara
5.	Tharaka North
6.	Tharaka South

The CSP is arranged in four parts. Part I contains the introduction and the planning context. Part II presents the situational analysis of various sectors, from physiographic characteristics to infrastructure, and then concludes with emerging issues across all sectors. Part III contains the development of scenarios through three alternatives, culminating in a preferred plan. Part IV

discusses the monitoring and implementation of CSP. The CSP is wrapped up with references and annexures.

ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
ASAL	Arid and Semi-Arid Land
CAP	Chapter
CCTV	Closed Circuit Television
CECM	Chief Executive Committee Member
CEKEB	Central Kenya Economic Bloc
CIDP	County Integrated Development Plan
CoG	Council of Governors
CoK	Constitution of Kenya
CSI	Coping Strategy Index
CSP	County Spatial Plan
DNI	Direct Normal Irradiance
DURP	Department of Urban Planning
ECD	Early Childhood Development
FAC	Forest Adjacent Communities
FAO	Food and Agricultural Organisation
FBOs	Faith Based Organisations
FGM	Female Genital Mutilation
GDP	Gross Domestic Product
GHG	Green House Gases
GIS	Geographic Information Systems
GTZ	German Technical Corporation Agency
HDI	Human Development Index
HES	Health Environment Standards
HIV	Human Immunodeficiency Virus
HQ	Headquarters
IC	Individual Connection
ICPHC	International Centre for Public Health Consortium
ICT	Information and Communication Technology
ILRI	International Livestock Research Institute
KAM	Kenya Association of Manufacturers
KCB	Kenya Commercial Bank
KCSAP	Kenya Climate Smart Agriculture Project
KeRRA	Kenya Rural Roads Authority
KETRACO	Kenya Electricity Transmission Company
KFS	Kenya Forestry Services
KIHBS	Kenya Integrated Household Budget Survey
KNBS	Kenya National Bureau of Statistics
KPLC	Kenya Power and Lighting Company
KRB	Kenya Roads Board
KTDA	Kenya Tea Development Authority
KURA	Kenya Urban Roads Authority
KWFT	Kenya Women Microfinance Bank
KWS	Kenya Wildlife Services
LAPSSET	Lamu Port- South Sudan- Ethiopia- Transport
LPG	Liquid Petroleum Gas
MoALF	Ministry of Agriculture, Livestock, and Fisheries
MoE	Ministry of Education
MoH	Ministry of Health
NCPD	National Council for Population and Development

NDMA	National Drought Management Authority
NGOs	Non-Governmental Organisations
NIC	Non-Individual Connection
NIWASCO	Nithi Water and Sanitation Company
NLC	National Land Commission
NMT	Non-Motorized Transport
NRM	Natural Resource Management
NWMP	National Waster Master Plan
PBOs	Public Benefits Organizations
PCEA	Presbyterian Church of East Africa
SACCO	Savings and Credit Cooperative
SID	Society for International Development
SPA	Service Provision Agreement
SWOT	Strengths, Weaknesses, Opportunities and Threats
TNC	Tharaka Nithi County
TNCSP	Tharaka Nithi County Spatial Plan
TTI	Technical Training Institutions
UNDP	United Nations Development Program
UoN	University of Nairobi
USAID	United States Agency for International Development
UTANRMP	Upper Tana Natural Resource Management Project
VIP	Ventilated Improved Pit Latrine
WUA	Water User Associations

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PART I: INTRODUCTION

1 CHAPTER 1: INTRODUCTION

1.1 Overview

This chapter introduces and justifies the rationale for the preparation of the County Spatial Plan of Tharaka Nithi. It also describes the plan's goals, vision, objectives, and scope, providing a backdrop for the whole plan and explaining how it has been organized.

1.2 Background

Tharaka-Nithi County, established under the Constitution of Kenya (2010), is located approximately 175 kilometers from Nairobi at the foot of Mount Kenya, sharing the mountain's peak with four other counties of Meru, Nyeri, Embu and Kirinyaga. The County is home to the Muthambi, Chuka, Tharaka, and Mwimbi communities, who form part of the larger Ameru community. The County is one of the 47 counties in the Republic of Kenya created by the Constitution of Kenya 2010. The county approximately 2,662.1 km², including about 360 km² of the Mount Kenya Forest. It shares administrative boundaries with Embu County to the south and south-west, Meru County to the north and north-east, Kirinyaga and Nyeri Counties to the west, and Kitui County to the east and south-east.

The county has evidently two broad agro-ecological zones; with the north and west endowed with rich volcanic soils, suitable climatic conditions for agriculture, enabling the county to boast of the best tea and coffee among other crops such as bananas and fruits. The south and south eastern area present range like climatic conditions, with goat and bee keeping as the major agricultural activities. Provision of physical and social facilities is skewed to the north while the south is underserved. Commercial activities are predominant in the major towns such as Chuka, Chogoria, Marimanti and Kathwana, the county headquarters.

The Physical and Land Use Planning Act No. 13 of 2019 (PLUPA) and the County Government Act prescribe a Physical and Land Use Development Plan (PLUDP) and CSP respectively. These are 10 years' plan that seek to control where people live, farm, do business and install infrastructure so that the County grows in an organised way.

The land use framework sets out strategic policies for land allocation, utilization, and management. This includes land use zoning, land use and management policies, guidelines, and standards. The spirit of the land use framework is grounded in adherence to environmental conservation principles.

1.3 Justification for the Plan

County Spatial Plans (CSPs) are ten-year planning instruments prepared under the County Governments Act (2012) to provide policy direction and spatial guidelines for development. They promote coordinated sectoral planning and collaboration with neighboring counties and other development partners.

The Tharaka Nithi County Spatial Plan (TNCSP) provides a framework for long-term spatial development and sustainable land use management within the County. It promotes efficient and productive land use through a collaborative and participatory planning process involving residents, development partners, national and county government institutions, and other stakeholders.

The Plan promotes balanced rural, peri-urban, and urban development through strategic investments and coordinated development. It also provides a strategic framework to guide sectoral planning, optimize development opportunities, and enhance efficient resource utilization across the County.

1.4 Purpose of the Plan

The Tharaka Nithi CSP provides a framework for coordinating and improving the impact of sectoral policies on land use. It also seeks to promote an even distribution of economic development within the County, thereby improving the quality of life and supporting sustainable development. Upon adoption, all county planning and projects are expected to be guided by the CSP, with all sectoral departments deriving their strategies and projects from it during These forms the basis upon which the County Government of Tharaka Nithi has prepared its CSP for the area of jurisdiction, in fulfilment of the legal requirement and to guide the County's holistic development over the next ten (10) years.

1.5 Vision

Public participation is key to the formulation of the CSP. The collective vision statement is anchored in agreed-upon visions derived from the Sub-Counties community sensitisation and participation workshops. **Error! Reference source not found.** gives the Sub-Counties visions that were eventually combined into the County vision.

Figure 1.1: CSP Vision Statement



Source: Visioning Workshops, 2019

1.6 Objectives of the Plan

Overall Objective: To provide a county spatial and policy framework for resource utilization, infrastructure and human capital development.

The specific objectives include:

- i. Provide a basis for infrastructure and service provision for present and projected population over the plan period;
- i. Determine demographic changes in the last ten years and those expected over the life of

- the plan, and how these relate to economic changes, welfare and administrative shifts;
- ii. Identify environmental issues and concerns affecting the planning area and propose strategies to address them;
- iii. Identify development potentials of the planning area through (social, economic and environmental profiling);
- iv. Provide a basis for development control and investment decisions;
- v. Allocate sufficient space for various land uses to ensure efficient function and convenience of users and accommodate future growth;
- vi. Provide for adequate land for recreation and open spaces;
- vii. Enhance and promote safety and security;
- viii. Uphold innovative civic and urban design that enhances the character and form of the key urban nodes;
- ix. Provide for implementation and monitoring framework of proposed development strategies.

1.7 Scope of the Plan

a) Geographical Scope

Geographically, the CSP covers the entire Tharaka-Nithi County, with an area of approximately 2,662.1 km², including about 360 km² of the Mount Kenya Forest within the County. It covers both urban and rural areas across all six sub-counties, namely *Chuka*, *Maara*, *Muthambi*, *Igambang'ombe*, *Tharaka North*, and *Tharaka South*, with particular emphasis on Maara, Muthambi, and Chuka Sub-Counties.

b) Planning Scope

The Tharaka Nithi County Spatial Plan (TNCSP) provides a detailed analysis of the County's spatial structure and sectoral issues. It is a spatial planning framework and regional development strategy with a planning horizon of ten (10) years, from 2026 to 2036, and is subject to review every five (5) years.

The Plan outlines the current spatial, sectoral, and thematic conditions in Tharaka Nithi County, highlighting key development constraints and challenges. It further proposes strategic interventions, including practical sectoral programmes and investments aimed at addressing the identified issues. The Spatial Development Strategy presents existing physical features, maps national and regional development projects within the County, and guides physical development activities across the County.

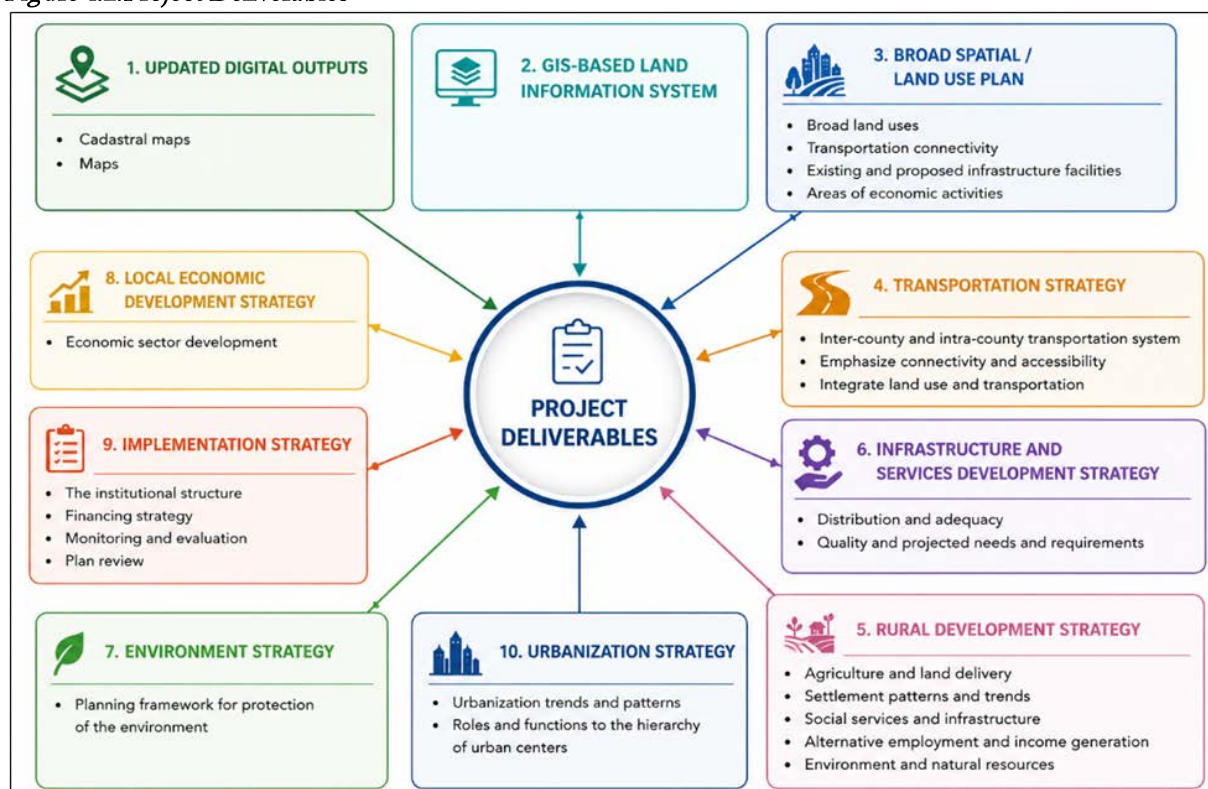
The Plan addresses key development areas such as the utilisation and management of natural resources, urban and rural development, human settlement patterns and trends, transport and infrastructure development, and the attraction of appropriate investment within Tharaka Nithi County. It aligns with the National Spatial Plan (NSP) and complements programmes identified in the County Integrated Development Plan.

It also mainstreams climate change adaptation, disaster risk reduction, renewable energy utilisation, and gender considerations. In addition, the Plan includes an implementation framework outlining programmes, estimated costs, timeframes, institutional responsibilities, and a Monitoring and Evaluation (M&E) framework. A GIS database has also been developed to support spatial analysis, including land information, land use mapping, and zoning for the County.

1.8 Project Deliverable

The project's outputs, shown in the figure below, form components of Tharaka Nithi County Spatial Plan.

Figure 1.2: Project Deliverables



Source: UoN-DURP, 2026

1.9 Methodology and Approach

Planning Methodology

The adopted methodology for preparing this plan was guided by a number of principles including participatory planning, sustainable development, integration, evidence-based, co-production, equity, wealth creation and liveability. Stakeholders' involvement was critical this process and in line with the Physical and Land Use Planning Act, 2019 and the Constitution of Kenya 2010. The Act emphasizes on the need for consultative/participatory approach to ensure that all stakeholders interested in a proposed Plan (including project beneficiaries and the general public in the vicinity of the proposed project) are identified and their buy-in sought and opinions considered during Plan preparation process.

Key stakeholders included the local community, diverse professionals, staff from the County and national governments, institutional heads, and distinct local and international organizations.

Primary and secondary data were collected and analyzed to identify key development challenges and opportunities in Tharaka Nithi County. Key informant interviews, focus group discussions, and stakeholder consultations were held to gather views from residents, leaders, the business community, and investors to better understand the County of Tharaka Nithi.

Direct participation was mainly in Subcounty visioning exercises, where residents did SWOT assessments of their areas and agreed upon vision statements and objectives to achieve the stated visions. The spatial planning process also involved acquiring topographical, cadastral, and land parcel attribute data, satellite images of the county, and preparing a base map and subsequent thematic maps.

a) Pre-planning Phase

The pre-planning phase involved project scoping, needs assessment, reconnaissance, and preparation of data collection instruments. Existing planning initiatives and documentation were reviewed, while profiling, transect surveys, and secondary data analysis were undertaken to identify sectoral issues, challenges, opportunities, and data requirements. Relevant spatial and sectoral data were obtained from the client and other government departments to support subsequent primary and secondary data collection.

Plate 1.1: Participatory Mapping of Issues from County Leaders.



Source: Field Survey, 2019

b) Collection of all Relevant Existing Survey and Mapping Data

This stage involved the collection of field and secondary data, including maps and survey data in both digital and hard copy formats, from the County Government, relevant ministries, and departments. The process aimed to establish the availability of existing information and identify data gaps requiring further collection.

Plate 1.2: Mapping Team analysing County Map



Source: Field Survey, 2019

c) Secondary and Primary Data Collection

This stage of the planning process involved stakeholder engagement and expectation alignment with local leadership, residents, key sector players, and administrators. Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs) were also conducted. A Sub-County visioning exercise was undertaken, during which residents participated in a SWOT analysis that informed the formulation of Sub-County visions, goals, and objectives. A visioning report documented the activities and outcomes for each Sub-County.

Plate 1.3: Focus Group Discussion Session in Gatunga, Tharaka North



Source: Field Survey, 2019

d) Consultation and Validation Workshops

Consultation and validation workshops were undertaken to verify the accuracy and relevance of the information collected in representing the County's existing conditions. The workshops involved local leaders, residents, and key stakeholders in reviewing, verifying, and providing input for necessary revisions. Internal technical consultations between the University of Nairobi planning team and the Tharaka Nithi County Government were also conducted to assess alternatives and develop appropriate planning scenarios.

e) Preparation of Alternative Development Proposals

Following the validation process and guided by the established visions, goals, and objectives, alternative development proposals were formulated as draft structure plans in accordance with planning principles. Each scenario was accompanied by a description to facilitate stakeholder understanding and informed decision-making. The draft proposals were presented during the second stakeholder forum for review, refinement, and consensus building.

f) Development Strategy and Plan Formulation

Upon reaching consensus on the preferred development scenarios, the proposals were developed into a comprehensive spatial structure plan incorporating findings and recommendations from the thematic studies. The structure plan identified growth nodes, designated service areas, and assigned

appropriate functions to different areas. Key supporting elements, including transportation networks and other infrastructure systems, were integrated to guide the overall spatial structure and thematic strategies. **Error! Reference source not found.** presents the developed strategy.

Table 1.1: Spatial Unit Blocks and Plan Proposal Themes

Constituencies	No. of wards	Wards				Projects & Investment Proposals
Maara	5	Mitheru, Muthambi, Mwimbi, Ganga, Chogoria		Constituency & Ward Visions & Strategies		• Spatial structure/land use plan • Transport strategies • Urbanization strategies
Chuka/Igambang'ombe	5	Mariani, Karingani, Magumoni, Mugwe, Igambang'ombe				• Rural development strategies • Infrastructure and service development strategies
Tharaka	5	Gatunga, Mukothima, Nkondi, Chiakariga, Marimanti				• Environment Strategies • Local economy strategies • Water development

Source: TNCG, 2019

g) Plan Finalization and Approval

This took place in three stages, as outlined in **Error! Reference source not found.**

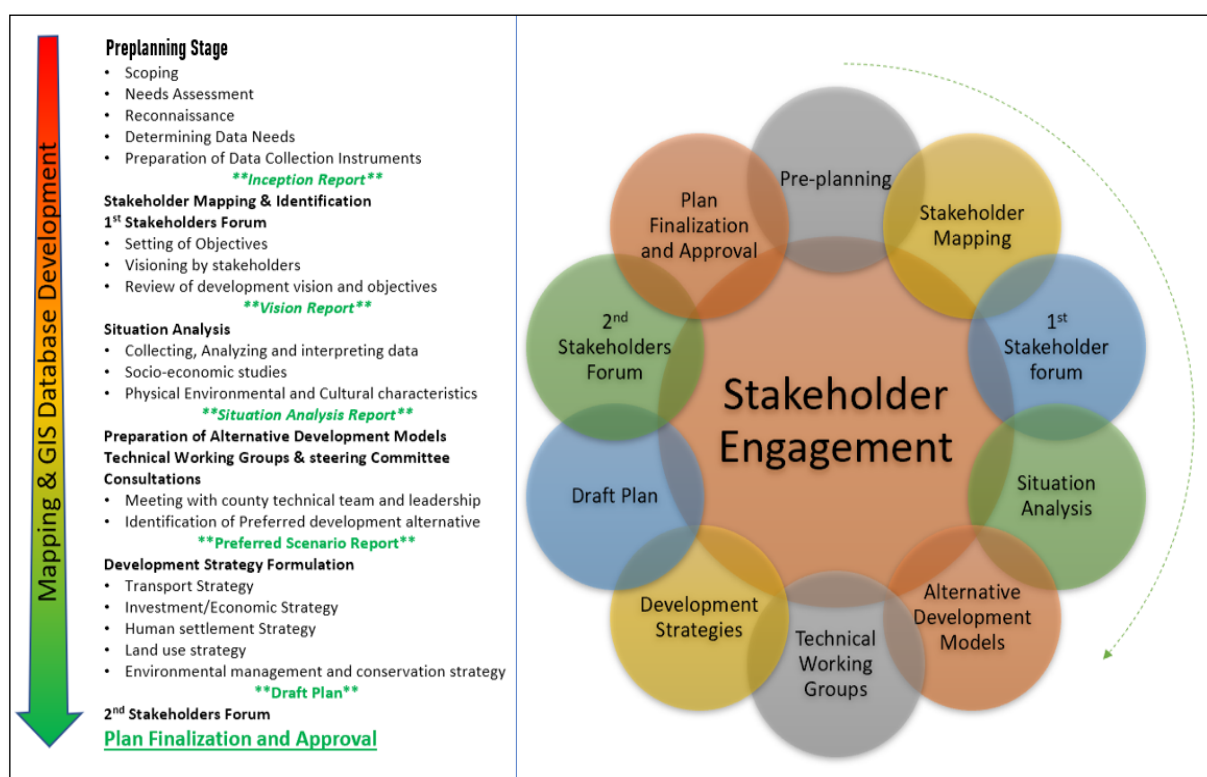
Preparation of the first draft: The first draft report was prepared to address all issues and challenges identified in the situational analysis and stakeholder forums using the preferred development alternative and contemporary planning solutions.

Notice of Public Participation in the Preparation of the CSP: To ensure transparency and public participation, a notice was published in the Kenya Gazette, at least two newspapers of national circulation, and electronic media informing the public of the availability of the draft CSP, including the places and times for review.

2nd Stakeholder Forum: Stakeholders were invited to review the prepared draft plan and make comments and suggestions on its inclusion and updates. This was conducted at the ward level. All comments were considered to improve the plan.

Final Report and Approval: A final report incorporating all stakeholder comments and suggestions was prepared. The completed report was handed over to the Tharaka Nithi County Government for further action and formal approval through the following procedures.

Table 1.2: The Planning Process



Source: TNCG, 2019

1.10 Organization of the Plan

The Plan is divided into six parts. Part One introduces the Plan, describes the County, and explains the need for planning. Part Two provides a situational analysis based on primary and secondary data and its implications for the planning area. Part Three presents the synthesis. Part Four presents the plan proposals. Part Five covers the spatial development framework and action plans. Part Six presents the implementation framework.

2 CHAPTER 2: PLANNING CONTEXT

Overview

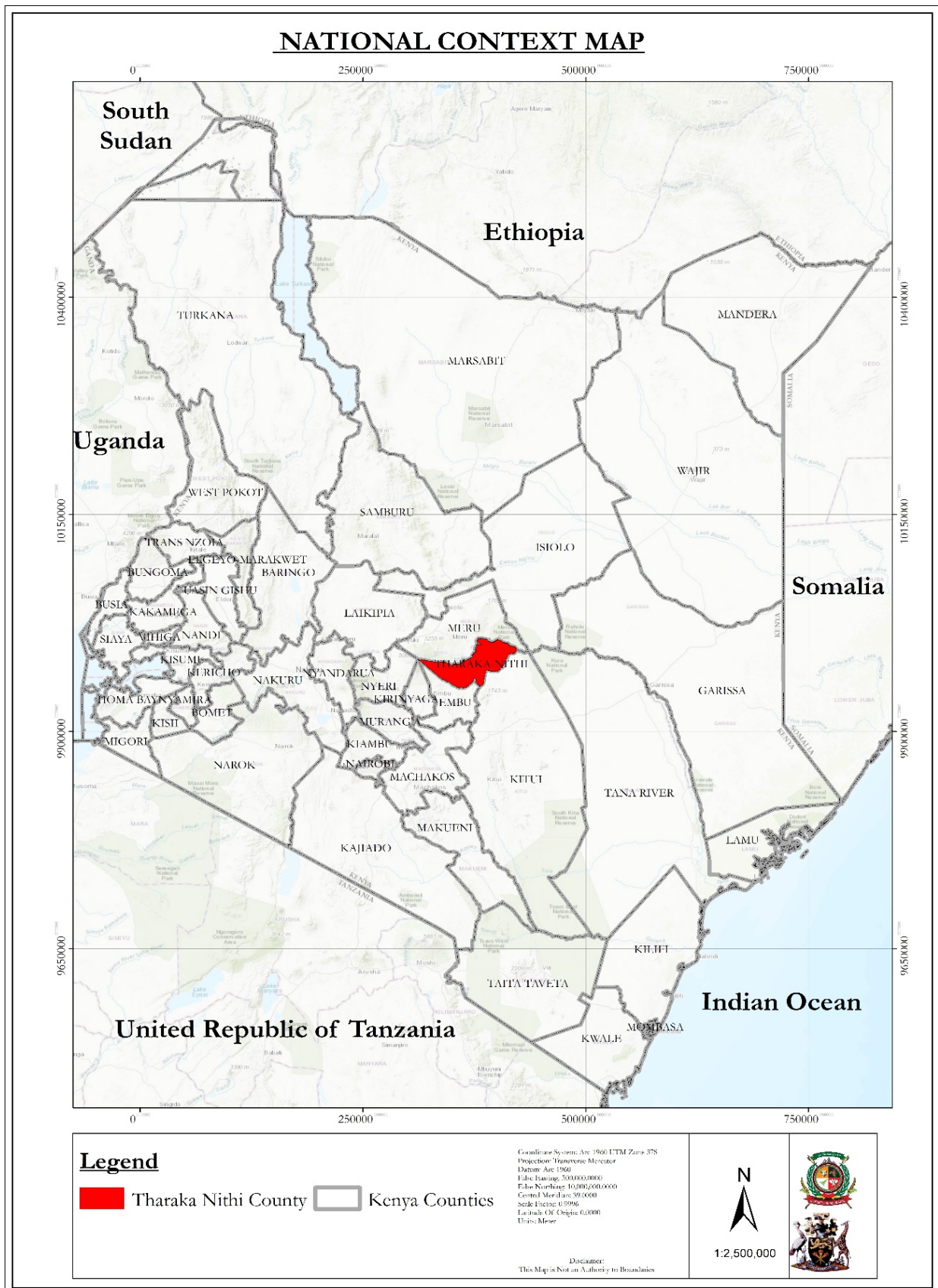
This chapter provides an overview of the locational context, the legal and policy framework guiding the plan preparation, and an analysis of the linkage between the Tharaka Nithi County Spatial Plan and relevant national visions, plans, and development agendas.

2.1 Locational Context

a) National Context

Tharaka-Nithi County is located in the central region of Kenya, to the east of Mount Kenya. The County lies between latitudes 00°06' and 00°26' South and longitudes 37°19' and 37°46' East. It covers a total area of approximately 2,662.1 km², including a portion of the shared Mount Kenya Forest, which covers about 360 km² within Tharaka-Nithi County. **Error! Reference source not found.** illustrates the location of Tharaka-Nithi County within the national context of Kenya.

Map 2.1: National Context for Tharaka Nithi County

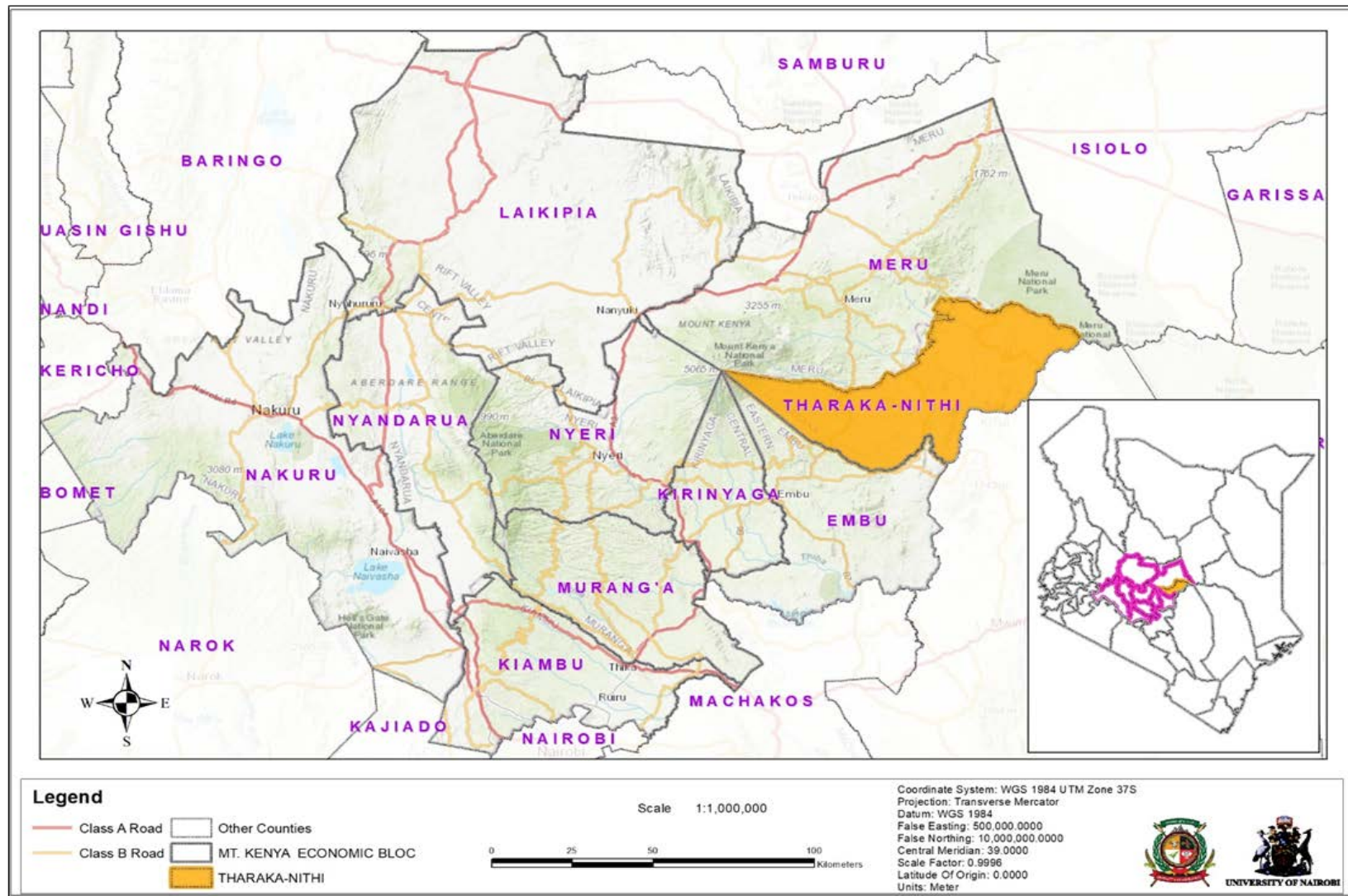


Source: Survey of Kenya, 2019

b) Regional Context

The County is part of the Central Kenya Economic Bloc (CEKEB), which comprises Embu, Kiambu, Kirinyaga, Laikipia, Nakuru, Nyandarua, Nyeri, Meru, and Murang'a Counties. It shares administrative boundaries with Embu County to the south and south-west, Meru County to the north and north-east, Kirinyaga and Nyeri Counties to the west, and Kitui County to the east and south-east. This spatial relationship is illustrated in the accompanying **Error! Reference source not found..**

Map 2.2: Regional Context of Tharaka Nithi in the Central Kenya Economic Bloc (CEKEB)



Source: UoN-DURP, 2024

c) Administrative Context

The County is subdivided into three constituencies, namely Chuka/Igambang'ombe, Maara, and Tharaka. Chuka/Igambang'ombe and Maara constituencies are situated in the western part of the County, which falls within the highland ecological zone, while Tharaka Constituency is located in the eastern and north-eastern part, characterized by lowland conditions.

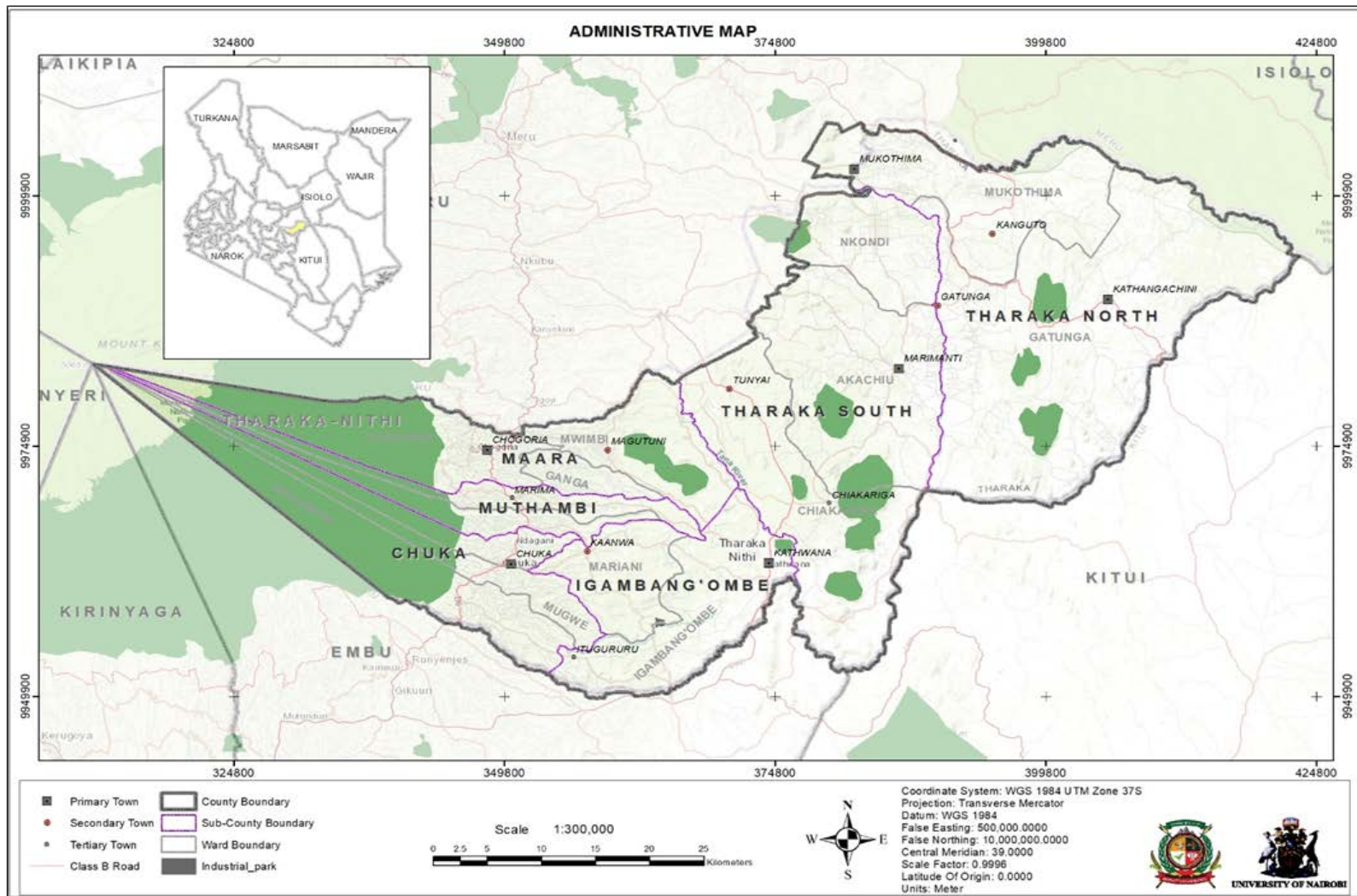
As illustrated in **Error! Reference source not found.** and **Error! Reference source not found.** The constituencies are further subdivided into fifteen (15) wards, with each constituency comprising five (5) wards. These wards constitute the basic unit of analysis for this study.

Table 2.1: County Administrative Units

Constituencies	Sub-counties	Wards
Maara	Muthambi	Mitheru, Muthambi
	Maara	Mwimbi, Ganga, Chogoria
Chuka / Igambang'ombe	Chuka	Karingani, Magumoni, Mugwe
	Igambang'ombe	Mariani, Igambang'ombe
Tharaka	Tharaka North	Gatunga, Mukothima,
	Tharaka South	Chiakariga, Nkondi Marimanti

Source: TNCG, 2024

Map 2.3: Administrative Units of Tharaka Nithi County



Source: UoN-DURP, 2024

2.1 Policy and Legal Framework

The premise of spatial planning in Kenya is guided by established policies, legal frameworks, and regulations that ensure the process is well-controlled, coordinated, and implemented in line with its intended objectives, ultimately resulting in actionable plans. This framework operates across the national and county government levels, thereby ensuring that both broad national priorities and county-specific planning needs are adequately addressed and integrated, as presented in **Error! Reference source not found.** below.

Table 2.2: Policy and Legal Framework

Policy/Act/Institution	Function	Relevance to the Plan
i. Policy Framework		
Sustainable Development Goals (SDGs), 2015	Provides a shared blueprint (17Goals) set to achieve decent lives globally by 2030.	The County Spatial Plan (CSP) is aligned with SDGs 1, 2, 3, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, and 17. It focuses on food security, poverty reduction, health, clean energy, infrastructure development, climate action, reduced inequalities, and strengthened partnerships for sustainable county development.
New Urban Agenda, 2017	Provides a roadmap for building cities that can serve as engines of prosperity, inclusion and centres of cultural and social well-being while protecting and preserving the environment	Enables the TNCSP to formulate a framework for urban policies, urban planning and design and urban governance, rules and regulations to enhance urban development financing
Kenya Vision 2030	Overarches the national development framework, to which all plans should be aligned	The CSP is aligned with Kenya Vision 2030, providing a spatial framework for implementing its economic and social pillars since it is rooted in supporting the goal of sustained 10% annual economic growth and promoting equitable, sustainable socio-economic development for Tharaka Nithi County in a clean and secure environment.

Policy/Act/Institution	Function	Relevance to the Plan
The National Spatial Plan 2015 – 2045 (NSP),	• Aims to ensure that urban areas are designed to serve as engines of prosperity, inclusion and centres of cultural and social well-being while ensuring environmental protection • It provides guidance for the achievement of SDGs and offers underpinnings for actions to address climate change • guides the preparation of regional, County, and local physical/spatial development plans	• The County Spatial Plan (CSP) for Tharaka Nithi is aligned with the National Spatial Plan (NSP). It recognizes the County's development potential in agriculture, tourism, irrigation, dairy production, mineral extraction, and urbanization. • The plan identifies Chuka and other urban centres as key drivers of growth in the greater Ameru region. • It further prioritizes improved water supply and sanitation, value addition, development of small and medium urban centres, and enhancement of physical and social infrastructure across the County.
National Land Policy, Sessional Paper No. 3 Of 2009	• The policy promotes sustainable land use through prudent allocation and distribution. It highlights that 75% of Kenya's population lives in medium to high agricultural potential areas, necessitating a balance between urban development and agricultural land protection. It proposes development control and land use planning as key tools for ensuring equitable, sustainable land use and supporting sustainable human settlements.	• These policy provisions will guide the formulation of sector improvement strategies, including environment, housing, transportation, economic development, and agriculture. The guidelines will also serve as development control instruments for the County to ensure equitable and sustainable land utilization.
Big 4 Agenda	• Its anchored on the promotion of four areas, namely manufacturing, universal healthcare, affordable housing, and food security.	• This plan will seek to contribute to all the BIG 4 agenda by proposing strategies on how to improve the industrial, health, housing, and agricultural sectors in the County

Policy/Act/Institution	Function	Relevance to the Plan
Agricultural Sector Development Strategy, 2009-2020	This Strategy recognizes that the agricultural sector is the driver of Kenya's economy as well as the means of livelihood for most of the Kenyan people. It aims to position the agricultural sector strategically as a key driver for delivering the 10% annual economic growth rate envisaged under the economic pillar of Vision 2030.	The provisions set out in this document guided the preparation of TNCSP.
Integrated National Transport Policy, Sessional Paper No. 2 of 2012	This policy seeks to develop a world-class integrated transport system responsive to the needs of people and industry. It recognizes the transport sector as a key enabler of Vision 2030 and aims to address existing local challenges and opportunities while enhancing regional connectivity with neighboring countries.	TNCSP evaluates the local and international linkage to enhance seamless connectivity within and without.
National Housing Policy for Kenya, 2004	The housing policy aims to ensure adequate and affordable shelter and a healthy living environment for all socio-economic groups in Kenya, thereby promoting sustainable human settlements. It recognizes comprehensive land use planning as a key component of housing provision.	TNCSP has projected and set out the housing areas and support services based along its horizon
National Climate Change Response Strategy, 2010	The vision of the strategy is for a prosperous and climate change-resilient Kenya. The mission is to strengthen and focus nationwide actions towards climate change adaptation and GHG emission mitigation.	This plan gives climate change impact reduction and adaptation mechanisms to follow this policy and best practices worldwide
ICT Policy, 2016	This policy aims to improve the livelihoods of Kenyans by ensuring accessible, efficient, reliable, and affordable ICT services. It promotes sustained economic growth, investment, and innovation in ICT, while striving to achieve universal access.	The provisions set in this policy guided the proposals on improving ICT coverage and penetration in the County
Policy/Act/Institution	Function	Relevance to the Plan
ii. Legal Framework		
The Constitution of Kenya, 2010	The Constitution sets a strong foundation for spatial planning by	The preparation of Tharaka Nithi County

Policy/Act/Institution	Function	Relevance to the Plan
	assigning planning responsibilities to both levels of government. Under the Fourth Schedule Part I (21), the national government is responsible for developing general principles for land planning and coordinating county planning, while Part II (8) mandates county governments with county planning and development, including statistics, land surveying and mapping, housing, and utility services. • Article 60(1) of the Constitution provides principles for sustainable land management in Kenya, requiring land to be held, used, and managed equitably, efficiently, productively, and sustainably. It emphasizes equitable access to land, secure land rights, sustainable resource management, transparent land administration, environmental conservation, elimination of gender discrimination, and community-based resolution of land disputes. • In Article 66 (1) of the Constitution, the State has an overall authority on the use of any land or interest in or right over land in the interest of public defense, public safety, public mortality, public health or land use planning. • Besides the two levels of planning, the Constitution provides for a coordination role, for County and national planning, through the establishment of a National Land Commission. In Article 67 (1) the constitution establishes the National Land Commission (NLC) whose mandate is outlined in Article 67 (1) to monitor and have an oversight over land use planning throughout the country. • Article 69 establishes the primary constitutional obligation to achieve and maintain a minimum of 10% national tree cover, protect genetic resources, and	Spatial Plan takes into account the provisions of the Constitution, where County Governments are required to plan and budget for development programs over a stipulated period. Other devolved functions which the plan focuses on included: public amenities, fire and disaster management services, and urban infrastructure services, among others.

Policy/Act/Institution	Function	Relevance to the Plan
	eliminate processes that degrade the environment	
The Physical and Land Use Planning Act, 2019	- It provides four categories of development plans: 1) National, 2) Inter-County, 3) County, and 4) Local Land Use and Physical Development Plans. The Tharaka Nithi CSP is classified under the 3) County Land Use and Physical Development Plans. The Act also provides guidelines for plan content, preparation, approval, and implementation, with Part A of the First Schedule outlining key issues to be addressed in CSP preparation. - In addition, Section 40 emphasizes public participation in the preparation of County plans, Section 52 provides for the delineation of special planning areas requiring specific planning approaches, and Section 54 requires that all plans under the Urban Areas and Cities Act, 2011, be prepared and approved in accordance with this Act.	The CSP was aligned with the Act, which sets out requirements for its preparation, approval, and implementation. The County Plan also provides for public participation in planning, provides for the identification and planning of special areas, and ensures that all related urban and county plans are implemented within a coordinated legal framework.
County Governments Act, 2012	It elaborates why and how County planning should be undertaken. Section 102 of the Act defines the guiding principles of County planning and development. Further, Section 103 provides the objectives of County planning. The objectives include, but are not limited to, the provisions under Section 103 (1) to ensure harmony between national, County, and Sub-County spatial planning requirements	The CSP is aligned with the County Government Act, 2012, requirement that all County Governments prepare and implement County Spatial Plans
The Urban Areas and Cities Act, 2011	- The statute provides for classification of urban areas and cities, their governance and management, and for integrated development planning. - It shows the interlinkages between various County plans. The legislation vests the responsibility for the management of urban areas and cities in the County governments. - It further provides a framework for classification of areas as urban	TNCSP used the provisions in this Act to classify urban centres and create a hierarchy based on population and level of service

Policy/Act/Institution	Function	Relevance to the Plan
	areas or cities, governance, and management, as well as public participation	
National Land Commission Act, 2012	• It makes provision as to the functions and powers of the National Land Commission and gives effect to the objects and principles of devolved government in land management and administration. • It creates County Land Management Boards, which are critical in processing development applications and allocation of public land.	• The NLC has an oversight role over public land and planning in general
The Land Act, 2012	• This Act provides for the sustainable administration and management of land and land-based resources nationally. It also provides the guiding values and principles of land management and administration.	• This Act offers a strong basis for aligning the County spatial plans to guiding values and principles and the provisions on land as stipulated in the Constitution of Kenya, 2010.
Policy/Act/Institution	Function	Relevance to the Plan
iii. Sector Acts		
Environmental Management and Coordination Act, 1999	• This Act provides for a framework for environmental management. Its provisions are in line with the Constitution's provision for the right to a clean and healthy environment • (EMCA, Cap 387) administered by the National Environment Management Authority (NEMA), recommends Environmental Impact Assessments (EIAs) for any infrastructural or urban development encroaching upon critical catchment areas such as forest reserves	• The County spatial plan has provided for the management, protection and preservation of fragile environmental ecosystems
The Forest Conservation and Management Act (No. 34 of 2016)	This Act forms the operational legislation for all public, community, and private forests. It legalizes Community Forest Associations (CFAs), creating the structural avenue for communities around Mt. Kenya and the gazetted hills to participate in co-management agreements	The county spatial Plan provides policy recommendation that is aligned to the legal mandate of the County Government to conserve and gazette all forest reserves that are mapped
Agriculture, Fisheries and Food Authority Act, 2013	It provides the confines within which to make proposals on agriculture promotion and conservation of soils	The CSP is aligned with the act and provides one of its objective strategies that promote sustainable

Policy/Act/Institution	Function	Relevance to the Plan
	and fertility for sustainable agriculture and optimization of land use.	agriculture and optimization of land use
Water Act, 2002, 2016	It provides guidelines on plan proposals touching on management, conservation, use and control of water resources, water supply, and sewerage services The authority regulates water abstraction permits and enforce riparian reserve boundaries.	Provides for regulation and development of water resource and sewerage services in line with the constitution

Source: UON-DURP, 2024

iv. Other Relevant Acts

1. Survey Act, 1961;
2. Community Land Act, 2016;
3. Energy Act, 2006;
4. The Mining Act, 2016;
5. Public Health Act, 1986;
6. Health Act, 2017;
7. Education Act, 1980;
8. Crop Production and Livestock Act, 1977.
9. Agriculture Act, 1986.
10. The Natural Resources Act, 2016

v. Spatial Planning Guiding Principles

Formulated by the Ministry of Lands and Physical Planning and the Council of Governors, the document aims to guide sustainable development and ensure county effectiveness in service delivery. The national government is charged with the responsibility of formulating general principles of land use planning, coordinating planning by counties, and undertaking capacity building. In fulfilment of this mandate, the national government performs the functions of formulating spatial planning policies, strategies, and guidelines applicable throughout the country. It acknowledges that county governments are responsible for county planning and development and are therefore expected to prepare County Spatial Plans.

These guidelines are applicable throughout the country in the provision of spatial planning services. They form the basis for enhancing the capacity of counties in planning and, at the same time, serve as a tool for organizing the planning system across all counties, mainstreaming processes and procedures for the preparation and implementation of plans. The preparation of the County Spatial Plan shall be guided by the principles shown in Table 2-1.

Table 2.3: Spatial Planning Guiding Principles

Broad	Specific
a. Inclusivity: - participation of all key stakeholders, including professionals, practitioners, sector agencies, national and County governments, and academia.	1. <i>Integrate</i> national values in all processes and concepts. 2. <i>Protect the right</i> to self-fulfillment within the County communities and with responsibility to future generations. 3. <i>Protect and integrate the rights and interests</i> of minorities and marginalized groups and communities. 4. <i>Protect and develop</i> natural resources in a manner that aligns national and County government policies. 5. <i>Align County financial and institutional resources</i> to agreed policy objectives and programmes.
b. Flexibility and Innovativeness: creativity.	6. <i>Stimulate effective resource mobilization</i> for sustainable development.

c. Simplicity: - simple and user-friendly. d. Evidence-based: - legal and policy provisions that guided spatial planning	7. Promote the pursuit of equity in resource allocation within the County. 8. Provide a platform for unifying planning, budgeting, financing, programme implementation and performance review; and 9. Serve as a basis for engagement between the County Government and the citizenry, other stakeholders, and interest groups.
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Source: County Spatial Planning Guidelines, 2018

2.2 Linkage with/to other Plans

In the formulation of the CSP, linkage with other plans was considered and are outlined are outlined in **Error! Reference source not found..**

Table 2.4: Linkage with/to other Plans

PLAN/ POLICY FRAMEWORK	LINKAGE WITH CSP	RELEVANCE TO TNC CSP
National Spatial Plan	NSP is a territorial plan that aims at strengthening national economic planning by providing a spatial dimension of national economic policies. It also guides the preparation of regional, county, and local physical/spatial development plans.	NSP provides important comparative elements that shall guide the development of the Tharaka Nithi CSP.
County Integrated Development Plan	The County Integrated Development Plan is part of the road map towards the implementation of Article 220 (2) of the Constitution of Kenya 2010. It is a five-year plan that addresses This is a five-year plan outlining policies, projects and programs, including the flagship projects, which will be implemented over the plan period. This allows the County government to prepare plans that shall form the basis of how annual budgets of the counties will be formulated.	The TNC CSP, being a longer-term plan, shall inform the subsequent CIDPs of the various spatial plans, projects and flagships that should be budgeted for and implemented. It also provides a unified development framework that involves strategy analysis and planning, development of programme-based budgets and ranked priorities, financing, and participatory implementation.
County Annual Development Plan	Public Finance Management Act, 2012 outlines the County planning framework, which provides for the preparation of various kinds of plans and among them is the County Annual Development Plans (CADPs).	The CADP provides the basis for implementing the CIDP and guiding resource allocation to priority projects and programmes. Most of these programmes and projects, especially those of a spatial nature, are first identified and encapsulated in the CSP.

Source: UON-DURP, 2024

PART II: SITUATION ANALYSIS

3 CHAPTER 3: BASE MAP

3.1 Overview

Land administration is the process of determining, recording, and disseminating information about the tenure, value, and use of land for implementing land management policies. In short, the overall aim of the land administration system is to minimize conflicts regarding rights and restrictions.

In Kenya, Land administration is under the State Department of Lands, mandated with the establishment and management of land, processing and approval of development applications, e.g issuance of consents to charge, lease, or transfer, and alienation of land for development to public institutions and individuals. It also carries out processing of ownership documents such as titles/grants for both public and community lands, setting apart land for public use, generation and collation of revenue and Appropriation-in- Aid (A.I.A.), custody and maintenance of land records, recording and updating and recording of plot attributes on files and cards, documentation of public land. It also aids in the preservation of fragile ecosystems, historical monuments, public beaches, marine reserves, national parks, wetlands, and water catchment areas for purposes of conservation.

The current land administration trends highlight public and private rights, decentralization, zoning, the role of planners, and integrated management.

It is therefore useful to examine planning and markets together because, whilst these can operate in a complementary manner, they do ultimately represent different philosophies of the balance between public and private rights and responsibilities.

3.2 Objectives of Base Map Development

The preparation of the base map sought to achieve the following objectives:

- i. Develop an accurate spatial reference framework for the County Spatial Plan.
- ii. Integrate spatial datasets from various government agencies into a unified GIS database.
- iii. Produce standardized thematic maps for planning and analysis.
- iv. Support spatial modeling, suitability analysis and sectoral planning.
- v. Provide baseline information for monitoring future development.

3.3 Methodology for Base Map Development

The development of the CSP base map involved six major stages.

Table 3.1: Six major stages in basemap development

Stage	Activity	Output
1	Data acquisition	Collection of spatial and attribute datasets
2	Data preprocessing	Cleaning, projection, georeferencing, and formatting
3	GIS database development	Creation of geodatabase and feature classes
4	Data integration	Overlay and harmonization of all datasets
5	Spatial validation	Topology checks, field verification, and corrections
6	Cartographic production	Preparation of final base maps

Source: UoN-DURP, 2026

3.4 Data Acquisition

Spatial data were obtained from various national and county government institutions, as well as remotely sensed imagery and field observations. Multiple datasets were integrated to ensure that the base map represented the current physical and administrative characteristics of Tharaka South Sub-County.

Table 3.2 Data Sources Used in Base Map Development

Dataset	Source	Purpose
Administrative boundaries	Kenya National Bureau of Statistics (KNBS)	Delineation of Sub-County, wards, and administrative units
Roads	Kenya National Highways Authority (KeNHA), Kenya Rural Roads Authority (KeRRA), and the County Government	Road network mapping
Rivers and drainage	Water Resources Authority (WRA), RCMRD, Existing Survey of Kenya Maps	Hydrological mapping
Digital Elevation Model (DEM)	SRTM (30 m)	Terrain and slope analysis
Satellite imagery	Sentinel-2, Google Earth	Land use mapping and feature extraction
Land cover	ESA WorldCover	Existing land cover classification
Population data	Kenya Population and Housing Census (2019).	Demographic analysis
Public facilities	County Government of Tharaka Nithi	Schools, health centres, markets and public institutions
Water infrastructure	County Water Department	Boreholes, dams and water supply systems
Electricity network	Kenya Power	Power distribution network
Field GPS data	Field survey	Validation of mapped features

Source: UoN-DURP,2026

3.5 Data Pre-processing

Following acquisition, all datasets underwent preprocessing before being integrated into the GIS environment. This ensured compatibility between datasets originating from different institutions and formats.

The preprocessing involved conversion of CAD drawings, shapefiles, spreadsheets and raster images into a standardized GIS format. Coordinate systems were harmonized to Arc 1960 UTM Zone 37 South, which served as the reference projection for all spatial datasets. Similar preprocessing procedures are described in the GIS database development methodology used for county spatial planning.

3.6 GIS Database Development

A File Geodatabase was created in ArcGIS Pro to store all spatial datasets required to prepare the Sub-County Spatial Plan. The geodatabase was structured into thematic feature datasets to facilitate efficient storage, editing, retrieval, and analysis of spatial information. The approach follows standard GIS database development principles described in the reference document.

Table 3.3 GIS Database Structure

Feature Dataset	Feature Classes
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Administrative	County boundary, Sub-County boundary, Ward boundary, locational and sub-locational boundaries
Transport	Roads, bridges, and road reserve
Hydrology	Rivers, streams, wetlands, dams, water pans
Settlements	Urban centres, villages, built-up areas
Public Facilities	Schools, health facilities, markets, and administrative offices
Utilities	Powerlines, water pipelines, and boreholes
Environment	Forests, wetlands, protected areas
Land Use	Existing land use, land cover
Terrain	Contours, DEM, spot heights

Source: UoN-DURP,2026

3.7 Base Map Compilation

Following database development, individual datasets were integrated through GIS overlay analysis to produce a comprehensive base map for Tharaka South Sub-County.

The base map combines administrative boundaries, transportation infrastructure, drainage systems, settlements, public facilities, environmental resources, land use and topographic information into a single spatial reference. Each dataset was validated to ensure spatial consistency before integration.

Table 3.4 Base Map Layers

Layer	Geometry
Administrative Boundary	Polygon
Ward Boundary	Polygon
Roads	Line
Rivers	Line
Boreholes	Point
Water Pans	Point
Dams	Polygon
Schools	Point
Health Facilities	Point
Markets	Point
Urban Centres	Point
Settlements	Polygon
Forests	Polygon
Wetlands	Polygon
Land Use	Polygon
Contours	Line

3.8 Baseline Information Development

The GIS database was used to generate baseline information describing the County's existing conditions. Baseline information formed the basis for identifying development opportunities, constraints, and planning interventions.

Table 3.5 Baseline Information Developed

Sector	Information Generated
Administrative	Wards, locations, sub-locations, settlement hierarchy
Physical Environment	Topography, slope, geology, soils, rivers, drainage
Environment	Forests, wetlands, biodiversity, protected areas
Population	Population distribution, density, and household characteristics
Agriculture	Crops, irrigation areas, and livestock production
Infrastructure	Roads, bridges, electricity, ICT, water supply
Social Services	Schools, hospitals, markets, administrative facilities
Economy	Trading centres, industries, and tourism resources

Source: UoN-DURP,2026

3.9 Quality Assurance and Validation

To ensure the reliability of the base map, spatial datasets underwent quality control procedures. This included topology validation, elimination of duplicate features, verification of attribute information, correction of positional errors, and comparison of mapped features against high-resolution satellite imagery and field observations. Validation meetings with the County Technical Team and community stakeholders further confirmed the accuracy of settlement names, administrative boundaries, infrastructure networks, and public facilities prior to finalizing the maps.

Table 3.6 Quality Assurance Procedures

Activity	Purpose
Topology checks	Remove overlaps and gaps
Coordinate verification	Ensure positional accuracy
Attribute validation	Confirm feature descriptions
Satellite image comparison	Verify current land features
Field verification	Validate selected infrastructure and settlements
Stakeholder validation	Confirm local names and administrative boundaries

Source: UoN-DURP,2026

3.10 Outputs of Base Map Development

The GIS database generated a suite of spatial products that formed the analytical foundation of the Tharaka South Sub-County Spatial Plan.

Table 3.7 Base Maps Produced

Map	Purpose
Administrative Map	Administrative reference
Location Map	Spatial context
Topographic Map	Terrain analysis
Road Network Map	Accessibility analysis
Hydrology Map	Water resources planning
Settlement Pattern Map	Urban and rural settlement analysis
Public Facilities Map	Service accessibility analysis
Land Use/Land Cover Map	Existing land use assessment
Environmental Resources Map	Conservation planning
Infrastructure Map	Infrastructure planning
Population Distribution Map	Demographic analysis

Source: UoN-DURP,2026

3.11 The Cadastre Concept

Cadastral surveying is a combination of processes and activities that the consultant (University of Nairobi) is undertaking on behalf of the client (County Government of Tharaka Nithi) to ensure that the cadastral system processes are observed in such a manner to ensure that land ownership is protected, there is equitable land allocation, purposeful land development, and land capability assessment is facilitated. Accurate cadastral information is indispensable not only for effective planning and distribution of basic amenities, but also for proper revenue collection by the state, the security of ownership, and control over land.

3.12 Why Cadastral Surveys

Cadastral surveying is any activity that utilizes or generates cadastral evidence to produce an outcome with the primary purpose of boundary determination. The cadastral system is the basis for protecting property through title registration and cadastral plans. Each parcel and its owners are registered. The Cadastre is the heart of modern, secure land tenure, providing information about the spatial locations and identities of individual land units or parcels. Cadastral surveying and mapping are the cornerstone of the cadastral system, which determines and defines land ownership and boundaries. It deals with, among other things, land measurements, subdivisions, and sectional titles.

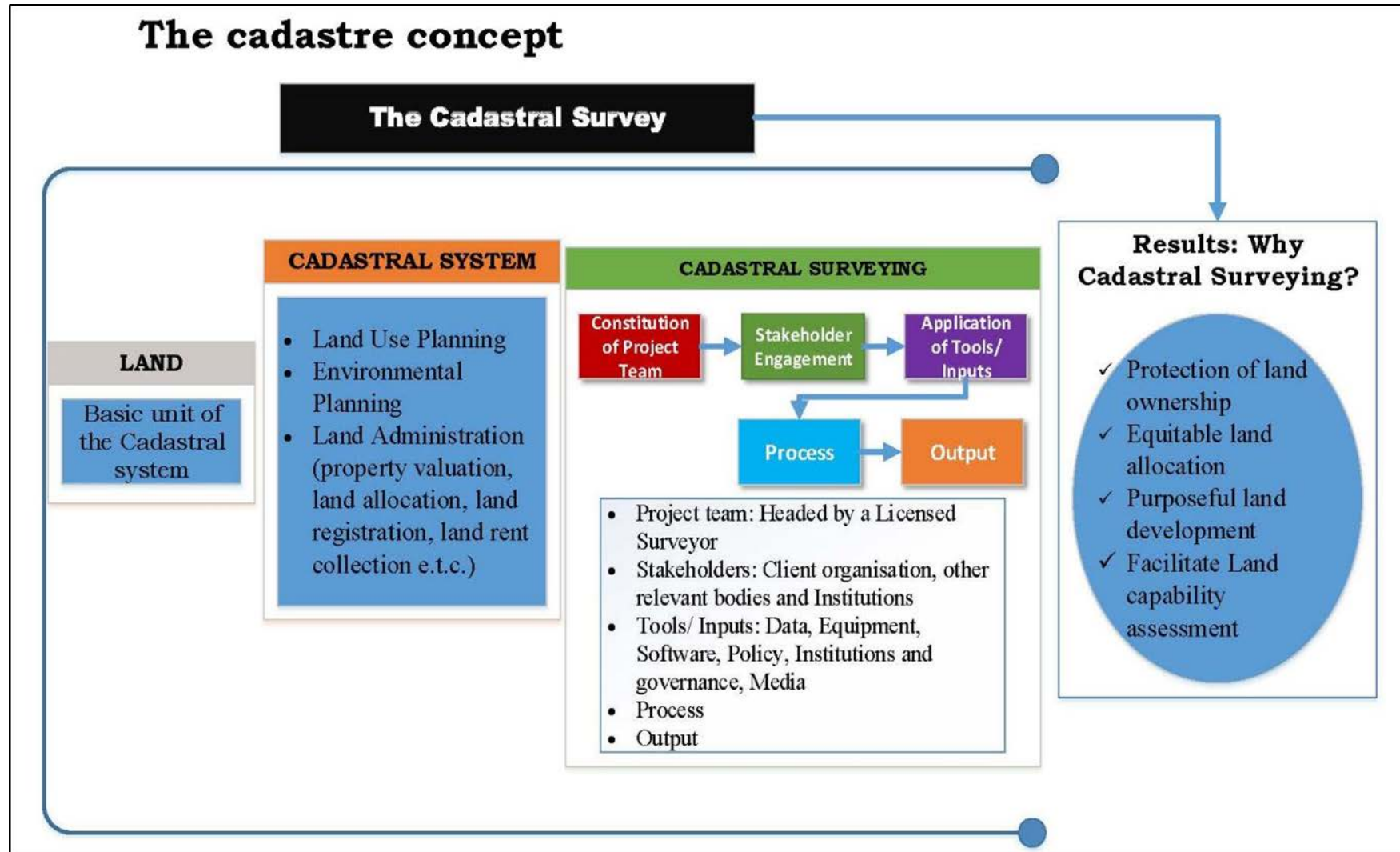
Land is seen as the basic unit of the cadastral system, the collection of tools used to manage it. As such, the cadastral system encompasses land-use planning, environmental planning, and other land-administration tools for property valuation, land allocation, registration, and related functions. Cadastral surveying, on the other hand, is a combination of processes and activities that the consultant (University of Nairobi) is undertaking on behalf of the client (County Government of Tharaka Nithi) to ensure that the cadastral system processes are observed in such a manner to ensure that land ownership is protected, there is equitable land allocation, purposeful land development, and land capability assessment is facilitated. In this case, the cadastral concept will

ensure that the people of TNC ownership of land and other properties is protected and safeguarded

The Cadastre is the heart of modern, secure land tenure, providing information about the spatial locations and identities of individual land units or parcels. Cadastral surveying and mapping are the cornerstone of the cadastral system, which determines and defines land ownership and boundaries. It deals with, among other things, land measurements, subdivisions, and sectional titles.

In this case, the cadastral concept will ensure that the people of TNC ownership of land and other properties is protected and safeguarded. This enhances land markets, access to land, tenure security, land valuation, conflict resolution, and land use. It also provides a framework for collecting revenue from land through sales, leasing, and taxation, and for regulating the use and conservation of land and property development. Each of these underpins the economic, environmental, and social aspects of sustainable development.

Figure 3. 1: Concept Outlines the cadastral concept and the process of cadastral survey.



Source: UoN-DURP,2026

Vectorization of Cadastral Plans, RIMs, and PIDs

This section presents a unique approach to vectorizing boundary data. This is after considering the differences in available data across the plans and the unique challenges presented.

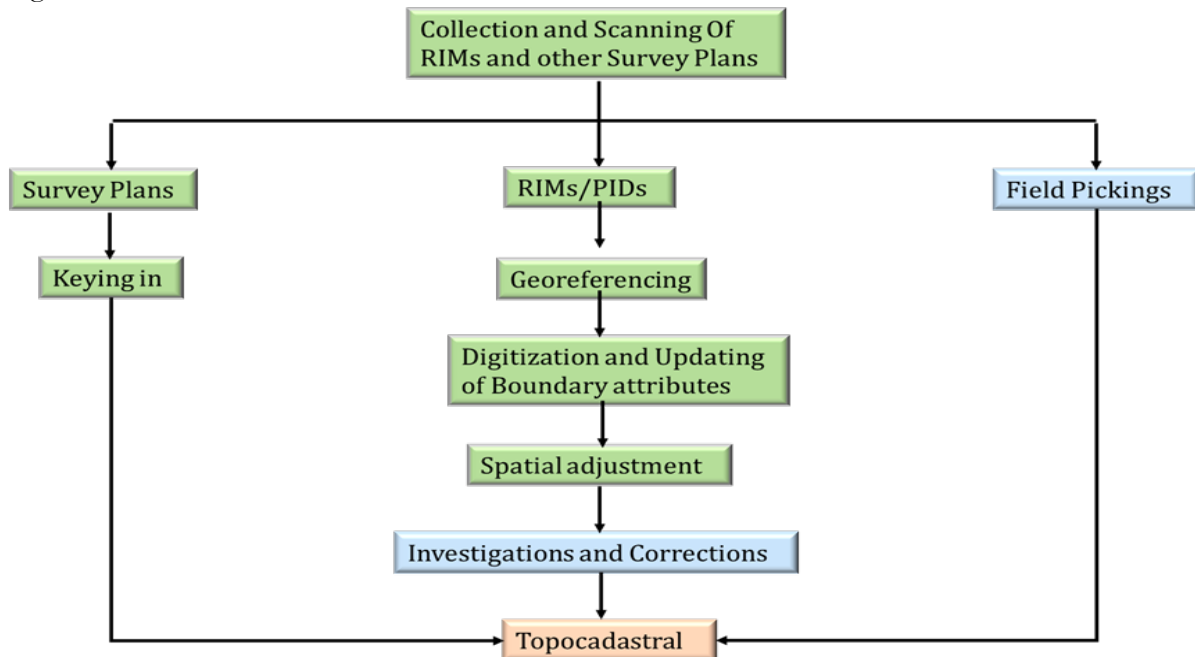
i. Cadastral Plans

The cadastral plans were procured in both analog and digital formats (scanned copies). To maintain the accuracy of the data in survey plans, the coordinates were converted from imperial-system plans and keyed in. To ensure data consistency, the plans were keyed in Microsoft Excel and redrawn in CAD software, which automatically generated the lengths and bearings of the boundary lines. The outputs were cross-checked against the original plans. In addition, an Excel program that computes areas, joins, and polar data was also used to carry out a consistency check on the data

ii. Registry Index Maps (RIMs) and Preliminary Index Diagrams (PIDs)

The process involved scanning and georeferencing of the plans, followed by digitization and spatial adjustments/cleaning of the cadastre developed. The digitized parcels from RIMs, however, exhibited shifts, warps, and distortions when overlaid with the satellite image due to RIM/PID drawing errors and transformations from the Cassini coordinate system (Digital Globe, 2017, 2025). This necessitated further cleaning of the data. Figure 2 shows the general layout used for the RIM and PIDs process.

Figure 2: Vectorization of *Cadastral Plans*



Source: UoN-DURP,2026

To maintain accuracy during the extraction of boundary data, all existing land-parcel boundaries were georeferenced using distinct features in Google Earth and compared with the RIMs/PIDs. In both types of maps, especially those based on general boundaries, the maps were only approximate. Legally, the evidence on the ground took precedence over the map; hence the need to pick existing boundaries.

Where discrepancies between what existed on the ground and what was indicated on the map were found, such discrepancies were flagged. This was to alert the client to the discrepancies in the areas. In such cases, decisions were made upon consultation with the client. A GIS database has also been created to contain all the mapping data collected during the assignment.

iii. Mutation Forms

Some mutation forms were obtained from the District Survey Offices for parcels that had undergone subdivision. Some mutations were not obtained due to unavailability. The consultant obtained the land area information records from the district registries. Searches were also conducted to ascertain the areas and ownership of the acquired parcels. The data were obtained primarily from the Chuka registry. The data is a critical input to the GIS Database and to the cadastral survey of Chuka Town and other urban areas in the County with fixed surveys.

3.3 Geographic Information System (GIS)

The technology of Geographical Information Systems (GIS) has become the most effective option for handling spatial problems and an indispensable tool for planning and distribution of resources, land assessment and analysis, and, above all, for efficient parcel-based information management. GIS has grown to automate the manipulation and integration of spatial data files. It also permits the integration of numerous data sets into a composite one for spatial search, database query, and trend analysis.

According to Anthony, (1990) development decisions could be far more effectively formulated if government at various level and the private sectors have up-to-date information on the location, the amount, suitability, and the estimated price of available land at their disposal; while Root (1985) opined that without accurate information about lands and waters, without an up-to date inventory of the country's resource and what is happening to them and the environment, the government and the people are handicapped in controlling their own destiny. Information is indispensable in all decision-making processes on land. It reduces uncertainty by helping to identify and analyze both simple and complex problems.

i. GIS Geodatabase

GIS is a system for capturing, storing, manipulating, analyzing, managing, and presenting spatial or geographic data. The TOR requires the consultant to develop a GIS database. A geodatabase is a collection of geographic datasets of various types held in a common file system folder, or a multiuser relational database management system (such as Oracle, Microsoft SQL Server, PostgreSQL, IBM Informix, or IBM Db2).

Geodatabases have a comprehensive information model for representing and managing geographic information. This comprehensive model is implemented as a series of tables holding feature classes, raster datasets, and attributes. In addition, advanced GIS data objects add GIS behavior, rules for managing spatial integrity, and tools for working with numerous spatial relationships among core features, rasters, and attributes. There are three types:

1. File geodatabases—Data is stored as folders in a file system. Each dataset is stored as a file that can scale up to 1 TB. The file geodatabase is recommended over personal geodatabases.
2. Personal geodatabases— Datasets are stored within a Microsoft Access data file, which is limited in size to 2 GB.
3. Enterprise geodatabases—These are multiuser geodatabases; they can be unlimited in size and number of users stored in a relational database using Oracle, Microsoft SQL Server, IBM DB2, IBM Informix, or PostgreSQL.

ii. Components of the GIS system

Hardware	The consultant has developed the GIS database using versatile computer systems running Windows 10, an i5 processor, and Random-Access Memory exceeding 4 Gigabytes.
Software	The geodatabase has been designed using ESRI ArcGIS software, with input from software such as AutoCAD and Quantum GIS. ARCGIS has been chosen for its

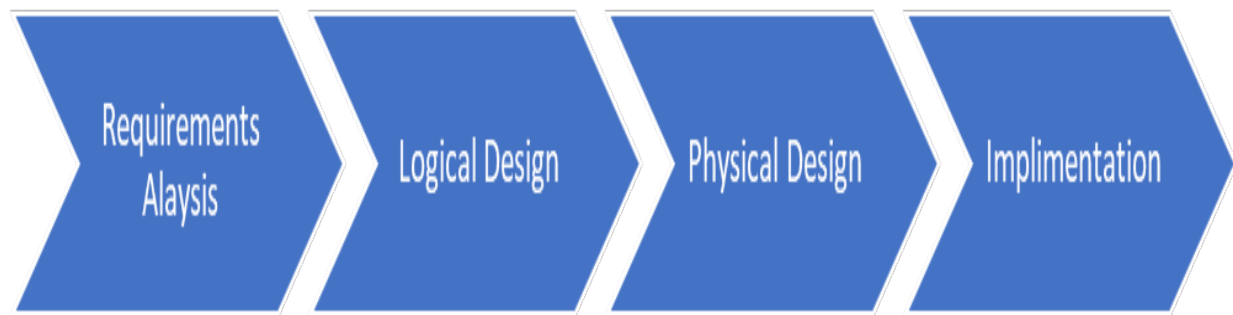
	speed compared to other software and its superior spatial topological analytical capabilities.
Data	Data has been obtained from various sources, as highlighted in this report. This is possibly the most important component of the GIS. The geodatabase integrates spatial data from different sources with relevant attribute data, such as land use and utility data.
Paople	GIS technology is of limited value without the people who manage the system and develop plans for applying it to real-world problems. The geodatabase has been designed by GIS experts while considering the client specifications as described in the TOR and the prescribed database schema
Methods	A successful GIS operates according to a well-designed plan and business rules, which are the models and operating practices unique to each organization. The consultant has implemented data validation checks to ensure there is data integrity

Source: UoN-DURP,2026

iii. **Methodology**

The Geodatabase has been designed in 4 stages as shown in Figure 3

Figure 3.1:GIS Methodology



Source: UoN-DURP,2026

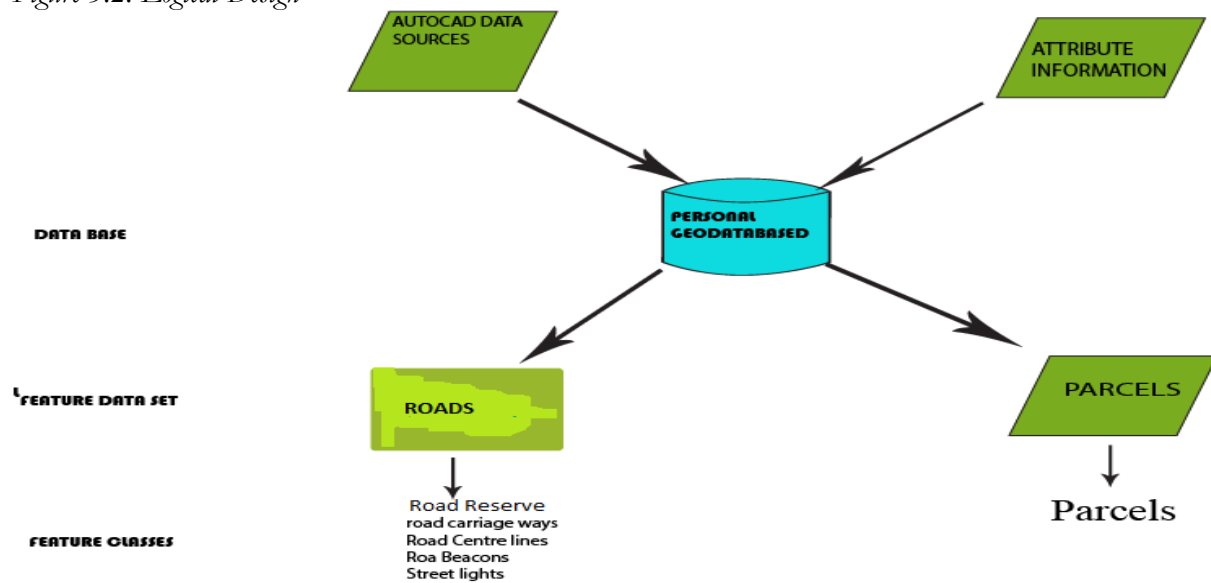
a. **Requirements analysis**

This stage involved assessing the informational needs. The TOR specifies that all digitized data shall be migrated into a GIS database. The consultant has taken into consideration the database specifications from the TOR. The client requires a database containing records of parcels, land uses, and utilities, including road reserves.

b. **Logical design**

Conceptual design has been developed based on the needs assessment conducted during the requirements analysis stage. The following entity relationship diagram shows the design of the geodatabase

Figure 3.2: Logical Design



Source: UoN-DURP,2026

c. Physical design

i. Geodatabase

A Personal Geodatabase was created in ArcGIS for Desktop. Subsequently, feature datasets were created according to the output of the logical design

ii. Feature Datasets

Feature datasets were created: parcels, utilities, land use, and roads. The coordinate system defined for the datasets is ARC 1960 UTM 37S.

iii. Feature Classes

The feature classes were imported from AutoCAD shapefiles. The following feature classes were migrated into the geodatabase

Table 3.8: Feature classes

Feature Classes	Data Type
Parcels	Polygon
Boreholes	Point
Road Reserve Extent	Polyline
Boundaries	Polyline
Rivers	Polyline
Powerline	Polyline
Stormwater drains	Polyline
Springs/wells	Point

Source: UoN-DURP,2026

iv. Table Schemas

The table schemas include all appropriate fields, such as Feature ID, Parcel No, Plan Type, land location, and any other details.

Table 3.9: Planning Data Attribute Table

No	Field Alias Name	FieldType	Is Nullable	Length	Precision	Scale	Remarks
1	Shape	Geometry	TRUE	0	0	0	
2	OBJECTID	Integer	TRUE	4	0	0	
3	Road Class	String	TRUE	100	0	0	Eg. A9
4	Road Section	String	TRUE	4	0	0	
5	Plot No	String	TRUE	50	0	0	
6	Registered _parcel no	String	TRUE	50	0	0	
7	Map Reference	String	TRUE	50	0	0	
8	Original parcel_Area	Double	TRUE	8	4	0	
9	Registered Owner	String	TRUE	200	0	0	
10	Registration Block	String	TRUE	50	0	0	
11	Registration Block number	String	TRUE	20	0	0	
12	Land Registration Date	Date	TRUE	10	0	0	
13	Ward	String	TRUE	8	4	0	
14	Sub-county	String	TRUE	8	4	0	
15	County	String	TRUE	30	0	0	
16	Current parcel area	Double	TRUE	8	0	0	
17	Year of last subdivision	text	TRUE	10	0	0	Eg. 2019
18	Remarks	String	TRUE	200	0	0	

Source: UoN-DURP,2026

Table 3.10:: Status of Road Abutting Parcel number

NO.	Field Alias Name	FieldType	IsNullable	Length	Precision	Scale	REMARKS
1	Shape	Geometry	TRUE	0	0	0	
2	OBJECTID	Integer	TRUE	4	0	0	
3	Road class	String	TRUE	5	0	0	A9
4	Road _Section	Integer	TRUE	50	0	0	
5	Parcel_No	String	TRUE	50	0	0	
6	Map_Reference	String	TRUE	50	0	0	
7	Parcel Area (Ha)	Double	TRUE	8	4	0	
8	County	String	TRUE	30	0	0	Tharaka Nithi
9	Remarks	String	TRUE	200	0	0	

Source: UoN-DURP,2026

Table 3.11: Survey Control Data Attribute Structure

Feature	<i>Data type</i>
Boundary Beacons	<i>Points</i>
Geodetic Controls	<i>Points</i>
Primary Controls	<i>Points</i>
Secondary Controls	<i>Points</i>

Source: UoN-DURP,2026

Table 3.12: Topographical Data Attribute Structure

Feature	Data type
Buildings	Polygon
Spot Heights	Point
Trees	Point
Rivers	Lines
Road Centreline	Line
Road Edge	Line
Road Reserve Extent	Line
Road Reserve Marker Post	Point
Fences	Lines

Table 3.13: Utilities Data Attribute Structure

Feature	Data type
Powerline	Line
Water Pipe	Line
Sewerline	Line
Fibre Cable	Line
Pipeline	Line
Advertisements signage/Bill boards	Points

Source: UoN-DURP,2026

All vectorized features were converted to the GIS Shapefile format. Appropriate feature classes were used for vectorized features, including, but not limited to, land parcels and road reserve edges. Attribute tables were created and populated for all the vectorized features.

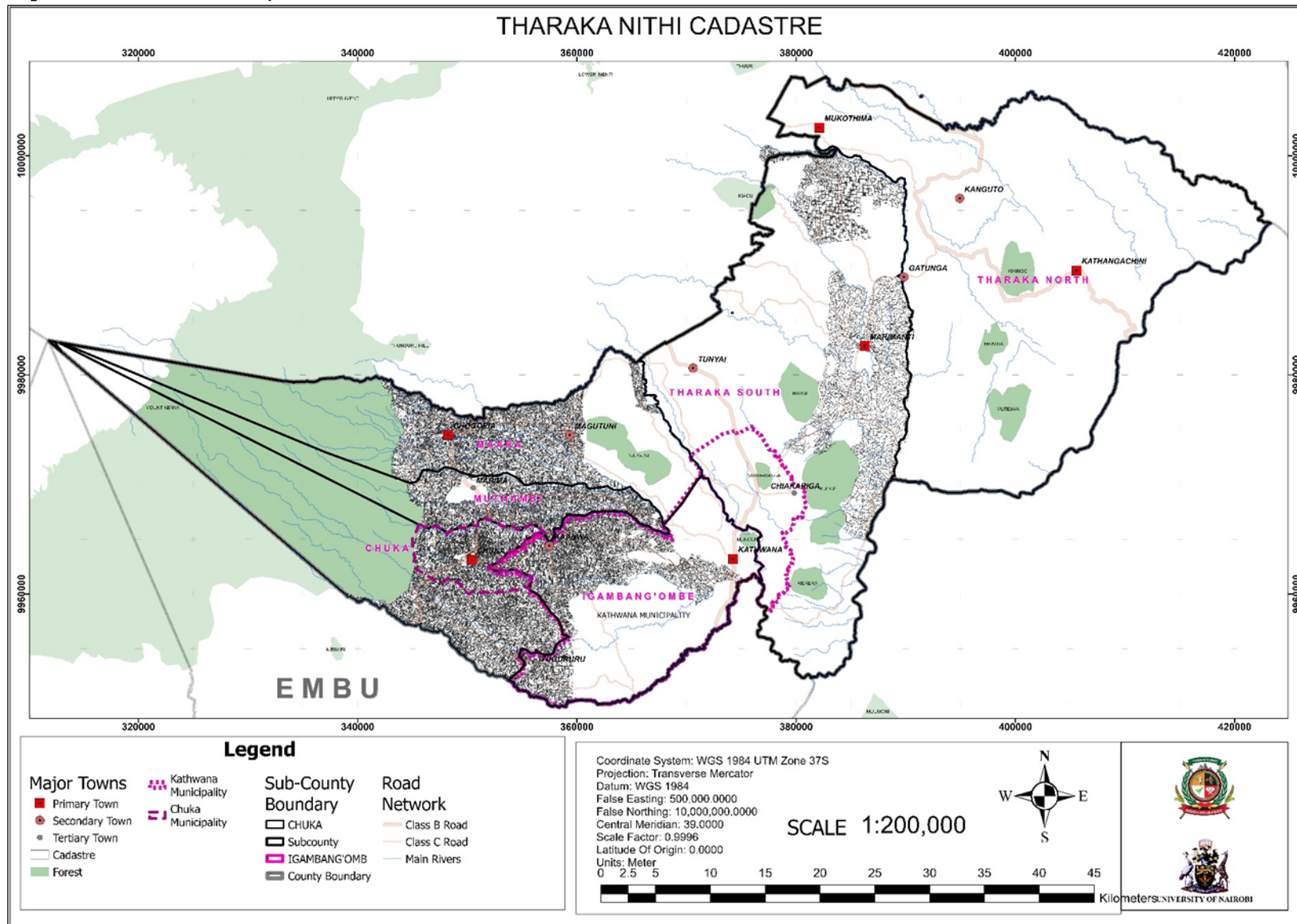
iv. Implementation

The database was populated from various data sources. Spatial data were obtained from AutoCAD Topocadastral drawings, while attribute data were obtained from various sources.

iv. Data Migration from CAD

CAD does not store attribute information; therefore, the data was exported to ArcGIS, then to Shapefile format. The lines for parcels from the topocadastral were converted to polygons, and the attributes were keyed in. The exported shapefiles were then imported into the feature classes in the geodatabase. The georeferenced RIMs were rectified and imported into the geodatabase.

Map 3.1:Tharaka Nithi County Cadastre



Source: UoN-DURP,2026

3.4 Data Components for GIS-Based Cadastral Information Systems

There are two different types of data required for input into a GIS-Based cadastral information system. These include the spatial data component and the attribute data component. Spatial data represent the geographic locations of features. They are usually represented by points for point-specific features such as the location of a borehole or oil well; lines for linear features such as streets or oil pipelines; and polygons or areas for enclosed features, including parcels of land and state or local government delineations.

Attribute data, also referred to as non-spatial or characteristic of the feature being represented, provides additional information about the spatial data in the database. These may include information such as the name and address of the plot owner, the total area of the plot under consideration, the coordinates of the corner beacons, and the coordinate system used to prepare the survey plan.

Defining an Acceptable Georeferencing System

A spatial referencing system framework is an indispensable part of a land information system. The function of a spatial referencing system is to determine where a particular object or set of objects exists in space. The frame of reference that determines the location of points may take the form of geographic coordinates (e.g., Latitude and Longitude), Rectangular Cartesian Coordinate Systems, etc. This is usually undertaken by creating a framework of points known as a geodetic control network, which consists of physical features such as triangulation pillars that mark the planimetric positions of points and benchmarks that define the heights of these pillars. The importance of this is to establish a unique reference framework through which all mapping, field surveys, and other data-collection activities in any given area can be spatially integrated.

According to Dowson and Sheppard (1952), "it is the point in the reference framework fixed on land throughout the territory concerned that constitute the indispensable links between (a) the measurements made and recorded on paper in the field, or plan in the course of land survey and (b) the ground itself. The traditional techniques of triangulation, trilateration, and traversing are often used to establish such controls, though they are gradually being replaced by electronic position-fixing using Global Positioning System (GPS) instruments, satellite surveys, and similar methods.

Unit of Data Input

The basic unit for recording land data is usually the land parcel. Sedunary (1982) defines a land parcel as the smallest registered unit of land that is continuous in area and ownership and capable of being separately conveyed. In other words, a parcel is an area, or more strictly, a volume of space recognized for recording purposes. It may cover square kilometers, in the case of a farm or ranch, or may be as small as a square meter. In a cadastral information system, the term parcel, plot, or lot is often adopted as the basic unit for data recording and entry.

Geocoding of Land Parcel

Geocoding is the process of assigning a unique location or parcel identifier to each geographic feature, plot, or other entity on the map (Huxhold, 1991). The identifier is used not only as a record identifier in a non-graphic database but may also represent a unique feature that can be identified on a map.

A parcel identifier facilitates the collection, storage, manipulation, and retrieval of all land-related data. Separate and distinct identifiers must be assigned to one, and only one, entity, and each entity must have one and only one identifier. Also, for cadastral database development, the system adopted must have the following attributes:

- a) Unique to prohibit any internal conflict or confusion to the system regarding the appropriate record requiring referencing.
- b) Available at the earliest moment in time that information is required to be transmitted regarding a particular parcel.
- c) It must be acceptable to all parties involved in the management of the system.

Selection of Appropriate Software

Two types of software were employed for the pilot study. These include AutoCAD 2021 and ArcGIS.

AutoCAD: a Computer-Aided Design/Drafting application for personal or desktop computers. Some of the major features of the software include: (i) Capability of plotting and printing to the desired accuracy and scale. (ii) Ability to separate different feature classes or entities into different layers of information and (iii) Ability to assign different color, text size, line type, and line weight to different entities.

ArcGIS: A Vector-based GIS software designed to handle spatial as well as non-spatial data. The software has well-structured database management capabilities, along with editing functions to address errors resulting from sliver (overshot) and gap (undershot). It can also access data in AutoCAD format or other computer-drafting packages. As GIS software, spatial database queries, including spatial search, neighborhood analysis, and relationships, are additional features of the package.

Data Conversion Techniques: There are various methods or techniques of map data conversion from analog. However, the choice of a particular method depends on the available facilities. These include direct entry from the keyboard using coordinate geometry, manual digitizing, scanning, and direct input of existing digital files.

Database Development

In Tharaka-Nithi County, five departments were identified as the major custodians of parcel-based information. These include: the county planning department, lands department, Physical Planning Department, survey department, and the land Registries at the county. Therefore, at least five different land files relating to the nature of land information are kept or being handled.

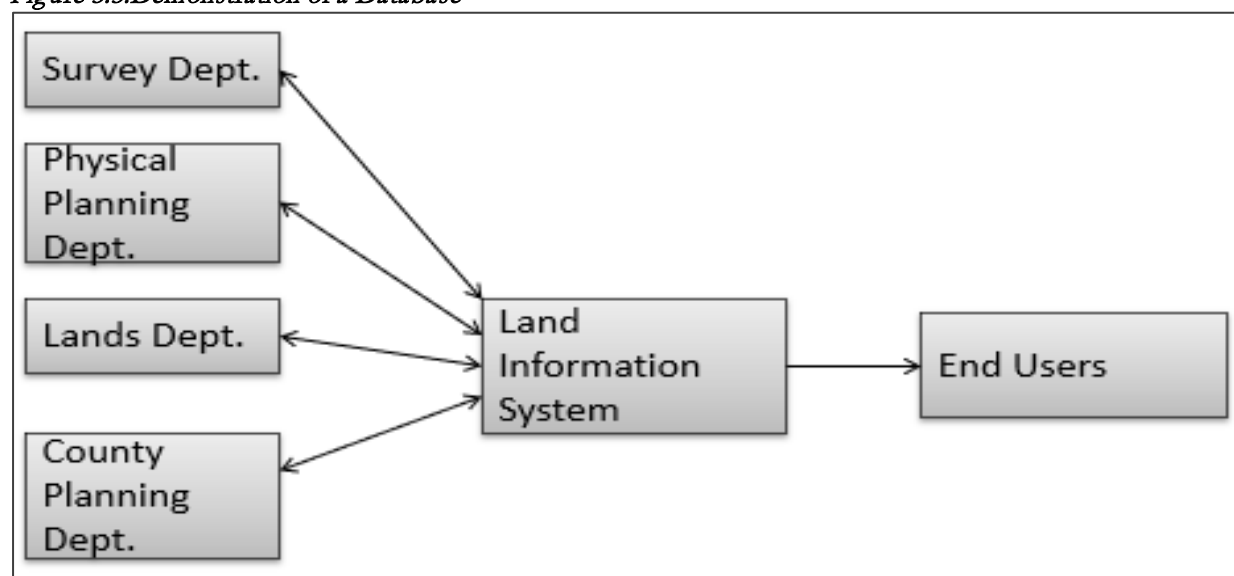
A unique parcel identifier has been assigned to each parcel of land in the county. This facilitates data exchange, collation, and integration for effective information flow and management. The cadastre is a critical register for ensuring the uniqueness of land parcels. The district surveyor is solely responsible for the new numbers for all mutation surveys. Similarly, the State Department of Surveys, under the Director of Survey, is responsible for all fixed cadastral surveys, registration, approval, authentication, and the issuance of new numbers.

Table 3.14: Database Development

S/NO	SURVEY DEPT.	PHYSICAL PLANNING DEPT.	LANDS DEPT.	COUNTY PLANNING DEPT.
1.	Serial Number	Serial Number	Serial Number	Serial Number
2.	Parcel Identifier	Parcel Identifier	Parcel Identifier	Parcel Identifier
3.	Name of Owner	Name of Owner	Name of Owner	Name of Owner
4.	Location of Property	Nature of Title	Plot Size	Address
5.	County Govt. zones	Date of Approval	Status	State of Origin
6.	Area of the Plot	Additional Information	Additional Information	Additional Information
7.	Origin	Origin	Origin	Origin
8.	Beacon Coordinates.	Beacon Coordinates.	Beacon Coordinates.	Beacon Coordinates.

Source: UoN-DURP,2026

Figure 3.3: Demonstration of a Database



Source: UoN-DURP,2026

One of the key functionalities of GIS is the ability to manipulate the data in the geographic database and perform a wide range of geographic analyses. These include spatial search and database query, with the aim of providing answers to some pertinent questions such as determining the number and locations of occupied plots, owners and location of specific plots, the status of each of the plots, and the relationship between a particular plot and the adjacent plots (neighborhood analyses).

3.13 Benefits of Cadastral Information Systems to Tharaka Nithi County

The benefits of GIS-oriented cadastral information systems are immense and include the following

- 1) **Certainty and security of ownership:** Accurate compilation of land records enhances formal identification and recognition of the ownership of the land and other rights that exist in the land, thereby leading to social cohesion. Also, existing defects in any title to land can be cured by the judicious use of the appropriate powers. In the rural areas, where farmers have an incentive to take greater care of the land and to invest their capital in it, GIS-based cadastral information systems will ensure greater productivity.
- 2) **Reduction in land disputes:** Disputes concerning land ownership and boundary definition often give rise to expensive litigation. Settlement of such disputes should be an integral part of the adjudication process, leading to greater productivity, reduced court costs, and less money wasted in litigation.
- 3) **Improved conveyancing:** The cost and delay in transferring property rights can be substantially reduced through the operation of computerized land registration systems. Duplication of efforts, for instance, in the repeated investigation of old titles, can be avoided, thus saving costs.
- 4) **Security of credits:** The land titles are often used as security against a loan. Evidently, the combination of a sound title with the ability to raise long-term credit can give rise to a substantial increase in productivity from the land.
- 5) **Monitoring of land market:** A GIS-based cadastral information system can be used to monitor and, if necessary, to control land transactions and ownership.
- 6) **Support for land taxation:** Many urban areas in Kenya have some form of land assessment and derive revenue from charges made on the land; this system will enhance greater efficiency in tax collection and the consequential greater rate of recovery of tax.
- 7) **Management of state land:** In Kenya, the County Government is the major landowner .. The development of computerized cadastral systems and the subsequent systematic creation of cadastral maps will greatly benefit states in administering their own land.

leading to improved revenue collection from the land that it leases. Moreover, the public acquisition of land through compulsory purchase prior to redevelopment can be expedited.

- 8) **Improvement in physical planning:** A GIS-based cadastral system can be used to support physical planning in both rural and urban areas. In some wards and sub-counties, many development programs have failed or been unnecessarily expensive due to a lack of knowledge about existing land rights. The system will also provide the basis for restraining certain land uses
- 9) , monitoring encroachments on rights-of-way, riparian reserves, etc.

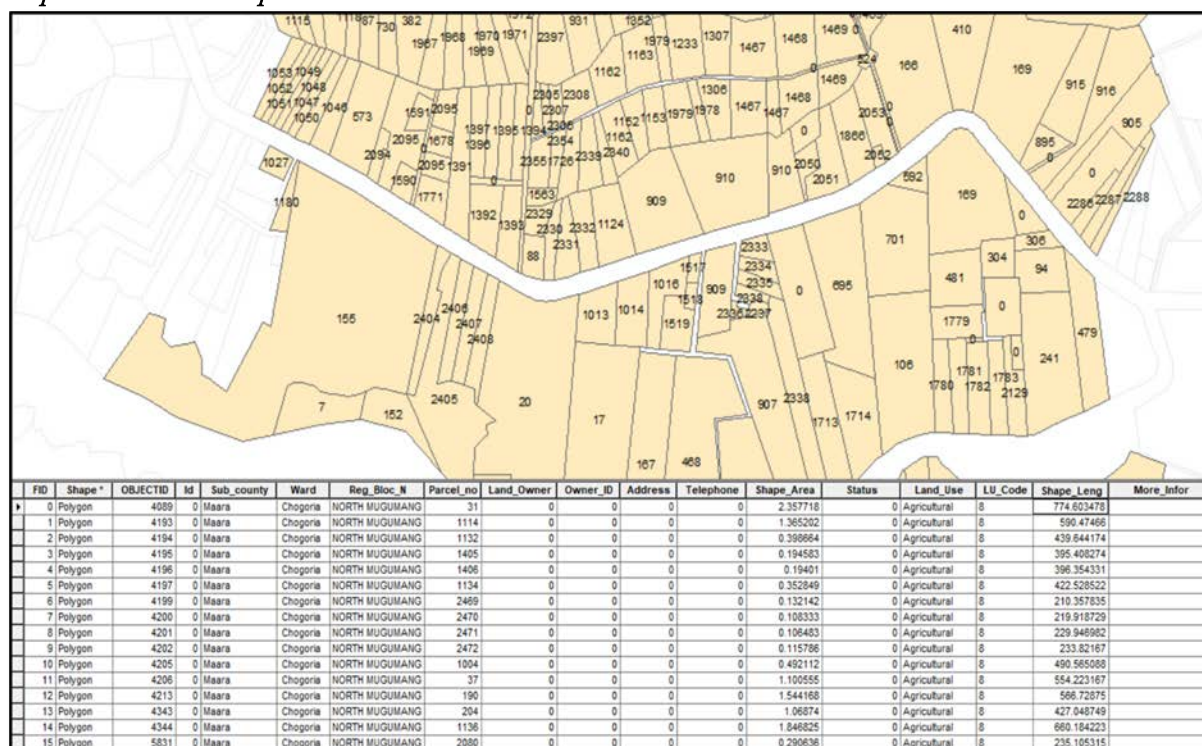
- 10) Facilitation of land reform: land redistribution, land consolidation and land assembly for development and re-development can be expedited through the ready availability of information on who currently owns what.

3.14 Conclusion on Cadastre

In this county spatial plan, there is a need to implement Geographic Information Systems technology for efficient and effective land information management. While the initial cost of developing a GIS-based cadastral database may appear high, the long-term benefits far outweigh it. As already mentioned, monitoring land use and allocation, property development, and taxation are continuous exercises, and the returns are also continuous. Provision and monitoring of the effectiveness and distribution of social amenities become very easy with increasing population.

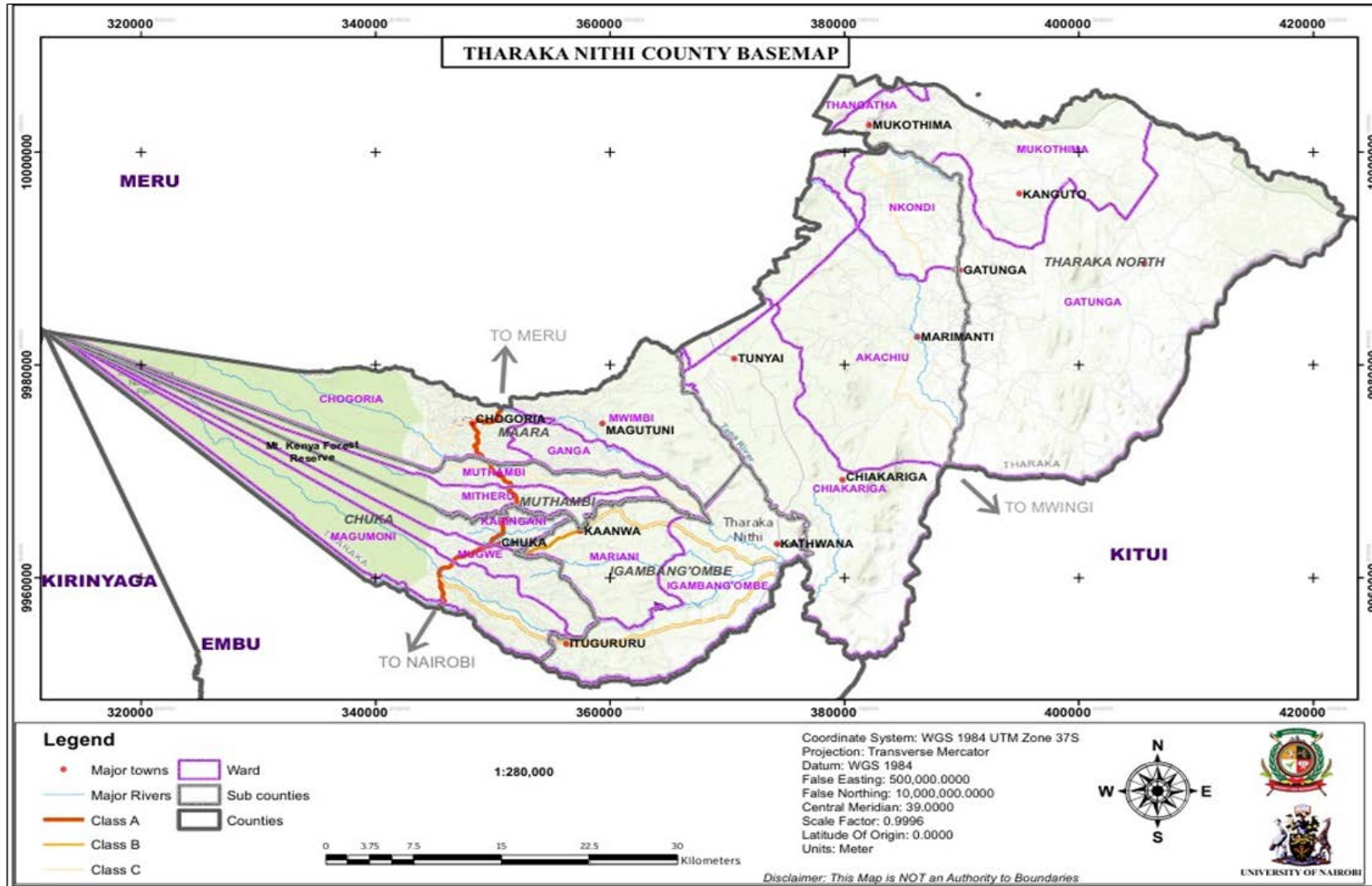
Computer hardware is becoming readily available and affordable, while powerful GIS software is becoming more widely available day by day. The task for the consumption of policymakers is to create an enabling environment geared towards a future GIS-based cadastral information management system in the County. These include immediate and complete mapping of urban areas at a relatively large scale, the provision of adequate ground control pillars to connect new surveys, and, above all, an acceptable, uniform data format or standard for cadastral survey and record presentation

Map 3.2 :Cadastral Map Demonstration



Source: UoN-DURP,2026

Map3.1: Tharaka Nithi County Base Map



Source: UoN-DURP, 2026

4 CHAPTER 4: PHYSIOGRAPHIC CHARACTERISTICS

4.1 Overview

Tharaka Nithi County features diverse natural physiographic elements that significantly shape its environment and resource base, providing opportunities and prospects for development and creation of wealth for the people. From the slopes of Mt. Kenya, which are suitable for tea and coffee farming, to the arid and semi-arid regions bordering Kitui County, the County offers unique opportunities for extensive rain-fed agriculture, irrigation farming along rivers, and livestock farming in the lowlands of Tharaka South and North.

Plate 4.1: Topography of the County



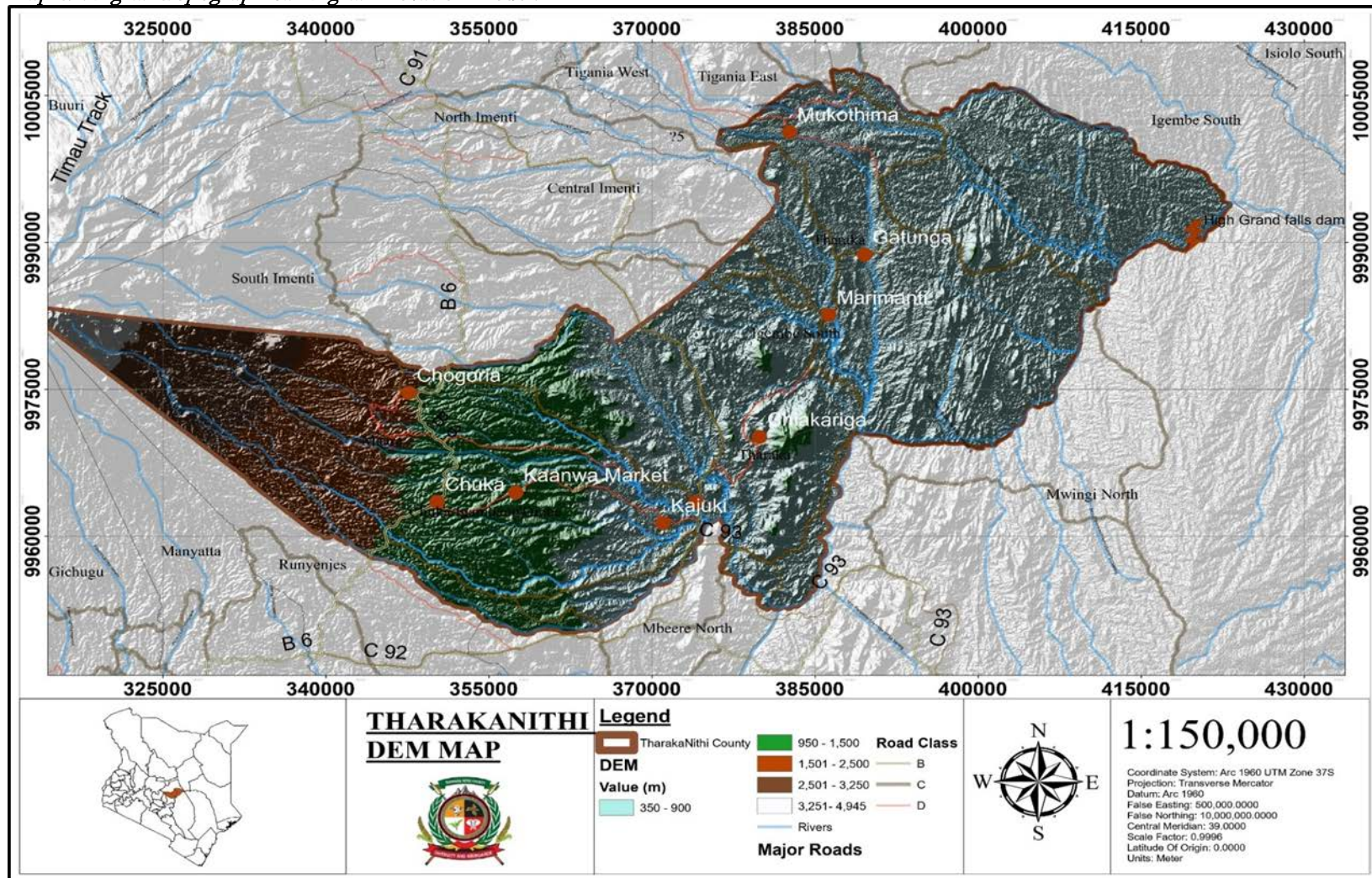
Source: Fieldwork, 2019

4.2 Topography and Landforms

The highest point in the County is Mt. Kenya at 5,189 metres above sea level in Mwimbi, Muthambi, and Chuka Sub-Counties, while the lowest is 358 metres above sea level in the Tharaka lowlands at the confluence of the Ura and Tana Rivers. The terrain slopes from west to east, influencing climate patterns. The volcanic activity of Mt. Kenya has created V-shaped valleys in the western region, which are the young valleys of the many rivers which are tributaries of the Tana River.

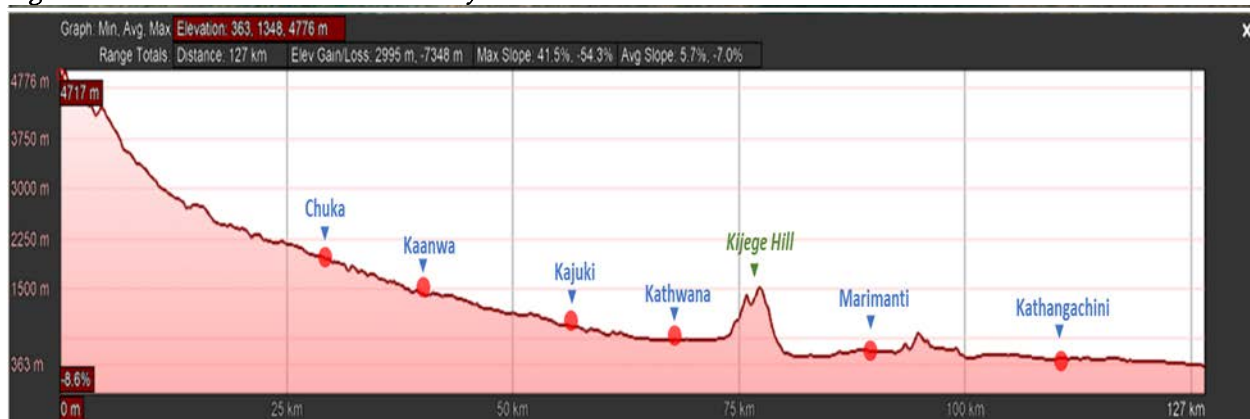
The County accommodates features low-lying, hilly, stony, and sandy terrain with moderate forest cover. Notable hills include Muuguni, Kiarungurere, and Kairini in Chuka-Igambang'ombe, as well as Njuguni in Maara Sub-County. These elevations create scenic landscapes, which have the potential for biodiversity development and conservation. However, the hilly terrain also contributes to soil erosion and complicates road construction. Chuka, a major urban centre, faces growth limitations due to its topography, leading to costly leapfrog development. **Error! Reference source not found.** and **Error! Reference source not found.** indicate an elevation profile of the County from the peak of Mt. Kenya to the confluence of the Ura and Tana Rivers.

Map 4.1: Digital Topographical Digital Elevation Model.



Source: UoN-DURP, 2026

Figure 4.1: Elevation Profile of the County



Source: (Google Earth, 2026)

The cross-section shows an immediate decline in relief of the County landscape, indicating slopes of up to 42% and a loss of 3,000 meters between the peak of Mount Kenya and Chuka; an 800-meter decline between Chuka and Kathwana; and a 350-meter decline between Kathwana and Kathangachini. Kijige Hill is the second-highest point after Mount Kenya, with a height of 1,540 meters above sea level.

As illustrated by Map 4.2, Tharaka Nithi's topography is distinctly divisible into three physiographic zones, namely the mountainous, highland, and lowland zones.

- i. **Mountainous Zone:** This zone includes the slopes of Mt. Kenya, which are covered in forests. These mountainous areas serve as water catchments and wildlife sanctuaries. The zone is characterized by steep terrain and is highly susceptible to erosion in the absence of vegetation cover.
- ii. **Highland Zone:** This zone includes areas surrounding Mt. Kenya and is characterized by rolling landscapes with V-shaped river valleys, fertile agricultural land, and numerous rivers and springs. The zone supports rain-fed agriculture and has the highest concentration of human settlements, both in rural and urban areas.
- iii. **Lowland Area:** This zone is characterized by medium hills leading towards lower River Tana. It includes varied terrain such as low-gradient plains across multiple wards. The semi-arid lands in Tharaka Constituency are mainly used for pastoralism, face water scarcity, resulting in competition and occasional conflict over resources.

4.3 Slope analysis

The County is characterized by undulating terrain with steep slopes in the western areas. **Error! Reference source not found.** indicates the gradient of slope in degrees in 0.5 km pixels, where higher gradient values indicate steeper terrain. Steep terrain constrains development due to its physical limitations.

Steep areas are more susceptible to soil erosion caused by surface runoff, reducing agricultural productivity. They also constrain urban development due to safety concerns and high construction costs.

Areas with steep gradients are also associated with higher geological risks, as they are more susceptible to tectonic hazards such as earthquakes and landslides, which can result in significant loss of life and property.

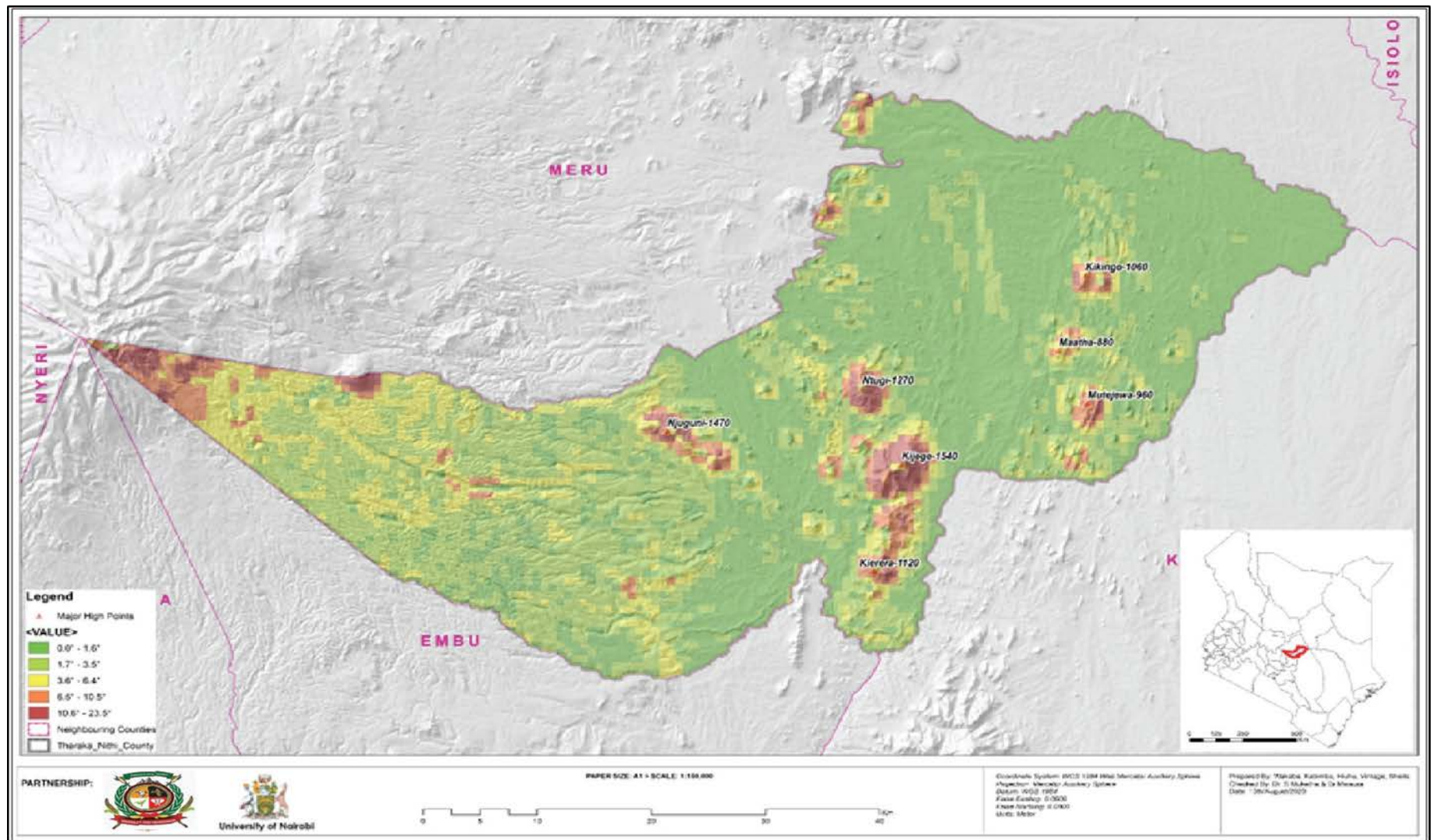
4.4 Geology

The geology of Tharaka Nithi County is influenced by two major geological formations: the Neoproterozoic and Mozambique formations, shaped by volcanic activity associated with Mt. Kenya to the west and the East African mobile tectonic belt. As shown by **Error! Reference source not found.**, the County comprises recent deposits, Quaternary volcanic formations, Neoproterozoic (basement) rocks, and post-Neoproterozoic intrusive formations.

The basement system comprises the oldest intrusive and extrusive metamorphosed rocks, including granitoid and biotite gneisses, schists, migmatites, metagabbros, dolerite, pegmatite, quartzite, and limestone (Schoeman, 1951; Sanders, 1954). Quaternary rocks originate from the major eruption of Mt. Kenya during the Pleistocene period and include phonolites, kenytes, trachytes, pyroclastics, and some unexposed basalts found on the western upper slopes (Schoeman, 1951; Baker, 1967).

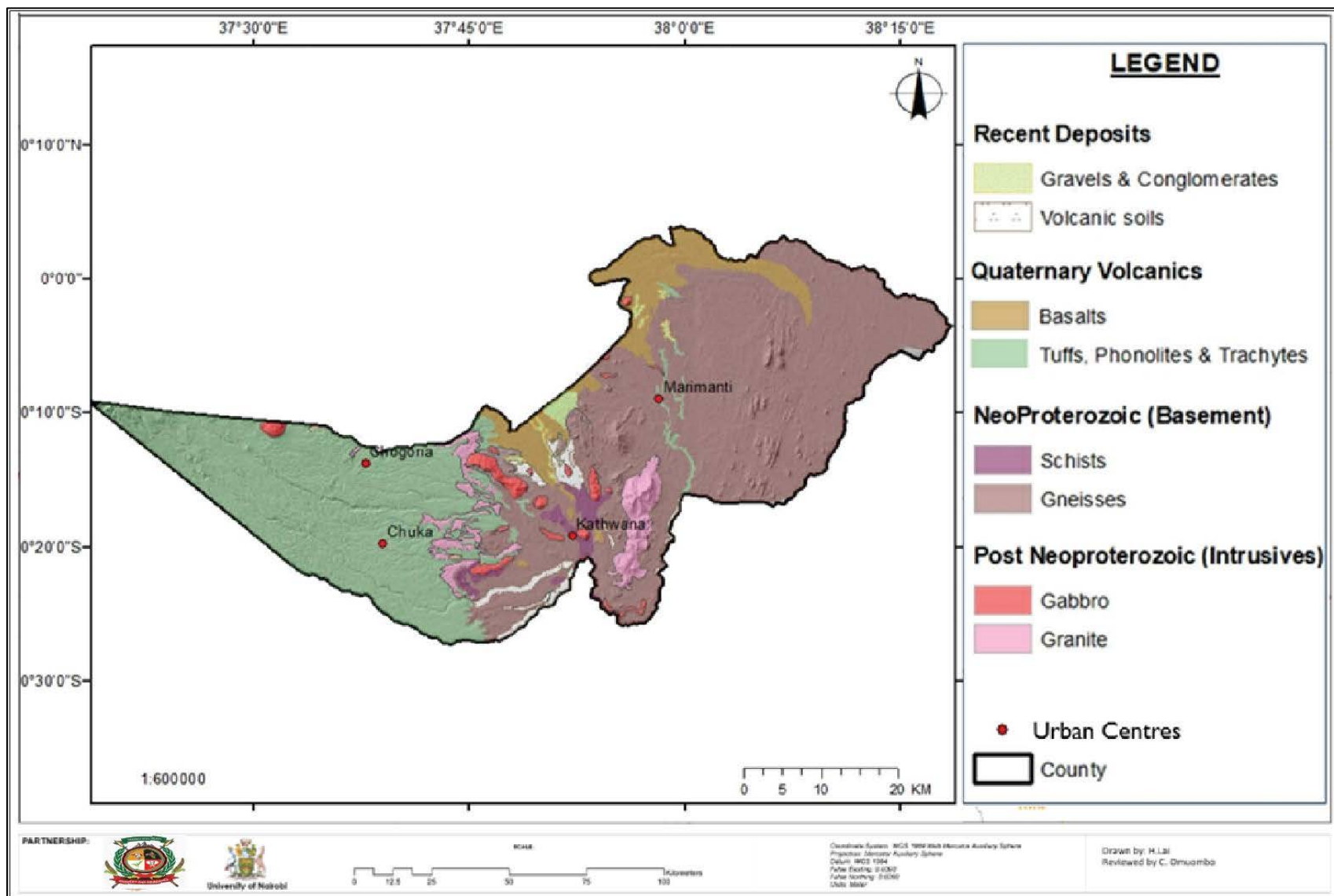
Recent (surface) deposits consist of unconsolidated sands along seasonal river channels and varying soil types influenced by altitude. Volcanic-derived soils dominate the mountain slopes, with sandy loam and organic-rich soils on the upper slopes, and clayey loams on the lower slopes where agricultural activities are concentrated.

Map 4.2: Slope Analysis (Gradient in Degrees)



Source: UoN-DURP,2026

Map 4.3: Geological Map of the County



Source: (Advanced from Dijkshoorn et al. 2019)

4.5 Hydrology

Tharaka Nithi County's hydrology is defined by a steep elevation gradient, descending from the wet alpine slopes of Mt. Kenya to the semi-arid lowlands of Tharaka. This divides the County into highland water catchments and drought-prone lowlands dependent on seasonal rivers and groundwater. Groundwater occurs mainly in fractured aquifers at depths of approximately 100–180 metres, with seasonal variations observed in areas such as Mungoni, Ndagani, and Muc'wa.

The County has two distinct hydrological zones. The highland zone of Maara and Chuka/Igambang'ombe is fed by the Mt. Kenya forest catchment and receives reliable rainfall of over 1,200 mm annually. It is drained by perennial rivers, including the Maara, Mutonga, Nithi, and Thungu-Naka.

The lowland zone receives lower and less reliable rainfall, averaging about 717 mm annually, and depends largely on groundwater and seasonal riverbeds. The Tana River forms the major perennial water source, while seasonal rivers include the Thanantu, Kathita, and Thingithu.

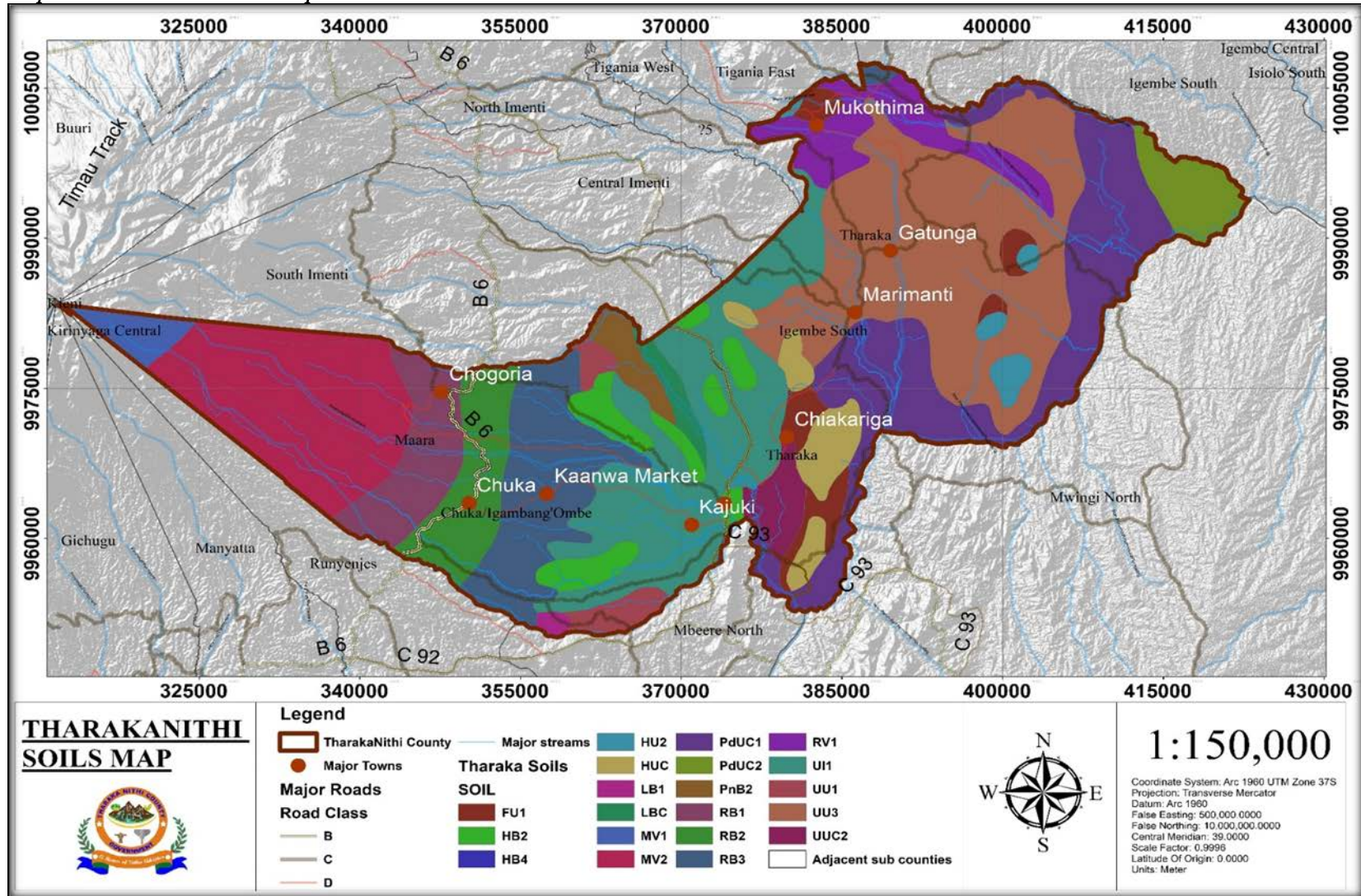
4.6 Soil Characteristics

The pedological base of the county is mainly the andosols, humid nitisols and ferralsols mainly in the Mt. Kenya slopes, Chuka-Igambang'ombe and Tharaka sub-counties respectively. While loose, highly weathered soils susceptible to erosion are found in sloping areas with high rainfall, the well-drained soils are found in the irrigation low-lying areas. The Mt. Kenya Forest andosols are formed from volcanic ash. They are characterized by shallow, imperfect aerated and drainage capacity with variable fertility. Andosols in lower areas are relatively moderately to highly fertile as occasioned by their deep, well-drained, dark brown to reddish brown nature.

The humic nitisols, are found in Mwimbi, Muthambi, Chuka, and Igambang'ombe Sub-Counties. They are characterized by well-drained, deep, dark reddish-brown clay soils with acid humic topsoil. While they are moderate to highly fertile, prolonged cultivation without fertilizers input deplete their nutrients. Ferralsols and luvisols dominate Tharaka North and South Sub-counties. The soils are moderately deep to deep, well-drained, and highly weathered, resulting in low fertility and susceptibility to erosion. However, luvisols in the Gatunga and Marimanti areas are clay-rich and well-drained.

Well-drained areas like Chuka, Chogoria Kaare and Mukothima support agriculture and has minimal flood risks, while poorly drained soils in Itugururu and Magutuni are prone to waterlogging, making them suitable for dam sites.

Map 4.4:Tharaka Nithi Soils Map



Source: (Fieldwork, 2024)

4.7 Drainage

Tharaka Nithi County is endowed with numerous water resources, including rivers, streams, tarns, and wetlands. The main catchment areas are the Mt. Kenya Forest and the Nyambene Hills in Meru County.

The County is traversed by seven major rivers: Nithi, Tungu, Thuci, Mutonga, Naka, Irugu, and Thanantu. Other rivers include Maara, Ruguti, Tharaka, Thingithu, Kathita, Thangatha, Kithinu, Ura, Gituambugi, Mwirithi, Namakithie, Kurugucha, Muthi, Kamuu, Tharia, Mataka, Kambogo, and Nziitu (Tharaka Nithi County Government, 2018).

The County's drainage system ultimately drains into the Indian Ocean through the Tana River.

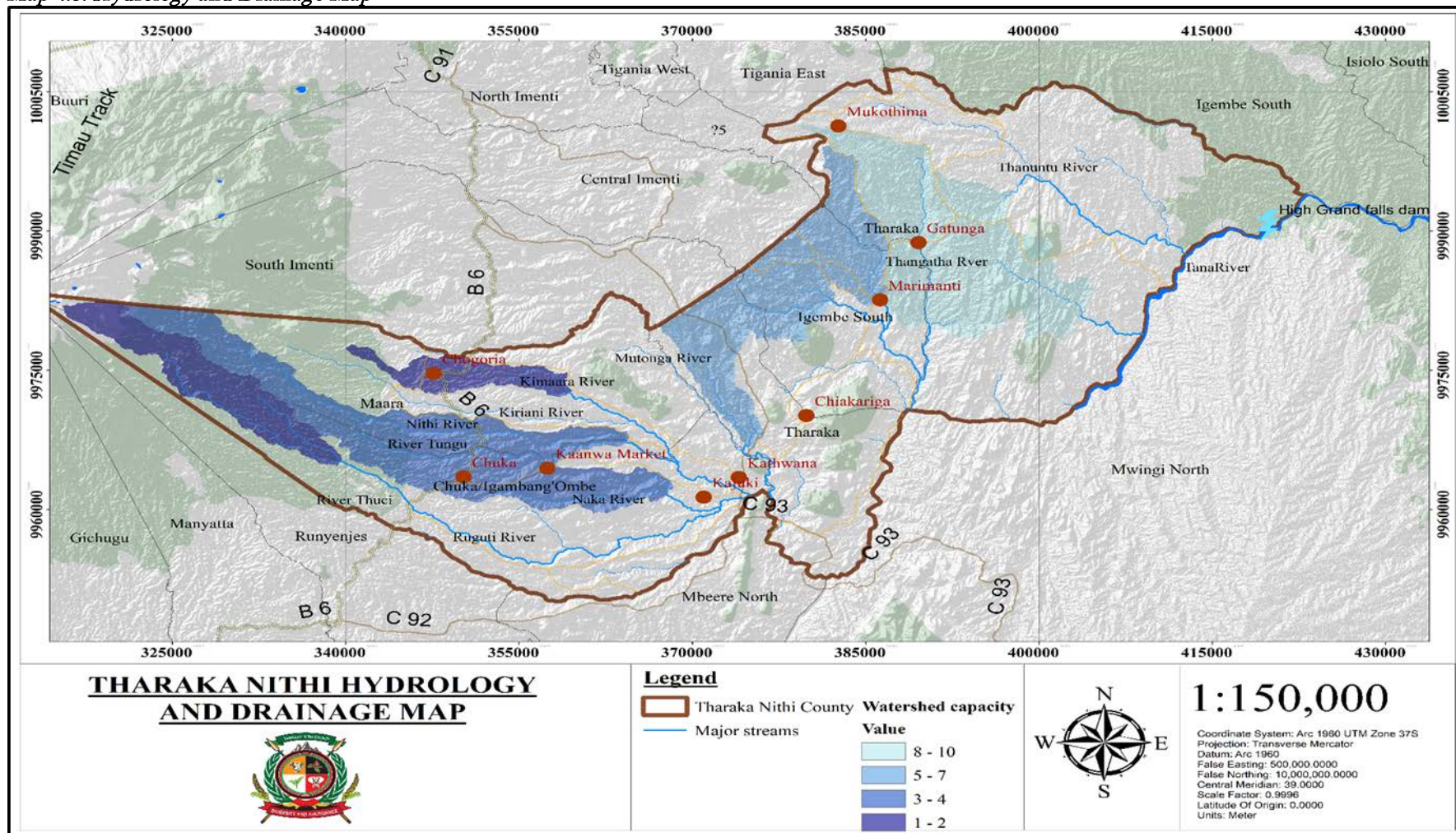
Plate 4.1: River Thingithu



Source: (Field Survey, 2024)

Several lakes and tarns exist on the slopes of Mt. Kenya. These include Ellis, Michaelson, Enchanted, Carr Lakes, Thompson's, Hanging, Harris, and Hall tarns. The tarns and lakes offer scenic views with tourism potential. Surface water resources in the County are minimally exploited for agricultural production, and encroachment into riparian land due to anthropogenic activities remains a major challenge to the drainage systems.

Map 4.5: Hydrology and Drainage Map



Source: UoN-DURP, 2024.

Plate 4.2: Lake Ellis Park, accessed via the Chogoria Gate of Mt. Kenya National Park



Source: (Field Survey, 2019)

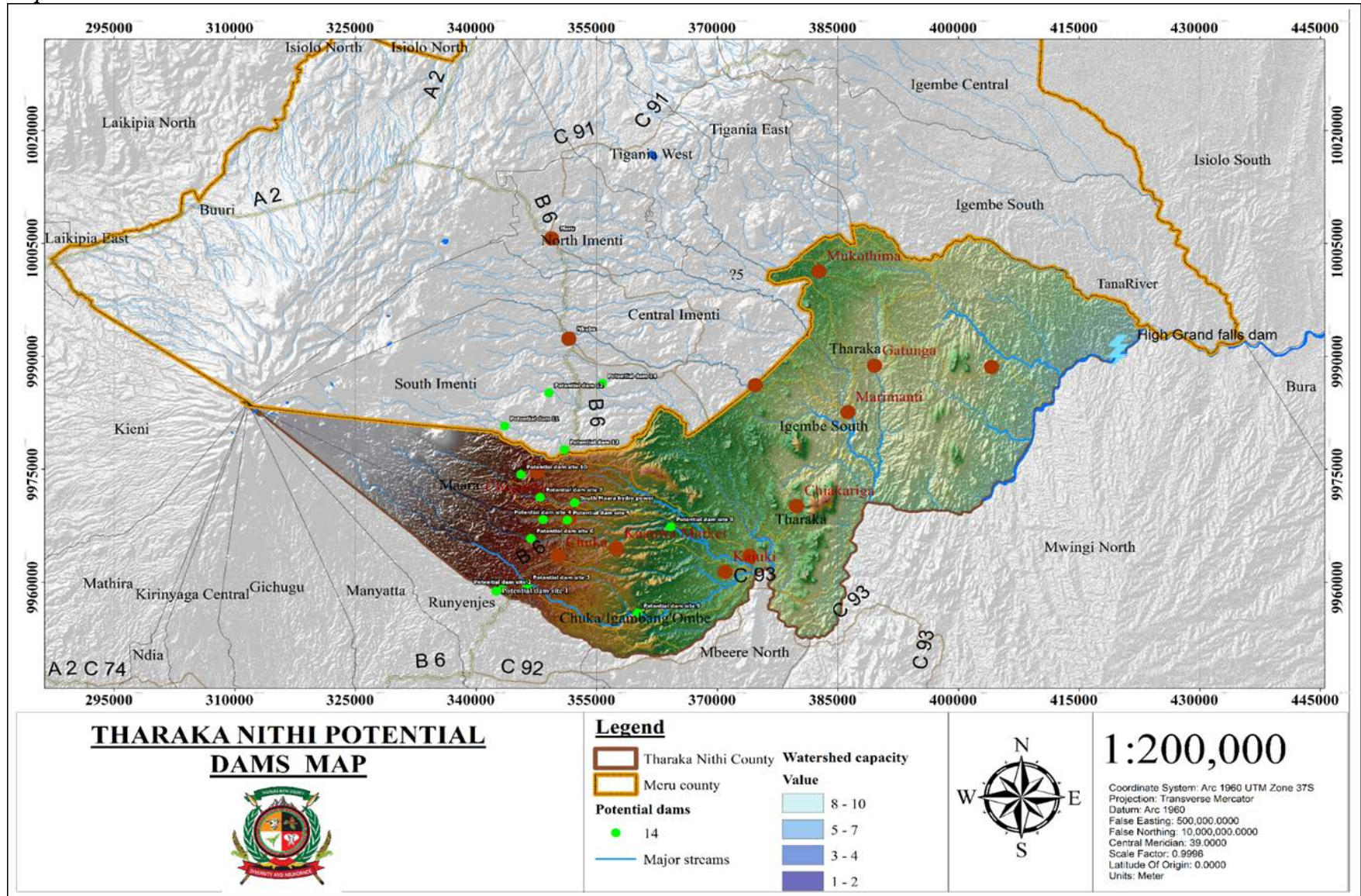
There are approximately 10 dams in Tharaka Nithi County, both completed and under construction. Completed dams include Manchege, Kajuki, Kanthanje pans, and Kaiboche concrete dam. However, most have limited storage capacity and do not fully utilize the County's river potential. Ongoing projects include Thambo, Kajogu, and the South Maara Hydroelectric Power Dam. Dams play an important role in surface runoff harvesting, and suitable dam sites should have a natural gorge, a well-developed watershed, and adequate demand.

Plate 4.3: Tana River at Kibuka Falls, the Proposed Site for the Grand Falls Dam Project



Source: (Field Survey, 2019)

Map 4.6: Potential Dam sites



Source: UoN-DURP,2026

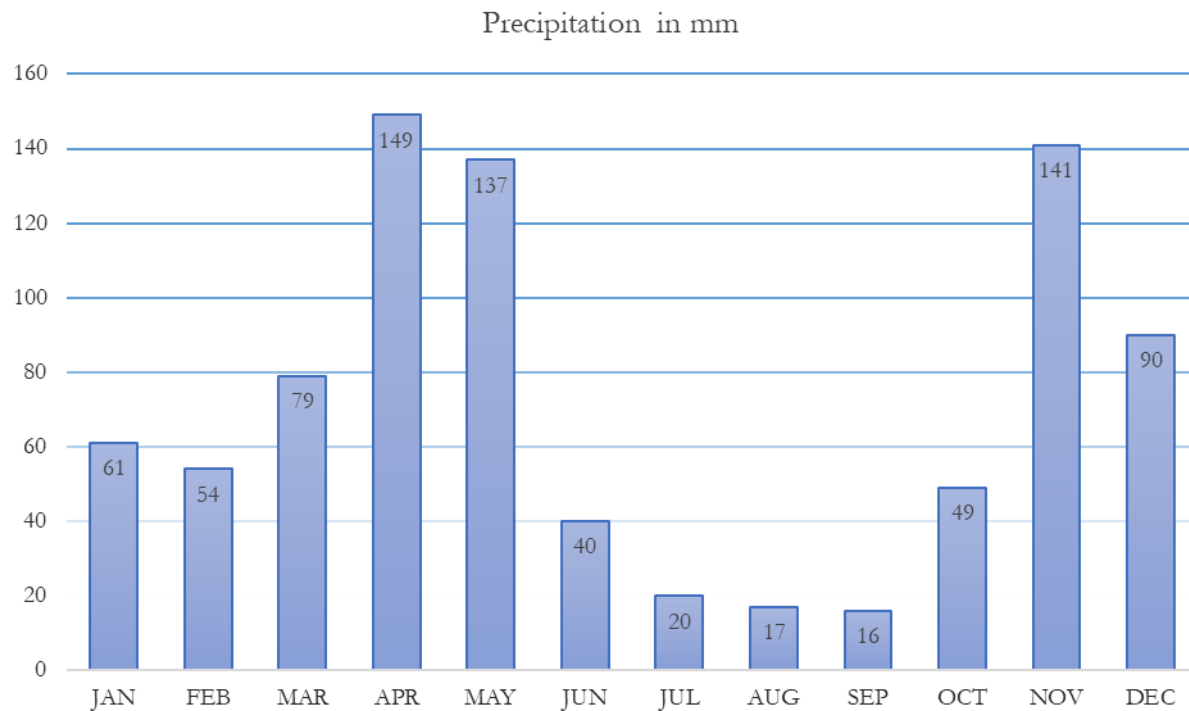
4.8 Climate

a) Rainfall

The County experiences a bimodal rainfall pattern, with long rains occurring from March to May and short rains from October to December. Annual rainfall ranges from 2,200 mm in Chogoria Forest to about 500 mm in the drier parts of Tharaka, with a county average of approximately 1,350 mm.

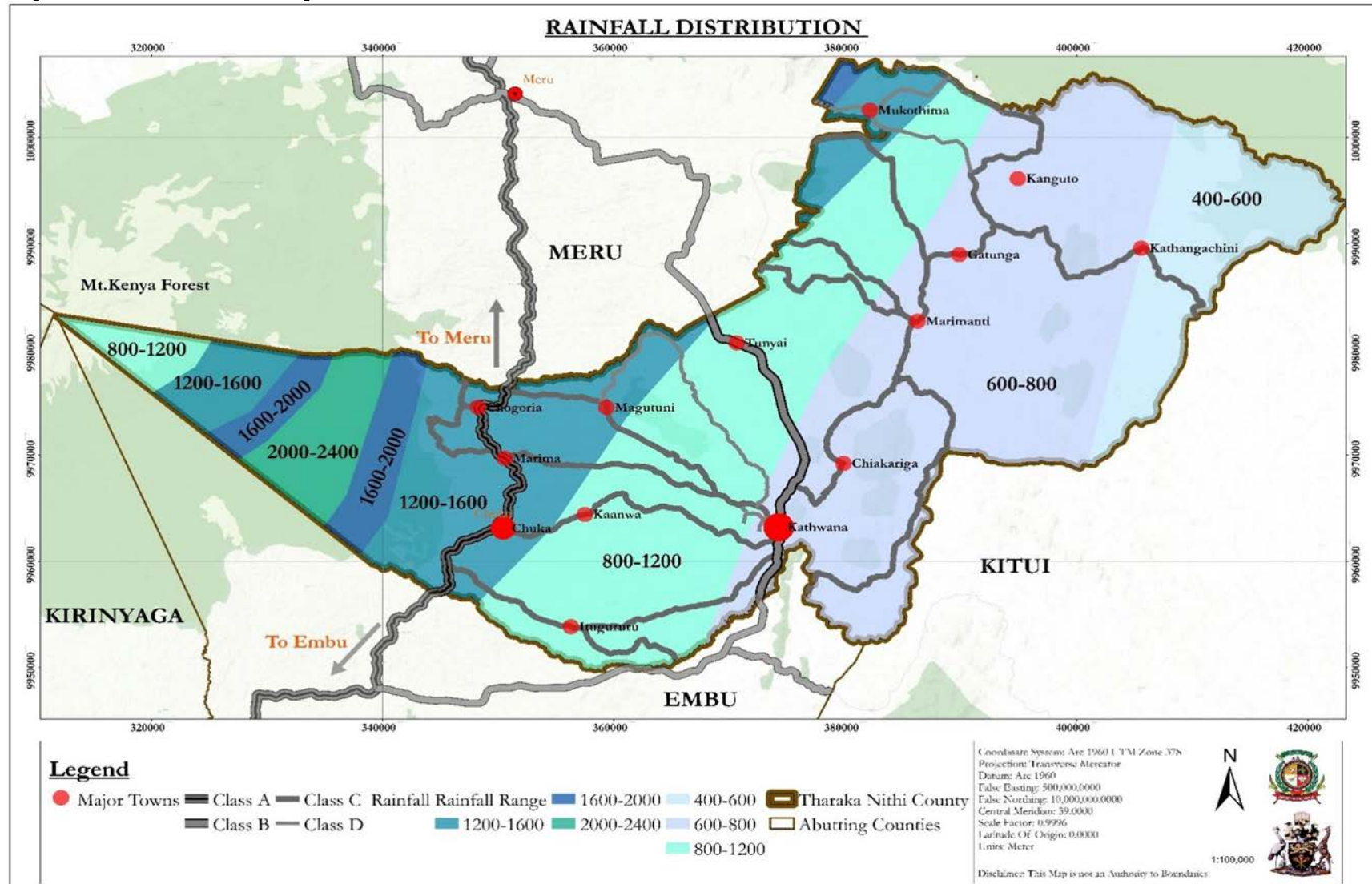
High-altitude areas with dense forest cover receive more consistent rainfall, while the eastern lowlands are semi-arid. Rainfall exhibits an east-west gradient, averaging 1,200–1,600 mm annually in the west and 500–1,000 mm in the east.

Figure 4.1: Rainfall Distribution



Source: (Field Survey, 2024)

Map 4.7: Rainfall Distribution Map



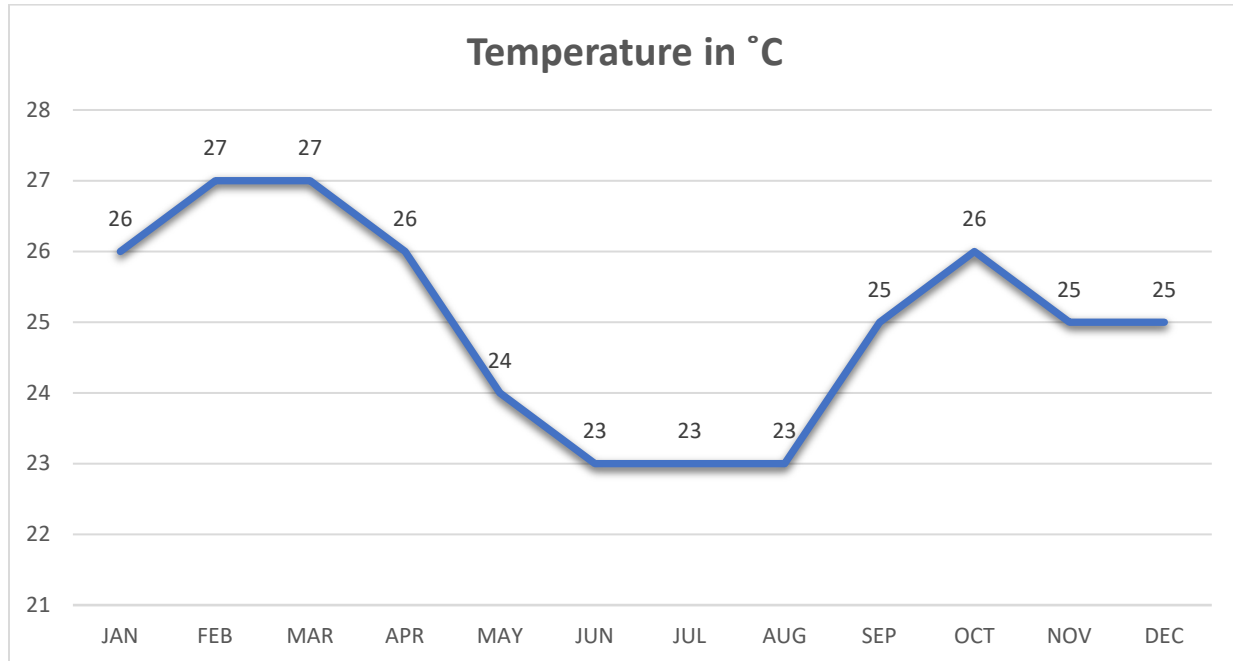
Source: (Field Survey, 2024)

b) Temperature

The County's temperatures vary with elevation, averaging 21°C in the west and over 25°C in the east. The upper midland zone records temperatures ranging from 11°C to 21°C, the lower midland 14°C to 24°C, and the intermediate lowland 24°C to 31°C, with Tharaka Constituency reaching up to 37°C

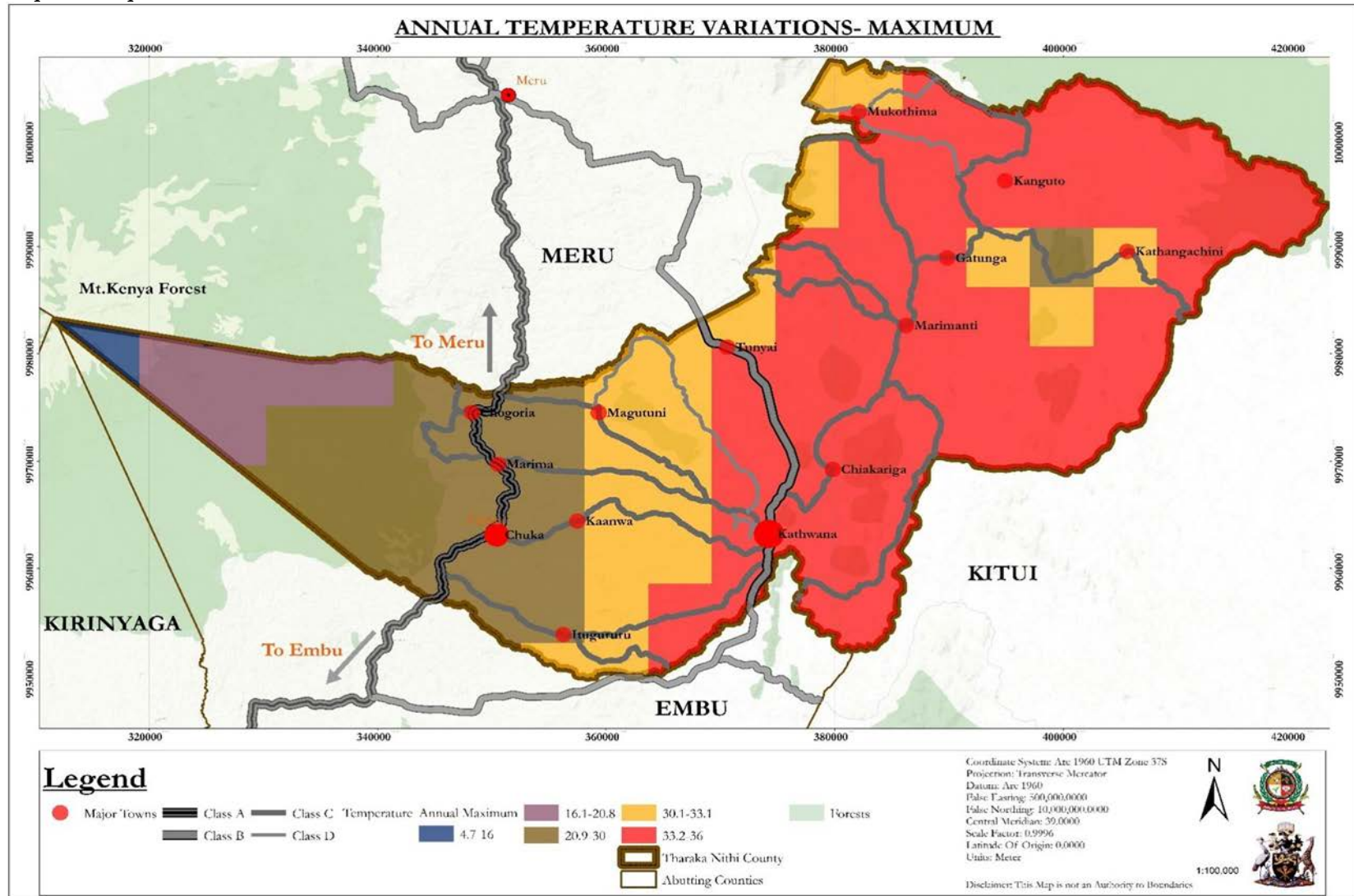
Figure 4.1, illustrates the average monthly temperatures, while **Error! Reference source not found.** shows the distribution of maximum temperatures.

Figure 4. 2: Average Temperatures in the County



Source: (Field Survey, 2019)

Map 4.8: Temperature Distribution



Source: (Field Survey, 2019)

c) Sunlight

Tharaka Nithi County experiences an average of 8 hours of sunlight per day, particularly towards Mt. Kenya. Its proximity to the equator results in favourable solar insolation averaging 5–6 kWh/m²/day, particularly in the eastern region.

Solar potential varies with topography and climate:

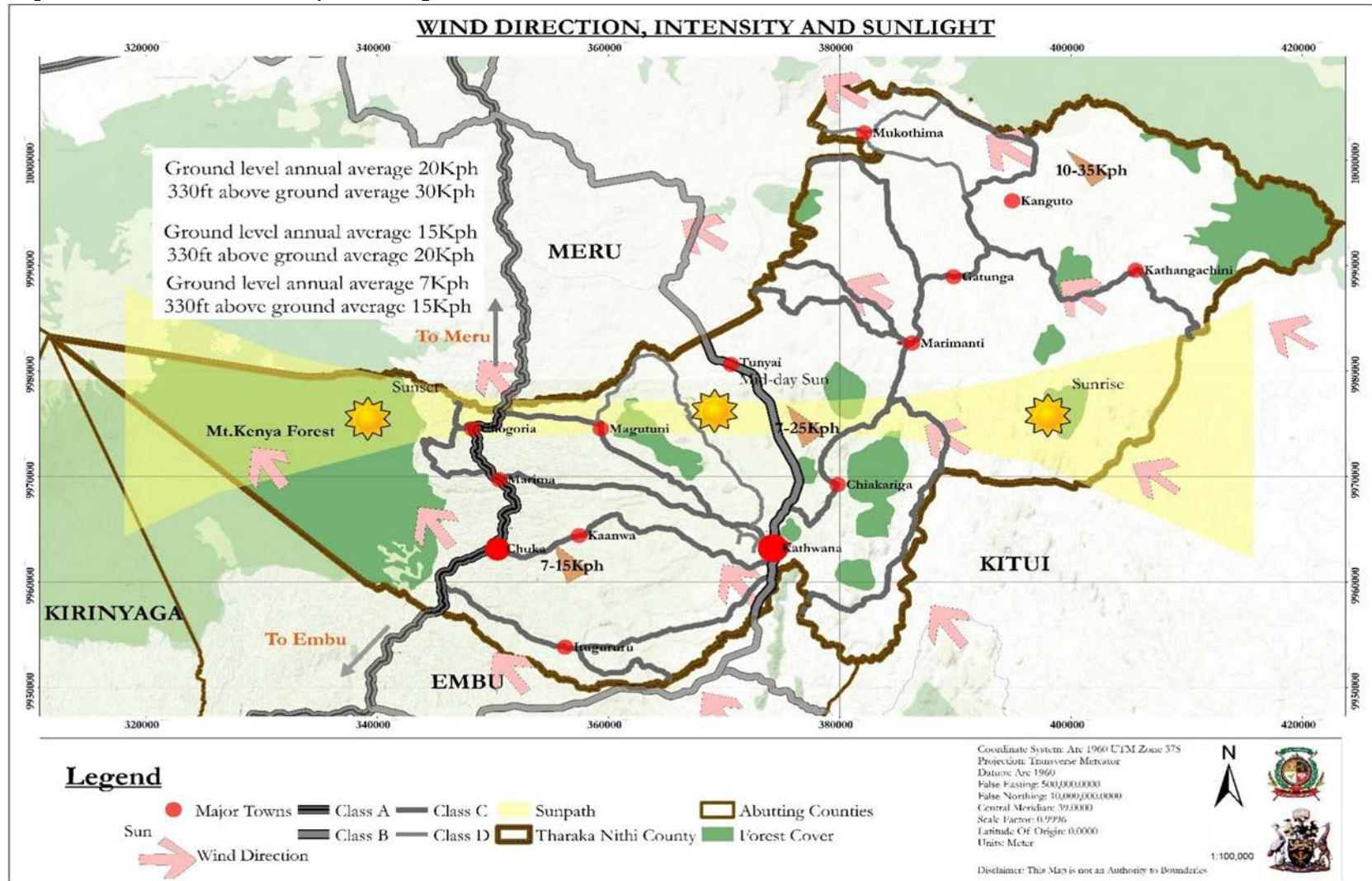
- i. Lowland Areas (Tharaka Sub-county): Located within the ASAL belt at elevations of about 600 metres, these areas receive the highest solar insolation because of prolonged sunshine hours and minimal cloud cover.
- ii. Highland Areas (Chuka and Maara): At elevations approaching 5,200 metres near Mt. Kenya, these areas experience greater cloud cover and convective rainfall, resulting in slightly lower, but still favourable, solar insolation.

Seasonal insolation is highest between December and March and lowest between June and August, when increased humidity and cloud cover reduce solar radiation.

d) Wind and Wind Direction

The County's prevailing winds blow from the southeast, strong from June to October and calm from November to March. These moisture-laden winds reach an average speed of 20 km/hour in August and are calm in December at 6 km/hour. Wind patterns and velocity in the county significantly contribute to moisture transfer, pollination, cooling, and have potential for green energy generation. However, strong winds can also cause negative effects, such as storms, crop destruction, tree falls, and falls from loose rocks on steep surfaces.

Map 4.9: Wind Direction, Intensity and Sunlight



Source: (Field Survey, 2024)

4.8 Implications for County Planning and Development

Regional development relies on effective resource utilization. The County's diverse landscapes, landforms, climate, and natural resources present both opportunities and challenges for development. Well-drained soils, abundant water resources, favourable slopes, and scenic landscapes support agriculture, eco-tourism, and settlement development. The geology provides suitable construction materials, while the V-shaped valleys and medium-flow rivers offer potential for dam construction to enhance domestic water supply and irrigation. The topography also supports both small-scale and large-scale irrigation, particularly in the eastern lowlands. However, steep slopes are susceptible to soil erosion, mudslides, and landslides, which threaten human settlements and infrastructure.

The County experiences varying climatic conditions that require careful crop and development zoning. The upper western areas receive sufficient rainfall to support tea and coffee production, while the midlands support maize, beans, and cotton. The eastern lowlands provide opportunities for livestock farming and beekeeping but require additional water supply because of lower and less reliable rainfall.

Declining rainfall, prolonged droughts, flooding associated with climate change, and rising temperatures reduce agricultural productivity and increase food insecurity. Higher temperatures also increase evapotranspiration, affecting plant moisture and human comfort. The County has the potential to harness approximately 3.3 trillion litres of annual rainfall to support domestic water supply, agriculture, and livestock production, while moderate wind conditions provide opportunities for renewable energy development. Sustainable resource management and climate adaptation measures are therefore essential to enhance environmental resilience and support long-term development.

5 CHAPTER 5: ENVIRONMENT AND NATURAL RESOURCES

5.1 Overview

This chapter presents an analysis of the environment and natural resources of Tharaka Nithi County. It covers ecosystems and habitats, environmentally sensitive areas, climate change, vulnerability and disaster preparedness, environmental governance, and natural resource management. Sustainable management of these resources is essential for regional development and environmental conservation.

5.2 Ecosystems and Habitats

Eco-Regions

Tharaka Nithi County lies within the transition zone between the montane grasslands and shrublands and the tropical and subtropical grasslands, savannas, and shrublands ecoregions. The area adjacent to the Mt. Kenya National Reserve is characterized by grasslands, savannas, open woodlands, and diverse fauna, including terrestrial mammals, birds, reptiles, and amphibians.

Vegetation

The County's vegetation comprises indigenous and exotic tree and shrub species. Indigenous species include Floss-silk tree (*Ceiba speciosa*), a rare member of the baobab family in East Africa, and *Croton megalocarpus* (Mukinduri). Exotic species include the fever tree (*Acacia* spp.), Blue Gum (*Eucalyptus globulus*), and ornamental species such as bougainvillea.

Common shrub species include African Senna (*Senna didymobotrya*), Cane Cactus (*Opuntia cylindrica*), Sodom apple (*Solanum incanum*), American aloe (*Agave americana*), Gray-leaf euryops (*Euryops pectinatus*), Japanese rubber plant (*Crassula ovata*), Black thistle (*Cirsium vulgare*), and various riverine shrubs.

Environmental degradation and environmentally fragile areas

Environmental degradation in Tharaka Nithi County is largely driven by increasing pressure on natural resources and unsustainable human activities. Key drivers include deforestation, wetland encroachment, cultivation on hillsides, illegal grazing on gazetted and non-gazetted hills, charcoal burning, sand harvesting along riverbeds, and quarrying. Encroachment into the Mt. Kenya forest ecosystem for agriculture, settlement, and resource extraction has further accelerated environmental degradation. Wetland encroachment is particularly evident in parts of Magumoni and Karingani wards, while unregulated sand harvesting is widespread along riverbeds.

Although mining activities present economic opportunities, most operations are undertaken through open-cast methods, often leaving pits unrehabilitated and contributing to land degradation. Poor waste management, particularly in urban areas, has resulted in environmental pollution, blocked drainage systems, and increased public health risks. Water pollution and scarcity remain major environmental concerns. Livestock waste generated in peri-urban and rural areas also remains underutilized despite its potential for biogas production, which could reduce dependence on wood fuel and electricity. Soil degradation continues to undermine agricultural productivity. Environmental degradation has contributed to biodiversity loss, declining ecosystem services, reduced agricultural output, water resource degradation, and increased vulnerability to climate change, underscoring the need for enhanced environmental conservation and sustainable natural resource management.

Plate 5.1: Sand Harvesting in a Dry River Bed in Chiakariga Ward, Illegal Logging and Charcoal Burning Near Tunyai



Source: (Field Survey, 2019)

5.3 Natural Resources

Tharaka Nithi County is endowed with diverse renewable and non-renewable natural resources, including forests, biodiversity, minerals, wildlife, water resources, and renewable energy resources. These resources support economic development, environmental conservation, and community livelihoods. The physiographic resources, including land, geology, water, topography, wind, and solar energy, have been discussed in the preceding chapter.

i. Botanical Resources and Conservation Status

The ecological landscape of Tharaka Nithi County can be categorized into distinct habitat zones based on variations in altitude, moisture availability, and vegetation characteristics. The montane forests located within the Chuka and Chogoria forest stations of Mount Kenya constitute one of the county's most important habitat. These forests function as critical water catchment ecosystems, regulating hydrological flows that contribute to the Upper Tana River Basin and supporting a wide range of flora and fauna. Their conservation is therefore essential for both biodiversity protection and water security. In contrast, the semi-arid ecosystems represented by Ntugi Hill (1,099 metres above sea level) and the Kiera Hills serve as important ecological refugia within the lowland environment. These gazetted ecosystems act as localized watersheds and biodiversity hotspots, supporting unique vegetation communities and generating localized climatic effects that enhance ecological resilience within the surrounding drylands.

a) Plant Biodiversity

The botanical diversity of Tharaka Nithi County reflects the marked altitudinal gradient from the montane ecosystems of Mount Kenya to the semi-arid lowlands. This ecological variation supports approximately 214 indigenous plant species across 73 plant families, with vegetation distribution influenced by altitude, rainfall, temperature, and soil conditions.

The upper montane zones of Mount Kenya are dominated by woody tree species (49%) and shrubs (32%), largely belonging to the Fabaceae, Lamiaceae, and Euphorbiaceae families, which contribute significantly to biodiversity conservation and ecosystem stability. In contrast, the lower and drier areas, including Ntugi and Kiera Hills, are characterized by dry savanna woodland, bushland, and wooded grassland vegetation that supports drought-tolerant species and sustains pastoral and agro-pastoral livelihoods.

Despite this rich biodiversity, conservation assessment remains limited, with only about 13.6% of indigenous plant species formally evaluated under the International Union for Conservation of Nature (IUCN) Red List framework. Species classified as vulnerable or near-threatened include *Prunus Africana* (African Cherry) and *Ocotea usambarensis* (East African Camphor), both valued for their medicinal and timber resources.

The County also hosts endemic and geographically restricted species, notably *Euphorbia friesiorum*, which occurs in localized habitats and is highly vulnerable to environmental disturbance and habitat degradation. To safeguard threatened plant species and genetic resources, the National Museums of Kenya and the National Gene Bank of Kenya have implemented ex-situ conservation programmes involving the collection, storage, and propagation of endangered species. These initiatives play an important role in preserving biodiversity and strengthening ecological resilience within the County.

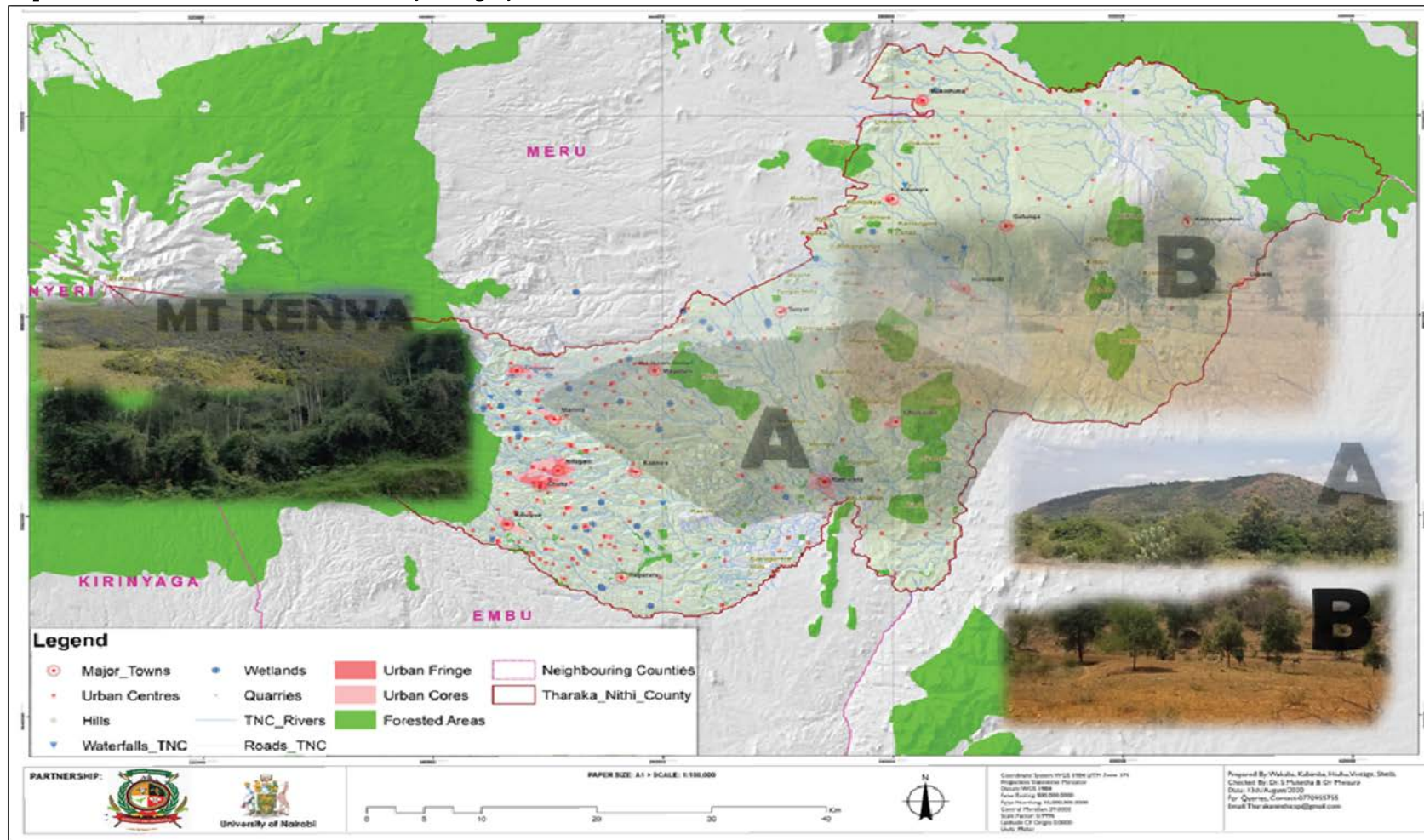
b) Forests

Between 2002 and 2025, Tharaka Nithi County lost approximately 130 hectares of humid primary forest, representing 19% of the total tree cover loss during the period. Consequently, the County's humid primary forest declined by 0.56%. Between 2001 and 2025, the County lost approximately 690 hectares of tree cover, equivalent to 2.0% of its 2000 tree cover, resulting in an estimated 270 kilotonnes of CO₂ equivalent emissions. These figures exclude tree cover gains recorded during the same period.

The main drivers of forest loss include forest fires, illegal logging, agricultural encroachment, and the expansion of human settlements into forest reserves. Although tree planting and afforestation programmes are contributing to forest restoration, their impact continues to be constrained by overexploitation of forest resources, agricultural expansion, and unsustainable land-use practices such as shifting cultivation.

To strengthen forest conservation and management, the Kenya Forest Service has expanded forest stations and guard camps across the County to enhance the protection, monitoring, and sustainable management of forest resources.

Map 5.1: Distribution of Forest Resources by Category



Source: TNCSP, 2020

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Table 5. 1: Forests in Tharaka Nithi County

Name	Type	Size (Ha)	Legal Status	Location (Sub-County)
Mt. Kenya	Natural forest	36000	Gazetted	Mwimbi, Muthambi and Chuka
Kijege		3296.2	Gazetted	Tharaka South
Kamuthetu		2606	Awaiting gazettelement	Tharaka North
Kiunguni		2600	Awaiting gazettelement	Tharaka North
Rwara wa Takiutha		2126	Awaiting gazettelement	Tharaka North
Gitugu		2098	Awaiting gazettelement	Tharaka North
Njuguni	Natural forest	2003	Gazetted	Maara and Tharaka North
Kauro		1986	Awaiting gazettelement	Tharaka North
Nathuku		1969	Awaiting gazettelement	Tharaka North
Karauri		1956	Awaiting gazettelement	Tharaka North
Munguni	Natural forest	1940	Gazetted	Igambang'ombe
Karugwari		1661	Awaiting gazettelement	Tharaka North
Ntugi		1378.8	Gazetted	Tharaka South
Mutejwa		1375.9	Gazetted	Tharaka North
Kiagu		1366.2	Gazetted	Meru County and Tharaka North
Gikingo		1234.3	Gazetted	Tharaka North
Kairini		1000	Public	Chuka
Kiera	Natural forest	793.2	Gazetted	Maara
Kierera		793.2	Gazetted	Tharaka South
Muugi		704	Awaiting gazettelement	Tharaka South

Name	Type	Size (Ha)	Legal Status	Location (Sub-County)
Maatha		639.4	Gazetted	Tharaka North
Gambare		591	Awaiting gazettelement	Tharaka South
Mwerera		569	Awaiting gazettelement	Tharaka South
Nkarini		514	Awaiting gazettelement	Tharaka South
No name***		491	Awaiting gazettelement	Tharaka South
Gantaugu		341	Awaiting gazettelement	Tharaka North
Mariene		330	Awaiting gazettelement	Tharaka South
Gituma		301	Awaiting gazettelement	Tharaka South
Mutaranga		299.5	-	Tharaka South
Tunyai		271	Awaiting gazettelement	Tharaka South
Gituma hills		251	Awaiting gazettelement	Tharaka South
Kamwanjogu		217	Awaiting gazettelement	Tharaka South
Kinaruta		119	Awaiting gazettelement	Tharaka South
Ntamaini		74	Awaiting gazettelement	Tharaka South
Makithi		-	Adjudication ongoing	Tharaka South
Turima		-	Adjudication ongoing	Tharaka South
Kiamara		-	Adjudication ongoing	Tharaka South

Source: (Tharaka Nithi CIDP, 2022)

ii. Botanical and Forest Species of Economic Importance

Plant resources play a fundamental role in supporting local livelihoods, healthcare systems, and economic activities within Tharaka Nithi County. Ethnobotanical studies indicate a high degree of dependence on indigenous plant species for both subsistence and commercial purposes.

Medicinal plants are particularly significant within local communities. Species such as *Zanthoxylum gillettii*, *Prunus Africana*, and *Solanum incanum* are extensively utilized in traditional medicine for the treatment of snake bites, human ailments, and livestock diseases. Their widespread use underscores the importance of conserving indigenous knowledge systems alongside biological resources.

Timber extraction also contributes substantially to the local economy. High-value hardwood species, particularly *Ocotea usambarensis*, are sought after for construction, furniture production, and other structural applications. However, increasing demand has placed considerable pressure on these valuable forest resources.

Numerous indigenous plant species contribute to food security and income generation. More than 38 traditional food plants have been documented, including *Harungana madagascariensis*, which provides nutritional support during periods of drought and food scarcity. Additionally, flowering acacia woodlands support apiculture activities, generating income through honey production and related value chains.

iii. Conservation Threats to Botanical and Forest Resources

The County's botanical resources face increasing pressure from human activities that threaten ecological integrity and biodiversity conservation. A major threat is habitat fragmentation resulting from urban expansion and land-use change. Recent studies indicate increasing built-up areas that encroach on natural habitats, forest edges, and ecologically sensitive hill ecosystems, reducing habitat connectivity and biodiversity.

Unsustainable harvesting practices also pose a major challenge. Traditional medicinal plant collection often involves destructive methods such as root harvesting and bark stripping, accounting for approximately 36% and 23% of extraction activities, respectively. These practices limit plant regeneration and contribute to the decline of slow-growing tree species.

Human-induced bushfires, particularly in the dryland ecosystems of Ntugi and Kiera Hills, are an increasing conservation concern. Fires set to stimulate fresh pasture frequently spread uncontrollably, destroying vegetation cover, seed banks, leaf litter, and regenerating saplings. This accelerates land degradation, reduces biodiversity, and weakens ecosystem resilience.

5.4 5.4 Wildlife

Wildlife resources in Tharaka Nithi County are concentrated within Mount Kenya National Park, the Mount Kenya Forest ecosystem, Meru National Park, and smaller forest and hill ecosystems, including Ntugi, Kiera, and Kijege Hills. The County supports a diverse range of wildlife species, including African elephants, buffalos, leopards, hyenas, bongo, bushbucks, waterbucks, elands, zebras, duikers, vervet monkeys, baboons, hyraxes, and mongoose. Mount Kenya Forest is particularly notable for supporting populations of leopards and other large mammals.

Avian Biodiversity

The County also hosts significant avian biodiversity. Mount Kenya Forest is designated as an Important Bird Area (IBA) and supports numerous bird species, including Ayres' Hawk-Eagle, Crowned Hawk-Eagle, Hartlaub's Turaco, Francolins, Silvery-Cheeked Hornbills, Bronze-Naped Pigeons, Rufous-Breasted Hawks, Green Ibises, Olive Pigeons, and Giant Kingfishers. These bird populations contribute to ecosystem functioning through seed dispersal and pollination and support the County's niche bird-watching tourism sector.

Protected Areas and Wildlife Distribution

Key wildlife conservation areas include Mount Kenya National Park, a UNESCO World Heritage Site, and Meru National Park, accessible through Ura Gate. These protected areas are managed by the Kenya Wildlife Service (KWS), while the gazetted Mount Kenya forest blocks and lower hill ecosystems are co-managed by the Kenya Forest Service (KFS) and Community Forest Associations (CFAs). The Mount Kenya ecosystem also contains the renowned "Elephant Maternity," an important breeding habitat and a major eco-tourism attraction.

The County's wildlife population is estimated at approximately 500 African elephants, 300 African buffalos, 200 leopards, 100 hyenas, and 700 primates. While elephant and buffalo populations remain relatively stable, habitat fragmentation and disruption of migratory corridors pose

increasing threats. Leopard and hyena populations continue to fluctuate due to increasing human-wildlife interactions, while primate populations are expanding into agricultural areas, resulting in persistent crop damage.

Reptiles, Amphibians and Invertebrates

Tharaka Nithi County also supports a variety of reptiles and amphibians, including the African Python, Spitting Cobra, Monitor Lizard, Agama Lizard, and African Turtle. These species serve as important indicators of ecosystem health, particularly within the Tana River basin and lower hill stream ecosystems. They also contribute to eco-tourism and provide ecological benefits through natural control of rodent and insect populations. However, habitat degradation along riverbanks and indiscriminate killing of reptiles continue to threaten local populations.

Overall, the County's wildlife and biodiversity resources constitute important ecological, economic, and tourism assets that require continued protection through habitat conservation, ecosystem restoration, wildlife corridor preservation, and sustainable management of protected areas.

Tharaka Nithi County supports a diverse range of insects and invertebrates, particularly butterflies (Lepidoptera) and bees (Hymenoptera), which play a vital role in ecosystem functioning and economic development. These species contribute significantly to crop pollination and support the County's growing commercial apiculture (beekeeping) industry, thereby enhancing agricultural productivity and livelihoods.

However, insect and invertebrate populations are increasingly threatened by the widespread use of non-selective agricultural pesticides and the destruction of habitats through land-clearing practices, including slash-and-burn cultivation. These pressures have contributed to declining populations, potentially affecting pollination services, biodiversity conservation, and agricultural

Plate 5. 1: Wildlife in the County



Sources: Tharaka Nithi County CIDP, 2024

Large wildlife species in Tharaka Nithi County are distributed across distinct ecological zones. Elephants, buffalos, mountain bongos, and leopards are predominantly found within the montane forests of the upper sub-counties of Chuka, Mwimbi, and Muthambi. Zebras, elands, bushbucks, and waterbucks occupy the transitional slopes, while baboons and vervet monkeys are commonly found along the agricultural interface areas.

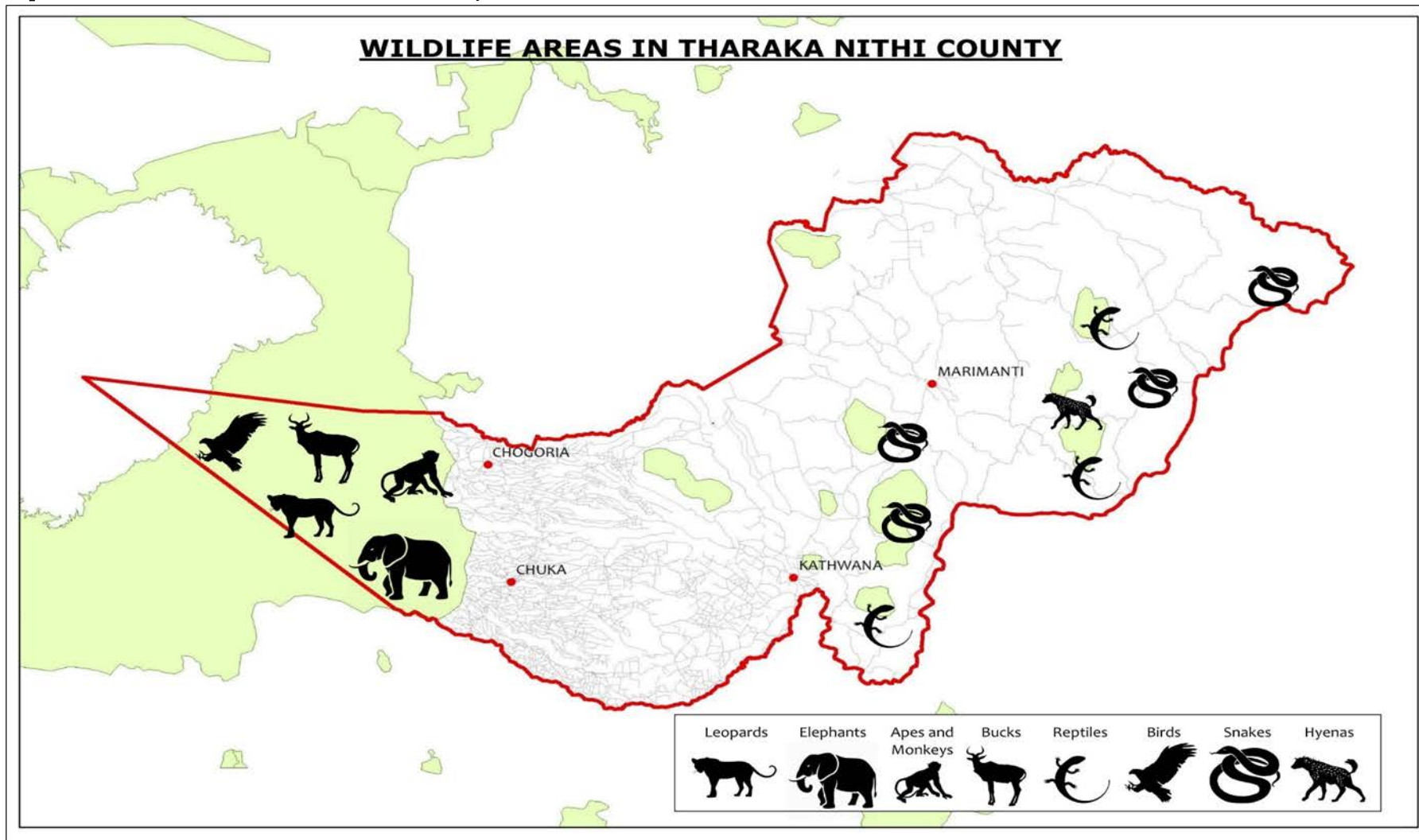
Conservation Challenges

Wildlife dispersal corridors are concentrated within the buffer zones adjoining the Mount Kenya ecosystem and the plains extending towards Meru National Park. These corridors are increasingly threatened by settlement expansion and other land-use changes, resulting in the disruption of traditional migratory routes and increased human-wildlife conflicts. Of particular conservation concern is the critically endangered Mountain Bongo (*Tragelaphus eurycerus isaaci*), whose population continues to face pressure from habitat loss and historical poaching.

Human-wildlife conflicts remain a significant challenge within the County. Elephants and primates frequently damage crops on smallholder farms, while crocodiles and hippopotamuses pose safety risks to communities living near the Tana River. Although the Kenya Wildlife Service (KWS) provides compensation mechanisms for wildlife-related losses and injuries, uptake remains low due to limited public awareness, delays in claim processing, and inadequate compensation levels.

To address these challenges, KWS has strengthened anti-poaching operations, wildlife rescue programmes, and habitat protection initiatives. Additional interventions, including the installation of wildlife-proof fencing in conflict-prone areas, have been implemented to reduce human-wildlife interactions and enhance the conservation of wildlife resources within the County.

Map 5.2: Wildlife distribution in Tharaka Nithi County



Source: TNCSP, 2020

5.5 Mineral Resources

Tharaka Tharaka Nithi County is endowed with a variety of mineral resources, including sand, building stones, ballast, gemstones (beryl, aquamarine, sapphire, and garnet), iron ore, limestone, copper ore, ilmenite, feldspar, quartz, phonolites, tuffs, and gneisses. These resources present opportunities for economic development, employment, and investment.

Sand harvesting is the most widespread mineral extraction activity in the County, particularly in Tharaka South Sub-County along the Muthangawe River in Mitongoro and Kamarandi sub-locations, and along the Thingithu and Kathita rivers in the Kithiori area. Building stone and ballast are also extracted from quarry sites in Kajuki and Kamutiria in Igambang'ombe.

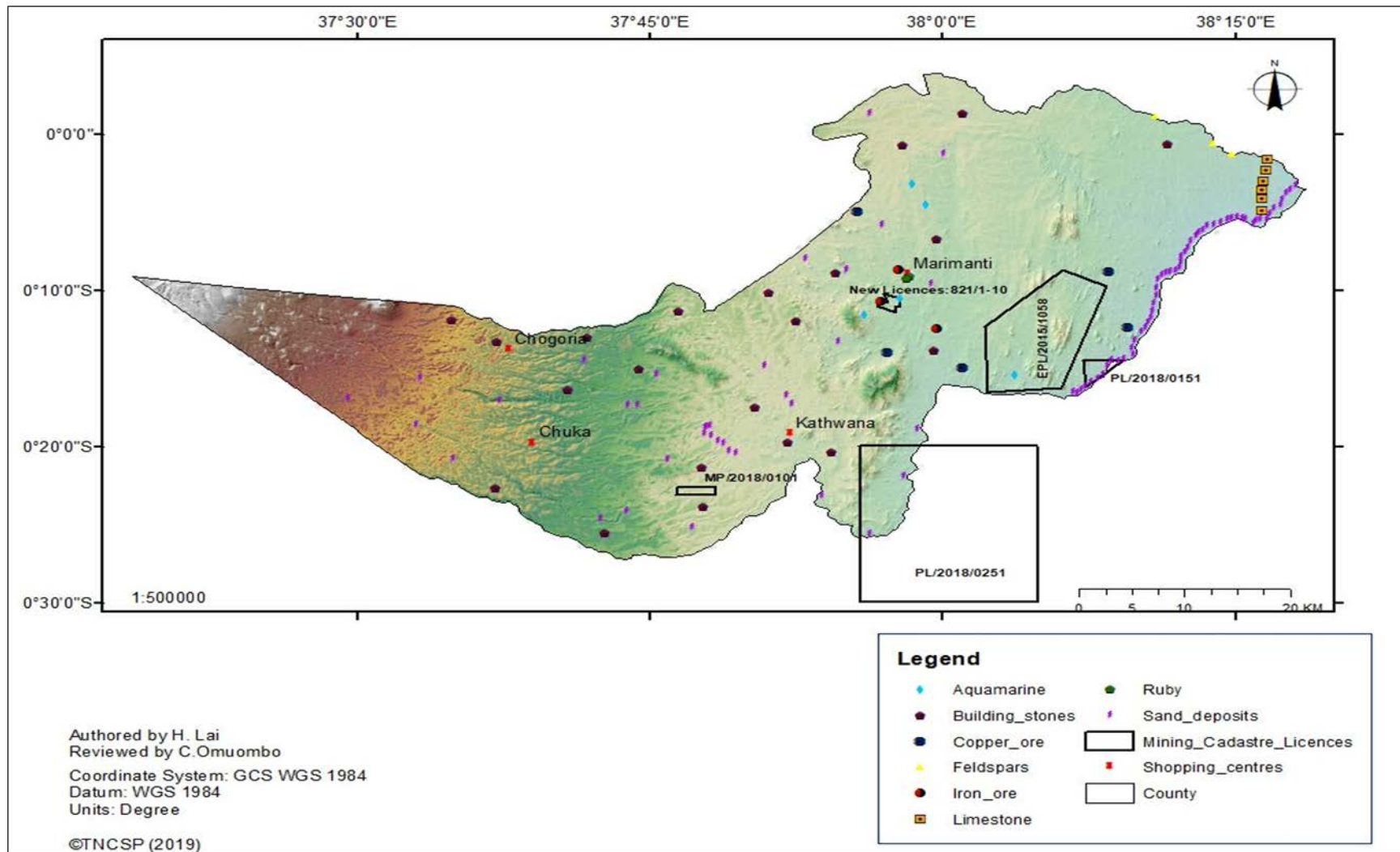
Most mineral extraction is undertaken through artisanal and unregulated methods. Uncontrolled sand harvesting and quarrying contribute to soil erosion, land degradation, and degradation of riverine ecosystems. Strengthening regulation, environmental monitoring, and sustainable extraction practices is therefore necessary to ensure that mineral resources contribute to economic development while minimizing environmental impacts.

Plate 5.2: Ballast Mining and Quarrying in Igambang'ombe



Source: Field Survey, 2019

Map 5.3: Mineral Occurrences and Mining Cadastre in Tharaka Nithi County



Data Source: extracted from the Mining Cadastre portal available at <https://portal.miningcadastre.go.ke/>

Plate 5.3 Mining Activities in Tharak Nithi County
Laid Out Tuff Building Blocks from the Njiru Mate Quarry



Sand Harvesting Along Chiakariga-Marimanti Road



Source: (Field Survey, 2019)

Iron ore is one of the key industrial minerals found in Tharaka Nithi County, with notable deposits in Kithiori Village within the Marimanti area. Despite its economic potential, exploitation remains limited because of technological and operational constraints. Artisanal limestone mining is also undertaken in the Nthoa area, contributing to local livelihoods and the supply of construction materials.

The presence of iron ore and limestone resources presents opportunities for industrial development, value addition, and employment creation. However, enhanced investment, appropriate technology, and sustainable mining practices are necessary to fully realize the economic potential of these mineral resources while minimizing environmental impacts.

Plate 5.4: Heaps of Iron Ore in Kithiori village, Marimanti



Plate 5.5: Limestone Lump and Natural Salt Supplement for Cows from Crushed Limestone



Source: Field Survey, 2019

Industrial minerals in Tharaka Nithi County include quartzite and phonolites, which are primarily extracted for construction purposes. Quartzite mining is concentrated in Kamaguna, Kithiori, and Tumbura areas of Tharaka South Sub-County, while phonolite extraction occurs in the Kimoroo and Kirurumwe areas of Chogoria Ward.

The County also has notable gemstone resources. Gemstone mining is undertaken in Kibung'a within Turima Location of Nkondi Ward, while red ruby deposits are mined in the Marimanti area. These mineral resources present opportunities for economic growth, employment creation, and investment within the mining sector, provided that extraction is undertaken in a sustainable and regulated manner.

Table 5.1: Salt Licks in Tharaka Nithi Sub-County

Sub County	Salt Licks
Tharaka North	Salt licks at Karuguaru in Gatue location
Chuka	Saline waters in Rubate location Salty waters at Kambugu Chuniu Salt licks in Magumoni location Salty waters in Mwonge location
Igambang'ombe	Kangutu salt licks in Kithangani location Salty deposits at Kangau in Kamaindi location Salt licks in Kamwimbi location Salt licks at Kamunga, Kabariange and Makutano in Mutino location
Mwimbi	Between Kathingiru and Kiera Hill Gakeu, Kanjogu, Ruganda and Kawe in Gitombani location Kithururi

Source: Field Survey, 2019

Salt licks are an important natural resource in Tharaka Nithi County, providing essential mineral nutrients for livestock and supporting local livelihoods. The naturally occurring salt deposits are also utilized for domestic purposes, including cooking and traditional medicinal applications. Salt licks are found in Chuka, Mwimbi, and Igambang'ombe sub-counties, where they contribute to livestock production and the local economy.

Table 5.1 presents the distribution of salt lick sites within the County.

Plate 5.6 Gemstone Mines in Tharaka Nithi County



Source: Field Survey, 2019

Unsustainable mining practices have contributed to environmental degradation in several parts of Tharaka Nithi County. Artisanal quarrying and mineral extraction have resulted in landscape scarring, habitat destruction, soil erosion, and abandoned open pits that collect stagnant water, creating potential public health risks. Sand harvesting along river channels has also degraded riverbeds and destabilized riparian ecosystems and infrastructure, including bridges.

These challenges highlight the need for strengthened regulation, environmental monitoring, site rehabilitation, and sustainable mining practices to minimize environmental impacts while supporting economic development.

5.6 Caves and Tunnels

Tharaka Nithi County has numerous caves and underground tunnels, particularly along river corridors. These features possess ecological, historical, and tourism significance. Notable examples include the Inanduru Cave in Mugumango, which serves as an important bat habitat, and caves in Turima and Kamanyaki that were used by Mau Mau fighters during the colonial period. Some of these sites have since been developed as local tourist attractions, contributing to the County's cultural heritage and tourism potential.

Table 5.2 presents the distribution of caves and tunnels within the County.

Table 5.2: Caves and Tunnels in Tharaka Nithi County

Sub-County	Caves and Tunnels
Tharaka North	• Kathangacini location
Tharaka South	• Mau Mau caves in Turima and Kamanyaki locations
Chuka	• Ithembe caves along Ruguti River in Kabuboni location • Underground tunnel at Nkomani in Rubate location • Gituambugi underground water tunnel in Magumoni location
Igambang'ombe	• Underground water known as Mbakuri in Mutino location
Mwimbi	• Inanduru bat caves in Mugumango location • Ikurungu and Muka wa Nkaria caves along River Nithi • Kiangati cave along River Kamaara • Nyomba ya Mhuri cave on Mt. Kenya • Kauma caves in Nithi slopes • Caves along River Ganga • Nkaini Caves in Iruma location • Nithi Valley Caves • Uinga and Irumadi tunnels along River Maara
Muthambi	• Muugii caves in Kandugu location • Karungiro tunnel along River Nithi

Source: Field Survey, 2024

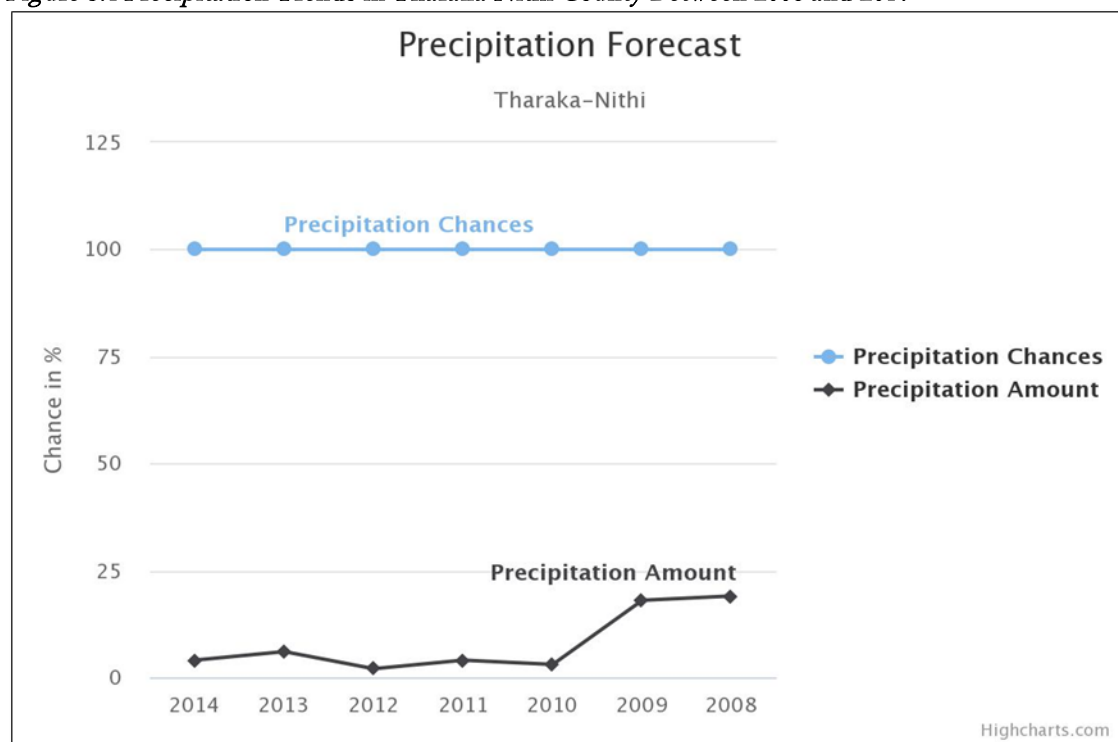
5.7 Climate Change and Disaster Resilience

Climate is a key determinant of the County's natural resources, influencing water availability, Climate change poses major risks to Tharaka Nithi County's natural resources, livelihoods, food security, and socio-economic development. It affects water availability, biodiversity, forest ecosystems, wildlife habitats, and agricultural productivity.

Historical climate analysis indicates a gradual increase in temperatures across the County. Between 1981 and 2005, mean temperatures increased by approximately 0.7°C during the first rainfall season and 0.5°C during the second season, contributing to increased heat stress. Rainfall analysis between 1981 and 2015 indicates a moderate decline in first-season rainfall and a slight increase during the second season. The decline in first-season rainfall has increased drought stress and concerns over agricultural production and water resources.

Error! Reference source not found. illustrates the long-term decline in average precipitation and the increasing climate-related challenges facing the County.

Figure 5.1 Precipitation Trends in Tharaka Nithi County Between 2008 and 2014



Source: Kenya Agricultural Observatory Platform, Accessed 2019

Although changes in second-season rainfall and temperature have not significantly altered the occurrence of extreme weather events, climate change continues to pose a growing threat to the County. Rising temperatures have contributed to the gradual melting of glaciers on Mount Kenya, while climate projections for the period 2021–2065 indicate further increases in temperature, shifts in rainfall onset and duration, and increased drought and moisture stress if adequate mitigation measures are not implemented.

Climate change has adversely affected agricultural productivity, livestock production, water availability, and overall livelihoods within the County. Increasing temperatures and erratic rainfall patterns have reduced food production, affected thermal comfort, and heightened vulnerability to water shortages. In addition, flash floods in the lower parts of Tharaka North Sub-County have caused displacement of communities, loss of lives, and destruction of property. Declining pasture conditions have also intensified human-wildlife conflicts as wildlife increasingly encroach on agricultural areas in search of forage.

The County experiences several climate-related disasters, including soil erosion, floods, droughts, landslides, and mudslides. Soil erosion is particularly prevalent in Marimanti and Gatunga because of highly erodible soils, while flooding occurs along riverbanks and low-lying areas of Tharaka North Sub-County during the rainy seasons. Drought is most severe in the drier parts of Gatunga Ward and is often compounded by pests and diseases such as desert locust invasions, anthrax, and foot-and-mouth disease. Areas on the slopes of Mount Kenya and other steep hillsides are particularly vulnerable to landslides and mudslides during periods of intense rainfall.

These risks are further exacerbated by unsustainable land-use practices, including deforestation, over-cultivation, overgrazing, poor land management, and excessive vegetation clearance. Consequently, disaster-prone areas constrain settlement expansion, agricultural production, and infrastructure development. Strengthening climate change adaptation, disaster risk reduction, sustainable land management, and natural resource conservation is therefore essential to enhance resilience and support sustainable development.

5.8 Emerging Issues

Table 5.3 Challenges and Opportunities in Forest Resource Management

Opportunities	Threats
Presence of mineral deposits within the County.	Mineral deposits remain unexploited due to lack of funding, skills, and adequate research.
Availability of water resources with potential to support irrigation farming.	Water resources in dry areas are underutilized.
Availability of green energy resources.	Green energy resources remain underutilized.
Natural resources with scenic beauty suitable for tourism development.	Poor infrastructure access to mining areas and tourist destinations.
Rich botanical diversity supporting biodiversity conservation, water catchment protection, climate regulation, food security, traditional healthcare systems, and livelihoods.	Environmental degradation caused by human activities.
Existing Community Forest Associations (CFAs).	Declining forest covers due to settlement expansion and pressure on un-gazetted forests.
Availability of five tree nurseries.	Unregulated mining activities causing environmental degradation.
Wildlife resources supporting eco-tourism.	Water pollution from human activities near water resources.
Extensive river networks and aquatic ecosystems.	Natural disasters negatively affecting socio-economic development.
Availability of diverse fish species and fingerlings.	Pests and diseases limiting agricultural productivity and food security.
Over 800 active fish ponds supported by national and county investments.	High cost of commercial fish feeds and quality fingerlings.
National support through the Economic Stimulus Programme (ESP) and county investments in aquaculture.	Inadequate cold-chain infrastructure and structured fish markets.
	Inadequate technical, financial, and logistical capacity for conservation and ecosystem management.

Source: UoN-DURP,2026

6 CHAPTER 6: POPULATION AND DEMOGRAPHY



6.1 Overview

This chapter presents the population and demographic characteristics of Tharaka Nithi County, which provide the basis for spatial planning and development. It examines population dynamics, distribution, and growth trends to inform current and future land use planning. The chapter also highlights the relationship between population size, skills, distribution, and the provision of natural and built infrastructure.

It further analyses key demographic indicators, including population size and density, age-sex composition, household size, growth rates, mortality, morbidity, and dependency levels. Socio-cultural aspects, including the historical evolution and cultural characteristics of the Chuka and Tharaka communities, are also examined to support informed planning and development.

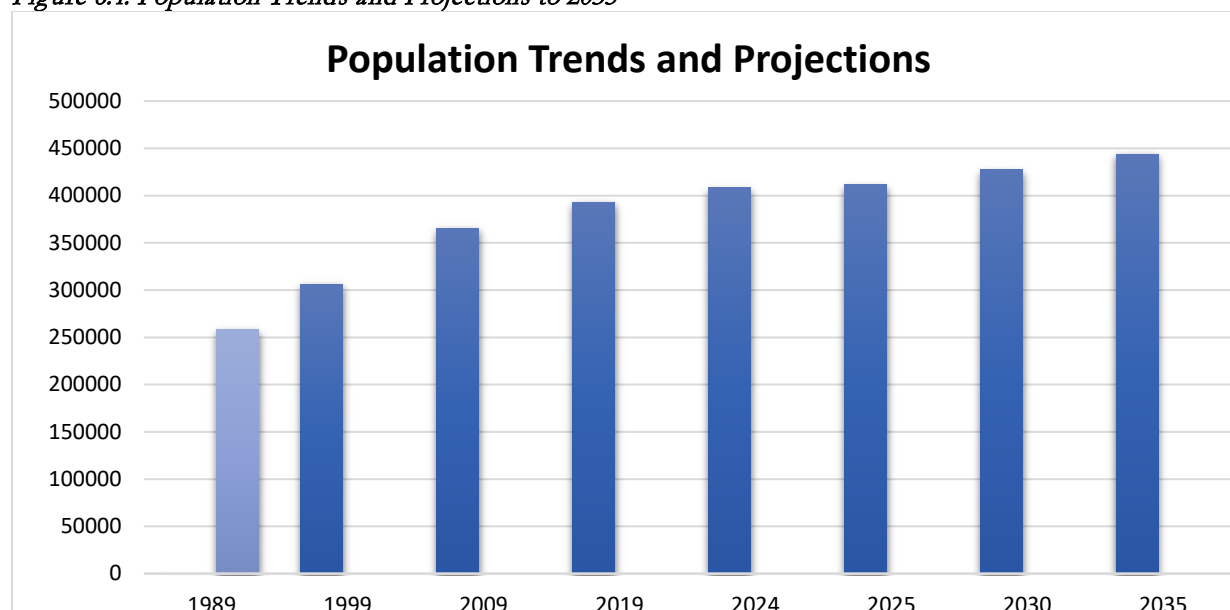
6.1 Population

a) Size

According to the Kenya National Bureau of Statistics (KNBS), Tharaka Nithi County had a population of 393,177 in 2019, representing approximately 0.82% of Kenya's total population and ranking among the least populous counties in the country. Population trends between 1989 and 2019 indicate a relatively slow growth trajectory, with projections showing continued growth to 2035.

The average intercensal population growth rate for the period 1989–2019 was 1.52%, while the current growth rate stands at 0.76%, both below the replacement level of 2.1%. At the current growth rate, the population is projected to double in approximately 92 years, assuming growth patterns remain unchanged. Although slower population growth can reduce pressure on land and public services, the potential benefits are constrained by relatively low levels of socio-economic activity and the uneven distribution of infrastructure, facilities, and essential services across the County. Most of the County's population is concentrated in the cooler and wetter western areas of Chogoria and Chuka, where environmental conditions are more favourable for settlement and agricultural production.

Figure 6.1: Population Trends and Projections to 2035



Source: Compiled from KNBS Population, Housing and Census Reports 1989-2019.

Tharaka Nithi County has experienced steady population growth over successive census periods, although the growth rate has declined significantly over time. Intercensal growth rates were 1.88% between 1989 and 1999, 1.92% between 1999 and 2009, and 0.76% between 2009 and 2019, indicating a slowing population growth trend. **Error! Reference source not found.** presents the County's population, household trends, and growth rates over the period.

Household size has also declined, from an average of 5.51 persons per household to 3.56 in 2019, and is projected to reduce further to 2.7 by 2035. While smaller household sizes may reflect changing demographic and socio-economic conditions, the declining population growth rate has important socio-economic and spatial planning implications, particularly for service provision, infrastructure utilization, labour availability, and settlement development across the County.

Table 6.1: Tharaka Nithi Population and Households 2024-2035

Year/Item	1989	1999	2009	2019	2024	2025	2030	2035
National	21,443,636	28,686,607	38,610,097	47,564,296	53,031,700	54,198,397	60,428,377	67,374,476
Tharaka Nithi	257, 887	306,443	365,330	393,177	408,347	411,450	427,324	443,811
Households	46,762	76,223	88,803	109,860	123,510	126,437	142,143	159,810
Population GR		1.88	1.92	0.76				
Household GR		6.3	1.65	2.37				
Average GR Pop		1.52						
Average GR HHS		2.99						
Gap in Pop GR		0.22	0.19	1.34				
Doubling Period		37.23	36.45	92.1				
Household Size	5.51	4.02	4.11	3.56	3.3	3.25	3	2.7

Source: *Compiled from KNBS Population, Housing and Census Reports 1989-2019*

b) Population Distribution and Crude Density

Population distribution in Tharaka Nithi County is influenced by natural and socio-economic factors and is organized across three spatial zones: urban, peri-urban, and rural areas. These zones are served by varying levels of infrastructure, utilities, and services, which in turn influence settlement patterns and economic activity. According to the 2019 Kenya Population and Housing Census, approximately 8.3% of the County's population resides in urban centres, including Chuka, Chogoria, Marimanti, and Kathwana, the County headquarters. **Error! Reference source not found.** presents the population distribution across the County's six sub-counties.

Population concentration is highest in Mwimbi, Muthambi, and Chuka sub-counties, largely due to their relatively high agricultural productivity and strategic location along the A9 corridor linking Embu, Meru, and Nairobi. In contrast, Tharaka North and Tharaka South sub-counties have comparatively lower population densities, reflecting differences in agricultural potential, accessibility, and infrastructure provision.

Table 6.2: Population, Household and Sex Ratio Distribution

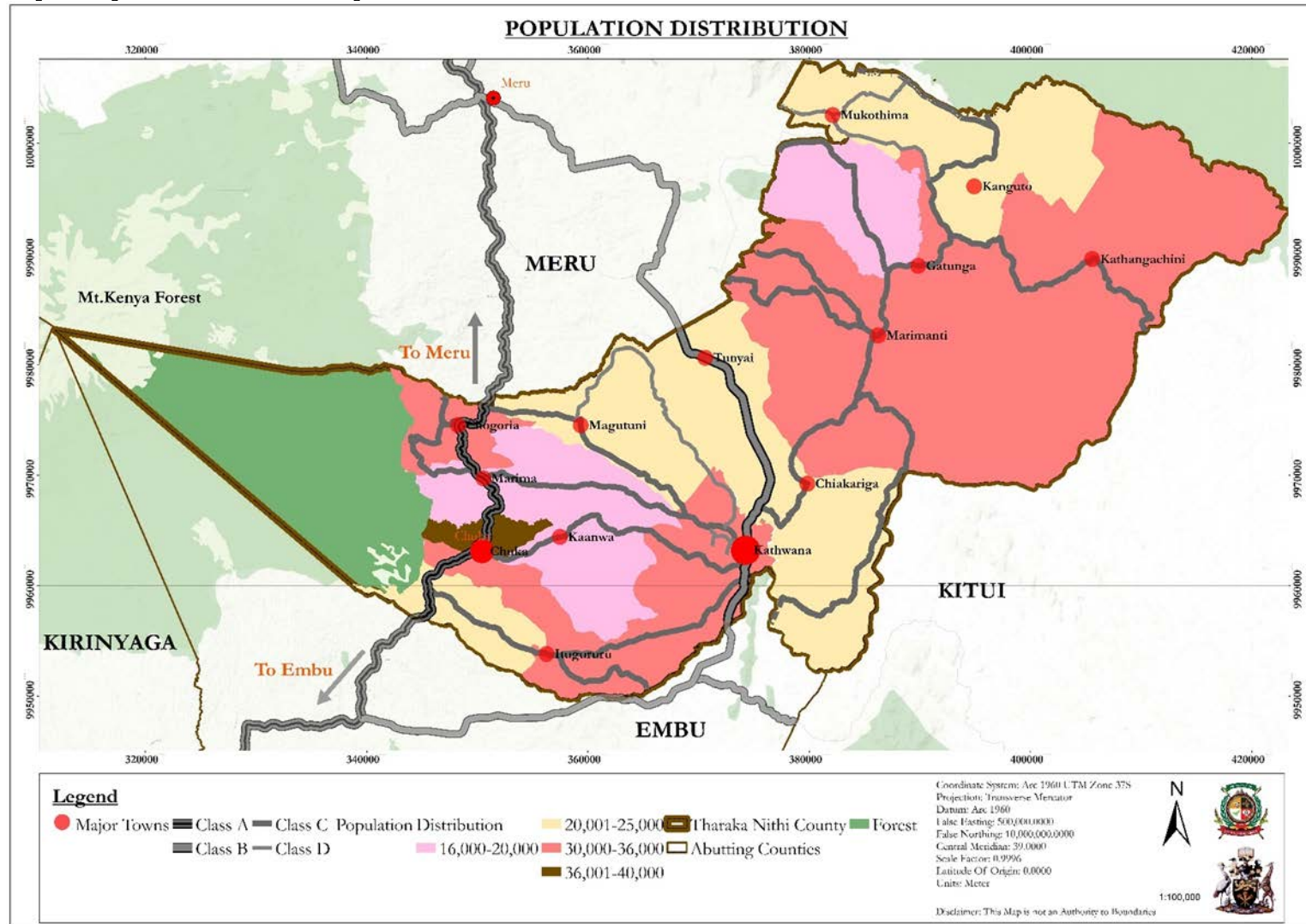
Sub-County	Male	Female	Total	Household	Sex Ratio	Area Km ²
Kenya	23,548,100	24,014,700	47,564,296	12,143,900	98.05	580,895
Tharaka Nithi	193,764	199,406	393,177	109,860	97.17	2,564.4
Igambang'ombe	26,475	26,464	53,210	14,398	100.04	324.6
Maara	57,205	57,689	114,894	35,041	99.16	265.1

Sub-County	Male	Female	Total	Household	Sex Ratio	Area Km ²
Meru South (Chuka)	44,923	44,155	91,080	28,249	101.73	138.8
Tharaka North	30,053	28,290	58,345	13,413	106.23	838.8
Tharaka South	30,058	36,190	75, 250	18,646	83.05	637.0
Mt Kenya Forest			171	113		

Source: Compiled Population, Housing & Census Report KNBS, 2019)

The spatial distribution of population within Tharaka Nithi County is largely influenced by the availability of productive agricultural land, employment opportunities, transport and communication networks, water resources, and favourable climatic conditions. These factors have contributed to higher population concentrations in the upper parts of the County. Conversely, lower population densities are associated with the drier areas, where limited economic opportunities, inadequate resources, poor accessibility, and isolated trading centres constrain settlement and population growth. **Error! Reference source not found.** illustrates the population density distribution across the County.

Map 6.1: Population Distribution Map



Source: TNCSP, 2024

c) Projected Distribution of the Population by Sub-County

Error! Reference source not found. shows the projected distribution of the population per sub-county up to the year 2035. The projection assumes a constant growth rate of 0.76%; however, this may change due to policy shifts targeting productivity and, therefore, enhanced economic growth that may stimulate in-migration. Adherence to family planning programmes may further contribute to reduced population numbers, especially among middle-income groups.

Table 6.3: Projected Population Distribution

Area/Year	2019	2024	2025	2030	2035
Kenya	47,564,296	53,031,700	54,198,397	60,428,377	67,374,476
County	393,177	408,347	411,450	427,324	443,811
Igamba Ngombe	53,210	55,262	55,682	57,831	60,063
Maara	114,894	119,327	120,234	124,872	129,690
Meru South (Chuka)	91,080	94,594	95,313	98,990	102,810
Tharaka North	58,345	60,596	61,056	63,412	65,859
Tharaka South	75,250	78,153	78,746	81,785	84,785
Mt Kenya Forest	171	177	179	186	193

Source: Compiled from KNBS population & Census Reports 2009-2019

From the calculations, the household growth rate for the County is 2.37% between 2009 and 2019, and the average growth rate from the 1989 census period to 2019 is 2.99%. This is compared to the national household growth rate of 3.85% between 2009 and 2019, indicating that the County's growth is slightly lower than the national average. The calculated figures for the distribution of households across the sub-counties are illustrated in **Error! Reference source not found..**

Table 6.4: Households Distribution and Projections

Area/Year	2019	2024	2025	2030	2035
Kenya	12,14,900	14,668,668	15,233,412	18,400,503	22,226, 045
County	109,860	123,510	126,437	142,143	159,810
Igamba Ngombe	14,398	16,186	16,571	18,630	20,944
Maara	35,041	39,395	40,328	45,339	50,973
Meru South (Chuka)	28,249	31,759	32,512	36,551	41,093
Tharaka North	13,413	15,080	15,437	17,355	19,511
Tharaka South	18,646	20,962	21,459	24,126	27,124
Mt Kenya Forest	113	127	130	146	164

Source: Compiled from KNBS population & Census Reports 2009-2019

Evidently, the distribution of households across the County is uneven. This is due to natural and physical factors, as well as historical factors related to the large area and centralized service provision, initially located in the larger Meru District and later along the Chuka and Chogoria development corridor. The distribution of infrastructural facilities, utilities, and services has also followed the same pattern. The distribution of population and households has implications for per capita resource utilization across the area, as illustrated in **Error! Reference source not found..**

Table 6.5: Population Densities per Sub-County

Sub-County	Area (km ²)	2019	2024	2025	2030	2035
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Kenya	581, 313.2	82	91.2	93.2	103.9	115.9
Tharaka Nithi	2,564.4	153	159.2	160.4	166.6	173.06
Igambang'ombe	324.6	164	170	171	178	185
Maara	265.1	433.4	450.1	453.5	471	489.2
Meru South (Chuka)	138.8	656.2	681.5	686.7	713.2	740.7
Tharaka North	838.8	70	72.3	72.7	74.6	78.5
Tharaka South	637.0	113.4	122	123.6	128.4	133.3

Source: Compiled and Projected from KNBS, 2019

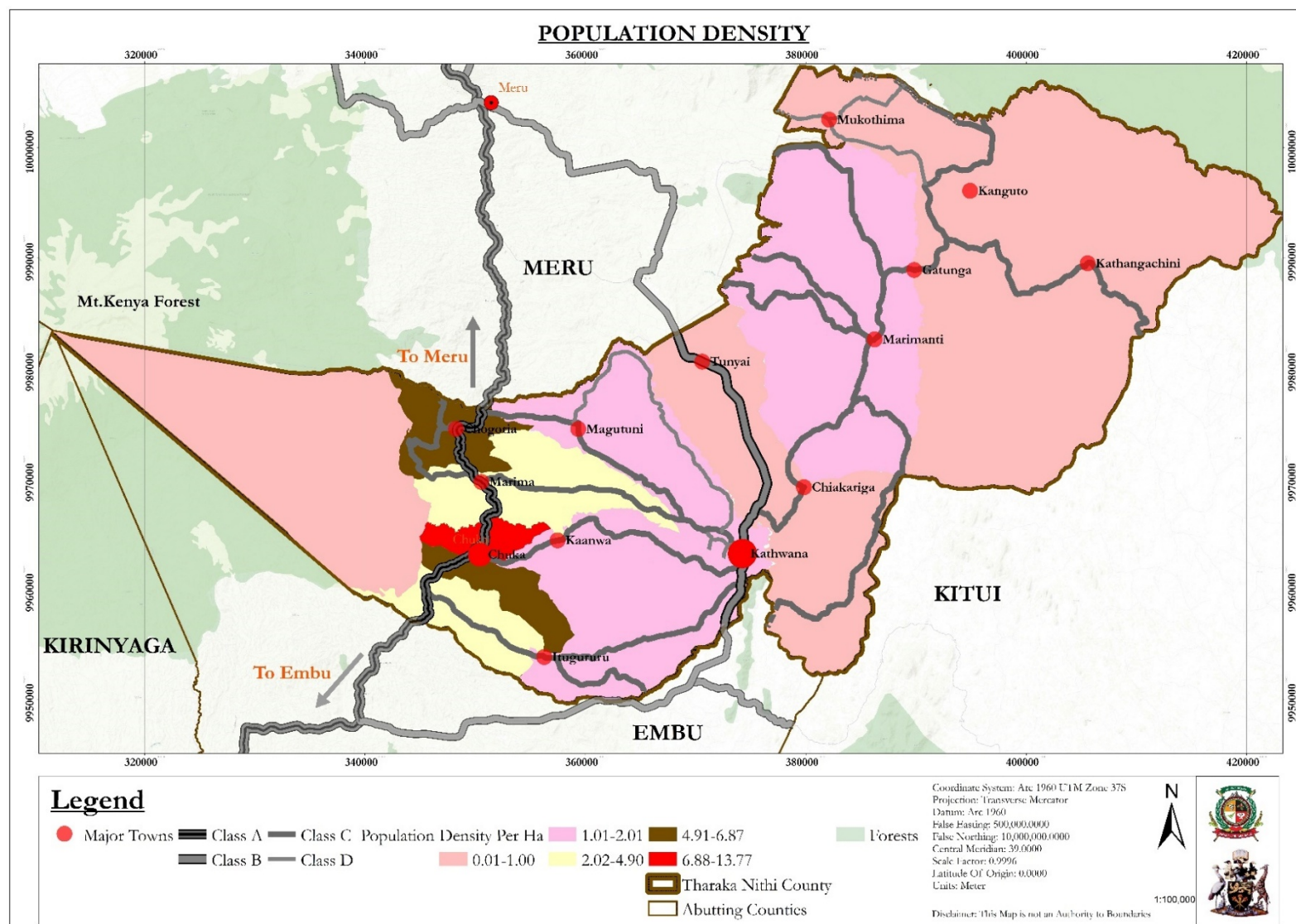
Population density varies across Tharaka Nithi County. Chuka Sub-County has the highest population density, at 656 persons per square kilometre in 2019, and is projected to increase to approximately 741 persons per square kilometre by 2035. This is largely attributable to its favourable ecological conditions, well-developed road network, concentration of markets, educational and health facilities, administrative functions, and relatively vibrant economic activity. Maara Sub-County also records a comparatively high population density, while Tharaka North and Tharaka South remain sparsely populated. **Error! Reference source not found.** presents population density levels across all sub-counties.

Tharaka North has the lowest population density, at approximately 70 persons per square kilometre, mainly because of arid conditions, limited infrastructure and services, poor accessibility, and fewer economic opportunities. Despite its extensive land resources, the area has relatively low agricultural productivity and dispersed settlement patterns. illustrates the spatial distribution of population density across the County.

Population concentration has also increased in Igambang'ombe Sub-County following the establishment of Kathwana Municipality as the County headquarters. Expansion of administrative, socio-economic, and infrastructure functions has enhanced its attractiveness for settlement and investment. Similar development approaches could stimulate growth in less densely populated areas and promote a more balanced distribution of development opportunities.

Population density has important implications for land use planning, infrastructure provision, and service delivery. Population-land ratio indicators should therefore be complemented by analyses of residential, parcel-level, and household densities to support informed spatial planning.

Map 6.2: Population Density per Hectare



Source: TNCSP, 2024

d) Gross Household Densities

The gross household densities by sub-county are presented in **Error! Reference source not found.** Meru South/Chuka and Maara record higher gross household densities than the other sub-counties. This highlights the need to relate available land to household numbers. Net household densities and parcel-level analyses provide better indicators of land-use challenges, particularly regarding land size, access, and utilization.

Table 6.6: Household Gross Density Distribution

Area/Year	2019	2024	2025	2030	2035
Kenya	20.9	25.2	26.2	31.7	38.2
County	42	48.2	49.3	55.4	62.3
Igamba Ngombe	44.3	49.9	51	57.4	64.5
Maara	132.2	148.6	152.1	171	192.3
Meru South	203.5	228.8	234.2	263.3	296.1
Tharaka North	15.9	17.9	18.4	20.6	23.3
Tharaka South	29.3	32.9	33.7	37.9	42.6

Source: Compiled & Projected from KNBS, 2019

e) Urban centres

According to KNBS (2019), 80.9 % of the population lives in rural areas. The share of the urban population has been increasing in the recent past, and this is expected to grow exponentially over the next decade as presented in the projections of **Error! Reference source not found.** below.

Table 6.7: Population Projections by Urban Area

Urban Area			Census (2019)		2022 (Projection)		Projection (2025)			Projection (2027)		
M	F	T	M	F	T	M	F	T		M	F	T
Chuka	10,902	11,476	22,378	13,355	14,059	27,414	16,361	17,222	33,583	18,732	19,718	38,450
Chogoria	3,744	3,859	7,603	4,587	4,727	9,314	5,619	5,791	11,410	6,433	6,630	13,063
Marimanti	1,393	1,365	2,758	1,706	1,672	3,379	2,091	2,048	4,139	2,393	2,345	4,739

Source: CIDP, 2023-2027 and KNBS, 2019

According to KNBS (2019), Chuka town is the most populated town with 22,378 residents in 2019 and is expected to reach 38,450 by 2027 and further beyond by 2036. Chogoria town had a population of 7,603 in 2019 and is projected to reach 13,063 by 2027, while Marimanti town had a population of 2,758 in 2019 and is expected to increase to 4,739 by 2027. All the towns serve as sub-county headquarters, and this has significantly contributed to their rapid growth due to their administrative functions. Kathwana Municipality, which serves as the County headquarters, is expected to grow rapidly as it attracts more migrants in search of employment and business opportunities. This will

increase demand for social amenities such as housing, sewerage systems, water services, healthcare facilities, car parks, and other infrastructure.

i. Structure

The 2019 population census indicated that there is a higher percentage of females compared to males, 51% and 49% respectively, which gives a sex ratio of 0.956, which compares well with the national estimates. In addition, there are 109,860 households in the County, as shown in **Error! Reference source not found..**

Table 6.8: Comparison of household numbers and size

Country/Country/ Sub-County	Total	Urban	Rural	Male	Female	Number of Households	Average Household Size
Kenya	47,564,296	14,831,700	32,732,596	23,548,056	24,014,716	12,143,913	3.9
Tharaka Nithi	393,177	32,743	360,434	193,764	199,406	109,860	3.6
Igambang'ombe	53,210	-	-	26,464	26,745	14,398	3.7
Maara	114,894	-	-	57,689	57,205	35,041	3.3
Chuka	91,080	-	-	44,923	46,155	28,249	3.2
Tharaka North	58,345	-	-	28,290	30,053	13,413	4.3
Tharaka South	75,250	-	-	36,190	39,058	18,646	4.0

Source: Adopted from KNBS, 2019.

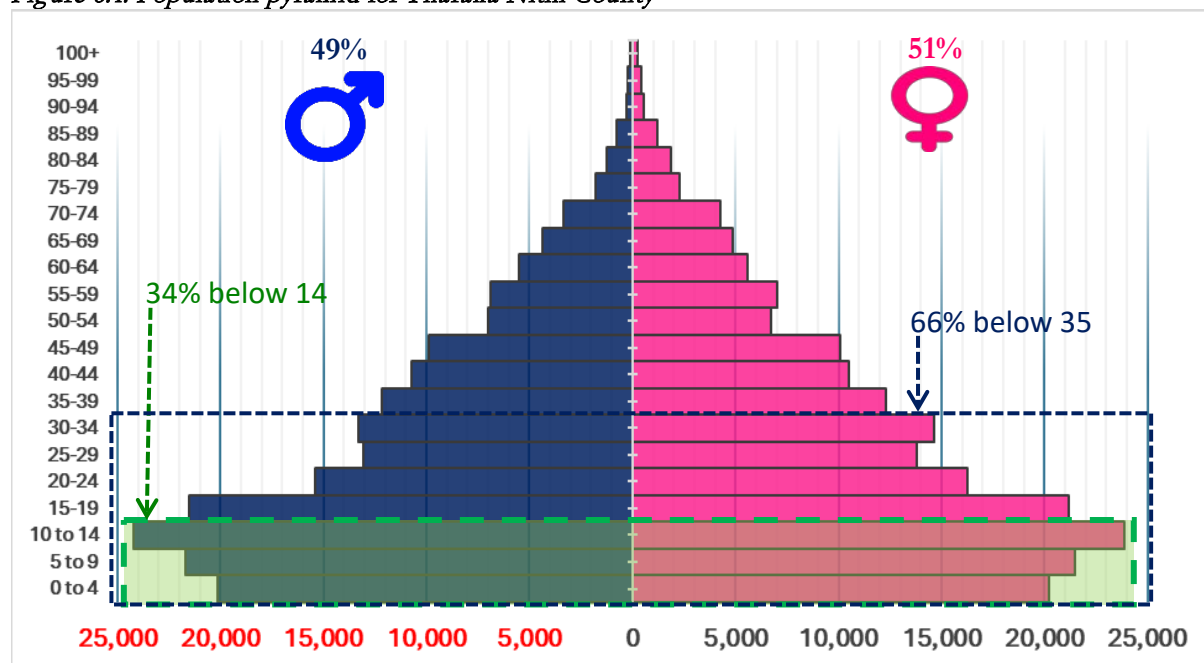
The average household size in Tharaka Nithi County is 3.6 compared to Kenya's average of 3.9 (KNBS, 2019). Maara Sub-County has the highest number of households (35,041), whereas Tharaka North has the least (13,413). Approximately 35.5% of households have 1–2 members, while 38.7% have 3–4 members, as illustrated in the distribution of household sizes across different age groups in Table 6.9.

Table 6.9: Household sizes as a percentage (%) of age cohorts

Cohort (years)	Percentage (%)
1-2	35.5
3-4	38.7
5-6	20.1
7-8	4.9
9-10	0.2
11+	0.6

Source: KNBS, KHS, 2024

Figure 6.1: Population pyramid for Tharaka Nithi County

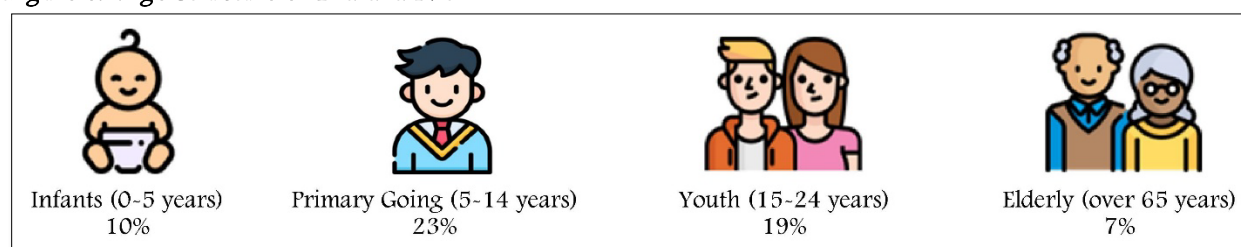


Source: Adopted from KNBS, 2019.

From the 2019 census age cohorts, the population below 19 years comprised 174,411 (44%), the age group 20–59 years comprised 179,727 (49%), while those aged 60 years and above were 39,022 (7%) of the total population. A broad-based population pyramid indicates that Tharaka Nithi County is dominated by a youthful population. Infants (0–4 years) make up 10% of the population, primary school-going children (5–14 years) account for 23%, while the youth (15–24 years) constitute 19%. Additionally, an estimated 34% of the total population is below 14 years, and about 66% is below 35 years. This is in contrast to the elderly population (65 years and above), which makes up 7% of the total population. This is summarized in **Error! Reference source not found..**

The dependent population accounts for 52% of the total population, while the working population accounts for 48%, resulting in a dependency ratio of 1.1, meaning that more residents depend on others for support. However, the large youthful population represents a key strength that the County can leverage for growth and development, as it provides labour and skills. On the other hand, strategies that strengthen social sectors such as health, education, and nutrition are necessary to ensure that both the young and elderly populations are adequately catered for.

Figure 6.2: Age Structure of Tharaka Nithi



Source: TNCSP, Adopted from KNBS 2019

ii. Demographic characteristics

a) Literacy

The County has a literacy level of 81.3%, which is higher than the national average of 78.4%. Approximately 17% of the population cannot read, while 13.2% cannot write. Those who can neither read nor write constitute 16.9% of the population (GoK, 2014). These figures can be attributed to high poverty levels, with residents often substituting education for economic activities in a bid to survive.

On education levels, 61% of Tharaka Nithi residents have attained at least primary education, compared to 52% nationally. The dropout rate for boys is 22%, which is higher than that of girls at 20%. The transition rate from ECDE to primary education is relatively high at 85%, attributed to the availability of the Free Primary Education programme introduced by the national government in 2002. Table 5.5 presents education levels achieved by the population in percentages, indicating a transition rate from primary to secondary school of approximately 70%. Gross enrolment in primary and secondary schools stands at 92,379 (85%), according to the CIDP 2018–2022.

Table 6.10: Education Levels in Tharaka Nithi County

Education Level	None	17.4%
	Primary only	61.0%
	Secondary and above	21.1%

Source: Adopted from KNBS & SID, 2013

As of 2013, the County was ranked first in terms of access to primary education. Mariani and Mwimbi Wards led in terms of the population with primary education (66.1% and 66.0%, respectively), while Karingani had the lowest share at 51%.

The recommended international teacher–pupil ratio is 1:40. According to the Ministry of Education (2016), the ratio in Tharaka Nithi County stands at 3:20. For secondary schools, the national ratio is 1:41 compared to the County's 1:19. Easily accessible primary schools contribute to an enrolment rate of 96%, compared to the national average of 84.9%, largely attributed to improved access to primary education facilities. However, there is a low transition rate from primary to secondary school. This is partly because the County is largely rural, and many residents opt to seek employment to meet basic needs, particularly food and water. This is more pronounced in the drier eastern parts of the County, where pupils often take breaks from school to fetch water for household and school use.

iii. Mortality and Morbidity

The crude death rate is described as the annual number of deaths occurring per 1,000 mid-year population. Several dimensions were investigated when discussing mortality and morbidity, as summarized in Table 6.11.

Table 6.11: Comparing Mortality Rates and Indicators

Indicator	TNC Estimate	National Estimate
Infant mortality rate (per 1,000 births)	36	39
Neonatal (less than 28 days) mortality rates	24	20.9
Under 5 mortality rates (per 1,000 live births)	45	70
Fully Immunized Population below 1 year (%)	53.3	64
Doctor (per 100,000 people)	13	10
Nurse (per 100,000 people)	110	55
Clinical officers (per 100,000 people)	28	21
Primary health facilities (per 10,000)	3.1	2.2

Source: Adopted from KNBS & SID (2013), MoH (2016) NCPD (2017) and Department of Health Records and Information (2019).

Infant mortality rates in the County are slightly lower than national estimates, standing at 36 compared to 39 per 1,000 live births. However, under-five mortality rates are also lower than the national average (45 compared to 70, respectively). A child morbidity rate of 40% was recorded in 2016 among children aged 6–59 months who were ill (MoH, 2016), despite relatively high health worker-to-population ratios in the County compared to national estimates. One way to improve this situation is through community sensitization on the importance of immunization, as County immunization coverage is below the national average (53.3% compared to 64% nationally). Another strategy is the construction of more dispensaries and adequately stocking existing health facilities.

According to the NDMA (2020), some of the most common diseases affecting residents of Tharaka Nithi include respiratory tract infections, skin diseases, malaria, and urinary tract infections. Table 6.12 summarizes the five most common diseases in order of prevalence.

Table 6.12: Five Most Common Diseases in Order of Prevalence

Disease	% Contribution
Upper respiratory tract infections	21.6%
Other respiratory system diseases	17.4%
Skin diseases	10.3%
Arthritis, joint pains etc.	8.4%
Intestinal worms	6.8%
Others	35.5%

Source: County Government, 2017

Children under the age of five are mainly affected by respiratory system infections, pneumonia, malaria, intestinal worms, and skin diseases (GOK, 2020). The elderly (above 60 years) are mainly affected by arthritis and joint pains. This makes access to health and spatial strategic prevention mechanisms important in ensuring people's well-being.

iv. Fertility

This has a direct linkage to population growth and distribution in the County. Table 6.13: Fertility Rate Comparisons gives a summary of figures representing fertility and childbirth in the County.

Table 6.13: Fertility Rate Comparisons

Indicator	TNC Estimate	National Estimate
Fertility rates (births per woman)	3.8	3.9
Women using contraceptives (%)	67.2	53.2
Births delivered at a health facility (%)	77.7	61.2

Source: Adopted from KNBS & SID (2013) and NCPD (2017)

Compared to the national fertility rate of 3.9 births per woman, Tharaka Nithi County has a slightly lower fertility rate of 3.8 births per woman. This can be attributed to a high percentage of women using contraceptives (67.2% compared to 53.2% nationally), and it has a direct correlation with increasing education levels among the childbearing population, with more women embracing family planning. Strides have been made in improving access to contraceptives, which are available in public health facilities across the County. On the other hand, increased access to health facilities has also contributed to a higher number of hospital deliveries, at 77%, compared to 61.2% at the national level.

v. Dependency Ratio

The dependency ratio is a measure of the number of dependents aged 0–14 years and those aged 65 years and above, compared with the total population aged 15–64 years. This demographic indicator provides insight into the proportion of the population that is of non-working age compared to those of working age. It is also used to understand the relative economic burden on the workforce and has taxation implications. The dependency ratio is also referred to as the total or youth dependency ratio.

The dependent population accounts for 52% of the total population, while the working population accounts for the remaining 48%, resulting in a dependency ratio of approximately 1.1. However, the large youthful population is a key strength that the County can leverage for growth and development, as it forms part of the future labour force. Strategies that strengthen social sectors such as health, education, and nutrition are necessary to ensure that both the young and elderly populations are adequately catered for.

vi. Life expectancy

This is the average number of years a person is expected to live in a lifetime. According to the World Health Organization (Kelley, 2016), the average life expectancy was 52.81 years in 1999, while in 2009 it was 57.80 years. Current statistics show that the average life expectancy at birth is 58 years (compared to the national average of 60 years), with 54 years for males and 57 years for females, and an annual crude death rate of 8 deaths per 1,000 persons (GoK, 2022). This figure can be attributed to factors such as natural disasters, diseases, malnutrition, and food insecurity.

vii. Employment and Income Levels

Livelihoods in Tharaka Nithi County are predominantly rural, with agriculture serving as the main source of employment and household income. According to available data, approximately 48.7% of the County's population is engaged in agricultural activities. Crop production is a major source of income, supporting 81% of male-headed households, 78% of female-headed households, and 74% of youth-headed households. Livestock production also contributes significantly to livelihoods, providing income for 78% of adult male-headed households, 56% of adult female-headed households, and 52% of youth-headed households (MoALF, 2017).

The County's socio-economic structure demonstrates a strong relationship between education and employment opportunities, with higher levels of educational attainment generally associated with improved economic outcomes and greater access to income-generating activities. This relationship is illustrated in Table 6.1, which compares education levels in the County with the choice of employment.

Table 6.1: Education Level Versus Choice of Work

Education level	Work for pay	Family business	Family agricultural holding	Intern/ Volunteer	Retired/ Homemaker	Fulltime student	Incapacitated	No work	Number of individuals
Kenya	23.7	13.1	32.0	1.1	9.2	12.8	0.5	7.7	20,249,800
TNC									200,435
None	12.7	10.0	60.7	1.8	8.5	0.5	2.1	3.9	15,512
Primary	15.1	10.7	55.1	0.5	6.9	8.6	0.4	2.7	118,084
Secondary and above	25.0	10.9	34.6	0.8	5.8	19.3	0.2	3.4	66,839

Source: Adopted from KNBS & SID, 2013

Sixty point seven per cent (60.7%) of residents with no formal education engage in simpler, more labor-intensive family agriculture. Interestingly, 34.6% of the population with secondary education and above work within the same employment sector. Individuals with higher education levels also have greater access to income-generating opportunities. This is indicated by 25% of those who have attained secondary education and above working for pay, compared to 15.1% for those with primary education and 12.7% for those with no formal education. However, the high unemployment rate among the youth is attributed to apathy. This group needs to be effectively tapped into, as it provides a pool of well-educated labour force (Kenya Association of Manufacturers, 2015).

Chuka Town is a major driver of the County's economy. The town is largely an agribusiness centre and an educational hub, hosting several institutions such as Chuka University, Egerton University Chuka Campus, Nithi Institute of Technology, and Presbyterian Teachers' College – Rubate. It also serves as a gateway to Mount Kenya National Park and is home to the famous Chuka drummers and dancers' troupe, an aspect with potential for enhanced tourism activities.

vi. Poverty Analysis and Indicators of Well-being

Poverty levels in Tharaka Nithi County provide an indication of the proportion of the population unable to meet basic needs such as food, clothing, and decent housing. Analysis of poverty and well-being indicators is important for identifying socio-economic disparities and informing targeted development interventions.

Current estimates indicate that approximately 24% of the County's population lives below the poverty line, while extreme poverty affects about 1.8% of the population. Significant intra-county disparities exist, with higher poverty incidence in the drier, low-altitude areas of Tharaka North and Tharaka South sub-counties, where households are more vulnerable to recurrent droughts and food insecurity. In addition, about 31.2% of the population is classified as food-poor and 2.3% as severely food-poor, with the highest burden occurring among children (0–17 years) and older persons (70 years and above) (KNBS, 2026).

Poverty levels also vary considerably across wards. According to the Tharaka Nithi County Integrated Development Plan (CIDP) 2018–2022, poverty incidence ranges from below 15% in Ganga and Mitheru wards to between 72% and 85% in Gatunga Ward, which also records a relatively high poverty gap of 21%–31%. These disparities highlight the need for targeted livelihood improvement, social protection, and economic development programmes across the County. This is summarized in Table 6.14. Poor infrastructure, low agricultural productivity in some areas, and adverse climatic conditions contribute to the high poverty levels.

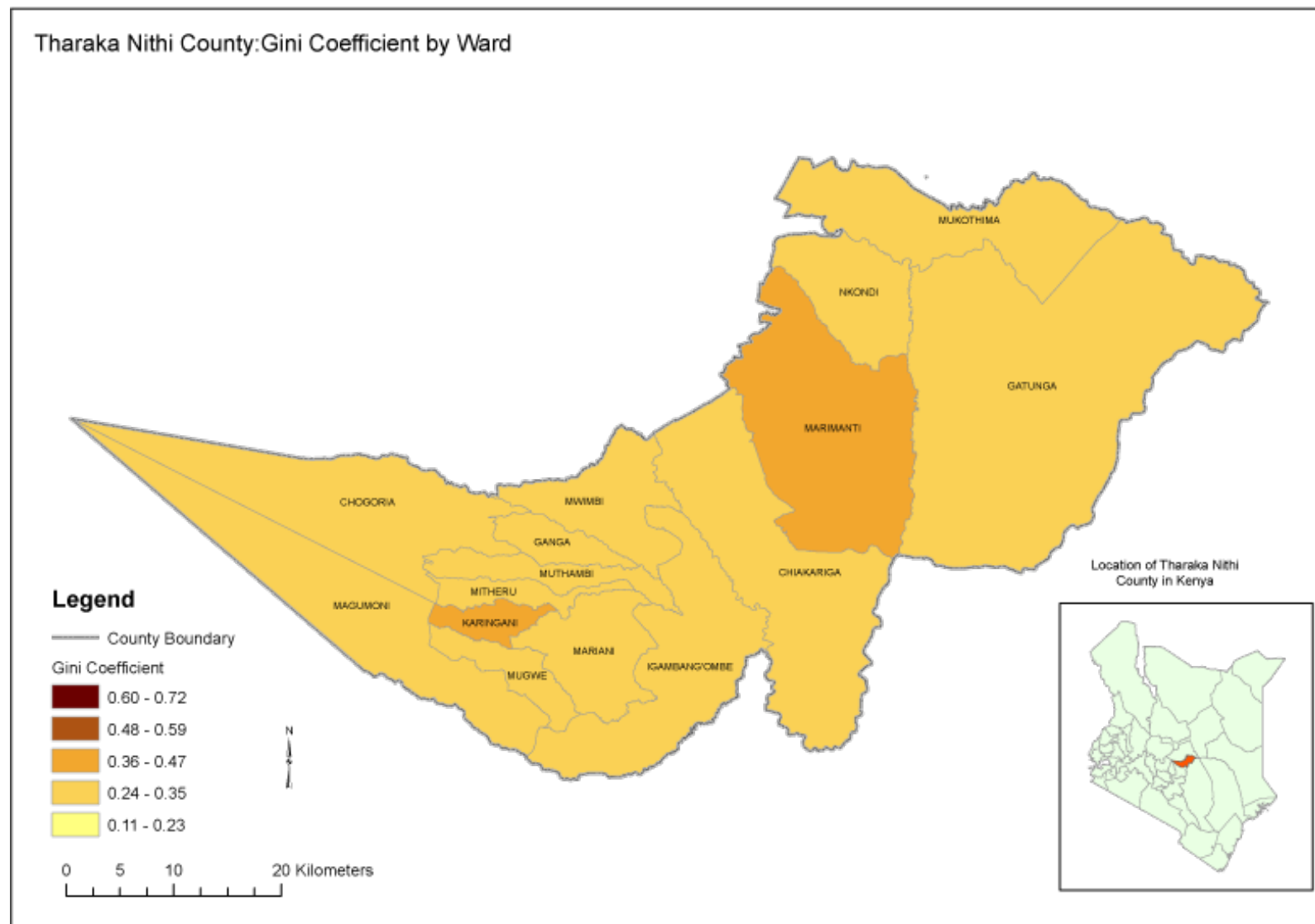
Table 6.14: Poverty Incidences and Poverty Gaps

Wards	Poverty incidence (%)	Poverty gap (%)
Ganga	<15	3-4
Chogoria	16-29	5-7
Mwimbi	16-29	5-7
Muthambi	<15	5-7
Mitheru	16-29	3-4
Karingani	16-29	8-12
Magumoni	<15	5-7
Mugwe	30-43	5-7
Mariani	30-43	8-12
Igambang'ombe	44-57	8-12
Chiakariga	58-71	13-20
Marimanti	58-71	13-20
Nkondi	44-57	8-12
Mukothima	58-71	13-20
Gatunga	72-85	21-31

Source: Adopted from CIDP 2018

Thirdly, in measuring development distribution based on economic inequality, the Gini Coefficient focuses on two main parameters: income distribution and wealth distribution across the population of an area. It is measured on a scale of 0 (0%), representing perfect equality, to 1 (100%), representing perfect inequality. SID (2019) reports the national Gini Coefficient at 0.445, reflecting a moderate level of inequality, while Tharaka Nithi County has a coefficient of 0.398. represents the Gini coefficient in the County by wards.

Map 6.3: Gini-Coefficient Map



Source: CIDP, 2018

The Coping Strategy Index (CSI) is an important indicator of household food security and well-being, measuring the strategies adopted by households when they are unable to access sufficient food. According to the National Drought Management Authority (NDMA, 2020), the CSI in Tharaka Nithi County increased from 1.2 in May 2020 to 1.33 in June 2020, indicating growing pressure on household food security.

The index varies across the County, with the drier areas recording the highest CSI values of approximately 2.5, compared to 1.5 in the intermediate central areas. The higher scores reflect increased reliance on coping mechanisms such as consuming less preferred and less expensive foods, accessing credit, selling household assets, and utilizing savings to meet basic food needs. These trends highlight the greater vulnerability of households in the drier parts of the County to food insecurity and livelihood shocks.

6.2 Socio-Cultural Analysis

a) Culture and Heritage

The planning area has a rich historical footprint of the Ameru, Chuka, and Atharaka communities. This history is preserved, passed on, and showcased through various forms such as natural features considered sacred, built environments, and public spaces where residents can express and celebrate their heritage. The following sections outline these features as reflected in the culture and way of life of the people of Tharaka Nithi.

i. Origin of the Tharaka People

The Tharaka community is regarded as one of the original dispersal groups of the Ameru people, with present-day Tharaka believed to have been a key settlement area known as Igaironi, meaning “the place of subdivision.” Oral traditions indicate that as the Ameru population increased, different Ameru sub-groups dispersed from this area to their present locations. Historical accounts further describe the Tharaka and Chuka communities as closely related, sharing a common ancestry through the same father but different mothers—Ciampandi for the Chuka and Ciangoi for the Tharaka (Icheria, 2016).

The Tharaka also maintain a close kinship relationship, known as Giciaro, with the Muthambi community and, by tradition, members of the two communities are not expected to marry each other. They also share some clan lineages with the Imenti and Tigania communities, whom they regard as blood relatives; however, marriage between members of these communities is traditionally permitted. These historical and cultural ties continue to influence social organization and community relations within the County.

Potential for Tourism Through Folklore!

A legend is narrated among the Aatharaka of a person called Kibuuka. He was the Aatharaka’s spiritual leader, medicine man, diviner, and rainmaker. He administered charms to Tharaka warriors during wars to protect them from enemies in combat. His elder son led the Tharaka battalion in every war. On several occasions, the son was killed in battle but was resurrected through the power of charms placed in his abdomen by his father.

However, a time came when enemy spies and a Tharaka traitor revealed the location of the charm in the son’s abdomen. They killed him and removed the charm, causing him to die permanently. The charm was a magic horn known as “rugoci”. The murder of his son greatly angered Kibuuka, who cursed the Aatharaka and left his residence, a shrine believed to be located near Kibuka Primary School in Tunyai Location, Tharaka South District.

The route he followed is believed to have transformed into the current Kathambangiri, a seasonal river in Tunyaia. He passed by Kijege Hill at a place called Kaunguni (“At the Pot”), where it is said he left one of his cooking pots, giving the place its name. His footprints are also believed to be visible on a rock in Kijege to date. From there, he disappeared

into River Tana at the confluence with River Kathita. The places where he lived and paused are considered sacred sites, known in Kitharaka as 'Tiri'.

(Icheria, 2016).

The Chuka sub-community predominantly occupies the former Nithi District, comprising Chuka, Mwimbi, and Muthambi wards. According to oral traditions, the Chuka and Tharaka sub-groups of the Ameru trace their ancestry to a common forebear known as Muchuka, which is reflected in the close similarities in their language and cultural practices compared to other Ameru sub-groups. Were and Wilson (1972) identify the Achuka as a Bantu-speaking people inhabiting the slopes of Mount Kenya (Ntiba, 2014).

The Chuka are the largest ethnic group within the area, followed by the Muthambi community, which is distributed across various locations. Other communities present include the Meru, Embu, and Kikuyu, contributing to the County's cultural diversity.

ii. Natural Environment (Rural landscapes, Hills, Rivers, forest heritage)

The *Aatharaka* live in semi-arid parts of Tharaka Nithi County and their livelihood is mainly agri-pastoralism. They mainly occupy Tharaka Constituency consisting of Tharaka South and Tharaka North sub-counties/districts in Tharaka Nithi County. The largest River that forms Tharaka's boundary with Mwingi (in Kitui) is River Tana which they call *Thagana*. Kijenge and Ntugi Hills, have a well-known history as stopover points for migration of highland Bantus (Meru, Kikuyu, Embu). Hence it is a reference point for historians. These areas are ripe for cultural tourism development. Sites along the river Tana are particularly suited for tourism such as the proposed hydroelectric dam at the confluence of Mutonga and Tana rivers. Another potential site is the Ura Falls and wetland at the confluence of the Ura River and Tana River. The lower Tharaka area also borders the Meru conservation area and has a high potential for eco/cultural tourism.

Chuka forest was gazetted in 1932 and since then, it has been managed primarily for conservation. It has three beats namely Kiang'onde where the station is situated, Mitheru and Kiamuriuki. The main activities that the Forest Adjacent Communities (FACs) are engaged in include beekeeping, collection of herbs with medicinal importance and use, collection of firewood, and cultural activities. The forest holds a great diversity of plant and animal species and forms the catchment area for several major rivers as well as being the source of tributaries to larger rivers in the region. As a result, the forest is crucial in supporting the local community's livelihoods and has a cumulative climate moderation of the local ecosystem.

Moreover, the forest is an important catchment area for Tharaka Nithi County. For instance, it is the source of six permanent rivers namely, Nithi, Tungu, Ruguti, Thuchi, Naka and Gituambugi. Other seasonal/semi-permanent rivers and streams originating from the same forest include: Kithuci, Mwano, Manyaga, Thamia, Kathinthiuku, Iria ria Mwanki, Nyamakithi, Mwirithii, Nkurumbaci, Kamagogo, Bwee, Kagijo, Kithua, Kamiri, Kathareni, Gatara, Kimanyaga, Kubu, Ruguti Jiiri, Giaciura, Karumandi, Kigwambogo and Kangito.

As a result, the protection of the forest is crucial in maintaining and/or increasing the water levels in the rivers and the conservation of the water resources in the area in which the communities wholly rely for domestic and farming purposes. There are several scenic features and forest resources in the Chuka forest which have potential for tourism exploitation. **Error! Reference source not found.** and **Error! Reference source not found.** summarize potential eco-tourism sites.

Table 6.15 *Potential eco-tourism sites*

Potential	Location
Campsite	Nthereru/Ndereru, Kiria, Muthiria, Nyoni, Soniu, Karima, Gatwikiru
Waterfall	Mwita, Tungu/Ntuntuni, Manyaga, Kithuci, Kiambumbu, Kanyithi,
Caves	Mwita/suleiman, Ruguti, Tungu
Breeding Zones (elephants)	Gitogoto, Gaketha/Ituntu
Swamps	Iria ria Mwanki, Ndereru, Kithaje, Thamia, Irimba ria Mugumo, Muthanje wa Mutube, Muthanje wa Naka, Gwa Kibanga, Mwano, Cuniu, Kathiti, Kiria, Muthiria Nyoni, Kathaiti.
Lodge(s)	Kiang'onde, Kajuki, Kinondoni

Source: Compiled from key informant interviews, 2019

Plate 6.1: *Natural Features with Potential Eco-Tourism Sites*



Source: Field survey, 2019

iii. Artefacts Built Environment (Buildings, Housing, Townscapes, Documents, Objects, Pictures)

The Chogoria area, in the Chuka Sub-county, has a rich missionary history beginning in the 20th century associated with Scottish missionary church activities. In October 1913, Reverend John W.

Arthur, an evangelical and medical missionary from Glasgow and head of the Church of Scotland mission at Tumu-Tumu, (in Nyeri), accompanied by W.O. Tait, the mission carpenter at Tumu-Tumu, left his Gikuyu region and came to Chuka – Mwimbi area to select a mission station site (Muiru 2018). The rich missionary history around the area creates form splendid artefacts in terms of documents and objects in the churches within the Chogoria area. The Chuka people's involvement in Christianity has immensely influenced their social-cultural practices over time and by extension overall development in the region particularly in education, health, and community organization.

iv. Intangible heritage-songs/dances, cultural practices

The Chuka Forest has cultural shrines which were used for conducting cultural rituals such as prayers for rain and cleansings. Although these shrines are no longer used, they could be used to showcase the culture of the adjacent communities. Such shrines include;

- Ndigia, (Mugumo and Meru oak forest)
- Mugumo wa Nyenje at Kiamuriuki
- Miriru Itano at Mitheru (prayer's site)
- Murigarigu wa Maka at Kiamuriuki (meeting point/prayers)
- Kirombero at Mitheru (prayers)

Additionally, Tharaka Nithi is known to host the annual Ura Gate Tharaka Cultural Festival that showcases some of these intangible cultural practices such as hunting, traditional songs and dance, as well as cultural practices of the Tharaka people. This is shown in **Error! Reference source not found.**, as Traditional Dancers Performing at the Festival.

Female circumcision among the larger Ameru people, just like their male counterparts, was one of the rituals towards adulthood. It had both transitional and transformational value. It had a dynamic changing of the personality, powers, and capabilities of the individual. They were a gateway to marriage, procreation and participation in the religious rites and ceremonies for both men and women. For men, this was the gateway to warriorhood and active participation in the Kiama (clan) and Njuri (councils). For women, circumcision was the gateway to participation in Kiama Gia Aka (women's council). The ceremonies, dances, songs, rites, and education accompanying circumcision or clitoridectomy had, as their main purpose the transformation of the initiate both spiritually and psychologically, as a preparation for their changing nature and role in society.

The above notwithstanding, many communities with the support of the government have over time discarded the practice since it is associated with undesirable and harmful consequences to the women/girls and the community. Some of these include rampant early marriages, a major cause of school dropouts and poor enrollment of girls in schools, health effects and high risks of Fistula and HIV/AIDS. However, poverty, illiteracy, culture and complacency of local leaders are said to be the reasons why FGM is still rampant in the County. During the visioning meetings in Tharaka Nithi Sub-County, participants blamed it on the administration officials, claiming that they work with the circumcisers who perform the cut at night.

Plate 6.2: Traditional Dancers Performing at the Ura Gate Tharaka Cultural Festival



Source: Alex Njiru for Daily Nation, August 30th, 2018

According to research conducted by Plan International Kenya, GTZ and the Kenya Bureau of Statistics, Female Genital Mutilation is at 95% in Tharaka South and 58% in other parts of Tharaka Nithi County.

“Out of ten girls, eight are cut, but even if the two remain, then they will not live to escape. When the pressure gets too much from their peers, they will also have themselves cut. These girls suffer silently,” (Plan International).

Traditional and present cultural practices act like a double-edged sword for development in the County. Negative effects from retrogressive cultural practices such as fears of witchcraft being practised by some residents, reduce development prospects. Residents may blacklist productive areas due to this, leading to skewed development in an area. Positive cultural influences such as preserving shrines and encouraging traditional ceremonies lead to growth and development. One such example is the Ura Gate Tharaka Cultural Festival which the County benefits from. Economic development is boosted as locals are exposed to income-generating activities such as hotel keeping as well as the sale of crafts and regalia. Centres near Ura Gate, such as Gaciongo, have grown as a result of such activities.

Intercultural exchange with outside communities has also led to the modernization of lifestyles. Health, education and employment opportunities improve as residents borrow from other people. On the contrary, outside cultures such as Westernization may lead to the degradation of local cultural practices. Disregard for faith and prostitution are some of the effects of cultural erosion as a result of cultural interactions. Thus, the county government and other partners should develop strategies to promote and support the socio-cultural antiquity for the benefit of the people.

v. Religion

Missionaries in the pre-colonial era had a difficult time spreading Christianity to the people. The earliest recorded interaction of the local people with missionaries was in October 1913, when

Reverend John W. Arthur, (an evangelical and medical missionary from Glasgow and head of the Church of Scotland mission at Tumu-Tumu, in Nyeri), accompanied by W.O. Tait, the mission carpenter at Tumu-Tumu, left his Gikuyu region and came to Chuka – Mwimbi area to select a mission station site (Muiru 2018). Since then, Chogoria's and Chuka's socio-economic growth and development have been influenced by this early mission work. Subsequently, the arrival of Pentecostal Christians around 1960 rapidly increased the spread of Christianity in the County coupled with associated social facilities such as education and health facilities. Currently, it is estimated that 80% of the people in the County are Christians, notably Roman Catholics, Presbyterians, Methodists, and Anglicans.

A minority religious group, the Muslim community is evident in Chuka town, who are served by the Chuka mosque. There is a small proportion of the population who are Islamic adherents served by mosques in Chuka and Marimanti. **Error! Reference source not found.** below shows the distribution of the population by religious and denominational affiliation in Tharaka Nithi County.

Table 6.16: Distribution of Population by Religious Affiliation in the County

<i>Religious Affiliation</i>	<i>Catholic</i>	<i>Presbyterian</i>	<i>Evangelical</i>	<i>African Instituted Churches</i>	<i>Orthodox</i>	<i>Other Christian</i>	<i>Islam</i>	<i>Hindu</i>	<i>Traditional</i>	<i>Other religion</i>	<i>No religion/ Atheists</i>	<i>Don't Know</i>	<i>Not stated</i>
<i>Total</i>	108,266	172,266	70,043	18,749	2,656	9,114	724	9	251	4,082	4,461	615	67

Source KNBS, 2019

vi. Conflicts and Marginalization

Conflicts over land occur largely because of a group's strong sense of belonging and ownership of particular land. Such groups perceive themselves to be autochthonous to an area and to have an obvious (and even natural) association with specific land that others do not enjoy (Lynch, 2011). A recurrent source of conflict is the boundary dispute between the Igembe and Tharaka communities. Mworio (2009), in her study on the causes of conflict between the Tharaka and Tigania communities, established that 94.25% of respondents identified land ownership disputes as the cause, 91.95% cited boundary disputes, 57.47% attributed the conflict to the influence of political leaders, 2.3% of respondents indicated that it was caused by incitement against the Kamba people, while 2.3% stated that it was caused by lack of security. This dispute has caused instability in the area over time and, in some instances, resulted in the loss of property, as shown in **Error! Reference source not found.** below.

Plate 6.3 Cars Burnt Down at Kathangachwe near Gatithini Over Alleged Land Clashes



Cars were burnt over a land dispute along the Meru-Tharaka Nithi border

Two cars were burnt down on Monday evening along the border of Meru and Tharaka Nithi counties over an alleged land dispute. Two cars were burnt down on Monday evening in the area of Kathangachwe near Gatithini over an alleged land dispute. According to area residents, the incident happened after a land demarcation officer arrived to outline boundaries on the disputed land.

Source: Citizen Digital, Published on September 17, 2018, 17:07

As recently as July 2023, it was reported in the news that the Regional Coordinator urged the people to maintain peace and called for consultations and engagement with the Njuri Ncheke Council of Elders in efforts to achieve long-lasting peace in the region. This also involved the two County Commissioners (Meru and Tharaka-Nithi) and the two land offices. Plate 5.4 shows local people participating in a peace meeting. Meanwhile, other local administrators have enlisted the support of community elders to help resolve the conflicts. Conversely, addressing cross-county border disputes requires more than unilateral measures and should consider the diverse and complex political, social, and economic factors at play.

As Alternative Dispute Resolution (ADR) mechanisms, customary institutions continue to be among the most popular and effective means of conflict management and resolution in many rural and agricultural areas of Sub-Saharan Africa. The primary function of these community elders' councils is to mediate disputes among community members through council sittings. Among other communities, such as the Pokot and Turkana, peaceful coexistence and the absence of wars and conflicts have been attributed to extensive systems of reciprocal rights, goods, favours, and obligations among communities. This implies that communities supported one another during times of crisis, such as starvation or livestock losses (Wiggins, 1996).

In contemporary society, a strategy that this conflict may adopt is fostering dialogue between the Tharaka and Tigania communities, government institutions, and non-governmental organizations to create a platform for sustainable conflict resolution strategies that respect cultural diversity while promoting lasting peace.

Plate 6.4: A meeting convened advocating for harmonious Meru-Tharaka Nithi Coexistence



Source: KNA July 25, 2023

According to Mworia (2009), another major cause for potential conflicts was marginalization and poverty. The residents of Tigania -Tharaka areas feel marginalized by the government in the distribution of the national cake; since colonial times, the areas have remained poor and lack basic amenities like water, schools, and infrastructure. Coupled with this is where boundaries have been respected as they cut across the community's vital resources and bring perceptions that "our resources are being encroached" Access to and control of resources like water, pasture, land, and grazing areas have played a crucial role in the occurrence of violence among Tigania and Tharaka communities

Despite the genesis of conflicts, the consequence of constant disputes is instability, loss of property (and sometimes life) and generally high levels of poverty and deprivation. Mworia (2009) further confirmed that the involvement of the people in conflict resolution will ensure sustained peace and enhanced development among the warring groups. As the government plays a key role, community leaders (82.76%) and members of the communities themselves and the church should also be involved in the conflict resolution.

6.2 Implications of Population and Demography on Development

Table 6.17: Implications of Population and Demography on Development

Opportunities	Threats / Challenges
Large youthful population providing a labour force and market for goods and services.	Rapid population growth placing pressure on resources, infrastructure, and service delivery.
Hardworking population with a strong commitment to personal and county development.	Urban decay associated with uncontrolled urbanization.
High levels of economic participation and support for development initiatives.	Social vices arising from increasing urban populations.
Natural population growth supported by improved healthcare, declining birth rates, and increasing life expectancy.	Environmental degradation resulting from population pressure and urban expansion.

In-migration from neighbouring counties, particularly into Chuka and Chogoria, increasing human resource capacity.	Uneven population distribution contributing to unequal development across the County.
Increased circulation of financial resources resulting from in-migration.	Pressure on infrastructure and social facilities in highly populated areas.
Cultural diversity promoting social integration and national unity.	Population concentration contributing to congestion and, in some cases, conflicts.
Rich cultural heritage and hospitable population supporting inter- and intra-county linkages.	Risk of erosion of cultural identity if cultural assets are not adequately preserved.
Safe and welcoming environment attracting investment and economic activities.	Low population densities in some areas limiting socio-economic development.
Cultural events such as the Ura Gate Festival providing opportunities for employment creation and revenue generation.	Low transition rates from primary to secondary and tertiary education.
Lower-density areas providing opportunities for future development and expansion.	Inadequate learning facilities in some parts of the County.
Infrastructure and socio-economic development in hinterlands can encourage balanced population distribution.	Overreliance on agriculture as the main source of livelihoods.
Improved education levels and health standards supporting economic participation and social development.	Vulnerability to climate variability and seasonal fluctuations affecting agricultural incomes.
Relatively high literacy levels supporting business development and economic growth.	Poverty and limited economic opportunities arising from dependence on agriculture.
Opportunities for value addition, tourism, service industries, and manufacturing.	Limited economic diversification and employment opportunities outside agriculture.

Source: UoN-DURP,2026

7 CHAPTER 7: LAND

7.1 Introduction

Land is the primary factor of production and a critical resource for socio-economic development, particularly in developing economies such as Kenya, where wealth and livelihoods are closely linked to land ownership and use. Spatial planning is undertaken on land and provides guidance on the suitability of different areas for various land uses and development activities. Secure access to land is essential for sustainable rural and urban livelihoods, while insecure tenure can contribute to food insecurity, poverty, limited livelihood opportunities, and unplanned urban expansion (FAO, 2002).

Land management and development are guided by national and county policies and legislation, including the *Sessional Paper No. 3 of 2009 on the National Land Policy*, the *Sessional Paper No. 1 of 2017 on the National Land Use Policy*, and the *National Spatial Plan 2015–2045*. These are implemented through the Constitution of Kenya and supporting legislation such as the *Physical and Land Use Planning Act, 2019*. The National Land Policy (2009) identifies the preparation of land-use plans at national, regional, and local levels as a key strategy for integrating rural and urban development. The preparation of the Tharaka Nithi County Spatial Plan is therefore aligned with this policy framework and supports sustainable land management and development. The County covers an area of approximately 2,564.4 km², including about 360.1 km² of the Mount Kenya Forest (KNBS, 2019).

7.2 Definition of Land

Article 260 of the Constitution of Kenya, 2010 defines land as including the following:

- a) the surface of the earth and the subsurface rock;
- b) any body of water on or under the surface;
- c) marine waters in the territorial sea and exclusive economic one;
- d) natural resources completely contained on or under the surface; and
- e) the space above the surface.

In the foregoing definition, land is conceptualized in the broadest sense and provides a wide latitude within which it is and can be organized for different uses. The above defines the land that planners should plan and indeed, what this plan addresses. Land is the main ingredient of spatial planning for it provides the space to be planned, which leads to the following key questions:

- a) Whose land is being planned?
- b) What are the key characteristics of the land – is it registered or not?
- c) What are the implications of the characteristics of the land for implementation of the prepared plan?

Land provides the spatial foundation for human settlements and is an essential natural resource that supports livelihoods, economic development, and ecosystem sustainability (FAO, 2008). Effective spatial planning facilitates the orderly organization of human activities, promotes efficient land use, and enhances the socio-economic well-being of residents.

In Tharaka Nithi County, land holds significant cultural and economic value. It is widely regarded as a source of wealth, income, and livelihood, particularly for rural communities. Limited land availability has increased its value and strengthened community attachment to land ownership. While private ownership is recognized and practiced, land is also viewed as a communal and intergenerational resource. These perceptions are shaped by cultural norms, with communities placing considerable importance on protecting and preserving ancestral land for future generations.

7.3 Land Tenure Systems in the County

Land tenure in Tharaka Nithi County significantly influences land use, development patterns, and land management. According to KNBS (2019), the County covers approximately 2,564.4 km², including 360.1 km² of the Mount Kenya Forest (Tharaka Nithi CIDP, 2023–2027). Land ownership is predominantly private, accounting for about 90% of the total land area, while public land constitutes approximately 10% (Table 6.1). Of the privately owned land, about 85% is held under freehold tenure and 5% under leasehold tenure.

The predominance of freehold tenure reflects strong private ownership rights but also presents challenges in regulating development, particularly where land subdivision and development occur outside formal planning frameworks. Land tenure defines the legal and customary relationships governing access to, use of, control over, and transfer of land and associated resources (FAO, 2002; Payne, 1997). These tenure arrangements determine how land is utilized, managed, and made available for development. For the purposes of this Plan, the term *land* adopts the definition provided under Article 260 of the Constitution of Kenya, 2010, as presented above and in Table 7.1.

Table 7.1: Land Tenure Systems in Tharaka Nithi County

Land Tenure	Percentage
Public	10
Freehold	85
Leasehold	5

Source: Field survey, 2024

i. Public Land

Public land constitutes 10% of the land in the County. It is land owned by the National and County governments. Public land is in two categories: the unalienated and what is already under public purpose and is spread across the Sub-counties as captured in an inventory by the County government in the form of:

- Government forests mainly in Mt. Kenya and 23 gazetted hills;
- Occupation and use by any State organ such as National Ministries, State Departments and the Tharaka Nithi County Government;
- Public uses including administration, Police stations and Police posts, Law courts, public educational facilities, public health facilities, food markets and prisons, among others;
- Livestock markets, cattle dips, water sources, recreational areas, water catchment areas, rivers, public water points/supplies, water catchment rocks, dams;
- Cemeteries, trading centres and public tree nurseries;
- Unalienated public land that is available for allocation.

Assessment of public land within Tharaka Nithi County indicates that approximately 99% of the inventoried public land has already been committed to existing uses and is therefore unavailable for future allocation. This limits the County's capacity to accommodate emerging public infrastructure, service delivery needs, and strategic development projects. While public land plays a critical role in supporting public facilities and services, available parcels can also be allocated for investment and development purposes, including residential, commercial, and industrial uses.

The assessment further identified the need to strengthen the protection of environmentally sensitive areas. Forests, hills, rivers, and other conservation areas that have not yet been formally gazetted should be secured through gazettelement to safeguard them as public assets and protect their ecological functions. In addition, the County should consider establishing a land banking

programme to secure strategically located land for future public uses and long-term development needs.

b) Private Land

This category of land represents land held on freehold (85%) and leasehold (5%) interests and forms the bulk of land in the County. This is land owned by individuals and corporate entities such as companies, co-operatives and groups and can be either under freehold or leasehold and registered under the owners. Freehold land is mainly in the rural areas and constitutes the bulk of agricultural land in the County, while leasehold land is found in urban areas and areas left for future development of towns and trading centres.

Each of these typologies of private land has its unique characteristics that impact land use planning. Such land being private means that it is not available for free for public projects, and this has implications for the implementation of plan proposals. Any plan proposals for public projects on private land must, of necessity, take into account land acquisition costs; otherwise, the same will not be implementable.

7.4 Land Use

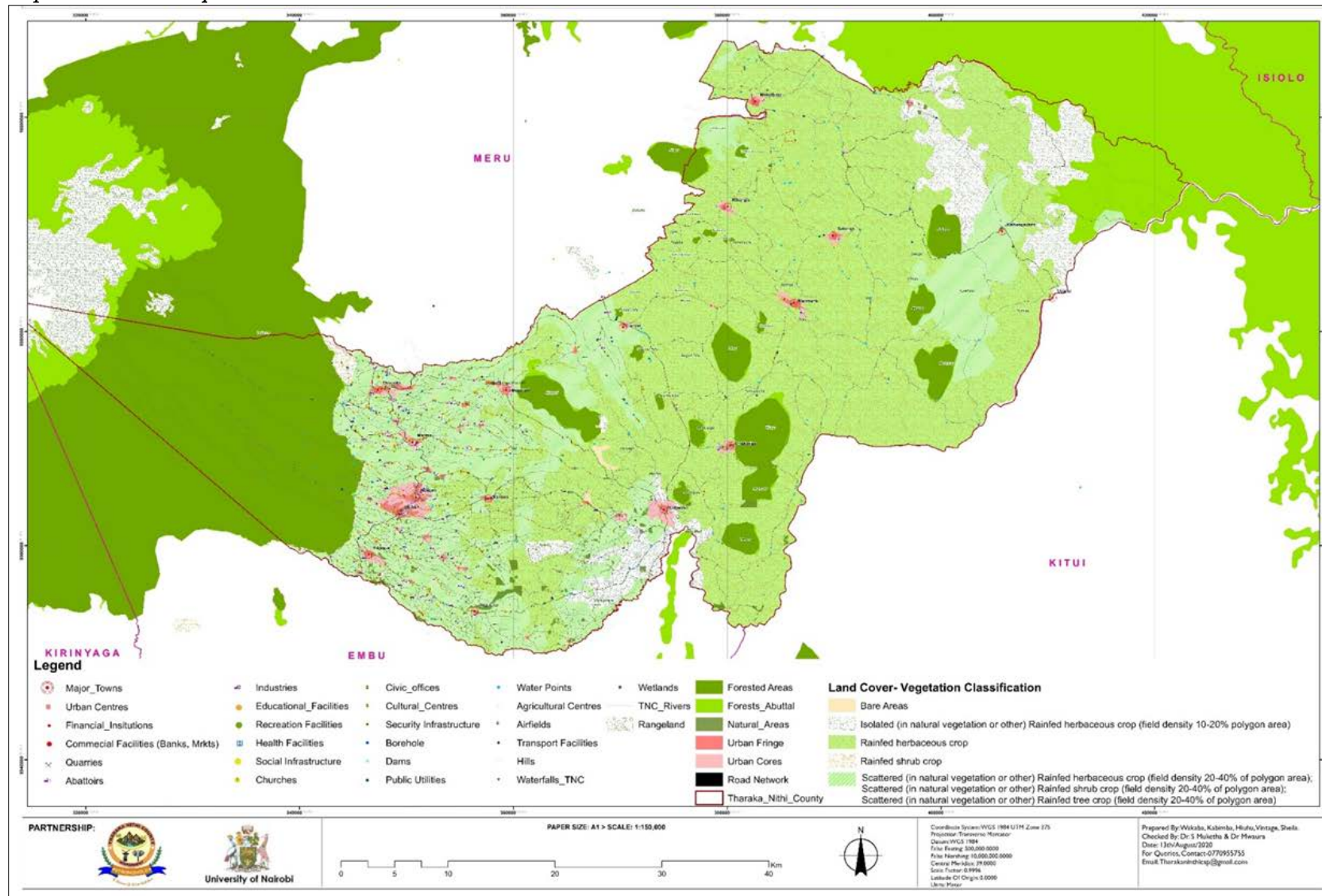
Land in the County is used in various ways in order to support livelihoods, provide social and infrastructural services, create linkages and for human settlement. The County contains a mix of land uses to support such human activities. **Error! Reference source not found.** and Table 7.2 show the distribution of land uses in the County.

Table 7.2 Existing Land Uses

Code	Existing Land Use	Area Covered (Ha)	Percentage (%)
0	Residential	4,523.87	1.7%
1	Industrial	266.11	0.1%
2	Educational	1,330.55	0.5%
3	Recreational/Conservation	55,253.6663	20.7%
4	Public Purpose	532.22	0.2%
5	Commercial	798.33	0.3%
6	Public Utility	26.611	0.01%
7	Transportation	4,789.98	1.8%
8	Agricultural	198,757.5	74.69%
Total		266,110.00	100.00%

Source: Field Survey, interpolated with FAO and Landsat 8 Imagery Classification, 2020

Map 7.1: Land Use Map



Source: TNCSP, 2020

i. Residential Land Use

Residential land use is the dominant land use in both urban and rural areas of Tharaka Nithi County. Settlement patterns range from high-density residential developments within major urban centres to medium- and low-density developments in peri-urban and rural areas. Linear residential developments are also evident along major transportation corridors, extending outward from existing urban centres.

According to the 2019 Population and Housing Census, approximately 8.3% of the County's population resides in urban areas, primarily within Chuka, Chogoria, Marimanti, and Kathwana Municipality. These areas are characterized by relatively high residential densities due to smaller parcel sizes and better access to infrastructure and services. The remaining 91.7% of the population resides in rural areas, where larger land holdings have resulted in low-density, dispersed settlement patterns. This scattered development pattern increases the cost and complexity of infrastructure provision and service delivery.

As the County's population continues to grow, demand for residential land is expected to increase. This underscores the need for planned neighbourhood development, supported by adequate infrastructure, utilities, and social services, to promote compact growth, improve service efficiency, and minimize urban sprawl.

ii. Industrial Land Use

Industrial land use in Tharaka Nithi County comprises both light and heavy industries that support employment creation and economic development. Light industrial activities are concentrated along major transport corridors within urban centres and, in some cases, are interspersed within residential areas. These include Jua Kali enterprises, automotive garages, petrol stations, workshops, furniture making, laundries, printing, packaging, and food-processing activities. To support the informal manufacturing sector, land has been reserved for the development of Jua Kali sheds in Chuka and Marimanti, although the facilities are yet to be constructed. In the interim, artisans continue to utilize the designated sites for production activities.

Heavy industrial activities include tea and coffee processing factories, mining operations, and other resource-based industries. Key examples include Weru Tea Factory in Maara Sub-County and coffee factories located in Chuka and Maara sub-counties. Due to their operational characteristics, these industries are generally located on the outskirts of urban centres or within rural areas close to raw material sources. Extractive industries, particularly building stone quarrying, are prominent in Igambang'ombe Sub-County and play an important role in supporting the construction sector.

The County's industrial sector contributes significantly to employment and income generation. To further strengthen industrial development, a 100-acre industrial park is under construction at Kairini–Marembo in Igambang'ombe Sub-County. Future industrial expansion should continue to be guided by proximity to raw materials, infrastructure availability, and compatibility with surrounding land uses.

iii. Recreation and Conservation

Recreation land uses in Tharaka Nithi County include open spaces, sports facilities, cultural sites, scenic landscapes, and hospitality and entertainment establishments such as hotels, restaurants, resorts, and social venues. These facilities are distributed across urban centres and provide opportunities for leisure, recreation, and social interaction.

The County currently lacks functional public parks, although public open space exists at the DC Grounds in Chuka, and a public park has been proposed within Kathwana Municipality. Sports infrastructure includes a completed and operational stadium at Kirubia in Chuka Sub-County, a

functional stadium at Kairuni, and proposed lower-tier stadia in Marimanti and Kathwana. Implementation of the Kathwana stadium proposal has been constrained by the unavailability of public land, while the Marimanti stadium is earmarked for rehabilitation.

Conservation areas comprise ecologically sensitive landscapes such as riparian reserves, wetlands, gazetted forests, hills, and protected ecosystems. The Mount Kenya National Reserve forms the largest conservation area in the County. Of the 31 hills found within the County, 23 are gazetted, including Kiera and Njuguni Hills, which serve important conservation functions. In addition, buffer zones such as the Nyayo Tea Zone play a critical role in protecting the Mount Kenya Forest ecosystem.

Recreation and conservation areas contribute significantly to environmental protection, tourism, and the provision of open spaces for public use. However, the assessment identified a need to increase the allocation and development of recreational open spaces, particularly within urban centres, to meet current and future population needs.

iv. Educational Land Use

Educational land use in Tharaka Nithi County comprises land occupied by ECDE centres, primary and secondary schools, tertiary institutions, and special schools. These facilities are distributed across urban centres and residential areas to serve the educational needs of the population.

Educational institutions have a significant influence on surrounding land-use patterns. A notable example is Chuka University in Ndagani, which has stimulated the conversion of former agricultural land into residential, commercial, and service-oriented developments to support the growing student and staff population. This has contributed to increased urbanization and economic activity within the area.

The distribution of educational facilities should be integrated with neighbourhood planning to ensure efficient access to education services. In addition, the role of major tertiary institutions as growth and investment drivers should be considered in spatial planning, particularly in areas experiencing development pressure and land-use transformation around educational hubs.

v. Public Purpose Land Use

Public and institutional land use comprises areas designated for the provision of social, administrative, security, and community services. These include health facilities such as hospitals, health centres, dispensaries, and clinics; administrative offices including the County Headquarters, County Commissioner's Office, Sub-County and Ward Administration Offices; security and justice facilities such as police stations, police posts, AP camps, law courts, and rehabilitation centres. The category also includes libraries, community halls, religious institutions, and post offices.

These facilities are predominantly located within urban centres and their immediate peripheries to enhance accessibility and service delivery. The distribution and accessibility of public services are critical to improving the quality of life and supporting socio-economic development. Consequently, future land-use planning should ensure adequate allocation of land for public and institutional uses to meet the needs of the growing population and promote equitable access to essential services across the County.

vi. Commercial Land Use

Commercial land use in Tharaka Nithi County comprises areas dedicated to trade, business, and service activities. These uses are concentrated within the central business districts (CBDs) of major urban centres and are also present in rural growth centres, market centres, and local trading hubs. Key commercial activities are found in towns and market centres such as Chuka, Chogoria,

Marimanti, Magutuni, Kaare, and Kibung'a, where shops, stalls, and service establishments support local economic activity.

Commercial developments are typically surrounded by residential neighbourhoods and are also evident as linear developments along major transport corridors, including the A9 Embu–Meru Highway and the B65 Mati Road. These areas play a vital role in facilitating trade, employment creation, and economic growth within the County.

As population and economic activities continue to expand, demand for commercial space is expected to increase. Future planning of urban centres and CBDs should therefore maintain the centrality and accessibility of commercial land uses to ensure efficient service provision, support business growth, and enhance access to markets and services.

vii. Public Utilities

Land under public utilities is used for the provision of infrastructural services to the residents in the County. These services include storm water drainage, water and electricity supply networks located within the road reserves; solid waste collection sites located near market areas; and wireless telecommunication masts scattered throughout the County. Other land under public utility includes water intake points, water treatment plants (in Chuka Forest and Chuka Town), solid waste management site, the incinerator in Chuka which is set for relocation to a new site at Ntuntuni in Chuka Sub-County where the process of acquisition of land for solid waste management is at an advanced stage, dams which include Maara dam, Grand Falls, and those along Nithi River, and public street lighting. As urban areas grow, improvement of infrastructural services will be required. This includes increasing the capacity of existing services as well as establishment of completely new services.

viii. Transportation Land Use

This is land in the County that is used to facilitate movement of persons, animals, goods and services. Major transportation routes and terminal facilities greatly structure other land uses. Transportation land use includes land under roads, transport facilities (parking, bridges) and termini (bus parks, boda boda sheds, matatu stages). Roads in the County cover a total of 1670 km. The major roads in the County include the A9 Embu–Meru Highway that runs from Kathageri, through Chuka and Chogoria ending at Keria, and Mati Road B65 that connects Kathwana and Meru County. Transportation land use provides linkages between homes, occupation areas and recreational areas. An efficient transport network is required to allow access to these areas. Construction of bridges on a number of major roads is pending and this undermines efficiency in transport. Improvement of existing feeder and access roads is therefore, required to achieve efficiency.

ix. Agricultural Land Use

Approximately, 56% (1,477 km²/147710ha) of the land area is under agriculture making it the most dominant type of land use in the County. It includes cultivated land, fallow land, farmhouses, greenhouses, pastoral land, as well as horticultural land. A larger proportion of the agricultural land in the County is directed to subsistence farming, 134,102 ha (92%), compared to an area of 12,281 ha (8%) dedicated to commercial farming. **Error! Reference source not found.** shows the distribution of agricultural land in the County by main purpose.

Table 7.3: Area of Agricultural Land by Main Purpose (Hectares)

County/Sub County	Area (Ha)	Subsistence farming (Ha) (%)	Commercial farming (Ha) (%)
Tharaka Nithi County	147,710	134,102 (92%)	12,281 (8%)
Igambang'ombe	19,752	18,764 (95%)	895 (5%)

County/Sub County	Area (Ha)	Subsistence farming (Ha) (%)	Commercial farming (Ha) (%)
Maara	42,658	36,883 (87%)	5,444 (13%)
Meru South/Chuka	34,594	32,083 (93%)	2,204 (7%)
Tharaka North	27,620	25,979 (94%)	1,439 (6%)
Tharaka South	23,085	20,393 (88%)	2,298 (12%)

Source: KNBS, 2019

Despite its current dominance, agricultural land use is on the decrease as some of the land has and continues to be converted to residential and commercial land uses (Field survey, 2024). There is a need for settlement areas to be demarcated away from agricultural land in order to protect farmlands as well as reduce urban sprawl. This is necessary for food and livelihood security.

7.5 Land Administration

Land administration in the County involves the management of information about ownership, value and use of land. Such information is generated through the process of land adjudication followed by surveying then registration whose outcome is data that can be used for development/preparation of a land valuation roll. The process of land adjudication is considered comprehensive and its key objective is conferment of land ownership rights to individuals, institutions, or corporate entities in particular regions. Land adjudication and demarcation begun in 1964 when Tharaka Nithi was part of the then greater Meru District (Parliamentary Committee Report on Adjudication, 2014). However, the process has since been fraught with numerous land disputes and historically delayed both of which have slowed down conferment of land ownership rights to majority of the residents. Consequently, both the National and County governments have periodically relaunched the process notably, in 2013 and again in 2021 in an effort to complete the process and issuance of title deeds. In the County, only 23.45% of the land is adjudicated while 76.55% is not yet adjudicated.

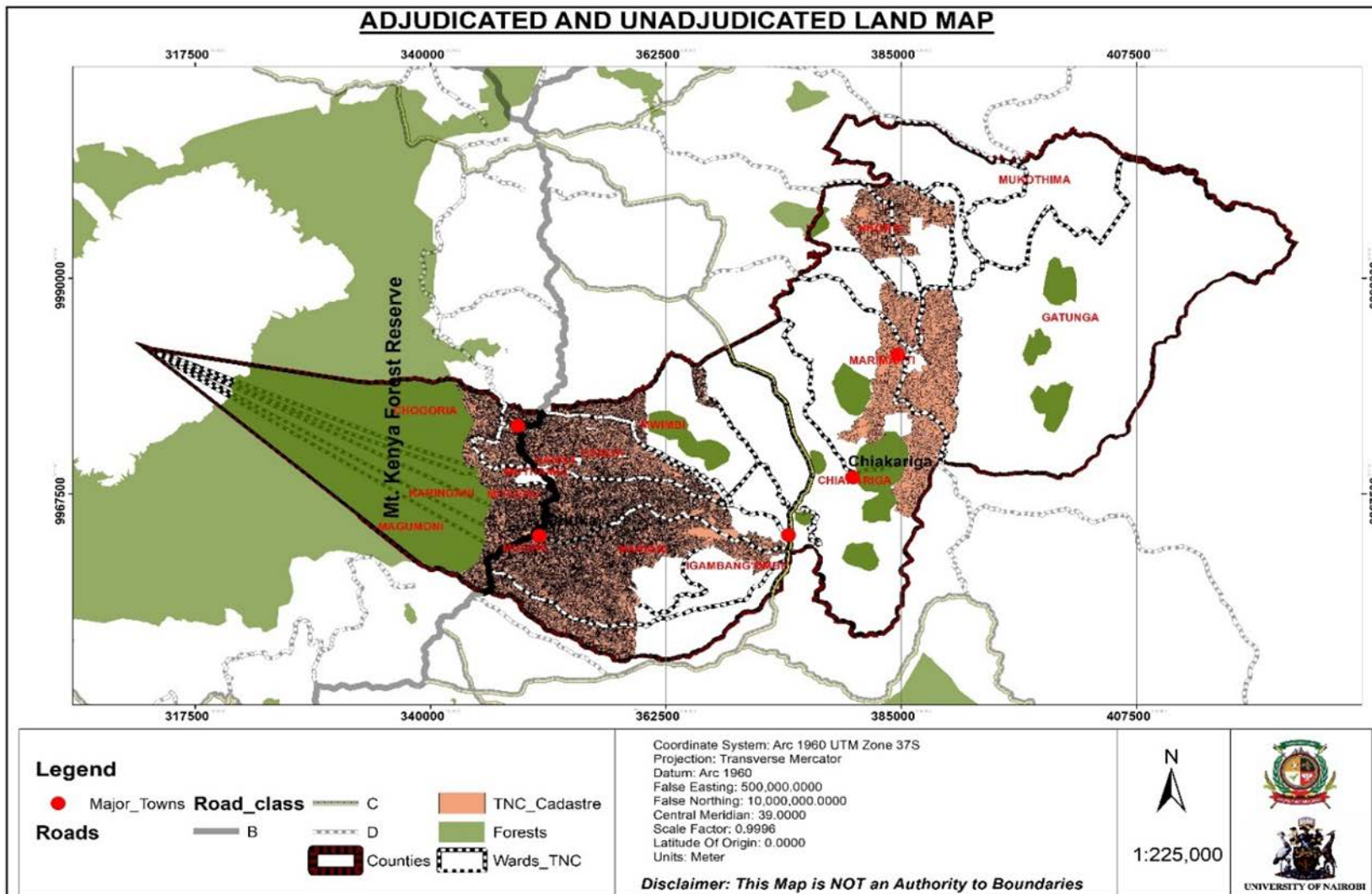
a) Adjudicated and unadjudicated land in the County

Adjudicated land constitutes 23.45% (62,414 ha) of the total land of the County while the unadjudicated land accounts for 76.55% (203, 796 ha) (Field survey, 2024). These grim statistics have serious implications:

- Very low security of tenure which negatively impacts investment and therefore, development in the county.
- Negative impact on land market, with some areas such as Kathangacini an acre of land selling at Kshs. 40,000/=.
- Land registration is an aspect of value addition to land and where it is not done then that undermines the value of land.

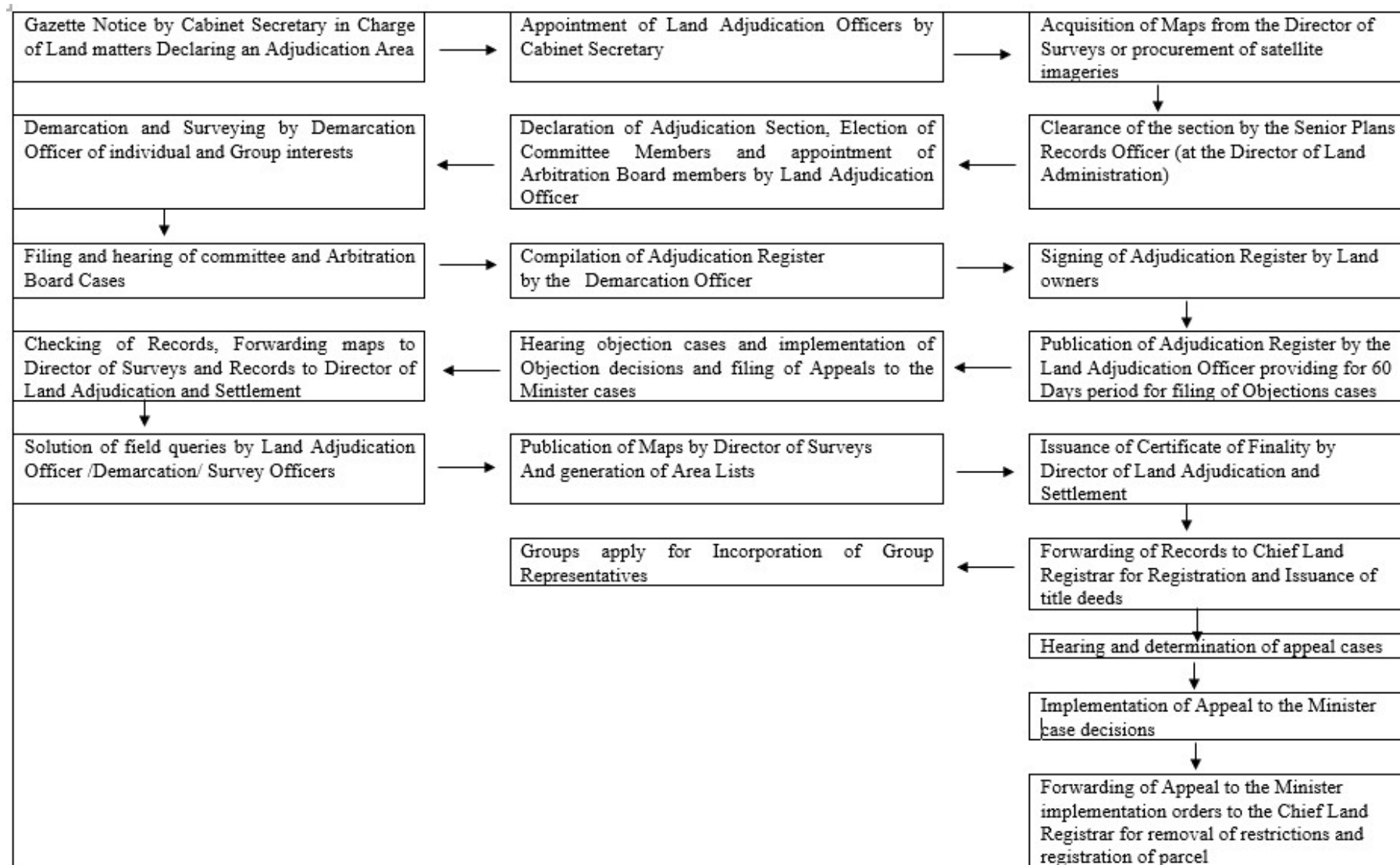
There is, therefore, little completed adjudication of land in the County constituting slightly less than a third of the County as the statistics and **Error! Reference source not found.** highlight. The process of land adjudication is ongoing, with a few adjudication sections complete. The land adjudication process is lengthy and often affected by boundary disputes, which slow its implementation, as illustrated in **Error! Reference source not found.** and **Error! Reference source not found.** Consequently, extensive public sensitization and stakeholder engagement are required throughout the process. The timelines presented in **Error! Reference source not found.** represent the ideal scenario; however, unforeseen factors, such as prolonged dispute resolution, may cause delays. Under optimal conditions, the completion of a single adjudication section from Step 1 to Step 17 takes approximately two years and three months, assuming there are no unforeseen delays.

Map 7.2: Adjudicated Land



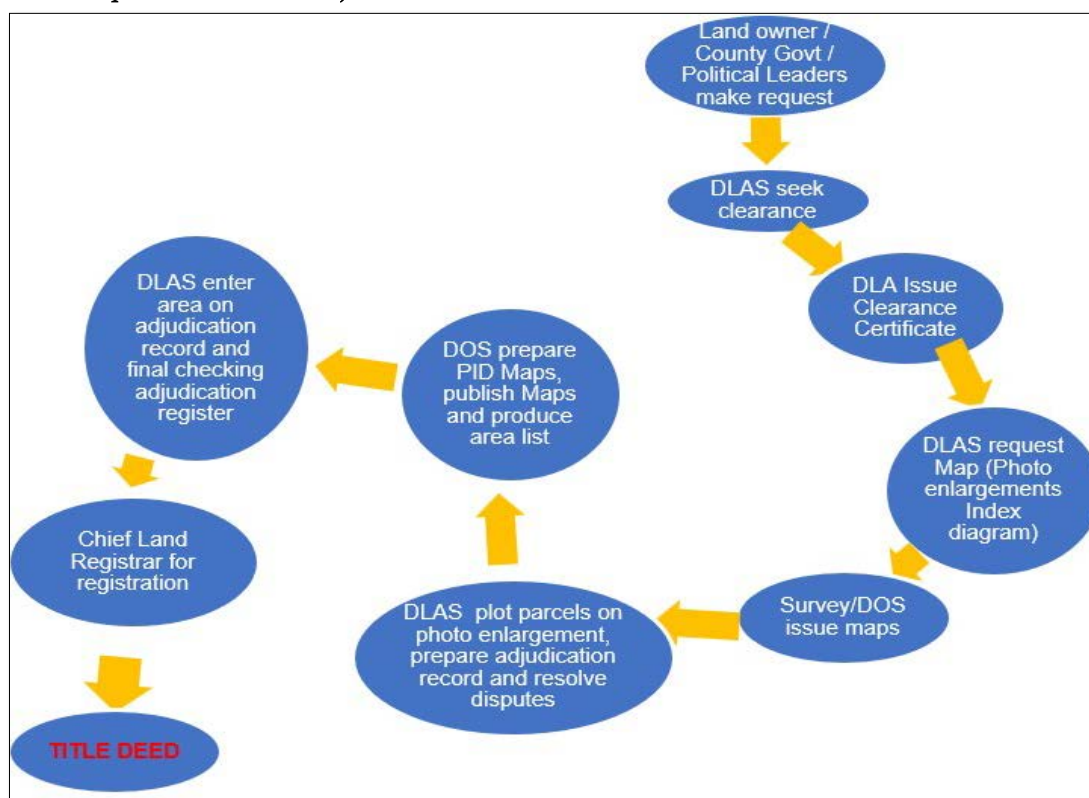
Source: UoN-DURP,2026

Figure 7.1: Land Adjudication Process



Source: Directorate of Land Adjudication and Settlement, Ministry of Lands

Figure 7.2: Departmental Land Adjudication Flowchart



Source: Directorate of Land Adjudication and Settlement, Ministry of Land

Table 7.4: The land adjudication timelines

S/N o	Service Delivery	Item Description	Time Line
1	County Approvals	The County Government's approval of the declaration of the Adjudication section.	3 Months
2	Boundary walking	Walking the boundary	1 Month
3	SPRO Clearance	The SPRO is to clear the area for the declaration of the section	1 week
4.	Declaration of Adjudication section	Public Baraza Election of committee members Appointment of the arbitration committee	1 day
5	Notice of Demarcation	The land owners are given Notice of demarcation	14 statutory days
6	Demarcation and survey of land	Demarcation of specific parcels	12 months
7	Filing of land committee cases	File the case within 14 days after completion of the demarcation of the specific parcel	14 statutory days
8	Hear and determine land committee cases	Attendance by all the parties on issuance of summons at a specified place within the adjudication section.	1 month
9	Filing of arbitration board cases	File a case within 14 days after the determination of the land committee case	14 Statutory days
10	Hear and determine arbitration board cases	Attendance by all parties on issuance of summons at a specified place within the adjudication section	1 month

S/N o	Service Delivery	Item Description	Time Line
11	Publication of Adjudication Register	Adjudication Records and Map of the section.	3 days
12	Inspection of the adjudication register and filing of objection cases	Inspect the register. File an objection case within 60days of publication of the adjudication register if there are omissions or inconsistencies	60 statutory days
13	Hear and determine objection cases against the register	Attendance by all the parties on issuance of summons at a specified place within the adjudication section.	1 month
14	Finalization of the adjudication section	Checking of records and forwarding of maps to the Director of Surveys and Records to DLAS	1 Month
15	Issuance of Certificate of finality.	Issuance of the Certificate of finality by DLAS	2 weeks
16	Filing of appeals to the Minister of cases	Appeal within 60 days after the determination of the objection case	60 Statutory days
17	CLR Prepares title deeds	Preparation of title deeds by the land registration	1 month

Source: Directorate of Land Adjudication and Settlement, Ministry of Lands.

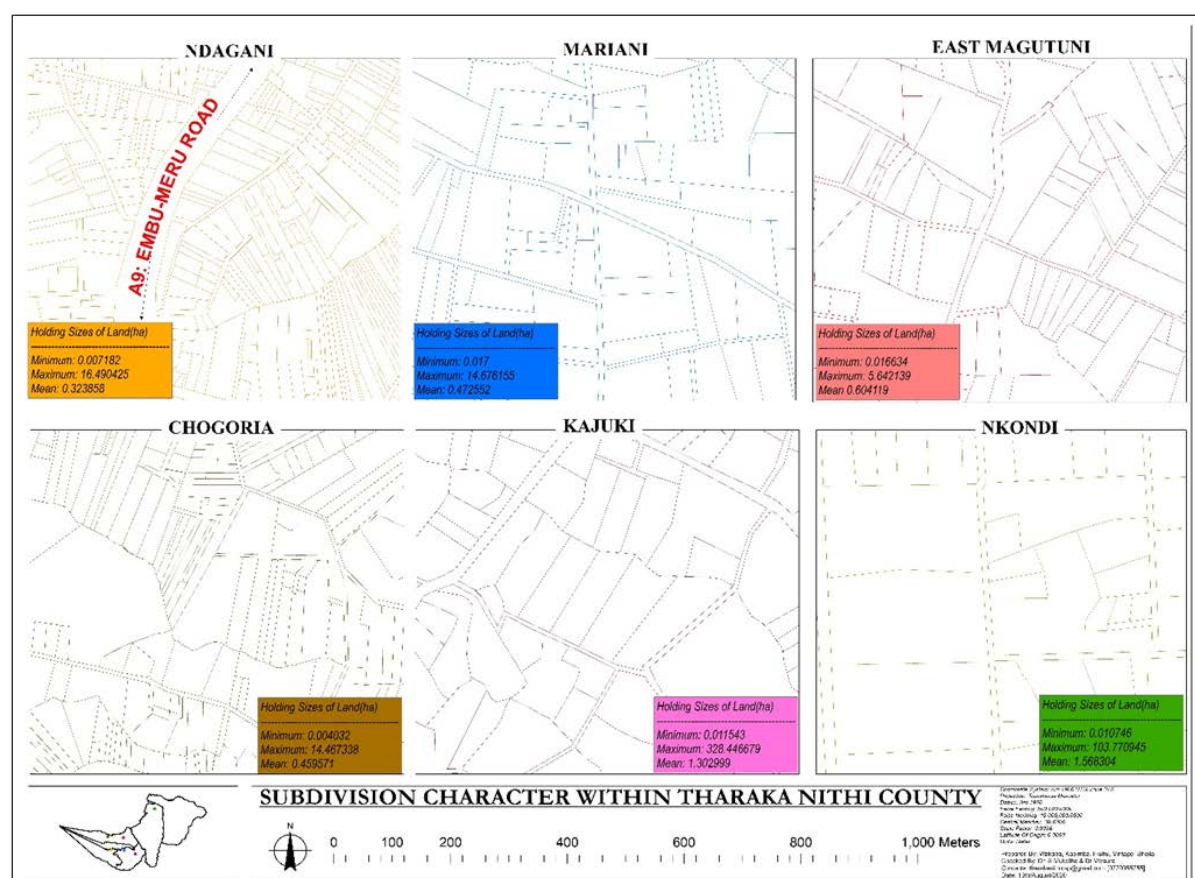
a) Constraints to completion of land adjudication

- Budgetary constraints on the part of the National government slow down the demarcation and titling process.
- Use of manual land registers makes land records susceptible to interference.
- There are many litigation cases arising from conflicting proclaimed ownership rights.
- Inter-County boundary disputes negatively impact the process of land adjudication.
- In some instances, political interests come into play with negative impacts.
- Land succession process is expensive and this excludes some of the land holders thus delaying completion of adjudication and registration of land.
- The cost of processing a land title.
- Many of the people are ignorant of land succession process.
- Instances of corruption and fraud in land dealings also interfere with land management and record keeping.

b) Land Sub-Division Trends

Land subdivisions are taking place in the County and as a result mean land holding sizes per household are quickly reducing. There is a high rate of land subdivision particularly in the high potential region which includes Chuka, Muthambi and Mwimbi Sub Counties. Rapidly increasing population within urban centres is a key cause of rapid subdivision. The subdivisions are further fueled by rapid urbanization within urban centres in the high potential region, particularly Chuka and Chogoria. The growth of these towns has led to encroachment on previously agricultural land for settlement and commercial purposes. Agricultural land is susceptible to informal land subdivisions due to the ease with which it can be subdivided since it only requires the consent of the title holder to subdivide unlike leasehold land. Besides there is little or no enforcement of development control /conditions on agricultural land. Subdivision of agricultural land into smaller parcels has reduced the productivity of the land causing a decrease in incomes. The most urbanized and well accessible areas depict higher subdivision rates as well as lesser minimum and average plot sizes as illustrated in **Error! Reference source not found..**

Map 7.3: Map showing subdivision near major market centres within the County



Source: UoN-DURP, 2024

The lack of comprehensive development control guidelines and a lack of adherence to regulations that guide subdivision also enable improper subdivision of land. There are no guidelines on minimum land sizes per land use. This is seen when agricultural land has been subdivided into small unproductive portions which would be more suitable for urban use. Consequently, there is reduction in the value that residents would realize from their land. This phenomenon is more evident within the high potential areas of Chuka and Chogoria.

Inheritance of land has also led to its subdivision and this cuts across the County. Inherited land is subdivided among siblings who then settle on the different parcels of land. Land subdivision occurs as a result of this inheritance scattered settlement patterns. This fragmentation threatens food and livelihood security and needs to be controlled through prescription of minimum land holding acreage per use.

i. Mean Land Holding

The mean land holding sizes in Chuka Sub County ranges between 0.5-1 acre while in Igambang'ombe Sub County the mean land holding size is 1-3 acres. This land is mainly used for subsistence farming. The mean holding size within Muthambi Sub County ranges from 2 to 3 acres. However, in areas such as Karigioi, Kandugu and Kanoro, most of the population hold approximately 5 acres of land. In Kajiunduthi, Weru, Iriga Gituja and Muthiru the mean holding size is approximately 2 acres. The land market in Muthambi is active owing to tea and coffee zones, banana zones from Maritina, Iriga and Gituja zones. Due to its high productivity, there has been a rise in the land prices within the area. The mean holding size within major urban areas, such as Marimanti and Chiakariga, within Tharaka South Sub County is an eighth of an acre.

7.6 Land Value

Land value in the County is determined by several factors including: Secure land tenure which is achieved through the process of land adjudication that is underway in most parts of the county; increased urbanization; access and proximity to physical and social infrastructure such as roads and education facilities; physical attributes such as topography, climate and agricultural potential; as well as in-migration which has led to an increase in the demand for land. Since much of the county is unadjudicated, it lacks a valuation roll which poses a major challenge in objective determination of land value. This has led to unproductive and speculative land hoarding especially in urban areas. Subdivision also leads to progressive reduction in the average land sizes for the communities living within the region.

Land value has been changing since pre-colonial era. In the pre-colonial era, land was communal property and individuals enjoyed usufruct rights and could not therefore, make independent decisions to sell land. Colonial administration commoditized land and this was later extended to African areas with the inception of the Swynnerton plan in 1954 that conferred individual rights of ownership to Africans. Since the 1970s, the value of land per acre has increased from approximately Kshs. 2,500 to about Kshs. 1 million in rural areas and Kshs. 4 million within urban areas in the current land market. **Error! Reference source not found.** shows the changes in the land market since 1960s. It is however important to add a caveat that land values across the county are influenced by the status of the land with respect to whether it is adjudicated or not. In 2024 for example, land value in Kathangacini in the Northern part of the county and which was not adjudicated was as low as 40,000/= per acre.

Table 7.5: Trends in Land Value per acre Since 1960s

1960s	Sub division of land began
1970s	2,500
1990s	25,000
2000s	75,000
2019	Ksh. 1 million in rural and Ksh. 4 million in urban areas

Source: Field Survey, 2019

a) Land Value in Urban Areas

Land values in urban areas vary within the County depending on the level of the urban centres and are significantly higher than in rural areas. This can be attributed to better access and close proximity to social and infrastructural facilities, higher urbanization rates and a higher demand for land owing to high populations. There has been a steady increase in land value within urban areas in the last 10 years. For instance, the establishment of Chuka University led to rapid rise in land prices within the town and surrounding areas. **Error! Reference source not found.** shows the trends in land value within select urban areas of the County.

Table 7.6: Land Value in Urban Areas

Centre	Year 2019	Year 2024	2026
Chuka	32,000,000	70,000,000 (Township) 11,000,000 (Ndagani)	70,000,000 (Township) 12,000,000 (Ndagani)
Kathwana	8,000,000	5,000,000	7,200,000
Marimanti	8,000,000	7,500,000	7,500,000
Kajuki	4,000,000	4,000,000	4,000,000
Chiakariga	8,000,000	6,000,000	6,000,000
Marima	2,000,000	10,000,000	10,000,000
Old Marima	1,000,000	1,800,000	2,000,000
Iriga	800,000	1,800,000	2,000,000

Centre	Year 2019	Year 2024	2026
Weru	800,000	1800,000	2,000,000
Mitheru	800,000	10,000,000	10,000,000

Source: Field Survey, 2019

b) Land Value in Rural Areas

Land values in rural areas vary within the County and are significantly lower than in urban areas. This land is located far from economic centres and has poor access to social and infrastructural facilities. In Tharaka North and parts of Igambang'ombe Sub Counties, much of the land is not agriculturally productive, and consequently the demand for this land is low. **Error! Reference source not found.** shows the trends in land value within select rural areas in different Sub Counties. Land value is also influenced by the status of land with respect to whether it is registered or not with negative impact being experienced where land is not yet registered.

Table 7.7: Land Value in Rural Areas

Sub County	Average Value Per Acre (KShs)		
	Year 2019	Year 2024	Year 2026
Chuka (South, North)	2,400,000	43,000,000	43,175,000
Muthambi	2,000,000	1,000,000	1,200,000
Tharaka South	300,000	1,000,000	1,000,000

Source: Field Survey, 2019

c) Access to Land

Access to land in this context refers to the ways by which land can be acquired. There are various ways of accessing land in the county which include inheritance, purchase, allocation by government and as a gift. These are the legally accepted channels of accessing land. However, there are also some channels that are not legally recognized, but nevertheless provide an avenue to access land such as squatting. These channels of accessing land determine who can access land in the county and influence the resultant land sizes, use and development. Access to land by inheritance is the most common channel due to cultural practices that require parents to bequeath their children land to the extent that if for some reason some parents cannot fulfil this cultural expectation, they are seen as failures (Field survey, 2024).

Land for inheritance is often issued to persons of the male gender; thus, men have easy access to land compared to women as a result of their cultural beliefs and practices. However, this cultural practice that favours male children is challenged by the Kenya Constitution, 2010 which equates all genders when it comes to inheritance. There is a need for parents to recognise other forms of wealth for bequeathing their children, such as company shares, instead of land, whose supply is inelastic. Land inheritance is responsible for most of the uneconomical land sizes some of which are facilitated by the Judiciary particularly in succession cases when courts decide that deceased's property has to be shared in equal shares among the heirs without taking into account the size of the land in relation to planning standards for different uses.

Purchase is a popular land delivery channel for those who can afford it (Musyoka, 2004). Like inheritance, it is largely profit-driven and often fails to adhere to planning standards. Consequently, informal land transactions are common, resulting in substandard parcel sizes, inadequate road networks, and other characteristics associated with informality.

Access to land through government allocation depends on the availability of public land. According to the Public Land Inventory by the County Government of Tharaka Nithi, public land constitutes only 10% of the county's total land area and is already committed to public uses, leaving little available for allocation.

Although illegal, squatting provides access to land for individuals who have encroached on public or private land. However, squatters do not enjoy security of tenure and are subject to eviction upon expiry of a 90-day notice, as provided by law.

Land access in the county is largely influenced by market forces. Land in Mwimbi, Muthambi, and Chuka Sub-Counties is considerably more expensive than in Tharaka North and Tharaka South due to differences in urbanization and agricultural productivity. Within urban areas, however, no significant gender disparities exist in land access, as purchasing power is the primary determinant. The most active land markets are found in the major towns of Chuka, Chogoria, and Kathwana.

7.7 Land Conflicts

Land conflicts within the County result from a lack of landmarks to demarcate boundaries and a lack of knowledge on land rights by the members of the public, and are more evident in areas where the adjudication process is incomplete or not yet done. Land conflicts are prevalent along County boundaries, along the inter-clan boundaries, and locally within families.

Inter-county border conflicts between Tharaka Nithi and Meru are evident in the border town of Keria, largely due to inadequate consultation during boundary demarcation, as presented in **Error! Reference source not found..** Inter-clan land conflicts also arise from boundary disputes, including those between Kamwimbi and Kamaindi in Igambang'ombe Sub-County and between Tharaka South and Mwimbi Sub-Counties. These conflicts are often exacerbated by the inability of the affected clans to reach amicable resolutions. Other areas experiencing land disputes include Mutino in Mwimbi Sub-County, where the Tharaka and Mwimbi clans' conflict; Kamaindi, where disputes exist between the Tharaka and Mbeere clans; and Kajuki, where conflicts between the Chuka and Tharaka clans have since been resolved.

Land conflicts also occur at family levels and is caused by inheritance norms and lack of concise land boundaries between relatives. It is expected that most of the land disputes will be addressed once adjudication process is completed in the county.

Table 7.8: Sections of boundary disputes between Meru and Tharaka Nithi Counties

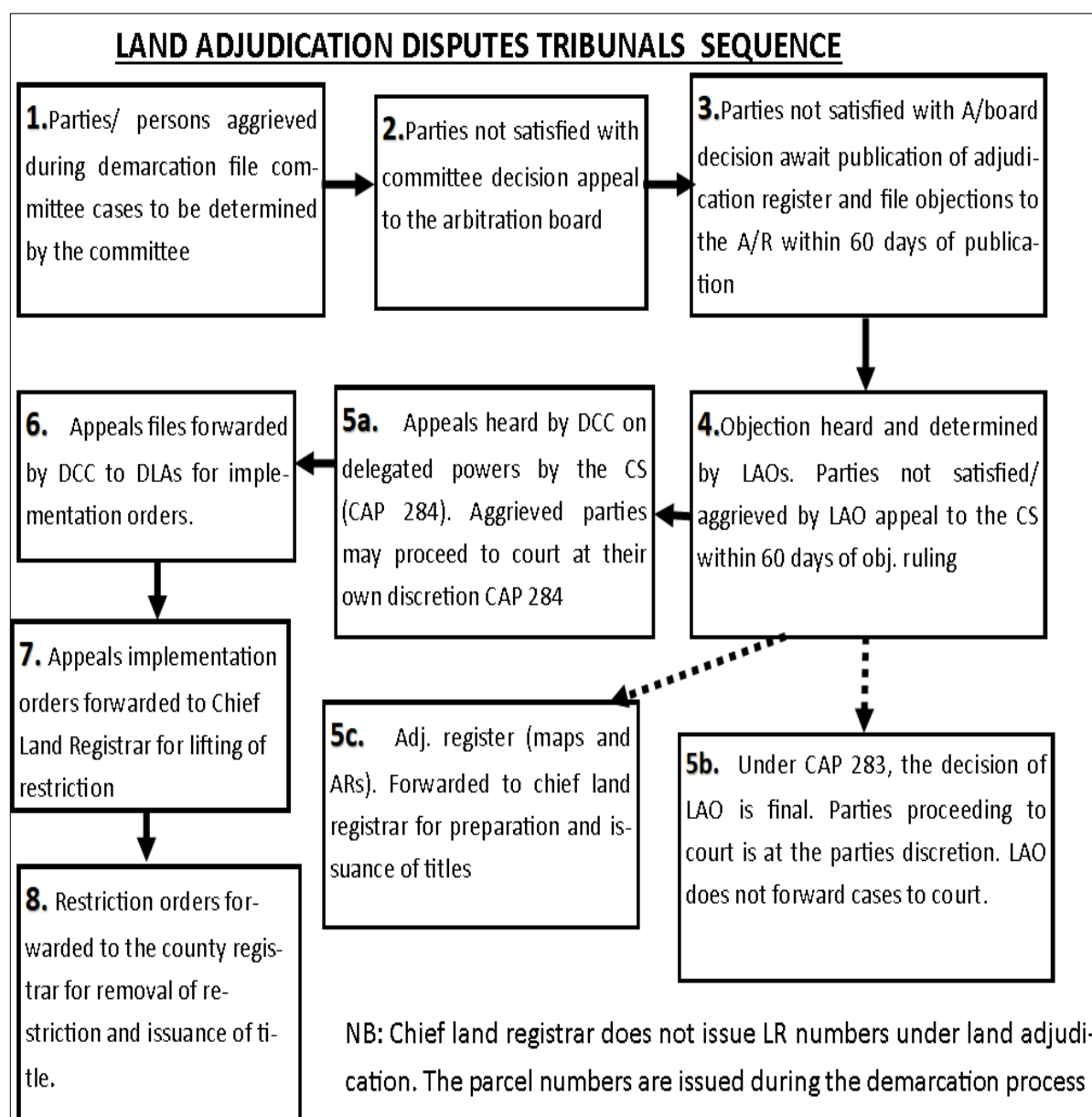
No.	Adjudication Section
1	Turima
2	Karocho
3	Mukothima
4	Makururuni
5	Ntoroni
6	Thiiti

Source: Tharaka North and South Sub-County Land Adjudication Officer

a) Land Conflict Resolution

Land issues in the County remain sensitive and that has led to violence in some cases. Land dispute resolution follows the process presented in **Error! Reference source not found..**

Figure 7.3: Land Dispute Resolution During Land Adjudication process



Source: UoN-DURP, 2024

Land Adjudication Officers listen to unresolved or appealed cases. Their mandate is drawn from Cap 284 (no movement) and Cap 283 (displacement). Land adjudication processes that have been established to resolve land disputes have been inefficient. The Mwiriga, a section of Njuri Ncheke has the mandate of solving the existent land conflicts which are often amicable with regard to land inheritance issues within the families.

Attempts at resolving land conflicts remain problematic. For instance, conflicts over land in Mwanyani, Kakurungu and Tunyai locations led to establishment of Nkondi Settlement scheme to help reduce the level of conflicts. However, the County still witnesses intermittent conflicts over land in different areas.

7.8 Summary of Land Issues of concern in the County

Challenges	Opportunities
Absence of comprehensive development control guidelines.	The county is developing a County Land Policy.

Poor compliance with existing development regulations.	The county can develop a Land Use Policy.
Rapid urbanization increasing pressure on urban land.	The County Government can appeal to the National Government to increase budget allocation for land adjudication and registration.
Uneconomical subdivision of urban and agricultural land.	Shift from manual land records to digitization.
Dispersed rural settlements and fragmented landholdings.	Sensitisation of the public on land issues, particularly succession matters.
Conversion of agricultural land into residential uses.	The County Government can help process succession matters through the Office of the County Attorney.
Reduced agricultural productivity, food security, and livelihoods due to land fragmentation.	Sensitisation of the County Assembly on the role of spatial planning and the need for increased budget allocation to the land sector.
Deficiencies in land administration and management.	Enhancement of technical capacity in the land sector through support from the National Government.
Incomplete land adjudication processes, with approximately 75% of land unregistered.	
Weak land tenure security.	
Boundary-related land disputes, particularly in general boundary areas.	
Inter-county land boundary conflicts.	
Encroachment on public land.	
Lack of registration of public land.	
Delays in processing succession matters.	
Use of fake land documents.	
Absence of a valuation roll.	
Constrained revenue collection.	
Fluctuating land values and reduced attractiveness to investors.	
Absence of a County-based GIS database.	
Conservation areas not fully gazetted.	
Degradation of forests, hills, rivers, and biodiversity resources.	
Informal land development practices and unregulated change of land use.	
Private land constitutes 90% of county land, limiting land availability for public projects.	
Freehold tenure (85%) facilitating unregulated subdivisions and informal urbanization.	
Unsustainable human settlement patterns that undermine service provision, especially in rural areas.	
Land market distortions arising from lack of adjudication.	
Cases of squatters on public and private land.	
Low technical capacity and inadequate budgetary allocation for planning.	

8 CHAPTER 8: URBAN DEVELOPMENT AND HUMAN SETTLEMENTS

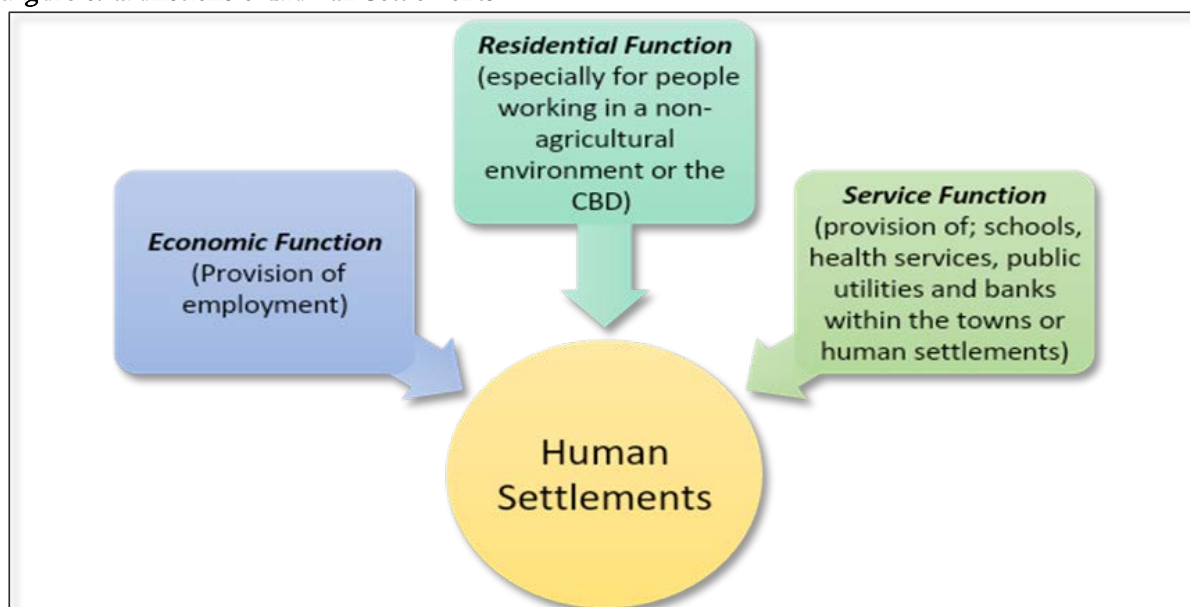
8.1 Overview

Human settlements play an important role in economic development by concentrating people, activities, and services. This chapter assesses human settlement patterns, urbanization trends, and housing within Tharaka Nithi County. It analyses the historical development of settlements, the form and function of urban centres, growth trends, housing conditions and typologies, ownership patterns, and housing supply and demand. The chapter also presents the urban hierarchy, indicating the level of service provision across the County's urban centres.

8.2 Human Settlements Patterns

Human settlements comprise concentrations of people and activities ranging from small villages to major urban centres. In Tharaka Nithi County, settlement patterns are predominantly rural, with urban development concentrated in Chuka, Chogoria, Marimanti, and Kathwana. Urban activities are otherwise concentrated in trading centres distributed across the County

Figure 8.1: Functions of Human Settlements



Source: UoN-DURP,2026

i. Historical Development of Human Settlements in Tharaka Nithi County

The County comprises settlements inhabited by the two subtribes of Chuka and Tharaka. The Chuka subtribe is believed to have dispersed to their present locations from the Kijege area, specifically Igaironi, which means “a place of subdivision.” The Chuka people, who were primarily agriculturalists, migrated to the upper highlands of the County, which are more suitable for farming due to favourable climatic conditions. They settled in areas such as Kiereni, Kiambandi, Kangotu, and Gitarene, and later formed villages during the Mau Mau period in Ndagani, Kimbugu, and Kirege, which are currently reserved for institutional purposes.

On the other hand, the Tharaka people, who were traditionally livestock keepers, hunters, and beekeepers, occupied the lower regions of the County, which are more suitable for these livelihoods. According to traditional folklore, the Tharaka originated from Kitui County in Tharaka location and crossed through Kirukuma and Kiraroni locations. The hunters and beekeepers initially settled near the present-day national park and were later joined by livestock keepers. In the

early 1980s, the main land use in Tharaka was pastureland, which has since been transformed into agricultural land. The land adjudication process subsequently began, with much of the land being excised from forest areas. This led to increased settlement in the region, alongside the expansion of commercial and educational land uses.

In 1992, Tharaka-Nithi District, which was carved out of the former Meru District, was established. It was subdivided into two sub-districts: Nithi District, comprising Chuka, Mwimbi, and Muthambi, and Tharaka District, comprising Tharaka. Chuka town was later elevated to a district headquarters in 1993 and remained the administrative centre of Tharaka-Nithi until 2013, when administrative units were reorganized into Chuka/Igambang'ombe and Maara Constituencies.

Following the establishment of County Governments under the Constitution of Kenya (2010), deliberations were made to enhance inclusivity between the Chuka and Tharaka communities. This informed the decision to establish Kathwana, a centrally located market centre, as the County headquarters in 2014.

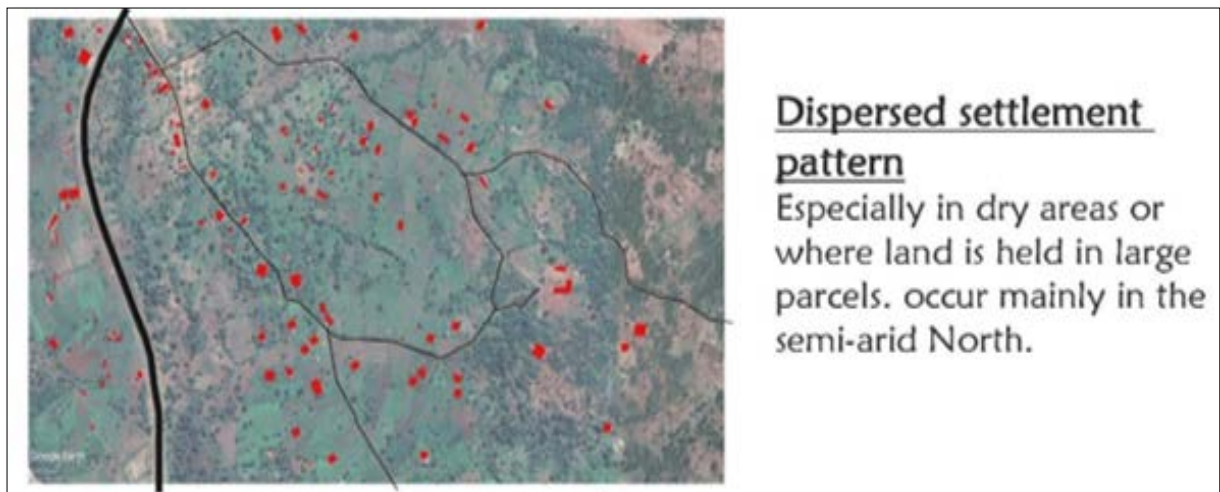
ii. Typology of Settlement Patterns in Tharaka Nithi County

a) Dispersed/ Rural Human Settlements

Approximately 91.7% of the population lives in rural areas (KNBS, 2019). Rural settlements play a significant role in regional development. Due to favourable geographic conditions, there is a strong dependence on natural resource-based livelihoods, particularly agriculture.

The settlement pattern in Tharaka North and Tharaka South is largely scattered. This is attributed to factors such as less productive land, a drier and harsher semi-arid climate, inadequate household water supply, large landholding sizes, and physical features such as hills. Figure 8.2 illustrates the dispersed settlement patterns within the County.

Figure 8.2: Dispersed Settlement Pattern



Source: Google Earth Image 2024

Urban centres such as Marimanti, Chiakariga, and Gatunga serve as growth poles for the surrounding rural hinterlands by providing essential services and amenities. Their continued growth is therefore critical to the future development of Tharaka North and Tharaka South, positioning them as important regional growth nodes that support balanced spatial development across the County.

Rural areas also provide land reserves for future development due to the availability of relatively large land parcels. This is evident in areas surrounding Kathwana Municipality, from Kareni to

Itugururu, where urban expansion is expected to occur outward from the municipal core. However, much of the land in rural settlements is inherited and remains unregistered, resulting in frequent land disputes, particularly along county boundary areas such as Kirigicha and Karutiri, which continue to constrain development.

Urbanization is progressively transforming rural settlements into urban centres. Kathwana, formerly a rural settlement, has evolved rapidly following its designation as the County headquarters, attracting infrastructure investments, improved road networks, buildings, and services. Similar transitions are occurring in centres such as Tunyai, Chiakariga, and Marimanti. The County Spatial Plan provides a framework to guide these transitions and promote orderly and sustainable urban growth.

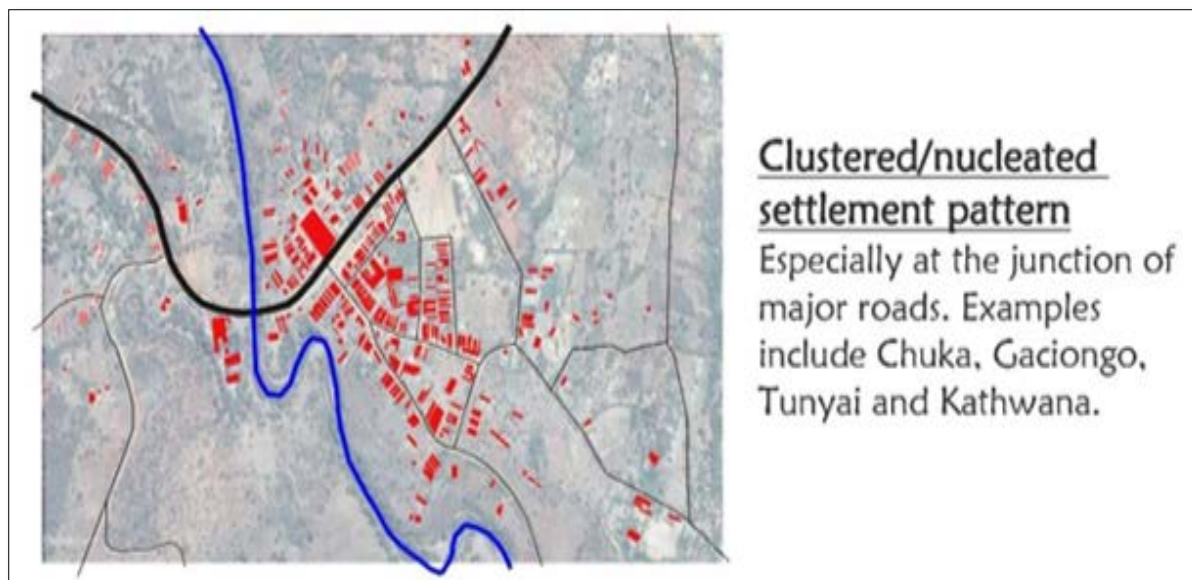
Infrastructure, housing, and public services remain more developed in urban areas than in rural settlements due to higher population concentrations and demand. For example, modern sewerage systems are more advanced in Chuka than in less densely populated rural centres such as Usueni. Nevertheless, rural centres are expected to continue developing through urban upgrading, investment, and in-migration, particularly in emerging growth centres such as Kathwana, Chiakariga, and Kaanwa.

Urban Human Settlements

The 2019 Population and Housing Census estimated that approximately 8.3% (32,739 people) of Tharaka-Nithi County's population resides in urban areas (KNBS, 2019). Major urban centres, including Chuka, Marimanti, Chogoria, and Kathwana, have relatively better-developed infrastructure, services, and housing compared to rural areas. Housing is predominantly constructed using permanent materials such as stone walls and corrugated iron sheet or tiled roofs, reflecting higher affordability levels and purchasing power among urban residents. Urban settlements also accommodate a mix of owner-occupied and rental housing, with Chuka and Ndagani recording particularly high demand for rental units due to the presence of Chuka University and a large population of public servants.

Urban settlements are generally characterized by clustered development patterns, particularly in centres such as Chuka, Chogoria, Kathwana, Gaciongo, and Tunyai. Population density is highest in higher-order centres such as Chuka and gradually declines in lower-order centres, reflecting differences in the availability of markets, housing, civic facilities, health services, and educational institutions. Urban centres located within agriculturally productive areas, including Mwimbi, Muthambi, and Chuka sub-counties, also attract higher population concentrations. Improving the provision of basic infrastructure and services in less dense centres could encourage in-migration, support more balanced population distribution, and reduce pressure on highly congested urban areas. **Error! Reference source not found.** illustrates the clustered or nucleated settlement patterns within the County.

Figure 8.3: Clustered/ Nucleated Settlement Pattern



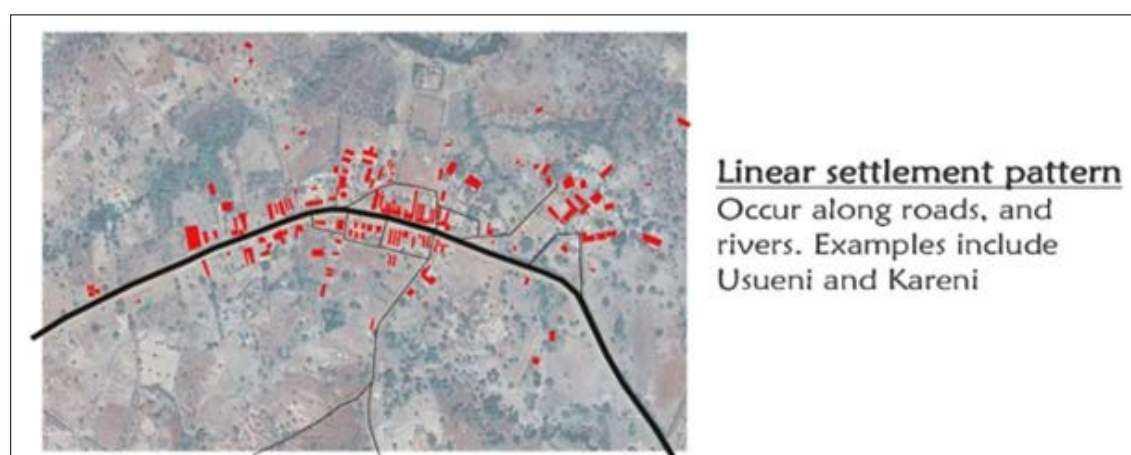
Source: UoN-DURP 2024

b) Linear settlements

Urban linear settlements are found along infrastructural corridors especially major roads and along rivers. One such centre is Kareni, found along the Mati Road, the main road from Chuka to Kathwana. The A9 Embu- Meru highway is also a major corridor that has a big influence on linear settlements particularly settlements on the outskirts of Chuka town. As one moves towards the interior of the county, more linear settlements can be seen where routes connect to markets and local centres for example along the Chuka-Kajuki Road.

Property rates and land values in such settlements is high owing to accessibility and proximity to these major corridors. This gives an indication of how important such corridors are to the activities of the residents. Settlement strategies must take advantage of current and proposed corridors to give residents better linkages and opportunities. Figure 8.4 represents linear settlement patterns in the County.

Figure 8.4: Linear Settlement Pattern



Source: UoN-DURP 2024

8.3 Impact and Trends of Urban Human Settlements

Urban settlements exert significant pressure on the environment through increasing consumption of energy, water, food, and land for domestic and commercial activities. This often results in environmental pollution that affects the quality of urban living. For example, poor waste disposal practices in Marimanti Town have contributed to pollution of the Kathita River, while the concentration of buildings and vehicles in urban centres compromises air quality and contributes to the urban heat island effect, reducing thermal comfort.

Urbanization also influences land use and land values. The concentration of economic activities in urban centres increases competition for land, resulting in rising land values and uncontrolled subdivision of land under market forces. This has led to the creation of uneconomical land parcels that are often unsuitable for either efficient urban development or productive agricultural use.

Continued in-migration from rural areas places additional pressure on urban livelihoods. Limited access to land, coupled with the high cost of housing, food, water, and transport, contributes to the growth of the urban poor. Rental housing is particularly expensive in centres such as Chuka compared to towns like Marimanti. Without effective planning, this may lead to the emergence of informal settlements as residents seek affordable housing and access to basic services. Effective urban land management is therefore essential to facilitate affordable housing provision and improve access to urban services.

The perception of better economic opportunities continues to attract people to urban centres such as Chuka, Chogoria, and Kathwana, accelerating urbanization and stimulating local economic growth. While this supports business expansion and investment, it also increases demand for employment opportunities. Promoting sectors capable of attracting both local and external investment will be critical in generating jobs and supporting sustainable urban development.

Development promotes urbanization. Development control plays a major role in ensuring that the urbanization process continues in a desirable fashion. The CSP shall come up with programmes and projects anchored at promoting sustainable development as is encompassed in SDG 11 on sustainable cities and communities.

8.4 Urbanization

Urban centres are major development nodes and are important for provision of commercial services, industrial development, education, recreation, governance, cultural transformation, as well as service delivery systems. The 2019 census estimated that about 8.3% of the Tharaka Nithi county population live in an urban area compared to approximately 31% nationally, implying low urbanisation in the county. Most of this population is found within the most dominant urban centres in the County such as Chuka, Chogoria, Kathwana and Marimanti.

i. Form and Functional Roles of Urban Centres

Urban forms

Urban form refers to the physical characteristics of an urban centre, including its shape, size, density, land use and configuration of settlements. The location of urban infrastructure, land use patterns, distribution of urban facilities and topography strongly influence urban form. Urban form evolves in response to social, economic, environmental factors as well as planning and land management policies.

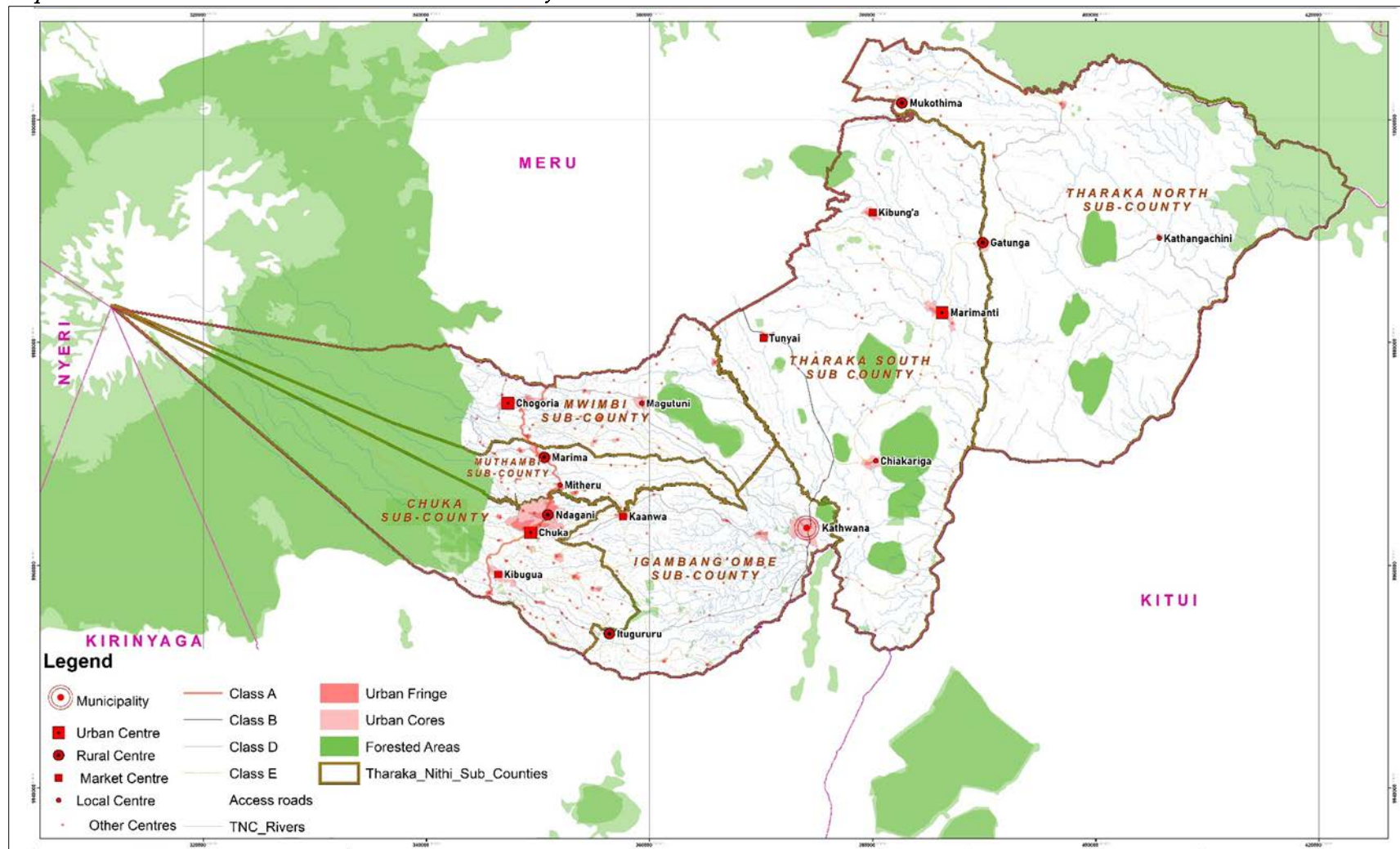
Towns grow due to increase in human settlements, changes in social values and motivations, technologies and improved economic patterns. Different towns have different functions depending on the size, geographic location and the economic activities. These factors give towns their character and functional role. In Tharaka Nithi County the following towns which are representative of the sub counties serve different functions as illustrated in Table 8.1.

Table 8.1: Functional Role of Different Centres per Sub-County to include the other 3 sub-counties and confirm urban centres in each

Name of sub-county	Name of town	Level	Role
Mwimbi	Chogoria Town	Urban Centre	Commerce, Agriculture and Tourism, Administration- Maara Sub County Headquarter
	Magutuni	Local Centre	Agriculture and Transit Market
Muthambi	Marima	Market Centre	Commercial
	Mitheru	Local Centre	Commercial and Dormitory for Chuka Town
Chuka	Chuka Town	Municipality	Main urban centre/ commercial hub and Administration- Chuka Sub County and Municipality Headquarter
	Ndagani	Rural Centre	Educational Hub
	Kibugua	Market Centre	Commercial and Transit Market
Igambang'ombe	Kathwana	Municipality	Administration- County Headquarters and Commercial and livestock trading market.
	Itugururu	Rural Centre	Agriculture and Transit Market
	Kaanwa	Market Centre	Commercial and Transit Market
Tharaka South	Marimanti	Urban Centre	Administration- Tharaka South Sub County Headquarter
	Tunyai	Market Centre	Agriculture and Transit Market
Tharaka North	Gatunga	Rural Centre	Transit Livestock Market Administration- Tharaka North Sub County Headquarters
	Kathangachini	Local Centre	Agriculture and Transit Market
Tharaka West			
Ciakariga	Ciakariga	Local Centre	Institutional and Transit Market
Chuka South			
Mukothima	Mukothima	Rural centre	Agriculture and transit market

Source: UoN-DURP 2024

Map 8.1: Functional Role of Different Centres in the County



Source: UoN-DURP 2024

a) Kathwana

Kathwana Municipality, located in Igambang'ombe Sub-County, serves as the administrative headquarters of Tharaka Nithi County. The town derives its name from the Muthwana tree, which formerly grew near the Maara River. Its development began with the establishment of educational institutions, notably Kajiampau Primary School in the 1950s and Kathwana Primary School in the 1970s. Subsequent development included the establishment of a chief's camp and a periodic market, which contributed to the growth of the settlement. Today, Kathwana is strategically served by a tarmac road branching off the B65 Mati Road, enhancing its accessibility and administrative significance within the County.

Kathwana generally exhibits a planned urban form, with organized development concentrated around the market area, while administrative and civic offices are deliberately located away from the Central Business District (CBD). Residential development is predominantly low-density and occurs on the outskirts of the town. The market, which originated as a small livestock trading centre, remains the focal point of the town and has attracted a range of commercial activities around it. Over time, it has grown into a major economic hub with a wide catchment area and is recognized as one of the largest open-air livestock and grain markets in the region. Agricultural produce traded in the market serves neighbouring counties such as Embu and Meru, as well as larger markets including Nairobi.

Plate 8.1: Urban Form of Kathwana



Source: Google Earth Image, 2024

The planned form of Kathwana, which is guided by policy, facilitates future growth and development. The provision of social and infrastructural services is planned for and development control guidelines are in place. Kathwana is expected to expand westwards towards the location of administration offices. The flat terrain in Kathwana provides a conducive environment to facilitate urban growth and development of the town.

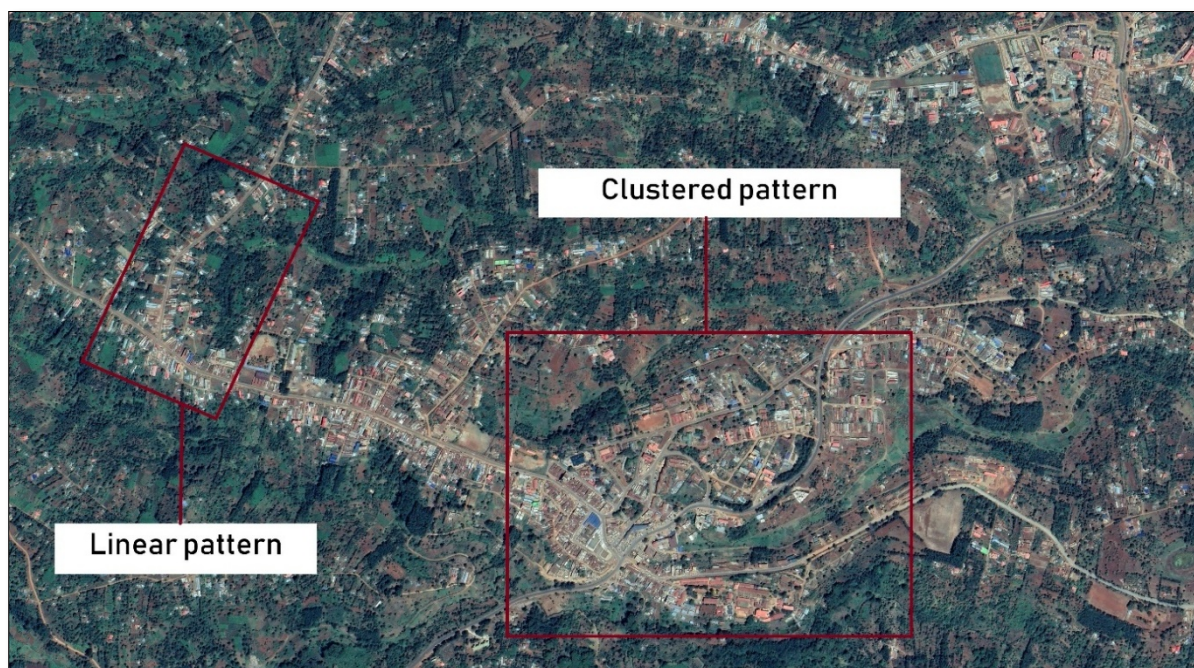
b) Chuka Town

Chuka town which lies along the A9 Embu-Meru highway is the largest urban centre in with a population of 22,388 people (KNBS, 2019). The foundations of the town as an administrative unit can be traced to the colonial times in 1920 when it became the divisional headquarters and by extension, part of the larger Embu District. It was elevated to district headquarters in 1993 after

the creation of the Tharaka Nithi District but however lost the status with the creation of the counties. The growth of Chuka town is attributed to the community effort of setting aside 340 acres as public land for the town development which was known as Kata percent referring to the 5% set aside for public utilities and infrastructure. However, currently a part of the 340 acres has been allotted to individuals. Chuka has favourable climate and fertile soil which is a growth catalyst. Currently, the town is the largest commercial hub hosting some of the tallest buildings and the largest open-air market in the County.

Chuka generally exhibits an organic urban form. The layout is compact with a clustered form around the urban core. Linear forms are dominant along minor roads leading out of the town, such as the road leading to Kiangondu. The town consists of high-density development around the CBD which dominated by modern buildings. There is a busy commercial area in the urban core with shopping facilities and services. Low density development dominates its fringe and is largely residential.

Plate 8.2: Urban Form of Chuka Town



Source: Google Earth Image 2024

High density development around the urban core creates a favourable condition for the provision of infrastructural services. The cost of infrastructural development is highly reduced due to the proximity of developments. Chuka's urban form also creates an advantage in the provision of social facilities owing to the shorter distances to be travelled in accessing these facilities. Dense development, however, has negative implications in the provision of open spaces and recreational facilities.

Chuka has been expanding towards the west over the years. Expansion to the east has been limited by a wetland while to the south, growth and expansion has been restricted by River Naka. The sloping terrain in Chuka town also poses challenges in construction and the overall urban growth and development.

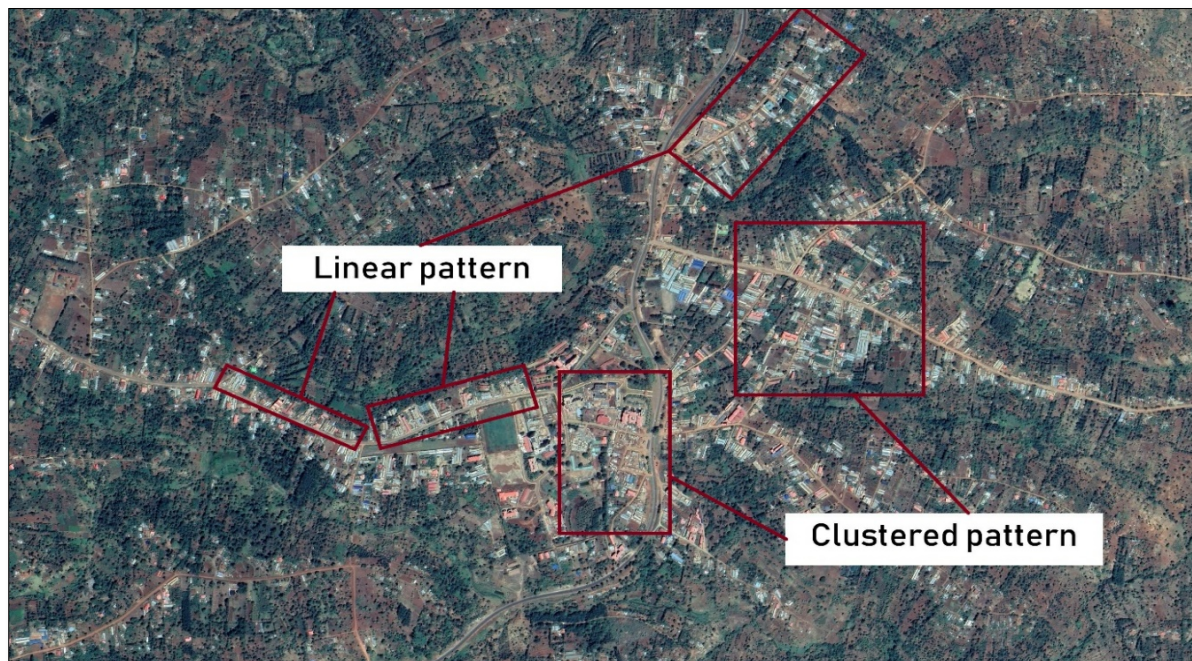
c) Ndagani

Ndagani is a centre within Chuka which attributes its growth to Chuka University. Its journey is believed to have begun in the 1950s when an art centre was established in the village. The centre

aimed at equipping Africans with skills to build modern houses by teaching in masonry and carpentry. In 1956, the art centre was transformed into Chuka polytechnic and in 2004, Chuka University was established having been a constituent College of Egerton University and the successor of the Egerton University Eastern Campus College, Chuka. This was fast-tracked by the donation of 550 acres of land and other facilities essential for current and future expansion of the institution by the local community. Ndagani is now a market centre with an insatiable demand for houses for students and workers. Land values in the area have significantly gone high due to this demand.

The urban form in Ndagani has been shaped mainly by commercial activity and residential development around Chuka University. Generally, Ndagani exhibits an organic urban form. It is a very high-density centre dominated by high-rise buildings and modern flats. Buildings are concentrated in a clustered form around Chuka University while a linear form of development is seen on roads leading out of the centre. Residential development is spread unevenly across the area, with high density flats (including student accommodation) in some parts with heavy vehicular and human traffic. The future growth and development in Ndagani will continue to be influenced by Chuka University. Given the high population catchment, there is limited land resource.

Plate 8.3: Urban Form of Ndagani



Source: Google Earth Image, 2024

d) Chogoria Town

Chogoria Town is in Mwimbi Sub County and is the second largest urban centre in Tharaka Nithi County with a population catchment of 7,603 people. It started as a missionary town with the establishment of the PCEA Chogoria Hospital in 1922. The town which grew organically covers an area of approximately 57km² and has a population of about 3,000 people in the town and 32,778 people in the entire ward. Economic drivers include tourism as the town is the starting point for excursions to Mount Kenya National Park. There are also wholesale and retail trading activities for household goods as well as an open-air market with modern stalls selling farm produce, clothing and shoes. The town is also a major transportation link as it has a busy bus/matatu terminus with matatus serving Meru and Nairobi express routes. Chogoria is also an educational hub with several primary, secondary schools and a tertiary institution within the urban area.

Chogoria town is characterized by medium density development around the CBD which is dominated by modern buildings. There is a commercial area in the urban core which is characterized by low rise development. Layout is compact with a clustered form around the urban core near PCEA Chogoria hospital, and a linear form along Chogoria-Kirurumwe road near the bus terminus and the Chogoria open air market.

Medium density development clustered around the urban core creates a favourable condition for the provision of infrastructural services. Dense development, however, has negative implications in the provision of open spaces and recreational facilities. Linear form near Chogoria open air market also poses a challenge to positive urban growth and development. This is mainly due to encroachment into the road reserve by traders. Chogoria has been expanding northwards along the Chogoria-Kirurumwe road over the years. Future expansion is expected to take the same form since social facilities are located to the south of the Chogoria-Kirurumwe road, hence no space for residential and commercial development.

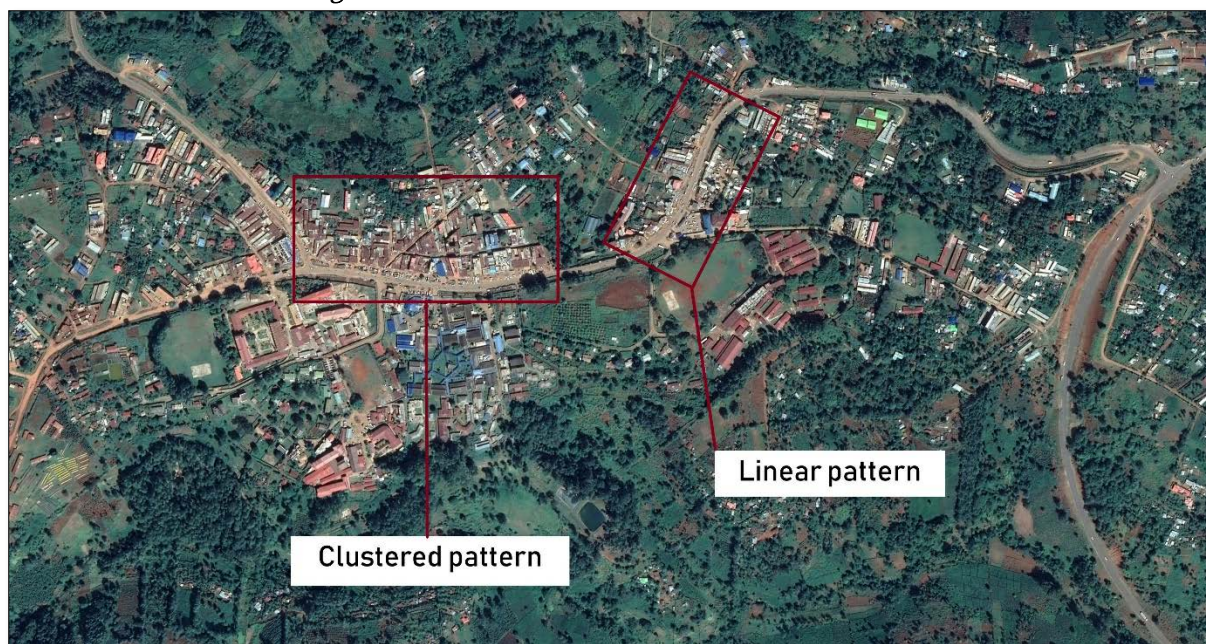
The town is projected to grow to be an agro-industrial town with the establishment of various value addition processing factories for agricultural produce. The Mount Kenya National Park is accessed through Chogoria town provides an opportunity for Chogoria to develop as a resort town. This will see the town grow economically through the influx of tourists who visit the park.

Plate 8.4: A photograph depicting a section of Chogoria Town



Source: Field survey, 2024

Plate 8.5: Urban Form of Chogoria Town



Source: Google Earth Image, 2024

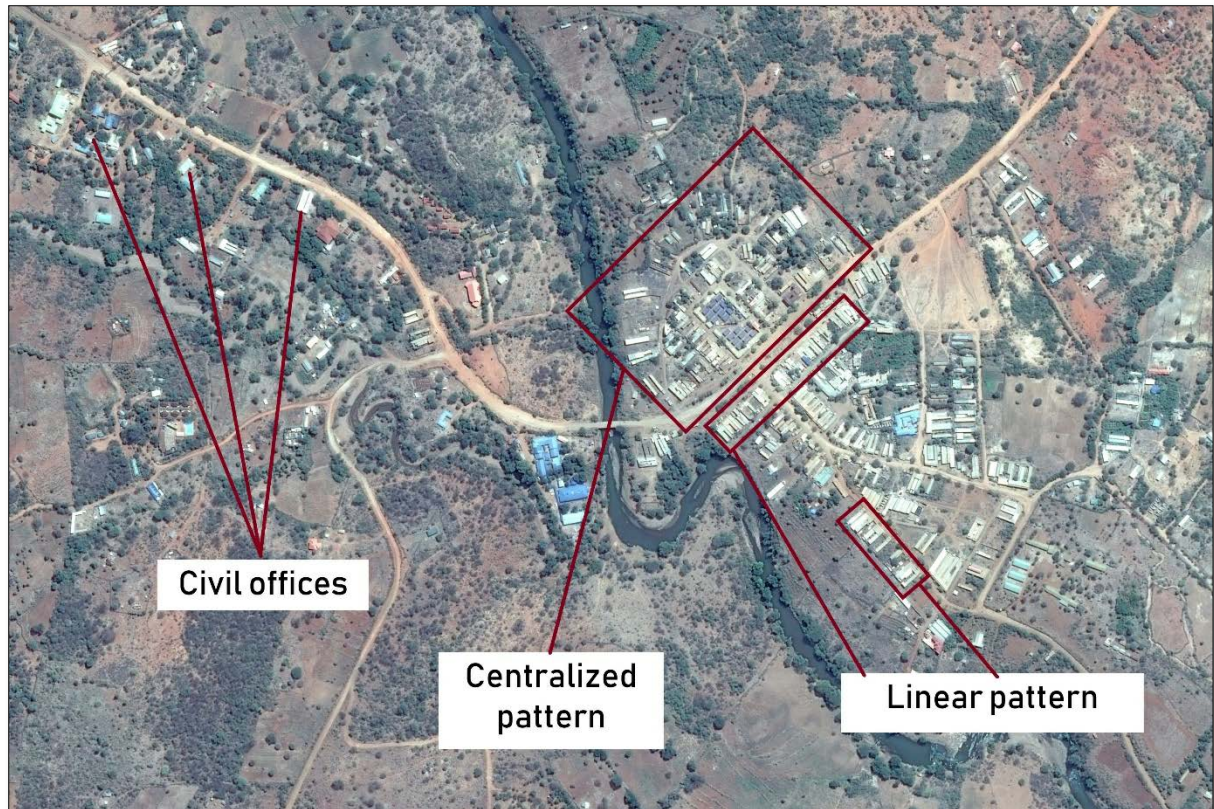
e) Marimanti

Marimanti is a rural urban centre located in Tharaka South Sub-County, with a catchment population of approximately 2,752 people. The town originated as a missionary and judicial centre and later expanded following the establishment of key social facilities, including a hospital and several churches. Its administrative importance has steadily increased over time, evolving from a location headquarters to a divisional headquarters, district headquarters, and currently the administrative centre for Tharaka South Sub-County.

Marimanti exhibits a planned urban form, with organized development concentrated around the market area. The town is characterized by medium-density development, a centralized commercial core around the market, and linear growth along secondary streets. Commercial activities are primarily located within the market area, while administrative and civic offices are situated to the east, away from the commercial zone. Residential development remains predominantly low-density and is concentrated along the urban fringes. The town is served by a tarmac road linking it to Gatunga and other surrounding areas.

Future urban growth is expected to occur around two main development nodes: the market centre and the administrative precinct. These nodes are physically separated by River Kathita, which acts as a natural constraint to continuous urban expansion. Nevertheless, the existing planned urban structure provides a framework for orderly and coordinated growth within both development areas.

Plate 8.6: Urban form of Marimanti



Source: Google Earth Image, 2024

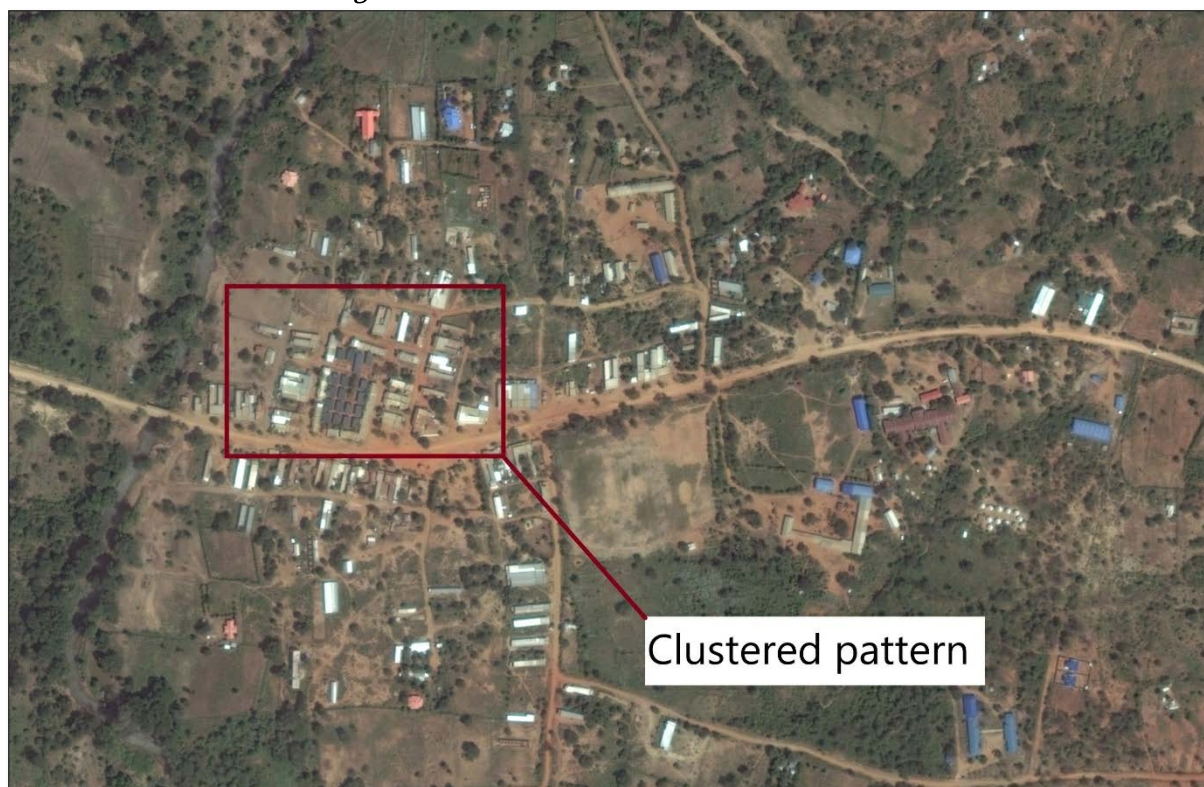
f) Gatunga

Gatunga is a rural centre located in Tharaka North Sub-County which covers an area of approximately 734km². It started in the 1930s with the coming of missionaries who built a Catholic church in the area which led to its growth. The town then grew as a retail centre which started by small kiosks and as time progressed, the land prices increased thereby prompting plotting and subdivision to be done.

Currently the town serves the functional role of a transit market. The economic drivers of the town are retail trading activities as well as the weekly livestock market where the livestock is sold locally in the county and neighbouring County of Kitui. Another economic driver is the establishment of the administrative seat of Tharaka North Sub County in the town. The office serves Gatunga and Mukothima centres. This has attracted population growth in the town.

Generally, the centre exhibits an organic urban form. It is a low-density centre and is characterized by a linear layout along the Marimanti-Gatunga-Kathangachini road and a clustered form around the market. Commercial activity is high around the market while residential areas are located far from the centre. Gatunga is served by a tarmac road that stretches from Marimanti. The organic urban form in Gatunga is likely to lead to future sprawl. The growth and development of this centre need to be more clustered for easy provision of infrastructural services. The expansion of the centre is restricted by River Thanantu located to the west of the centre.

Plate 8.7: Urban Form of Gatunga



Source: Google Earth Image, 2024

g) Marima

Marima town grew due to its strategic location as a middle point between Chuka and Chogoria towns. People living in the area around Marima sought for a place to sell their wares and access basic goods and services and this those with properties adjacent to the then gravel road-built kiosks at the edge of their properties. When the tarmacking of the Nairobi – Meru highway was done in 1985, the land values increased and so were the sales particular along the road. This saw an exponential growth of the town especially the new Marima town due to the availability of land. This growth has also been influenced by location of institutions such as primary and secondary schools, a level four hospital and administrative offices mainly the district officer's office.

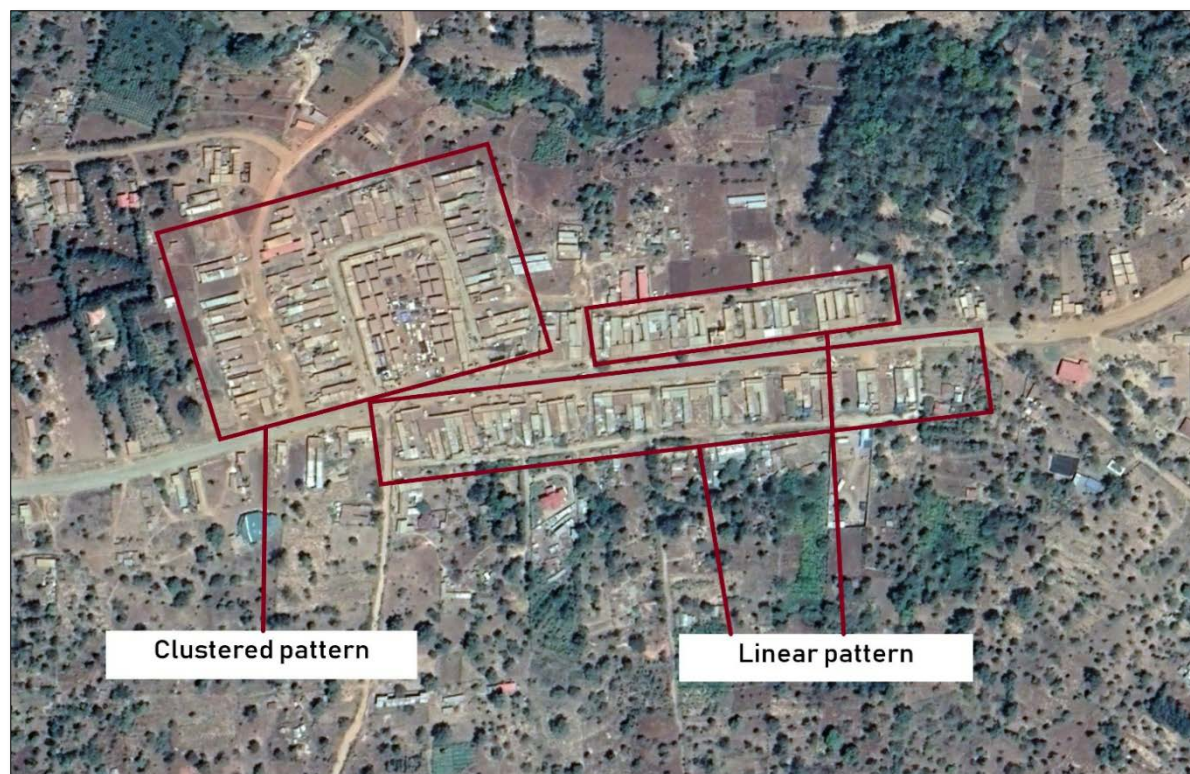
Currently the town is an economic and commercial hub. Electricity and water connections have accelerated the growth of the town and further the appreciation of land values as a plot of 50 X 100 feet is currently going for Ksh 2M. The town is facing challenges such as uncontrolled development and lack of proper solid and liquid waste management which are limiting the growth and development of the town.

h) Kaanwa

Kaanwa is an urban centre located in Igambang'ombe Sub-County. Generally, the centre exhibits a planned urban form. It is a low-density centre characterized by clustered form around the market and linear form along the Kathwana-Kaanwa road. Commercial activity is concentrated around the market while residential areas are located away from the core of the market centre.

The planned urban form in Kaanwa facilitates the regular growth and development in the future. The street layout ensures access to different facilities. Future expansion of the centre is expected to take a regular grid pattern. Provision of social and infrastructural services will therefore be less costly.

Plate 8.8: Urban form of Kaanwa

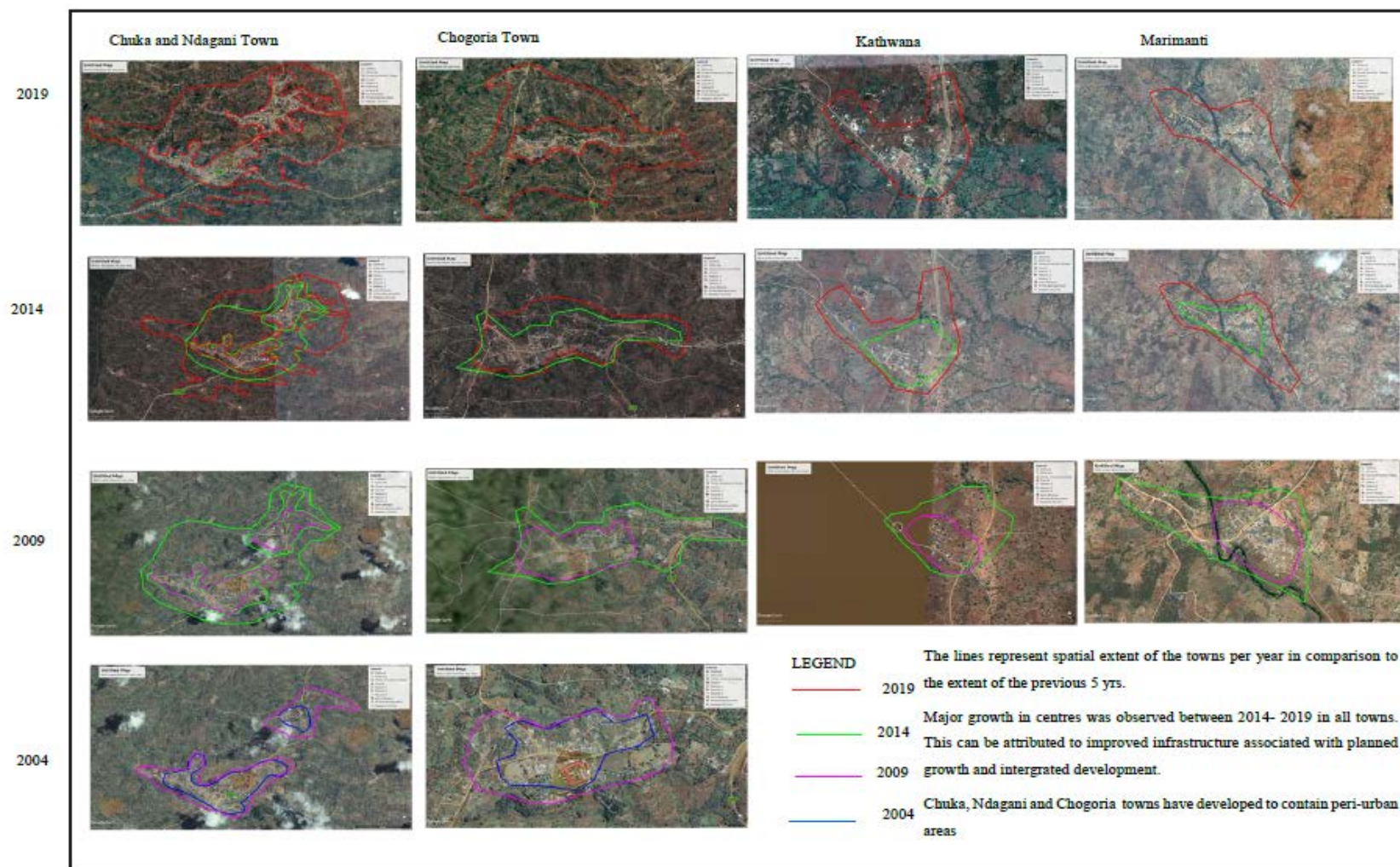


Source: Google Earth Image, 2024

ii. Growth Trends of Major Centres

The growth of different urban centres is heterogeneous in the county. This growth depends on several factors including commercial activity, industrialization, development of transport and communication networks, as well as provision of services. Plate 8.9 shows the growth and extents of the major urban areas in Tharaka Nithi County over time.

Plate 8.9: Growth and Extents of Select Urban Centres in the County



Source: Google Earth Image, 2024

Chuka and Ndagani exhibit the largest growth and expansion of the urban limits which are largely powered by the presence of Chuka University at Ndagani. The growth of Chogoria and Marimanti is mainly attributed to commercial activity while Kathwana's growth is largely because of its administrative functions.

iii. Hierarchy and Categorisation of Urban Centres

a) Classification of urban centres

Classification of urban centres in Kenya is guided by the Urban Areas and Cities Act 2011 where four categories are provided. Among other conditions and prerequisites, the population threshold of each category is provided.

- Cities represent the highest tier of urban organization and are primarily characterized by robust infrastructure and serving as major economic or administrative hubs. The town must have population requirement of at least 500,000 residents and must generate sufficient revenue, have an integrated city development plan, robust disaster management, and functional waste disposal.
- A municipality represents the second tier and is considered for towns with a population of at least between 70,000 and 249,000 residents. The county prides itself of 2 municipalities namely, Kathwana and Chuka.
- Market centres are the smallest formally recognized urban entities. They typically house 2,000 to 10,000 residents and primarily function as localized commercial hubs.
- The status of a town is conferred on urban areas with a population of at least 2,000 residents

Hierarchy of centres is based on the catchment population, basic functions of centres and the level of service provision. This serves as a basis for upgrading of centres, which will commensurately demand for upgrading of infrastructure to serve the residents efficiently.

Urban centres play a major role in economic development of a region. The county has several markets that have been upgraded or which are in the process of being upgraded. Marimanti and Chuka markets are such examples, indicating their economic importance to the residents. More markets should be identified, upgraded, and organised to help boost economic activities. A subsequent improvement of infrastructure to these markets is also necessary to improve their functionality. The recently adopted Kathwana Municipality Urban Development Policy Framework proposed the upgrading of centres to help improve services. Secondary centres include Chiakariga, Kajuki, Mbaria, Kairini while tertiary centres include Kiaritha, Weru, Nkarini and Makutano.

The following matrix shows the level of services for existing centres which provides a basis for creating a hierarchy. From the analysis on **Error! Reference source not found.** the following hierarchy is determined. These are represented spatially in **Error! Reference source not found.**

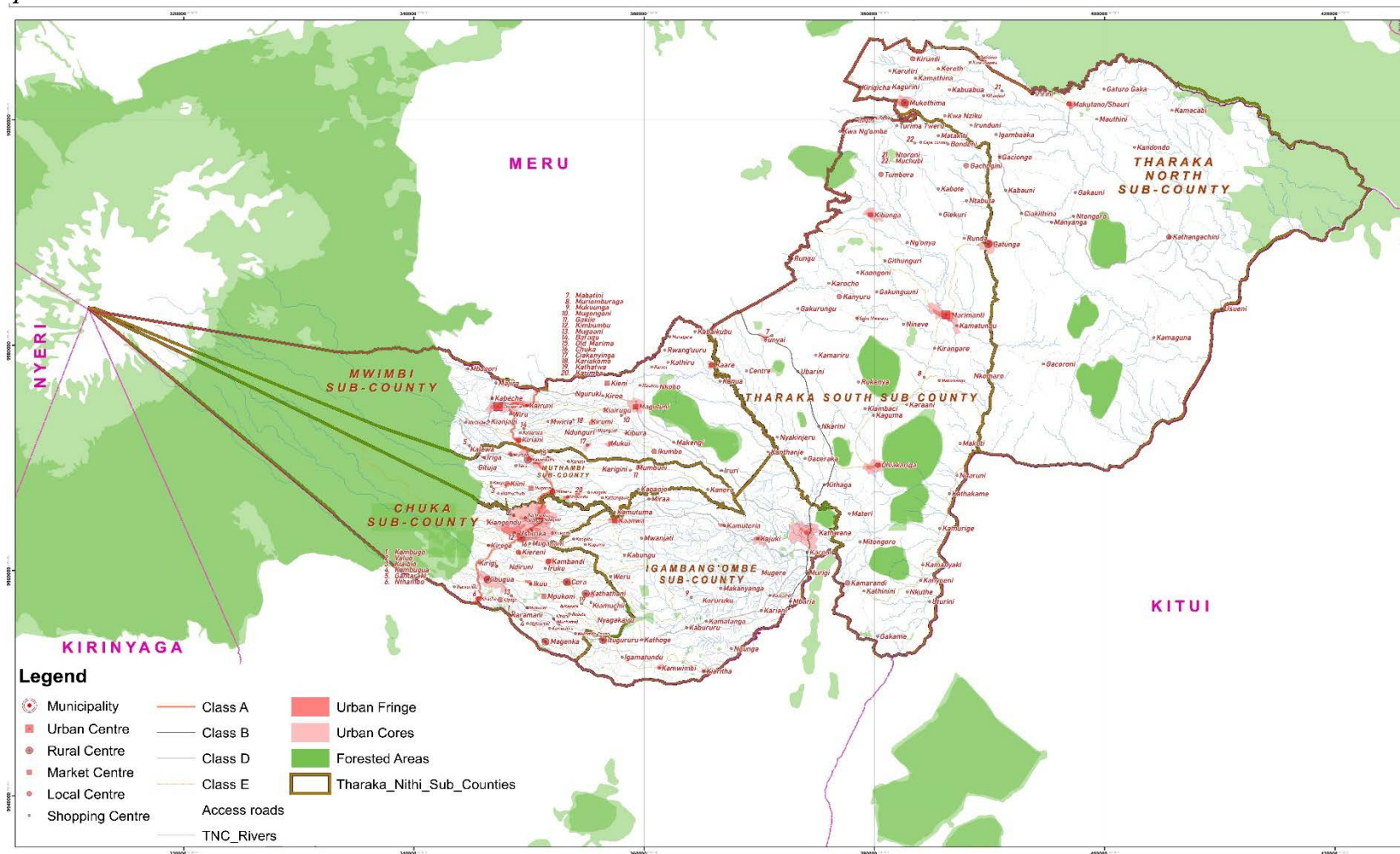
Table 8.2: Hierarchy of Centres

	DESIGNATED SERVICE CENTRES			
Municipality	Urban Centres	Rural Centres	Market Centres	Local Centres

	DESIGNATED SERVICE CENTRES			
Kathwana Chuka	Chogoria Marimanti	Kajianduthi Ndagani Cera Kathathani Kibugua Magenka Itugururu Chiakariga Kibunga Mukothima Gatunga Makutano	Kiriani Kieni Mumbuni Karimba Mukui Mugona Kiini Kaanwa Mpukoni	Ikumbo Kiairugu Kaare Nthambo Kigogo Kamarandi Kanyuru Tumbora Gachogini Kirundi Kathangachini

Source: UoN, 2026

Map 8.2: Centres in TNC



Source: TNCSP, 2020

8.5 Housing

i. Housing Typologies

Tharaka Nithi county is largely rural but with mixed housing typologies ranging from middle income housing and estates Chuka, Ndagani and Marima to low-end residential areas found in Tharaka North and South sub counties with a prevalence of flats and apartments in the former and temporary housing huts in the latter. In rural areas, there is a mix of bungalows and simple housing units that dot the rural landscape. Bungalows are mostly owner-occupied, while apartments are rental houses for transient tenants who commute to work in institutions and administrative establishments.

Housing Demand and Supply

Recently, there is a booming real estate business due to proximity to major transport corridors and elevation of key urban centres to provide administrative functions. Availability of prime land, favourable weather, good road connection and availability of supporting services their influences residential development.

The level of housing in the market centres and the main urban areas has recently improved owing to increased institutional developments, administrative areas and increased level of business. These includes elevation and reclassification of certain towns to provide administrative functions, e.g. municipalities of Kathwana and Chuka and creation of new sub counties. The growth of tertiary institutions namely, Chuka University and Tharaka University, has also contributed to the demand for decent housing to accommodate the high number of students, lecturers and other staff.

ii. Urban and Affordable Housing Projects

To bridge the gap in decent housing, the government has prioritized several key initiatives under the Affordable Housing Programme:

- a) **Boma Yangu Chuka PW Estate:** Located in Chuka Town, this mixed-income development features 316 units ranging from social housing (1 to 3 rooms) to studio apartments and 3-bedroom houses. Tenants can access ownership through the Boma Yangu Rent-to-Own platform, with monthly installments starting as low as KES 6,500. The project is all enhanced with modern amenities including green spaces, children's play areas, and retail facilities. The project exemplifies our commitment to providing dignified housing across income segments while fostering vibrant, well-planned communities. Key public utilities include cabro paved driveways, secured boundary wall, kids' play area and green spaces and attractive landscaping
- b) **Chuka Affordable Housing Project (AHP):** Launched in Chuka, this multi-block housing scheme features 385 units. The development mixes social, affordable, and market-rate units to promote inclusive urban living. The project, launched by H.E. President William Ruto in April 2025, is advancing as part of the broader national plan to expand access to dignified, affordable housing across Kenya. Now at 15% completion, the development features four residential blocks comprising 385 housing units. Two blocks are reserved for housing-market model, while the other two accommodate a mix of affordable and social housing, ensuring a diverse blend of tenants and promoting inclusive urban growth. A second project is also in Marimanti town.

Plate 8.10: The Chuka AHP site



Source: Field Survey

- c) **Institutional and Student Housing. Chuka Technical and Vocational College (TVC):** Expanding education infrastructure has driven a demand for student housing. The State Department for Housing is constructing modern hostels at the college capable of accommodating over 1,800 trainees.

iii. Housing conditions

a) Building Materials

The readily availability of sand, hard-core and other building materials especially in Tharaka and Igambang'ombe areas make the cost of construction relatively low. Most houses in rural areas are mud-walled or wooden with earth or cement floors. In urban centres houses are mainly made of stones with corrugated iron sheets for roofing. Housing conditions are described by the materials used for floors, walls and roofs, as this determines durability and ability to protect the users from vagaries of weather. The housing quality index for Tharaka Nithi is skewed towards inadequacy at 85.8 % against the adequacy of 14.2%.

Table 8.3: Floor and wall building materials

Floor materials		Walling materials	
<i>Materials</i>	<i>%</i>	<i>Materials</i>	<i>%</i>
Earth /sand	47.4	Mud/cow dung	25.8
Wood plangs/timber	0.1	Stone with mud	0.2
Vinyl/asphalt strips	0.2	Covered/uncovered adobe	12.3
Ceramic tiles	10.0	Iron sheets	1.0
Concrete/cement terrazo	42.4	Wood planks/shingles	25.3
		Concrete cement/blocks	6.5
		Stone with lime cement	26.0
Bricks		Bricks	2.9

Source: KNBS, Kenya Housing Survey, 2024

Housing adequacy can also be measured in terms of the location and the general environment in which the dwellings are situated. For instance, dwellings located near hazardous areas present health and well-being challenges.

Table 8.4: Number of dwellings near a hazard

(Potential) hazard	Numbers	
River	688	10.9
Wetland	188	3.0
Swamp	500	7.9
Quarry	2275	36.1
Dumpsite	575	9.1
Factory/Industry	1,193	19.0
Bars and Nightclubs	300	4.8
Worship centres	354	5.6
Busy road	222	3.5
Total	6,295	100.0

Source: KNBS, Kenya Housing Survey, 2024

iv. Informal Settlements

There are two identified informal settlements one at Kathwana and another at Marimanti. Both of these settlements have received support from KISIP 2 funding earmarking planning, surveying and infrastructure improvements. Soweto informal settlement in Marimanti accommodates 2400 people on an area of 20 acres. The settlement in Kathwana is located in the centre of the town.

9 CHAPTER 9: TRANSPORTATION AND INFRASTRUCTURE

9.1 Overview

This chapter examines the key physical and social infrastructure systems, including transport networks and terminal facilities, energy, water, sanitation, health, education, security, recreation, and cemeteries. It focuses on their types, accessibility, connectivity, capacity, and supply. Effective planning of these facilities is essential to the County's social and economic development, as it enhances residents' quality of life and provides a foundation for development strategies, including transportation, other infrastructure, and service delivery interventions.

9.2 Introduction: Trunk infrastructure

Trunk infrastructure refers to primary, high-capacity networks and large-scale facilities that serve multiple developments, entire settlements, or broad catchment areas, and are external to individual developments. It forms the backbone of development by providing essential connectivity for households, businesses, and local utilities. This typically includes major roads and sewer systems, while facilities such as septic tanks and access roads are classified as non-trunk infrastructure.

Tharaka Nithi County has made notable progress in upgrading roads to bitumen standards, although significant gaps remain, particularly in rural areas where access to markets is constrained. The absence of all-weather roads disproportionately affects low-income rural households. The county's rugged topography and interlocking spurs further increase the cost of infrastructure development, particularly road construction. A key example is the Nithi Bridge, which required extensive cut-and-fill works and was previously identified as a high-risk structure. The National Government is currently reconstructing the bridge at an estimated cost of KShs. 7.5 billion with a revised alignment, while the National Land Commission has commenced compensation in accordance with the Land Act No. 6 of 2012.

Water and sanitation infrastructure also require substantial improvement. Most rural households rely on pit latrines, with limited transition to ventilated improved pit latrines (VIPs) or pour-flush systems. This situation is compounded by inadequate access to potable water. Although nine major rivers traverse the county, water supply remains limited and often unaffordable for rural households. Sanitation conditions are further constrained in areas with insufficient water availability. While a sewage treatment plant has been established in Chuka Town, the overall sanitation situation may deteriorate without increased investment and strengthened participatory urban planning.

9.3 Transportation

Transportation is the movement of passengers and goods from points of origin to destination(s). For this to take place, requisite modes, networks, and infrastructures are needed as facilitative installations.

The role of transport in county developments

For a county to develop, there must be strong connectivity between centres of spatial advantage and their hinterlands, enabling all economic sectors to thrive. Efficient, safe, reliable, and comfortable transport supports the separation of workplaces and homes, allowing longer commuting distances, wider job access, and greater choice of residential locations. This influences housing demand, land values, the broader economy, and standards of living.

Transport enhances access to essential services and economic opportunities. Farmers reach markets, learners access schools, entrepreneurs connect with suppliers and clients, and the public accesses administrative and health services. Roads facilitate enterprise development by providing frontage for adjacent land uses and extending economic opportunities that would otherwise be

unavailable. Investment decisions are strongly influenced by transport availability and cost, which directly affect enterprise development and overall economic growth.

Modal choice and developments

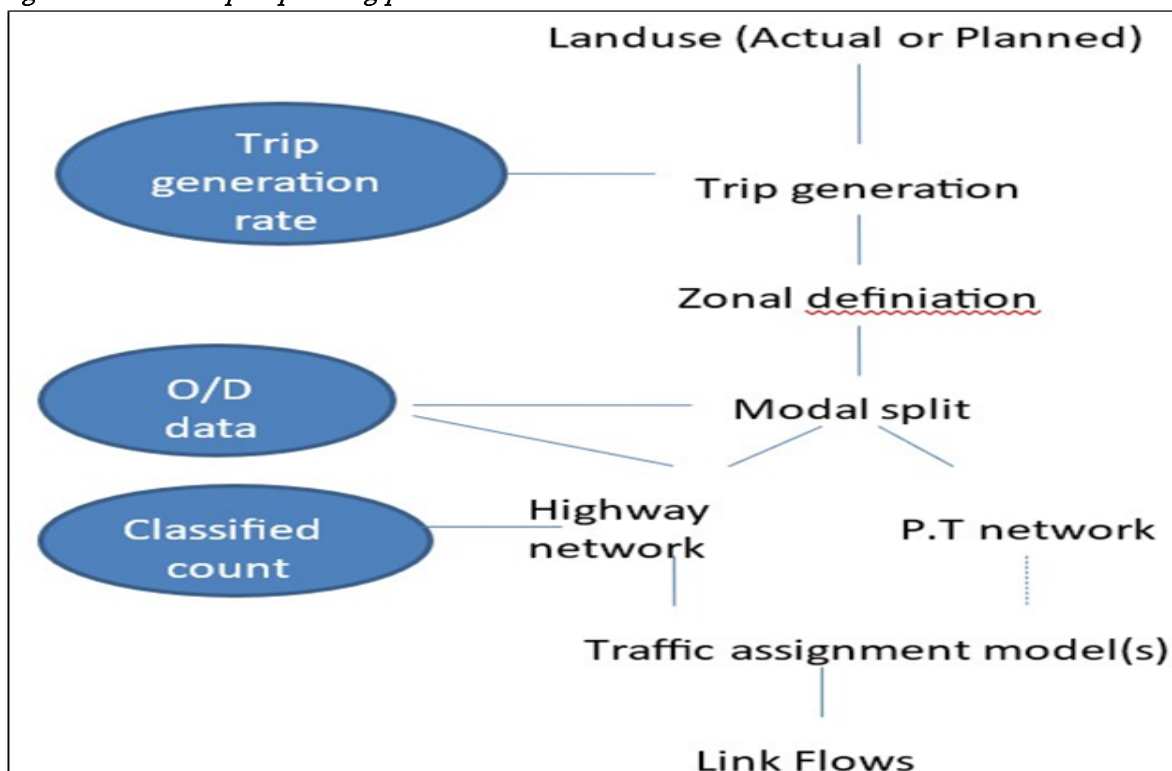
Modal choice depends on the availability of both transport modes and supporting infrastructure, such as roads and bridges. The private car is a major household investment, but its utility is limited where such infrastructure is lacking. The second-tier option is the taxi, though in Tharaka Nithi, these services remain limited despite the emergence of ride-hailing technologies. Motorcycles and matatus dominate, competing for similar users, with time and distance strongly influencing choice.

In the absence of an aerodrome or port, air and water transport remain largely irrelevant. However, there is a proposal to engage the National Government to make the Tana River navigable, which could enable the development of a port along the county's southern fringe.

Mobility vs access

Roads perform two primary but competing functions: mobility between centres and access to adjoining land and properties. Mobility-oriented roads prioritize high-speed, uninterrupted long-distance traffic flow, while access-oriented roads prioritize safe entry to adjacent land uses at lower speeds. Road classification, therefore, requires a critical analysis of transport demand, infrastructure characteristics, network structure, available modes, and intermodal options, including adjacent land uses and key nodes to be connected. Only after a careful assessment of this nature can a road function and class be assigned. The section below outlines the various functions of road classes in Kenya.

Figure 9.1: The transport planning process



Source: UoN-DURP, 2024

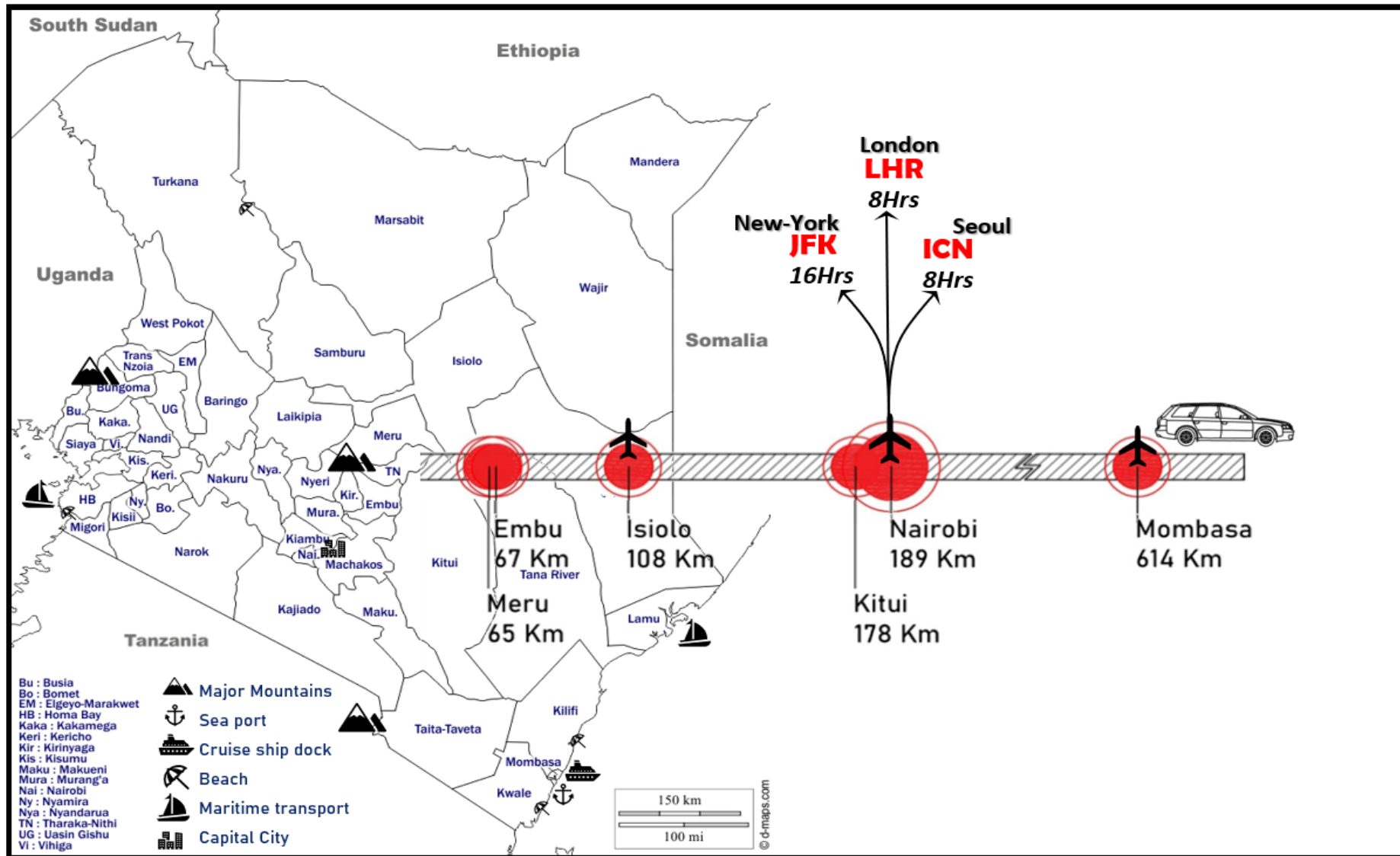
9.4 Modes of Transport

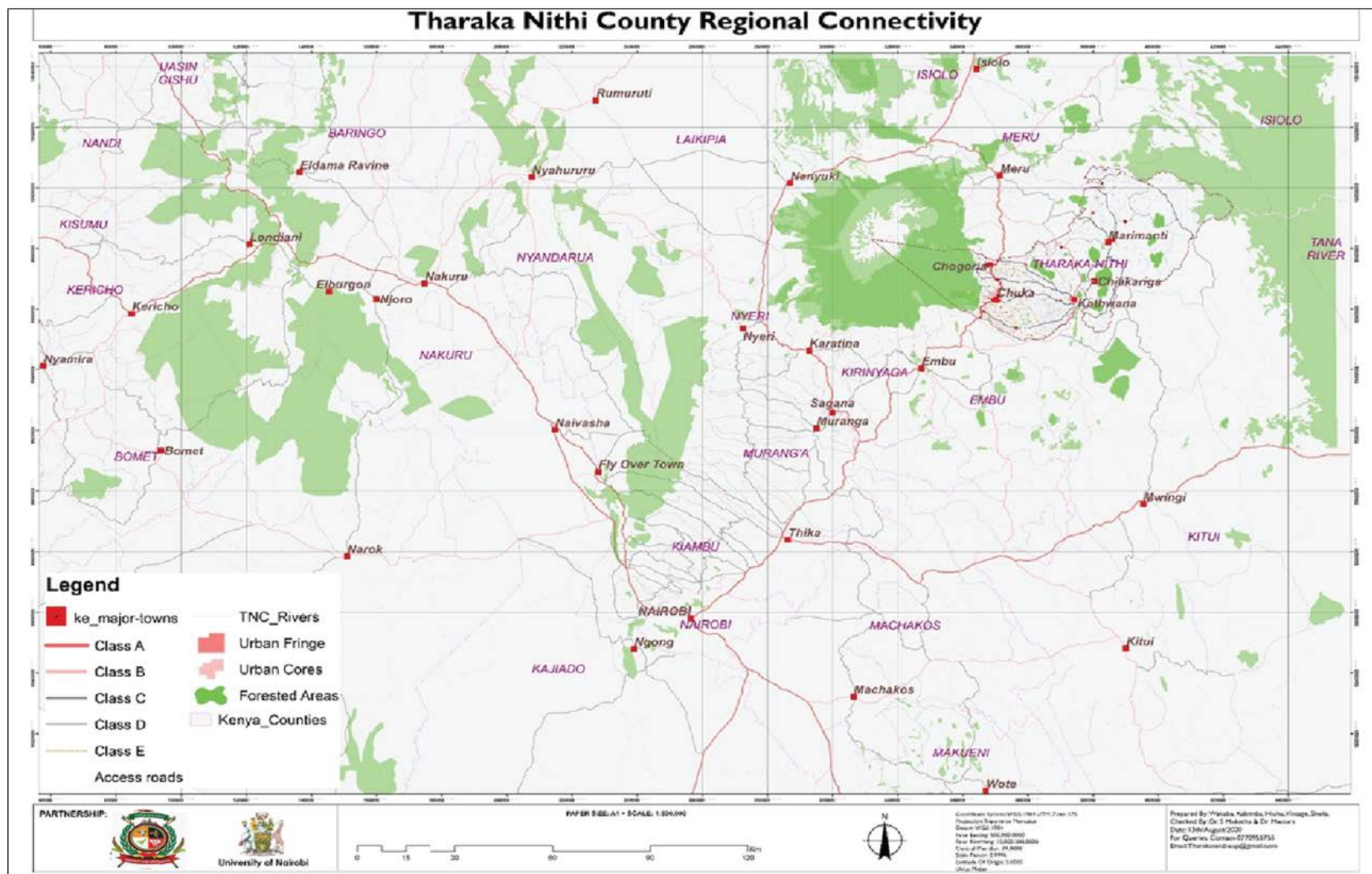
Road Transport

The intra-county transport network is served by a system of secondary, primary, and county roads. To the west, A9 (Embu–Meru Highway) and B65 (Meru–Mitunguu–Kathwana Road) run parallel and are interconnected by four major secondary roads: Kibugua–Itugururu (C381), Chuka–Kathwana (C384), Chogoria–Marima–Makutano (C380), and Keria–Magutuni–Kathwana (C383). In addition, the Chogoria–Kiangua (C362) road links to A9, serving Chogoria, Katheri, and Murunguruni areas, as shown in Map 9.1:Regional Connectivity of Tharaka Nithi County

To the east, connectivity is provided by key routes including Matiri–Chiakariga–Rwakinanga (C385), Nkubu–Mitunguu–Marimanti–Ciambyu (C359), Muogone–Kithigiri (C361), C356, and Micheene–Ruiru–Mikinduri–Usueni–Tseikuru (C356). The C353 connects Marimanti and Chiakariga to Meru National Park and the LAPSSET corridor, while C356 extends from Meru, crosses C353, and continues into Kitui County via Usueni and Tseikuru. Additionally, C361 and C359 link Gatunga Town to B65 and Meru Town, while the Kamarandi–Mwerera Road (C382) connects Kamarandi to Matiri and further to Kitui County.

Map 9.1: Regional Connectivity of Tharaka Nithi County





Source: TNCSP, 2024

Inter and intra County Connectivity

Tharaka Nithi County is strategically connected to the Central Kenya region through a hierarchical road network comprising international trunk, national trunk, primary, and secondary roads, as illustrated in **Error! Reference source not found..** The A9 Meru–Embu Road, classified as an international trunk road, is the County’s principal transport corridor, linking it to Nairobi through Chuka and Marima before terminating at Keria. The road also provides connectivity to the LAPSET Corridor via Isiolo, enhancing regional linkages to Ethiopia and Somalia.

The County is further connected to neighbouring counties through an extensive road network. The B65 Mitunguu–Kathwana–Ishiara–Ena national trunk road links the County headquarters at Kathwana to Embu and Meru counties, strengthening administrative and economic interactions. Additionally, the B64 Ciangera–Katse–Mbondoni–Mwingi–Kabati road branches from the B65, providing an important connection to Kitui County and the A109 Mombasa Road, thereby improving access to national and regional markets.

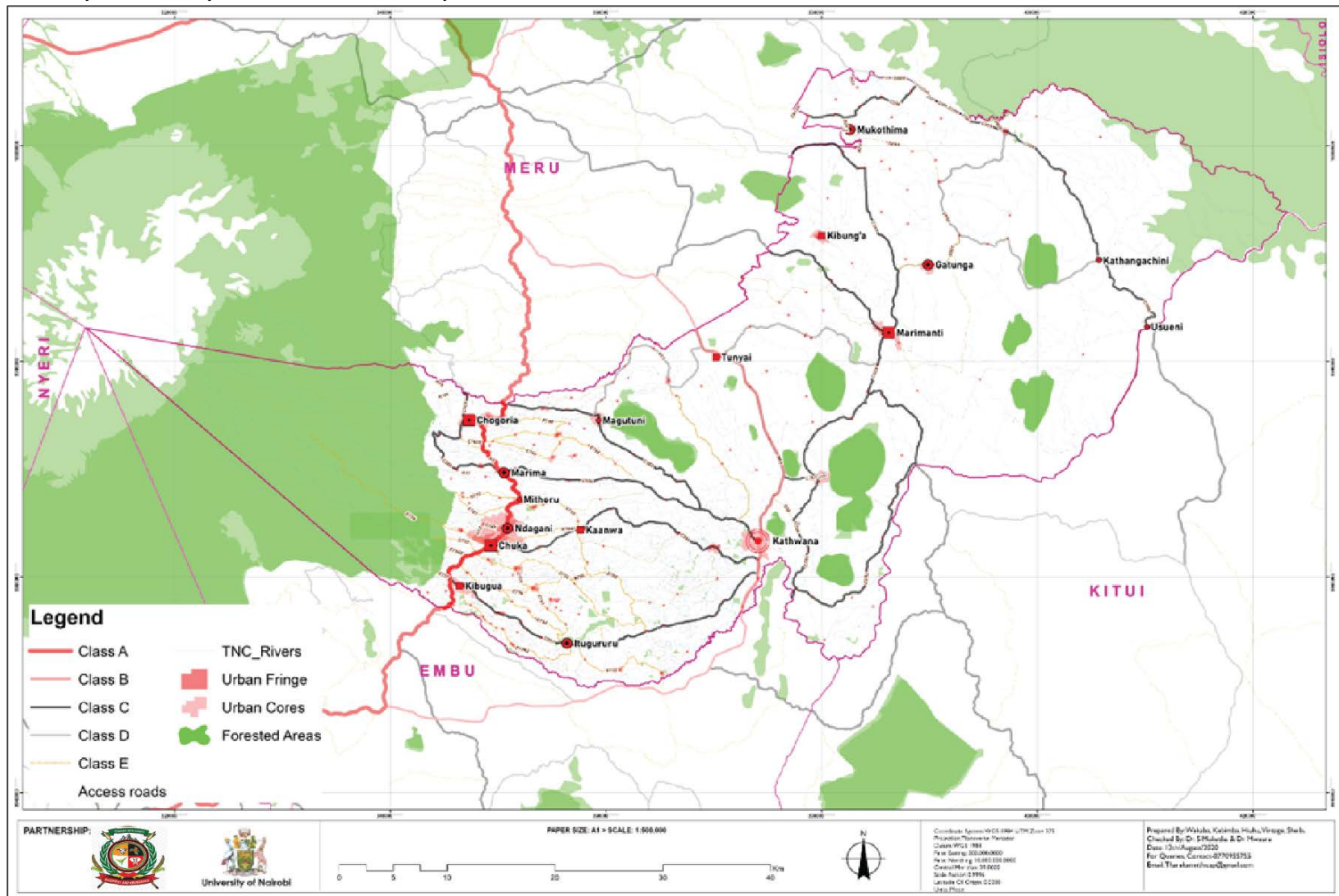
Table 9.1 shows the classification of road networks in Tharaka Nithi County in comparison to the National context.

Table 9.1: Comparison of Road classification between Tharaka Nithi County and Kenya

CLAS S	DESCRIPTION	PURPOSE	KENY A (km)	TNC (km)
A	A9 – Embu – Meru Chuka, Marima, bypasses Chogoria, Keria	Links centres of international importance, cross international boundaries	3618.31	29.2
B	B65 – Meru – Mitunguu – Kathwana B64Ciangera—Katse—Mbondoni— Mwingi—Mbondoni—Kabati	Links the towns of national importance	2681.90	28.9
C	Kithaga-Mitongoro-Kathandeni (C92) Nkubu-mitunguu-Tunyai-Kathwana-Ishiara-Ena(C92) Kibugua - Itugururu (C381), Chuka - Kathwana (C384), Chogoria - Marima - Makutano (C380) Keria - Magutuni - Kathwana (C383). Chogoria - Kiangua (C362) Matiri - Chiakariga - Rwakinanga (C385), Nkubu - Mitunguu - Marimanti - Ciambyu (C359), Muogone - Kithigiri (C361), C356 Micheene - Ruiru - Mikinduri - Usueni - Tseikuru (C356). C353 Marimanti - Chiakariga C382, Kamarandi - Mwerera	Links to provincially important centres	7995.59	320.5
D	Secondary roads	Links to locally important centres	11049.39	62.8
E	Minor roads	Any link to a minor centre	26906.31	203.3

Source: KRB Gazetted Road Classification, 2019

Map 9.2: Intra-County Connectivity in Tharaka Nithi County



Source: UoN, 2024

According to the CIDP 2018–2022, the County has only 61 km of bitumen roads, including the A9 (Embu–Meru Road), B65 (Mati Road), and sections of C385 (Chiakariga–Marimanti), C380 (Chogoria–Maara), and C381 (Kibugua–Itugururu–Mati Road), as shown in **Error! Reference source not found..** The National Government is currently upgrading the Chuka–Karení and Chiakariga–Marimanti–Ura Gate roads to bituminous standards. Gravel roads cover 36.4 km, while the remainder consists of earth surface roads. A detailed inventory of road classification and surface types by KERRA and KURA is provided in the annexes.

Table 9.2: Section of Mati Road (B65)



Source: Field survey, 2019

9.5 Air Transport

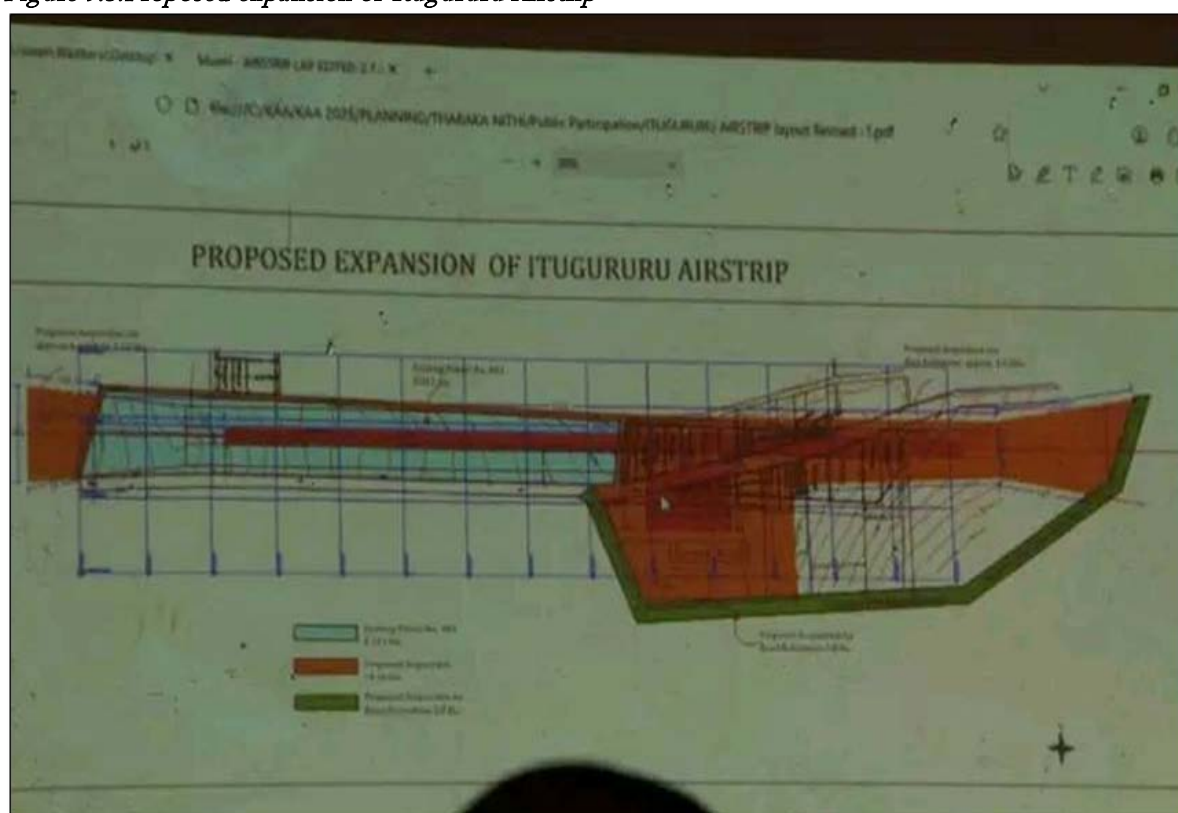
In July 2025, the National Land Commission engaged the Tharaka Nithi community on land acquisition for the Itugururu Airstrip expansion. A Gazette Notice issued on October 10, 2025, contained deletions, corrections, and additions of land parcels required for the project. Affected landowners were identified in February 2025 in accordance with legal provisions governing compulsory acquisition.

Figure 9.2: Kenya Gazette notice for Itugururu

GAZETTE NOTICE NO. 14648		
THE LAND ACT		
(Cap. 280)		
EXPANSION OF ITUGURURU AIRSTRIP		
DELETION, CORRIGENDUM AND ADDENDUM		
IN PURSUANCE of the Land Act, Part VIII and further to Kenya gazette Notice No. 5958 and 12566 of 2024, the National Land Commission, on behalf of Kenya Airports Authority (KAA), gives notice that the Government intends to <i>delete, correct</i> and <i>add</i> the following parcels of land required for expansion of Itugururu Airstrip in Tharaka Nithi County.		
<i>Deletion</i>		
<i>Parcel No.</i>	<i>Registered Owner(s)</i>	<i>Approximate Area (Ha.)</i>
Magumoni/Itugururu/1792	Amos Njage Murungi	2.2560
Magumoni/Itugururu/670	Julius Mate	0.2404
<i>Addendum</i>		
<i>Parcel No.</i>	<i>Registered Owner(s)</i>	<i>Approximate Area (Ha.)</i>
Magumoni/Itugururu/3862	Miriam Cianjoka Njage	0.3054
Magumoni/Itugururu/3863	Miriam Cianjoka Njage	0.3054
Magumoni/Itugururu/3864	Lucy Karimi Njage, Rodah Kageni Njage and Ruth Kanini Njage (To hold in trust of Hadassah Pendo Murungi - Minor	0.3054
Magumoni/Itugururu/3865	Ruth Kanini Njage	0.3054
Magumoni/Itugururu/3866	Lucy Karimi Njage	0.3054
Magumoni/Itugururu/3867	Rodah Kageni Njage	0.3054
Magumoni/Itugururu/221	Nduiga Mbogo	0.0630
Magumoni/Itugururu/169	Nawua Kiragu	0.1560
Magumoni/Itugururu/693	Frankline Ileri Kamwaririe	0.2360

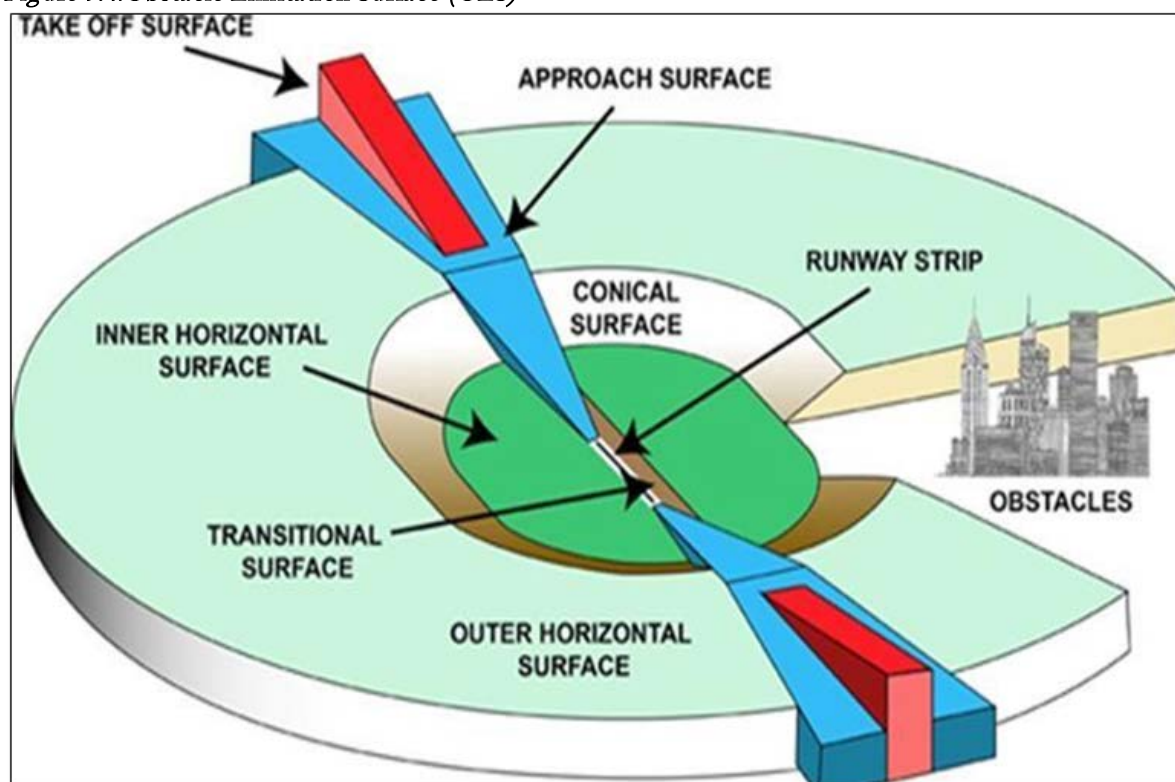
The consultative forum brought together officials from the Kenya Civil Aviation Authority (KCAA), Kenya Airports Authority (KAA), NLC commissioners, and senior leadership of the Tharaka Nithi County Government. It aimed at engaging Project Affected Persons (PAPs) and clarifying the acquisition process.

Figure 9.3: Proposed expansion of Itugururu Airstrip



The project seeks to upgrade the airstrip runway from about 1 kilometer to 1.5 kilometers to accommodate larger aircraft and comply with Kenya Civil Aviation Authority (KCAA) standards.

Figure 9.4: Obstacle Limitation Surface (OLS)



Source: ICAO annex 14

KAA has the ultimate responsibility of controlling obstacles on airport property and arranging the removal or lowering of existing obstacles outside airport boundaries. Development control around the airstrip should be guided by the obstacle limitation surface diagram.

Ongoing road projects in Magumoni and Igambang'ombe wards are expected to enhance transport once completed, alongside the tarmacking of Itugururu Market access roads, which is scheduled for completion by August 2026.

The County currently lacks operational airports or airstrips, including the Kinondoni airstrip at Mount Kenya, which is disused; the Itugururu airstrip in Igambang'ombe Sub-County, which remains undeveloped despite a 700m runway provision and a flight path clearance now used as farmland; and the Ndagani airstrip, where land was set aside in the 1980s but development never materialized. Within the Central Kenya Economic Block (CEKEB), nearby air transport facilities include Nanyuki Airfield Airport (148 km), Isiolo (118 km), Embu (67 km), and Mitunguu (20 km) from the County headquarters.

For future air transport development, the County CIDP (2019) and Municipality of Kathwana UDPF (2018) propose two air transport sites located in Itugururu and Kamarandi.

9.6 Water Transport

River Tana forms a major transport barrier at the border of Kitui and Tharaka Nithi Counties, although historically, both counties have traded in livestock and agricultural goods. Currently, the river has only one bridge crossing at Usueni in the northern areas, while in Kamanyaki, movement of goods, livestock (especially goats), and people is limited to wooden boats with a capacity of about 10 persons. Key challenges include crocodile attacks, capsizing, and flooding, although the river also offers potential for recreational activities such as rafting and canoeing.

The river may also be leveraged as a canal from the Indian Ocean, requiring regulated water flow through structures such as locks and elevators to raise or lower vessels across varying elevations. Weirs and spillways would control water levels and discharge excess flow to maintain safe canal operation. Additional infrastructure would include ports and terminals for loading and unloading cargo and passengers, as well as intermodal hubs linking canal transport with rail and road networks. The system would also require aqueducts and viaducts to allow the canal to cross obstacles such as rivers, valleys, and roadways.

Figure 9.5: Locks and elevators mechanism



Source: Field Survey, 2019

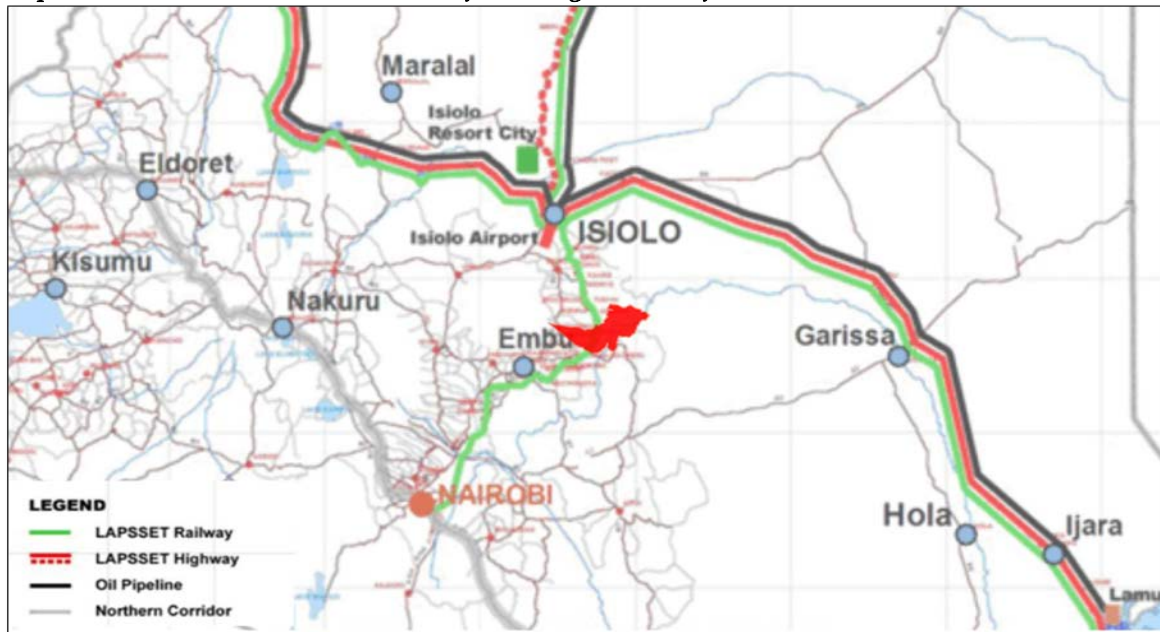
Plate 9.1: Boats Used to Ferry Goods and People across Tana River at the County Border with Kitui County



9.7 Railway Transport

The County does not have a railway line; however, the Nairobi–Nanyuki metre gauge railway is used for limited daily freight and weekend passenger transport. CEKEB is also supporting an additional rail line through Tharaka Nithi and Meru counties to ease passenger and goods movement in the region. The proposed LAPSET link railway would further connect Nairobi to Isiolo via Tharaka Nithi County.

Map 9.3: Isiolo-Nairobi LAPSET Railway Crossing the County

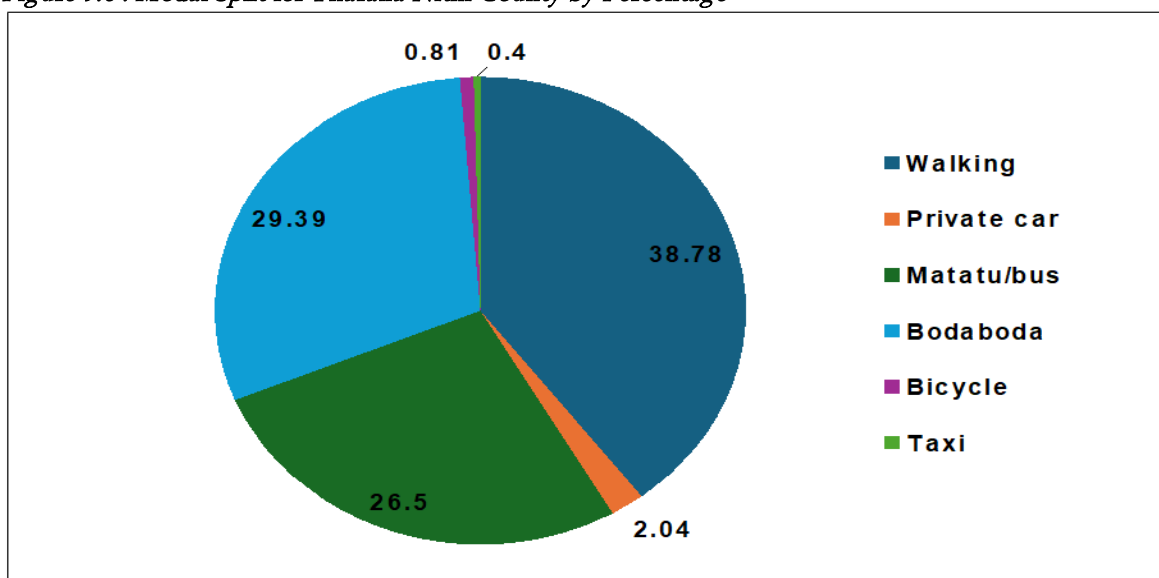


Source: Modified from <http://kenyagreece.com/sites/default/files/lapsset-project-presentation.pdf>. Accessed on 17th October 2020.

9.8 Means of Transit

The various means of transit used in the County are: private car, public matatus or buses, taxi, motorcycles (boda boda), bicycle, walking (pedestrians). **Error! Reference source not found.** shows the modal split in the County.

Figure 9.6: Modal Split for Tharaka Nithi County by Percentage



Source: Field Interviews/Surveys during Visioning, 2019

The most common means of movement in the county is walking at 38.78%, followed by boda boda at 29.39%. This is attributed to the poor road conditions, which increase vehicle wear and tear. In urban areas such as Chuka, Chogoria, and the Municipality of Kathwana, short distances between facilities often do not require vehicular transport. It is envisaged that taxi-hailing companies will reach the required threshold to introduce their services, especially in the major towns of Chuka and Kathwana.

a) Public transport

Public transport refers to low-cost transport options that increase load-carrying capacity beyond head, shoulder, or back loading, and/or increase travel speeds beyond walking, including motorcycles. It provides mobility for individuals who do not own or choose to use private vehicles, including the elderly, persons with disabilities, and those with limited means.

In Tharaka Nithi County, public transport consists of a mix of 14-seater vans (matatus), motorcycles (boda boda), and 7-seater station wagon taxis such as Toyota Sienta and Toyota Probox.

Boda boda are widely used because of their ability to access routes unsuitable for vehicular transport, including farmland and agricultural areas with low passenger demand and poor road conditions. They also provide in-town services and complement matatus and 7-seater taxis for both intra-urban and inter-town movement. The 7-seater taxis mainly operate in dispersed low-density settlements and along feeder roads connecting small centres, villages, and farm gates.

Matatu services in the county are currently operated by local savings and credit cooperative organisations (SACCOs), serving various transport routes.

9.9 Non-Motorized Transport

The availability of viable transport alternatives to cars and motorcycles, such as walking, cycling, and animal-drawn carts, is important for achieving intra-regional connectivity. In rural areas of Tharaka Nithi County, low motor traffic results in minimal road conflict, allowing existing infrastructure to support these alternative modes.

In urban centres such as Chuka town, road designs accommodate these needs through pedestrian walkways, cycling paths, and crossings. For example, KURA has provided approximately 14 kilometres of sidewalks in Chuka town. Within the Central Business District, about 8 kilometres of sidewalks connect Police Road, Chuka Boys, and Consolata Church, while an additional 5.2 kilometers run along the Kiangondu–Forest Road corridor.

Most last-mile connectivity is achieved through walking, underscoring the need for safe pedestrian infrastructure in urban areas, although there is still occasional infringement by vehicular modes.

Plate 9.2: Section of Pedestrian Walkways Integrated with PSV stops in Chuka Town



Source: Field Survey, 2019

9.10 Infrastructure

9.11 Water Infrastructure

Water infrastructure includes clean water supply treatment works and reticulation, wastewater treatment works and sewerage systems, irrigation intakes, dams, and distribution networks. The county has some irrigation schemes, while towns are supplied with water-by-water companies. With emerging municipalities, there is a need to ensure the growing urban population is adequately served with water supply and liquid waste management systems. Efforts are already visible, particularly with the new Chuka wastewater treatment plant, although more work is required to ensure full coverage for urban residents.

Existing irrigation schemes are at different levels of success, with some, such as the Tunyai scheme, having stalled. This plan will identify irrigable land and propose potential water sources for irrigation. Strong community mobilization is required to ensure ownership and sustainability of such projects. Tharaka Nithi is likely to have one of the highest numbers of perennial rivers among counties, and this resource remains underutilized, necessitating better harnessing for the benefit of residents.

a) Water supply and Sanitation

Water is a natural resource with significant potential for societal use, including domestic purposes (cooking, cleaning, and drinking), agricultural use (irrigation), industrial activities, and recreation. Water sources include groundwater, rivers, lakes, and reservoirs. Access is provided through piped water services from relevant authorities or directly from the source, depending on location and service availability.

b) Water Demand and Supply Deficit

The County's water demand is driven by domestic, industrial, institutional, and agricultural needs. The population was projected to reach 409,975 in 2025, 415,735 in 2027, and 425,159 by 2030,

based on an annual growth rate of 0.75%. The population structure is predominantly youthful, with approximately 71% of residents below 24 years of age, a factor that significantly influences current and future water demand.

According to the Ministry of Water and Irrigation Practice Manual for Water Supply Services in Kenya (2005), recommended per capita water demand ranges from 40–60 litres per person per day in rural areas and 75–250 litres per person per day in urban areas. Using these planning standards and projected population figures, water demand estimates were generated for both urban and rural populations across the County’s sub-counties. Table 9.3 presents the estimated water demand by population category and sub-county, providing a basis for planning future water supply infrastructure and service provision.

Table 9.3: Daily Water Supply-Demand Forecast

S No	Sub county	Population		Total (Current)- 2019	Total (Projected)- 2030
		Male	Female		
1	Maara	57,689	57,205	114,894	124,736
3	Chuka	44,923	46,155	91,080	98,882
4	Igambang’ombe	26,464	26,745	53,210	57,768
5	Tharaka North	28,290	30,053	58,345	63,343
6	Tharaka South	36,190	39,058	75,250	81,696
7	Mt Kenya Forest	208	190	398	432
8	Total County Population	193,764	199,406	393,177	426,857

*Source: TNC-WMP, 2019 (*population based on the TNC-WMP 2018 Projection)*

Chuka and Maara sub-counties are classified as high-potential rural areas, while Igambang’ombe is categorized as a medium-potential area and Tharaka North and Tharaka South as low-potential areas. However, the elevation of key centres to municipal status is expected to accelerate the transition from predominantly rural to urban livelihoods, resulting in increased water demand. Rising living standards, urbanization, and expanding economic activities, supported by improved water supply infrastructure, are likely to further drive future demand.

Currently, domestic water consumers are categorized into **Individual Connections (IC)** and **Non-Individual Connections (NIC)** for planning and service provision purposes. This classification provides a basis for estimating current and future domestic water requirements across the County.

According to the Tharaka Nithi County Water Master Plan (TNC-WMP, 2018), current and future water demand projections are based on the guidelines provided in the Ministry of Water and Irrigation Practice Manual (2005). Domestic water demand is calculated by applying the projected population to the proportions of **Individual Connections (IC)** and **Non-Individual Connections (NIC)** and multiplying the resulting figures by the applicable per capita consumption rates.

Using this methodology, the Water Master Plan estimates both current and future water requirements for the County. **Tables 9.4 and 9.5** present the daily water supply and demand situation, as well as the projected annual water demand for Tharaka Nithi County, providing a basis for planning future water supply infrastructure and service delivery

Table 9.4: Daily Water Supply-Demand Forecast

Year	Population*	Water Demand (m ³ /day)
2018	267,439	17,637
2020	277,153	19,357
2025	303,011	22,213
2030	331,232	25,887
2035	425,272	31,808
2040	481,838	35,886

*Source: TNC-WMP, 2019 (*population based on the TNC-WMP 2018 Projections)*

Table 9.5: Total Annual Water Demand Forecast

Year	Water Demand (m ³)
2018	6,521,489
2020	7,194,979
2025	8,626,439
2030	10,226,898
2035	12,647,483
2040	14,367,684

Source: TNC - WMP, 2018

The tables show a steady increase in population, resulting in rising water demand. It is also assumed that increased water supply will improve quality of life and enhance socio-economic development in the County.

c) Water Balance Analysis

The water resources within the county have been compared with present and future demands, and the balance evaluated using the demand formulation above. Future availability will depend on sound catchment management and other environmental factors affecting water quality and quantity. The annual surface water resource is 793.5 MCM, while groundwater resources are 67.6 MCM, giving a total of 861.1 MCM. This indicates that the county has adequate water resources to meet demand, with a substantial surplus.

a) UNICEF Water Supply Standards

The quantity of water required for drinking, hygiene, and domestic use varies depending on several factors, including pre-crisis consumption levels, cultural habits, and the design of excreta containment systems. According to UNICEF, a minimum of 15 litres per person per day is the established practice in humanitarian response scenarios. This standard is not a “maximum” and may not be suitable for all contexts. For instance:

- Acute Crisis Situations: In the acute phase of a drought, a temporary provision of 7.5 litres per person per day may be necessary to meet immediate needs.
- Urban Middle-Income Contexts: According to WHO, between 50 and 100 litres of water per person per day are needed to ensure that most basic needs are met and few health concerns arise.

These standards are outlined in UNICEF’s Water, Sanitation, and Hygiene (WASH) guidelines and are crucial for planning and implementing water supply systems in Tharaka County. Meeting these standards will ensure that the population’s water needs are adequately addressed, contributing to improved health outcomes and quality of life.

e) Surface water availability

Tharaka Nithi County is well endowed with both surface and groundwater resources, largely sustained by numerous rivers originating from the Mount Kenya Forest ecosystem. These water resources constitute a critical asset for domestic consumption, agriculture, industry, environmental conservation, and socio-economic development across the County.

For planning and water resource management purposes, the County's water resources have been assessed and classified according to the major river drainage catchments, namely 4FA, 4FB, 4EA, and 4EB. This classification provides a framework for understanding the spatial distribution, availability, and management of water resources within the County.

Map 9.4 illustrates the County's river network, associated watersheds, and the distribution of river gauging stations used for hydrological monitoring and water resource assessment. The map provides an overview of the drainage systems that support water supply and ecosystem functions across Tharaka Nithi County.

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The mean annual rainfall varies across the drainage catchments of Tharaka Nithi County, reflecting differences in topography, altitude, and climatic conditions. These variations influence water availability, agricultural productivity, ecosystem health, and the overall distribution of water resources within the County.

Table 9.6 presents the mean annual rainfall (mm) for each of the drainage areas in Tharaka Nithi County, providing an indication of the spatial variability of rainfall and its implications for water resource planning and management.

Table 9.6: Mean annual rainfall (mm) for each of the drainage areas in Tharaka Nithi County

Sub-Drainage Area	Area (km ²)	Mean Annual Rainfall (mm)
4EA	765	857
4EB	1,169	1,048
4FA	2,187	829
4FB	3,999	650

Variations in rainfall across the County's drainage catchments directly influence river flows and water availability within the respective basins. To assess the hydrological potential of these catchments, naturalized river discharge estimates were computed, representing river flows under natural conditions without significant human abstractions or flow modifications.

Table 9.7 presents the average monthly naturalized river discharge for each sub-basin, providing an indication of the spatial and seasonal distribution of surface water resources within Tharaka Nithi County. This information is essential for water resource planning, allocation, and the sustainable management of the County's river systems

Table 9.7: Average monthly naturalized river discharge for each sub-basin in Tharaka Nithi County

Month	(m ³ /s)			
	4FA	4FB	4EA	4EB
Jan	58.1	35	29.4	36.2
Feb	24	13.6	15.2	19.8
Mar	19.6	5.8	15.3	21.2
Apr	71.6	28.1	51.6	70.3
May	103.2	62.9	58.4	82.8
Jun	22.8	14.2	15.4	22.1
Jul	14	6.2	11.6	15.6
Aug	12.6	4.4	10.9	15.1
Sep	11.5	4	10.3	14.2
Oct	28	4	20.9	30.6
Nov	144	91	84.4	106

Month	(m3/s)			
Dec	112.5	79.1	54.1	64.6
Total	621.9	348.3	377.5	498.5

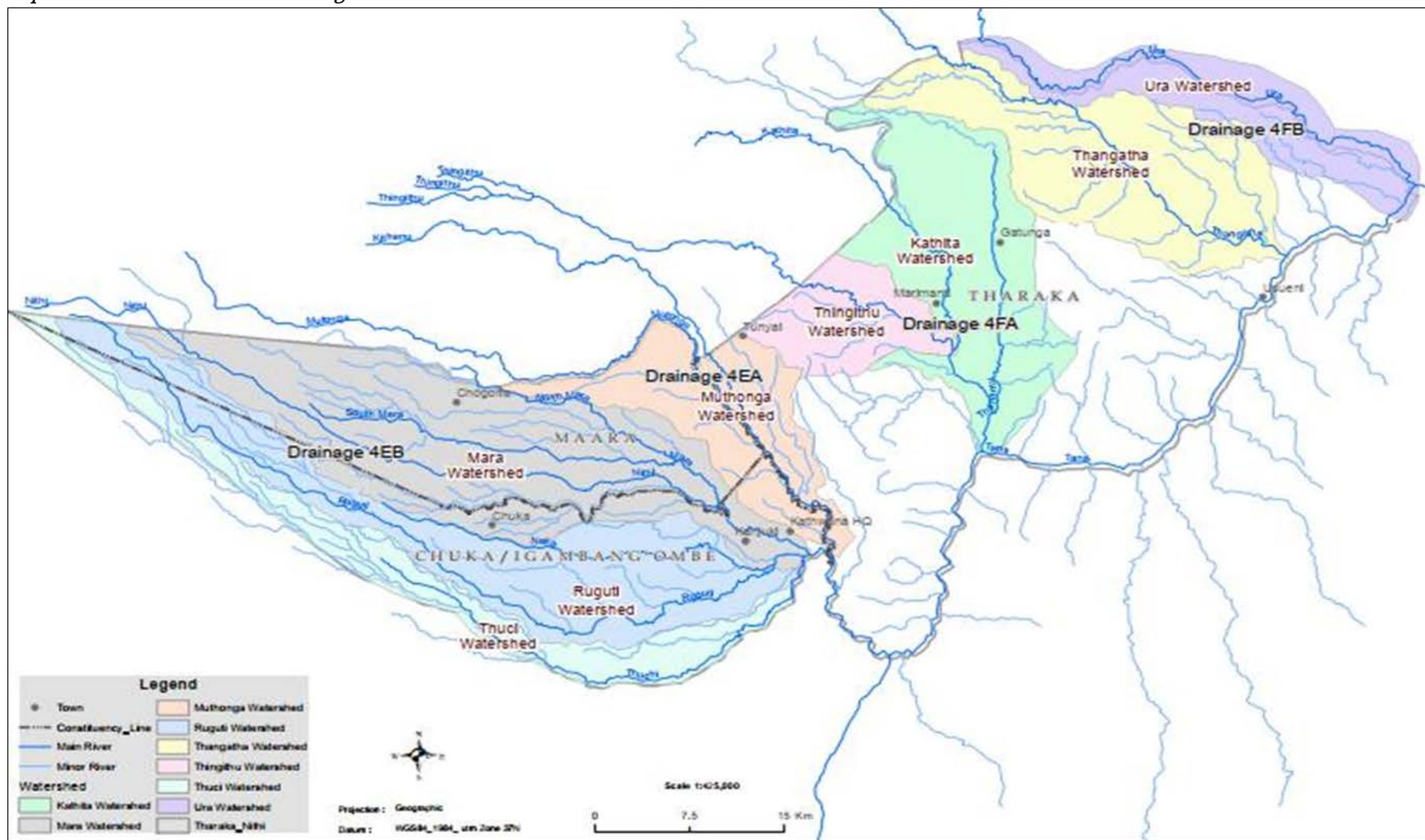
Although **Drainage Area 4FB** covers the largest geographical area within the County, it records the lowest river discharges. This is primarily due to its relatively drier climatic conditions and the fact that it is predominantly drained by the Nyambene Hills catchment. In contrast, the other drainage areas derive their flows from Mount Kenya or from both Mount Kenya and Nyambene Hills water towers, resulting in significantly higher river discharges and greater surface water availability.

Table 9.8 presents the estimated surface water resources by watershed and river system across the various sub-counties of Tharaka Nithi County. The table provides an overview of the spatial distribution of surface water resources and their contribution to water supply within the County

Table 9.8: Estimated surface water resources by watershed and river system across the various sub-counties of Tharaka Nithi County

Catchment area	Area km2	Rivers (Drainage basin)	Q(MCM/Yr)
Chuka	138.8	<i>Ruguti 4EB06A</i> <i>Tungu4EB09</i> <i>Thuci4EB04</i>	84
Maara	265.1	<i>Tungu4EB09</i> <i>Nithi4EB01</i> <i>South maara4EB15</i> <i>North maara4EB16</i>	112.3
Igambang'ombe	324.6	<i>Thuci4EB07</i> <i>Mutonga4EA06</i> <i>Maara4EB13</i>	215.4
Tharaka South	637.0	<i>Mutonga4EA06</i> <i>Thingithu4F11</i> <i>Kathita4F31</i>	142.15
Tharaka North	838.8	<i>Thanantui4F12</i> <i>Thangatha4F27</i> <i>Ura4F09</i>	60.41
Totals		616.26	

Map 9.5:Tharaka Nithi Rivers Drainage Area



Source: Tharaka Nithi County Water Master Plan (2018- 2040)

Table 9.9: Rivers and their characteristics

No.	River	River Gauging station (RGS)	Flow@Q10 exceedance	length	catchment	Catchment in TNC
1	Mutonga	4EA06/4EA07	5.6 m ³ /s(Nov)	102km	2864km ²	221km ² (32%)
2	URA	4F09	5.5m ³ /s	70km	486km ²	88km ² (18%)
3	Thangatha	--	5.24 m ³ /s	53km	463km ²	309km ² (67%)
4	Thingithu	4F17	3.72m ³ /s	66km	329km ²	123km ² (37%)
5	Kathita	4F19&F31	15.67m ³ /s	93km	1384km ²	376km ² (27%)
6	Thuci	4EB07	3.58m ³ /s	45km	316km ²	155km ² (49%)
7	Ruguti	4EB06	7.46m ³ /s	74km	659km ²	494km ² (75%)
8	Maara	4EB11	13.55m ³ /s	76km	1197km ²	958km ² (80%)

Tharaka Nithi County lies within the River Tana Catchment, one of Kenya's most important water catchment systems. The County is traversed by nine major rivers, namely Tana, Kathita, Ura, Thangathi, Muthonga, Thingithu, Maara, Thuci, and Ruguti, with River Tana being the largest and longest river, originating from the Mount Kenya ecosystem. Water resource assessments were undertaken using secondary data from the National Water Master Plan (NWMP) 2030.

The wider Tana Catchment covers approximately 95,884 km², representing about 76.1% of the basin area, while Tharaka Nithi County occupies 2,662 km², equivalent to approximately 2.7% of the catchment. For water resource planning purposes, the County's hydrological assessment is categorized into the drainage areas 4FA, 4FB, 4EA, and 4EB, which extend beyond the County's administrative boundaries.

Available surface water resources were estimated based on the proportion of the drainage catchments falling within the County. The assessment indicates that Tharaka Nithi County has an estimated annual available surface water resource of 793.3 million cubic metres (MCM). Table 9.10 presents the distribution of available surface water resources across the respective drainage areas and river systems within the County.

Table 9.10: Available surface water resources drainage catchments within the County

Month	Mean water volume (MCM/month)
Jan	64.4
Feb	31.4
Mar	29.5
Apr	102
May	131.4
Jun	33
Jul	22
Aug	20.6
Sep	19.4
Oct	41.4
Nov	177
Dec	121.4
Total	793.3

Source Tharaka Nithi County Water Master Plan (2018- 2040)

The county falls roughly into two hydrogeological zones, consisting of the Volcanic and Pre-Cenozoic zone in the upper region and the Metamorphic and Intrusive zone for the lower altitude regions.

f) Ground water Availability

Tharaka Nithi County falls within two broad hydrogeological zones. The upper highland areas are characterized by the Volcanic and Pre-Cenozoic formations, while the lower-altitude areas are predominantly underlain by Metamorphic and Intrusive rock formations. These geological characteristics influence groundwater occurrence, storage potential, recharge rates, and overall groundwater availability across the County.

According to the Tharaka Nithi County Water Master Plan (2018–2040), the estimated annual sustainable groundwater yield has been assessed for the various drainage areas within the County. The assessment indicates a total annual groundwater yield of 67.6 million cubic metres (MCM), highlighting the important role of groundwater resources in supplementing surface water supplies for domestic, agricultural, industrial, and other socio-economic uses.

Table 9.11 presents the estimated annual sustainable groundwater yield by drainage area within Tharaka Nithi County

Table 9.11: Annual sustainable groundwater yield within the county

Drainage Area	Drainage Area Yield (MCM)	County Yield (MCM)
4FA	77.8	26.5
4FB	118.2	21.9
4EA	11.3	3.3
4EB	19.6	16.1
Total	226.9	67.6

Source: NWMP Vol V – Sectoral Report 2/3 pp G-T-26

According to the Tharaka Nithi County Water Master Plan (2018–2040), the County has 265 operational boreholes and wells, while 103 water points are non-operational. These comprise 150 boreholes, 207 shallow wells, and 15 dry wells. Most of these water sources have been developed through private investments and support from non-governmental organizations operating within the County.

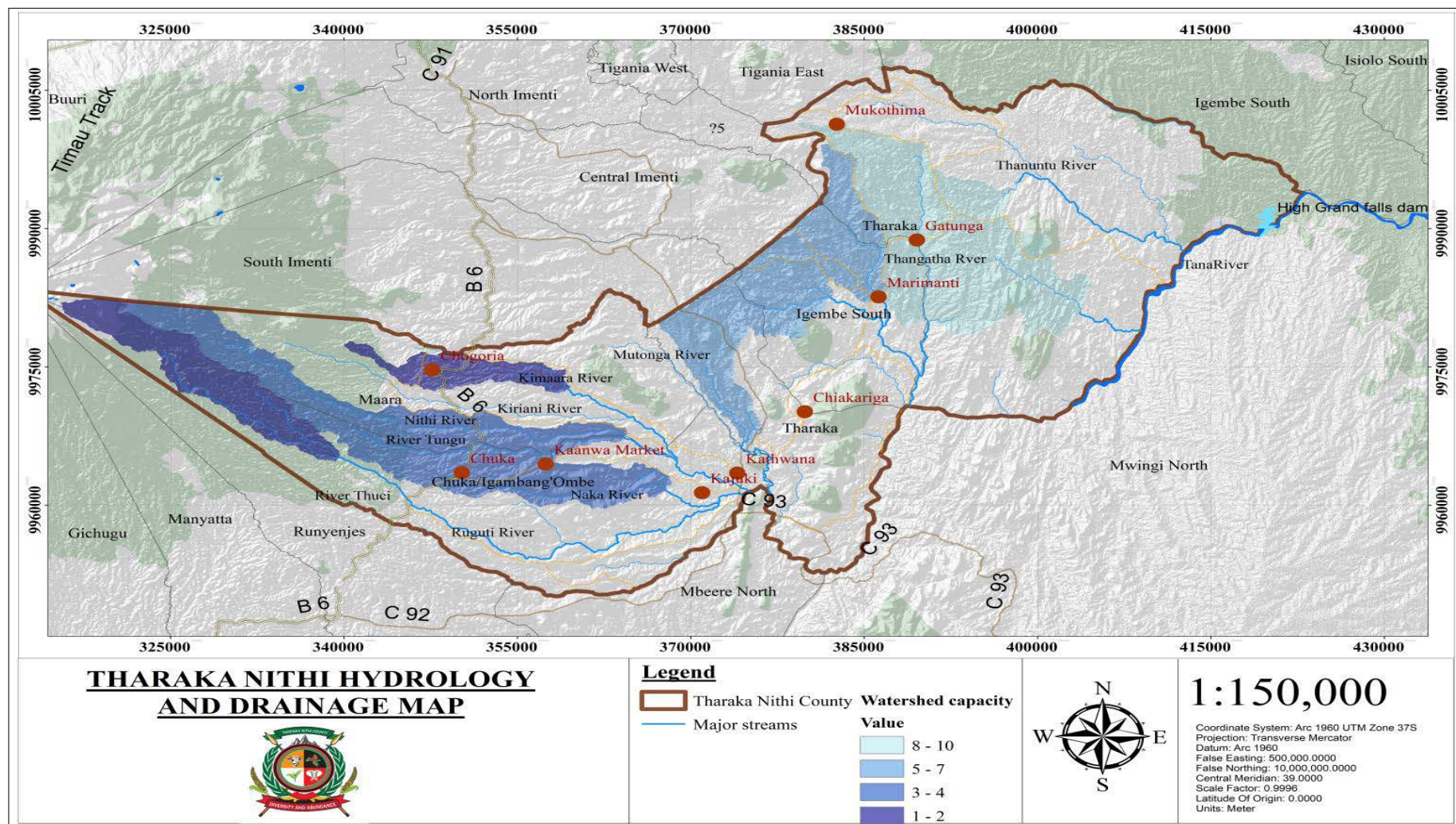
To enhance access to safe and reliable water supplies, development partners such as USAID have supported the installation of submersible and solar-powered pumping systems, particularly in Tharaka Constituency, thereby improving water accessibility in water-scarce areas. Chiakariga and Marimanti Wards have the highest concentration of boreholes and wells, reflecting the greater reliance on groundwater resources in these areas.

Groundwater remains an important supplementary water source for domestic and productive uses across the County. However, the total discharge and abstraction capacity of the existing boreholes and wells has not been comprehensively determined, highlighting the need for detailed groundwater assessments to support sustainable water resource planning and management.

Groundwater quality in Tharaka Nithi County varies, with many shallow wells and boreholes experiencing contamination. Key water quality issues include high fluoride levels (often exceeding KEBS/WHO standards), localized bacteriological contamination (like *E. coli*), and high turbidity. Proper treatment and testing are strongly advised before consumption (Mutemi et al, 2025). The bacteriological contamination studies on boreholes in Maara, Igamba Ngombe, and Tharaka Constituencies show high levels of total coliforms and *E. coli*. Fluoride concentrations are higher

in the drier parts of the region. The physicochemical parameters of shallow wells and springs frequently experience elevated turbidity and fluctuating nitrates, often influenced by seasonal rains and localized agricultural activities (Kiambi et al., 2024). Dry season extraction often yields elevated fluoride levels exceeding World Health Organization (WHO) limits of 1.5 mg/l, with shallow wells and boreholes frequently characterised by high turbidity and pathogenic contamination, primarily from surface runoff and proximity to pit latrines (Kanyaru, 2012; Mutemi et al, 2025). The poor groundwater quality in the county necessitates routine water treatment before domestic use.

Map 9.6 presents the distribution and operational status of boreholes and wells within Tharaka Nithi County.



Map 9.6: Hydrology of Tharaka Nithi County

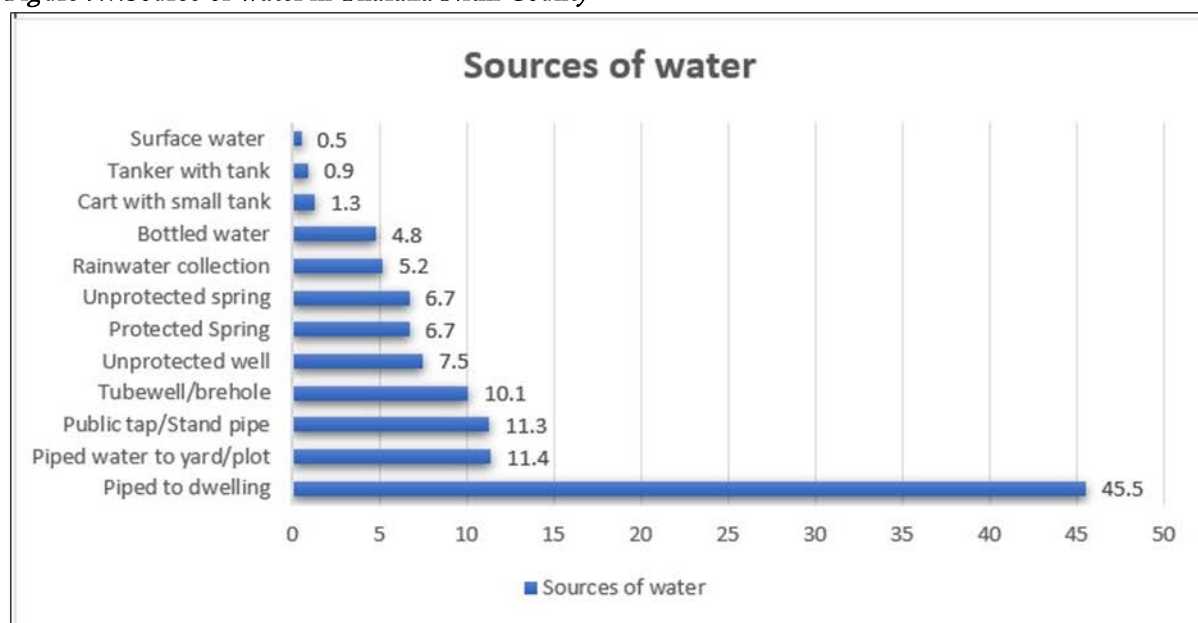
Source: UoN-DURP, 2024

According to the 2019 Kenya Population and Housing Census (KNBS, 2019), approximately 74.7% of the population in Tharaka Nithi County accesses water from improved sources, including piped water systems within dwellings, yard connections, public standpipes, and protected springs. This reflects a gradual improvement in access to safe water compared to earlier assessments. The 2016 Integrated Smart Survey reported that 71% of residents obtained water from similar improved sources, including boreholes, protected springs, and wells, while the County Integrated Development Plan (CIDP, 2018) recorded a coverage level of 70%.

Despite these gains, a significant proportion of the population continues to rely on alternative water sources. These include both protected and unprotected sources such as rainwater harvesting systems, unprotected wells, and unprotected springs, which are often less reliable and may pose public health risks. The continued dependence on such sources highlights the need for further investments in water infrastructure to improve access to safe, reliable, and sustainable water supplies across the County.

Figure 9.7 illustrates the distribution of household water sources in Tharaka Nithi County, highlighting the relative contribution of improved and unimproved water sources to the County's overall water supply.

Figure 9.7: Source of Water in Tharaka Nithi County



Source Adopted from CGTN& KRCS CHS survey, 2018

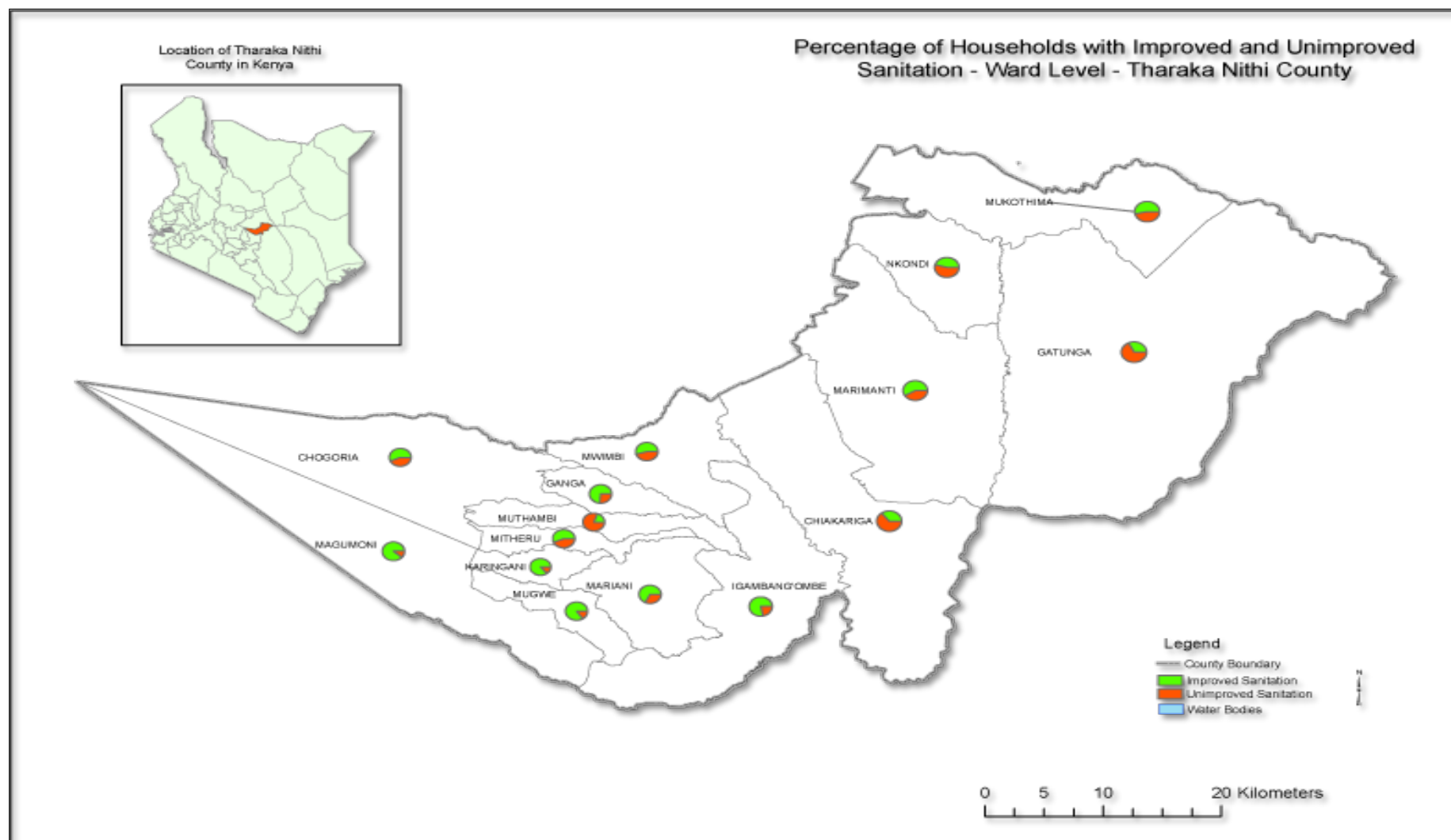
According to the Tharaka Nithi County Integrated Development Plan (CIDP, 2018), access to water remains a challenge in several parts of the County. More than 50% of the population spends between 15 minutes and one hour accessing water from various sources, particularly in Maara Sub-County and the upper parts of Chuka and Igambang'ombe Sub-Counties. In addition, over 23% of residents spend more than one hour collecting water, with the greatest burden experienced in the lower parts of Igambang'ombe, Tharaka North, and Tharaka South Sub-Counties. These disparities highlight the uneven spatial distribution of water infrastructure and the need for targeted investments to improve water accessibility. The subsequent sections examine the County's urban and rural water demand and supply dynamics.

Sanitation is a critical component of public health and encompasses access to safe water, as well as the proper collection, treatment, and disposal of human waste and wastewater. In the absence

of a centralized waterborne sewerage system, most households in Tharaka Nithi County depend on onsite sanitation facilities, including pit latrines and septic tank systems. The level and quality of sanitation services vary across the County, influencing public health and environmental conditions.

Map 9.7 illustrates the distribution of improved and unimproved sanitation facilities at the ward level within Tharaka Nithi County.

Map 9.7: The distribution of improved and unimproved sanitation



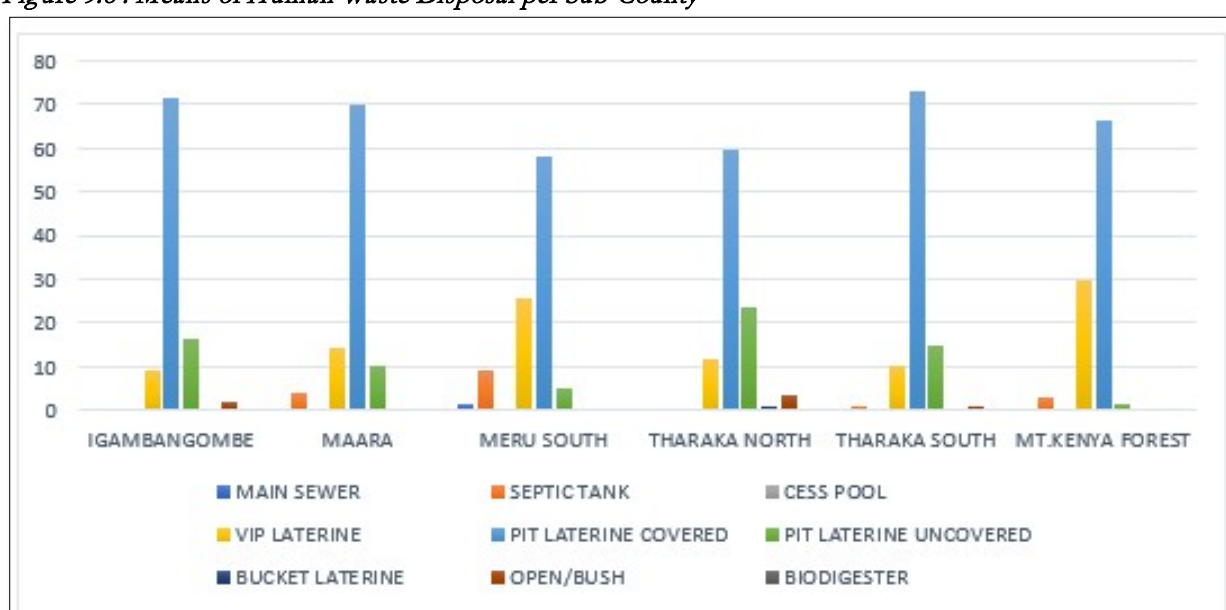
Source: SID, 2014

According to the 2019 Kenya Population and Housing Census (KNBS, 2019), approximately 60% of households in Tharaka Nithi County have access to improved sanitation facilities, while the remaining 40% rely on unimproved sanitation methods. This indicates that although a majority of residents have access to basic sanitation services, a significant proportion of the population continues to face sanitation challenges that may adversely affect public health and environmental quality.

The distribution and use of sanitation facilities vary across the County, reflecting differences in settlement patterns, infrastructure provision, and socio-economic conditions. Understanding these variations is essential for planning targeted interventions aimed at improving sanitation coverage and promoting healthier living environments.

Figure 9.8 presents the distribution of the principal methods of human waste disposal at the sub-county level, based on data from the 2019 Kenya Population and Housing Census, providing an overview of sanitation practices across Tharaka Nithi County.

Figure 9.8: Means of Human Waste Disposal per Sub-County



Source: KNBS Population Census, 2019

9.12 Urban Water Supply and Sanitation

The principal urban centres in Tharaka Nithi County are Chuka, Chogoria, and Kathwana Municipality. Their water supply is primarily derived from the Mount Kenya water tower, which feeds major rivers including Ura, Thangatha, Kathita, Thingithu, Muthonga, Maara, Ruguti, and Thuci. These rivers form the backbone of the County's urban water supply system.

In Chuka Town, the main water source is River Tungu, with a current production capacity of approximately 2,700 m³ per day. The water treatment works are located at Kiangondu, while the diversion weir is situated within the Mount Kenya Forest ecosystem. Water services are provided by Nithi Water and Sanitation Company (NIWASCO), serving Chuka Town and surrounding areas including Kithangani, Mariani, Gitareni, Muiru, Mugirirwa, Kiangondu, and Ndagani, covering an estimated 145 km². Owing to the favourable topography, the system operates largely through gravity-fed distribution.

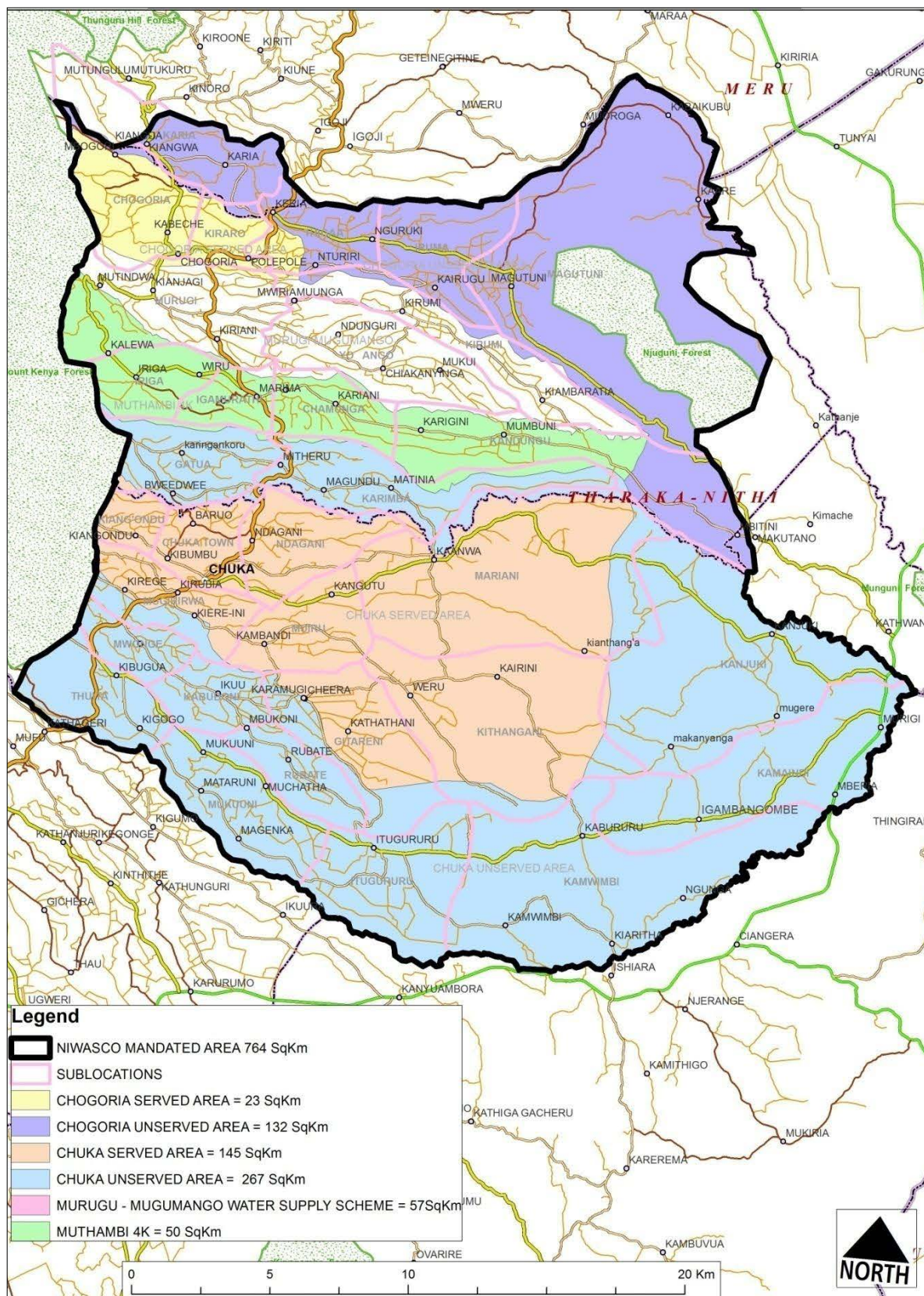
In Chogoria Town, the primary water source is River Maara, with a current supply capacity of approximately 600 m³ per day. The treatment works are located at Gianchuku, while the diversion

weir is also situated within the Mount Kenya Forest zone. NIWASCO supplies water to Chogoria Town, Kiraro, and parts of Thiga, covering an estimated 23 km². Similar to Chuka, water distribution is predominantly gravity-fed due to the area's terrain.

In Kathwana Municipality, the current water supply is sourced from the Mutino Water Project Scheme on River Maara. To meet the growing demand associated with its role as the County headquarters, the Kathwana Water Project is under construction and is expected to significantly enhance water supply capacity and service coverage within the municipality.

Water services in all three urban centres are managed and operated by Nithi Water and Sanitation Company (NIWASCO), the County's principal water service provider. Map 9.8 illustrates the main urban water supply systems and service areas within Tharaka Nithi County.

Map 9.8: NIWASCO Water Mandated Coverage Area



Source: NIWASCO Strategic Plan 2017/18 -2021/22.

a. Urban Sewerage and Sanitation

NIWASCO is also mandated to provide sanitation services within its service area. To support this role, the company has constructed a 22,000 l/d decentralized treatment facility in Rukindu, which serves as a biological treatment plant for sewage collected from households and business centres. Other urban centres in the County lack centralized sewerage systems and therefore rely on onsite sanitation facilities such as septic tanks and VIP latrines.

b. Rural Water Supply and Sanitation

Water service provision in Tharaka Nithi County reflects the spatial distribution of population and settlement patterns. Nithi Water and Sanitation Company (NIWASCO) primarily serves the County's urban centres, where higher population densities generate greater water demand and make service provision more economically viable. In rural areas, water supply is largely managed by Water Users Associations (WUAs), private sector providers, and community-based initiatives.

The availability of water across the County generally corresponds with its climatic and ecological zones. The high-altitude, high-rainfall sub-counties of Maara and Chuka enjoy relatively reliable water supplies, while Igambang'ombe Sub-County, located within the transitional zone, experiences moderate water availability. In contrast, the semi-arid lowland sub-counties of Tharaka North and Tharaka South face inadequate and unreliable water supplies, with acute shortages occurring during prolonged dry periods.

According to the Tharaka Nithi County Water Master Plan (2018), Maara Sub-County has 71 registered water supply schemes, including major schemes such as the NIWASCO Chogoria Scheme, Muthambi 4K Water Association, Murugi Mugumano Water Society, Chogoria Self-Help Water Project, Mwichuri Water Project, Iruma Magutuni Water Project, and Kamwene Water Association. Collectively, these schemes serve an estimated 72,837 people.

Chuka Sub-County is served by seven major water supply schemes, four of which also support irrigation activities. Key schemes include Ndagani K.K. Mwendwa Water Association, Kamatumo Water Project, Magumoni Water Project, Nthambo Community Water Project, and Mwonge Range Water Association, serving approximately 13,982 households.

In Igambang'ombe Sub-County, three major water supply schemes have been developed, namely the Mutino Water Project, Kathwana Water Project, and Kamaende Water Project. However, only the Mutino Water Project is currently operational, limiting the sub-county's water supply capacity.

The semi-arid sub-counties of Tharaka North and Tharaka South remain the most water-deficient areas in the County. Water supply in these areas is largely dependent on groundwater sources, including boreholes, shallow wells, and springs. These sources serve approximately 1,924 households in Tharaka North and 1,509 households in Tharaka South, highlighting the critical role of groundwater in sustaining livelihoods in the County's drier regions.

c. Rural Sanitation

All rural centres in Tharaka Nithi County lack centralized sewerage infrastructure and therefore depend on onsite sanitation systems for the management and disposal of human waste. The predominant sanitation facilities are pit latrines, supplemented by a limited number of Ventilated Improved Pit (VIP) latrines. Consequently, sanitation service provision in rural areas remains largely decentralized, with household-level facilities playing a critical role in maintaining public health and environmental sanitation.

d. Waste Water Management

Effective wastewater management is essential for safeguarding public health and environmental quality. In Kenya, access to formal waste collection and wastewater management services remains limited, with many urban households relying on informal disposal methods.

In Tharaka Nithi County, sanitation services within designated urban areas are provided by NIWASCO. The utility operates a decentralized wastewater treatment facility with a capacity of 22,000 litres per day, treating sewage from households and commercial establishments before safe discharge into the environment.

The Chuka Municipality Sewerage Plant is the County's main wastewater treatment facility. It comprises 24 km of secondary sewers, 21 km of trunk sewers, and treatment works located at Ntuntuni. The plant has a treatment capacity of 2,300 m³ per day and serves approximately 17,940 people.

All other urban centres in the County lack centralized sewerage systems and rely on onsite sanitation facilities, mainly septic tanks and Ventilated Improved Pit (VIP) latrines. While these systems provide basic sanitation services, inadequate management may pose risks to groundwater quality and public health.

Plate 9.3:Chuka Treatment Plant.



Source: Fieldwork, 2024

e. Storm Water Drainage

Tharaka Nithi County's upper highland areas have steep slopes that promote natural drainage through river systems, while the gentler terrain in the lower areas requires constructed stormwater infrastructure to manage surface runoff.

Urban stormwater drainage consists of a combination of open and closed channels, with the main drainage systems located along the A9 Road corridor. Additional drains are provided within road reserves, and most roads are served by either paved or unpaved open drainage channels.

However, the drainage system is frequently affected by poor solid waste disposal, particularly the dumping of plastic waste into drainage channels. This results in blockage and siltation, reducing drainage efficiency and contributing to waterlogging and localized flooding during rainy periods.

9.13 Information and Communication Technology

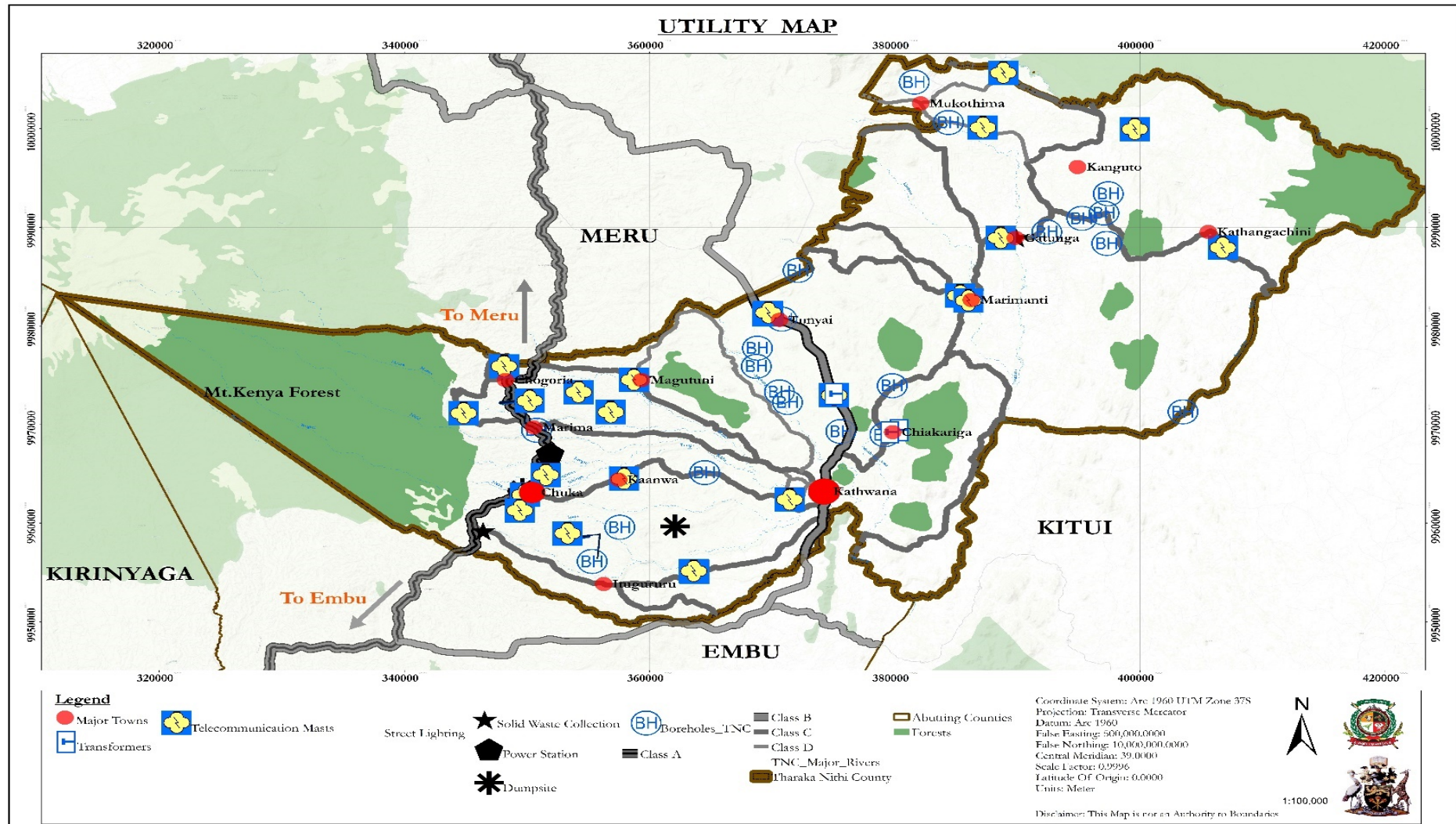
Information and Communication Technology (ICT) in Tharaka Nithi County encompasses telecommunications, internet services, broadcasting, and postal and courier services. Key ICT infrastructure includes mobile telephony, landlines, fibre optic networks, radio and television broadcasting facilities, and post offices, which are mainly concentrated in Chuka and Chogoria towns. Telecommunications services are regulated by the Communications Authority of Kenya, with infrastructure and services provided by both public and private sector operators.

The County enjoys relatively good mobile network coverage, with service providers including Safaricom, Equitel, Airtel, Faiba, and Telkom. However, some areas, particularly within Tharaka Constituency, experience limited network coverage due to the hilly terrain. According to the CIDP (2018–2022), more than 70% of residents own mobile phones, while internet services are mainly concentrated in urban centres and accessed through cyber cafés and other digital platforms.

Fibre optic connectivity extends from Chuka Town to Kathwana Municipality, supplemented by wireless communication links. The presence of Chuka University contributes significantly to ICT skills development and digital literacy, while the Huduma Centre in Chuka Town provides residents with access to a range of national government services.

Radio remains the primary source of information in rural areas, with Muuga FM, Getu FM, and Njata FM being the most widely listened-to vernacular stations. In contrast, television and newspapers are more commonly accessed in urban centres. Map 9.9 illustrates the spatial distribution of ICT infrastructure and services across Tharaka Nithi County.

Map 9.9: Utility Map



Source: UoN-DURP, 2024

a) Courier services

Courier services in Tharaka Nithi County are provided by national and international companies, including G4S, Wells Fargo, and DHL, with operations primarily concentrated in urban centres such as Chuka Municipality. While these services support business activities, e-commerce, and communication, their limited presence outside major towns constrains accessibility for residents in remote and rural areas. As a result, access to reliable courier and parcel delivery services remains uneven across the County.

b) Postal Services

The Kenya Information and Communications Act, Cap. 411A of 1998, provides the legal framework for postal services in Kenya. In Tharaka Nithi County, postal services are primarily provided by the Kenya Post Office, with major branches located in Chuka Municipality, Chogoria, and Marimanti. These facilities provide essential mail and parcel delivery services to residents and businesses. However, there is a need for modernization and expansion of postal infrastructure to respond to the growing demand for parcel and courier services driven by the expansion of e-commerce and digital trade.

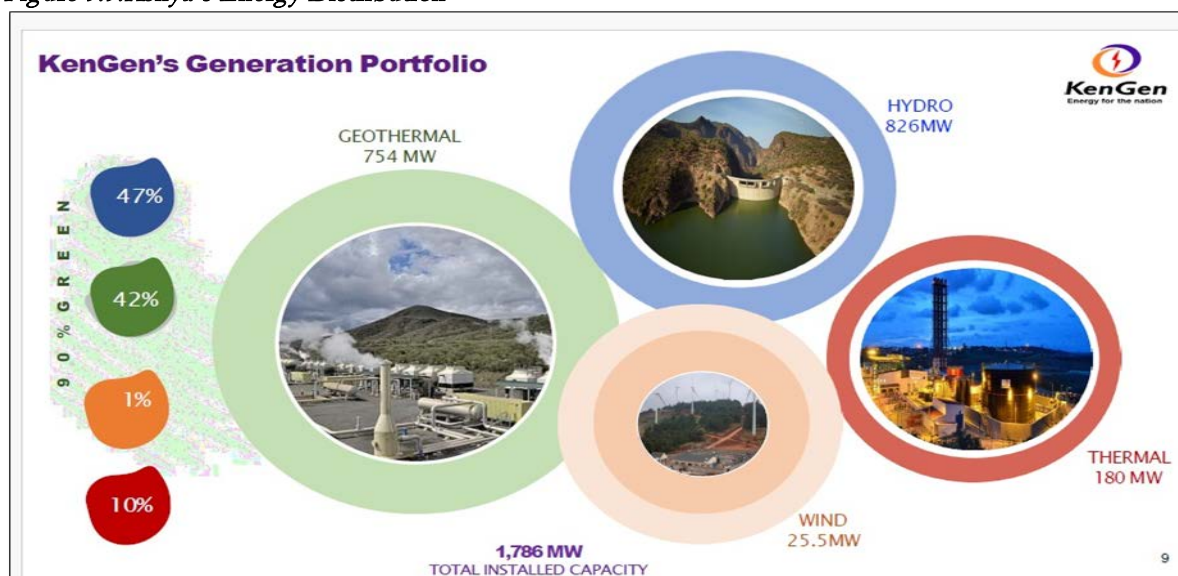
c) Access to ICT Facilities

Access to ICT facilities in Tharaka Nithi County is steadily improving, particularly in urban centres such as Chuka Municipality and Chogoria, where cyber cafés, computer centres, and internet services are more readily available. Educational institutions are also increasingly integrating ICT into teaching and learning, enhancing digital literacy and skills development. However, access remains limited in some rural areas, particularly in Chiakariga and other parts of Tharaka, where inadequate ICT infrastructure and internet connectivity continue to constrain digital access and utilization.

9.14 Energy

The patterns of cooking and lighting energy use in Tharaka Nithi County provide an indication of household energy consumption and access to energy services.

Figure 9.9: Kenya's Energy Distribution



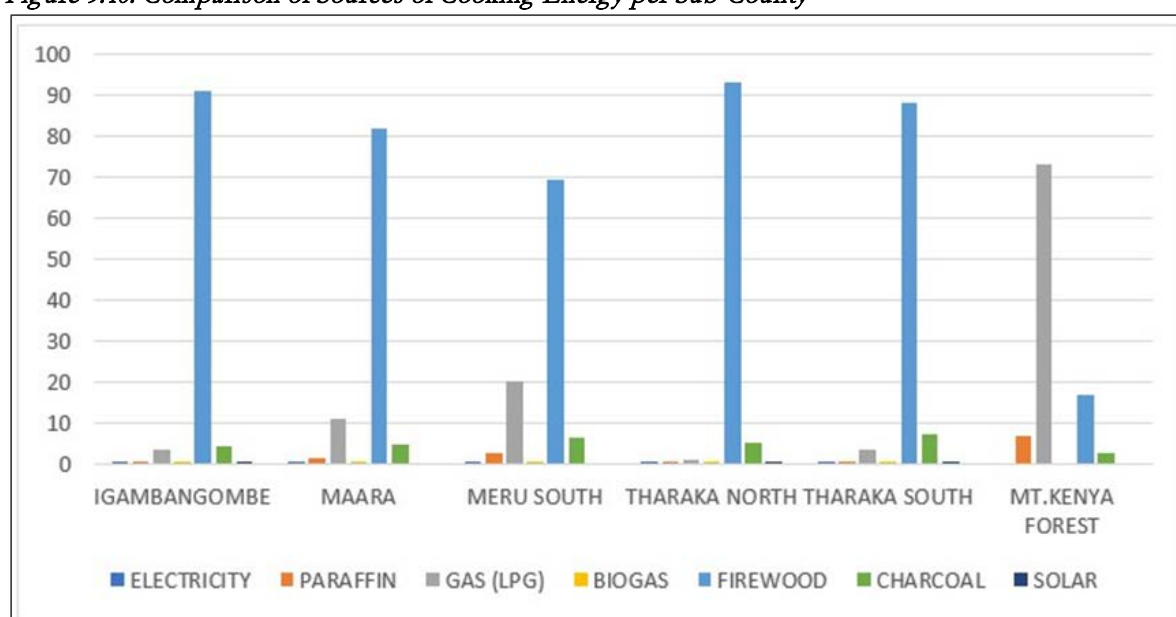
Source:

This section examines the cooking and lighting energy sources used across the County and outlines the available renewable and non-renewable energy resources. At the national level, Kenya relies on a diversified energy mix comprising thermal energy (180 MW), wind energy (25.5 MW), hydropower (826 MW), and geothermal energy (754 MW), with a total installed generation capacity of approximately 1,786 MW.

a) Cooking Energy

Firewood remains the dominant cooking fuel in Tharaka Nithi County. The tea industry also relies heavily on fuelwood, largely due to its lower cost compared to fossil fuels and electricity. According to the 2019 KNBS Population and Housing Census, **Error! Reference source not found.** compares the main cooking energy sources used across the County's sub-counties.

Figure 9.10: Comparison of Sources of Cooking Energy per Sub-County



Source: KNBS, 2019

Firewood is the dominant cooking fuel in Tharaka Nithi County, used by 82.2% of residents compared to the national average of 55.1%. Charcoal accounts for 7.5% of household cooking energy, while only 1.2% of residents use LPG. This heavy reliance on wood fuel places considerable pressure on the County's tree cover and forest resources.

As a renewable energy source, the environmental impacts of fuelwood use can be reduced through sustainable woodlot development and managed fuelwood production. Alternative energy sources such as biogas, particularly among livestock-keeping households, and ethanol also offer opportunities to reduce dependence on firewood. In addition, sustainable charcoal production can provide an important source of income, especially in the County's drier areas. Suitable tree species for this purpose include *Acacia polyacantha*, *Casuarina equisetifolia*, and *Acacia mearnsii*, which are valued for their high yield and quality. The adoption of energy-efficient cooking technologies can further reduce household consumption of fuelwood and charcoal.

Plate 9.4: Charcoal Produced for Sale in Drier Parts of the County



Source: Field Survey, 2019

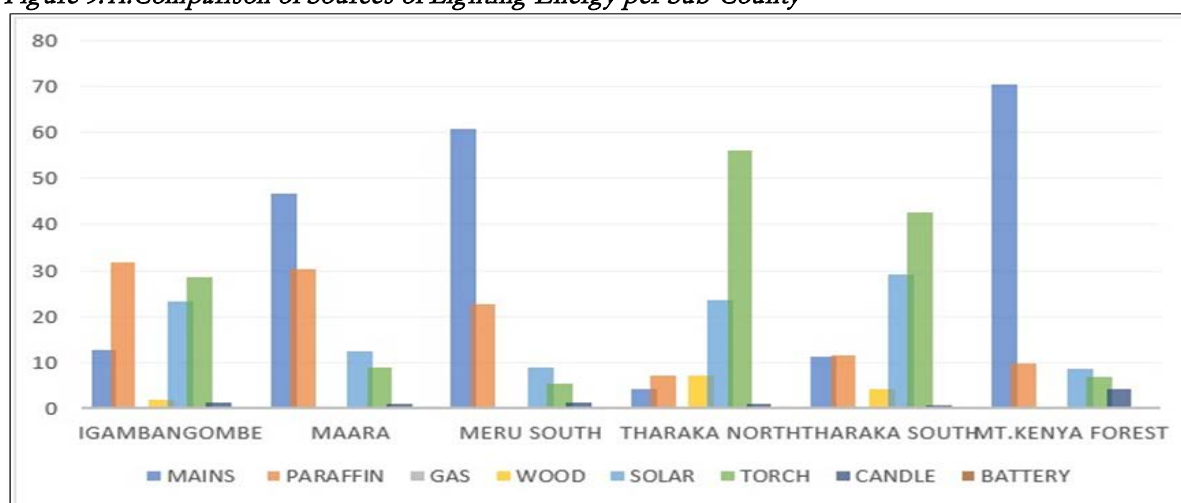
b) Lighting Energy

Mains electricity is the primary source of lighting energy in Tharaka Nithi County, with a connectivity rate of 34.7%, compared to the national average of 50.4%. Solar energy and tin lamps are also widely used, serving 17.1% and 13.1% of the population, respectively.

These figures indicate that a substantial proportion of households continue to rely on off-grid and lower-quality lighting sources, reflecting existing gaps in electricity access across the County.

Figure 9.11 compares lighting energy sources across the sub-counties, highlighting variations in access and usage patterns within Tharaka Nithi County

Figure 9.11: Comparison of Sources of Lighting Energy per Sub-County



Source: Adapted from KNBS Population Census, 2019

KETRACO. A key priority in the energy sector is the expansion of electricity access and connectivity to improve the reliability and quality of power supply across the County. To support this objective, the National Government, County Government, and private sector partners are implementing various electrification programmes.

Among the major initiatives is the Last Mile Connectivity Project, implemented through the Ministry of Energy and Petroleum and executed by Kenya Power. The programme was designed to provide affordable household electricity connections, with targets of achieving over 70% connectivity by 2017 and universal access by 2020. By 2016, approximately 3,500 households in areas such as Giampapo Village, Marimanti, and Chuka had been connected, against a target of 37,940 households.

The Rural Electrification Programme also continues to support the expansion of electricity infrastructure in rural areas. In addition, the County Government has initiated complementary programmes aimed at improving electrification and energy access throughout the County. These include:

- i. Installation of electricity transformers in mapped areas
- ii. Connection of electricity to households and public facilities such as schools, health facilities, industries, markets, and urban centres
- iii. Construction of wind power plants
- iv. Development of mini-hydro power plants on permanent rivers to generate electricity
- v. Establishment of solar thermal furnaces with heat storage systems
- vi. Promotion of solar lanterns and solar home systems for household lighting, appliance use, and battery charging

Renewable Sources of Energy

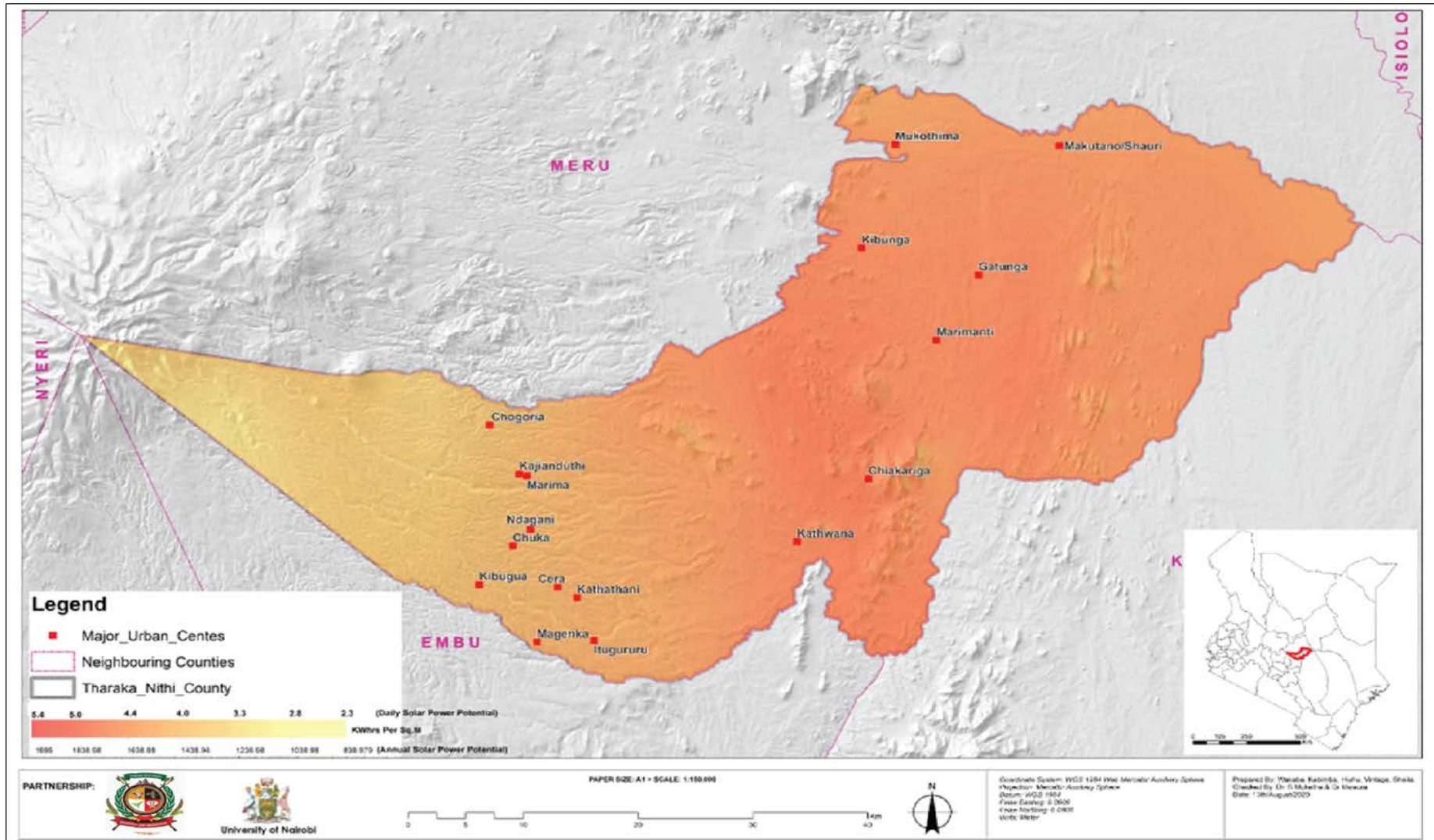
Tharaka Nithi County has considerable potential for the development and utilization of renewable energy resources. In recent years, the adoption of solar energy has increased among residents due to its affordability, environmental benefits, and sustainability. This growing uptake reflects rising energy demand and the County's favourable climatic conditions, which support reliable solar energy generation throughout the year.

a) Solar Energy

Tharaka Nithi County's location near the equator provides high levels of solar radiation, creating favourable conditions for solar energy development. The County receives Direct Normal Radiation (DNI) ranging from 3.5 to 5 kWh/m² per day, indicating strong potential for solar power generation.

According to **Error! Reference source not found.** most parts of the County fall within a Direct Normal Irradiance class of above 5.25, making them suitable for efficient solar energy harvesting. This solar resource can support household, institutional, and small-scale industrial energy needs, positioning solar power as a viable and sustainable energy source across the County.

Map 9.10: Solar Intensity Map (Direct Normal Irradiation)



Source: UoN-DURP, 2024

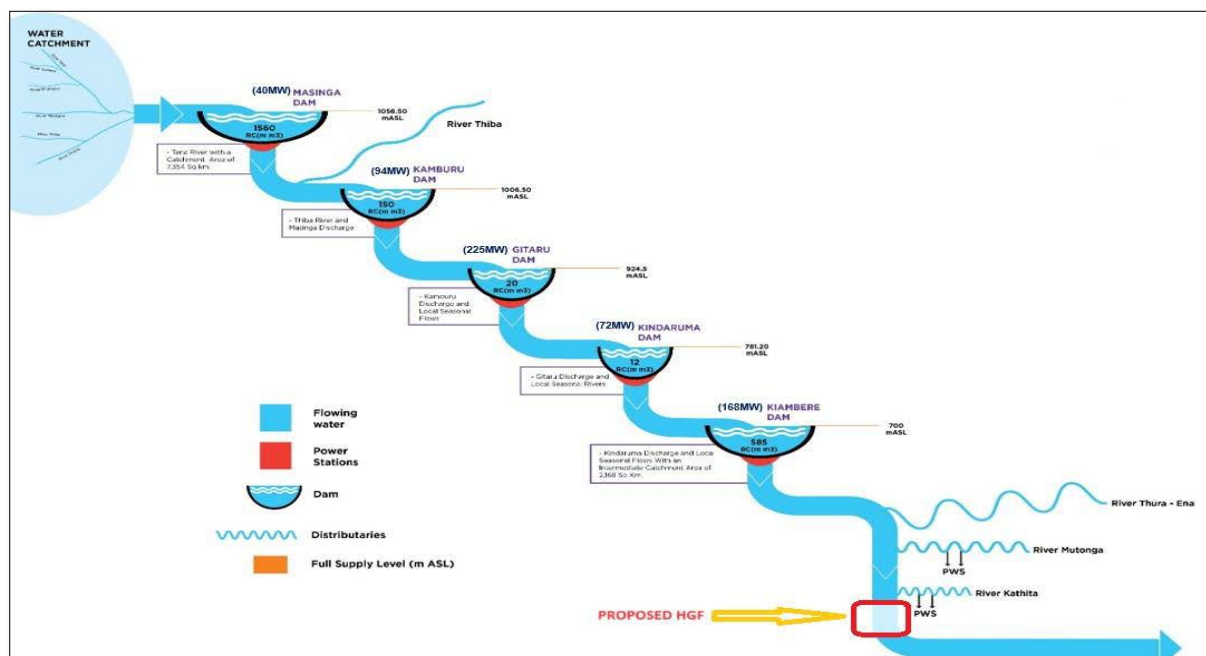
Several initiatives have been implemented to harness Tharaka Nithi County's solar energy potential. In Marimanti, solar-powered systems are used to pump water from County Government boreholes and nearby rivers. A total of 18 solar water projects serve approximately 40,000 people who previously depended directly on river water sources (Njagi, 2019).

The County has also established a solar-powered milk cooling plant at Kibumbu, providing farmers with storage facilities that help preserve milk quality and reduce post-harvest losses (Njagi, 2019). Despite these investments, household adoption of solar energy remains relatively low, despite its significant potential for lighting, charging, and other domestic energy needs.

b) Hydro-power Energy

Tharaka Nithi County is supplied with electricity through the national grid managed by Kenya Power. The diagram highlights five KenGen hydroelectric dams within the Seven Forks Hydropower Project, which collectively contribute approximately 65–70% of Kenya's hydroelectric power generation.

Figure 9.12: Concept of High Grand falls in the Seven Forks project



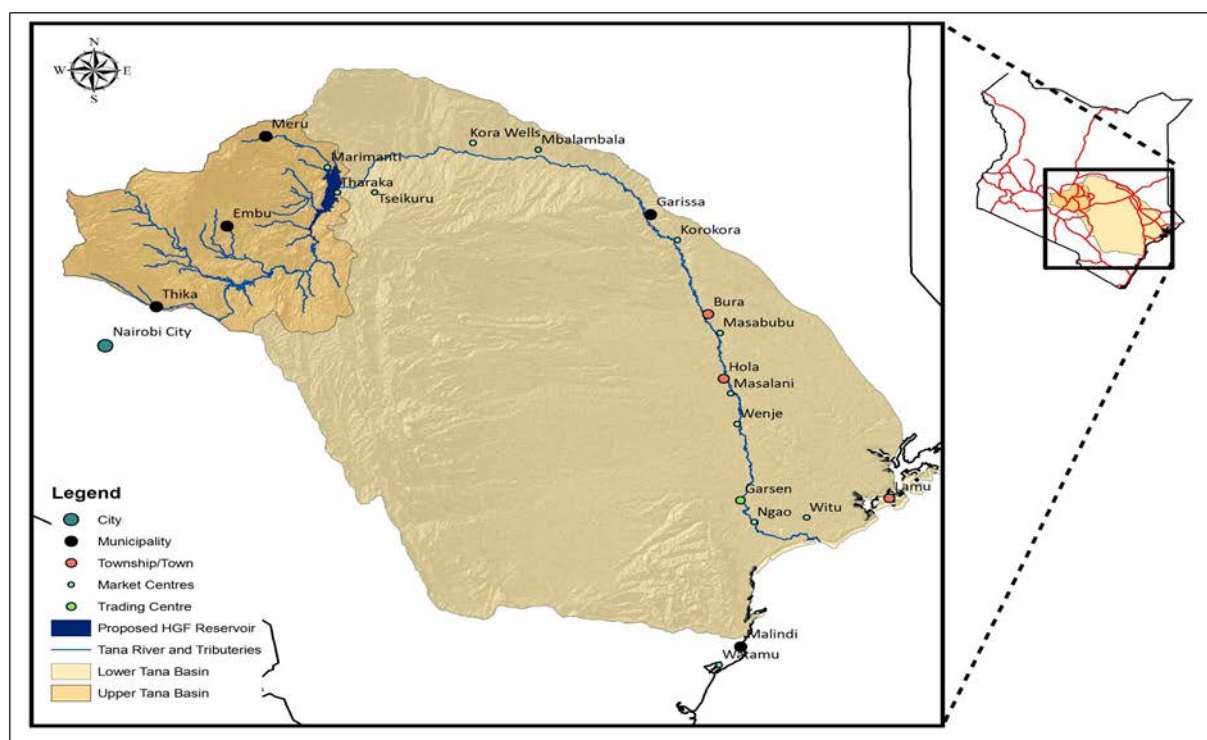
The Government of Kenya has revived the 700 MW High Grand Falls (Kibuka Falls) Hydropower and Irrigation Project following the termination of the previous developer's contract in 2025. The project was reaffirmed in the 2026 National Budget Statement under a Public–Private Partnership (PPP) financing model.

The multi-purpose project is intended to support hydroelectric power generation, flood mitigation, river flow regulation, domestic water supply, and irrigation development. The proposed reservoir will have a storage capacity of approximately 5,600 million m³, enabling the irrigation of about 500,000 acres of agricultural land while enhancing water security and flood control. As part of the wider catchment that contributes significant river flows to the project, Tharaka Nithi County is expected to benefit from the dam's downstream hydrological and socio-economic impacts.

The 2026 Budget Policy Statement also proposes the Thuci Dam Project, a KES 705 million (approximately USD 5.45 million) water infrastructure initiative to be implemented through a Public–Private Partnership (PPP). Located along the Tharaka Nithi–Embu County boundary, the

project is intended to enhance water conservation, support irrigation, and improve domestic water supply.

Map 9.11: High Grand falls throwback into Tharaka Nithi County



The Thuci Dam Project is expected to support the irrigation of more than 27,000 acres under the Kaagari–Gaturi Irrigation Project in Runyenjes and Chuka Igambang’ombe constituencies, while also providing treated water to surrounding communities and enhancing water security.

The project may, however, result in land use changes, including the submergence of settlements, agricultural land, and grazing areas, as well as the relocation of households and community facilities. It may also affect riverine ecosystems and biodiversity within the project area.

Given its contribution to the upstream catchment, Tharaka Nithi County may explore opportunities to benefit from power generation and water resource development through mechanisms such as Payment for Ecosystem Services (PES) and Access and Benefit Sharing (ABS) arrangements. In addition, several permanent rivers within the County present opportunities for the development of micro-hydropower projects with minimal impacts on downstream river flows.

These sites include:

- Machui Falls on the Naka River
- Two sites on the Ruguti River
- Kanda Kame and Enamwamba Falls on the South Maara River
- A site on the Tungu River near Mount Kenya Forest
- A site on the Nithi River within the forested zone
- South Maara River within the Mount Kenya Forest ecosystem.

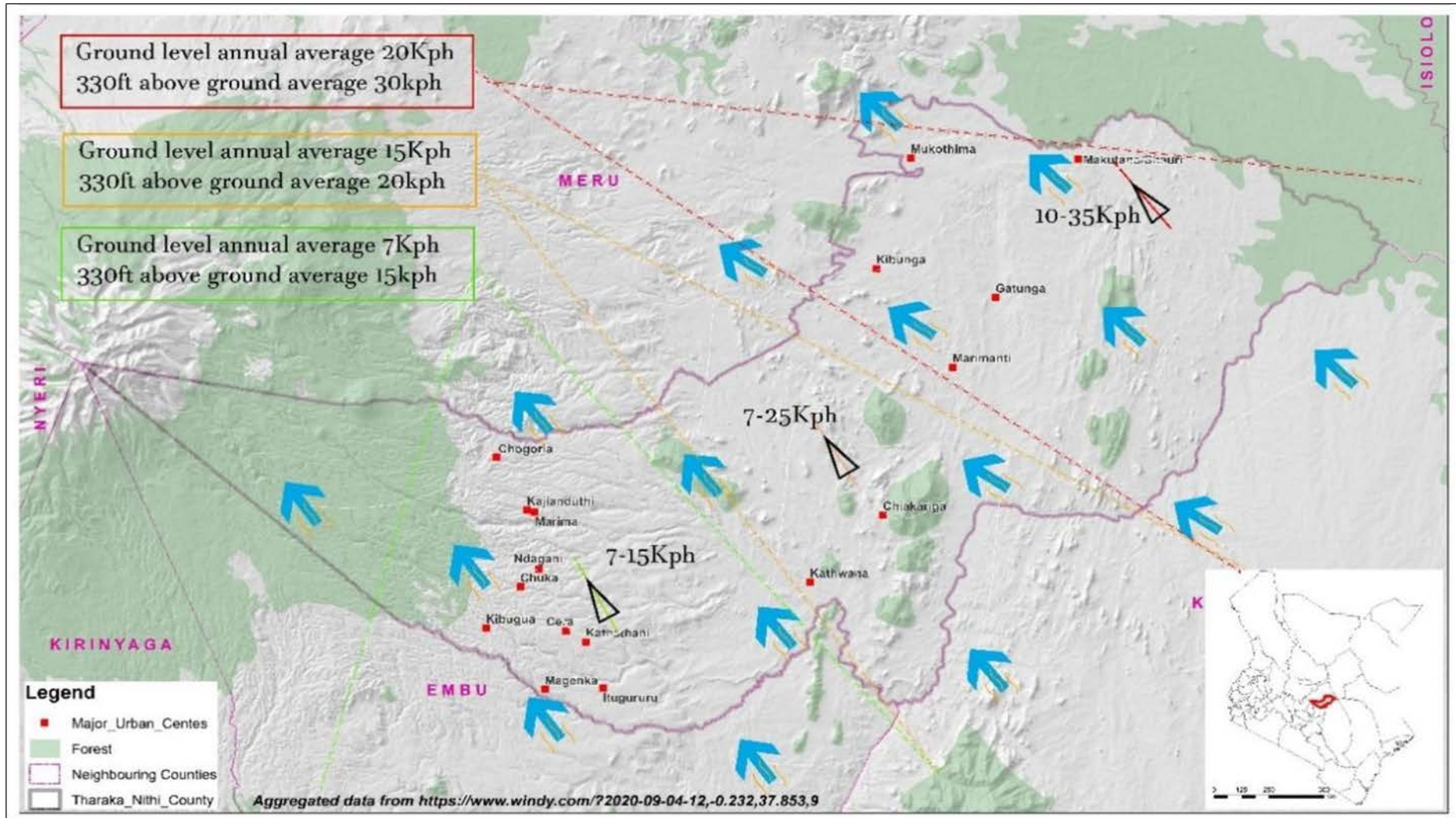
c) Wind Energy

Tharaka Nithi County has a moderate wind energy potential, with wind speeds ranging between 4.5 and 5.5 m/s and an estimated wind power density of 165–275 W/m². Wind measurements at

an average height of 50 metres provide an important basis for assessing the suitability of sites for power generation.

However, the viability of wind energy development depends not only on wind speed and power density but also on supporting factors such as proximity to the national electricity grid, which is essential for efficient power transmission and integration.

Map 9.12: Wind Energy Projection in TNC



Source: TNCSP, 2020

iii. Energy Demand and Supply

Tharaka Nithi County is primarily served by the national electricity grid, supplemented by distribution networks in urban and peri-urban areas. Energy supply is supported by hydroelectric generation facilities, including the Tharaka Hydro Plant, which contributes to local power production.

Electricity is transmitted through a network of transmission lines, substations, and distribution infrastructure that facilitate power delivery across the County. Information on these energy infrastructure components is sourced from Kenya Power and the Ministry of Energy.

9.15 Solid Waste Management

Solid waste in Tharaka Nithi County is generated from residential, industrial, agricultural, and commercial activities. It is primarily undertaken by the County Government in major urban centres, including **Chuka, Chogoria, Kathwana, Marimanti, Chiakariga, and Gatunga**. Waste is generated from households, markets, institutions, commercial activities, and small industries, and mainly comprises organic waste, plastics, paper, glass, and metals. The County currently operates one incineration facility in **Chuka Town**, which serves Chuka and its environs, while other urban centres rely on designated collection points and disposal sites. However, the existing infrastructure is inadequate to meet the increasing volumes of waste generated by urban growth.

The rapid expansion of urban centres has increased pressure on waste management services. Limited waste segregation, inadequate collection and disposal facilities, and improper disposal practices contribute to environmental pollution, blocked drainage systems, and public health risks. Strengthening waste collection, expanding treatment facilities, and promoting the **4Rs (Refuse, Reduce, Reuse, and Recycle)** are essential for improving solid waste management and supporting sustainable urban development in the County

Future solid waste generation was estimated using the World Bank (2018) recommended average municipal solid waste generation rate of 0.4 kg per person per day for low-income and developing countries. Population projections for 2029 and 2034 were first computed using the compound population growth model, assuming the County's annual population growth rate of 0.76% remains constant.

The population projection was calculated using:

$$P_n = P_0(1 + r)^t$$

Where:

- P_n = projected population
- P_0 = base year population (2019)
- r = annual population growth rate (0.76% or 0.0076)
- t = number of years after the base year

The projected population was then converted into daily solid waste generation using:

$$\text{Solid Waste (tons/day)} = \frac{\text{Projected Population} \times 0.4}{1000}$$

where **0.4 kg/person/day** is the per capita waste generation rate and **1,000** converts kilograms to metric tonnes. The projected population and corresponding daily solid waste generation for Chuka and Chogoria are presented in **Error! Reference source not found..**

Table 9.12: Calculated Solid Waste Generation for the Urban Centers

Urban Centre	2009 Population	2019 Population	2029 Projected Population	2034 Projected Population	2009 Waste (tons/d ay)	2019 Waste (tons/d ay)	2029 Waste (tons/d ay)	2034 Waste (tons/d ay)
Chuka	43,470	32,418	34,965	36,315	17.0	13.0	14.0	14.5
Chogoria	50,139	36,474	39,341	40,859	20.0	14.6	15.7	16.3

Source: UoN-DURP, 2026

The projections indicate a gradual increase in both population and waste generation over the planning period, reflecting the direct relationship between urban population growth and municipal waste production.

In Chuka, the population is projected to increase from 32,418 in 2019 to 34,965 in 2029 and 36,315 by 2034. Consequently, daily solid waste generation is expected to rise from 13.0 tonnes/day in 2019 to approximately 14.0 tonnes/day in 2029 and 14.5 tonnes/day by 2034, representing an overall increase of about 11.5% over the 15-year period.

Similarly, Chogoria is projected to experience population growth from 36,474 in 2019 to 39,341 in 2029 and 40,859 by 2034. This will increase daily solid waste generation from 14.6 tonnes/day to 15.7 tonnes/day and 16.3 tonnes/day, respectively, representing an overall increase of approximately 11.6% during the same period. Chogoria is expected to generate more solid waste than Chuka throughout the planning horizon because of its relatively larger projected population.

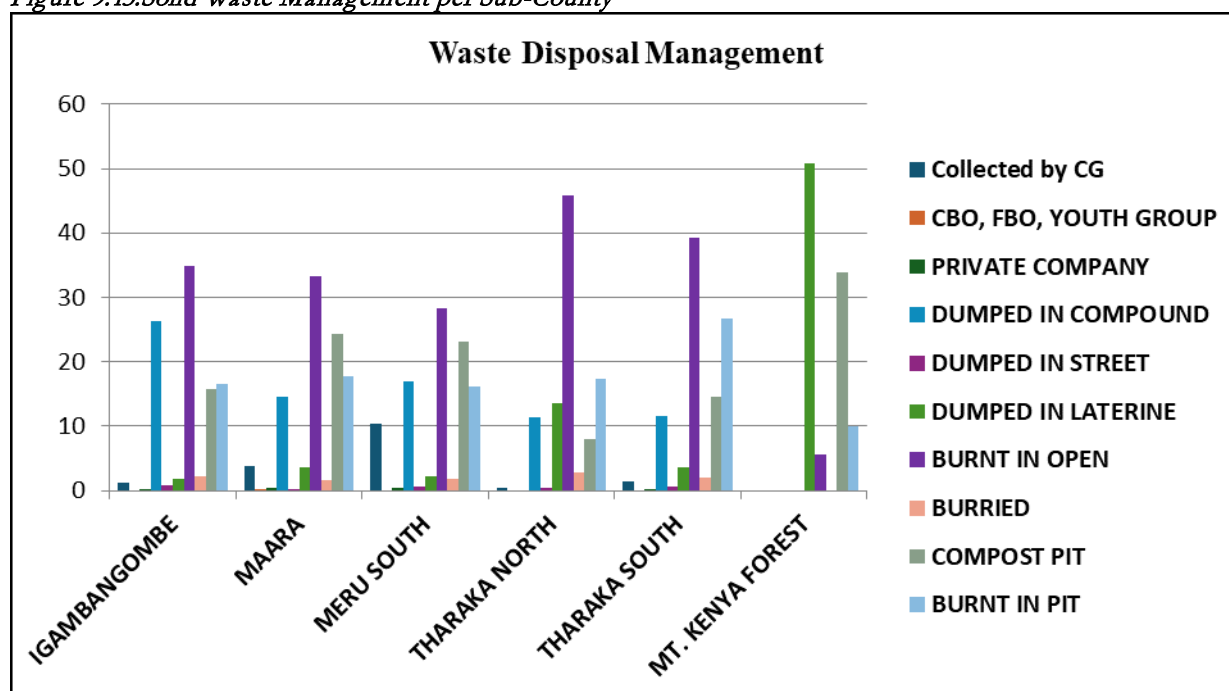
These projections imply that the demand for solid waste collection, transportation, treatment, recycling, and final disposal services will continue to increase as urban populations grow. The existing waste management infrastructure, including the incineration facility at Chuka, is therefore unlikely to meet future demand without expansion and modernization. Additional investment will be required in waste collection equipment, transfer stations, recycling facilities, sanitary disposal systems, and resource recovery technologies to accommodate the projected increase in waste volumes.

The findings also highlight the importance of integrating sustainable waste management practices into future urban development. Strengthening waste segregation at source, promoting the 4Rs (Refuse, Reduce, Reuse, and Recycle), expanding composting of biodegradable waste, and encouraging private sector participation in waste recovery will help reduce the volume of waste requiring final disposal. These measures will not only improve environmental quality and public health but also support the County's transition towards a circular economy and more sustainable urban development.

Solid waste generated in the peripheral areas of urban centres is largely unmanaged, while waste generated within the central business districts and adjacent neighbourhoods is typically collected two to three times per week by the County Government. Figure 9.20 shows the means of solid waste management in the County.

Figure 9.1:

Figure 9.13: Solid Waste Management per Sub-County



Source: KNBS, 2019

In rural areas, solid waste is primarily managed through burning, composting, burying, and open dumping. To improve waste management across the County, there is a need to establish solid waste recycling facilities strategically located near major urban centres such as Chuka, Chogoria, Kathwana, and Marimanti, where waste generation and collection are highest.

Plate 9.5: Solid Waste Management Methods in the County. Left: County Waste Receptacles (Skip). Right: Burning Agricultural Waste in Tunyai Market



Source: Field Survey, 2019

9.16 Social Infrastructure

i. Education facilities

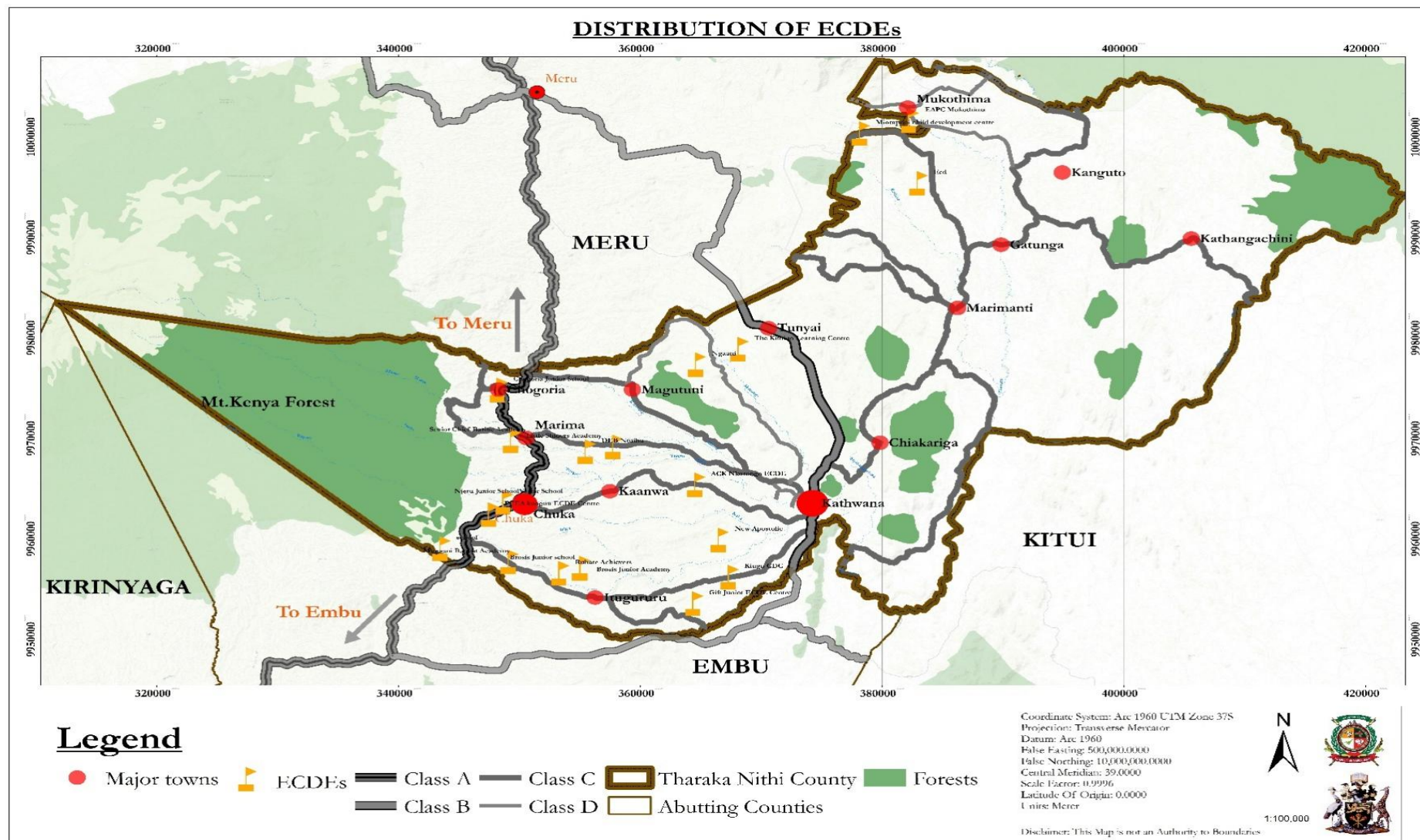
Education is a fundamental driver of socio-economic development, human capital formation, and improved quality of life. It equips individuals with the knowledge and skills required to enhance productivity, support innovation, and contribute to sustainable economic growth. The distribution and accessibility of education facilities are therefore critical considerations in spatial planning, as they influence settlement patterns, service delivery, and equitable access to educational opportunities.

Under the Constitution of Kenya, Early Childhood Development Education (ECDE) is a devolved function of County Governments, while primary, secondary, and tertiary education remain the responsibility of the National Government. In Tharaka Nithi County, education services are provided through public, faith-based, and private institutions.

a) Early Childhood Development Education

According to the Tharaka Nithi CIDP (2018–2022), the County has 577 ECDE centres, comprising 432 public and 145 private institutions, with a total enrolment of approximately 24,000 learners. The average teacher-to-pupil ratio is 1:43, indicating relatively adequate teacher availability for early childhood education. Based on the recommended school-to-population ratio of 1:400, the existing distribution of ECDE centres is generally sufficient to meet current demand, although disparities in spatial distribution may still exist in some settlements, requiring continued investment to improve equitable access. Map 9.13 show the distribution of ECDEs in the county.

Map 9.13: Distribution of ECDE Schools in the County

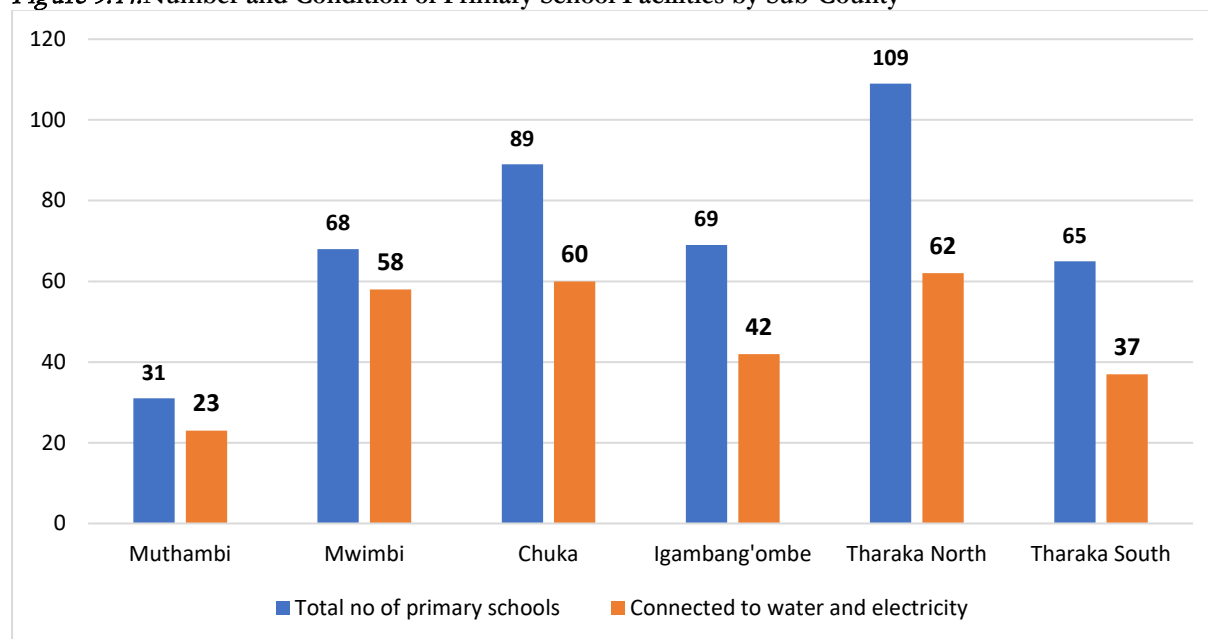


Source: UoN-DURP, 2026.

b) Primary Education Facilities

Tharaka Nithi County has 432 primary schools, comprising 358 public and 69 private institutions, according to field mapping data. These schools have a combined enrolment of approximately 93,939 pupils (46,460 females and 47,479 males) (CIDP 2018–2022). The average teacher-to-pupil ratio is 1:28, while the recommended school-to-population ratio is 1:4,000, indicating that primary education facilities are generally adequate to serve the current population. Figure 9.14 illustrates the status of primary schools in terms of access to water and electricity based on the field survey.

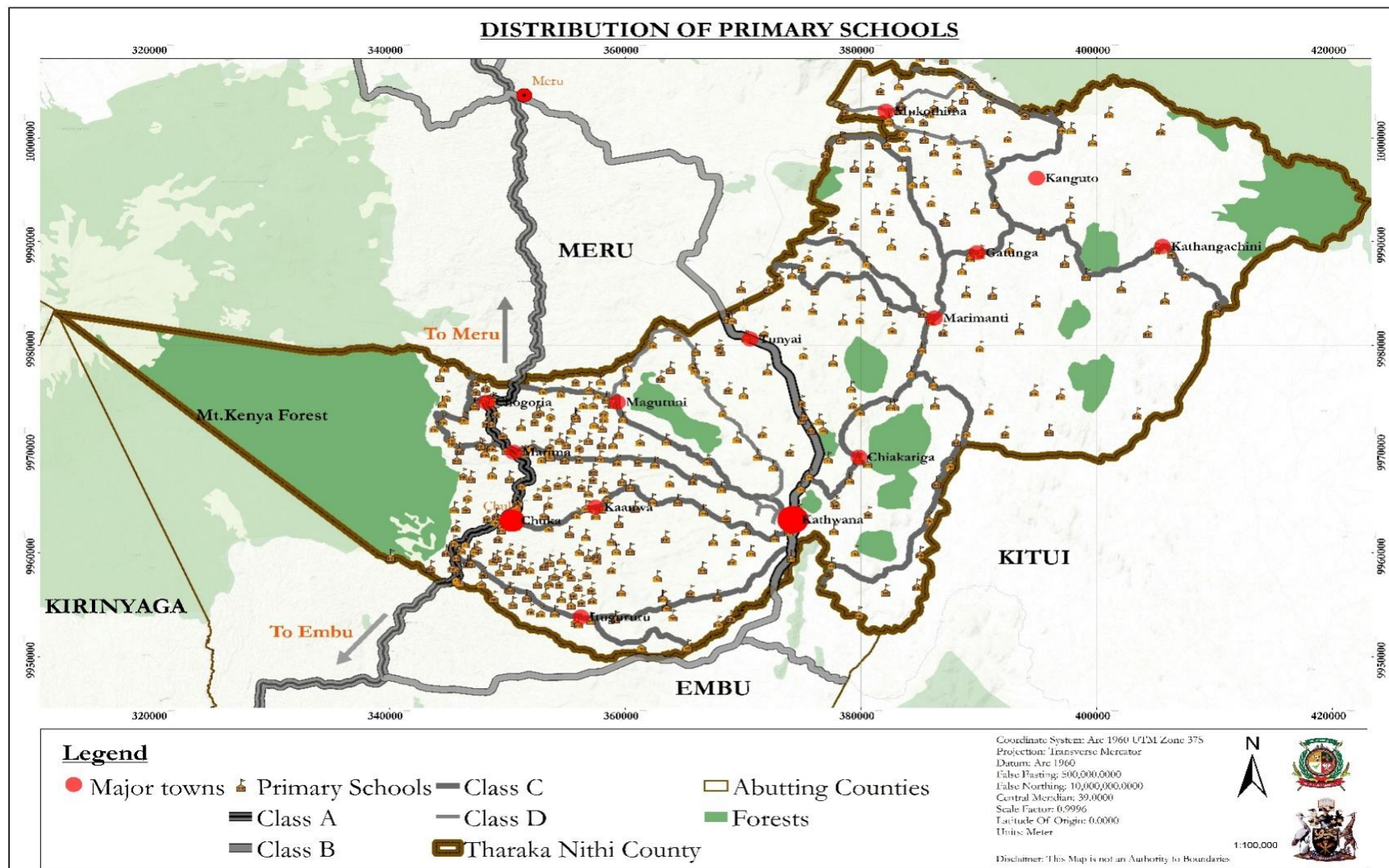
Figure 9.14: Number and Condition of Primary School Facilities by Sub-County



Source: Field survey Data, 2019

The graph shows that 66% of primary schools in Tharaka Nithi County have access to water and/or electricity, while the remaining 34% lack one or both essential services. Although the majority of schools are connected, the existing gap highlights disparities in access to basic infrastructure. Reliable water and electricity are essential for creating a safe and conducive learning environment, supporting sanitation and hygiene, enhancing digital learning, and improving overall school operations. Expanding these services to the unserved schools will improve the quality of education and promote equitable access to learning facilities across the County.

Map 9.1: Distribution of Primary Schools in the County

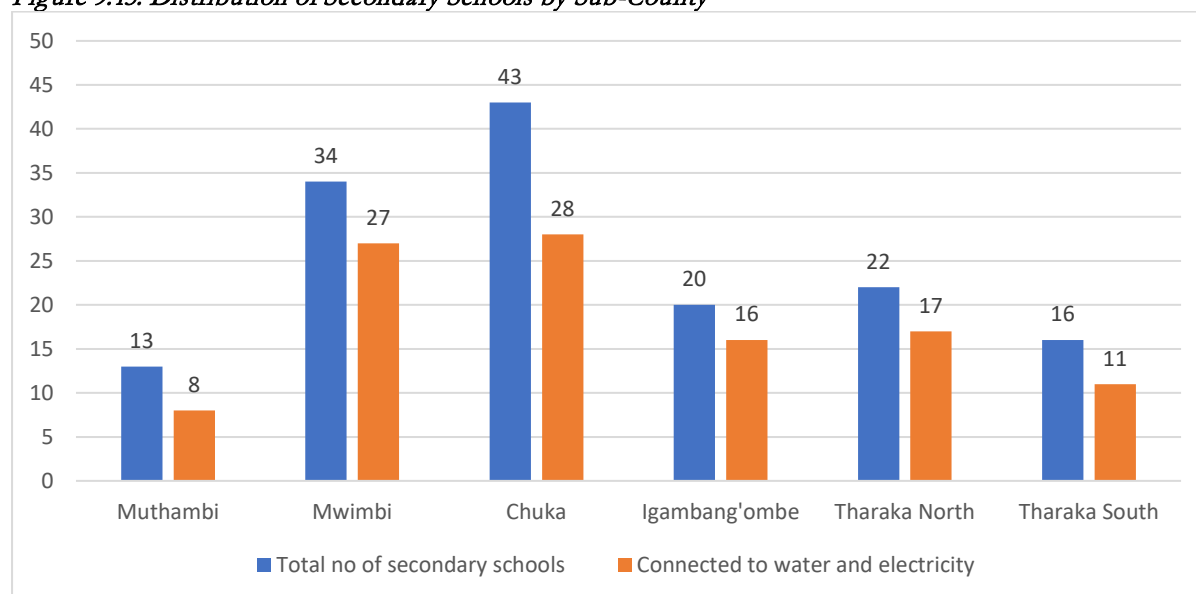


Source: UoN-DURP, 2026

c) Secondary Education Facilities

Tharaka Nithi County has 149 secondary schools with a total enrolment of approximately 37,988 students, comprising 18,677 females (49.2%) and 19,311 males (50.8%). Field mapping indicates that 139 schools (93.3%) are public, while 9 (6.7%) are privately owned. The County has 1,233 secondary school teachers, resulting in an average teacher-to-student ratio of 1:30, which supports effective teaching and learning. Secondary schools play a critical role in developing skilled human capital, preparing learners for tertiary education, employment, and socio-economic development. Figure 9.15 presents the status of secondary schools in terms of access to water and electricity based on the field survey.

Figure 9.15: Distribution of Secondary Schools by Sub-County



Source: Mapping Data, 2019

Secondary schools in Tharaka Nithi County are generally well served by basic infrastructure, with approximately 94% connected to water and/or electricity. Only about 6% (9 schools) lack one or both of these essential services. The high level of connectivity supports a conducive learning environment by improving sanitation, access to safe water, lighting, ICT integration, and the delivery of science and technical education. Extending these services to the remaining schools will enhance equity in education provision and ensure that all learners benefit from adequate learning facilities regardless of location.

d) Tertiary Institutions

Tharaka Nithi County has four major universities, comprising Chuka University and Tharaka University, both established by the Government of Kenya, as well as PCEA Rubate University College and a satellite campus of Methodist University at Marimanti. These institutions attract students from within and outside the County, contributing to human capital development, research, innovation, and the local economy. They have also stimulated demand for housing, commercial services, and supporting infrastructure, particularly in their surrounding urban centres.

Plate 9.6: Existing Tertiary Schools in the County



Source: Field Survey, 2019.

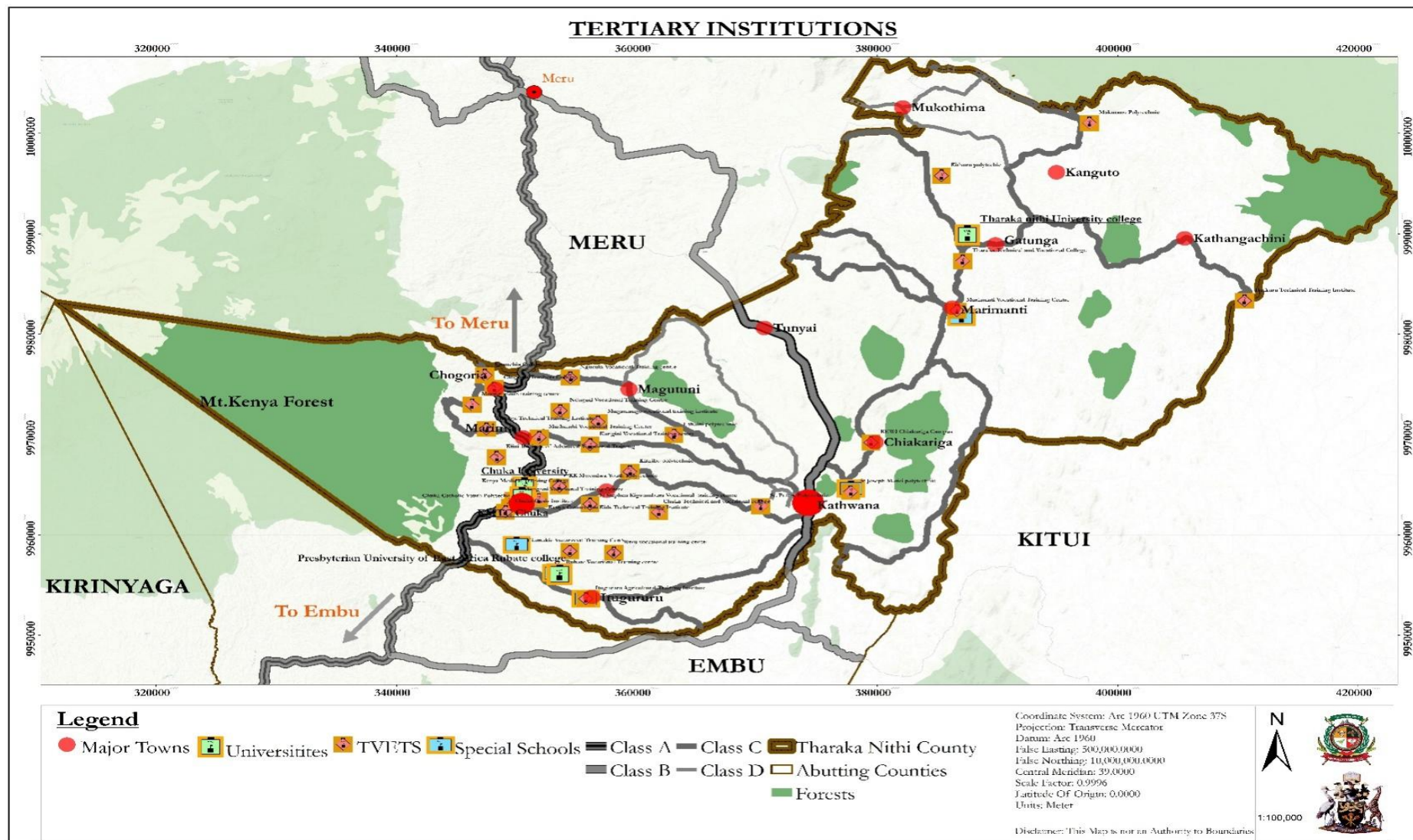
Technical and Vocational Education and Training (TVET) Institutions

Tharaka Nithi County has 35 youth polytechnics, technical training institutes, and colleges. These institutions are operated by both public and private providers and are generally in good condition, with access to electricity and water. Institutions located in urban centres are mainly served by the main water supply network, while those in rural areas rely on boreholes and overhead water storage systems. These institutions play a critical role in equipping youth with technical and vocational skills, enhancing employability, entrepreneurship, and supporting the County's socio-economic development.

Special Education Facilities

The County has six special education institutions, namely Itugururu Adult Basic Education (Igambang'ombe), Rubate Special Unit (Magumoni), Ikuu Special School (Magumoni), Kamatungu School for the Hearing Impaired (Marimanti), and Childrise Development Program (Nkondi). These facilities provide specialized education for learners with disabilities and special learning needs. Field mapping indicates that all the institutions are in good condition and have access to both water and electricity. Most are publicly managed, while the Childrise Development Program is operated by a non-governmental organization. The facilities promote inclusive education by improving access to quality learning opportunities for children and adults with special needs across the County. **Error! Reference source not found.** below shows the distribution of the Tertiary institutions and special schools in the county.

Map 9.14: Distribution of Tertiary Institutions and Special Schools in the County



Source: UoN-DURP, 2026

ii. Health Facilities

Health contributes to the well-being of a population. Over time, there has been an increase in the number of health facilities in the County. Chuka level 4 hospital is the only referral hospital. Table 9-5 shows the distribution of healthcare facilities within the County as per the various tiers as well as ownership (public or private) Table 9.6 summarizes the number of health facilities in the County in relation to population at sub-county level. While Table 9-7 shows a comparison between County and National health facility providers.

Table 9.13: Levels of Health Facilities

Level	Level 2			Level 3			Level 4	Level 5	Level 6
Type	dispensary	Medical clinic	Stand alone	Health centre	Medical centre	Nursing home	Primary care hospital	Secondary care hospital	Tertiary care hospital
No.	117	45	2	6	18	1	12	-	-

Table 9.14: Categorization of Health Care Facilities in Tharaka Nithi County

SUB COUNTY	WARD	LEVEL 1		LEVEL 2		LEVEL 3		LEVEL 4		LEV EL 5
	Service provider	pub lic	priv ate	pub lic	priv ate	pub lic	priv ate	pub lic	priv ate	
Muthambi	Mitheru	4	0	6	0	1	0	0	0	0
	Muthambi	5	0	8	1	1	0	0	0	0
Mwimbi	Mwimbi	7	0	5	0	1	0	1	0	0
	Ganga	5	0	4	0	1	0	0	0	0
	Chogoria	8	0	8	8	2	0	1	0	0
Igambang'ombe	Mariani	4	0	3	2	0	0	0	0	0
	Igambang'ombe	10	0	11	0	1	0	0	1	0
Chuka	Karingani	4	0	5	9	0	0	2	1	0
	Mugumoni	10	0	9	3	3	0	0	0	0
	Mugwe	5	0	5	4	1	0	0	0	0
Tharaka North	Gatunga	8	0	4	1	2	0	0	0	0
	Mukothima	7	0	5	1	3	0	0	0	0
	Nkondi	5	0	3	1	1	0	0	0	0
Tharaka South	Chiakariga	10	0	9	0	3	0	1	0	0
	Marimanti	8	0	4	1	1	0	2	0	0
	Total	100	0	89	31	21	0	7	2	0

Source: TNC Department of Health Records and Information, 2019

Table 9.15: Health Facilities in the County by Sub-County

Sub-County	Population	Health Facilities (Public and private)
Muthambi	36,179	26
Mwimbi	78,715	51
Chuka	91,520	61
Igambang'ombe	52,802	32
Tharaka North	58,252	41
Tharaka South	74,824	39
Total	392,292	250

The table indicates that the distribution of health facilities generally corresponds with population distribution across the sub-counties. Chuka Sub-County, which has the largest population, also has the highest number of health facilities (61), reflecting the greater demand for healthcare services. A similar pattern is observed in the other sub-counties, with the exception of Tharaka South, where a relatively higher number of facilities is attributed to its dispersed settlement pattern, requiring more widely distributed health services to improve accessibility for the rural population.

Table 9.16: Comparison of County and National Health Care Facility Providers

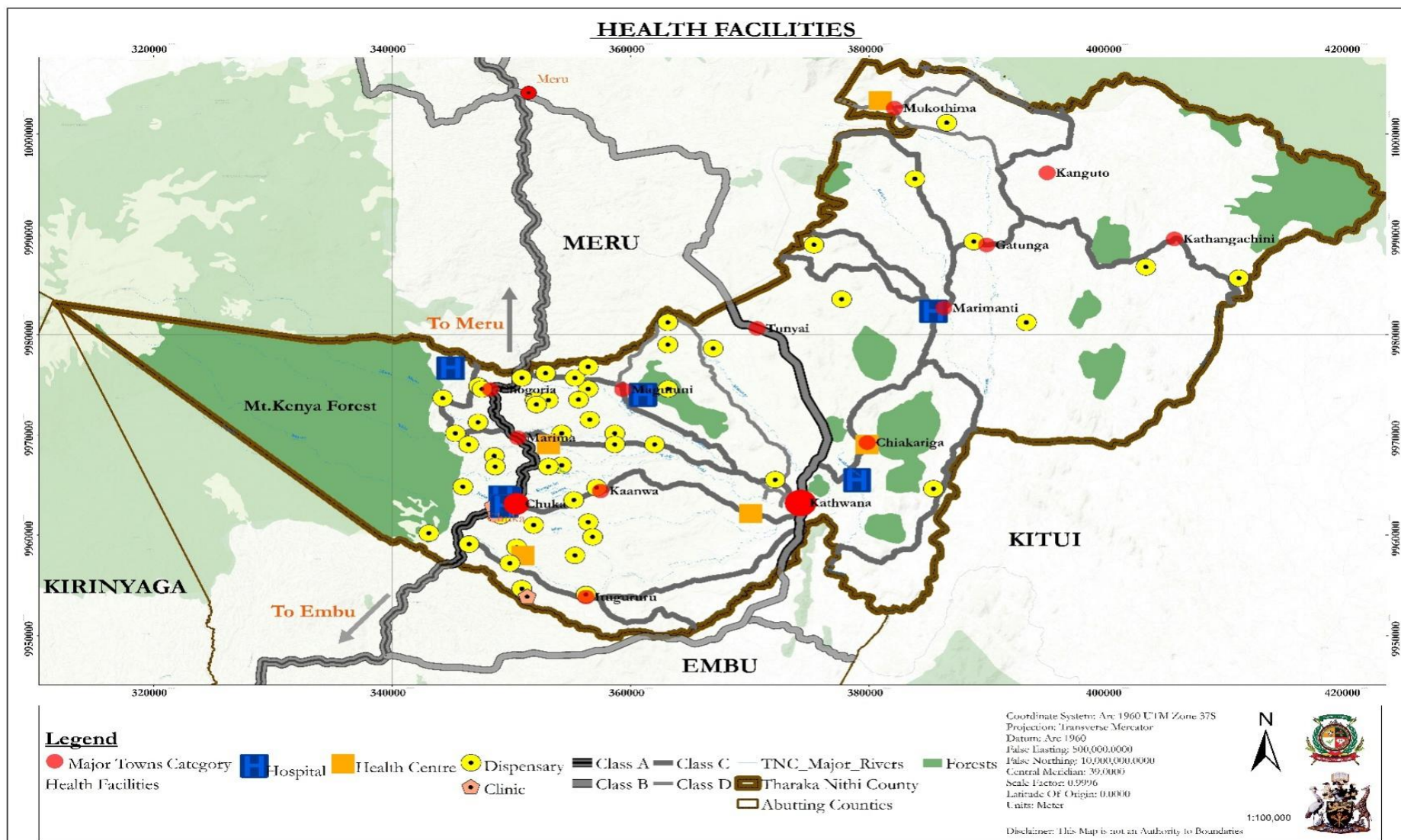
Ownership	Total Number of operational Health Facilities - TNC	National Level
County Government	89	4929
Faith-based	27	1081
NGO	1	347
Private	33	3797

Source: TNC Department of Health Records and Information, 2019

The table shows that public health facilities constitute the majority of healthcare institutions in Tharaka Nithi County, followed by private and faith-based facilities, which complement public service delivery. Despite this extensive network, access to healthcare remains constrained in some areas by poor road infrastructure, difficult terrain, and dispersed settlements. These challenges are particularly evident in Tharaka North and Tharaka South sub-counties, where additional dispensaries are needed to improve service accessibility. illustrates the spatial distribution and hierarchy of health facilities across the County.

Field mapping indicates that most health facilities in Tharaka Nithi County are in good condition and have access to both water and electricity. The availability of these essential services supports effective healthcare delivery, improves sanitation, and enhances the reliability of medical services across the County.

Map 9.15: Distribution and Accessibility of Health Services in TNC



iii. Administrative Facilities

Administrative, security, and law enforcement facilities in Tharaka Nithi County support governance, public administration, justice, and public safety. These include the County Headquarters, County and National Government administrative offices, County Commissioner's Office, Deputy County Commissioner offices, Ward Administrator offices, Chiefs' and Assistant Chiefs' offices, as well as police stations, police posts, Administration Police (AP) camps, law courts, probation centres, prisons, and juvenile rehabilitation centres. These facilities play a critical role in decentralizing government services, maintaining law and order, administering justice, and enhancing security across the County.

Police Stations and Police Posts

Tharaka Nithi County has five police stations distributed across Mwimbi and Muthambi (2), Chuka (1), Tharaka South (1), and Tharaka North (1). In addition, the County has eight police posts, comprising two in Chuka, one in Mwimbi and Muthambi, two in Tharaka South, and three in Tharaka North. These facilities provide policing, crime prevention, emergency response, and enforcement of law and order across the County. To strengthen community safety, the County has established a County Policing Authority comprising representatives from the wards and national security agencies to promote community policing and enhance collaboration between security agencies and local communities.

Courts

The County's judicial system comprises an Environment and Land Court, one Principal Magistrate's Court, and four Resident Magistrates' Courts, located in Chuka and Marimanti. The Environment and Land Court handles land and environmental disputes, while the Magistrates' Courts determine civil and criminal matters. Although the County does not have a Kadhi's Court, alternative dispute resolution mechanisms, including the Njuri Ncheke Council of Elders and local administrative structures such as Chiefs, continue to play an important role in resolving community and family disputes. These judicial institutions promote access to justice, uphold the rule of law, and facilitate efficient dispute resolution.

Environmental protection is supported by the Kenya Forest Service (KFS) through two forest stations located at Chuka and Chogoria, three forest beats at Mbogori, Kamukuu, and Makuru, and four forest guard camps at Kiamuriuki, Mwirini, Karigi, and Mitheru. The Kenya Wildlife Service (KWS) also maintains an office in Chuka Town and a station at the Mt. Kenya Kinondoni Gate to support wildlife conservation and the management of protected areas.

Prisons, Probation Centres and Juvenile Centres

The County has two probation offices, located in Chuka and Marimanti, both situated adjacent to the respective law courts. The Chuka office serves Igambang'ombe, Chuka, Mwimbi, and Muthambi, while the Marimanti office serves Tharaka North and Tharaka South. Probation services oversee non-custodial sentences, offender rehabilitation, community service programmes, pre-bail assessments, aftercare services, and the management of rehabilitation programmes. These services contribute to offender reintegration, reduce recidivism, and promote restorative justice within the County.

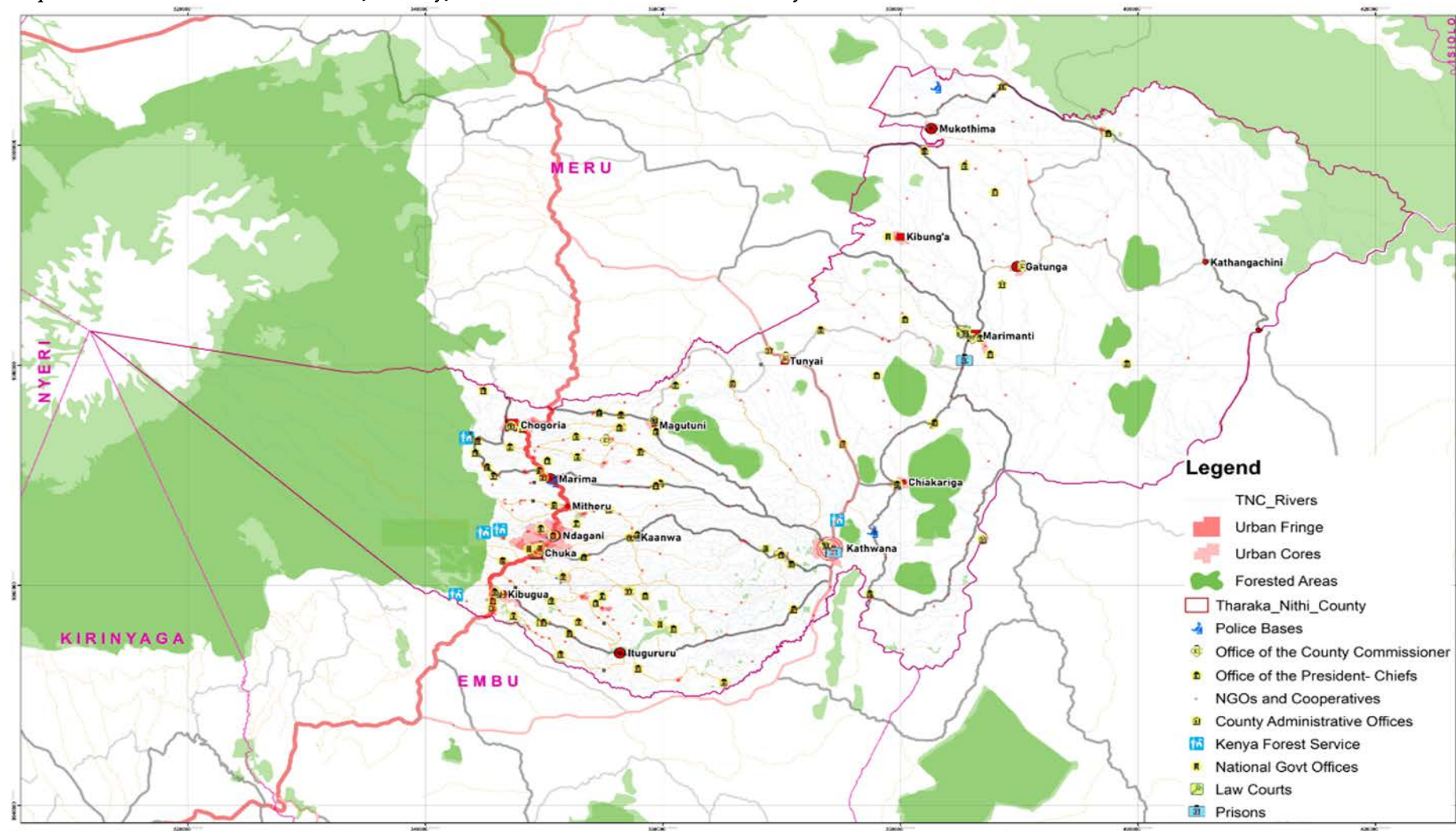
Public Meeting and Civic Facilities

Public meeting and civic facilities in Tharaka Nithi County provide venues for public participation, civic engagement, cultural events, and the delivery of government programmes. The main facilities are concentrated in the major urban and administrative centres, including Kathwana (County Headquarters), Chuka, Chogoria, Marimanti, Chiakariga, and Gatunga, where they comprise

County and Sub-County social halls, community halls, conference facilities, and public meeting grounds. Notable public open spaces include the DC Grounds in Chuka, which hosts public meetings, national celebrations, sporting events, and community activities, while Kathwana Municipality has a proposed public park and civic open space to support future administrative and recreational functions.

These facilities strengthen public participation, facilitate stakeholder consultations, and support the delivery of County and National Government services. As the County continues to urbanize, there will be a need to expand and equitably distribute civic facilities, particularly in emerging urban centres and ward headquarters, to improve accessibility and promote inclusive governance.

Map 9.16: Distribution of Administrative, Security, Law and Order Facilities in the County



Source: UoN-DURP, 2026

iv. Sports and Recreation Facilities

Tharaka Nithi County has a vibrant sporting sector comprising 280 registered sports clubs, 50 volleyball clubs, and three active darts clubs. To strengthen sports development and nurture talent, the CIDP (2018–2022) proposes the construction of at least one modern stadium in every sub-county. A fully-fledged stadium has already been completed at Kirubia in Chuka Sub-County and is currently operational, providing a venue for sports competitions, youth development, and community events. Expansion of sports infrastructure will enhance recreation, promote healthy lifestyles, create employment opportunities, and support sports tourism across the County.

Despite the importance of green spaces, urban areas within the County have limited public parks and recreational open spaces. Currently, a public park has only been proposed in Kathwana Municipality. In addition, encroachment and conversion of wetlands into settlement areas, particularly in urban centres such as Chuka, have further reduced the availability of open spaces. The provision and protection of green and open spaces therefore remain critical for achieving sustainable urban development.

a) Religious Facilities

Tharaka Nithi County is predominantly Christian, with churches representing various denominations distributed throughout both urban and rural areas. In addition, there is **one mosque located in Chuka Town**, serving the Muslim community. Religious institutions play an important role in promoting social cohesion, moral development, community welfare, and the provision of educational and charitable services, making them an integral component of the County's social infrastructure.

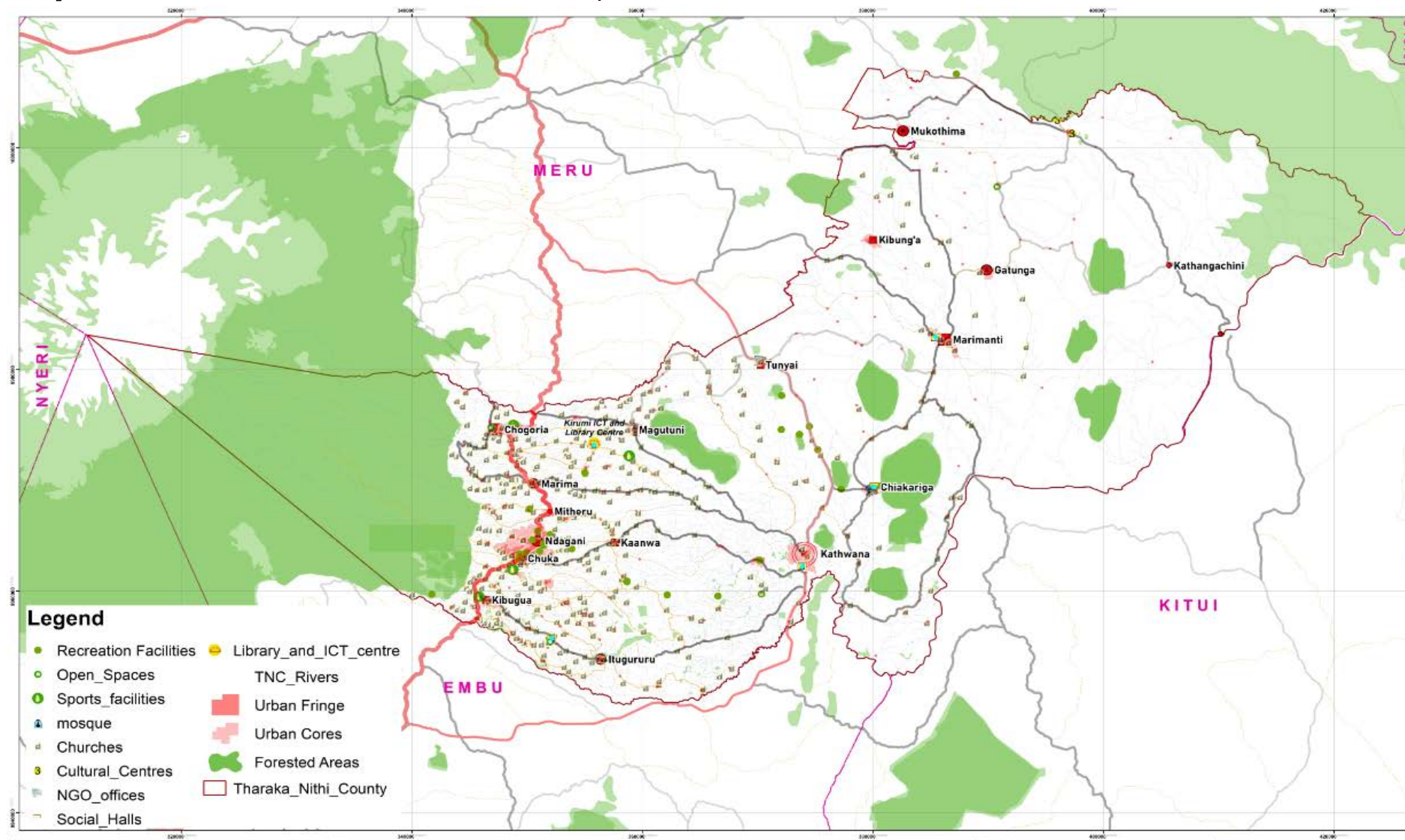
b) Cemeteries and Burial Grounds

The County has **one public cemetery**, located adjacent to Chuka Level 4 Hospital in Chuka Town, covering approximately 2.4 hectares. While this facility serves the existing urban population, its capacity is insufficient to meet the growing demand associated with urbanization. Additional cemeteries and planned burial grounds will therefore be required in the major urban centres and municipalities to ensure equitable access and sustainable management of burial services.

c) Libraries and Information Centres

Tharaka Nithi County has one public library, located in Ganga Ward, which provides access to educational resources and information services. In addition, the Planning Unit in Maara Sub-County operates an information and documentation centre where residents can access government publications and planning documents. To improve access to knowledge and lifelong learning, the County plans to establish at least one public library in every sub-county, as proposed in the CIDP (2013–2017). Expanding library services will support education, research, digital literacy, and informed public participation. Map 9.17 illustrates the spatial distribution of sports and recreation facilities, religious institutions, cemeteries, burial grounds, libraries, and other social infrastructure across the County.

Map 9.17: Distribution of Various Social Infrastructure in the County



Source: UoN-DURP, 2026

9.17 Emerging challenges and Opportunities

Challenges	Opportunities
Poor road networks, particularly in rural areas, increase transport costs and limit access to markets and social infrastructure.	National and regional transport initiatives such as LAPSSET , the Nairobi–Nanyuki Railway , and Public–Private Partnerships (PPPs) present opportunities to improve connectivity.
Lack of air and rail transport systems limits transport options and regional accessibility.	Ongoing national transport investments provide opportunities to strengthen regional linkages.
Uneven distribution and quality of social infrastructure, including schools, health facilities, security, religious, and recreational facilities.	Existing social infrastructure network provides a foundation for improving human development and quality of life.
Inadequate telephone and internet coverage in parts of the County.	Expanding ICT infrastructure offers opportunities to improve communication and facilitate business activities.
Heavy reliance on traditional cooking fuels and limited use of renewable energy.	The County has significant potential for solar , hydropower , biogas , ethanol , and sustainable biomass energy development.
Inadequate water supply and sanitation, particularly in Tharaka North and Tharaka South.	Availability of rivers and suitable sites for earth dams and sand dams presents opportunities to improve water storage and irrigation.
Inadequate solid and liquid waste management systems.	Adoption of sustainable waste management practices can enhance environmental quality and public health.
Growing population is increasing pressure on infrastructure and public services.	Population growth provides an opportunity for planned infrastructure expansion and integrated spatial development.

Source: UoN-DURP, 2026

10 CHAPTER 10: ECONOMIC ANALYSIS

10.1 Overview

The economy of Tharaka Nithi County is shaped by both external functional linkages and internal economic activities, largely anchored in agriculture and the natural resource base. It operates as an open system through which individuals and groups earn livelihoods, private-sector investments are supported, and both national and county governments generate revenue to provide public goods and services that enhance welfare and productivity.

County and urban economies are guided by national macroeconomic frameworks, including monetary and fiscal policies, annual budget finance laws, and the County Fiscal Strategy Paper. A strong county economy is supported by a hierarchy of economic nodes whose spheres of influence extend to surrounding areas, facilitated by infrastructure networks, skilled human capital, secure property rights, and an enabling environment for investment and enterprise development.

Conceptually, the County economy can be understood in three interrelated components: external economic relations, the county's capital stock that enables economic activity, and internal economic activities that drive day-to-day production and exchange.

10.2 Stock of capital propelling the economy

Capital stock forms the foundation of economic development by providing the infrastructure and services that support production, investment, and trade. In Tharaka Nithi County, key capital assets include the road network, drainage systems, water and sanitation infrastructure, electricity supply, mobile communication and internet networks, buildings for various uses, and an up-to-date land information system supported by valuation rolls for urban centres. These assets, together with access to petroleum fuels, financial services, and adequate security, underpin economic productivity and competitiveness.

The availability and quality of capital stock directly influence production costs and investment decisions. Factors such as electricity tariffs, fuel prices, transport costs, land values, cost of finance, inflation, and taxation determine the competitiveness of businesses at both the County and national levels. Inadequate infrastructure and limited accessibility, particularly in the lower parts of the County and emerging urban centres, constrain investment and the full utilization of the County's economic potential.

Closely linked to capital stock are macroeconomic factors such as interest rates, corporate taxation, and the cost of fuel and electricity, all of which influence the cost of doing business. **Error! Reference source not found., Error! Reference source not found., and Error! Reference source not found.** indicate that Kenya has relatively higher central bank and lending rates, as well as higher fuel and electricity costs, compared to several African, Asian, and Latin American countries. In contrast, many Asian economies perform better across these indicators, providing a more competitive business environment.

These factors have significant implications for economic activities at both the national and county levels, increasing production costs in agriculture, commerce, and industry and influencing consumer purchasing power. Since these indicators are largely determined at the national and international levels, the County has limited control over them, even though they directly affect investment, job creation, household incomes, and overall economic competitiveness.

Table 10.1: Asian Countries

Indicators	India	Pakistan	Bangladesh	Thailand	Indonesia	Malaysia	S. Korea	Singapore
CB-Rates	6.50	17.50	8.50	2.50	6.25	3.00	3.35	3.61
Lending Rates	10.25	8.66	12.23	7	7.38	5.30	4.77	5.25
Taxation (C) %	34.94	29	27.5	20	22	24	24	17
Fuel Prices \$/L	1.13	1.04	1.01	1.07	0.65	0.48	1.25	2.86
Electricity \$/KWh	0.108	0.280	0.054	0.122	0.072	0.133	0.11	0.246

Source: Compilation from World Bank Data 2023, 2024

Table 10.2: Latin American Countries

	Cuba	Chile	Brazil	Uruguay	Jamaica	Bolivia	Guatemala	Guyana
CB-Rates	2.25	5.50	10.5	8.50	6.75	6	5	5
Lending Rates	2.25	9.97	51.7	15.42	11.65	8.41	6.7	8.07
Taxation (C)%	35	27	34	25	25	25	25	25
Fuel Prices \$/L	1.24	1.47	1.09	1.093	1.09	0.54	1.05	1.03
Electricity \$/kwh	0.006	0.130	0.118	0.117	0.246	0.061	0.270	0.320

Source: Compilation from World Bank Data 2023, & 2024

Table 10.3: African Countries

Indicators	Kenya	Algeria	Benin	Botswana	Ethiopia	Rwanda	Tanzania	Uganda
CB-Rates	16.5	3.00	5.50	1.90	7.00	7.00	6.00	10.0
Lending Rates	16.45	8.00	6.25	6.25	8.00	15.75	12.78	19.00
Taxation (C) %	30	26	30	22	30	28	30	30
Fuel Prices \$/L	1.49	0.37	1.22	1.25	0.76	1.29	1.19	1.31
Electricity \$/kw	0.19	0.04	-	0.11	0.02	0.07	0.09	0.12

Source: Compilation from World Bank Data 2023, & 2024

For the economy, at both the national and county levels, to perform well, a properly functioning set of capital stock is required, and reduced production costs are reflected in the variables in the tables. Access to capital for investment in Kenya is a limiting factor, as are the costs of electricity and petroleum fuels compared with other nations. County governments have very little influence in this area of economic operation, yet the law requires consultations with them and their participation in public policy matters.

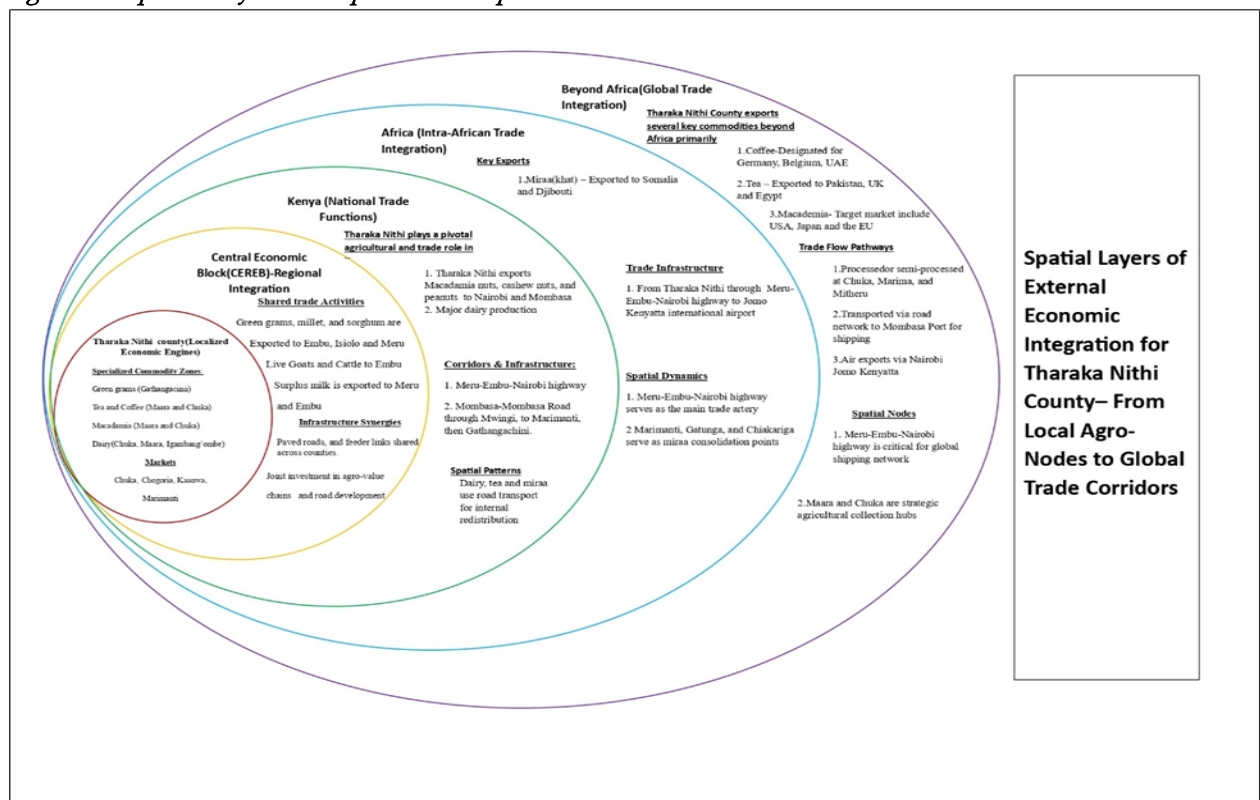
a) External Economic Relations

Exogenous economic interactions occur at four scale levels with respect to the economy of Tharaka Nithi, namely: the immediate abutting counties to Tharaka Nithi in all directions (Kitui, Embu, Meru), the Mount Kenya and Aberdare economic block comprising Nyeri, Meru, Embu, Kirinyaga, Muranga, Kiambu, Laikipia, Nakuru, Nyandarua, the rest of the country, and finally beyond the national borders to Asia and Western Europe. The bloc's priority pillars are agriculture and agri-business, industry, healthcare, tourism, water and other natural resources, infrastructure, and ICT. Each county in the economic block is expected to identify an economic enterprise zone for manufacturing and processing.

However, the viability of each industrial zone in each county depends on the county's raw material base and effective demand, given that most are very small spatial entities. Besides, the country's production cost structure may deter direct investment at the local, national, and international levels. The spatial scales have linkages of exports from TNCs, largely of low-value agro-based products limited in diversity (Tea, Coffee, Banana, and macadamia), and imports from others of agricultural products (potatoes, onions, cabbages, rice), an assorted range of manufactured products, energy, financial inflows, and investments.

An essential perspective on the TNC economy is the exchange rate between what it produces and what it imports, which requires data to support enhanced analysis of volumes and value. The overall picture is that the county currently experiences limited growth opportunities through exports due to dependence on a few products for export.

Figure 10.1 Spatial Layers of Exports and Imports



Source: UoN-DURP 2026

b) Mount Kenya and Aberdare economic block

Tharaka Nithi County is part of the Mount Kenya and Aberdare economic block, where the tourism circuit is anchored on social and cultural heritage, the Mount Kenya and Aberdare forests, their unique ecological features, and wildlife resources. The County's tourism assets can be

effectively harnessed by linking them to the broader regional tourism system through a coherent branding strategy.

Socio-economic interactions within and beyond these spatial scales are supported by transport and communication networks, including road infrastructure, railway links, air connections via JKIA, access to water transport via Mombasa Port, and internet-based communication systems and media platforms. The County also engages in trade flows, importing agricultural products such as yams, potatoes, onions, cabbage, and miraa from neighboring counties. In addition, there is both inflow and outflow of human capital between Tharaka Nithi and the surrounding counties.

In terms of Gross County Product (GCP), Tharaka Nithi consistently ranks low in the value of goods and services produced annually between 2013 and 2024, at both current and constant prices, as illustrated in **Error! Reference source not found..** Although there has been overall GDP growth across countries, the magnitude of growth varies significantly due to differences in the size of their economic bases. Compared to its neighbours—Meru, Embu, and Kitui. Tharaka Nithi records a lower GDP, which may result in negative spillover effects such as out-migration of skilled labour, reduced investment attractiveness, and increased external investment by residents.

This reflects broader inter-county inequalities driven by variations in resource endowment, human capital capacity, and the ability to attract and sustain investment.

Table 10.4: Comparison of Gross County Product at Current Prices (Million Kshs.)

County	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Nairobi	1,612,572	1,707,029	1,817,432	1,912,001	2,020,743	2,138,027	2,277,453	2,278,800	2,471,089	2,659,197	2,866,017	2,997,797
Nakuru	285,854	318,470	338,995	366,157	352,340	366,661	392,258	392,355	435,399	433,728	509,521	491,836
Nyandarua	77,294	84,597	95,657	94,896	104,138	101,197	109,782	107,226	109,713	118,528	117,294	116,826
Murang'a	129,266	135,675	138,092	141,567	137,995	144,234	147,185	153,459	165,194	168,815	169,250	185,331
Laikipia	53,235	54,250	61,119	67,322	66,294	70,972	73,636	74,089	74,649	81,987	83,456	87,144
Kiambu	358,143	375,967	398,008	417,022	427,146	436,255	459,376	456,589	490,077	519,927	529,291	559,929
Kirinyaga	81,667	83,360	87,782	91,645	96,449	91,639	96,366	97,525	103,391	109,072	112,669	119,718
Nyeri	128,188	135,428	143,708	146,313	145,284	150,104	160,822	164,076	169,947	173,104	178,492	186,827
Meru	196,582	206,350	215,504	219,506	222,453	228,892	242,576	242,484	260,031	259,026	280,590	291,883
Embu	104,661	98,989	99,604	110,211	108,828	118,371	114,516	118,747	125,908	130,159	123,707	137,341
Tharaka Nithi	36,893	37,485	38,971	40,723	42,828	45,936	46,460	48,471	52,433	54,259	56,936	60,040
Kitui	76,037	82,708	87,402	82,015	87,429	96,623	116,406	119,163	105,660	110,636	115,093	120,686

Source: Various Editions of Economic Surveys, & County Gross Domestic Product: 2013-2024

Table 10.5: Per Capita GDP

County	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Nairobi	419,586	434,309	452,139	465,112	480,658	497,272	517,948	498,511	530,483	560,398	593,118	609,421
Nakuru	149,579	163,252	170,234	180,128	169,801	173,103	181,416	178,195	193,468	188,645	217,016	205,229
Nyandarua	137,209	147,079	162,881	158,255	170,089	161,880	171,994	163,166	163,763	173,606	168,639	164,934
Murang'a	131,783	136,613	137,333	139,055	133,876	138,205	139,295	142,548	151,769	153,416	152,164	164,855
Laikipia	115,513	115,424	127,507	137,713	132,970	139,581	142,001	140,185	138,389	148,981	148,704	152,316
Kiambu	169,383	173,884	180,011	184,443	184,746	184,517	190,003	182,563	192,065	199,799	199,516	207,112
Kirinyaga	146,519	147,308	152,790	157,116	162,867	152,418	157,871	153,067	160,929	168,376	172,511	181,822
Nyeri	191,746	198,329	206,042	205,378	199,658	201,957	211,841	202,663	207,708	209,365	213,658	221,356
Meru	137,160	142,174	146,623	147,477	147,587	149,958	156,935	154,900	163,995	161,307	172,566	177,310
Embu	187,841	175,067	173,582	189,262	184,157	197,380	188,163	188,929	198,230	202,806	190,781	209,663
Tharaka Nithi	101,802	102,040	104,653	107,883	111,928	118,431	118,166	120,245	128,661	131,711	136,739	142,677
Kitui	74,641	79,726	82,732	76,233	79,801	86,603	102,453	100,471	88,004	91,043	93,588	96,985

Source: Calculated from KNBS Documents

Tharaka Nithi ranks third at Kshs 101,802 per capita income, while Embu has Kshs 187,841, and Meru has Kshs 137,160, respectively. Within the economic bloc, Nyeri, Embu, and Kiambu counties stand out as strong performers, with per capita incomes of Kshs 191,746, 187,841, and 169,383, in descending order. If the monthly income is calculated from the figures above, it stands at Kshs 8,483.5 in 2013 for Tharaka Nithi and has increased marginally to Kshs 11,889.75 in 2024.

When compared with the realities of citizens, this indicates that a large section of the community is not engaged in market-based income-generating activities and that the economy has low production capacity. Alternatively, the economy's actual production capacity has not been accurately captured by KNDS's accounting.

It is noted that Tharaka-Nithi (Table 10.4) is the only county that nearly doubled its gross county product. It means that after devolution, there has been rapid growth that will overtake other countries in the coming years. However, it must maintain the same development trajectory.

c) Internal Economy of the County

Internal economic strength of Tharaka Nithi is built on the resource base, categorized into three distinct regions mentioned earlier, the distribution of infrastructure facilities and services, and the human population. The economic sectors and sub-sectors driving the county economy providing employment and incomes hence county gross value added are: primary sector (crop, livestock, forestry, fishery and mining); secondary economic activities (small scale industrial activities and the construction sector; commercial activities (markets, wholesale and retail, supermarkets, informal trade activities); quaternary sector (finance, administration, information and financial flows, information processing); financial mobilization (revenue generation, expenditure on service delivery).

Data on the county's construction sector was unavailable due to a lack of records from the planning department and tracking of completed buildings or construction works by the county government, the national government, and the private sector. Multiplier impacts using appropriate marginal propensities to consume in building and construction cannot be determined. The value chain operations of all agricultural enterprises in the county have the advantage of unlocking the county's full farming potential.

10.3 Agriculture

i. Type of agriculture practiced

Agriculture is the backbone of the County's economy. An estimated 80% of the County's population is engaged in agricultural activities and depends on agriculture for food, income, and livelihood. An estimated 54% (147,710 ha) of the land in the County is under farming (The Ministry of Agriculture, 2017). Up to 92.2% (134,102 ha) is used for subsistence farming, while only 7.8% (12,281 ha) is used for commercial farming, as indicated in Table 10.6 below.

Table 10.6: Area of Agricultural Land by Main Purpose (Hectares)

County/Sub County	Area of Agricultural Land (Ha)	Subsistence Farming (Ha)	Commercial Farming (Ha)
Tharaka Nithi County	147,710 (100%)	134,102 (92.2%)	12,281 (7.8%)
Igambang'ombe	19,752 (100%)	18,764 (95.5%)	895 (4.5%)
Maara	42,658 (100%)	36,883 (87.2%)	5,444 (12.8%)
Chuka	34,594 (100%)	32,083 (93.6%)	2,204 (6.4%)
Tharaka North	27,620	25,979	1,439

	(100%)	(94.8%)	(5.2%)
Tharaka South	23,085 (100%)	20,393 (90%)	2,298 (10.0%)

Source: KNBS, 2019

ii. Household and per capita land size in 2019 by sub-county

According to the 2019 census data, the County's average household land size was 6.6 acres (2.7 ha). The per capita land size in the same year was 1.8 acres (0.73 ha), however, the variation across the sub-counties was enormous. Chuka Sub-County had the lowest average household and per capita land size of 1.36 and 0.4 acres, respectively, while Tharaka North Sub-County had the highest average household land size of 18.3 and 5.1 acres, respectively, for the household and per capita. Other sub-counties were as indicated in Table 10.7. This has implications for the type of land use interventions to be considered per sub-county.

Table 10.7: Average Household and Per Capita Land Size by Sub-counties in 2019

County/Sub County	Total Land Area (Sq. km)	Land in Acres (Ha)	Population	No. of House holds	Household Land Size (Acres)	Per Capita Land Size (Acres)
Chuka	138.8	34,298 (13,880)	91,080	25,300	1.36	0.4
Maara	265.1	65,506 (26,510)	114,894	31,915	2.10	0.6
Igambang'ombe	324.6	80,209 (32,460)	53,210	14,781	5.40	1.5
Tharaka South	637.0	157,403 (63,700)	75,250	20,703	7.60	2.1
Tharaka North	838.8	297,268 (83,880)	58,345	16,207	18.30	5.1
*Mt. Kenya Forest	360.1	88,981 (36,010)	398	-	-	-
Tharaka Nithi County	2,204.3	723,665 (292,863)	393,177	109,860	6.6	1.8

Source: Author 2026

iii. House hold and per capita land size projections to 2036 by sub-counties

With the increase in population and urbanization, the average household and per capita land size is expected to reduce significantly over the plan period as indicated in Table 10.8 with Chuka's household land size decreasing by an average of 0.3 acres from 1.2 acres to 0.9 acres. For other sub-counties, the reductions will be 0.3, 0.9, 1.3, and 3.2 acres, respectively, for Maara, Igamba Ng'ombe, Tharaka South, and Tharaka North. This has implications on agricultural production especially given that agriculture is the main economic activity for the county.

Table 10.8: Projected land size change over the plan period – 2026-2036

Year	2019		2026		2031		2036	
Sub-county	HHL S	PCLS	HHL S	PCLS	HHLS	PCLS	HHLS	PCLS
Chuka	1.4	0.4	1.2	0.4	1.0	0.3	0.9	0.3
Maara	2.1	0.6	1.7	0.5	1.6	0.5	1.4	0.5

Igamba-Ngombe	5.4	1.5	4.6	1.4	4.1	1.4	3.7	1.3
Tharaka South	7.6	2.1	6.4	2.0	5.7	1.9	5.1	1.8
Tharaka North	18.3	5.1	15.6	4.8	13.8	4.6	12.4	4.5
Average	6.9	1.9	5.9	1.8	5.2	1.8	4.7	1.7

HHLS = Household Land Size

PCLS = Per Capita Land Size

Table 10.9: Projected Household and Per Capita Land Size by Sub-counties 2019-2036

County/Sub County	Population 2019	2019			2026				2031				2036			
	Pop.	No. HH	HH-LS	PC-LS	Pop.	No. of HH	HH-LS	PC-LS	Pop.	No. HH	HH-LS	PC-LS	Pop.	No. HH	HH-LS	PC-LS
Chuka	91,080	25,300	1.4	0.4	96,037	29,826	1.2	0.36	99,743	33,586	1.0	0.34	103,591	37,573	0.9	0.3
Maara	114,894	31,915	2.1	0.6	121,148	37,620	1.7	0.54	125,822	42,363	1.6	0.52	130,676	47,373	1.4	0.5
Igambang'ombe	53,210	14,781	5.4	1.5	56,106	17,423	4.6	1.43	58,271	19,622	4.1	1.38	60,519	21,750	3.7	1.3
Tharaka South	75,250	20,903	7.6	2.1	79,346	24,642	6.4	1.98	82,407	27,749	5.7	1.91	85,586	31,043	5.1	1.8
Tharaka North	58,345	16,207	18.3	5.1	61,521	19,105	15.6	4.91	63,894	21,515	13.8	4.72	66,359	24,069	12.4	4.6
*Mt. Kenya Forest (Excluded)	398	-	-	-	413	-	-	-	428	-	-	-	445	-	-	-
Tharaka Nithi County	393,177	109,860	6.9	1.9			6.4	1.77		156,722	6.2	1.72		181,746	5.9	1.65

Annual Growth Rate – 0.76%; HH-LS = House Hold Land Size; PC-LS = Per Capita Land Size

Map 10.1: Agro-ecological Zones in the County

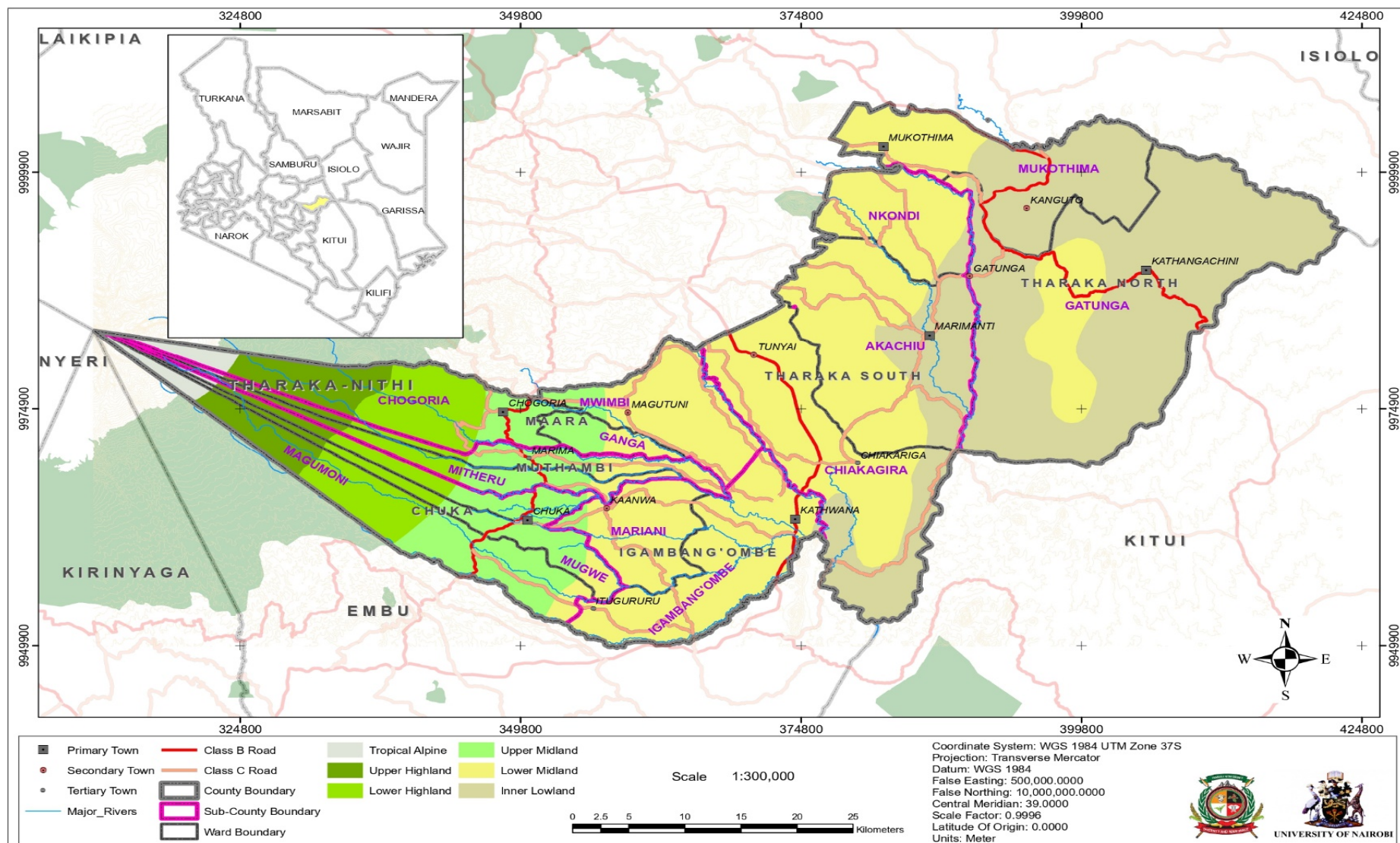


Table 10.10: Recommended Agricultural Enterprises in Tharaka Nithi by Agro-ecological Zones

Zone	Type of crops suitable by agro-ecological zones	Type of livestock by AEZ
UM-1	• Cash crop: Coffee, Tea • Vegetables: Cabbages, Kales, Carrots, Onions, • Fruits: Passion • Food crops: Bananas, English Potatoes, Yams	Dairy cows, Dairy goats, Fish
UM 2-3	• Cash crops: Coffee, Maize, Bananas • Food crops: Maize, Beans, English Potatoes, Sweet Potatoes, Bananas (cooking), Cassava • Vegetables: Kales, Tomatoes, Cabbages, Onions • Fruits: Loquats, Paw paws, Passion fruits, Bananas (fruit), Avocados	Dairy cows, Dairy goats, Poultry, Fish
LM 1-2	• Food crop: Maize, Sorghum, Millet, Beans, Cowpeas, Sweet Potatoes, Cassava, Bananas • Vegetables: Kales, Tomatoes, • Cash crops: Sunflower	Dairy cows, Dairy goats, Poultry, Fish
LM3	• Cash crop: Cotton, Sunflower, Soya beans. • Food crops: Millet, Green grams, Ground nuts, Foxtail, Cassava and Sweet Potatoes. • Vegetables: Tomatoes, Peas.	Beef cattle, Meat goats, Poultry, Fish
LM4	• Food crop: Foxtail, Bulrush millet, Maize, Cowpeas, Sorghum, Green Grams, Dolichols, Pigeon peas, • Fruits: Mangoes • Cash crop: Sunflower, Sisal.	Cattle, Meat Goats, Poultry, Fish
LM5	• Food crops: Millet, Sorghum, Green grams, Cowpeas, Pigeon peas,.	Cattle, Bees, Fish, Poultry

Source: Department of Agriculture, Livestock and Fisheries, CGTN

iv. Crop Production

a) Rain-Fed Agriculture

Out of the 2,641 km² (264,100 ha) of land surface of the County, 54% (142,614 ha) is arable and 43% (113,563 ha) is non-arable land. The remaining 2% (5,282 ha) falls under urban areas. A total of 43,799 hectares of land is under food crops while cash crops cover about 14,839 hectares of land. The main food crops in the County include maize, beans, cow peas, sorghum, millet, green grams, bananas and pigeon peas while the main cash crops include coffee, tea, and horticultural crops as shown in Table 10.11.

Table 10.11: Distribution of food and cash crops in the sub-counties

SUB-COUNTY	CHUKA	MAARA	IGAMBA NG'OMBE	THARAKA SOUTH	THARAKA NORTH
FOOD CROPS	Maize Bananas	Maize, Beans, Bananas, Green grams, Cowpeas, Pigeon	Green grams Cowpeas	Green grams Cowpeas	Green grams, Cow peas. Pigeon peas, Sorghum,

		peas, Cassava, Horticultural crops, Millet, Sorghum	Sorghum Millet	Sorghum Millet	Pearl millet, Maize.
CASH CROPS	Tea Coffee	Tea Coffee Bananas	Bananas Hay (Grass) Fruits (Mangoes) Cotton Tobacco	-	-

Source: TNC, 2019

The high-altitude areas of Chuka and Maara Sub-counties receive reliable rainfall favorable for cultivation of tea, coffee and maize. The middle altitude areas of Igambang'ombe receive moderate rainfall suitable for green grams, cowpeas, pigeon peas, sorghum, cotton, tobacco and a variety of other food crops grown in small quantities while parts of Tharaka North and Tharaka South Sub-counties receive low, unreliable and poorly distributed rainfall suitable for livestock keeping. Given that the two sub-counties with low and unreliable rainfall have comparatively higher household land sizes, availability of water for irrigation can significantly increase crop production in the sub-counties and improve food security.

v. Crop Production Trends

In the upper highlands, an acre of land accommodates approximately 500 coffee stems. Currently, each stem yields about 2 kg/year, giving an average production of 1,000 kg/acre/year. However, depending on the variety, the potential yield is 15 kg/stem, equivalent to 15,000 kg/acre/year. Current production therefore represents only 13% of the potential, with an estimated loss of 13 kg/stem/year (87%), valued at approximately KSh 702,000 per acre (at KSh 108/kg). Coffee production has declined largely due to low market prices, although efforts are underway to revive the sub-sector.

Tea production averages 800 bushes per acre, each yielding about 2 kg, for a total of 1,600 kg/acre. Under optimal management, yields can reach 3.5 kg per bush or 2,800 kg/acre. Current best practice averages 2,428 kg of green leaf per acre (KTDA, 2022), representing 87% of the potential. The production gap of 372 kg/acre translates to an annual income loss of approximately KSh 18,414 per acre at an average price of KSh 49.50/kg.

In the upper midland zone, mixed cropping of maize, beans, and bananas typically produces 5 bags (90 kg each) of maize, 1 bag (90 kg) of beans, and 10 banana bunches per acre. Under monocropping and optimal management, maize can yield 30 bags/acre, beans 10 bags/acre, and bananas up to 16 tonnes/acre/year, equivalent to 500–800 bunches. These figures indicate that mixed farming in this zone underutilizes the land's agricultural potential.

In the middle zone, green grams and cowpeas are preferred during low-rainfall seasons because of their drought tolerance, while sorghum performs well during wetter seasons. Current production averages 1 bag (90 kg) per acre of green grams or cowpeas, increasing to 3 bags under improved management and 7–13 bags in favourable seasons. Sorghum yields average 15 bags per acre, ranging from 12 bags in poor seasons to 18 bags in good seasons. In Igambang'ombe, average yields range from 2–4 bags/acre for green grams and 8–10 bags/acre for sorghum.

The County also produces and exports macadamia nuts, cashew nuts, and peanuts, with major markets in Nairobi and Mombasa. Annual production is approximately 3,150 metric tonnes of

cashew nuts and 1,300 metric tonnes of peanuts, generating about KSh 126 million and KSh 788.21 million, respectively. Mangoes are also successfully grown in Nkondi, Karocho, Mwanyani, and Matakini sub-locations.

Despite its high agricultural potential, the County continues to experience low productivity and underutilization of agricultural land. In 2018, land allocation targets for most crops were not achieved, except for maize, with Maara and Tharaka North recording the largest shortfalls, while Chuka and Tharaka South exceeded maize acreage targets. The County also failed to meet production targets for major crops, including maize, sorghum, beans, and green grams, mainly due to poor crop husbandry, inappropriate technologies, and climate change.

Failure to achieve planned production targets has resulted in both food and revenue losses. Significant revenue losses were recorded from beans in Maara and Chuka, and from green grams in Tharaka North and Tharaka South. To address these challenges, the County is promoting improved infrastructure, drought-tolerant crop varieties, subsidized agricultural inputs, modern farming technologies, and improved post-harvest storage systems.

Plate 10.1: Cash Crops Grown: Bananas, Tea and Gaddam Sorghum



Source: Field Survey, 2019

vi. Irrigation Farming

Irrigation farming in the County supplements rain-fed agriculture due to unreliable rainfall and the high demand for irrigation water. The main crops grown under irrigation include bananas, watermelons, French beans, tomatoes, cabbages, oranges, mangoes, and other horticultural crops.

The County has 43 operational irrigation schemes, including Muringa Banana, Kibung'a-Kakimiki, Kiaga, Nguuru Gakirwe, Turima Tweru, Rwatha Karethani, Kithigiri-Kamantungu, Mbogoni,

Mbuiuru Mwanjate, Ciambaraga, Mukami, Makanyanga, Magutuni, Jasho Igamatundu, and Mugumango, among others. The Muringa Banana Irrigation Project in Maara covers 1,444 ha and supports food and horticultural crop production.

Most irrigation schemes are located in the upper zones around Chuka and Chogoria towns. Project establishment and operation are jointly financed by local communities in collaboration with the County Government and development partners, including FAO and Caritas. An additional five irrigation schemes are at the feasibility stage, two of which are in Magumoni.

Despite their importance, irrigation projects face several challenges, including inadequate financing, particularly in the semi-arid areas where poverty levels are high, declining water volumes, limited market access, exploitation by conmen and middlemen, low farmer capacity in knowledge and skills, institutional conflicts arising from devolution, and water governance challenges.

vii. Livestock Production

Livestock farming contributes up to 95% of food and household income in the marginal mixed farming zone and 50% in the rain-fed areas. The livestock kept include dairy cows, beef cattle, sheep, meat goats, dairy goats, poultry, pigs, rabbits, fish, and honey bees, as shown in Table 10-11.

The type of livestock reared varies across the agro-ecological zones. Dairy farming is predominant in the upper midlands, while drought-resistant livestock species are mainly reared in the lower midland zones. Local and dual-purpose cattle, local goats, sheep, indigenous chicken, broiler chicken, and rabbits are primarily kept for meat production.

Among the six sub-counties, Tharaka North has the highest population of poultry, goats, cattle, donkeys, and sheep, while Maara has the highest number of rabbits and pigs (see Table 10.12).

Table 10.12: Livestock Population per Sub-County

	Cattle	Sheep	Goat	Pigs	Rabbits	Poultry	Donkeys
Tharaka North	46,725	23,400	115,800	670	830	1,724,800	4,800
Tharaka North – No. per Household	2.9	1.4	7.2	0.04	0.05	106.4	0.3
Tharaka South	33,587	21,027	58,230	170	70	180,300	1,000
Tharaka South No. Per Household	1.6	1.0	2.8	0.008	0.003	8.6	0.05
Muthambi	24,420	13,052	4,150	4,250	8,119	60,271	-
	-	-	-	-	-	-	-
Maara	28,250	7,140	11,750	6,200	8,500	98,224	37
Maara No. Per Household	0.9	0.2	0.4	0.2	0.3	3.1	0.001
Chuka	27,136	7,077	9,846	6,195	8,190	103,871	21
Chuka No. Per Household	1.1	0.3	0.4	0.2	0.3	4.1	0.0008
Igambang'ombe	13,654	6,276	23,604	509	578	27,373	32
Igambang'ombe No. Per Household	0.9	0.4	1.6	0.03	0.04	1.9	0.002

Source: Ministry of Agriculture, Livestock and Fisheries, TNCG, 2019

The high livestock population in Tharaka North and Tharaka South is attributed to livestock farming being the main source of income due to climatic conditions that favour the practice. Livestock, particularly goats and poultry, are sold through periodic markets, including the Kathwana Livestock Market, to neighbouring counties such as Kitui, Embu, and Meru. These periodic livestock markets strengthen economic linkages with neighbouring counties while providing residents with a source of livelihood.

Plate 10.2: Goats for Sale at the Kathwana Livestock Market



Source: Field Survey, 2019

a) Cattle Farming

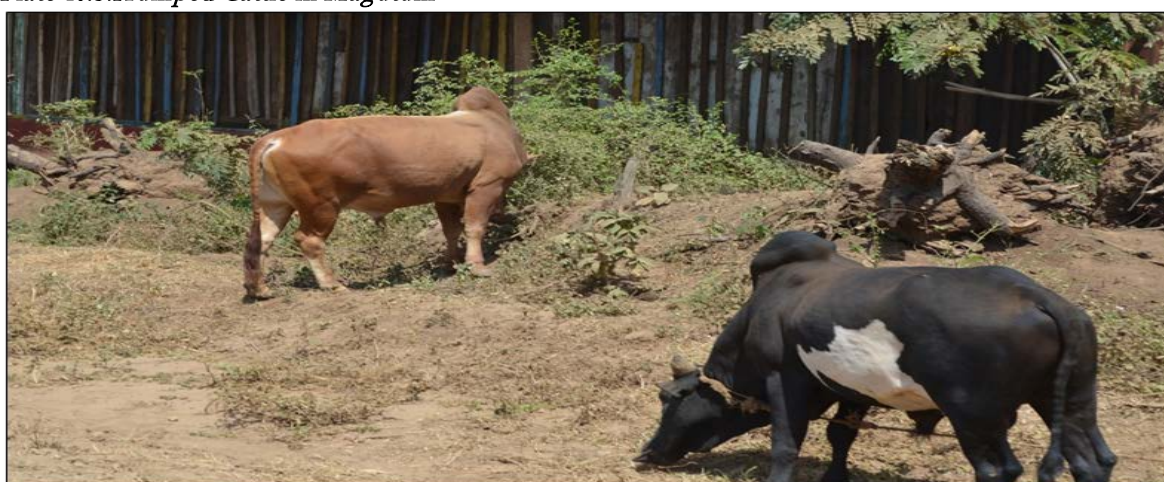
In 2022, the County had 28,350 farmers keeping cattle. Dairy breeds include Friesian, Guernsey, and Ayrshire, while the indigenous breeds kept mainly for meat production are Zebu, Boran, and Sahiwal. Tharaka North recorded the highest livestock population, with 46,725 cattle, 115,800 goats, and 1,724,800 poultry. However, when distributed across households, the average ownership was 2.9 cattle, 7 goats, and 106 chickens per household, which is insufficient to sustain households without other sources of income.

Key Informant Interviews indicated that households keeping high-yielding dairy cattle require two (2) Friesians, three (3) Ayrshires, or four (4) Jerseys. For meat production, the estimated optimal herd size is 18 cattle or 80 goats under proper management. The main livestock production systems practiced in the County are zero grazing and semi-zero grazing. Zero grazing is predominant in the highlands, particularly in Chuka and Maara sub-counties, while semi-zero grazing is practiced in Igambang'ombe and parts of Tharaka North, mainly Gatunga and Marimanti.

The upper zones of the County are better suited for dairy farming due to high milk yields, annual calving, and the substantial quantities of manure produced for crop farming. As of August 2020, the average milk production exceeded one litre per household per day, as shown in .

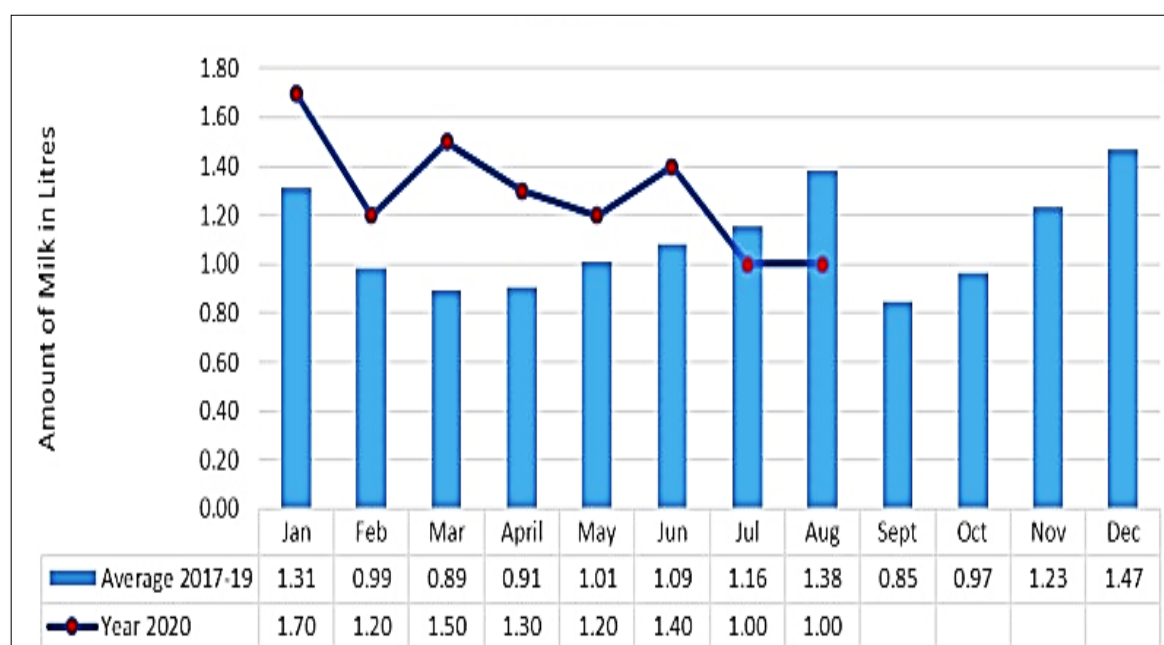
Milk production from dairy breeds in the highlands ranges from 10 to 20 litres per day, depending on husbandry practices, while production in the rest of the County varies across households. In 2020, average milk production was 27.5% below the three-year average of 1.38 litres per household per day. This decline was attributed to increased distance to water despite the availability of adequate pasture and browse, as long trekking distances reduce cattle productivity. Improved access to water and quality feeds would enhance milk production. In addition, value addition through tanning, meat processing, and the processing of milk into yoghurt, mala, ice cream, and cheese, together with improved access to high-quality breeding stock, would increase returns from livestock enterprises.

Plate 10.3: Humped Cattle in Magutuni



Source: Field Survey, 2019

Figure 10.2 Household Milk Production in 2020 vs 2017-2019



Source: NDMA, TNC (Tharaka) Drought Early Warning Bulletin for August 2020

a) Goat Farming

Goats in the County are kept for both meat and milk production. Dairy goats are predominantly reared in the upper highlands, while meat goats are common in the lower midlands. Toggenburg dairy goats and their crosses are preferred in the upper zones because they are easy to manage, command high milk prices, and have a high reproductive rate, producing up to two kids per year. Meat goats are well adapted to the semi-arid conditions of the Intermediate Lowlands, with Galla goats commonly reared in Kamarandi, Kimanyaki, Gituma, and Ntugi locations. The main production systems are free-range, mixed, and semi-enclosed, with free-range and semi-enclosed systems being the most prevalent.

In the upper midlands, households keep an average of two dairy goats, each valued at approximately Ksh. 15,000. Households in the Intermediate Zone keep an average of 20 goats, while those in the Lower Midlands keep an average of 30 goats. Key Informant Interviews indicated that the recommended herd sizes are 40 goats per household in the Intermediate Zone and 80 goats in the Lower Midlands. By the end of 2023, the average price of a meat goat was Ksh. 7,000.

Goats are generally sold on a needs basis, including to meet education and medical expenses. Goat farming has significant potential if farmers adopt commercial production with planned breeding and regular marketing. Investment in forage production and increasing current herd sizes would significantly improve productivity. Farmers in the Intermediate Zone could keep 40–60 goats per household, while those in the Lower Zone could keep 80–90 goats, with planned monthly sales of approximately six goats (Ksh. 42,000) to generate a regular household income.

b) Poultry Farming

Farmers keep both exotic and indigenous poultry, including chickens, ducks, turkeys, geese, quails, and doves. The adoption of improved indigenous chicken breeds, such as Kuroiler, Rainbow Rooster, and Kenbro, has been increasing. In 2022, 31,599 farmers kept poultry, with an average flock size of 15 birds per household.

On average, a tray of eggs from exotic poultry sells for Ksh. 400, compared to Ksh. 600 for indigenous eggs. An exotic layer sells for approximately Ksh. 400, while a mature indigenous chicken fetches Ksh. 600–700.

Poultry farming has considerable potential for commercial production. Farmers could increase productivity and establish a regular source of income by keeping 500–1,000 birds for meat and/or egg production and adopting planned monthly marketing.

Value of the Livestock/Income Earned

Compared to the other sub-counties, Tharaka North has the highest value of donkeys, Tharaka South has the highest value of poultry and goats, Muthambi has the highest value of sheep, Maara has the highest value of rabbits, and Chuka has the highest value of cattle and pigs (see **Error! Reference source not found.**).

The high value of donkeys in Tharaka North is attributed to water scarcity, as they are the primary means of transporting water to and from water points. The County lacks meat and milk processing plants for value addition, which limits increased livestock production.

Table 10.13: Value (in Millions) of Livestock Per Sub-County

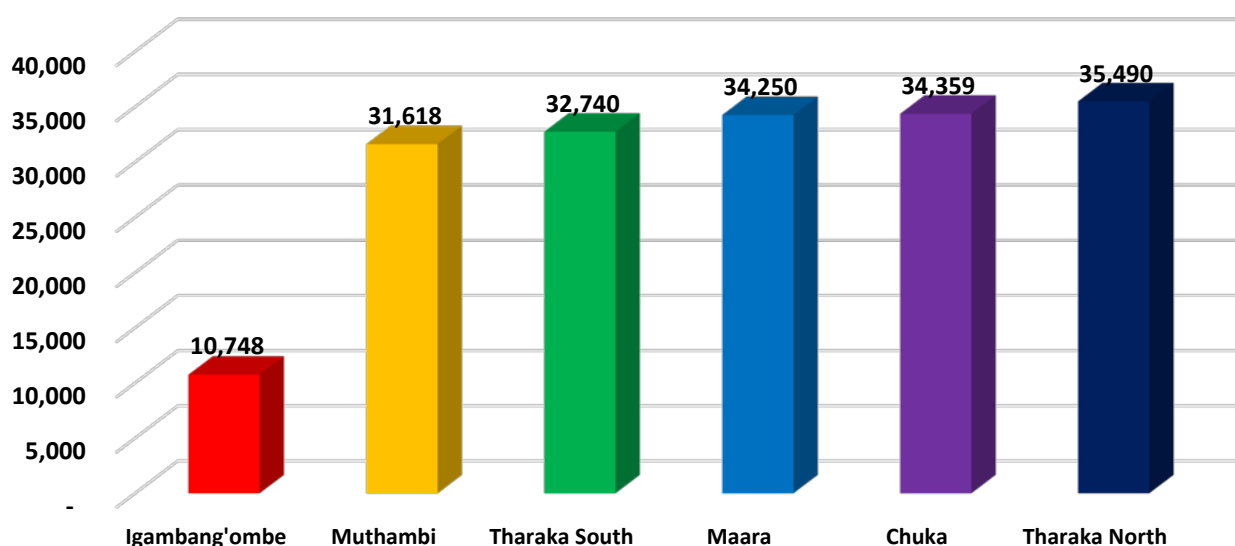
Sub-county	Cattle	Sheep	Goat	Pigs	Rabbits	Poultry	Donkeys
Tharaka North	1,681.75	58.5	357	6.7	0.415	0.875	48.0
Tharaka South	1,183.5	52.6	245.4	1.53	0.042	135.1	10.0
Muthambi	1,329.6	78.3	29.0	34.0	5.7	35.1	-
Maara	1,970.0	21.4	167.8	52.5	21.3	69.65	0.37
Chuka	1,984.2	19.8	115.3	99.1	20.5	95.5	0.021
Igambang'ombe	718.4	37.7	197.7	7.6	0.404	26.1	0.32

Source: Ministry of Agriculture, Livestock and Fisheries, TNCG, 2019

viii. Apiculture

The Mount Kenya Forest, extensive rangelands, and vegetation cover provide favourable conditions for beekeeping. The County has 179,205 beehives distributed across the sub-counties. Tharaka North has the highest number of beehives (35,490), followed closely by Chuka, Maara, and Tharaka South (see Figure 10.6). Chuka has significant potential to increase the number of beehives within the forest.

Figure 10.3 Number of Bee Hives Per Sub-County



Source: Ministry of Agriculture, Livestock and Fisheries, TNCG, 2019

Honey is primarily marketed locally in raw form due to limited value addition through refining. Marimanti is a major honey-producing area, contributing approximately 7.5% of the national honey production (Muma, 2019). However, honey production remains below its potential, with significant opportunities for expansion in the County's grasslands and forests. Establishing honey refineries within the County would enhance value addition, improve market access, and increase farmers' incomes.

Plate 10.4 Beehives Made from Locally Available Palm Tree Trunks on Sale



Source: Field survey, 2019

ix. Fish Farming

Fish farming is an important source of both food and household income in the County. The main fish species produced are catfish, eel fish, trout, and tilapia, while carp, black bass, and labeo are produced in smaller quantities. The County has 1,407 fish farmers operating 1,464 fish ponds covering approximately 248,880 square metres (see Table 10. 1).

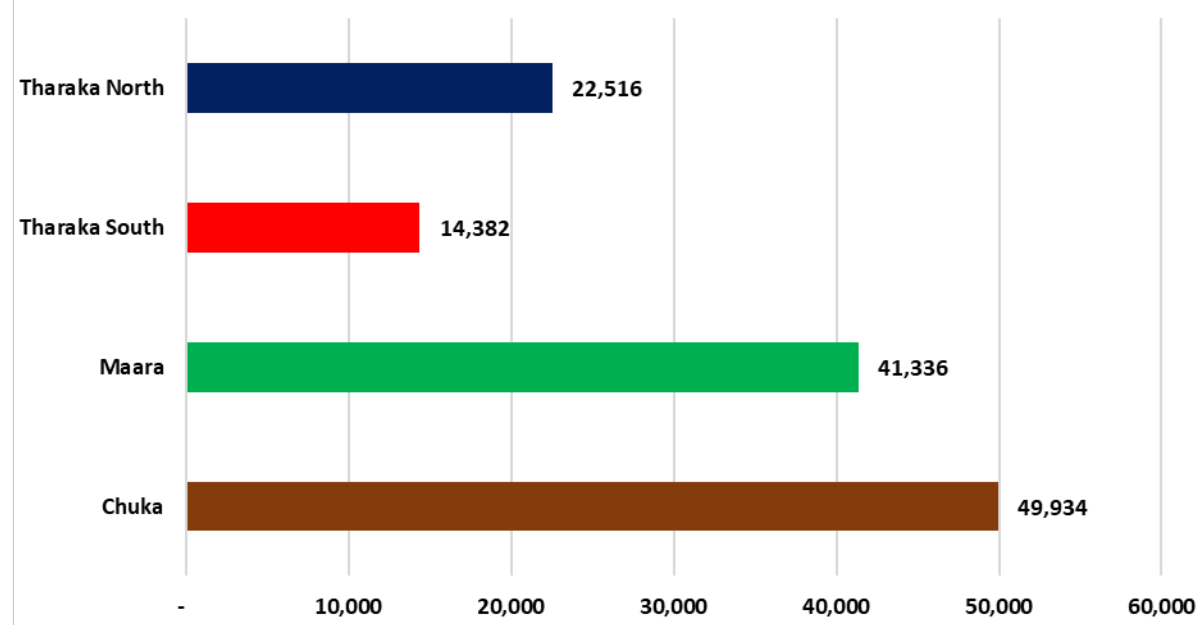
Table 10. 1: Fishing Farming by Sub-County in 2018

	Chuka	Maara	Tharaka South	Tharaka North	County
Farmers	558	481	148	220	1,407
Operating ponds	525	481	146	312	1,464
Area of operating ponds (M ²)	89,250	81,770	24,820	53,040	248,880
Inactive ponds	98	59	34	49	240
Area of inactive ponds (M ²)	29,400	17,700	10,200	14,700	72,000
New ponds	18	10	2	3	33
Area of new ponds (M ²)	2520	1400	280	420	4,620
Stocked ponds	423	411	112	238	1,184
Area of ponds stocked (M ²)	65,743	63,878	17,407	36,990	184,017

Source: Ministry of Agriculture, Livestock and Fisheries, TNCG, 2019

Chuka and Maara sub-counties lead in fish farming but also have the highest number of inactive fish ponds. Countywide, there are 240 inactive ponds covering approximately 72,000 square metres, representing about one-quarter of the operational ponds. The number of operational ponds in each sub-county corresponds with the level of fish production (see **Error! Reference source not found.**).

Figure 10.4: Quantity of Fish Harvested per Sub County in 2018



Source: Ministry of Agriculture, Livestock and Fisheries, TNCG, 2019

Chuka and Maara sub-counties recorded the highest quantities of fish harvested, followed by Tharaka North and Tharaka South. The County has significant potential to increase fish production through the full utilization of inactive fish ponds.

Plate 10.5: Fish Farming in Tharaka South Sub-County



Source: Ministry of Agriculture, Livestock and Fisheries, TNCG, 2019

The County has significant potential for fish farming. However, the subsector faces several challenges, including limited market access, lack of value addition, low fish prices, poor husbandry practices, and cultural barriers, as some communities do not consume fish. To address these challenges, the County Government is investing in the development of the Kinondoni Trout Farm and Hatchery, among other initiatives to support fish farmers.

x. Forestry and Agroforestry

The County has a total of 44,617 Ha and 3,344 Ha for gazetted and non-gazetted forests, respectively. Chuka forest reserve is a gazetted forest covering an area of 23,492 Ha with an external boundary of 216 Km in length. The forest is part of the larger Mt. Kenya Forest Ecosystem within the Eastern Forest Conservancy.

xi. Fisheries and the Blue Economy

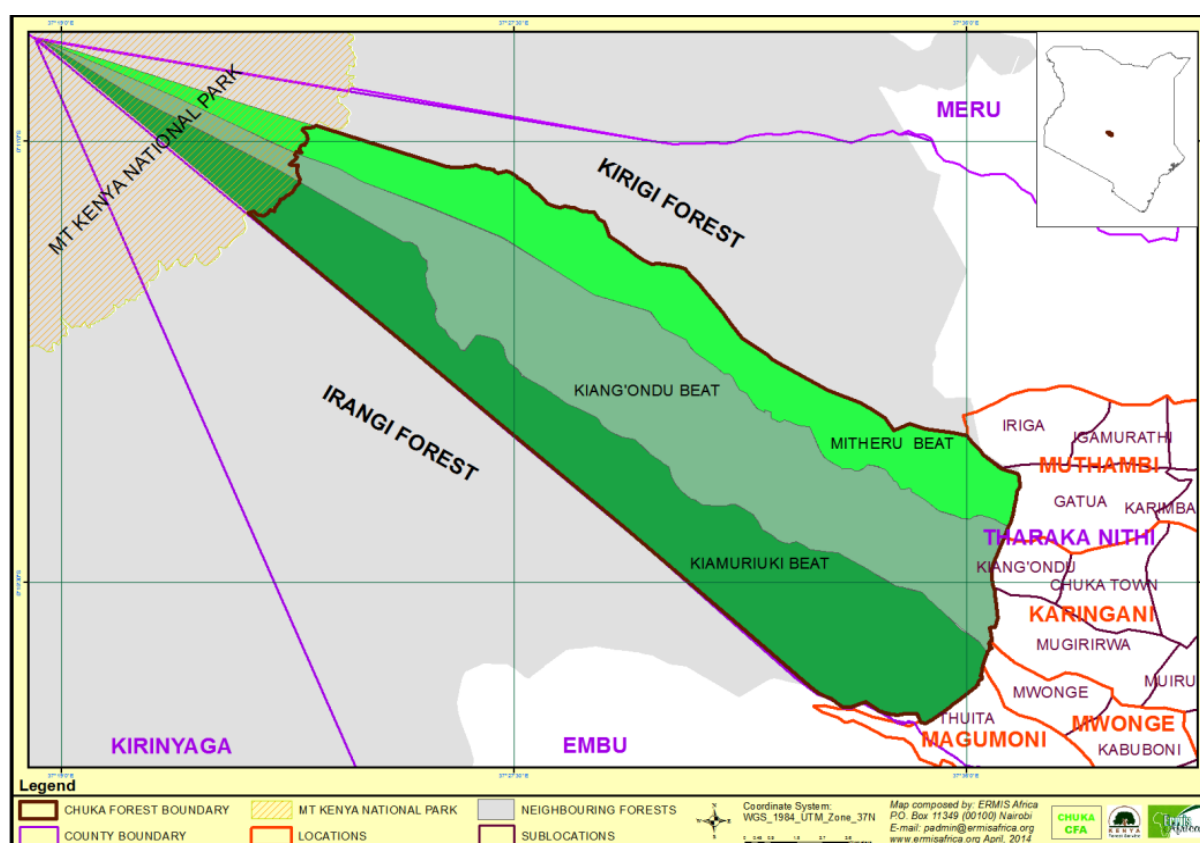
The fisheries and blue economy sector in Tharaka Nithi County are supported by an extensive river network and growing aquaculture activities, presenting opportunities for commercial fishing, sport fishing, and community-based fish farming. Aquaculture development has been promoted through national programmes such as the Economic Stimulus Programme (ESP) and subsequent county investments. Currently, the County has over 800 active fish ponds, primarily producing Tilapia and African Catfish.

The County also supports high-value fish species, including Tilapia, African Catfish, and Rainbow Trout, the latter thriving in the cold, fast-flowing streams of the Mount Kenya ecosystem. Despite this potential, fisheries production remains largely informal and subsistence-oriented, with most catches consumed locally, indicating significant underutilization of available fishery resources.

Key challenges affecting the sector include the high cost of commercial fish feeds and quality fingerlings, low adoption of aquaculture technologies by smallholder farmers, river pollution, and destructive fishing practices that deplete juvenile fish stocks. In addition, inadequate cold-storage facilities, limited fish marketing infrastructure, and post-harvest losses continue to constrain profitability and growth within the fisheries value chain.

Unlocking the potential of the fisheries and blue economy sector will require investment in aquaculture production systems, value addition, market infrastructure, sustainable fisheries management, and capacity building for fish farmers and fishing communities.

Figure 10.1: Chuka Forest Within Mt. Kenya Ecosystem



Source: Chuka participatory forest management plan, 2015

The forest is owned by the National Government and managed by the Kenya Forest Service in collaboration with the Kenya Wildlife Service under the Ministry of Environment, Water and Natural Resources. Chuka Forest comprises both exotic plantations and natural forests, with common tree species including *Podocarpus*, *Ocotea usambarensis* (Camphor), *Setia elliptica*, and *Croton megalocarpus*. The forest is bordered by agricultural land, with adjacent communities relying on it for water, firewood, timber, honey harvesting and beekeeping, medicinal herbs, and livestock fodder. Commercial plantation harvesting generated Ksh. 8,443,579 in revenue between 2010 and 2014 (KFS, 2015).

Trees grown for economic purposes include Mikisia (poles and firewood), Muthatha (goat and cattle fodder), Moringa (timber and firewood), Mugumo and Calliandra (goat, cattle, and poultry feed), Mukui and Mukurueare (timber), and Mururuku (beehives, poles, and firewood). Eucalyptus is mainly grown along river valleys for timber and firewood but is discouraged because of its incompatibility with other crops and its allelopathic effects.

The middle zone of the County contains numerous indigenous and exotic tree and shrub species planted without a defined pattern, resulting in crop shading and reduced yields. Mango, avocado, and orange are the dominant fruit trees. In Igambang'ombe, indigenous *Acacia* species predominate. On most farms, the unplanned distribution of trees and shrubs has resulted in sub-optimal land utilization.

The Intermediate Lowland Zone is characterized by naturally occurring indigenous trees and shrubs within highly degraded landscapes. *Balanites aegyptiaca*, which is favoured by goats, thrives in the drier lower zones. Limited tree planting and illegal logging have contributed to drying rivers

and ecosystem degradation. The zone is also experiencing significant environmental changes, including drying perennial rivers, an increase in seasonal rivers, and the disappearance of some seasonal rivers, largely attributed to illegal logging and harvesting of indigenous trees.

There is an urgent need to implement measures that curb the unsustainable use of forest resources while promoting reforestation and soil conservation. Farmers should be encouraged to adopt agroforestry practices to increase tree cover, enhance food security, and reduce the impacts of climate change. A minimum tree cover of 10% should be maintained on every farm.

xii. Overall food security status

As shown in Table 10.14 (KNBS, 2016; 2024), nationally, only 18.0% of food consumed in 2015 was obtained from own production, while 68.3% was purchased. By 2022, the share of food from own production had declined to 12.3%, whereas food purchases had increased to 83.7%.

In urban areas, only 2.4% of food consumed in 2015 was obtained from own production compared to 85.7% from purchases. By 2022, own production had increased marginally to 2.6%, while food purchases rose to 94.9%.

The situation in rural areas also shows a declining contribution from own production. Nationally, 27.7% of food consumed in 2016 came from own production and 57.4% from purchases. By 2022, own production had declined to 16.8%, while purchases had increased to 78.4%. This trend highlights the need to increase food production in rural areas.

In Tharaka Nithi County, 32.8% of food consumed in 2015 was obtained from own production, while 59.3% was purchased. By 2022, the proportion of food from own production had declined to 16.5%, whereas purchases had increased to 79.5%, indicating a concerning trend.

As urbanization increases, rural areas will need to produce sufficient food to meet the growing demand from urban populations. Food production in peri-urban areas can also be enhanced through urban agriculture to increase supplies to core urban areas and reduce pressure on rural production. Agricultural land in rural areas should therefore be safeguarded to ensure food security, supply raw materials for agro-industries, and sustain livelihoods.

Table 10.14: Distribution of Household Food Consumption by Source and Residence

2016 (2015-2016 Survey)				2024 (2022 Survey)			
Source/ Residence	Purchases	Own Production	Gifts	Purchases	Own Production	Gifts	Total
National	68.3	18.0	-	83.7	12.3	4.1	100
Urban	85.7	2.4	-	94.9	2.6	4.0	100
Rural	57.4	27.7	-	78.4	16.8	4.8	100
Tharaka Nithi	49.3	32.8	-	79.5	16.5	9.6	100

Source: Extracted from KNBS (2016) and KNBS (2024)

xiii. Mean Monthly Food and Non-Food Expenditure per Adult Equivalent (2022 & 2025)

Data from the 2022 survey on food and non-food expenditure indicate that the average monthly expenditure per adult equivalent in Tharaka Nithi County was Ksh. 7,513. Based on an estimated household size of 3.6 persons, the average monthly household expenditure was approximately

Ksh. 27,047. Projected to 2025, including inflation, this increases to an estimated Ksh. 28,620 per household.

Kenya's propensity to save is estimated at 10–15%. This study adopts a savings rate of 10%, equivalent to Ksh. 2,862 per month, resulting in a minimum average monthly household income requirement of Ksh. 31,482 to sustain a farming household in the County.

For full-time farmers, the minimum land size is based on enterprise combinations capable of generating at least Ksh. 31,482 per month. **Error! Reference source not found.** presents the estimated land size and enterprise mix required to achieve this income. A certified full-time farmer is expected to maintain at least one cash crop, one livestock enterprise, one agroforestry enterprise, and sufficient land for household subsistence food production, as detailed in **Error! Reference source not found.**. In addition, farmers keeping dairy cattle and caged poultry will be encouraged to install biogas systems to reduce dependence on firewood for cooking

Table 10.15: Recommended minimum land allocation for agricultural production in Tharaka Nithi County For an income of Ksh. 45,527 per month (KNBS, 2016)

No .	Agro-ecological zone	Minimum land area (Acres)	Recommended Enterprises	Land Area in acres	% of the household land area	Estimated monthly net income at 80% production potential (Ksh)
1	UM1	2.25	-Tea -Dairy/Fish/Poultry -Household Food Crops -Forest -Homestead	-1.00 -0.50 -0.25 -0.25 -0.25	44% 22% 11% 11% 11%	-Tea: 10,863 -Dairy: 48,834 -Household consumption -Long-term Sub-total – 59,697
2	UM2	2.50	-Coffee/Maize/Vegetables Bananas/Sunflower -Dairy/Poultry/Fish -Household Food Crops -Forest -Homestead including zero grazing unit	-1.00 -0.50 -0.50 -0.25 -0.25	44% 22% 11% 11%	-Coffee: 47,455* -Dairy: 30,018 -Household food consumption -Forest long-term Sub-total – 77,473
3	UM3	2.50	-/Maize/Banana/Sunflower/Vegetables - Dairy/Poultry/Fish/Pigs -Household food crops -Forest -Homestead	-1.0 -0.5 -0.5 -0.25 -0.25	40% 20% 20% 10% 10%	-Maize/Bananas/Sunflower: 12,000 -Dairy: 40,667 -Household consumption -Forest long-term Sub-total: 64,667
4	LM 3 & LM4	4.25	-40 goats Goat/Sheep/Poultry /Zebu Cattle	-2.0 -1.0	35% 35%	Cotton/Sunflower/: Ksh. 12,000 equivalent

			-Green grams/Cowpeas/ Sorghum/Millet/Cot ton -Family Food -Forest -Homestead + Animal shed	-0.50 -0.50 -0.25	12% 12% 6%	-Selling of 5 goats per month @ Ksh. 7,000 = Ksh. 35,000 -Household consumption -Forest long-term Sub-total: 47,000
5	LM5 & LM6	7.0	-Goats Only (80 goats @ 0.33 acres/6 goats) -Family Food -Forest -Homestead + animal shed	4.5 (Grass + Shrubs) 1.0 1.0 0.5	55% 18% 18% 9%	Sell 7 goats per month x Ksh. 7,000 = Ksh.49,000/mon th. Sub-total 49,000.
6	LM5 & IM6	8.0	-Meat cattle only (18 cattle) -Family Food -Forest -Homestead + Animal shed	-6.0 (Grass) -1.0 -0.5 -0.5	75% 12.5% 6.25% 6.25%	Selling at least one cow per month at Ksh. 45,000 Sub-total 45,000
7	LM 5 & 6	8.0	Goats (40 goats) & Cattle (9 cattle) -Family Food -Forest -Homestead + Animal shed	6.0 (Grass+ Shrubs) 1.0 0.5 0.5	75% 12.5% 6,25% 6.25%	Selling of 4 goats/month = Ksh. 28,000 Selling of one cow every 3 months @ Ksh. 45,000 = 180,000/year Sub-total = Ksh. 43,000

*Its paid once per year – this is monthly equivalent

Table 10.16: Recommended minimum land allocation for agricultural production in Tharaka Nithi County

No.	Agro-ecological Zone (AEZ)	Minimum land size for a minimum household monthly income of Ksh. 45,527 (H ₁)	Minimum land size for a minimum household monthly income of Ksh. 31,482. (H ₂) $L_{min2} =$ $L_{min1} \times H_2 / H_1$	Minimum land size for a minimum household monthly income of Ksh. 31,482 – Rounded to the nearest whole number
1	Upper Midland 1 (UM1)	2.25	1.56	2.0
2	Upper Midland 2 (UM2)	2.50	1.73	2.0
3	Upper Midland 3 (UM3)	2.50	1.73	2.0
4	Lower Midland 3 & 4 (LM3 &4)	4.25	2.94	3.0

5	Lower Midland 5 & 6 (Goats Only)	7.0	4.84	5.0
6	Lower Midland 5 & 6 (Cattle Only)	8.0	5.53	6.0
7	Lower Midland 5 & 6 (Goats & Cattle)	8.0	5.53	6.0

For an income of Ksh. 45,527 and Ksh. 31,482 per month and food security.

Opportunities for cooperative farming

Under cooperative farming, a group of 10 farmers can lease a minimum of one acre to rear 10,000 chickens, with each farmer managing 1,000 birds. Other potential cooperative enterprises, which are not exhaustive, are presented in **Error! Reference source not found..**

This approach enables individuals without land to participate in farming through lease arrangements. However, the recommended minimum land size should be maintained to ensure adequate household income, food security, and energy needs. A minimum monthly household income of Ksh. 31,482 is proposed for rural households in Tharaka Nithi County.

Table 10.17: Cooperative Farming - Land to lease for a Cooperative of 10 farmers for an income of Ksh. 31,482 per household per month or Ksh. 377,784 per year

Enterprise	Enterprise and units	Minimum land to lease (acres)
Dairy cows	30 Cows (3 cows/Farmer)	7.5
Chicken rearing for eggs	20,000 (2,000/Farmer)	2.0
Chicken rearing for broilers	10,000 (1,000/Farmer)	1.0
Chicken rearing dual purpose	10,000 (1,000/Farmer)	1.0
Goats for meat	400 goats (40/Farmer)	22.0
Cattle for beef	180 cattle (18/Farmer)	60.0
Irrigated vegetables	10 (1 acre/Farmer)	10.0
Pig farming	300 Beehives (30/Farmer)	7.5
Fish Farming	10 (1 acre @ farmer -100m ² x 6 ponds)	10.0
Honey Production	500 Hives (50/Farmer)	10.0

Land carrying capacity for agricultural land use in Tharaka Nithi County 2026

Based on the estimated minimum agricultural land size required in the County, Chuka Sub-County can accommodate only 17,149 farming households by 2026. The remaining 12,667 households will need to pursue alternative livelihoods, while those interested in farming may participate through cooperative arrangements by leasing agricultural land. By the end of the plan period (2036), the number of farming households in Chuka Sub-County is projected to increase by 7,750 to 20,427. The corresponding projections for the other sub-counties are presented in **Error! Reference source not found..**

Households that cannot be accommodated within the available agricultural land can invest in cooperative farming through land leasing, real estate development in urban centres, commercial enterprises, manufacturing, and the service sector.

Table 10.18: Projected Agricultural Land Carrying Capacity in Tharaka Nithi County

County/Sub County	-	2026				2031			2036		
	Land size (Acres)	No. of HH	Rec. Min HH Land Size	Farmer Carrying Capacity	Surplus Househol ds	No. HH	Farmer Carrying Capacity	Surplus Households	No. HH	Farmer Carrying Capacity	Surplus Househol ds
Chuka	34,298	29,826	2.0	17,149	-12,677	33,586	17,149	-16,437	37,573	17,149	-20,427
Maara	65,506	37,620	2.0	32,753	-4,867	42,363	32,753	-9,610	47,373	32,753	-14,620
Igambang'ombe	80,209	17,423	3.0	26,736	+9,313	19,622	26,736	+7,114	21,750	26,736	+4,986
Tharaka South	157,403	24,642	6.0	26,233	+1,591	27,749	26,233	-1,516	31,043	26,233	-4,810
Tharaka North	297,268	19,105	6.0	49,545	+30,440	21,515	49,545	+28,030	24,069	49,545	+25,476
*Mt. Kenya Forest (Excluded)	88,981	-	-	-	-	-	-	-	-	-	-
Tharaka Nithi County	723,665	113,052	-	-	-	-	-	-	-	-	-

Annual Growth Rate – 0.76%; HHLS = House Hold Land Size

xiv. Emerging challenges and opportunities in the agriculture sector

No.	Challenges	Opportunities
I	80% of the population engaged in agriculture – many of them may be under-employed	-There are opportunities for off-farm employment such as trade, manufacturing and service industry.
ii	92% subsistence production and only 8% commercial farming	-High demand for food in urban areas. -Agro-industrial raw materials are also required to support industrialization.
iii	Decreasing agricultural land	High irrigation potential Technology available for intensification Policy proposed for minimum land size
vi	Mixed farming of many crops leading to low yields of all the crops -Low maize yields (e.g. 5 bags of maize as opposed to 30 bags per acre -2 kgs of coffee berries as opposed to 20 kgs per tree -5 litres of milk per day as opposed to 25 litres/day from Freshian cows	-Professional advice for optimal production available. -Maize varieties and management techniques for optimal production available. -Coffee and tea information for optimal yields available and market opportunities undergoing reforms.
v	Weak farmer organizations	-There are strong farmer cooperatives to bench mark with. -There are many trained Cooperative professionals who can support farmer cooperatives.
vi	Middlemen exploiting farmers	There are opportunities to form farmer organizations to support farmers in marketing farm produce.
vii	Low capacity of farmers farming knowledge	There are Agricultural Training Centres for training farmers – that can train and certify farmers to farm professionally
viii	Prevalent poverty in the lower zones	Sizeable land sizes that can increase production if water is availed
viii	Limited financing for investing in irrigation and agriculture as a whole	Potential in mobilization of local resources from households
ix	-Declining water volumes for irrigation -Water governance challenges	-Water conservation technologies available -Land available for large scale afforestation and reforestation -Enormous potential for damming water for irrigation. -Potential for capacity building water managers
x	Fish farming lacks markets for fish, No value addition, Low prices, Poor fish husbandry and cultural barriers where some people still do not eat fish.	-Availability of markets outside the county - External markets will improve the prices -Value addition opportunities

10.4 Mining

The County is endowed with a variety of mineral resources, including gemstones such as beryl, aquamarine, sapphire, and garnet; industrial minerals such as iron ore, copper ore, feldspar, and quartz; and common minerals including sand, building stones, and ballast rock. However, mineral extraction is largely undertaken on a small scale, with sand harvesting and brick-making being the most common activities.

The County possesses an iron belt, although detailed exploration is required to determine its commercial viability. There are 10 functional quarries distributed across Maara and Chuka/Igambang'ombe sub-counties, comprising five building stone quarries, four ballast quarries, and one murram quarry. The largest building stone quarry is located at Kamutiria in Igambang'ombe Sub-County.

Sand harvesting is also widespread along river valleys in the lower parts of the County, posing potential risks of environmental degradation. Consequently, effective planning and regulation of quarrying and sand harvesting activities are necessary to enhance public safety and mitigate adverse environmental impacts on communities and ecosystems. There is also a need to strengthen the regulation of the mining sector to prevent the creation of hazardous open pits that endanger both residents and livestock.

Benefit-sharing arrangements between the national and county governments arising from the exploitation of viable mineral resources remain a critical issue that requires attention. Equally important is the promotion of local mineral processing and value addition to maximize economic benefits within the County. Since mineral resources are located on community-owned land, an appropriate investment and governance framework is needed to guide their utilisation, prevent conflicts, and ensure equitable distribution of both the benefits and costs associated with mineral development.

10.5 Industries

Industries found in the County are agro-based in tea, coffee, milk, fruits, nuts and to some extent cottage industries dealing with repairs, motor vehicles, carpentry, metal fabrication, the construction sector and the petrol filling stations. Distribution of the industries per sub-county is as indicated in the table

Table 10.19: Industries in the County

Sub-Counties	Tea	Coffee	Milk cooling plants	Fruits/nuts	Coffee mills	Cottage	Jua kali
Maara	1	11	4	0	2	0	
Chuka/Igambang'ombe	1	25	3	1	1	0	
Tharaka North	0	0	1	0	0	0	
Tharaka South	0	0	0	0	0	1	
Total	2	36	8	1	3	1	

Source:

Apart from farm-based enterprises, other industries are located in urban centres. Industrial linkages can be strengthened through effective value chain organization, from raw material

production to processing, while promoting the optimal utilization of the County's industrial potential.

Weru Tea Factory, located in Muthambi, is the only tea factory in the County. Coffee processing is undertaken by Tharaka Nithi Coffee Millers in Mitheru Ward, while Muthiru Dairy processes dairy feeds. Weru Tea Factory operates 61 coded leaf collection centres in Magumoni, Chuka, Muthambi, Mwimbi South, Mwimbi North, and Mwimbi Central. The factory has an installed annual processing capacity of 15 million kilograms of green leaf and approximately 8,903 registered growers cultivating about 4,048.15 acres of tea. The catchment area has the potential to increase green leaf production through higher yields per unit area.

Organizing formal industrial activities along the value chain strengthens linkages between farming areas, commercial centres where inputs are sourced, industries, and the transport network. Challenges, opportunities, and implications for the primary sector, including crop farming, livestock, fisheries, agro-based industries, and non-farm enterprises, occur along these value chains.

Some sub-counties lack designated industrial areas aligned with their resource potential, including areas for small-scale carpentry, metal fabrication, vehicle repairs, and garages. Additional untapped industrial opportunities exist in solid waste management and value addition for both agro-based and non-agro-based enterprises. Several industrial activities, including vehicle repairs, carpentry, and metalworking, operate without designated sites and lack essential public amenities. The County has one industrial park zone located in Kathwana Municipality to facilitate value addition

10.6 Trade and Commerce

Trading and commercial activities are key drivers of the County's urban economy and are distributed across all parts of the County. However, commercial centres of varying sizes are concentrated in the upper part of the County, which is served by a relatively well-developed road network, unlike the middle and lower zones. These lower zones obtain most of their supplies through the Chuka–Chogoria transport corridor.

Farm produce imported from neighbouring counties includes rice, Irish potatoes, and cabbages. Other products sourced from within Kenya include building materials and selected household appliances sold in supermarkets, while farm inputs, petroleum products, vehicles, motorcycles, pharmaceutical drugs, vehicle spare parts, electronics, and mobile phones are imported from outside the County and, in some cases, from outside Kenya. These trade linkages connect the County to airports, the railway network, and the Port of Mombasa, facilitating the movement of goods, services, and people.

The commercial centres also serve as key markets for agricultural produce from within the County and supply surrounding rural areas, depending on the road network. According to the mapping survey, the County has four urban centres, 12 rural centres, 10 market centres, and 188 shopping centres distributed across the sub-counties and wards. These centres perform different functions based on their location and hinterland. The County has two municipalities: Kathwana and Chuka and two other major towns, Chogoria and Marimanti.

The three municipal areas in the County require urgent interventions to strengthen commercial, industrial, and economic linkages. Priorities include planning, infrastructure and service provision, cadastral surveys and issuance of land titles, preparation of valuation rolls, and establishment of a land information system. These interventions will enhance the role of the municipalities in transforming the County's economy. The municipalities are at different stages of implementing these activities and are supported by strong transport linkages to various parts of the County.

Regular revenue data surveys would enhance revenue collection while increasing the County's attractiveness to investment. Rising land and property values are expected to create development opportunities for property owners. However, where there is an imbalance between protected public land and privately owned land, households without property may face varying levels of exclusion.

Boundary delineation, planning, infrastructure and service provision, cadastral surveys and issuance of land titles, preparation of valuation rolls, and the establishment of a land information system have significant potential to transform the County's economy. Although these initiatives are underway, implementation in rural and market centres remains limited.

The County has an extensive network of shopping centres distributed across its sub-counties and wards. These include Chogoria (10), Ganga (4), Mitheru (6), Muthambi (6), Mwimbi (12), Chiakariga (10), Gatunga (8), Marimanti (16), Mukothima (18), and Nkondi (29) in Tharaka Sub-County, as well as Igambang'ombe (18), Karingani (8), Magumoni (27), Mariani (6), and Mugwe (11). Strengthening linkages between these shopping centres, municipalities, rural centres, market centres, and higher-order centres has the potential to stimulate the local economy.

Improving transport connectivity between the lower-altitude areas of the County and these centres would enhance market access and facilitate trade. Key transport corridors include the Class A road from Kibwezi through Mwingi to Marimanti, the Usueni Road from Kitui, and the Gathangacini–Meru Road (see illustration).

Approximately 30 markets have been developed with overhead sheds, perimeter walls, and sanitary facilities, providing both direct and indirect employment opportunities. The effectiveness of these centres depends on the range of services provided, their connectivity, and their sphere of influence. They support the trade of agricultural products alongside manufactured goods sourced from within and outside Kenya.

Urban centres also support informal economic activities, including vending, tailoring, and small-scale retail businesses. Although the growth of these activities presents challenges for revenue collection, it also increases demand for market facilities and commercial space. Established markets are located in Chiakariga, Gatunga, Marimanti, and Mukothima wards in Tharaka South Sub-County; Ganga, Mitheru, Muthambi, Mwimbi, and Maara wards in Maara Sub-County; and Igambang'ombe, Karingani, Mariani, and Mugwe wards in Chuka Sub-County. Chuka and Chogoria serve as the County's principal commercial hubs.

A detailed assessment of markets in each sub-county, including product flows, customer catchments, contributions to the local economy, and revenue generation, is required to inform future commercial development.

Whereas a limited number of the centres are planned, a larger number of them are not planned, and none have a valuation roll for the collection of land rates. Even though there is growth in several centres nucleated in form, others are linear along the main transport channels, but their vibrancy is affected by the economic variables singled out earlier, as well as inadequate capital stock and distribution within the county (missing data). They can be mapped where they exist. The organic growth of urban centres, trading and market centres, where markets have been provided, has posed a challenge to urban development due to the reasons cited above. Enhanced economic contributions to employment require a regular economic survey of urban centres and an up-to-date cadastre for all the centres as a County economic database for revenue and delivery of services.

10.7 Tourism

Tourism contributes to the economy at both the national and county levels through direct and indirect impacts on Gross Domestic Product (GDP). The County's tourism attractions comprise

both internal and external tourism circuits within the regional economic bloc and can be categorized as geophysical, cultural-historical, and recreational.

Geophysical attractions include expansive scenic landscapes, rich botanical and wildlife diversity, and river basins within the Mt. Kenya Region extending into Samburu, Isiolo, and Kitui counties (see Map of the External Tourism Circuit and Key Attractions). The County is endowed with prominent physical features, including Mt. Kenya, Kijege Hill, Njuguni Hill, Ntugi Hill, Mutejwa Hill, Kierera Hill, Kiagu Hill, and Kikingo Hill. Waterfalls include Ikwa, Kanthakame, Kiandume, Mitheru, and Kanyururu, as well as several waterfalls along the Kathita and Tana rivers.

Cultural-historical attractions include the annual Ura Gate Tharaka Cultural Festival, initiated by communities living around Meru National Park. The festival promotes conservation among the riparian communities of Tharaka, Igembe, Tigania, Orma, Somali, and Borana, while fostering unity among the Ameru people through cultural celebrations and talent development. In collaboration with Meru County, there are plans to establish a cultural centre at Igarioni and a monument in Chogoria to honour the first highest achiever in the Njuri Ncheke, who served as a legislator in the colonial Legislative Council (LegCo) from 1956.

Recreational attractions include mountain climbing and water sports within the Tana River Basin. The County contains two national parks: the Mt. Kenya Forest National Reserve (352.96 ha) and Meru National Park (0.34 ha). Mt. Kenya National Reserve is the County's principal tourist attraction, offering scenic landscapes that support mountain climbing, sightseeing, and film production. Although Meru National Park has significant tourism potential, tourism activities in the adjacent areas remain limited. Other attractions include Inanduru Cave, Mukwangara Rock, and the elephant maternity site at Gaketha.

The County's tourism circuits and the activity nodes required to enable communities to benefit from tourism remain underdeveloped. Strengthening linkages between the internal and external tourism circuits would help identify existing gaps, address development challenges, and unlock tourism opportunities (see Map of the Internal Tourism Circuit).

10.8 Hospitality

Mt. Kenya Safari Lodge (Kinondoni), located in Maara, is the only County-owned hotel. The lodge is situated near the Mt. Kenya Forest and serves mountain climbers accessing the mountain through the Chogoria Gate. It receives approximately 500 tourists annually and has a bed capacity of 40.

Other hotels in the County include Transit Motel, Legacy Hotel, Baobab Hotel, Lowlands Hotel, and Godka Hotel, with bed capacities of 35, 52, 34, and 25, respectively. Major restaurants are concentrated in the urban centres of Chuka, Chogoria, and Marimanti.

In 2025, revenue generated from Mt. Kenya Safari Lodge and local tourism amounted to Ksh. 1,024,200, which is not commensurate with the County's tourism potential.

10.9 Financial Services and Flows

In addition to financial flows from the County and National Governments and development partners, local financial institutions play a key role in supporting the County's economy. Financial and insurance services, professional services, information processing, and money transfer services are concentrated in the major centres of Chuka, Chogoria, Kathwana, and Marimanti. Commercial banking services are available only in Chuka and Chogoria, reflecting the concentration of economic activities, while the other centres rely on SACCOs, agency banking, and mobile money transfer services. Information processing and communication are supported by internet connectivity, electricity supply, and cyber cafés.

Commercial banks operating in Chuka Sub-County include Co-operative Bank, Postbank, Equity Bank, Kenya Commercial Bank, K-Rep Bank, and Family Bank. Chogoria Town in Maara Sub-County is served by Kenya Commercial Bank, Co-operative Bank, and Equity Bank. Tharaka and Igambang'ombe sub-counties do not have established commercial banks. However, Co-operative Bank and Equity Bank provide mobile banking services in Marimanti and Kathwana, respectively. Agency banking has expanded through KCB Mtaani, Equity Bank Agents, and Co-op Jirani, while mobile money transfer services, particularly M-Pesa, provide financial access to many residents without formal banking services.

The leading microfinance institutions in the County are Faulu Kenya and the Kenya Women Finance Trust (KWFT). The growth of microfinance institutions is particularly evident in Tharaka, driven by the limited availability of commercial banking services and the demand for small business loans. The County also has several established SACCOs serving farmers, teachers, civil servants, and other groups, including Trans Nation SACCO, Southern Star SACCO, Ndosha SACCO (Magutuni and Chogoria), Solution SACCO (Kathwana, Chuka, and Marimanti), Centenary SACCO, County SACCO, Thamani SACCO, and Winners SACCO.

The cooperative sector is a major strength and has significant potential to drive the County's socio-economic transformation. However, governance challenges affecting some cooperatives limit their effectiveness as vehicles for socio-economic development. Financial institutions provide important opportunities for investment financing, although their effectiveness is constrained by their spatial distribution and prevailing interest rates

10.10 Employment and Income

Public sector, private sector, and formal and informal sector employment, from official statistics and what is recorded, could underestimate the actual situation because Tharaka Nithi county has never done their own local economic surveys for planning, gauge its economic potential, and facilitate economic investments. Wage employment contributes approximately 10% of the total household income. These are people working for the public institutions and private organisations such as county government, schools, hospitals, financial institutions, PBOs and retail shops. The majority of the people in the rural areas engage in livestock and crop farming, private businesses, and other forms of income-generating activities located in urban centres of different sizes.

Table 10.20: Distribution of Population Working, Seeking Work, and Persons Outside the Labour Force

Sub-County/Sex	Total	Working	Seeking Work/ No Work Available	Persons outside the Labour Force	Not Stated
Tharaka-Nithi	351,034	191,231	13,707	146,026	70
Male	172,478	92,102	8,543	71,796	3
Female	178,549	99,124	5,164	74,228	33

Source: KNBS, 2019

According to the 2019 census, the labour force was at 204,938, representing 58.3 % of the total population, with 48.1 % of the working population being male, and 51.8 % are female (see **Error! Reference source not found.**). This could be attributed to a large proportion of the labour force comprising unskilled or semi-skilled men and women, mainly engaged in agricultural activities.

Overall, 83% of households derive their income from on-farm activities, while 71% grow maize. The average maize yield is 187 kg/ha during the first season and 105 kg/ha during the second season, of which 72% and 82%, respectively, are sold. Perennial crops, including coffee, tea, pawpaw, bananas, mangoes, and lemons, are primarily grown for commercial purposes.

Coffee is grown by 22% of male-headed households and 4% of female-headed households, while 61% of youth-headed households earn income from agricultural wage labour, highlighting the importance of the agricultural sector for youth employment and livelihoods.

The County's mean household income is Ksh. 105,131, while the mean gross household wealth is Ksh. 784,570. The annual per capita income is Ksh. 21,619, and the per capita gross wealth is Ksh. 143,207. Despite this, there are significant disparities in per capita household incomes, with approximately 72% of household heads classified as food insecure (Ministry of Agriculture, 2017).

The average annual income from on-farm activities is Ksh. 52,517, comprising Ksh. 34,058 from crop production and Ksh. 26,960 from livestock production.

10.11 Revenue Trends of the County

Trends in revenue collection and expenditure are important indicators of the County's capacity to provide services. Effective revenue generation depends on an up-to-date revenue database, comprehensive revenue registers, clearly identified revenue sources, and an integrated revenue management system. Maintaining accurate revenue stream data and improving compliance are essential for the fiscal sustainability of the County Government and its municipalities.

The County's major revenue sources include own-source revenue, National Government transfers, including the Equalization Fund, and grants from the Government of Kenya and development partners. Although these funding sources have remained consistent, they have experienced fluctuations, while equitable transfers from the National Government have generally increased.

Own-source revenue is generated from multiple revenue streams administered by various County departments, although these are not presented in this report. Despite an upward trend, own-source revenue remains significantly below the level of equitable transfers from the National Treasury, as shown in the tables below.

The County Government is expected to share revenue collection responsibilities with the two municipalities of Chuka and Kathwana. Trends in own-source revenue and National Government transfers are presented in the table below. The data indicate increasing County Gross Domestic Product (GDP), National Government transfers, and own-source revenue over time, although own-source revenue has experienced periodic fluctuations despite continued growth in County GDP

Table 10.21: Revenue Trends of the County in Millions

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Own Revenue	84.16	115.730	142.460	90.089	179.915	150.00	200.00	220.30	350.00	164.20	400.00	450.00
N-Transfers	2,294.83	2,764.64	3,305.46	3,652.47	4,029.08	3,607.57	3,787.95	3,977.35	4,214.20	4,214.20	4,378.23	4,399.51
GDP	36,893	37,485	38,971	40,723	42,828	45,936	46,460	48,471	52,433	54,259	58, 983	60,040
NT/GDP	0.0622	0.0738	0.0848	0.0897	0.0941	0.0785	0.0815	0.0821	0.0804	0.0777	0.0742	0.07327
OSR/GDP	0.0023	0.0031	0.0037	0.0022	0.0042	0.0033	0.0043	0.0045	0.0045	0.0065	0.0068	0.0075
OSR/NT	0.0367	0.0419	0.0431	0.0247	0.0447	0.0416	0.0528	0.0554	0.0556	0.0831	0.0914	0.1023

Source: KNBS Economic Surveys 2014-2025

The County's reliance on National Government transfers is reflected in the ratio of own-source revenue (OSR) to equitable transfers. This ratio improved from 0.0361 in 2013 to 0.1023 in 2024, representing a 5.34-fold increase. Despite this improvement, the ratio indicates the substantial revenue the County would need to generate to match the level of equitable transfers. It also suggests that counties may have been assigned functions that exceed the capacity of their available revenue streams. In addition, the National Government continues to retain a broader revenue base, while potential revenue-sharing mechanisms that could benefit counties remain unimplemented.

The ratio of own-source revenue to the County's Gross Domestic Product (GDP) increased from 0.0023 to 0.0075, indicating growth in own-source revenue relative to the County's economic size. However, this remains significantly below the National Government's revenue-to-GDP ratio of approximately 19%, while the County's ratio is below 1%. This suggests that the County may be under-collecting its revenue and has considerable scope to enhance revenue mobilization.

Similarly, the ratio of own-source revenue to National Government transfers improved from 0.0622 in 2013 to 0.0732, although it remains low. The gap between own-source revenue and equitable transfers highlights the additional revenue the County needs to achieve greater financial autonomy and self-sufficiency. Overall, the County remains far below the target of generating 1.5–3.0% of its GDP from own-source revenue and continues to rely heavily on equitable transfers to finance its functions.

Table 10.22: Estimates and Actual Allocation Analysis

	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023
Approved Estimates	5,721,000,000	5,119,073,806	5,857,834,974	5,911,260,701	5,681,363,406
Actual	4,873,000,000	4,479,989,745	5,554,449,574	5,260,849,525	5,258,282,681
Deviation	847,068,376	639,084,061	303,385,400	650,411,176	423,080,725

Source: From CIDP, & CFSP

County budget estimates and actual revenue collections for the five-year period from 2018 to 2023 indicate a persistent gap between projected and actual revenues, with actual collections consistently falling below budget estimates. The deviation was highest in FY 2018/19 at Ksh. 847,068,376 and lowest in FY 2020/21 at Ksh. 303,385,400, with an average annual deviation of Ksh. 572,605,947.

These revenue shortfalls reduce sectoral budget allocations, resulting in incomplete projects and, in some cases, the absence of budget allocations for planned projects. Consequently, the County's capacity to deliver services and equitably distribute development projects across the County is constrained.

Expenditure Side

The demand side of the County Government's fiscal space comprises expenditure of the revenue collected from the various sources to finance service delivery. Expenditure is broadly categorized into recurrent and development expenditure, based on sectoral budget allocations and project implementation.

The three-year analysis of recurrent and development expenditure presented in the table below provides an overview of the County's expenditure trends, with three key indicators illustrating the prevailing fiscal scenario

Table 10.23: Development and Recurrent Expenditure 2018-2023

Item	2018/2019	2020/2021	2021/2022	2022/2023
Recurrent Expenditure	3,261,960,023	-	3,529,051,532	4,089,863,657
Development Expenditure	1,397,982,868	-	1,023,906,323	918,038,103
Total	4,659,942,891	-	4,552,957,855	5,007,901,760
Ratio of recurrent to Total Ex	0.70	-	0.78	0.82
Ratio of Development Expenditure to Total	0.30	-	0.22	0.18
Development Expenditure to Recurrent Expense	0.429	-	0.290	0.224
Per Capita Development Expenditure	3,555.61	-	2,503.44	2,221.82

Source: Compiled & Calculated from CFSP and CIDP

Trends in recurrent and development expenditure reflect the County's capacity to support human resources, maintain facilities, equipment, and public assets, and invest in capital development. While recurrent expenditure has continued to increase, development expenditure declined from Ksh. 1,397,982,868 in 2018 to Ksh. 918,038,103 in 2023. The ratio of recurrent expenditure to total expenditure increased from 0.70 in FY 2018/19 to 0.78 in FY 2021/22 and 0.82 in FY 2022/23. Consequently, the proportion of development expenditure to total expenditure has declined.

This trend indicates rising personnel and operational costs alongside reduced investment in capital development projects. Two indicators demonstrate the County's limited capacity to finance development projects from its own resources: the declining ratio of development expenditure to recurrent expenditure and the reduction in per capita development expenditure from Ksh. 3,555.61 in 2018 to Ksh. 2,221.82 in 2023. As a result, the County has been unable to achieve the statutory expenditure threshold of allocating 70% of its budget to recurrent expenditure and 30% to development expenditure.

Overall, the County faces fiscal constraints on both the revenue generation and expenditure sides, limiting its financial autonomy. On the revenue side, leakages and inefficiencies continue to reduce revenue collection. The trade and commerce sector is affected by challenges including slow adoption of the new revenue management system by the business community and underutilization of revenue sources such as tourism. To address these challenges, the County Government is developing an integrated revenue management system that incorporates M-Pesa as a payment platform, installing CCTV cameras at all revenue collection (CESS) points, automating revenue collection at bus parks, and strengthening revenue compliance. Nevertheless, untapped revenue sources remain a major challenge to revenue mobilization.

On the expenditure side, the utilization of development funds is constrained by delays in revenue disbursement and budget allocations. The County is also addressing annual audit queries to improve

accountability and the efficient use of limited financial resources while enhancing its budget absorption capacity

10.12 Economic Concerns from Sub-Counties

During the Sub-County Vision Community Meetings, participants identified key economic challenges and opportunities affecting each sub-county. A summary of the issues raised for the economic sector is presented in the table below. The low household incomes and high unemployment reported across the sub-counties are associated with the performance of agriculture, industrial activities, commercial development, markets, and the informal economy.

Table 10.24: Sub-County Economic Issues

Sub-county	Issue
Maara Subcounty	No markets for agricultural products as there are no industries for value addition
	Poor mobilization of resource
	Low-income levels
	Crop pest and diseases
	Inadequate water for irrigation
	Unemployment
Tharaka North	Unemployment
	No markets for agricultural produce
	Pets and animal diseases
	Inadequate water sources for irrigation
Tharaka South	Poor market linkages for produce
	Middlemen and cartels dominating the market
	Uncontrolled importation of produce
	Pets and diseases
Igambang'ombe	Low-income level/poverty
	Unemployment
Chuka	Inadequate extension of service in agriculture
	Lack of market for produce
	Lack of value addition in agricultural produce

Source: Vision Reports, 2019

The above presentation finally leads to the following summary of economic issues within the county, which cover large sections as well as all parts of the county, that planning should address.

10.13 Emerging Challenges and Opportunities

Following the above presentation, a summary of challenges and opportunities in the economic sector of the county is indicated here.

Economic Challenges	Opportunities
Economic vibrancy across sub-sectors affected by a high production cost structure (high and fluctuating) annually	
The county depended on a few export products to other spatial jurisdictions of low value	Available diversified export

Economic Challenges	Opportunities
Inadequate value addition in the commercial agricultural sectors (markets, linkages)	Enterprises are available for a comprehensive value chain
Production and productivity challenges in the subsistence sector (practices of land use, extension services)	Intensification of high-yielding products do exist
Underutilization of irrigation potential in the county (accessibility to water, and its distribution)	Technologies for irrigation and the conservation of water are available
Raw material challenges impacting available agro industry activities (Tea, Milk, Coffee, Bananas)	Demand for raw materials exists in the County
Underutilised tourism opportunity in the county in relation to its counterparts within the Mount Kenya and Aberdare economic block	Diverse tourist assets are available in the County (natural and heritage)
Markets of products have been hijacked by cartels in some areas of the county	Need for diverse product marketing in the County
Hierarchy of economic nodes unable to attract investments (services and easy access to sources of products)	Available economic nodes fairly distributed in the county
Inadequate connection some of the existing hierarchy centres to their rural hinterland	Hierarchy of settlements do exist in diverse production areas as per three regions
Inadequate revenue utilisation of county revenue potential	Good trends of increasing revenue collection within the county and untapped areas

11 CHAPTER 11: GOVERNANCE

11.1 Overview

Governance is the process by which decisions are made, implemented, and evaluated in both public administration and land-use planning. County governments have established institutional structures to effectively discharge their constitutional and statutory functions. Governance at the sub-county and ward levels has been presented in the annexures to this Plan.

The preparation and implementation of the Tharaka Nithi County Spatial Plan, which provides the County's spatial development framework and informs the formulation of County Integrated Development Plans (CIDPs), is guided by the Constitution of Kenya, 2010, the Physical and Land Use Planning Act, 2019, the County Governments Act, 2012, and other relevant policies and Acts of Parliament. The Constitution assigns planning responsibilities to both the National and County Governments, with the National Land Commission coordinating, monitoring, and overseeing land use planning across the two levels of government.

This chapter outlines the planning institutions within Tharaka Nithi County, their roles in the County Spatial Planning process, and the division of responsibilities among them.

11.2 County Institutional and Governance

Institutions are widely defined as the formal and informal rules that structure social, political, and economic relations among individuals and groups (North, 1990). They are systems of established social rules that shape interactions within society (Hodgson, 2006). Within organizations, institutions provide the coordinating framework that aligns people and resources towards common objectives.

Institutions operate across all sectors of society and influence access to economic, legal, political, and social rights and opportunities at all levels of governance. They establish codes of conduct that shape incentives affecting government decision-making, public sector performance, citizen and private sector behaviour, resource allocation, and the equitable exercise of state authority.

Functionally, institutions comprise a dual system of interaction between government structures organized within a territorial administrative hierarchy and the formal and informal rules that govern them. These interactions occur both vertically and horizontally, converging at functional levels and overlapping across territorial jurisdictions.

The County comprises a hierarchy of urban centres and formal and informal actors with diverse interests that are integral to planning, regulation, and development implementation. In Tharaka Nithi County, institutions encompass the structures and mechanisms that promote social order, cooperation, and coordination, guiding the actions of individuals, public officials, and other stakeholders towards achieving the County Spatial Plan vision. The principal institutional governance challenge is coordinating these diverse interests to achieve both internal and external coherence within the broader national governance framework.

Interpretation

Spatial planning in Kenya operates within institutional and organizational frameworks established by the Constitution and related legal instruments. It is undertaken in two complementary ways: as a professional discipline responsible for planning functions at the national, county, city, and municipal levels, and as a public sector governance tool that guides state administration. Together, these approaches are embedded within the broader political and economic system and organized

hierarchically to deliver services at the lowest appropriate level in accordance with the principle of subsidiarity.

Devolution is a key instrument for regional spatial development in Kenya, replacing earlier deconcentrated systems such as the District Focus for Rural Development Programme and elements of the former local government framework. Balanced regional development is achieved through an interconnected hierarchy of nodal centres serving surrounding hinterlands through public investment and private sector participation. The principles of subsidiarity and power-sharing further support decentralization and service delivery to the lowest administrative units, as provided under Section 48 of the County Governments Act.

The urban system is a critical component of county spatial planning within Kenya's two-tier governance framework. In Tharaka Nithi County, it comprises the municipalities of Chuka and Kathwana, secondary urban centres, and smaller tertiary and local centres linked to agricultural and conservation areas. These are supported by decentralized administrative units, including the five sub-counties, wards, and villages, which facilitate service delivery at the grassroots level.

Land use planning and development within the County involves a wide range of stakeholders, including National Government agencies such as the County Commissioner, state corporations, constitutional commissions and independent offices, development partners, non-governmental organizations, community groups, cooperatives, informal business associations, faith-based organizations, the private sector, and individual landowners.

Collectively, these actors influence land use patterns, the quality of rural, peri-urban, and urban environments, and overall living conditions. Many of the County's planning and development challenges arise from the diverse interests of these stakeholders, whose activities vary in their level of compliance with planning and regulatory frameworks intended to promote the public interest.

This underscores the need for clear institutional responsibility for planning, development control, and the provision of public goods that improve quality of life and attract investment. The current planning framework continues to reflect elements of the dual governance system that existed before 2013 under the former county councils and provincial administration.

Consequently, strengthening land use planning, development control, and the institutionalization of spatial planning as the basis for regulating development and guiding public investment remain priorities for Tharaka Nithi County. Effective coordination and harmonization among diverse actors and development activities remain central governance challenges that influence the County's spatial structure and development patterns.

11.3 Purpose of Institutions & Governance

The overall guidance, direction, and regulation of individual and collective actions for the survival and continuity of society have existed throughout human history. In modern contexts, this function is essential due to the use of shared resources, the need for social cohesion, the potential for individual actions that may harm society while benefiting individuals, and the provision of public goods and services that are not efficiently supplied by private actors.

Public leaders and officials in government institutions funded through taxation are expected to prioritize the welfare of citizens and improve the quality of life rather than pursue self-interest. Over time, governments have operated within evolving economic and political ideologies that have shaped

development outcomes and influenced the spatial distribution of resources and opportunities at the local level.

In Kenya, the government structure—largely influenced by historical administrative systems—operates under defined legal and policy mandates at all levels, including the national government, state corporations, county governments, cities, municipalities, and towns, as well as non-state actors. These arrangements are guided by constitutional provisions on the assignment of functions, responsibilities, and coordination between national and county governments (Articles 6, 185, 186, 187, and 189–191, and Schedule 4).

Key national development frameworks include Vision 2030 and the “Big Four” Agenda, which focus on affordable housing, manufacturing and value addition, food security, and universal healthcare. These are complemented by county-level frameworks such as the County Integrated Development Plan (CIDP), the National Land Use Policy, the National Spatial Plan, the National Land Policy, annual economic strategy papers, and the County Land Policy (2025), which emphasizes optimal land use and appropriate land subdivision standards for development.

From this policy framework, citizens across all agro-ecological zones of the County have expectations aligned with these mandates, particularly in housing, healthcare, manufacturing and value addition, infrastructure and utilities, spatial order, food security, and the regulation of land use in both urban and rural areas. These expectations are further grounded in constitutional provisions on environmental and socio-economic rights, the Urban Areas and Cities Act, and the principle of subsidiarity in governance.

Ultimately, these aspirations converge on the goal of improved quality of life—ensuring that no one is left behind—across macro, urban, and micro spatial scales within the County. At the macro level, quality of life for all citizens depends on addressing major spatial and sectoral challenges embedded within the structural elements of the County, identified as:

- a. Natural macro-spatial elements define the limits in which human activities take place and from which come a variety of goods and services for the people of the county. Some of these elements are within the county, and others extend beyond it (topography, rivers, hills, forests, and valleys).
- b. Road transport infrastructure network of varied classes serving access and interconnectivity within and linked externally. The macro-structural network is determined by the natural topography and was seen to be unequally distributed. Challenges along the network, inadequacy, and the absence of others, such as drainage, water, sanitation, NMT, electricity, and telecommunications, broadly characterize the county.
- c. Urbanization hierarchy and human settlement types and distribution are again closely ordered by the above two elements. Improved quality urban settlements on the policy agenda of the county are within the two main access development corridors of the county, leaving 60 percent of the county without high priority urban settlements.
- d. Spatial governance and especially concentration of power within municipal centres, and unequally distributed. The distribution of such centers is a major policy of decentralization in socio-economic development, accompanied by the leveraging of funding to provide infrastructure and facilities.

- e. Quality of life currently and for the future at the county scale and micro levels is therefore tied to how the above influence the spatial structure of development in the county within the current planning and governance system of the entire county, and possible improvements needed for implementing the plan. This takes note of the complex dualistic governance system at the county level, characterized by inter-horizontal and inter-vertical coordination issues among the actors already mentioned, in addition to intra-county coordination. The county government is expected to provide leadership to all actors to achieve quality of life, integrating the macro and micro levels outlined as follows.

a. Macro Level

Quality of life at the macro level space is a function of;

- a. Quality of integrated residential areas at neighbourhood or community level
- b. Quality of recreational areas distributed in areas where people live (open spaces, and community centres, including preservation and protection of rivers and wetlands)
- c. Quality of working areas (Commercial, industrial, markets both formal and informal, primary activities, services)
- d. Quality of inclusive transport network for movement of goods, services, labour (water, road, railway, termini facilities, parking, and air), internal and external
- e. Access to a network of utility facilities and services (water, sewer, energy, telecommunication, drainage) on public land
- f. Access to community facilities and services (housing, education, health, security, library, burial areas, training areas, colleges, and social halls), especially on public land
- g. Making land available for the above services mentioned, and this is defined by the way in which land is owned, especially the proportion of public land to private in the total land area of the County, as well as its distribution
- h. Management or governance of the above spaces as defined by the national development policy and legal frameworks of the country, types of plans, development regulation, guidelines, planning and design controls.
- i. Harmonization and coordination of all the above macro elements in urban and regional areas is necessary for quality of life at the micro level within a natural environment.

ii. Micro level

Table 11.1: Quality of life at Micro level

Quality of life is a function of the listed components of space	
Quality of Shelter- (water, sanitation, energy, drainage)	Accessibility –mobility access inclusively
Food security (three meals per day	Recreation-open spaces & Parks
Clothing as per preferences	Internet and email connectivity
Education-Public (lowest to highest)	Shopping and Markets areas
Health care (Public	Worship spaces or areas

Quality of life is a function of the listed components of space	
Employment areas: Urban and Markets	Participation in decision making
Safety and security	Material and non-material culture of residents
Access to quality and affordable farm inputs	Reliable markets for produce

Source: UoN-DURP, 2023

i. National Administrative Level

Service delivery anchored with a planning framework is a legal requirement under Section 104 of the County Governments Act (CGA), ensuring accountability in the use of public resources. This responsibility is not limited to county governments but also extends to national government institutions and other public-sector entities.

The assignment of functions and competencies is normatively defined by the Constitution of Kenya. Each public entity is assigned specific responsibilities and capacities to deliver services within its mandate. This framework is guided by national values and principles of governance, as well as public service values that promote efficiency, transparency, and accountability.

Policy formulation in Kenya is undertaken by the National Parliament, the Senate, and the County Assemblies, supported by their respective executive arms. This policy space is therefore shared among the three main legislative bodies and the public through constitutionally mandated public participation processes. Their roles, functions, and procedures are clearly defined in the Constitution and relevant legislation.

To this discussion, the key focus is on policy and service delivery areas that influence quality of life—anchored on the principle of “leaving no one behind”—for citizens of Tharaka Nithi County are:

1. Monitoring and oversight of executive functions on behalf of the people, and especially the way public resources are used (land, public finances, minerals, human resources)
2. Law and regulations making for the effective operations of government activities at both levels
3. Representation of the citizens, particularly in their areas of jurisdiction and the whole nation
4. Distribution and justice in terms of access to facilities and services of the government
5. Approval of plans and budgets for implementation and expenditure

The national executive is responsible for policy implementation in accordance with the functions assigned in Schedule Four of the Constitution. It develops policies, standards, and procedures that guide social and economic development across Kenya, including spatial planning. The executive is headed by the President, Deputy President, Cabinet Secretaries, the Office of the Attorney General, and administrative officers within ministries.

Below this level are departmental structures and technical units that link national government functions to county governments through sector ministries. In addition, constitutional bodies such as the Commission on Revenue Allocation and the National Land Commission play key roles in planning and resource governance. The National Land Commission, alongside the Directorate of Land Use Planning, provides oversight and monitoring of land use planning nationwide to ensure compliance with approved standards and guidelines.

Land use activities cut across all ministries, state corporations, and county departments. However, a key governance gap is the absence of an integrated spatial planning framework to coordinate development strategies, project locations, and public expenditure. As a result, public spending by

ministries has not consistently aligned with planning frameworks at both national and county levels. Ideally, coordination should flow from Vision 2030 and the Big Four Agenda, through sector policies, the National Spatial Plan, the National Land Use Policy, County Spatial Plans, Urban and City Plans, and County Integrated Development Plans, culminating in on-the-ground implementation. In practice, this sequencing is often weak, leading to misalignment between planning and governance.

Major sector ministries whose activities directly involve land include the National Treasury and Economic Planning, Roads and Transport, Health, Education, Agriculture and Livestock Development, Investment, Trade and Industry, and Environment, Climate Change and Forestry, among others. The implementation of their programmes should be guided by plans prepared under the Ministry responsible for land and physical planning, since all sectoral activities occur on land. This alignment should also extend to counties, municipalities, and lower urban centres.

Coordination of national government functions within counties is undertaken by the Office of the County Commissioner, whose administrative structure extends to the village level. This office is responsible for maintaining public order, ensuring efficient delivery of national government services, and enforcing laws, policies, and regulations of various government agencies at the county level.

The judiciary forms the final arm of national governance, responsible for adjudication and dispute resolution. Its institutional framework includes the Judicial Service Commission and the court hierarchy, which upheld the rule of law and ensure fair administrative practice. It handles disputes between government agencies, between government and citizens, and among citizens themselves.

In spatial planning, judicial review mechanisms are incorporated through liaison committees under the Physical and Land Use Planning Act, 2019, which hear appeals against planning decisions as outlined in Sections 79(a), 79 (b), and 79 (d). The final avenue for dispute resolution is the Environment and Land Court (ELC). Counties are required by law to establish functional County Physical and Land Use Liaison Committees under Section 76 to handle planning disputes before escalation to court, thereby reducing litigation and improving the local resolution of land-use conflicts. However, many counties have yet to fully operationalize these committees.

Contested and concurrent functions requiring coordination between county governments, the national government, and state corporations are governed under the Intergovernmental Relations Act, 2012. The Act establishes structures for consultation and cooperation, including the Intergovernmental Summit (Section 7) and the Intergovernmental Technical Committee (Section 11). The overall organizational structure of the national and county administration is illustrated in **Error! Reference source not found..**

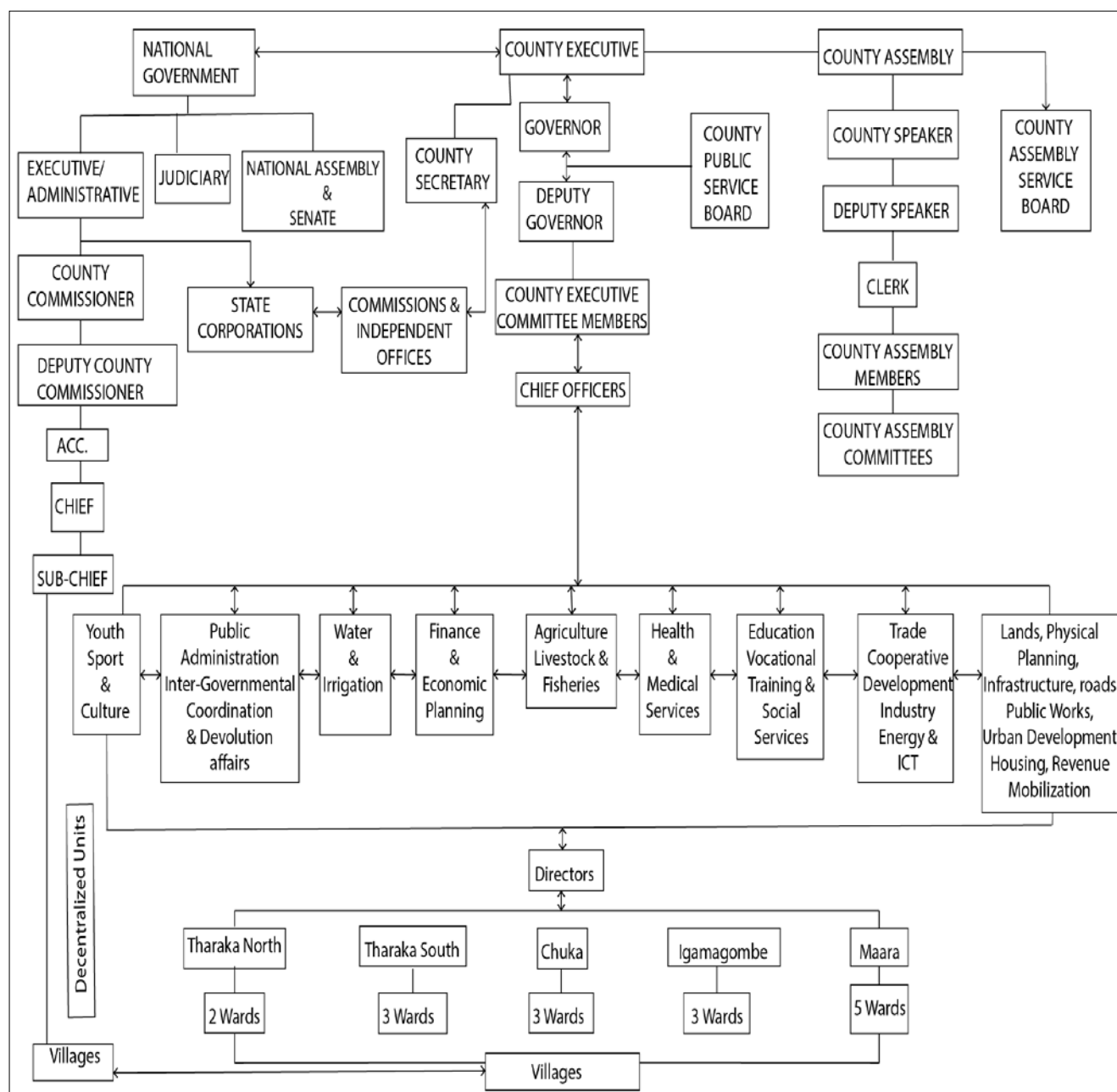


Figure 11.1: Dual organizational Structure

Source: Authors Construct, 2024

11.4 County Administration and Spatial Planning

Governance and management at the County level are shared between the Executive and the County Assembly, with citizen participation integrated into County functions. County responsibilities are set out in the Constitution of Kenya, the County Governments Act, the Urban Areas and Cities Act, the Physical and Land Use Planning Act, and other sectoral legislation. These legal frameworks provide the mandate for County functions, while the governance structure, human resources, equipment, and decentralized administrative units provide the institutional framework for planning and development control.

The County Assembly comprises the Speaker, elected Members of the County Assembly (MCAs), and nominated MCAs. It provides legislative oversight, ward representation, and a key channel for public participation. The Assembly operates through its own staff and procedures under the County Assembly Public Service Board. Representation is further strengthened through Members of Parliament and Senators. Development projects implemented through the Constituency Development Fund (CDF) should be informed by participatory planning and aligned with the County Spatial Plan.

The County Governments Act (Part VIII) and the Urban Areas and Cities Act provide mechanisms for citizen participation through organized groups and urban forums. These mechanisms strengthen accountability and oversight of the County Government. However, their effectiveness depends on active public engagement. During stakeholder consultations, people with disabilities (PWDs) and youth were underrepresented, indicating low levels of civic participation.

The County Executive is headed by the Governor, the Deputy Governor, the County Secretary, nine County Executive Committee Members (CECMs), the Chief Officers, the County Attorney, departmental heads, and technical staff. Service delivery follows a top-down administrative structure, while public participation provides a bottom-up channel for identifying community needs. County departments coordinate services through sub-counties, with ward administrators serving as the primary link between communities and the County Government. The administrative structure extends from the Executive to departments, sub-counties, wards, and villages. The department responsible for land use planning, housing, and urban development oversees the establishment and management of urban areas in accordance with the Urban Areas and Cities Act, 2011. Human resource management is undertaken by the County Public Service Board.

Sections 48–53 of the County Governments Act establish decentralized units and their functions. Urban areas fall within sub-counties and wards that exercise executive responsibilities, while also overlapping with National Government administrative units, including divisions, locations, sub-locations, and villages. This creates the need to clearly define the responsibilities of sub-counties, wards, and urban areas and to address potential jurisdictional overlaps. These challenges arise from Articles 6 and 184 of the Constitution, which recognize only two levels of government. Consequently, urban areas operate within the second tier of government, with some overlap in the execution of County and National Government functions. The decentralized units and their responsibilities are presented in the table below

Table 11.2: Decentralized Units and Responsibilities

The Sub-County Administrator	The Ward Administrator	The Village Administrator
• Section 50 (3), The Sub County Administrator shall	• Section 51 (3) The Ward Administrator shall	• Section 52 (3) The Village Administrator shall

be responsible for the coordination, management, and supervision of the general administrative functions in the sub-county unit, including: • The development of policies and plans • Service delivery • Development activities to empower the community • The provision and maintenance of infrastructure facilities of public services • County public service • Exercise of any functions and powers delegated by the County Public Service Board under section 86, • Facilitate the coordination participation of citizen in the development of policies and plans and delivery of services • Report to the relevant chief officers on matters at hand	coordinate, manage and supervise the general administrative functions in the ward unit, including: • The development of policies and plans • Service delivery • Development activities to empower the community • The provision and maintenance of infrastructure facilities of public services • County public service • Exercise any of functions and powers delegated by the County Public Service Board under section 86, • Facilitate the coordination participation of citizen in the development of policies and plans and delivery of services • Report to the relevant chief officers on matters at hand • The ward administrator shall be responsible to the sub county administrator	coordinate, manage and supervise the general administrative functions in the village, including • Ensuring and coordinating the village unit in governance • Assisting the village unit to develop the administrative capacity for the effective exercise of the functions and powers and participation in governance at the local level • The exercise any of functions and powers delegated by the County Public Service Board under section 86, • He reports to the relevant ward administrator Monitoring the implementation of policies at the village level Advising the ward admin and sub county admin on matters pertaining to the village • Any other functions necessary for the better administration of the village
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Source: County Government Act No 17 of 2012

The County's capacity to improve the quality of life of its residents through a coordinated planning framework depends on adequate financial resources, human capital, institutional structures, and resource autonomy. These resources should be commensurate with the functions assigned to County Governments under the Constitution to ensure effective service delivery. Although Counties face limitations in fiscal autonomy, prudent utilization of available resources and collaboration with development partners, supported by up-to-date planning frameworks, can enhance institutional effectiveness and service delivery.

The County's fiscal capacity is reflected in the revenue trends presented in the economic sector. The ratio of own-source revenue (OSR) to equitable transfers indicates a substantial fiscal gap and the need

to strengthen local revenue mobilization. Own-source revenue as a percentage of National Government transfers increased from 3.67% in 2013 to 4.16% in 2018, 9.14% in 2023, and 10.23% in 2024. Despite this improvement, the County remains heavily dependent on National Government transfers, suggesting that assigned functions exceed locally generated revenues or that revenue collection remains below potential.

The ratio of own-source revenue to County Gross Domestic Product (GDP) also illustrates revenue mobilization capacity. This ratio increased from 0.23% in 2013 to 0.33% in 2018, 0.68% in 2023, and 0.75% in 2024. However, this remains significantly below the National Government's revenue-to-GDP ratio of approximately 19%, indicating substantial scope for improving revenue collection.

Another indicator of County capacity is the ratio of development to recurrent expenditure. This ratio declined from 0.429 in FY 2018/19 to 0.290 in FY 2021/22 and 0.224 in FY 2022/23. Similarly, per capita development expenditure declined from Ksh. 3,555.62 to Ksh. 2,503.44 and Ksh. 2,224.82 over the same period. These trends indicate limited capacity to finance capital projects from County resources, resulting in greater reliance on conditional grants from the Government of Kenya and development partners. They also reflect rising personnel costs and the persistent gap between budget estimates and actual revenues, leading to reduced project allocations or delayed implementation.

The County Government works closely with National Government institutions, including the County Commissioner's Office, through decentralized administrative structures extending to the village level. This dual administrative system provides the framework through which planning, development control, and service delivery are implemented. The effectiveness of planning depends on the relationship between the administrative system and planning institutions, as well as their capacity to prepare and implement plans and deliver supporting infrastructure.

The County's development challenges are closely linked to past and current planning and implementation capacity. Effective spatial planning should guide infrastructure investment before development takes place. However, infrastructure development in Kenya has often occurred without comprehensive spatial planning, limiting the realization of integrated and synergistic development outcomes. Consequently, the quality of life of County residents continues to be affected by development undertaken without adequate supporting infrastructure.

i. Spatial Planning System in the County

Spatial planning at the County level is guided by the County Governments Act (CGA), the Urban Areas and Cities Act (UACA), the Building Code, the Physical and Land Use Planning Act (PLUPA), and relevant planning standards. County planning is guided by the principles set out in Section 102 of the CGA and Section 5 of PLUPA. These laws define the objectives of planning, the key elements of the County Spatial Plan under Section 110 of the CGA, and the required plan content under PLUPA. In addition, sector-specific legislation assigns counties responsibility for regulating various land use activities in accordance with planning requirements. While the CGA provides both governance and planning provisions, PLUPA focuses on physical planning and development control in both rural and urban areas.

Physical and land use planning is undertaken within the County Executive structure established under PLUPA, 2019. The planning hierarchy comprises the County Executive, the County Executive Committee Member (CECM) responsible for lands, physical planning, infrastructure, roads, public works, urban development, housing, and revenue administration, the Chief Officer, the Director of Physical and Land Use Planning, and planning offices in the five sub-counties. Planning matters

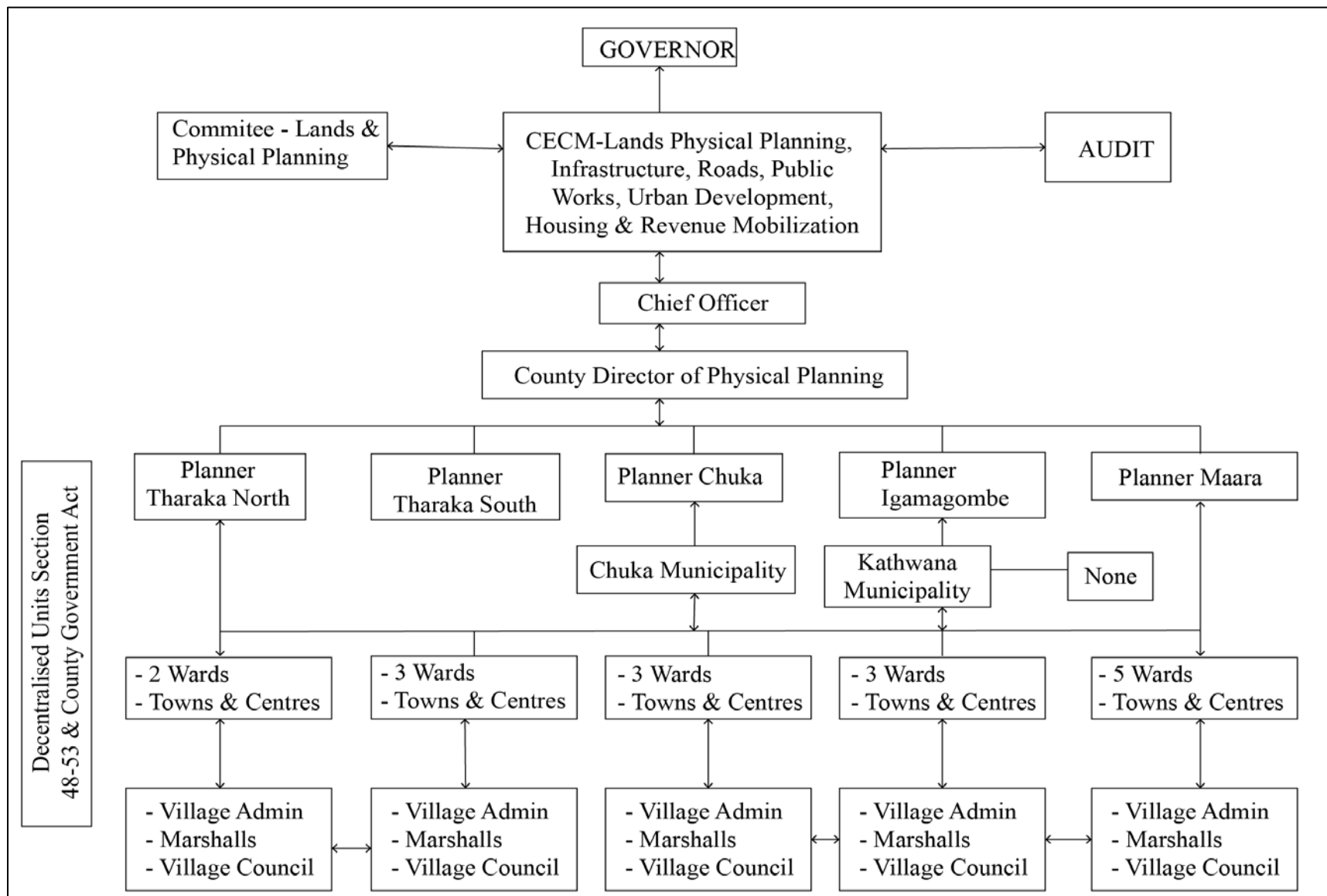
affecting neighbouring counties are addressed in accordance with Sections 29–34 of PLUPA, while the planning functions of the CECM and the Director of Physical and Land Use Planning are provided under Sections 17 and 20, respectively.

The municipalities of Kathwana and Chuka currently have no planning staff. Although the County has six planners, capacity remains inadequate to effectively undertake local physical planning and development control. Similar staffing shortages exist among building inspectors, engineers, architects, and surveyors.

Planning services are delivered through the sub-counties and municipalities to the village level. However, service delivery is constrained by the absence of up-to-date local physical plans, zoning guidelines, and a documented service charter for processing development applications. Automating planning and development application processes would improve efficiency and reduce processing delays. A planning service charter outlining application requirements, procedures, and approval processes would further enhance transparency and service delivery.

The County also lacks an effective system for tracking planning activities and associated revenue streams. Information such as the number of planning approvals issued, monthly planning revenue, building plan approvals, construction costs, and completed developments is not adequately documented, limiting effective planning administration and monitoring.

Figure 11.2: Existing Organisational Structure of Planning



Source: Authors Construct 2024.

Planning Issues

Emerging planning issues in institutions and governance were classified into four subheadings: intergovernmental, public administration, county assembly, and coordination.

Inter-Governmental Relations had the following issues

- a) Inter-boundary conflicts between Meru County and Tharaka Nithi County
- b) Inadequate consultation between County Governments and the national government on essential economic policy matters affecting county economies
- c) Inadequate involvement of the county in projects of inter-county and national significance under section 69 of the Planning Act

Public administration

- a) Inadequate capacity in the county in terms of essential professional staff, budgets for spatial planning and implementation, and required equipment to facilitate planning (RTK survey equipment, GIS lab, and vehicles for fieldwork)
- b) Inadequate development Expenditures and inability to utilize funds due to delays in disbursement
- c) Inadequate participation in decision making, budgeting and implementation
- d) Policy implementation inconsistencies due to the 5-year electoral cycle

County Assembly

- a) Insufficient civic education and engagement with county elected members
- b) Inadequate monitoring and oversight
- c) Inadequate awareness of sectoral contributions, synergies and technical requirements

Coordination and harmony for synergy

- a) Lack of a coordinating framework among actors carrying out activities on land
- b) Inadequate clarity between competencies of municipalities and those of sub counties and wards
- c) Inadequate Technical and policy channel coordination and their impact at village levels

12 CHAPTER 12: SUMMARY OF PLANNING ISSUES

12.1 Overview

Tharaka Nithi County has diverse resources that can be leveraged to support growth and development. Spatial planning should adopt a multi-sectoral approach that addresses sector-specific challenges and potential to promote development.

This chapter summarizes planning issues derived from the situational analysis and highlights key development prospects the County can use to advance its development agenda.

12.2 Summary of Issues from the Situational Analysis

A clear understanding of Tharaka Nithi County's development potential can be achieved by analyzing the existing situation. Prior to initiating development activities, it is essential to understand the County's natural resources, socio-economic activities, population dynamics, and the key actors influencing development.

This understanding enables stakeholders to recognize both natural and man-made resources available for development. A situation analysis also helps identify residents' priorities and needs, thereby informing appropriate development interventions. Table 12.1 presents a summary of key challenges and opportunities across the County's major sectors.

Table 12.1: Summary of Planning Challenges and Prospects in the County

Summary Area	Challenges/Issues	Opportunities/Prospects
Environment and Natural Resources	• Environmental degradation - pollution of river water, poor waste disposal, deforestation, especially on ungazetted forested areas/hills as they lack legal protection, soil erosion and unregulated sand harvesting. • Encroachment into forest areas for farming activities, logging and poaching. • Natural disasters – droughts, forest fires, pests and diseases, human-wildlife conflicts, floods, landslides and mudslides – that lead to crop destruction, and loss of livestock and human lives. • Climate change that has negatively affected agricultural production and thermal comfort	• Abundant water resources that can be utilised for irrigation, building of water reservoirs, production of hydropower, fishing and sand harvesting • Mineral deposits that are yet to be explored • Availability of green sources of energy, such as the sun and wind, which can help reduce over-reliance on the national grid power. • Rich biodiversity, including wild animals, birds and vegetation, which attracts tourists • Hills, mountains, landscapes, and hydrological features also offer great scenic beauty that can boost the tourism industry • Existing statutes such as the County Climate Change Policy Framework, Climate Change Fund Bill, and Mining Bill (all 2018) that govern natural resource management and mitigation of the effects of climate change.
Population and Demography	• Skewed population distribution, favouring the high potential agricultural areas, especially near Mt. Kenya • High poverty rates, especially in the less developed, rural areas • Low transition rate to higher institutions, especially primary to secondary school, translating to reduced human resource capacity and skilled labour force • Heavy reliance on rain-fed agriculture as an income and employment source, making the	• Large youthful population that is a potential labour source and market for produced goods • Migration into and out of the County guarantees a steady flow of cash and the human resource capacity that can be tapped by the County • Rich cultural background that residents identify themselves with can be exploited for tourism. However, it is important to work towards eradicating retrogressive cultural practices. • A welcoming population willing to work towards growth and development.

Summary Area	Challenges/Issues	Opportunities/Prospects
	population susceptible to seasons and bad climatic conditions • Retrogressive cultural practices such as FGM and the <i>Kabonokia</i> religion • Low population growth rate that could in a few years undermine labour supply.	
Land	• Land conflicts and disputes which undermine land adjudication process in the affected areas and therefore security of tenure which negatively impacts development. • Lack of planning in both urban and rural areas. • Lack of public land bank for public projects. • Subjective valuation of land due to lack of a valuation rolls • Unregulated land subdivision in urban areas • Land fragmentation in rural areas with scattered settlements • Poor coordination between land management agencies • Lack of a comprehensive development control framework to guide minimum land holding sizes • Incomplete land adjudication processes which create lack of security of land tenure • Unguided conversion of agricultural land to other uses leading to loss of agricultural land. • Poor provision of green and open spaces in urban areas.	• Land adjudication process is ongoing and upon completion will strengthen security of land tenure. • Vast unused lands that can be opened up through infrastructure development for investments. • Availability of public lands for existing social infrastructure. • Extensive arable land (56% of total land area) that is not fully used for agricultural production. • Preparation of CSP lays a foundation for lower-level physical development plans and a development control framework. • Digitisation of all land records for better management and higher integrity. • Preparation of valuation rolls for Kathwana municipality and all primary towns to facilitate rating and collection of land revenue. • Preparation and enforcement of both land and land use policies to facilitate sustainable land administration and land use.

Summary Area	Challenges/Issues	Opportunities/Prospects
	• Poor management of land records.	
Human Settlements, Urbanization and Housing	• Human settlement patterns that undermine provision of services. • Encroachment of human settlements into environmentally fragile areas. • Poor enforcement of the few existing development plans for urban areas. • Unguided urban sprawl and ribbon development. • Urban primacy leading to unbalanced growth of centres • Inadequate infrastructure and services in both urban and rural areas. • Poor quality of housing in rural areas	• Conservation of environmentally fragile areas such as the rivers, hills and the mountain area • Preparation of a zoning policy indicating the minimum land sizes in each area and the specifications to secure the hinterland for agriculture and conservation. • Urban boundaries of all towns and markets should be demarcated and urban development contained within them. Densification of development can control urban sprawl. • Revitalization of economies of potential growth centres by stimulating growth of secondary towns and promoting a hierarchical urban pattern. • Provision of relevant services and infrastructure for urban development and settlement structures • Implementation of strategies on the recommended types of housing in different areas and encouraging the use of available building materials. • Use of appropriate building technologies
Transportation	• Roads are not all-weather roads, thus impassable during rainy seasons. • Lack of stormwater drains that negatively affects the longevity of the paved surface. • Overall, a poor road network within the rural areas. This also increases operation cost and fares for public service vehicles.	• To upgrade the road network to open up some areas and increase inter- and intra-regional connectivity. • Construct all-weather roads for better transport connectivity all year round. • Better road designs in urban areas that provide for NMT, pedestrian walkways and cycle paths to accommodate more modes of transport, especially within urban areas. • Improved rural connectivity • Reduced overreliance on vehicular travel.

Summary Area	Challenges/Issues	Opportunities/Prospects
	Limited facilities of bus parks, bus stops, boda boda stands, taxi ranks and waiting bays for passengers in Chuka and Chogoria. Dispersed rural population, discouraging public transport services provision on certain routes. Inadequate financing and facilitation of NMT facilities, especially in urban areas. High accident cases of pedestrians and <i>boda bodas</i>. Lack of air and rail transport facilities. Inadequate safe crossings along rivers and streams. Lack of storm water drainage facilities on Class C roads and the Earth Roads leading to water clogging /flooding on the roads. Residents are reluctant to agree to have storm water reticulated within their farms, as it affects their farm produce and, and failure to drain this water; it runs along the road and damages the road infrastructure.	• Improved air quality • Improved quality of life • Establishment of rail and air transport modes will enhance inter and intra-county connectivity and promote tourism activities and agricultural exports. • Promotion of tourism travels to Meru National Park (by construction of a resort at Ura Gate), Grand Falls (Kibuuka) and Mt. Kenya National Park • Construction of Itugururu airstrip • Construction of stormwater drainage to improve drainage and control flooding, especially in built-up areas. • Creation of a stormwater master plan for the Urban centres, including Chuka, Chogoria and the Municipality of Kathwana
Physical Infrastructure and Utilities	• Poor telephone and network coverage, especially up Mt. Kenya and in the Northern parts of the County. • Rural electrification is still minimal with more rural settlements lacking electricity. • Untapped solar and wind energy potentials • Lack of extensive sewer lines in urban areas • Inadequate water supply for both urban and rural areas.	• Improve distribution of utilities such as water, electricity and ICT throughout the County. • Encourage use of solar panels at homestead level and small-scale wind farms to harness wind power • Leveraging National electricity connectivity programs such as the Last Mile. • Establishment of an electricity reticulation master plan for the County

Summary Area	Challenges/Issues	Opportunities/Prospects
	• Less water pipeline network from the available intakes to serve the surrounding communities • High Non-revenue water due to an aged system, hence loss through leakages and illegal connections • Way leaves for water pipes are not observed; most damaged pipelines in construction activities have not been properly reinstated. • Lack of data on the distribution of onsite sanitation, such as septic tanks and pit latrines. • Unsafe disposal of sludge from septic tanks on the road drainage during the rainy season. • Small coverage of individual water supply connections impedes the development of the off-site sewerage system and treatment • Lack of land for the establishment of a solid waste transfer station for all the towns except for Chuka. • The emissions from the incinerator are extremely dangerous when not properly controlled; they may cause air pollution that is harmful to human health. • Lack of adequate protective gear for the workers handling solid and liquid waste eposes the to various diseases.	• County is well endowed with natural water resources that if well managed will be enough to cater to the County's demand for both domestic use and irrigation. • Securing exhausters and constructing more receptacle tanks in urban areas shall translate to improved water quality by reducing pollution, minimising the release of hazardous chemicals and materials, eliminating dumping, halving the proportion of untreated wastewater, and substantially increasing recycling and safe reuse globally. • County Government has prioritised the establishment of proper liquid and solid waste management facilities at Igambang'ombe in Kithangani location, where the waste can be disposed of, recycled and reused.
Social Infrastructure	• Poor condition of health care and education facilities in terms of staffing and services	• Improve the physical structures, facilitation, and staffing of education and healthcare facilities

Summary Area	Challenges/Issues	Opportunities/Prospects
	• Dilapidated structures, especially ECDE and primary schools, and healthcare facilities • Healthcare facilities have appropriate physical structures but lack adequate human resources as well as medicine and lab reagents. • Existing sports and recreation facilities are underutilised. • Lack of a women's prison in TNC	• More secondary schools can be set up in the County, especially in Tharaka North and Tharaka South Sub-Counties • Hiring enough human resources for the education and health care sectors. • Completion of proposed stadia to boost provision of sports and recreation facilities. • Encouraging County residents to make use of sports and recreational facilities, which is also a potential revenue source for the County. • Establishment of a women's prison in Tharaka Nithi County
Economic Base	• Low agricultural production due to small land sizes and low productivity. • Only 7.8% of agriculture is commercial leading to low household income from farming. • Limited/weak farmer organization leading to exploitation by middlemen hence low farm incomes. • Very little value addition on crop, livestock and forestry produce. • Few veterinary, livestock, crop and forestry extension officers to support farmers. • Poor post-harvest handling of farm produce. • Unreliable and erratic rainfall for farm production in the lower midland zones of the county leading to higher poverty levels.	• Formulate a policy to guide minimum land size per crop and zone. • Strengthen and increase farmers' cooperatives to protect farmers from exploitation by middle men. • Increase investment in crop, livestock, forestry and produce marketing to increase production, productivity and incomes. • Develop agro-processing industries for all crop, livestock and forestry enterprises to enhance value addition and income for value chain actors. • Livestock, crop, extension officers and veterinary personnel available for hire to provide sufficient support to farmers. • Set up a Grains Drying, Preservation, Storage, Packaging and Distribution Centre (GDSDC).

Summary Area	Challenges/Issues	Opportunities/Prospects
	Poor condition of roads hindering efficient transportation of farm produce.	- Increase irrigation water supply and its related infrastructure development to expand irrigated agriculture and encourage rain water harvesting in individual homes. - Improve roads used for transporting produce from farms.
Governance and Public Participation	- Inadequate resource capacity (human, technical and capital) for the County to perform its functions adequately. - Representation of the public during consultation forums was not fairly spread out across the County, especially for people living with disabilities, the youth, women as well as administrative areas. This was seen during the Visioning exercises, which give biased proposals when identifying priority projects. - Poor road networks that hinder movement of residents in the County. This translates to residents not willing to travel to participate in decision making processes as well as in acquiring services from the County departments.	- Increasing the County's technical base, human resource capacity, and proper departmental structuring with established communication mechanisms to ensure that there is sector coordination in plan delivery for growth and development as well as efficiency in service delivery. - Already existing plans and strategy documents such as the already existing Municipality of Kathwana Urban Development Framework. Which give an opportunity for project identification and ideal institutional changes to enhance service delivery in the County. - An increased appreciation for inclusivity and public participation seen by County residents' willingness to participate in decision making processes, thus promoting inclusivity and public participation. - Good linkages between National and County governments, especially in projects aimed at boosting County growth and development. - An assortment of non-state actors (NGOs, FBOs, and PBOs) that have a deep understanding of County needs. They are important actors for spearheading development in the County.

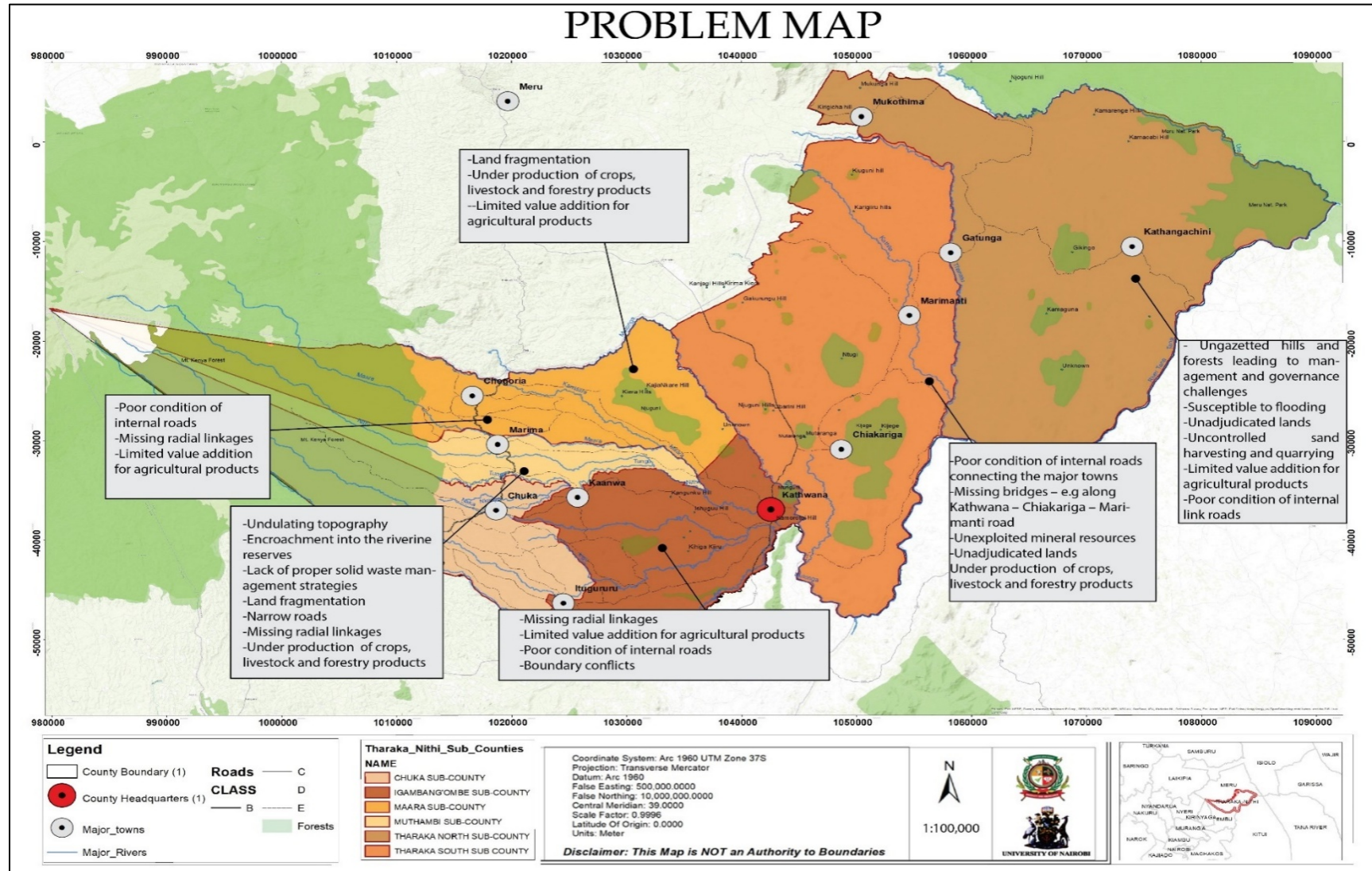
Source: Visioning workshop, 2019

12.3 Key development challenges

The County faces several development challenges that constrain sustainable growth across sectors. These include undulating topography, environmental degradation, inadequate public utilities and facilities, land-related challenges, transport and circulation constraints, underutilized economic potential, limited value addition, and untapped mineral resources, as outlined below.

- i. **Undulating topography:** The upper parts of the County are characterized by steep slopes that complicate infrastructure development and agriculture. Road construction is costly and requires specialized engineering solutions, while cultivation is constrained, limiting large-scale farming. The terrain also accelerates soil erosion and surface runoff, leading to land degradation and river siltation.
- ii. **Environmental degradation:** Environmental degradation remains a major concern, particularly due to deforestation, which has resulted in biodiversity loss and increased vulnerability to climate change. The lack of gazettement of some forests and hills exposes them to unsustainable exploitation. Deforestation, poor land management, charcoal burning, uncontrolled sand harvesting, and quarrying contribute to soil erosion, river and dam siltation, and landscape degradation. These challenges highlight the need for comprehensive environmental management.
- iii. **Inadequate public utilities and facilities:** The lack of adequate stormwater drainage systems increases flooding and waterlogging during heavy rains, causing property damage and health risks. Sewerage infrastructure is also inadequate despite ongoing projects in Chuka Municipality and Chogoria. Many areas still lack proper sanitation facilities, while solid waste management remains insufficient due to limited disposal sites and a single incinerator in Chuka.
- iv. **Land-related issues:** Land fragmentation, especially in Chuka and other upper parts of the County, continues to undermine agricultural productivity and effective land management. Soil erosion on steep slopes further degrades land quality. In addition, about 76.55% of land in Tharaka North and Tharaka South remains untitled, creating tenure insecurity, discouraging investment, and increasing land disputes. Boundary conflicts between the Imenti and Tharaka communities further complicate land administration and adjudication. The absence of development control guidelines also hinders orderly growth.
- v. **Transport and circulation issues:** Poor road conditions, narrow urban roads, and inadequate connectivity constrain mobility and access to services. Missing infrastructure, including bridges along key routes such as the Kathwana–Chiakariga–Marimanti road, further limits movement and poses safety risks. Urban areas also lack adequate pedestrian walkways, storm drains, and cycling lanes, reducing safety and livability.
- vi. **Underutilized economic potential-** The County’s economic potential remains underexploited. Production of crops, livestock, and forestry products is below capacity, while value addition remains limited due to inadequate processing facilities. Most markets operate mainly on market days, restricting trade opportunities. Dependence on externally sourced goods, weak marketing institutions, and limited access to finance further constrain economic growth. Additionally, the County’s unmapped and unexploited mineral resources represent a significant missed opportunity for development.

Map 12.1: Problem Map



Source: TNCSP, 2024

12.4 Problem tree

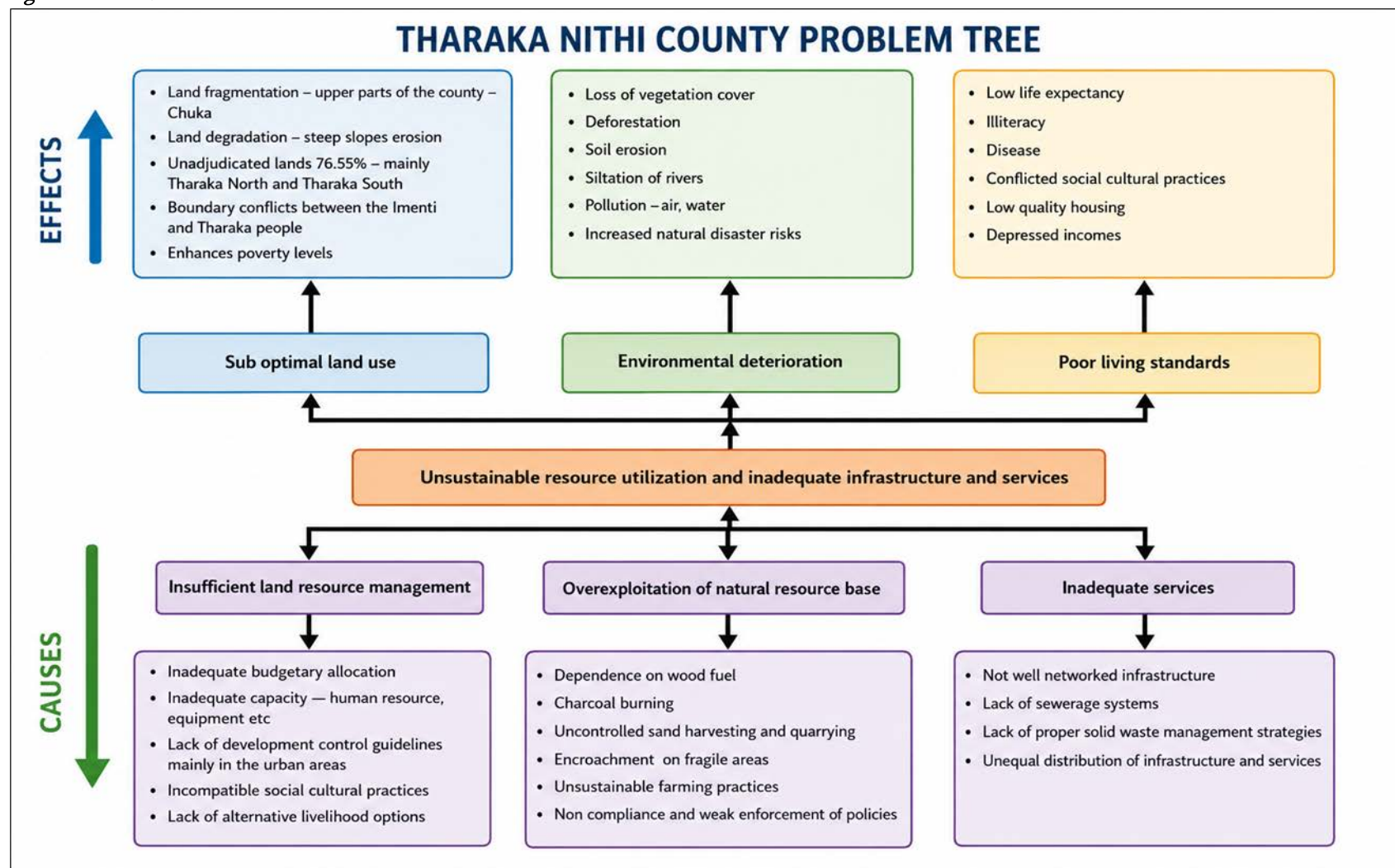
The key development challenges identified and mapped can be summarized in a County problem tree, which illustrates the interrelationships between challenges, their causes, and resulting effects. The central challenge is unsustainable resource utilization coupled with inadequate infrastructure and services. This leads to three major outcomes: suboptimal land use, environmental degradation, and poor living standards.

These challenges are closely interconnected. Suboptimal land use, characterized by land fragmentation and unadjudicated land, contributes to environmental degradation through deforestation and soil erosion. In turn, environmental degradation reduces agricultural productivity, lowers water quality, and negatively affects livelihoods. It also worsens land-use challenges by diminishing soil fertility and increasing vulnerability to natural hazards.

The decline in environmental quality affects both community health and economic stability, resulting in lower incomes, higher disease prevalence, and reduced life expectancy. These outcomes contribute to poor living standards, which are further reflected in inadequate housing and high illiteracy levels. Consequently, poor living standards perpetuate unsustainable resource use and inadequate infrastructure, as communities lack the resources and capacity to improve their conditions.

These interconnections underscore the need for a holistic approach to development. Addressing the root causes and their cascading effects across sectors is essential. For example, improved land management can reduce environmental degradation, enhance agricultural productivity, and improve living standards. Similarly, investments in infrastructure and social services, particularly education and healthcare, can empower communities to adopt sustainable practices and break the cycle of poverty and environmental decline. The County should therefore leverage its development opportunities to address these root causes and their associated effects.

Figure 12.1: Problem tree



Source: UoN-DURP, 2026

12.5 Key development opportunities

The County has a wide range of development opportunities that can be leveraged to address existing challenges, stimulate economic growth, improve quality of life, and promote environmental sustainability. These opportunities provide a basis for transforming local resources and assets into meaningful benefits for residents and the broader CEKEB region:

Diverse range of natural resources: The County is endowed with a wide range of natural resources that offer significant development potential. Its landscapes—comprising hills, forests, and waterfalls present tourism opportunities, including attractions such as the Mutugururu tree in Chuka Sub-County. Major rivers provide potential dam sites for water storage, hydroelectric power generation, and blue economy initiatives. Fertile soils in Chuka, Maara, and Muthambi Sub-Counties support high agricultural productivity. The County also has mineral resources and strong potential for solar and wind energy, particularly in Tharaka South and Tharaka North. Agroforestry initiatives further offer sustainable sources of fuelwood, timber, and other wood products while supporting environmental conservation.

Sustainable utilization of public utilities and facilities - The County presents opportunities for enhancing its public utilities and facilities through sustainable practices. Implementing waste management strategies focused on reducing, reusing, and recycling could significantly reduce environmental impact, improve sanitation, and create economic opportunities by recovering and reusing valuable materials. Additionally, there is a substantial opportunity for generating biogas from livestock waste. This renewable energy source can help address energy needs as well as managing waste efficiently.

Availability of water resources - The County is well endowed with water resources that can strengthen its supply and management systems. Nearly half the population already has access to piped water, providing a foundation for expansion. Additional potential exists in rainwater and stormwater harvesting, groundwater extraction, protected springs, and rock catchment systems in Tharaka South and Tharaka North. Favorable drainage conditions further enhance efficient water utilization for domestic and agricultural use.

Climate change mitigation opportunities: Forests, particularly the Mt. Kenya ecosystem, play a key role by acting as carbon sinks. Additional forest cover and agroforestry systems enhance carbon sequestration, biodiversity conservation, and regulation of hydrological cycles, while also reducing soil erosion and moderating local climate conditions.

Availability of transport and circulation routes- The County has a functional transport network supported by key roads such as the A9 and B65, which enhance regional connectivity. The proposed Itugururu airstrip and planned linkages to the LAPSET corridor, Isiolo Airport, and the broader CEKEB region offer opportunities for improved regional and international integration. The Tana River also presents potential for water transport, supporting logistics and tourism.

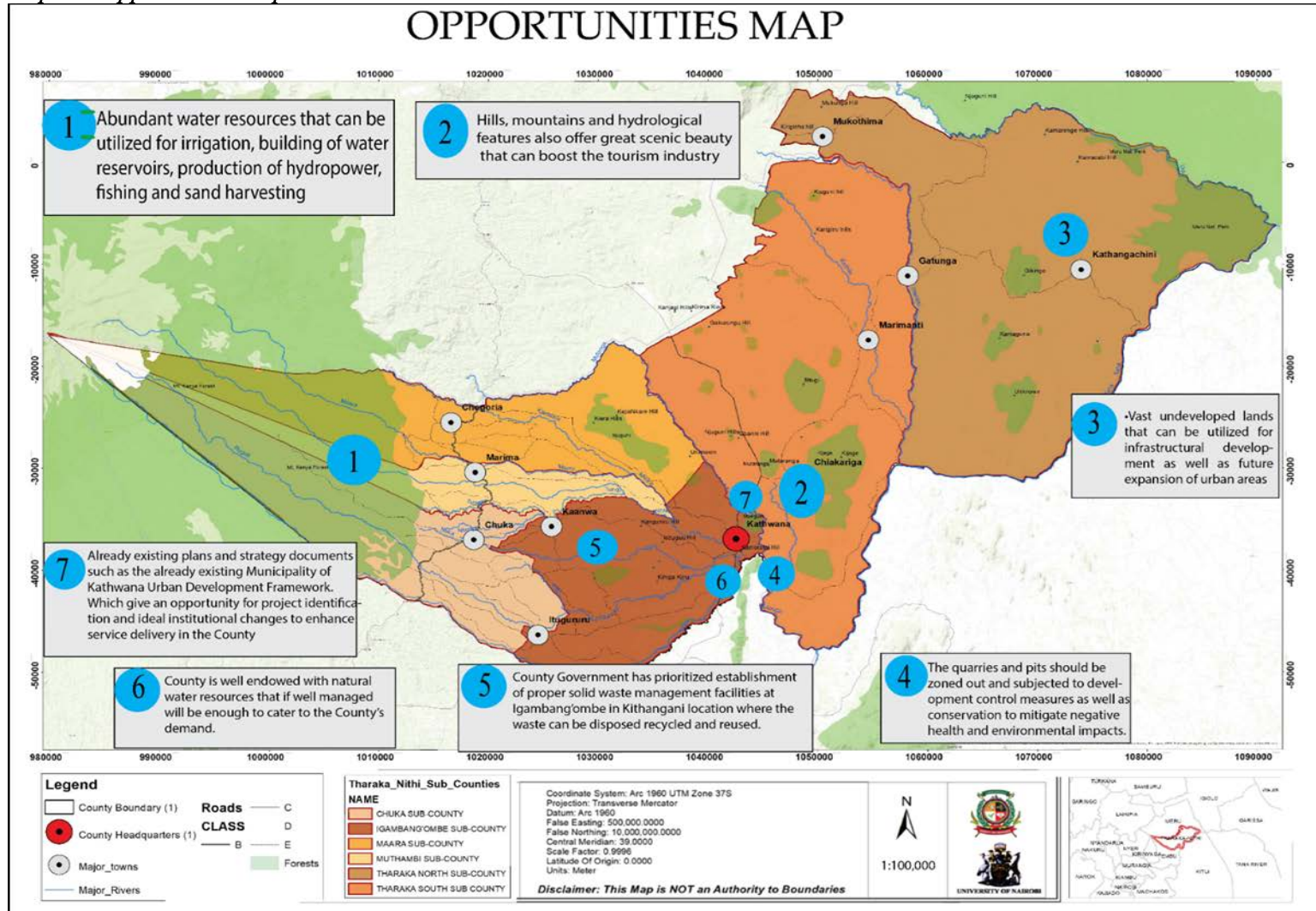
Land resources and development opportunities -The County's diverse land resources support significant agricultural and development opportunities. Arable land in Tharaka South and Tharaka North is suitable for irrigation, while fertile high-potential zones in Chuka, Muthambi, and Maara support intensive agriculture and agribusiness. Public land such as Kabariangi can be used for utilities

and infrastructure development. Ongoing adjudication and planning processes also present an opportunity to establish a public land bank for future projects.

Cultural and historical heritage preservation- The County has rich cultural and historical assets, with Ura Gate serving as both an entry point to Meru National Park and a venue for the annual cultural festival. This site promotes cultural tourism, preserves heritage, and strengthens community identity. Expanding and promoting such heritage assets can further enhance tourism and local economic development.

Value addition for agriproducts in the upcoming industrial park- The upcoming industrial park presents significant opportunities for value addition in agriculture. It will support processing of dairy products, grains, and sunflower seeds into higher-value goods such as milk, cheese, yogurt, and sunflower oil. It will also provide grain storage and packaging facilities, reducing post-harvest losses, improving quality control, and strengthening market access through branding and efficient distribution.

Map 12.2: Opportunities Map



Source: TNCSP, 2024

A landscape photograph showing a grassy hillside in the foreground, leading up to a range of mountains in the background under a clear blue sky. The text 'PART III: PLAN PROPOSALS' is overlaid in white serif font.

PART III: PLAN PROPOSALS

13 CHAPTER 13: SCENARIO BUILDING

13.1 Overview

The scenario-building chapter provides a structured framework for exploring and guiding the County's future development. It begins with key development considerations, including the vision, goals, principles, and stakeholder concerns, followed by a spatial development rationale that informs the choice of spatial strategies.

The chapter then examines alternative spatial development models, including urban and industrial development, eco-tourism and conservation, and agriculture and rural development. Each model is assessed for its potential impacts and benefits.

The analysis culminates in an integrated County spatial development model that combines elements of the alternative scenarios to achieve a balanced and equitable outcome. From this model, a land-use plan is derived, comprising land-use zones and development regulations to guide implementation. This provides a comprehensive framework for decision-making and supports local area planning and implementation by different actors across the County.

13.2 Development Direction

The direction of development is guided by the county stakeholders' vision for future development, the goals and objectives for preparing the County Spatial Plan, and the principles guiding its preparation, which integrate both county planning principles and those of physical and land-use planning under the planning law. This is informed by key issues identified through the situational analysis and anchored in problem analysis that incorporates stakeholder concerns to guide plan formulation.

i. Vision

The County Vision is **“Sustainable Resource Utilization for Wealth Creation.”** It is anchored in the principle of *“leaving no one behind”* across individuals and administrative jurisdictions. Its realization is guided by key pillars linked to spatial structuring elements and development scenarios, including the County Integrated Spatial Development Model and the land use plan.

These frameworks provide a range of development options that cannot be fully addressed within the planning period. The vision and spatial development model are therefore grounded on the following pillars:

- a) Human resource development and innovation to optimize resource utilization
- b) Equitable provision and maintenance of infrastructure, including roads, drainage, water and sanitation, electricity, and telecommunications
- c) Responsive institutions and governance across horizontal and vertical levels, involving public, private, and community actors
- d) Environmental management and land use reorientation across all settlement areas, including urban, peri-urban, and rural zones

It encapsulates a co-production implementation approach to transforming the County and emphasizes the optimal utilization of natural, human, and financial resources to achieve the vision.

i. Goals

The goals guiding the spatial development models address key priorities for sustainable development. The first goal is to increase agricultural production, recognizing agriculture as a key driver of the County's economy, food security, and livelihoods. The second goal focuses on environmental conservation to protect natural resources and ecological integrity.

The third goal emphasizes optimal land use and management to enhance productivity and reduce conflicts through strategic spatial planning. The fourth goal promotes equitable distribution of services to ensure fair access to infrastructure and essential services across all sub-counties, supporting balanced development and improved quality of life.

Collectively, these goals form the foundation of the spatial development models and guide the County toward a sustainable and inclusive development pathway.

ii. Principles

As indicated, the principles guiding this planning exercise reflect a three-dimensional integration of the County Governments Act (Section 102), the Physical and Land Use Planning Act (Section 5), and cross-cutting challenges and opportunities identified in the situational analysis. Together with the planning pillars, they provide a framework for plan preparation that aligns government policy with population needs and promotes balanced economic, social, and environmental development across all jurisdictions.

A key principle is promoting an inclusive and coordinated governance system that accommodates diverse spatial interests. This supports collaborative decision-making and ensures effective participation of multiple stakeholders in planning and implementation. This is reinforced by comprehensive, hierarchically coordinated planning that addresses varying spatial scales and stakeholder needs within the County.

Equitable distribution of development nodes, infrastructure, and services is emphasized to promote fairness and reduce inter-zonal disparities arising from historical imbalances in development, resource allocation, and financing. It also seeks to strengthen internal and external connectivity between the County's western and eastern parts.

The principles of heritage conservation and individual freedoms underscore the protection of cultural and historical assets, including both tangible and intangible heritage, such as indigenous food systems, drought-tolerant crops and livestock, and traditional medicinal knowledge. These resources are recognized for their role in cultural identity and tourism development.

Optimal land use and management focus on efficient utilization of land to enhance productivity while minimizing conflicts and environmental degradation, addressing observed patterns of sub-optimal resource use identified in the situational analysis.

Finally, the principle of leveraging resources and actors emphasizes coordinated spatial planning through alignment of projects, programmes, budgeting, and financial planning. Collectively, these principles provide a robust framework for guiding both plan formulation and implementation in line with national and County policy direction.

iii. Community Concerns

Community concerns within the County were assessed through stakeholder meetings held during the visioning exercise in each sub-county. The forums facilitated a SWOT analysis through which stakeholders identified strengths, weaknesses, opportunities, and threats in their respective areas.

The findings informed the planning process by highlighting priority areas and key issues to be addressed.

Table 13.1:: Stakeholder concerns per sub-county

Strengths	Weaknesses	Opportunities	Threats
Mwimbi Sub-County			
Good soil and climate that are conducive to farming Permanent rivers providing water for farming Ownership of large pieces of land (Average 1 acre) Raw materials from agriculture, e.g. coffee berries, tea leaves, fruits and milk Human resources providing physical strength Peace Good transport systems	• No market for agricultural products as there are no industries for value addition • Poor mobilization of resources • Lack of empowerment and awareness • Lack of creativity and innovation • Little or no utilization of educated manpower • Corruption • Alcoholism and drug abuse • Lack of involvement of the local people in the development agenda	• Boreholes for water • Mt. Kenya and the forests • Utilization of educated manpower • Tourism sites • Devolved system of governance • Underutilized and untapped talents	• Climate change- delayed rains • Sycophancy • Lack of communication and information • Degradation of natural resources- forests and water • Disasters- forest fires • Human-wildlife conflicts • Animal diseases • Potential land subdivision
Muthambi Sub-County			
Strengths	Weaknesses	Opportunities	Threats
• Water resources for domestic use and irrigation are in abundance • Rich and fertile agricultural soils	• Youth employment • Poor leadership • Political ill will • Corruption • Lethargy (Poor public participation) • Low-income levels	• Value addition of fruits and vegetables through agro-based industries and external markets • Water reservoirs (potential sites for dams e.g. Nithi	• Climate changes (droughts, floods, high temperatures) • Political interferences • Diseases (TB, Cancer) • Crop pests

Strengths		Weaknesses	Opportunities	Threats
- Quarries along Tungu River - Numerous health facilities - Numerous schools - Infrastructural services (Electricity and roads) water is tapped to some homes but is inadequate		- Alcoholism and drug abuse (bhang, heroine, miraa) among youth and women - Poor law enforcement (alcohol regulations) - Bad attitude - Poor capacity building among officials	- River) and the water to be used for irrigation - proximity to Chuka University as a learning and research institution - Organizing youth into groups for job and wealth creation - Available financial resources such as UWEZO and Youth fund - Untapped youth talent - Public transport from Muthambi should form a SACCO - Mt. Kenya Forest and National Park should be exploited for tourism	- Poor government policies and laws (university education – closure of tertiary institutions and drug abuse) lenient judicial punishment e.g. 2 hours community service and planting of 3 trees for bhang peddlers - High land subdivision rates (avg. land size is 0.5 acres) - Road accidents along the highway especially among <i>boda boda</i> riders) - Land conflict
Tharaka North Sub-County				
Strengths		Weaknesses	Opportunities	Threats
- A functional government in place - Perennial rivers providing water for farming i.e. Thangatha, Ura, Thananto and Tana rivers.		- Retrogressive cultural practices i.e. FGM and religious sects (Kabonokia) - Unemployment menace among young educated individuals - Bad road network - Inadequate human resource especially in administration	- Youthful population - Good performance in education - Rocks and minerals (coal in Maragua) that have not yet been exploited - Tana river which could be useful for irrigation and fishing	- Climate change- delayed rains and drying rivers - Bandits-cattle rustling - Youthful population-mischief - Tribal and Family conflicts due to land boundaries conflict among Igembe,

Strengths	Weaknesses	Opportunities	Threats
- Ownership of large pieces of land (Average 2 acres) - Good educational facilities i.e. 12 secondary schools and 62 primary schools. - Plenty of livestock i.e. cattle, goats and chicken. - High solar power potential	- Corruption - Alcoholism and drug abuse - Illiteracy - Lack of electricity - Lack of market for agricultural and livestock produce	- Availability for sunlight which could be tapped as solar energy - Fertile soils	- Tigania and Tharaka communities - HIV/AIDs menace - Human- wildlife conflicts - Pests and animal diseases - Potential land subdivision
Tharaka South Sub-County			
Strengths	Weaknesses	Opportunities	Threats
- Availability of water for farming and domestic use i.e. Tana rivers, Mutonga, Thingithu, Thananto, Kireria, Gatuguru, Kithino and Kathita. - Availability of land with fertile soils - Availability of minerals i.e. iron ore in Kithiori, gemstones, ruby,	- Poor infrastructure i.e. Chiakariga to Marimanti - Poor leadership/governance(corruption) - Poor market linkages for produce - Boundary conflicts due to land boundaries between Meru and Tharaka Nithi counties - Retrogressive cultural practices i.e. FGM and religious sects (Kabonokia) - Illicit brew (Kathoroko)	- Presence of minerals - Presence of rivers i.e. Tana River - Vast lands (average 3 acres) - Presence of Non-Governmental Organizations (Plan International and RIDEB Kenya) - Plenty of primary and secondary schools	- Climate changes resulting in droughts - Pests and diseases - Human-wildlife conflicts - Natural disasters i.e. forest fires - Middlemen and cartels dominating the market - Uncontrolled importation of produce

sand, copper, ballast and limestone • Availability of human resource • Cash crops i.e. green grams and sorghum • Livestock keeping, i.e. cattle, sheep and goats • Beekeeping for honey • Tourist attraction sites i.e. grand falls, Turima and Ntugi hills, Igaironi (ear marked museum), Ikuu falls and cultural festival		• Opportunity to market agricultural and livestock produce • Cereal storage facilities (Cereal Board Silos)	
Igambang'ombe Sub-County			
Strengths	Weaknesses	Opportunities	Threats
• Availability of Manpower-They are a hardworking community • Availability of land and water for irrigation • Extensive arable land (average of 5 acres)	• Low-income level/poverty • Youth unemployment menace • Poor roads • Few tertiary institutions • Deforestation • Understaffing of schools	• Talent and skills among women and the youth • Electrification to enhance development • Solar power potential • Extensive arable land • Presence of livestock • Minerals and rocks	• Climate changes resulting in droughts • Geographical disadvantage i.e. location • Pollution of river water upstream • Area not gazette as a hardship area

• Sand harvesting and quarries for building stones • Cultural diversity i.e. Tharaka, Mbeere, Mwimbi, Muthambi, and Chuka • Availability of vast public land	• Idle youth • Lack of women empowerment • Lack of training for form four leavers • Inaccessible government services i.e. registration of pupils	• Water from the rivers for irrigation • Many educational facilities	• Environmental degradation i.e. deforestation and sand harvesting
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Table 13.2: Summary and ranking of concerns

Sub-County	Strengths	Weakness	Opportunities	Threats
Mwimbi	1. Peace and enabling environment 2. Favorable climate 3. Permanent rivers providing water for farming	1. Governance 2. Alcoholism and drug abuse 3. Limited participation in development agenda	1. Devolved system governance 2. Mt. Kenya and the forests 3. Boreholes for water	1. Potential land subdivision 2. Animal diseases 3. Human-wildlife conflicts
Muthambi	1. Infrastructural services 2. Rich and fertile agricultural soils 3. Numerous schools	1. Governance issues 2. Alcoholism and drug abuse 3. Poor capacity building	1. Available financial resources 2. Mt. Kenya Forest and National Park for tourism 3. Value addition of fruits and vegetables	1. Diseases 2. Poor government policies and laws 3. Road accidents
Tharaka north	1. A functional government in place	1. Weak Governance 2. Alcoholism and drug abuse	1. Fertile soils 2. Tana river useful for irrigation and fishing	1. HIV/AIDS menace

	2. Perennial rivers providing water for farming i.e. Thangatha, Ura, Thananto and Tana rivers. 3. Good educational facilities	3. Illiteracy	3. Availability of sunlight for solar energy	2. Family disputes - Gender 3. Based violence and poverty Climate change - delayed rains and drying rivers
Tharaka South	1. Availability of human resource 2. Availability of water for farming and domestic use 3. Availability of land with fertile soils	1 Alcoholism and Drug abuse (Illicit brew Kathoroko) 2. Poor market linkages for produce 3. Boundary conflicts	1. Plenty of primary and secondary schools 2. Presence of rivers 3. Presence of minerals	1. Uncontrolled importation of produce 2. Pests and diseases 3. Natural disasters i.e. forest fires
Igambang'ombe	1. Supportive local governance 2. Strong community and cooperative societies 3. Strategic location for trade and commerce	1. Alcoholism and drug abuse 2. High levels of poverty 3. Limited access to quality education	1. Potential for agricultural expansion 2. Potential for renewable energy projects 3. Availability of natural resources	1. Conflict over resources 2. Poor governance 3, High prevalence of diseases

13.3 Structuring Elements

Structuring elements refer to natural and man-made features, as well as key activity decisions, that shape the spatial form and structure of a region under planning. They play a critical role in either constraining or facilitating the direction of spatial growth. These elements are cross-cutting, linking spatial use to economic and governance systems.

Each spatial element has a preservation function that ensures its continued performance and service delivery. Any interference with these elements may reduce efficiency and negatively affect spatial functionality, ultimately affecting the quality of life across living, working, and recreational environments.

They also reflect considerations of risk and disaster management in planning, in line with public-interest objectives such as health and safety, environmental quality, and the optimization of protective environments in human settlements.

a) Topography

The County exhibits diverse elevation, ranging from a high of 5,189m at the peak of Mt. Kenya to a low of 358m above sea level in the Tharaka lowlands. The County generally slopes from west to east, significantly influencing weather and climatic patterns.

This gradient forms three main landscape zones—upper, middle, and lower—interspersed with hills that affect both natural and constructed drainage systems as well as settlement patterns. The topography closely aligns with agro-ecological zones, including the upper midlands, transitional areas, and lower zones, which, in turn, influence soil types, economic activities, and the distribution of mineral and construction resources.

Mt. Kenya is the dominant natural feature, covering more than 13% of the County's land area. The County is also characterized by several hills, including Muuguni, Kiarungurere, Kairini, Njuguni, Kierera, Kijega, Maatha, Mutejwa, Kikingo, and Ntugi, which enhance the scenic landscape and reduce topographical monotony.

These physical features influence local climate, drainage systems, and settlement thresholds, thereby shaping spatial development patterns. Cross-sectional illustrations (north–south and east–west) are required to clearly depict these characteristics and their planning implications, particularly for infrastructure provision.

b) Forest, and National Parks

Natural forests, scattered trees, and grasslands occur across the three landscape units defined by topography, interspersed with hills and natural valleys. These areas provide habitats for diverse tree species, birds, and wildlife and hold geological significance for the County.

The ecosystem is of high ecological and economic importance, delivering key services such as water regulation, biodiversity conservation, and carbon sequestration, thereby supporting sustainable development. It also serves as a critical water catchment area, ensuring the sustainability of local water resources.

The Ura Gate in the lower zone serves as a key entry point to Meru National Park and is a strategic node within the regional tourism circuit.

Identification and buffering of these ecological spaces are necessary for protection and continued provision of ecosystem services. These areas are not suitable for direct human settlement.

c) The rivers and wetlands

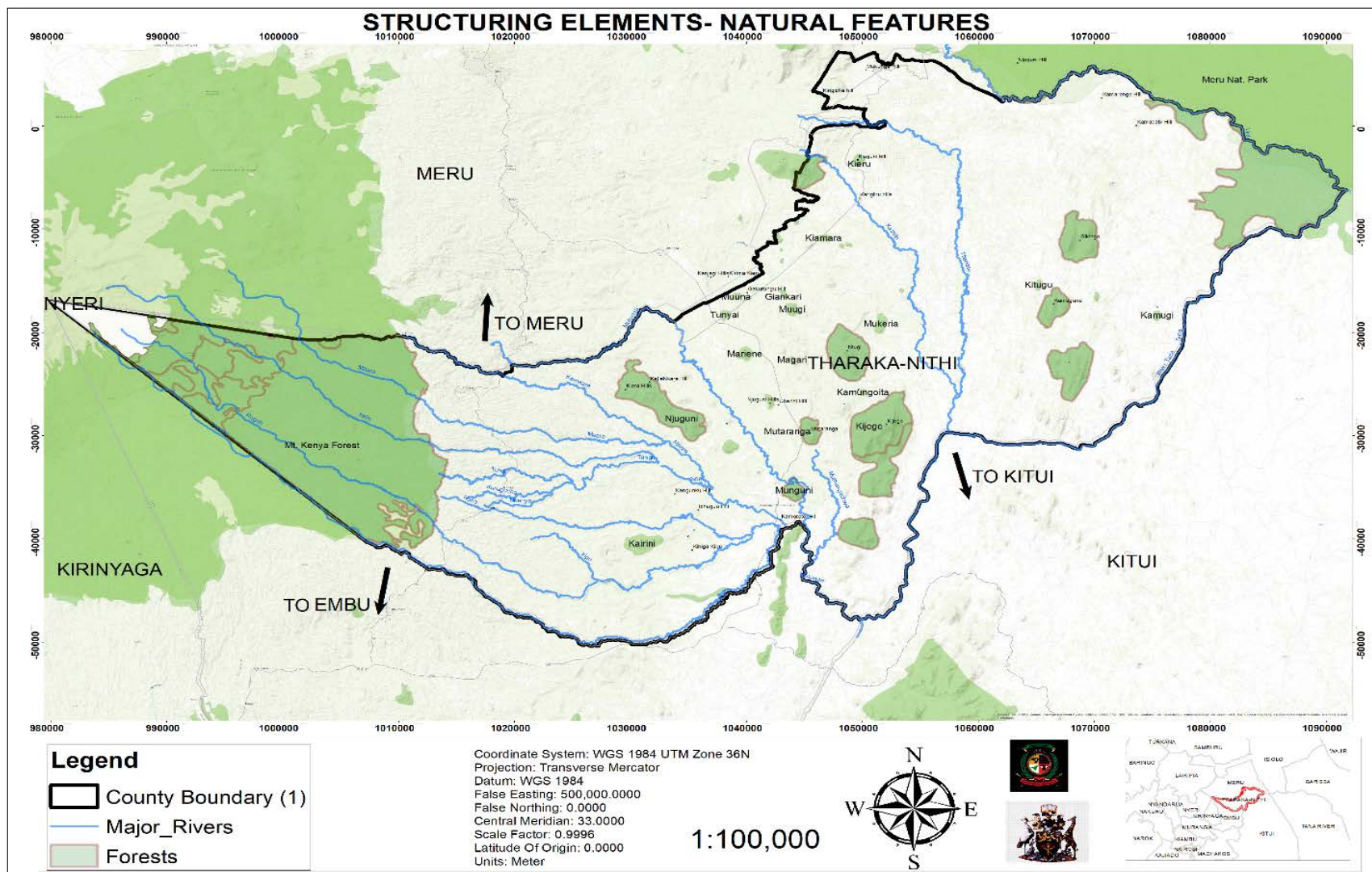
The County has eight permanent rivers and numerous tributaries originating from Mt. Kenya, generally draining from east to west towards the Tana River. These rivers include Mutonga, Thingithu, Kathita, Thanantu, Thangatha, Kithinu, and Ura.

They provide essential water resources for agricultural production and domestic use, while also influencing landscape formation and settlement patterns. The rivers support irrigation, drinking water supply, and sanitation, and contribute to biodiversity by sustaining aquatic ecosystems and associated wildlife.

However, they also present challenges, including seasonal flooding and erosion, requiring effective management and planning. In addition to permanent rivers, valleys host seasonal streams and flash floods during rainfall periods, which also require protection from settlement.

The surface and groundwater hydrological systems are critical to the County's socio-economic activities but are unevenly distributed, contributing to spatial disparities in development. River corridors and their buffer zones are not suitable for settlement and require integration into risk-sensitive land-use and disaster-management planning.

Map 13.1: Structuring elements-natural features



Source: TNC Team Analysis 2024

d) The network of road transport (Classes A, B, C and D) and External Access

The County's transportation system is organized around a hierarchy of roads—Class A, B, C, and D—managed by different road agencies. These networks provide critical access and connectivity across the County's topographically defined zones.

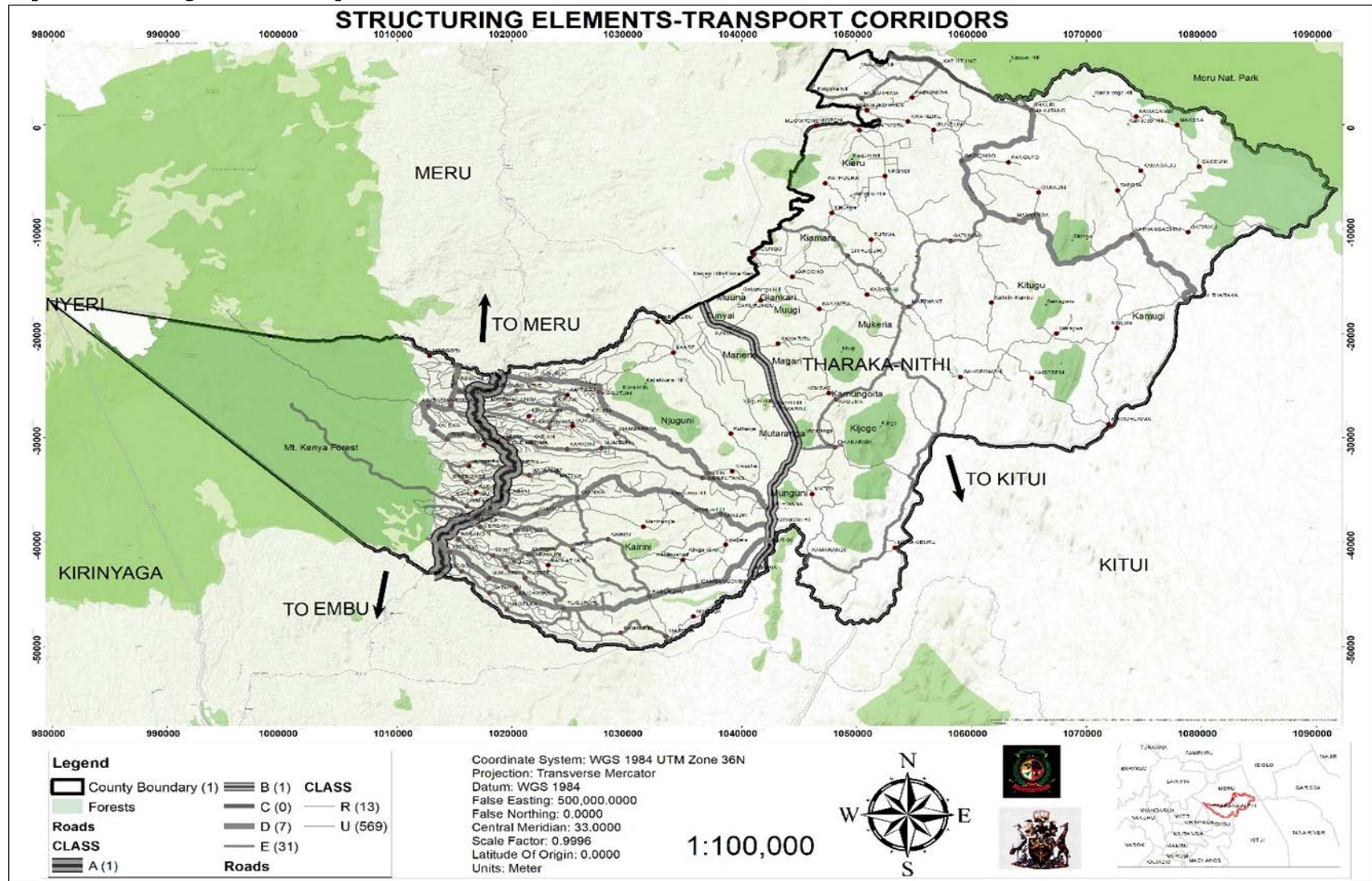
Urban centres such as Chuka, Kathwana, Tunyai, and Marimanti, along with smaller centres, are strategically located along major transport corridors due to their accessibility and connectivity. These corridors form part of the regional spatial structure, overlaid on the County's topography, and significantly influence land use distribution and settlement patterns.

However, the road network is unevenly distributed, particularly in the lower zones, due to historical development patterns and variations in agro-ecological potential. Despite the existing network, all sub-zones experience varying levels of accessibility and connectivity challenges at the local scale relative to the broader transport system.

Bypasses linking primary routes are important for reducing congestion in Chuka along the A9 corridor and improving connectivity between key nodes. Linear development along transport corridors is evident, with settlement and economic activities concentrated along and off major routes into hinterland areas.

Key challenges include weak planning alignment of emerging corridor developments and nodal centres with the transport network, affecting infrastructure efficiency and maintenance. The lower zones remain relatively isolated, with limited external connectivity to the main transport arteries of the County.

Map 13.2: Structuring elements-transport corridors



Source: TNC Team Analysis 2024

e) Key Nodes

Urban nodes are key growth centres that promote productivity, employment, and income generation, while facilitating the diffusion of development through transport connectivity and access.

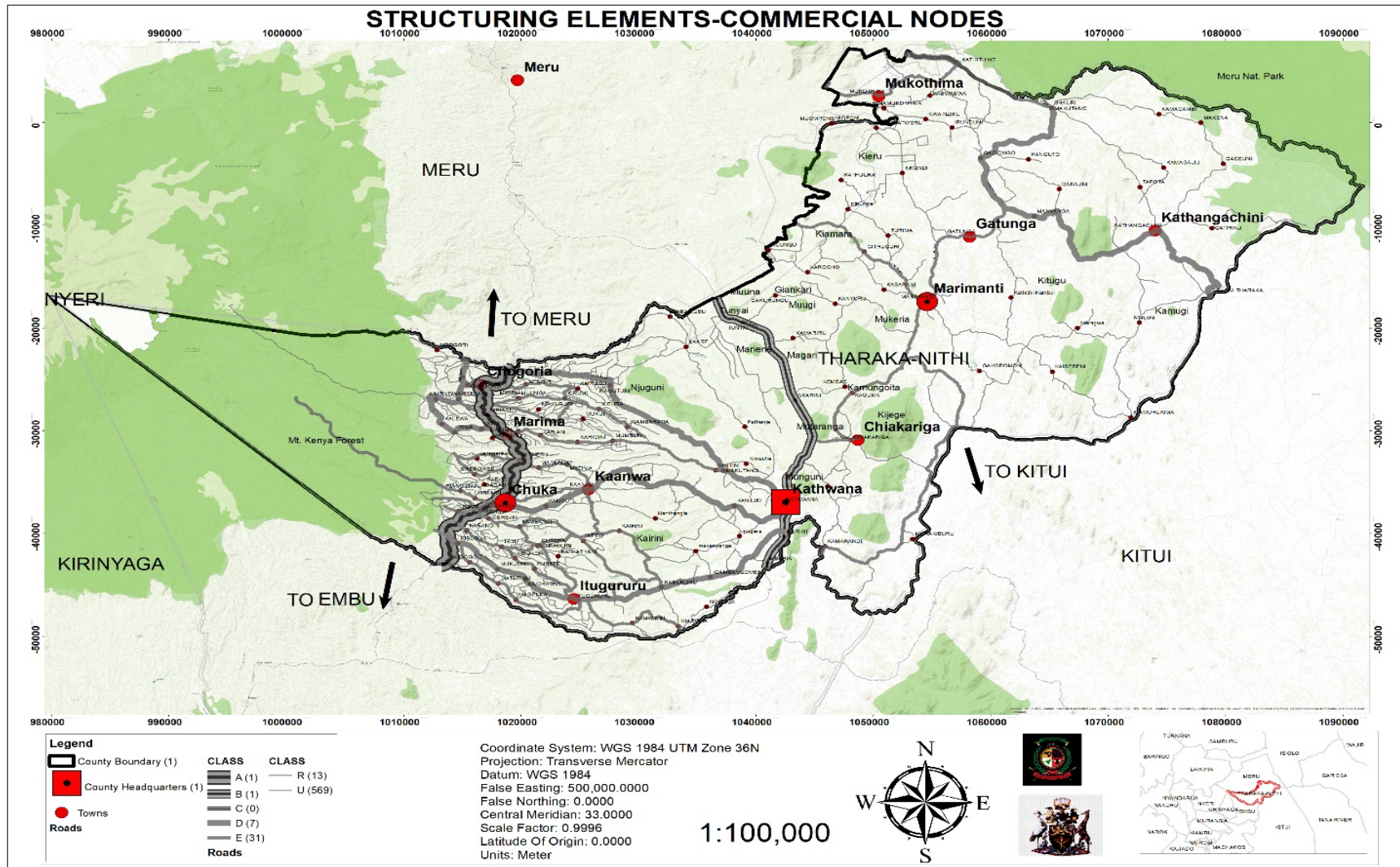
Within the County, a hierarchy of nodes extends from the upper to the middle and lower zones, each performing different functions. The highest-order nodes—Chuka, Kathwana, and Marimanti act as primary growth centres from which development impulses extend to surrounding areas and lower-order nodes.

The influence of these centres is largely shaped by population distribution, settlement density, road network connectivity, and inter-centre linkages. Uneven distribution of centres, driven by disparities in transport infrastructure, limits their ability to stimulate balanced socio-economic development in their hinterlands.

Chuka, as a municipality headquarters and the main commercial node, functions as both an administrative and economic hub, hosting government offices, educational institutions, and a major market centre. Its strategic location along the A9 corridor and supporting infrastructure reinforces its role as a focal point for business activity and urban development.

Kathwana, Chuka, and Marimanti have been elevated to municipality status and serve as primary growth centres intended to enhance spatially balanced investment and development across the County. These nodal centres require structured planning and infrastructure investment to strengthen their role in facilitating socio-economic transformation and improving access to hinterland resources.

Map 13.3: Structuring elements-key nodes



Source: TNC Team Analysis 2024

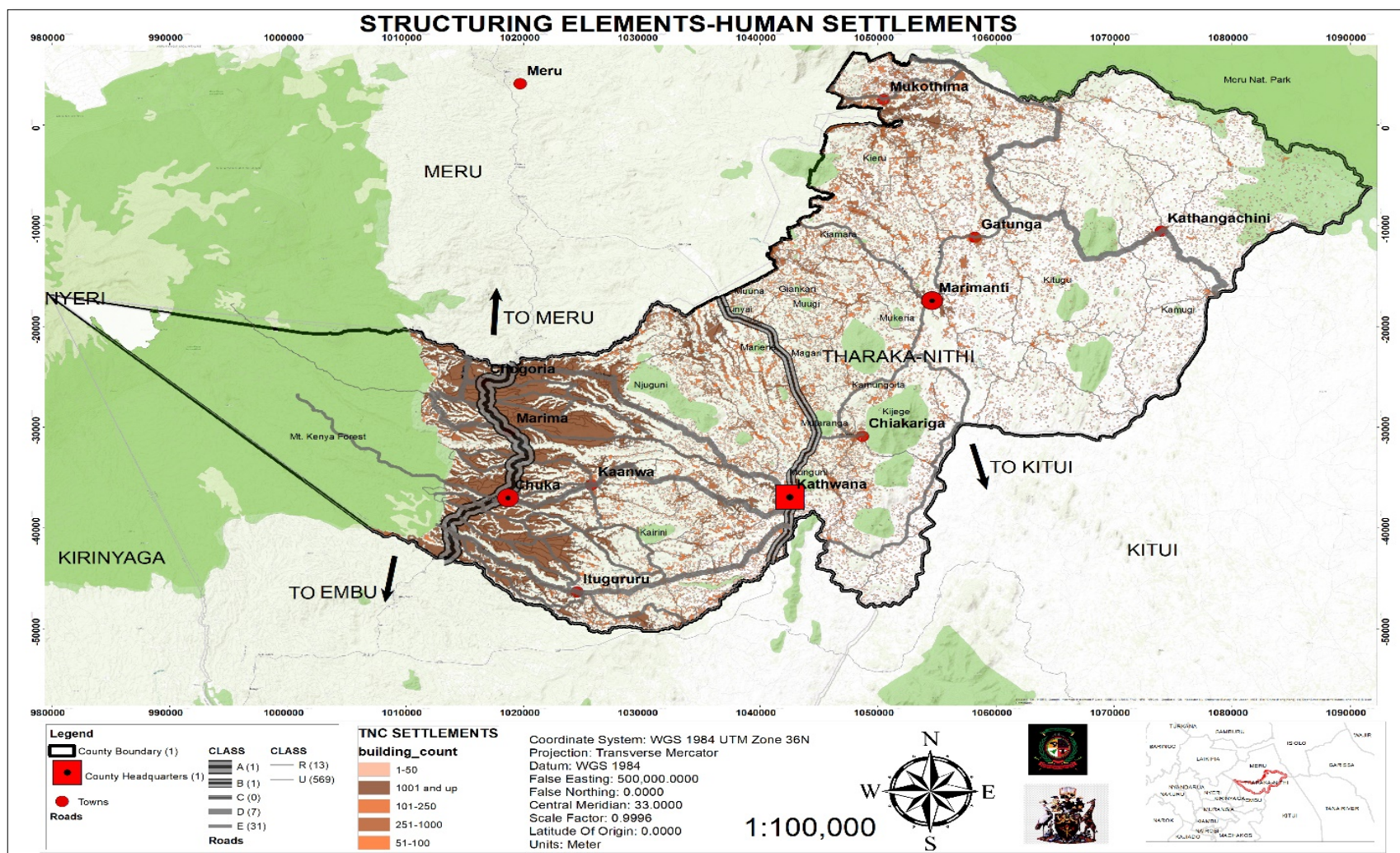
f) Human Settlement Pattern

Human settlement patterns in Tharaka Nithi County exhibit a mix of linear, clustered, and dispersed forms shaped by resource distribution, transport networks, and growth nodes.

Urban centres such as Chuka, Kathwana, and Marimanti represent clustered settlements characterized by high population densities and concentrated economic, administrative, and service functions. These centres serve as focal points for commerce and governance and attract surrounding rural populations in search of employment and educational opportunities.

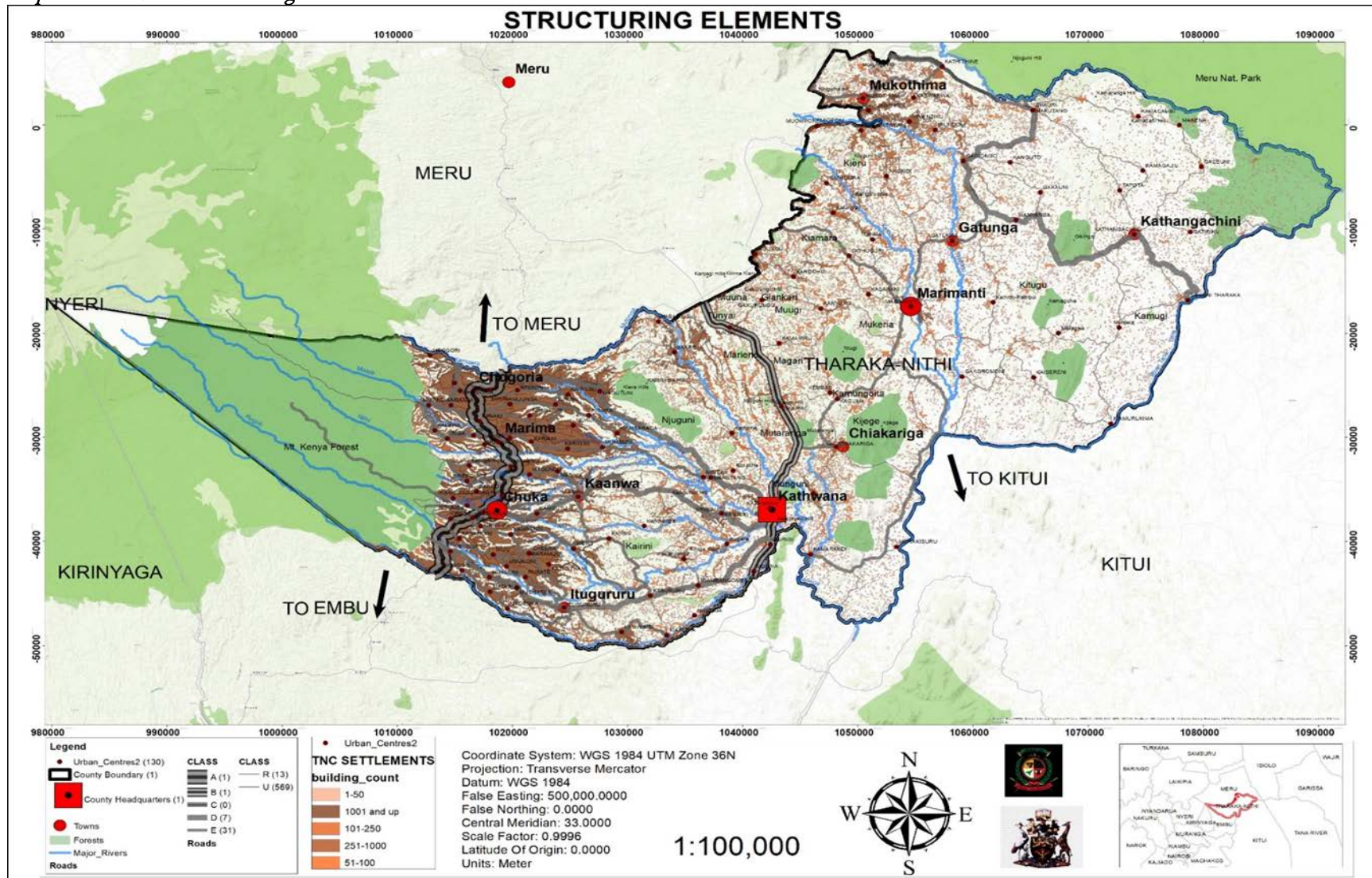
Rural areas exhibit both linear and dispersed settlement patterns. Linear settlements are mainly found along major transport corridors in the upper zone, while dispersed settlements are common in the lower zones, including areas such as Kanguto and Kathangacini. These areas are characterized by scattered homesteads and farms, reflecting reliance on subsistence agriculture, livestock production, and trade in nearby centres. The settlement patterns influence land use intensity, land productivity, and infrastructure provision costs across the three agro-ecological zones of the County.

Map 13.4: Structuring Elements- Human Settlements



Source: TNC Team Analysis 2024

Map 13.5: Combined structuring elements



Source: TNC Team Analysis 2024

13.4 Spatial Development Rationale

The right to spatial development ensures citizens' well-being across rural, peri-urban, and urban areas, promoting dignified living regardless of location. However, the County exhibits inadequately planned settlements with limited access to basic facilities and services.

The County Governments Act (Section 102) and the Physical and Land Use Planning Act (Section 5) emphasize harmony between the natural environment and spatial development through comprehensive planning and effective regulation. This is essential for enhancing human well-being while conserving ecosystems.

Historically and currently, spatial development has been shaped by uneven resource distribution and concentration of capital, infrastructure, and human resources in higher-altitude areas, with limited investment in the middle and lower zones. This has resulted in pronounced spatial inequality across the County, effectively creating differentiated development zones from west to east.

Despite expectations of trickle-down effects, development remains uneven, with zone-specific challenges emerging. Across the County, unsustainable resource use is evident, including sub-optimal land utilization, environmental degradation in high-pressure zones, and low living standards characterized by inadequate infrastructure and services. These conditions reflect cumulative governance and investment imbalances over time.

Spatial inequality is also linked to historical and current governance structures, including earlier administrative concentration in Meru town, then Chuka and Chogoria, and continued centralization of investment in these areas under devolution. The location of municipalities within one part of the County has further reinforced investment concentration. Expanding municipal status and strengthening transport connectivity to lower zones could improve spatial balance and economic opportunities. This would call for the county to re-examine the proposal for a municipality in the Marimanti-Gatunga region.

National macroeconomic factors such as fuel, electricity, and transport costs, interest rates, taxation, and fertilizer prices significantly influence both urban and rural economic activity. Although intergovernmental consultation is provided for in law, implementation remains limited, affecting policy alignment with County development needs.

Population growth, infrastructure gaps, and increasing disaster risks require a comprehensive spatial planning approach that enhances inclusive participation in County development. Current spatial structure is largely monocentric, centred on Chuka and Chogoria, and aligned along the Embu–Meru highway corridor and Mate Road corridor, extending into Kathwana in the middle zone. The lower zones, including Marimanti, Chiakariga, Gatunga, and Gathangacini, remain relatively disconnected from major transport and investment corridors, resulting in lower levels of infrastructure and economic development. The county and other actors should be commended for the upgrading of Ciakriga-Marimanti Road. However, more resources should be allocated to upgrade other roads in Tharaka North and South Sub-counties to bring them up to par with the upper regions.

Devolution has introduced efforts to rebalance development through the establishment of Kathwana Municipality and infrastructure investments in Marimanti, Chiakariga, Gatunga, and Gathangacini. However, these interventions remain insufficient due to Kathwana's peripheral location and proximity to Chuka, which continue to reinforce the spatial concentration of development.

The County also exhibits structural economic dependency. Most goods in local markets are imported from outside Kenya, with limited export activity beyond primary agricultural products and minimal value addition. The County is also fiscally dependent on national transfers, with low own-source revenue generation relative to equitable share allocations.

Overall, the County's historical position within the Meru and Embu economic hinterland has contributed to resource outflows and limited local wealth accumulation. Within the broader Mount Kenya and Aberdare economic block, the County remains among those with the lowest GDP and own-source revenue contributions, despite ongoing efforts to address historical marginalization.

Despite the above challenges, the County has recorded notable achievements since 2013. However, further progress requires a spatial development framework that enables the County to leverage partnerships and resources to effectively implement development projects.

Against the backdrop of externally influenced development patterns and persistent intra-county spatial inequalities, the County's development rationale is defined. In this context, three strategic pathways are:

1. Discontinuation of the unequal spatial development strategy while investing adequately in networked infrastructure development in the centers guided by a planning framework. Eventually, balanced development will be achieved through trickle-down and positive spread effects emanating from the key centers and the development of the lower ones.
2. Pursue a deliberate equitable spatial development strategy with affirmative action aimed at alleviating inter- and intra-spatial development inequalities. It should be guided by the CSP planning framework and network of infrastructure investments. In this approach, the county is divided into two halves, and the development strategy, policies, and projects aim to alleviate inequalities. Social justice must be seen even as more effort is focused on the marginal zones.
3. From the interpretation of the situational analysis, spatial organizing elements, and the conceptual strategies guiding the spatial development of the county to realize its vision and principle of leaving no one behind, an appropriate spatial development pathway has been identified as follows.
 - a) The selected spatial distribution of development in the County hinged on the transport network and growth centres
 - b) Deliberate decentralization of spatial development in a combined hierarchy of nodes and nucleated settlement patterns in the county
 - c) Hierarchical network of infrastructure facilities and services for intra- and inter-linkages of land use functions within the county.
 - d) Distributed optimization of external linkages and especially the southern and northern parts of the county via an appropriate road hierarchy network. (Kibwezi Kitui, Tharaka, Isiolo Link; Usueni Gathangacini Link, Gathangacini Meru Link): This requires being sketched and presented on maps for illustration, such that the county grasps the picture of the future needed, also reflecting how it addresses the issues contextualized within the sieve map of spatial organizing elements

13.5 Spatial Development Models

The models prepared in the county's planning are developed from the process in section 13.4 and align with the vision, pillars, principles, and spatial development rationale. Each model is presented in terms of key elements around which detailed local-area actions are expected to be carried out, and is

shown on a map, along with the evaluation. Using the evaluation results, the strong elements from each model are carried into the preferred model via a set-theoretic intersection, or, in planning language, integration. Models identified by the planning team are:

- i. Agriculture and Rural Development Model
- ii. Urbanization and Industrialization Model
- iii. Eco-Tourism and Conservation Model

This section presents and evaluates various spatial development models to explore different pathways for the County's future.

Alternative 1: Agriculture and Rural Development Model

The Agriculture and Rural Development Model envision the County's growth centered on agricultural expansion and rural development strategies. This scenario focuses on leveraging the county's agricultural potential to stimulate economic growth, enhance food security, and improve livelihoods within rural communities. The model focuses on identifying and designating specific areas within the County suitable for different crops and livestock based on soil fertility, water availability, and climatic conditions. The lower zones, for example, would be based on irrigated agriculture and livestock production, while the upper zones with favorable climatic conditions could specialize in tea, coffee, and dairy production.

The model can be actualized by promoting an enabling environment for farmers and investors in the agricultural sector, promoting modern farming techniques, providing access to quality inputs such as seeds and fertilizers, establishing agro-processing industries to add value to agricultural produce, reducing post-harvest losses, creating employment opportunities and encouraging sustainable agricultural practices such as organic farming, agroforestry, and soil conservation to improve soil fertility, reduce environmental degradation, and enhance long-term agricultural productivity. Additionally, the model would encourage improvements to rural infrastructure, such as roads, storage facilities, and market linkages, to enhance market access and reduce transportation costs for farmers.

The agricultural and rural development model is anchored on the following components:

- (i) **Cooperative Governance System:** This will be adopted as the main institutional driver that will be expected to identify intra-county, inter-county, national and international markets for all agricultural produce or have marketing plans for all produce, plan for production, facilitate production through provision of extension services, seeds, fertilizers, pesticides, herbicides, veterinary services and medicines, produce transportation, processing, Sacco services and produce payments. Farmer cooperatives will also be expected to participate in improving rural infrastructure that touches on the performance of farm productivity, such as rural access roads and produce collection centers.
- (ii) **Leasehold Cooperative Farming:** Households and youth who wish to farm but have no land will be encouraged to form cooperatives based on the enterprise of their choice. They should be trained, certified, and supported to lease land for farming using the concept of cooperative farming.
- (iii) **Enterprise combination:** Enterprises will depend on agro-ecological zones, and each zone will be expected to have a minimum of three key enterprises that include a cash crop, a livestock enterprise, and a forestry enterprise, all based on the minimum income expected per household. Each farming household should also set aside land

for subsistence food production to address household-level food security. Each Ward may therefore be expected to have at least three (3) cooperatives, i.e., one per enterprise. All enterprise-specific cooperatives will aggregate at the county level to form enterprise-specific unions that can undertake larger projects by leveraging their numbers. In addition, each Ward should have a training and demonstration center and pioneer farmers in each sub-location for continuous farmer training and mentorship.

- (iv) **Organization of all activities around farming on value chains to enhance output productivity, value, and employment while guaranteeing the freedoms of the community.** All farmers are to be organized into cooperatives and related value chains within their wards, according to their enterprises. Through cooperatives, farmers can preserve seeds and breeds suited to local climatic conditions.

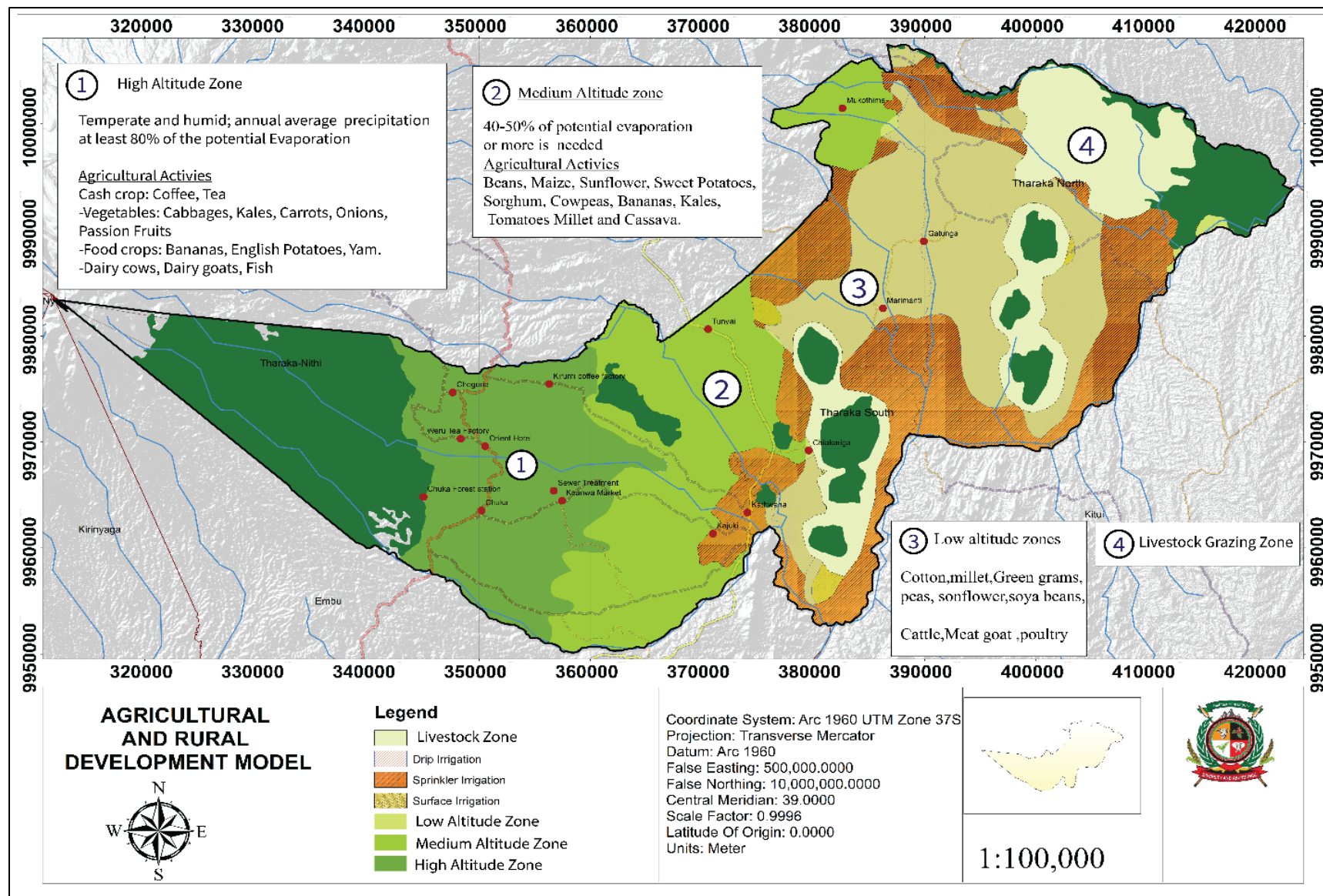
Advantages

- (i) This model will enhance land productivity, food, and livelihood security
- (ii) It will create enormous employment
- (iii) Will reduce financial leakages through the importation of products that can be produced locally.
- (iv) It will provide raw materials for agro-industries, hence enlarging the economy of the County.

Disadvantages

- i. Implementation of the agricultural model without the industrial component will limit value addition, hence farmer returns. This can discourage farmers, as it concerns the further production of agricultural produce.
- ii. There is a generally low rating of agriculture as a source of employment because of the way it has been undertaken before. This can be countered by professionalizing the sector

Map 13.6: Alternative 1: Agriculture and Rural Development Model



Source: TNCSP, 2024

Alternative 2: Urbanization and Industrial Development Model

This model envisions the County's growth through urbanization and industrial development. The County has two municipalities: Chuka and Kathwana. The two serve as commercial and administrative headquarters, respectively. Together with Chogoria and Marimanti, these form the County's four primary urban centres.

The model proposes strategic investments in infrastructure, including the upgrading of major road links and the improvement of public utilities such as water supply, electricity, telecommunications, and waste management to attract businesses and residents to the primary centers of Chuka, Kathwana, and Marimanti. It also proposes the development and upgrading of additional primary centres, including Chogoria in the upper zone and Mukothima and Kathangacini in the lower zone. Secondary centers would include Gatunga, Tunyai, Kaanwa, Magutuni, and Kanguto, while centers such as Nkondi and Chiakariga would function as tertiary centers.

Industrial development would be promoted by establishing designated industrial parks and zones to support agro-based and non-farm manufacturing and processing industries. Plans are underway to develop an industrial park in Igambang'ombe focusing on agro-processing, manufacturing, and efficient utilization of local resources. In the upper zone, existing industries, including Weru Tea Factory, would be upgraded to increase production capacity and efficiency. A proposed tea factory in Chuka would serve the Chuka tea-growing catchment. Milk cooling plants are proposed for all dairy-producing wards, while a milk processing factory would be established within the County Industrial Park under a cooperative value chain management model to strengthen community participation. Existing coffee factories should be restored to optimal production capacity, and each ward should be provided with a timber posts-and-poles processing facility to add value to farm forestry products. In the transition zone, processing facilities for sunflower oil, animal feeds, avocados, and mangoes are proposed.

In the lower zone, a modern abattoir is proposed in Gatunga to support the livestock sector through improved meat processing and supply chain management. A cotton ginnery and spinning plant are proposed for Marimanti to process cotton produced in Tharaka North, Tharaka South, and Igambang'ombe. Other proposed industries include skin and hide processing, grain milling, leather product manufacturing, textile production, honey processing, and the processing of construction stone and ballast.

These investments are expected to create employment, stimulate economic growth, and diversify the County's economy. Their success will depend on strengthening value chains that link primary production to secondary manufacturing through coordinated spatial planning. Investments in education and skills development will also be required to build a workforce capable of supporting emerging industries. Collaboration with Chuka University, Tharaka University, and vocational training institutions will be essential in aligning training programmes with the skills required by sectors such as manufacturing and mining.

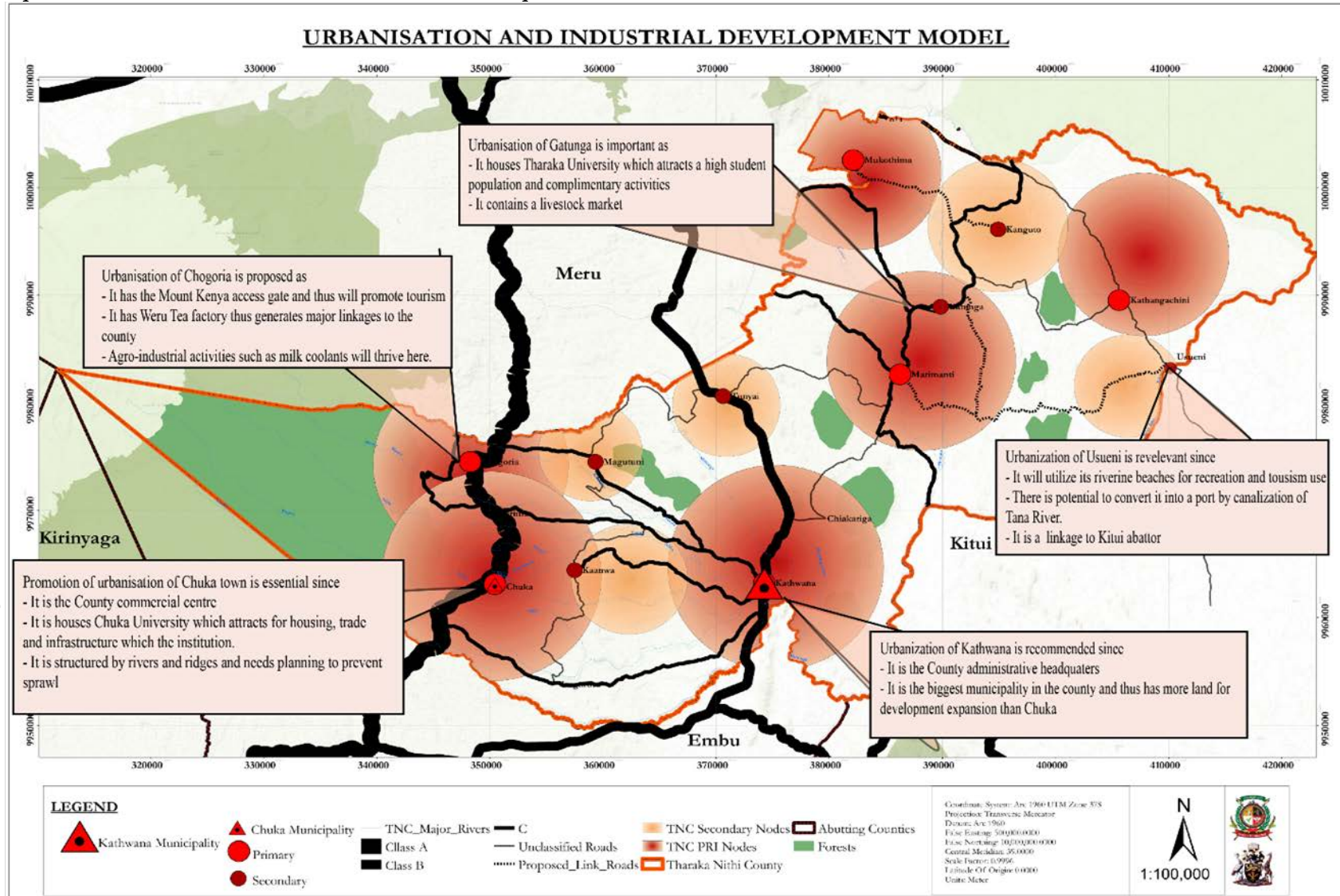
Advantages

- a) **Economic diversification:** concentrating industrial activities in the proposed industrial zone in Gatunga and promoting jua kali industries within the main urban centers can diversify Tharaka Nithi County's economy beyond agriculture.
- b) **Infrastructure development:** urbanization stimulates the need for improved infrastructure. Upgrading roads linking agricultural zones to industrial hubs can enhance transportation efficiency, reduce logistics costs for businesses, and facilitate market access for farmers.
- c) **Job creation:** The proposed industrial establishments and expansion of the existing industries are envisioned to provide employment opportunities for the residents. For instance, expanding existing factories, such as the Weru tea factory in the upper zones, can increase production capacity and employ more workers and farmers from surrounding communities.
- d) **Educational and technological advancements:** urban centers such as Chuka serve as educational hubs, attracting institutions that offer training in specialized skills required by emerging industries. This can include partnerships with vocational training centers to tailor programs that meet the needs of industrial sectors in the County.

Disadvantages:

- a) **Environmental concerns:** industrial activities may pose environmental risks such as pollution and resource depletion. Proper environmental impact assessments and regulations are necessary to mitigate these risks and safeguard natural resources like rivers, air, and hills.
- b) **Urban sprawl and land use:** uncontrolled urban growth can lead to sprawl, encroaching on agricultural lands and natural habitats. This can disrupt ecosystems and increase vulnerability to environmental hazards, such as flooding in low-lying areas.
- c) **Pressure on infrastructure:** rapid urbanization can strain existing infrastructure such as water supply, sanitation, and waste management systems. Investment in infrastructure must be prioritized to support growing urban populations and industrial demands.
- d) **Social inequities:** economic growth in urban areas may widen social disparities and lead to the growth of informalities. Inclusive development and affordable housing options can mitigate the risk of gentrification and displacement.
- e) **Cultural and identity preservation:** urbanization may erode traditional cultural practices and community identities, especially in the lower zone. Measures to preserve cultural heritage while promoting economic growth and modernization should be prioritized.

Map 13.7: Alternative 2: Urbanization and Industrial Development Model



Source: TNCSP, 2024

Alternative 3: Eco-Tourism and Conservation Model

The third scenario envisions the County's growth through an Eco-Tourism and Conservation Model. It seeks to leverage the County's natural heritage, biodiversity, and cultural resources to promote tourism while supporting environmental conservation.

The County has several tourism assets that can be developed under this model. These include Meru National Park, which supports diverse wildlife such as elephants, rhinos, and numerous bird species, and Mt. Kenya, which provides opportunities for mountain climbing, hiking, and eco-tourism. Rivers and waterfalls, including the Kathita, Thangatha, Ruguti, Tana, and Ura rivers, offer scenic landscapes and recreational opportunities such as fishing. Hills such as Muuguni, Kiarungurere, and Kierera also offer opportunities for hiking and other ecotourism activities.

Additional eco-tourism resources include campsites, waterfalls, caves, swamps, and lodges, as detailed in Table 13.3.

Table 13.3: Potential eco-tourism sites

Potential	Location
Campsites	Nthereru/Ndereru, Kiria, Muthiria, Nyoni, Soniu, Karima, Gatwikiru
Waterfalls	Mwita, Tungu/Ntuntuni, Manyaga, Kithuci, Kiambumbu, Kanyithi,
Caves	Mwita/Suleiman, Ruguti, Tungu
Breeding Zones (elephants)	Gitogoto, Gaketha/Ituntu
Swamps	Iria ria Mwanki, Ndereru, Kithaje, Thamia, Irimba ria Mugumo, Muthanje wa Mutube, Muthanje wa Naka, Gwa Kibanga, Mwano, Cuniu, Kathiti, Kiria, Muthiria Nyoni, Kathaiti.
Lodge(s)	Kiang'onde, Kajuki, Kinondoni
Internal and External Circuits	Internal Network connecting the above sites, as well as external connections providing access forming a complete system

Source: UoN-DURP, 2026

The model also proposes strengthening linkages with neighbouring conservancies in Isiolo and Laikipia Counties, as well as national parks in Kitui and Meru Counties, through collaborative conservation initiatives and integrated eco-tourism circuits. This will involve partnerships with neighbouring counties, national parks, and private conservancies to promote seamless visitor experiences and regional tourism development.

The model further emphasizes conservation of the County's natural assets, including rivers, hills, and protected areas. This will be achieved through sustainable land use planning, enforcement of environmental regulations against cultivation on steep slopes in the upper zones, charcoal burning and deforestation in the lower zone, promotion of community-based conservation initiatives such as tree planting, agroforestry, and reforestation, and increased public awareness of biodiversity conservation and ecosystem services.

Advantages:

- a) Preservation of natural resources: emphasizing eco-tourism and conservation efforts in Tharaka Nithi County can help preserve its rich biodiversity, including areas like Meru National Park and Mount Kenya. These natural attractions not only support local ecosystems but also attract tourists interested in wildlife safaris and nature-based experiences.
- b) Economic opportunities: developing eco-tourism initiatives can diversify the county's economy beyond agriculture, for example, promoting tourism in scenic areas like Muuguni and Kierera hills can generate income through lodging, guided tours, and local handicrafts, benefiting communities while conserving natural habitats.
- c) Job creation: eco-tourism projects can provide employment opportunities for residents in hospitality, tour guiding, and conservation management. The eco-lodges can create direct and indirect jobs, reducing unemployment rates.
- d) Cultural preservation: eco-tourism encourages cultural exchanges and the preservation of indigenous knowledge. Cultural heritage sites like traditional villages or archaeological sites can promote cultural pride and awareness while supporting community-based tourism initiatives. The cultural festival can also be marketed to provide opportunities for the local community.
- e) Infrastructure development: investing in eco-tourism infrastructure such as trails, viewpoints, and visitor facilities improves accessibility to remote areas. Improving infrastructure around the Meru National Park and Mount Kenya can attract more visitors and enhance their experience while ensuring environmental sustainability.

Disadvantages:

- a) Seasonal variability: eco-tourism activities may be seasonal, affecting income stability for local businesses and communities dependent on tourism. Promoting year-round attractions can, however, mitigate.
- b) Regulatory challenges: managing eco-tourism activities requires robust regulations and enforcement to protect natural areas and wildlife. The national government, through its parastatals, the County, conservation organizations, and communities, should be involved in effective governance and sustainable tourism practices.

13.6 Proposed Tharaka Nithi Mt Kenya Special Zone**Introduction**

Mount Kenya is Kenya's highest peak (approximately 5,199 meters at Batian Peak), and one of the most significant ecological landscapes in Africa. The mountain is a UNESCO World Heritage Site, a UNESCO Biosphere Reserve, and the main water tower for central and eastern Kenya. The forest ecosystems around Mount Kenya provide water, biodiversity, climate regulation, tourism opportunities, and livelihoods for millions of people. The area covered by the special zone, marked by the forest outline, is 1,540 km².

In Tharaka Nithi County, the wards of Magumoni, Karingani, and Chogoria serve as Tharaka Nithi's gateway to Mount Kenya. These wards have large areas of indigenous forest, rivers, wildlife habitats, waterfalls, hiking trails, bamboo forests, and unique alpine habitats that are largely untouched for sustainable tourism and conservation efforts.

The Japanese example of Mount Fuji is a good international reference, as the mountain and surrounding protected forests are managed within well-defined conservation areas, tourism management systems, and integrated administrative structures. The same is recommended in this

proposal to create a Mount Kenya Special Conservation and Tourism Zone in the Mount Kenya forest section of Tharaka Nithi County.

Administration

The current governance structure involves KWS and KFS. However, the county's involvement appears limited. The county is critical to management, alongside the agencies. There is a need for a structured governance mechanism for the Tharaka Nithi Mt Kenya Special Zone that is grounded in the County Government of Tharaka Nithi and involves relevant national government institutions.

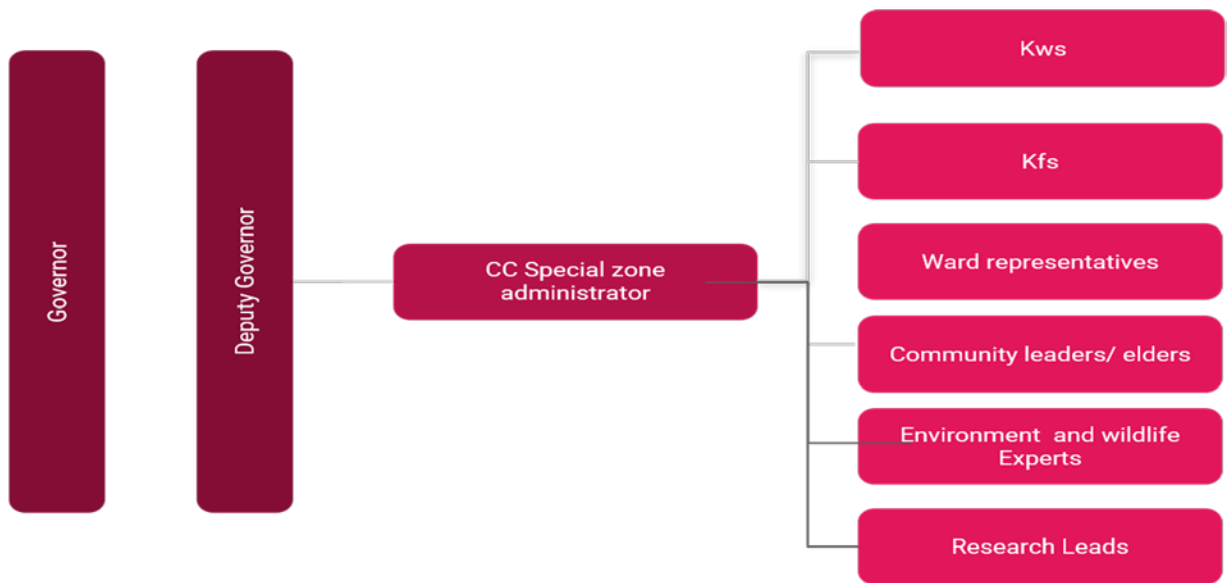
The TNCG shall give development policy guidance together with the KWS and KFS. The County Executive Committee Members would oversee the areas of Tourism, Environment and Climate Change, Lands and Physical Planning, Water and Natural Resources, Roads and Infrastructure, Trade, and Finance. As of now, limited funds are allocated to support the ecosystem. Yet, the county must benefit from ecotourism. Creation of a Special Zone Management structure within the county, with the express authority to oversee the planning, conservation, investment promotion, and implementation of eco-friendly development projects from Magumoni to Chogoria.

This entails integrating a panel comprising county governments, national agencies, local communities, private investors, conservation organizations such as KFS and KWS, and research institutions. Ward administrators and village administrators (village elders) would ensure public involvement, oversee project implementation, and coordinate projects at the community level. This integrated administrative structure would help to improve sustainable resource management, sustainable tourism, climate resilience, carbon credit projects,

and just socio-economic development around it.

Figure 13.1:Administration representation

Administration representation



Case study of Mount Fuji Protected Zone, model for Mount Kenya.

Overview

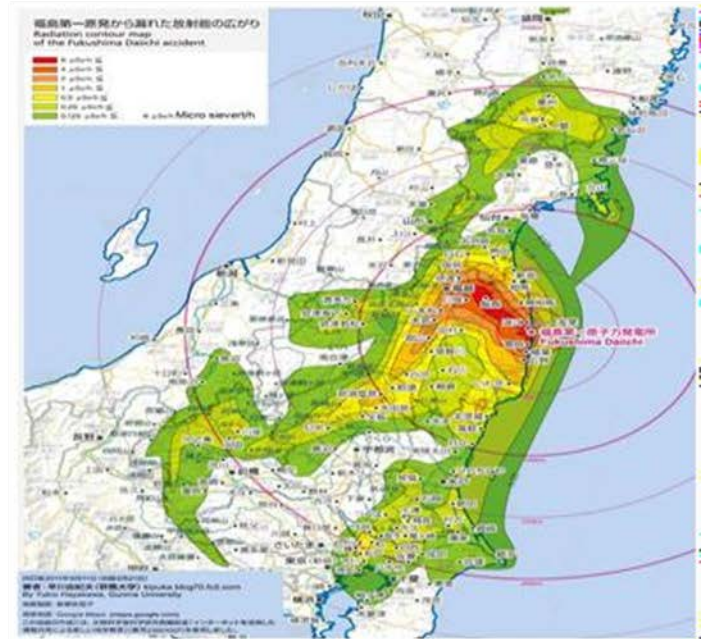
Mount Fuji, the iconic 3,776m stratovolcano in Japan, is a good example of effective conservation through being included in the Fuji-Hakone-Izu National Park and UNESCO World Heritage Site (2013). The mountain and its surrounding forests, lakes, shrines, and trails create a protected landscape that values the cultural, spiritual, and natural aspects. Activities in the sensitive portion of the watershed are limited within Special Protection zones to maintain biodiversity, aesthetics, and geology, while continuing to sustain these values in buffer zones.

Administration Structure: There is multi-level coordination from the national government agencies, prefectures (Yamanashi and Shizuoka), and the park authority. There are strict land-use, visitor, and development controls. Long-term sustainability with community involvement, cultural heritage protection, and science monitoring. There is a dedicated framework designed to integrate conservation laws into tourism policies.

Tourism Management: Fuji is a popular tourist destination, with millions of people visiting each year, but it has a carrying capacity limit, requires trail maintenance, and needs eco-friendly practices. Entry fees and services fund conservation for low-impact activities, such as guided tours and off-peak visits. This is an equilibrium that stops environmental degradation and overcrowding.

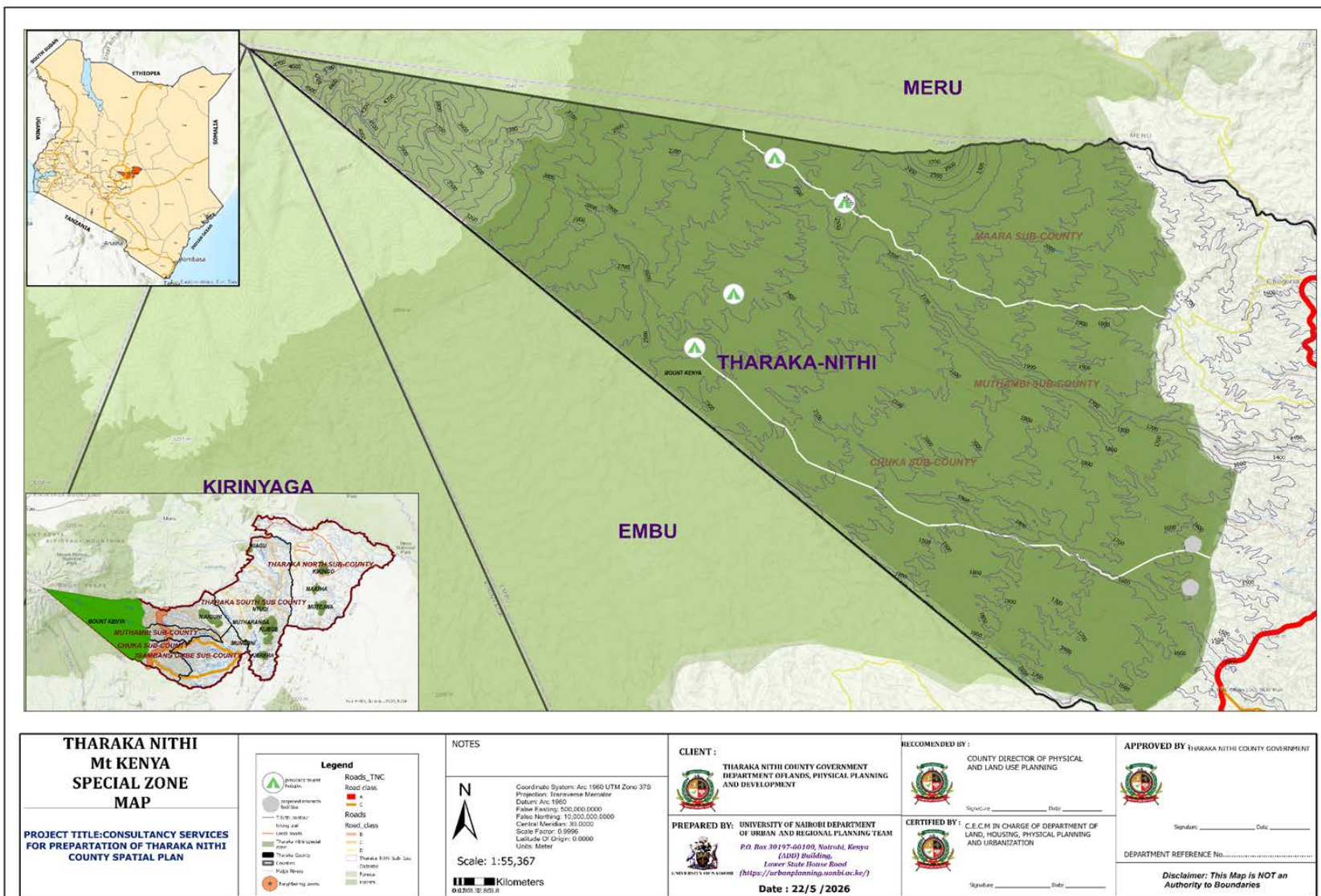
The model proposed by Fuji can serve as a template for the Mount Kenya special zone in Tharaka Nithi County: Create a single administration zone/office for a single administration overseeing various department; combine CLT with tourism development initiatives (log cabins, guided hiking, wilderness training and development); seek carbon credits. This will improve conservation, provide jobs and boost sustainable economic development without compromising the environment.

Figure: Mt fuji protected zone



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Map 13.8: Proposed Special Zone Tharaka Nithi County



The zone shall include:

Indigenous forests, Bamboo forests, Rivers, Waterfalls, Wildlife habitats, Hiking routes, Tourism facilities, Conservation research centres and Environmental education centers. The boundary should have ecological elements as guidelines, not follow the traditional settlement boundary; thus, the mountain ecosystem should be given full protection.

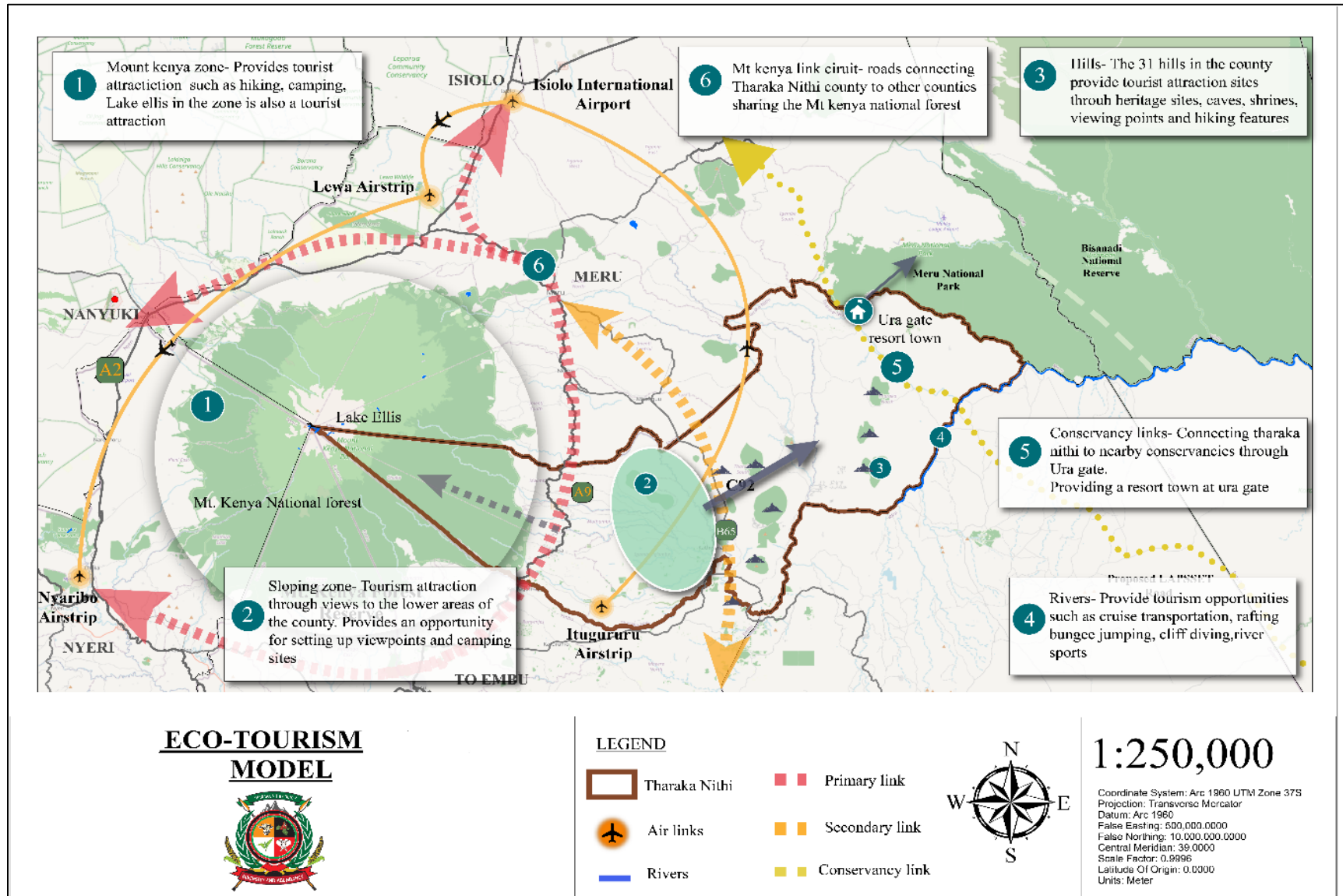
Impacts of Tharaka Nithi Mt Kenya Special Zone

- a) Tourism Development
- b) Climate Change Mitigation
- c) Research and Indigenous Knowledge, including the growing of medicinal plants
- d) Cultural Heritage
- e) Food Security
- f) Protection of Rivers, Lakes, and Water Catchment Areas
- g) Carbon Credit Opportunities

Figure 13.3: Impacts of Tharaka Nithi Mt Kenya Special Zone

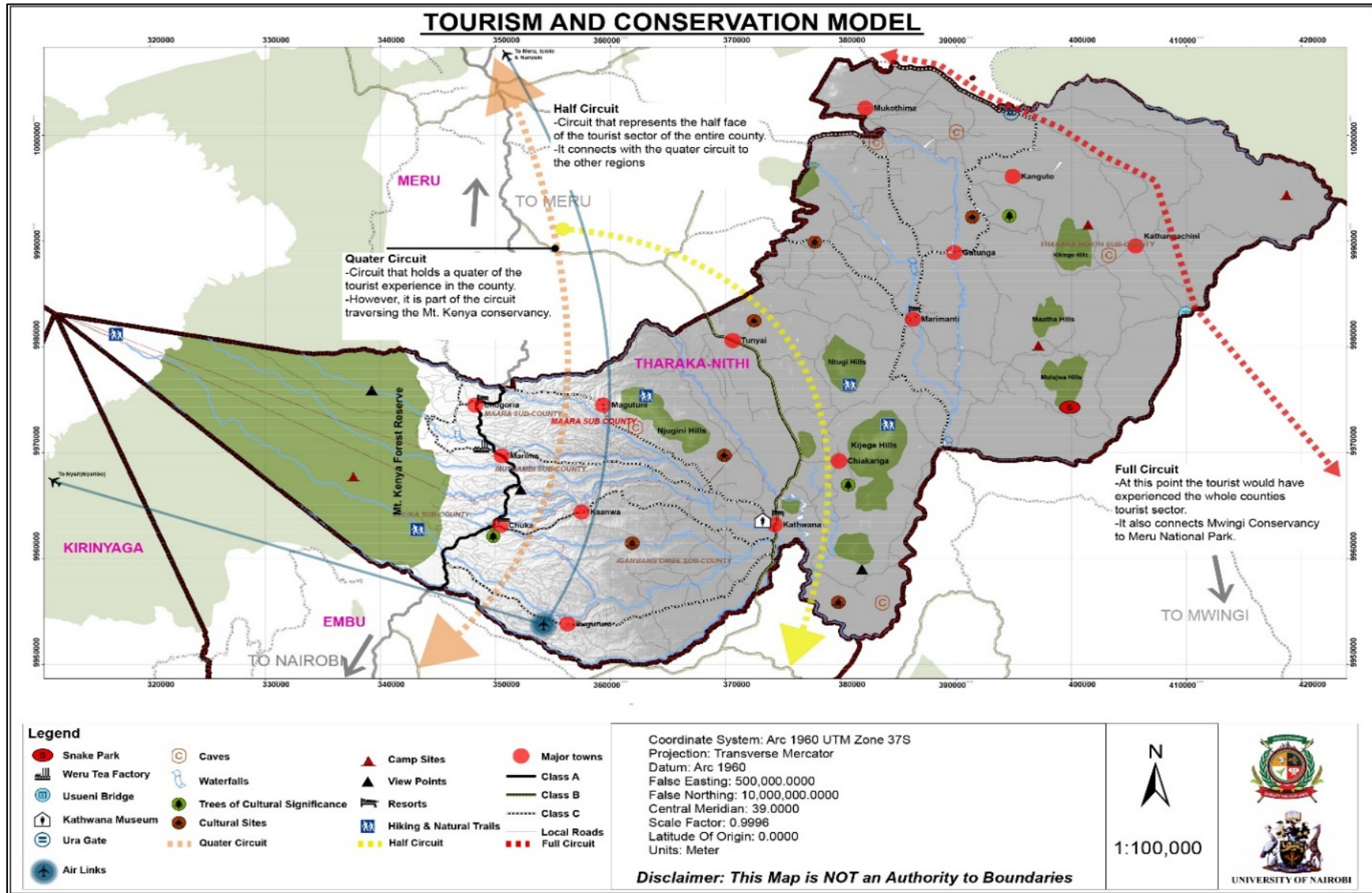


Map 13.9: Tourism external linkages



Source: UoN-DURP, 2026

Map 13.10: Alternative 3: Eco-Tourism and Conservation Model



Source: TNCSP, 2024

i. Evaluation of Alternatives

The evaluation of the three development alternatives is conducted using a Goal Achievement Matrix (GAM), a methodical tool for assessing how well each proposal meets the project's specified goals. This matrix provides a structured approach for comparing the Urbanization & Industrialization model, the Eco-tourism and Conservation model, and the Agricultural & Rural Development model.

Criteria for Scoring

The scoring criteria were designed to gauge the extent to which each development model meets the project goals. The criteria are as follows:

- Model contributes greatly to the fulfillment of the goal: 3 points
- Model contributes moderately to the fulfillment of the goal: 2 points
- Model contributes slightly to the fulfillment of the goal: 1 point
- Model does not contribute to the fulfillment of the goal: 0 points
- Model is inconsistent with the full fulfillment of the goal: -1 point
- Model is moderately inconsistent with the full fulfillment of the goal: -2 points
- Model significantly contradicts the goal: -3 points

The following goals were considered in the Goal Achievement Matrix:

- Increase Agricultural Production: Ensuring the development model enhances the capacity for agricultural output.
- Environmental Conservation: Evaluating how well the model promotes the protection and sustainability of natural resources.
- Optimal Use & Management of Land: Assessing the efficiency and effectiveness of land utilization under each model.
- Equitable Distribution of Services: Ensuring that services and benefits are distributed fairly across the different regions and populations.

Table 13.4: Goal Achievement Matrix

Goals	Weight	ALTERNATIVE DEVELOPMENT PROPOSALS							
		Urbanization & Industrialization Model		Eco-Tourism & Conservation Model		Agricultural & Rural Development Model		Preferred Development Model	
		Score	subtotal	Score	subtotal	Score	subtotal	Score	subtotal
Increase agricultural production	0.25	1	0.25	1	0.25	3	0.75	3	0.75
Environment conservation	0.25	-3	-0.75	3	0.75	2	0.5	2	0.5
Optimal use & management of land	0.25	2	0.5	1	0.25	3	0.75	3	0.75
Equitable distribution of services	0.25	3	0.75	1	0.25	1	0.25	3	0.75

Goals	Weight	ALTERNATIVE DEVELOPMENT PROPOSALS							
		Urbanization & Industrialization Model		Eco-Tourism & Conservation Model		Agricultural & Rural Development Model		Preferred Development Model	
		Score	subtotal	Score	subtotal	Score	subtotal	Score	subtotal
Total weighted score			0.75		1.5		2.25		2.75
Ranking			4		3		2		1

Source: TNCSP, 2024

The models were ranked based on their weighted scores, calculated by evaluating four key goals: Increase Agricultural Production, Environmental Conservation, Optimal Use & Management of Land, and Equitable Distribution of Services.

The equal weight of 0.25 assigned to each aim indicates that all goals were given equal weight in this evaluation. A score was assigned to each development model, which included the Preferred Development Model, Agricultural & Rural Development, Urbanization & Industrialization, and Tourism & Conservation. The subtotal for each model under that objective was then determined by multiplying these scores by the weight of the corresponding goal.

The subtotals for each goal were summed up to give the Total Weighted Score for each model. Finally, the models were ranked from 1 to 4, with 1 representing the highest total score (best-performing model) and 4 representing the lowest total score.

Enhance Agricultural Production: Every model received a score of three, except for the models for urbanization and industrialization, and for tourism and conservation, which received a score of one. This suggests that the Preferred Development Model and Agricultural & Rural Development are more successful at raising agricultural output.

Environmental Conservation: A high score of three was awarded to the Tourism & Conservation model, highlighting its emphasis on environmental protection. The Urbanization & Industrialization model's possible negative environmental impact was reflected in its low score of -3.

Optimal Use & Management of Land: The Agricultural & Rural Development and Preferred Development Model received the highest scores (3), showing strong alignment with efficient land use. The Urbanization & Industrialization model scored 2, while the Tourism & Conservation model scored 1.

Equitable Distribution of Services: The Urbanization & Industrialization model scored highest (3), indicating its potential to provide widespread services. The Preferred Development Model also scored 3, suggesting it balances service provision well.

The Agricultural & Rural Development model scored lower, at 1, indicating less focus on equitable service distribution.

Final Ranking:

First-placed Preferred Development Model (2.75 points) shows the highest overall performance among the assessed objectives. The second-ranked Agricultural & Rural Development Model (2.25

points) places a significant emphasis on land management and agriculture. Tourism and Conservation Model (1.5 points): This model, which excels in environmental conservation, is ranked third. The Urbanization & Industrialization Model (0.75 points) was ranked fourth, citing shortcomings in service distribution and environmental conservation. Based on the overall weighted score, the Preferred Development Model was determined to be the best choice since it successfully balanced the requirements for equitable service distribution, environmental conservation, agricultural output, and optimal land use

Preferred Alternative: Integrated Model

The integrated County Spatial Development Model is conceptually based on the African three-legged stool, as reflected in the traditional three-stone cooking stove, which symbolizes stability through balanced support. It is anchored on the County Spatial Plan vision of **"Sustainable Resource Utilization for Wealth Creation"**, implemented through three complementary development models: **Agricultural and Rural Development, Urbanization and Industrial Development, and Environmental Management and Land Use**. The agricultural model emphasizes rural settlement planning and agro-based wealth creation through value chain development. The urban model promotes planned, infrastructure-led urbanization supported by ICT for efficient service delivery, while the environmental model focuses on sustainable stewardship of natural resources by minimizing negative environmental impacts and maximizing long-term benefits.

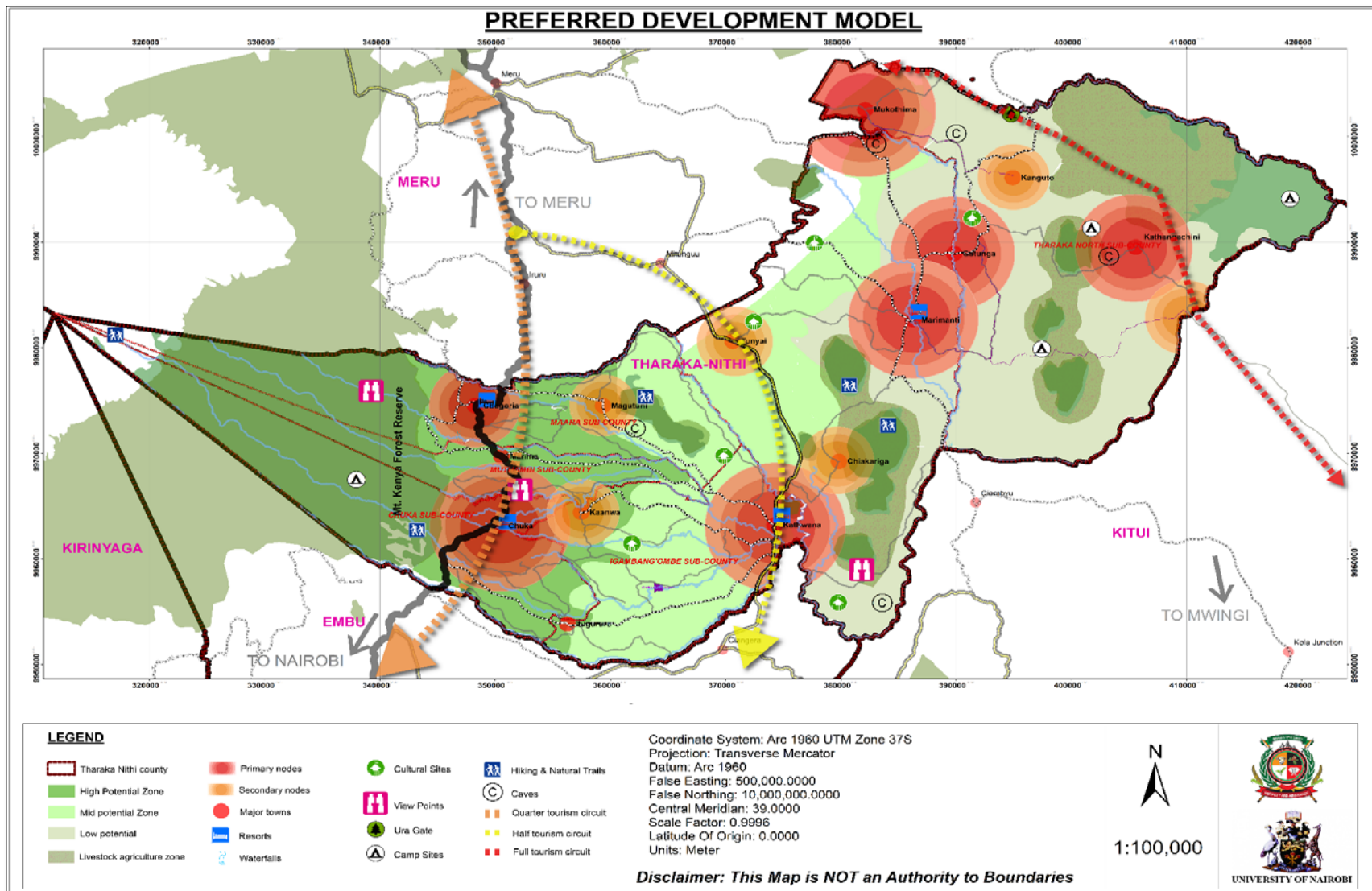
The three models are supported by four interdependent pillars that are essential to achieving the County's development vision. Human resource development and innovation drive the sustainable use of resources through knowledge, skills, and adaptability to changing socio-economic and environmental conditions. Equitable provision of infrastructure, utilities, and public facilities improves accessibility and supports balanced development. Responsive institutions and spatial governance provide the framework for coordinated planning, implementation, and collaborative decision-making. Environmental management and sustainable land use ensure the conservation of natural resources while supporting present and future development needs. Together, these models and pillars provide an integrated framework that promotes balanced economic growth, environmental stewardship, social equity, and effective governance across the County.

The model is grounded on four main pillars:

- a) Infrastructure,
- b) Environment and land use,
- c) Governance,
- d) Human development and innovation.

The infrastructure pillar focuses on improving physical and social infrastructure to support development and enhance quality of life. The environment and land use pillar promotes sustainable land management and conservation to protect natural resources while accommodating growth. The governance pillar strengthens transparent, accountable, and participatory decision-making to support effective implementation. The human development and innovation pillar promotes education, skills development, and technological advancement to build a skilled and adaptable workforce. Together, these pillars provide a balanced and resilient framework for sustainable and inclusive development across the County.

Map 13.11: Preferred Development Model



Source: TNCSP, 2024

A landscape photograph showing a calm lake in the foreground, a grassy hillside in the middle ground, and a cloudy sky in the background. The text is overlaid on the middle ground.

PART IV: SPATIAL DEVELOPMENT FRAMEWORK

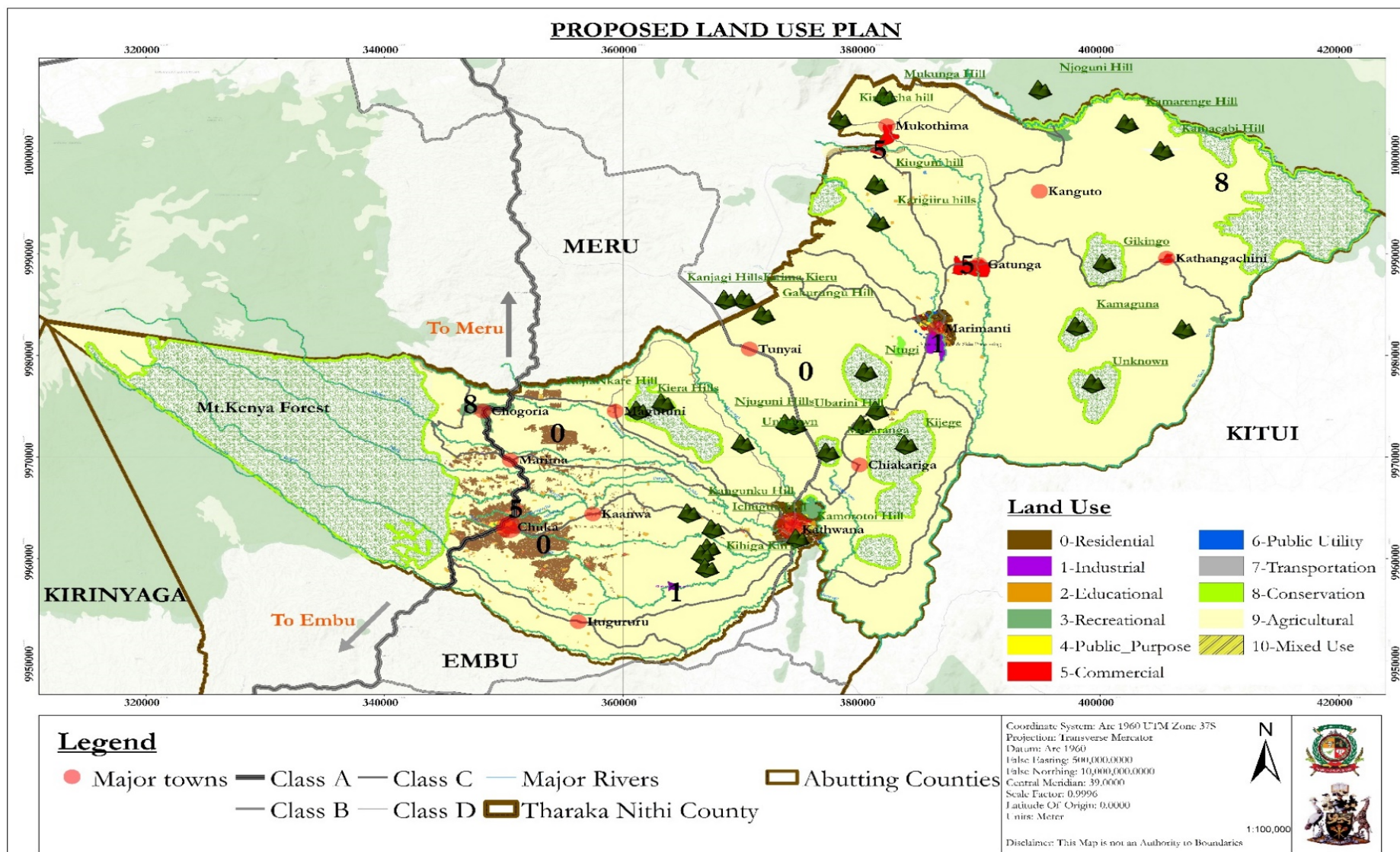
14 THE LAND USE PLAN

14.1 Overview

This chapter provides the framework for managing and guiding land use within the County. It outlines the preparation of the land use plan, including a comparison of existing and proposed land use budgets that show land allocation across different uses. It also identifies key growth nodes, Chogoria, Mukothima, Kathangachini, Marimanti, and Gatunga, based on their growth potential and strategic role in implementing the land use plan.

The chapter presents land-use policies, standards, and zoning regulations, including development control guidelines for ground coverage and plot ratios. These measures promote orderly and consistent development while supporting the plan's objectives of sustainable and equitable growth. Ground coverage and plot ratios are indicative and may be refined through local area planning to reflect specific local conditions.

Map 14.1: The Proposed Land Use Plan



Source: TNCSP, 2024

14.2 The Proposed Land Use Plan

The proposed land uses are detailed in the sub-county reports in the annexures. Various land-use maps have been provided to critically propose the land-use structure for each sub-county and Ward. The main land uses are outlined as follows.

0-Residential

Residential land use in the County ranges from high-density development in urban centres, to medium-density areas on the urban fringe, and low-density settlements in rural areas. Linear residential developments along major transport corridors function as extensions of urban centres. According to the 2019 National Census, about 8.3% of the County's population lives in urban areas, mainly in Chuka, Chogoria, Marimanti, and Kathwana Municipality, where residential densities are higher due to smaller land parcels and better access to services.

The plan proposes urban densification to accommodate future population growth through high-rise and mixed-use developments within urban centres. It also prioritizes upgrading roads and expanding infrastructure for water, electricity, telecommunications, and waste management, particularly in the lower semi-arid zone, to attract settlement and support balanced development. Increased residential density will also help release more land for agricultural use.

1-Industrial

Industrial land uses in the County range from light to heavy industries. Light industries are mainly located along major roads within urban centres and are also dispersed within residential areas. They accommodate labor-intensive activities such as Jua Kali enterprises, automotive garages, petrol stations, workshops, furniture making, laundries, printing, packaging, and food processing.

The plan proposes a 328.62 Ha abattoir and hides-and-skins processing industry in Marimanti, and a 100 Ha industrial park in Igambang'ombe Sub-County. These developments aim to promote value addition through local processing of raw materials, create employment opportunities, improve livelihoods, and contribute to the County's economic growth and Gross Domestic Product (GDP).

2-Educational

Educational institutions play a significant role in shaping land use and local economic development within the County. The establishment of Chuka University in Ndagani has transformed the surrounding area, with former agricultural land increasingly converted to residential and commercial uses to support the growing student and staff population. The plan proposes the provision of educational facilities within residential neighbourhoods to improve accessibility and meet the needs of expanding communities. It also promotes residential development in Marimanti to accommodate the anticipated growth of Tharaka University. Beyond serving educational needs, these developments are expected to stimulate complementary residential and commercial growth. However, compatibility between educational facilities and surrounding land uses should be maintained through appropriate planning and zoning.

3-Recreational/Conservation

Recreational land uses in the County include parks, open spaces, areas of scenic beauty, sports facilities, cultural sites, and entertainment amenities such as hotels, restaurants, resorts, and cinemas. These facilities are distributed across the urban centres and contribute to residents' well-being and tourism development. Conservation areas comprise wetlands, gazetted forests, hills, and their associated reserves, which provide critical ecological services.

The plan proposes 60-metre buffer zones along major rivers, forests, and hills, and 30-metre buffer zones along minor rivers to protect these environmentally sensitive areas from encroachment. In addition, a public park is proposed within Kathwana Municipality to enhance recreational opportunities, improve the urban environment, and provide quality public open space for residents.

4-Public Purpose

Public and institutional land uses comprise areas that provide essential social and administrative services to County residents. These include health facilities (hospitals, health centres, dispensaries, and clinics), administrative offices (County Headquarters, County Commissioner's offices, Deputy County Commissioner and Assistant County Commissioner offices, sub-county and ward offices, and chiefs' camps), security and justice facilities (police stations, police posts, AP camps, law courts, and rehabilitation centres), as well as libraries, community halls, religious institutions, and post offices. Most of these facilities are concentrated within or around urban centres to enhance accessibility.

To improve service delivery, the plan proposes a police station in Tharaka North to strengthen security in the lower zone, social halls in Chuka, Marimanti, and Kathwana, a library in Kathwana, and a fire station in Gatunga to enhance emergency response and public safety.

5-Commercial

Commercial development in the County is concentrated along major transport corridors, particularly the A9 Embu–Meru Highway and the B65 Mati Road, where strip developments have emerged due to high accessibility. To stimulate balanced economic growth, the plan proposes upgrading and grading roads in the lower zone, especially those connecting Marimanti, Gatunga, Mukothima, and Kathwana. Improved connectivity will strengthen both internal and external trade.

The plan also promotes the decentralization of commercial activities by encouraging the growth of commercial centres beyond the existing urban hubs. As the County's population grows, commercial areas are expected to expand to meet increasing demand for goods and services. Centres such as Marimanti are anticipated to experience significant commercial growth, supported by improved infrastructure and accessibility.

6-Public Utility

Public utility land is designated to support the provision of essential infrastructure and services, particularly within the County's urban centres. These include stormwater drainage systems, water supply and electricity distribution networks located within road reserves, solid waste collection sites near markets, and telecommunications infrastructure distributed across the County. Other public utility facilities include water intake points, water treatment plants, solid waste management sites, major dams such as Maara Dam and Grand Falls, dams along the Nithi River, and public street lighting.

The plan proposes expanding and improving these utilities to support orderly urban growth, enhance service delivery, and promote sustainable and resilient urban development.

7-Transportation

Transportation land comprises areas designated to facilitate the movement of people, goods, and services across the County. It includes roads, bridges, parking areas, bus parks, boda boda sheds, and matatu termini, all of which influence the location and growth of other land uses. The County's primary transport corridors include the A9 Embu–Meru Highway, which passes through Kathageri,

Chuka, and Chogoria to Keria, and the B65 Mati Road, which links Kathwana to Meru County. These corridors have supported dense settlement and economic development in the upper zone.

To promote balanced spatial development, the plan proposes upgrading roads in the lower zone, particularly those connecting Kathangachini, Gatunga, Marimanti, Kathwana, and Mukothima. Improved connectivity is expected to enhance mobility, reduce transport costs, stimulate investment in the semi-arid lower areas, and improve access to markets and services. It will also help shift development pressure from the upper zone, allowing highly productive agricultural land to be conserved while supporting efficient movement of agricultural produce and other goods.

9-Agricultural

Agriculture is the dominant land use in the County, covering approximately 176,320.62 hectares (62.26%) of the total land area. It comprises cultivated land, fallow land, farmsteads, greenhouses, pastoral areas, apiculture, and horticultural production. As the County's primary economic activity, agriculture plays a vital role in supporting livelihoods, food security, and economic growth.

The plan proposes intensifying agricultural production and expanding irrigation, particularly in Igambang'ombe, Tharaka North, and Tharaka South, where significant production potential exists. It also promotes value addition to agricultural products to enhance incomes and increase the County's contribution to Gross Domestic Product (GDP). To safeguard productive farmland, the plan recommends clearly defining urban and peri-urban growth boundaries to control urban sprawl and prevent the unnecessary conversion of agricultural land.

Land carrying capacity for agricultural land use

Based on the estimated minimum agricultural land size, Chuka Sub-County can support approximately 15,244 farming households in 2024. The remaining 11,019 households will need to pursue alternative livelihood opportunities or participate in cooperative farming through leased agricultural land. By the end of the plan period in 2034, the number of farming households is projected to increase by an additional 2,037. The estimated farming capacity for the other sub-counties is presented in Table 14.2.

Table 14.1: Projected Agricultural Land Carrying Capacity

County/Sub County	-	2024				2029			2034		
	Land size (Acres)	No. of HH	Rec. Min HH Land Size	Farmer Carrying Capacity	Surplus Households	No. HH	Farmer Carrying Capacity	Surplus Households	No. HH	Farmer Carrying Capacity	Surplus Households
Chuka	34,298	26,263	2.25	15,244	-11,019	27,263	15,244	-12,019	28,300	15,244	-13,056
Maara	65,506	33,130	2.50	26,202	-6,928	34,391	26,202	-8,189	35,700	26,202	-9,498
Igambang'ombe	80,209	15,344	4.25	18,873	+3,529	15,928	18,873	+2,945	16,534	18,873	+2,339
Tharaka South	157,403	21,699	8.0	19,675	-2,024	22,524	19,675	-2,849	23,382	19,675	-3,707
Tharaka North	297,268	16,824	8.0	37,159	+20,335	17,464	37,159	+19,695	18,129	37,159	+19,030
*Mt. Kenya Forest (Excluded)	88,981	-	-	-	-	-	-	-	-	-	-
Tharaka Nithi County	723,665	113,052	-	-	-	-	-	-	-	-	-

Annual Growth Rate – 0.75%; HH-LS = House Hold Land Size

Source: UoN-DURP, 2026

Guidelines for cooperative farming

Cooperative farming provides an opportunity for households without adequate land to engage in agriculture by leasing land. For example, a cooperative of 10 farmers can lease one acre to rear 10,000 chickens, with each member managing 1,000 birds. Other cooperative enterprise options are presented in **Error! Reference source not found..**

The plan encourages cooperative farming while maintaining the prescribed minimum land sizes to ensure viable production and sustainable household incomes. A minimum monthly household income of Ksh. 45,527 is proposed for farming households in Tharaka Nithi County.

Table 14.2: Cooperative Farming - Land to lease for a cooperative of 10 Farmers

Enterprise	Enterprise and units	Minimum land to lease (acres)
Dairy Cows	30 Cows (3/farmer)	7.5
Chicken rearing for eggs	10,000 (1000/farmer)	1.0
Chicken rearing for broilers	10,000 (1000/farmer)	1.0
Chicken rearing dual purpose	10,000 (1000/farmer)	1.0
Goats for meat	400 goats (40/farmer)	22.0
Cattle for beef	180 cattle (18/farmer)	60.0
Irrigated vegetables	10 (1 acre/farmer)	10.0

Source: UoN-DURP, 2026

10-Mixed Use

Cooperative farming provides an opportunity for households without adequate land to engage in agriculture through land leasing. For example, a cooperative of 10 farmers can lease one acre to rear 10,000 chickens, with each member managing 1,000 birds. Other cooperative enterprise options are presented in **Error! Reference source not found..**

The plan encourages cooperative farming while maintaining the prescribed minimum land sizes to ensure viable production and sustainable household incomes. A minimum monthly household income of Ksh. 45,527 is proposed for farming households in Tharaka Nithi County.

14.3 Land use budget

Error! Reference source not found. presents a comparison of the existing and proposed land use allocations across the County. It highlights the planned adjustments to different land use categories to address emerging development needs and priorities. The proposed allocations seek to optimize land use while balancing economic development, environmental conservation, and community well-being, thereby promoting sustainable and equitable spatial development

Table 14.3: Proposed Land Use Budget

Code	Use	Existing Area (Ha)	Percentage (%)	Proposed Area (Ha)	Percentage (%)
0	Residential	4,523.87	1.7	6,822.48	2.56
1	Industrial	266.11	0.1	455.94	0.17
2	Educational	1,330.55	0.5	1,641.34	0.62
3	Recreational/Conservation	55,253.67	20.7	73,364.54	27.7
4	Public Purpose	532.22	0.2	735.82	0.2
5	Commercial	798.33	0.3	1500.05	0.5
6	Public Utility	26.611	0.01	100	0.03
7	Transportation	4,789.98	1.8	5000.25	1.8
8	Agricultural	198,757.5	74.7	176,320.62	66.2
9	Mixed use			168.96	0.0
Total		266110.00	100	266110.00	100

The existing land use pattern is dominated by agriculture, which currently occupies 74.69% of the County's total area, as illustrated in **Error! Reference source not found..** The proposed land use plan reduces agricultural land to 66.26% to accommodate emerging development needs while maintaining agriculture as the County's primary land use.

The plan significantly increases land allocated to recreation and conservation from 20.7% to 27.56%, demonstrating the County's commitment to biodiversity conservation, ecosystem protection, and sustainable environmental management. Residential, industrial, and commercial land allocations are also expanded to support population growth, economic development, employment creation, and improved service delivery. In addition, the introduction of mixed-use development promotes more efficient and integrated land utilization.

Overall, the proposed land use plan is guided by the County's integrated spatial structuring elements, the preferred spatial development model, and the four development pillars, providing a balanced framework for sustainable and equitable growth.

14.4 Land use policies and standards

This section is integral to shaping the spatial development framework as it establishes clear guidelines and regulations for land management. It includes detailed zoning standards that define appropriate land uses and density requirements for different areas, ensuring orderly and efficient development. Additionally, it outlines development control guidelines that set out the ground coverage and plot ratio, aiming to harmonize growth with environmental and community needs.

1. Zoning Regulations

The land use zones identified include the conservation zone, agricultural zone, tourism zone, urban nodes, industrial zone, rural settlement zone, and urban settlement zone. The descriptions of permitted uses and land-use regulations for each zone are outlined in the table.

Table 14.4: Zoning Regulations

Land Use Zone	Defining Element	Zone Descriptions	Permitted Uses	Land Use Regulations
Conservation zone	Forests Hills	Some parts of Mt Kenya forest The 31 hills across the county, including Kiera and Njuguni hills	- Wildlife Conservation and Natural Forest (Mt. Kenya) - Nature Trails & mountain climbing for eco-tourism - Wildlife conservation & Recreation	- All gazetted boundaries of the Zone will remain unaltered and maintained as they are currently surveyed - Prohibit urban developments within the zone - Gazette all remaining 8 ungazetted hills
	Rivers	All River Riparian lands across the county	Conservation, recreation, afforestation and agroforestry	- Riparian buffer demarcation and gazettement - Water abstraction control - Sand harvesting control
	Wetlands	All wetlands across the County	Afforestation and conservation	Protection of springs and wetlands

Land Use Zone	Defining Element	Zone Descriptions	Permitted Uses	Land Use Regulations
Agricultural zones	Upper midland	This covers the upper parts of Chuka, Muthambi, and Maara sub-county up to slightly below the A9 road.	• Cultivation of: • Cash crops - coffee and tea • Food crops such as maize and bananas	• Control of land subdivision • Coffee and tea plantations to be used as land cover on steep slopes • Min land size 2.25 acres • Limit urban development to prescribed urban areas • Densify the existing urban centres
	Middle midland (transition zone)	It covers the upper parts of lower parts of Chuka, Muthambi and Maara sub counties	• Cultivation of: • Cash crops such as bananas, hay and fruits • Food crops mainly green grams, cowpeas, sorghum, and millet	• Control of land subdivision • Limit urban development to prescribed urban areas • Encourage low-density residential development in agricultural hinterland
	Lower midland (irrigation zone)	This zone covers the intermediate lowlands and lower lowlands of Tharaka North and Tharaka South sub counties	• Cultivation of: • Cash crop such as cotton and sunflower • Food crops such as green grams, cow peas, pigeon peas, sorghum, pearl millet and maize.	• Control of land subdivision • Minimum land size should be 1 Ha. • Limit urban development to prescribed urban areas • Encourage low density residential development in agricultural hinterland

Land Use Zone	Defining Element	Zone Descriptions	Permitted Uses	Land Use Regulations
Tourism zone	Resort towns	Chogoria town, Ura gate and Usueni	Eco lodges, tourist hotels, bandas Development.	- 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.

Land Use Zone	Defining Element	Zone Descriptions	Permitted Uses	Land Use Regulations
Urban Nodes	Kathwana Chuka Marimanti Chogoria Kaanwa Kathangicini Mukothima Kanguto Gatunga Magutuni Itugururu Tunyai	Includes the municipalities, proposed primary and secondary centres	- Commercial (Retail Outlets, Office) - Hotels and conference facilities - Business Cum Residential - Public Purpose Facilities (Hospitals, Schools, Security facilities, administrative facilities) - Warehousing, silos - Public Utilities (Power substations, etc) - Transportation Utilities, - Open Spaces/Parks	- Delimitation of the urban centre boundaries - Any land outside the delimited urban boundaries will be agricultural land and the agricultural land regulations prescribed will prevail. - Other public utilities such as cemeteries, liquid and solid waste facilities will be located within the prescribed zones
Industrial Zone	1. Weru 2. Gatunga 3. Kathwana 4. Kathangacini 5. Kaanwa 6. Industrial Park	Proposed Agro-processing Industries	Value addition industries for agriculture and livestock	- Demarcation of the industrial zones and confinement within the zones - Proper buffers to industrial zones - Adherence to pollution control and proper waste management - Subject-built developments to EIA and SEA Process

Land Use Zone	Defining Element	Zone Descriptions	Permitted Uses	Land Use Regulations
	1. Industrial Park 2. Gatunga	Proposed heavy industries within urban areas	Heavy industries	- Demarcation and land banking - Proper buffers for industrial zones - Adherence to pollution control and proper waste management - Min land size 1ha
Rural Settlement Zone	Rural settlements	Settlements within the lowland irrigated zones	Residential land uses- villages and rural settlements	- Nucleated settlement in a rural and local centre of a radius of 0.5 of a Kilometre, well serviced with socio-economic facilities to perform their designated functionality - Clustering around small urban centers, promote as service centers and hubs for cottage industrialization - Registration of community land - Min land size 0.1ha (0.25 acres)
Urban Settlement Zone	Urban Settlements of Kathwana, Chuka, Marimanti Chogoria Kaanwa	Settlements within the proposed urban areas	- Residential land uses- urban settlements - Business Cum Residential	- Settlement in an urban centre of a radius of 0.5 Kilometre from the urban centre - Upgrading of services - Encourage mixed-use developments

Land Use Zone	Defining Element	Zone Descriptions	Permitted Uses	Land Use Regulations
	Kathangicini Mukothima Kanguto Gatunga Magutuni Itugururu Tunyai			• Encourage medium-density to high-density residential • Adherence to zoning guidelines for medium-density and high-density settlements • Min land size 0.05 Ha (0.125acres)

Table 14.5: Recommended minimum land allocation for agricultural production in Tharaka County

No.	Agro-ecological zone	Minimum land area (Acres)	Recommended Enterprises	Land Area in acres	% of the household land area	Estimated monthly net income at 80% production potential (Ksh)
1	UM1	2.25	-Tea -Dairy/Fish/Poultry -Household Food Crops -Forest -Homestead	-1.00 -0.50 -0.25 -0.25 -0.25	44% 22% 11% 11% 11%	-Tea: 10,863 -Dairy: 48,834 -Household consumption -Long-term Sub-total – 59,697
2	UM2	2.50	-Coffee/Maize/ Vegetables Bananas/Sunflower -Dairy/Poultry/Fish -Household Food Crops -Forest	-1.00 -0.50 -0.50 -0.25	44% 22% 11% 11%	-Coffee: 47,455* -Dairy: 30,018 -Household food consumption -Forest long-term Sub-total – 77,473

No.	Agro-ecological zone	Minimum land area (Acres)	Recommended Enterprises	Land Area in acres	% of the household land area	Estimated monthly net income at 80% production potential (Ksh)
			-Homestead including zero grazing unit	-0.25		
3	UM3	2.50	-/Maize/Banana /Sunflower/Vegetables -Dairy/Poultry/Fish/ Pigs -Household food crops -Forest -Homestead	-1.0 -0.5 -0.5 -0.25 -0.25	40% 20% 20% 10% 10%	-Maize/Bananas/ Sunflower: 12,000 -Dairy: 40,667 -Household consumption -Forest long-term Sub-total: 64,667
4	LM 3 & LM4	4.25	- 40 goats Goat/Sheep/Poultry/Zebu Cattle -Green grams/Cowpeas/ Sorghum/Millet/Cotton -Family Food -Forest -Homestead + Animal shed	-2.0 -1.0 -0.50 -0.50 -0.25	35% 35% 12% 12% 6%	Cotton/Sunflower/: Ksh. 12,000 equivalent -Selling of 5 goats per month @ Ksh. 7,000 = Ksh. 35,000 -Household consumption -Forest long-term Sub-total: 47,000
5	LM5 & LM6	7.0	-Goats Only (80 goats @ 0.33 acres/6 goats) -Family Food -Forest	4.5 (Grass + Shrubs) 1.0 1.0	55% 18% 18% 9%	Sell 7 goats per month x Ksh. 7,000 = Ksh.49,000/month.

No.	Agro-ecological zone	Minimum land area (Acres)	Recommended Enterprises	Land Area in acres	% of the household land area	Estimated monthly net income at 80% production potential (Ksh)
			-Homestead + animal shed	0.5		Sub-total 49,000.
6	LM5 & IM6	8.0	-Meat cattle only (18 cattle) -Family Food -Forest -Homestead + Animal shed	-6.0 (Grass) -1.0 -0.5 -0.5	75% 12.5% 6.25% 6.25%	Selling at least one cow per month at Ksh. 45,000 Sub-total 45,000
7	LM5 & 6	8.0	Goats (40 goats) & Cattle (9 cattle) -Family Food -Forest -Homestead + Animal shed	6.0 (Grass+ Shrubs) 1.0 0.5 0.5	75% 12.5% 6,25% 6.25%	Selling of 4 goats/month = Ksh. 28,000 Selling of one cow every 3 months @ Ksh. 45,000 = 180,000/year Sub-total = Ksh. 43,000

*Its paid once per year – this is monthly equivalent

3. Development control guideline

Development control guidelines are essential for regulating and managing land use activities. These guidelines establish rules and procedures governing the design, approval, and implementation of development projects to ensure they align with the county's planning objectives and standards. Detailed guidelines can be found in the sub-county reports in the annexures. The subsequent development control guidelines for each zone are provided in Table 14-3

Table 14.6: Development control guidelines

LAND USE ZONE	DEFINING ELEMENT	MIN. LAND SIZE	GROUND COVERAGE	PLOT RATIO	REMARKS/NOTES
Conservation zone	Forests and Hills	-	-	-	60 metre buffer around the forest and hills
	Rivers	-	-	-	30 metre riparian; - Waterfront parks; and conservation and recreation parks.
	Wetlands	-	-	-	60 metre riparian for swamps
Agricultural zones	Agriculture in the upper, middle and lowland zones	1ha	-	-	Allow the extension of change of user of 10%.
Tourism zone	Resort facilities in Chogoria town, Uragate and Usuni	0.1ha	30%	2.0	- Conference facilities; - Recreation; 15-metre road reserve;
Industrial Zone	Light, medium and heavy industries	1ha	-	-	25-metre road reserve;
Urban Nodes	Primary and secondary centres	0.05 Ha	60%	3.0	15-metre road reserve; and - Observe 40-metre road reserve from Embu-Meru Highway 25-metre road reserve for centres along the Mate Road - Avoid direct access to A9 and B65
Rural Settlement Zone	Rural settlements within the lowland irrigated zones	0.1ha	70%	2.5	9-15 metre road reserve; - Single dwelling; and - Controlled development.
Urban Settlement Zone	Urban Settlements within the proposed urban areas	0.05 Ha	40%	1.0	12-18 metre road reserve; - High-rise development; - Retail Shops - Avoid direct access to A9

15 POLICIES AND STRATEGIES

15.1 Overview

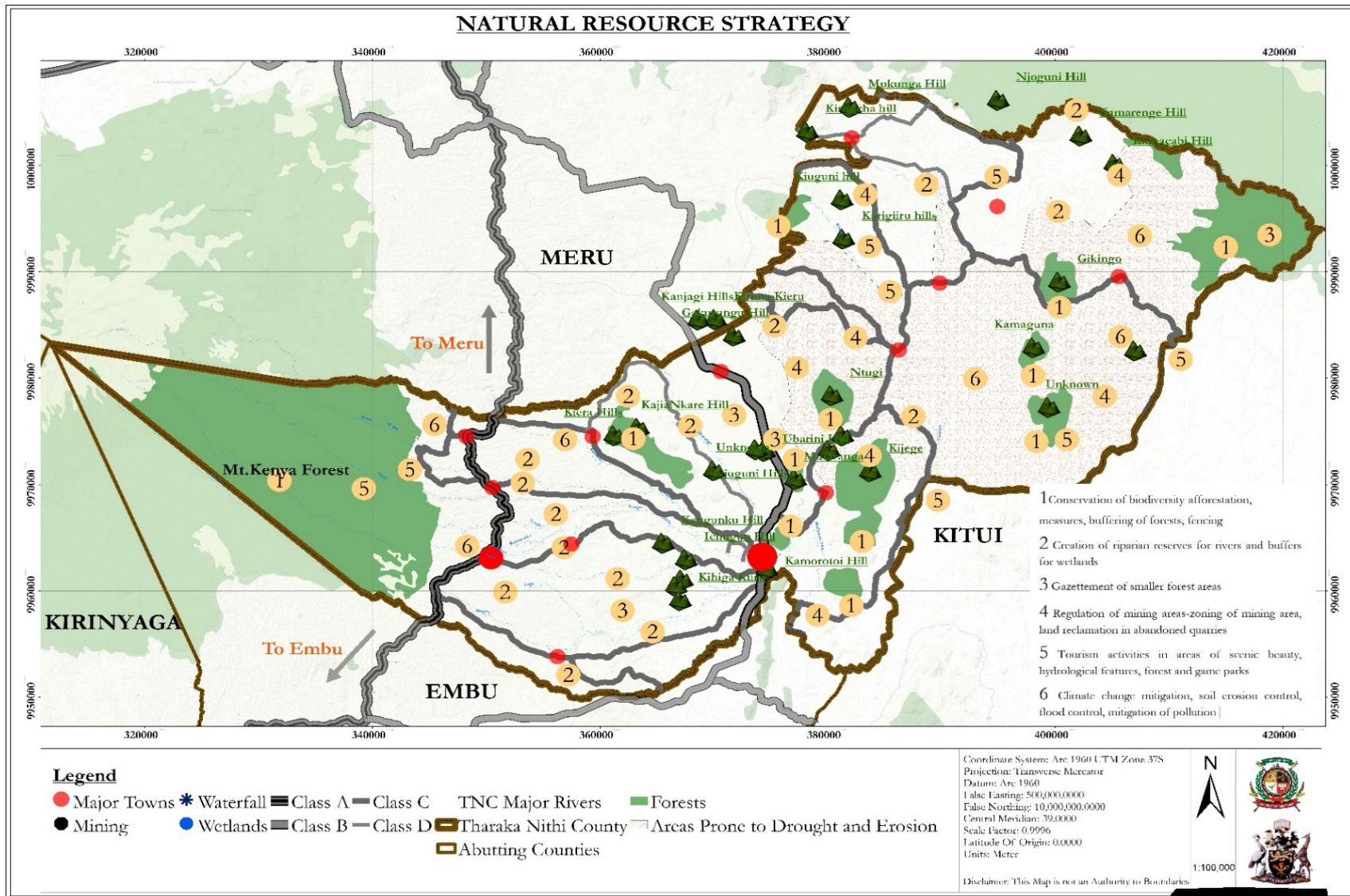
Development strategies provide a framework for achieving the County's vision by addressing existing challenges and maximizing opportunities for sustainable growth. They are aligned with international, national, regional, and local priorities and focus on agriculture, human settlements and urbanization, infrastructure and service delivery, natural resource management, economic development, land use management, and socio-cultural advancement. These sectoral strategies are supported by a governance framework that provides the institutional and policy environment for effective implementation. This chapter outlines the County's strategic priorities and the approaches for their implementation.

15.2 Natural Resources Development Strategy

Planning Issue	Location	Objective	Strategy
a. Poor solid waste disposal	All urban centres	To effectively manage solid waste in urban centres	-Formulate a solid waste management plan for all urban centres in the County -Ban plastic use in the County -Purchase land for waste recycling and reuse centres -Establish and facilitate Solid Waste Management Committees for each urban centre
b. Soil erosion in upper zones	Chuka, Muthambi, and Maara sub-counties	To control soil erosion in farmlands	Promote terracing of all slopping farmlands and enhance tree and shrub growing on terraces for soil erosion prevention
c. Encroachment on riverine reserves and pollution of river water	All permanent and seasonal rivers in the county	To restore river-rine vegetation on all permanent and seasonal rivers	- Sensitize communities on need for conservation of riverine reserves. - Mapping riverine reserves of major rivers for restoration and reduction of river pollution - Enforce the Survey Act, Water Act and Agricultural Act provisions on conservation of riverines reserves. - Facilitate planting of indigenous trees along the riverine reserves
d. Lack of legal protection leading to deforestation and encroachment into forest	Un-gazetted hills	To sustainably manage all the hills in the County	-Gazette all hills -Establish Participatory Community Forest Committees

Planning Issue	Location	Objective	Strategy
areas for farming activities, logging and poaching, especially on un-gazetted forested areas			to coordinate management of the hills -Promote hills as research and tourist sites
e. Natural disasters – droughts, forest fires, pests and diseases, human-wildlife conflicts, floods, landslides and mudslides – that lead to crop destruction, loss of livestock and human lives	Countywide	To effectively manage disasters in the County	-Map disaster-prone areas in each sub-county and formulate disaster management plans for each sub-county.
f. Climate change that has negatively affected agricultural production and thermal comfort	Countywide	To mitigate and or adapt to negative climate change effects	-Intensive afforestation and practice of smart agriculture
g. Unregulated quarrying and sand harvesting	Igamba Ng'ombe sub-county and along main rivers	To regulate quarrying and sand harvesting in the County	-Formulate and implement quarrying regulations Enforce the National Sand Harvesting Guidelines, 2007 Rehabilitation of disused/mature quarries
h. Untapped potential of mineral resources	Countywide	Map and initiate mining of available mineral resources	-Formulate and implement a Mining Plan

Map 15.1: Natural resource strategy



Source: TNCSP, 2024

15.3 Socio-Cultural Development Strategy

Planning Issue	Location	Objective	Strategy
Untapped social cultural potentials.	Ura Gate cultural /folk festivals Ndigia, Mugumo wa Nyenje at Kiamuiruki, Miriru Itano and Kirombero at Mitheru and Murigarigu wa Maka at Kiamuriuki	 To promote tourism activity to support talented youth To tap into the rich cultural diversity of the people To preserving shrines	To prepare a plan for the Ura gate encompassing the Makutano trading centre Provide trading spaces and facilities that support tourism Encourage private investors to develop a resort Encouraging progressive traditional ceremonies such as dances, songs and education at the Ura Gate Cultural Festival Gazzete the shrines
High poverty levels	Tharaka North and South	 To diverse income-generating opportunities for county residents To enhance social-economic activities	Provide support for the development of irrigation Expand the social infrastructure such as schools and health centres Training the youth and working class to equip them with modern skills aimed at improving their efficiency. Develop agro-based industries such as abattoirs and leather tanning
Incompatible cultural and religious practices FGM	Tharaka North and South Sub-counties	To eradicate harmful cultural practices such as FGM Enforce non-observance to unsuited religious practices such as Kabonokia	Use local communication channels to educate County residents on the negative impacts of FGM
Social vices, such as alcoholism, drug abuse and teenage pregnancies	Mwimbi and Muthambi Tharaka North	Promote artistic talents and sports among the youth To engage youth in alternative activities	Establishing community cultural centres Develop areas for sports such as social halls Develop areas as ICT hubs

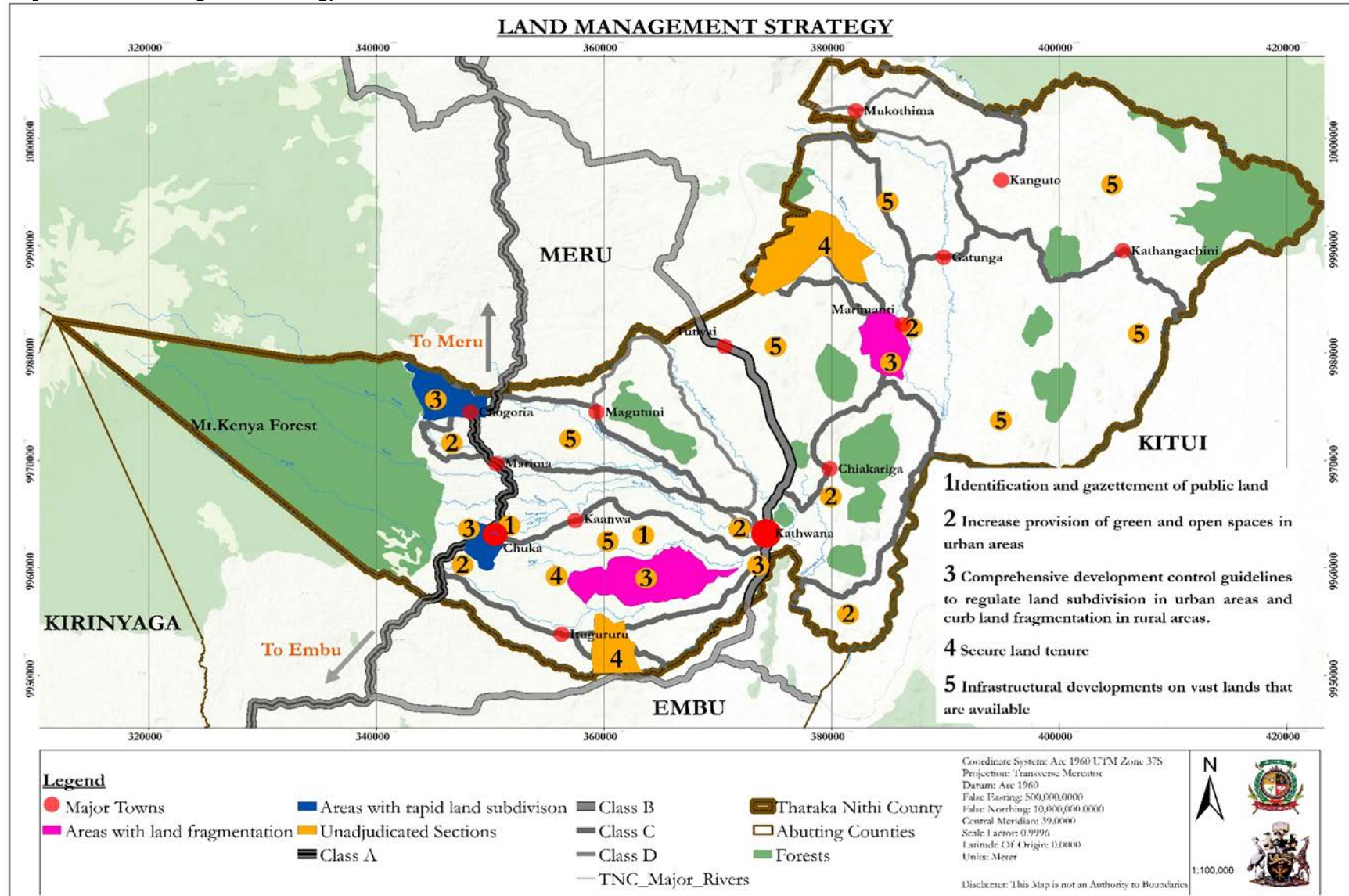
Planning Issue	Location	Objective	Strategy
		To establish income-generating areas for the youth	Create credit systems targeting the youth
Youth, women, and persons with disabilities (PWDs)	Countywide	Empowering women, youth, and persons living with disabilities	Mainstreaming women, youth and PWD Providing equipment and infrastructure that boosts PWDs such as providing wheelchairs and building ramps.

15.4 Land Use and Land Management Development Strategy

Planning Issue	Location	Objective	Strategy
Unadjudicated land	Tharaka North, Tharaka South, Kamwimbi, Igare, Karocho, Turima and other parts of the county.	To adjudicate and register all unadjudicated land	- Adjudication, registration and titling of all unadjudicated land in the county to enhance security of tenure, raise the value of land and attract investments. - Development of a valuation Roll to facilitate the collection of land revenue.
Adjudication Sections affected by boundary disputes between Meru and Tharaka Nithi Counties.	Turima Karocho Mukothima Makururuni Ntoroni Thiiti	To resolve county boundary disputes	Petition the National Assembly and the Senate as directed in Art. 188 on the resolution of any County boundary disputes.
Expensive, inefficient and non-inclusive land succession process.	Countywide	To develop an efficient and effective land succession system.	- Formulation of an efficient land succession system. - Sensitisation of the public on land issues, particularly succession matters to create the necessary awareness.
Use of manual land registers making land records susceptible to interference.	Countywide	To digitize all land records for better record management.	Digitization of all land records to enhance their integrity and management.
Little planning both in urban and rural areas.	Countywide	To plan all unplanned urban and rural areas	Increasing budgetary allocations for planning and hiring more technical personnel.
Conversion of agricultural land to other uses	Peri-urban areas	To minimize conversion of agricultural land to other uses.	Create zoning plan for land use management and enforce zoning regulations.

Planning Issue	Location	Objective	Strategy
Lack of public land for future use.	Countywide	To bank land for future public needs	Allocate land for public use during planning and adjudication.
Ungazetted public land (mainly the hills).	Un-gazetted hills Countywide (8 hills)	To gazette all ungazetted hills.	Identification, survey and titling of all public land.
Poor provision of green and open spaces in urban areas.	Urban areas such as Kathwana, Chuka, Chogoria and Marimanti (Refer to the annex on urban centres for other urban areas)	To increase the provision of green spaces	- Development of different typologies of green spaces: - Neighbourhood parks, parks, botanical gardens, tree-lined streets, tree-lined riparian reserves.
		To increase the provision of open spaces	Development of different typologies of open spaces: Playgrounds and sports fields, squares, plazas, and courtyards.
Poor land use and management	County wide	To plan all unplanned land. To develop a land use policy to guide use and management of land in the county.	- Preparation of development plans for all unplanned land. - Enforcement of development control guidelines. - Formulate and enforce a county land use policy. - Public sensitization on proper land use and management
Unregulated rural and urban land subdivision.	County wide apart from Kathwana that has existing guidelines.	To prepare development control guidelines	- Establishment of minimum land holding sizes for the various agricultural land zones. - Establishment of density guidelines, Plot ratio, ground coverage, and plot coverage guidelines for urban land use. - Strict enforcement of planning and development standards.
Land degradation.	Bare steep areas (over 35%), disused quarries in Igamba-Ng'ombe.	To conserve steep areas and rehabilitate disused quarries.	Introduce agroforestry in bare steep areas, decommissioning and rehabilitation of disused quarries.
Vast unexploited lands	Gatunga ward Chiakariga ward Marimanti ward Igambang'ombe ward Mariani ward, Kathangacini.	To develop infrastructural services to open up unutilized areas.	- Upgrading existing and developing new physical infrastructure: transport infrastructure, utility services to open the areas and attract settlement and investment. - Developing irrigation infrastructure for irrigated agriculture. - Developing social infrastructure such as schools, health facilities, administrative facilities, sports and recreation facilities.

Map 15.2: Land Management Strategy

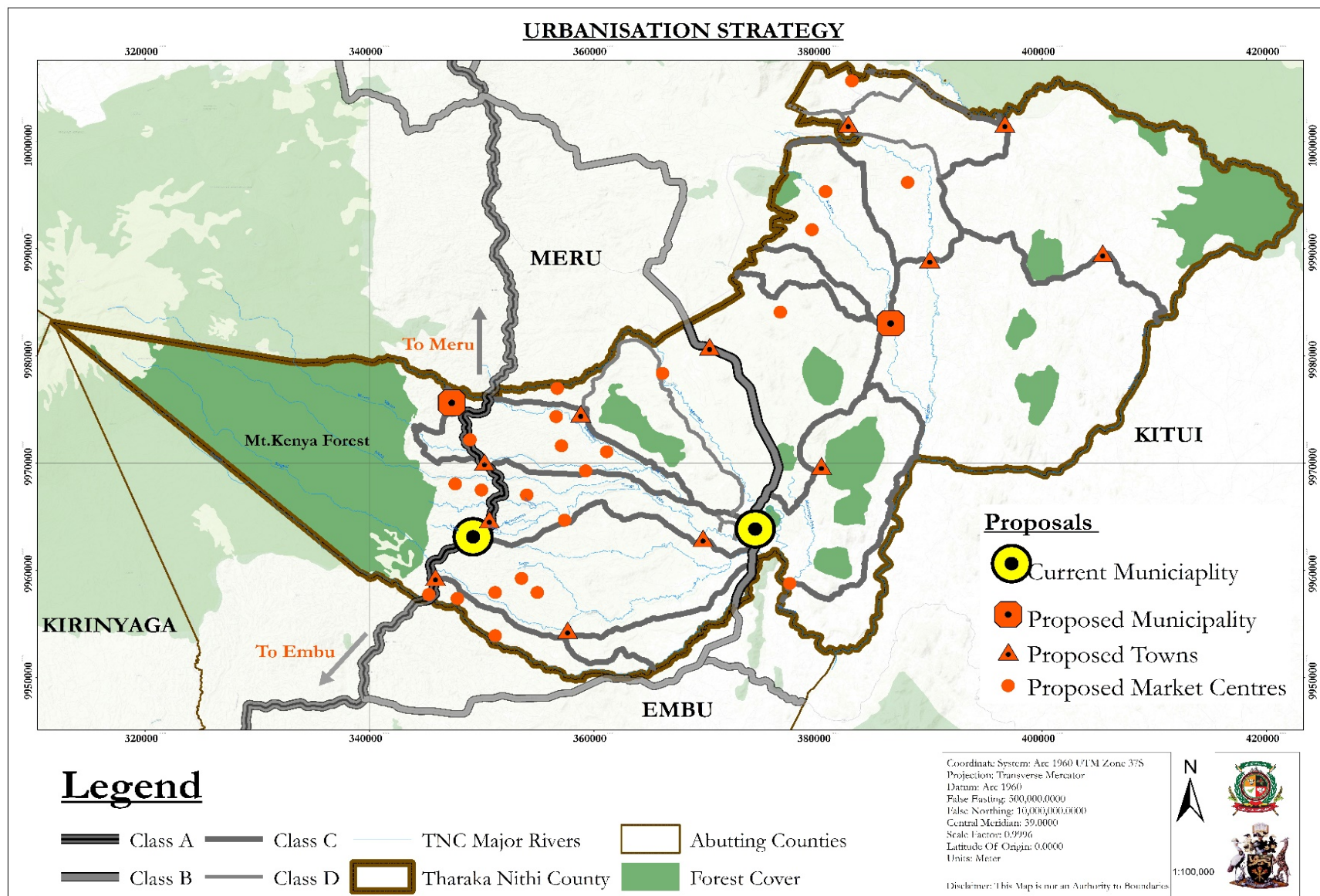


Source: TNCSP, 2024

15.5 Human Settlement and Urbanization Development Strategy

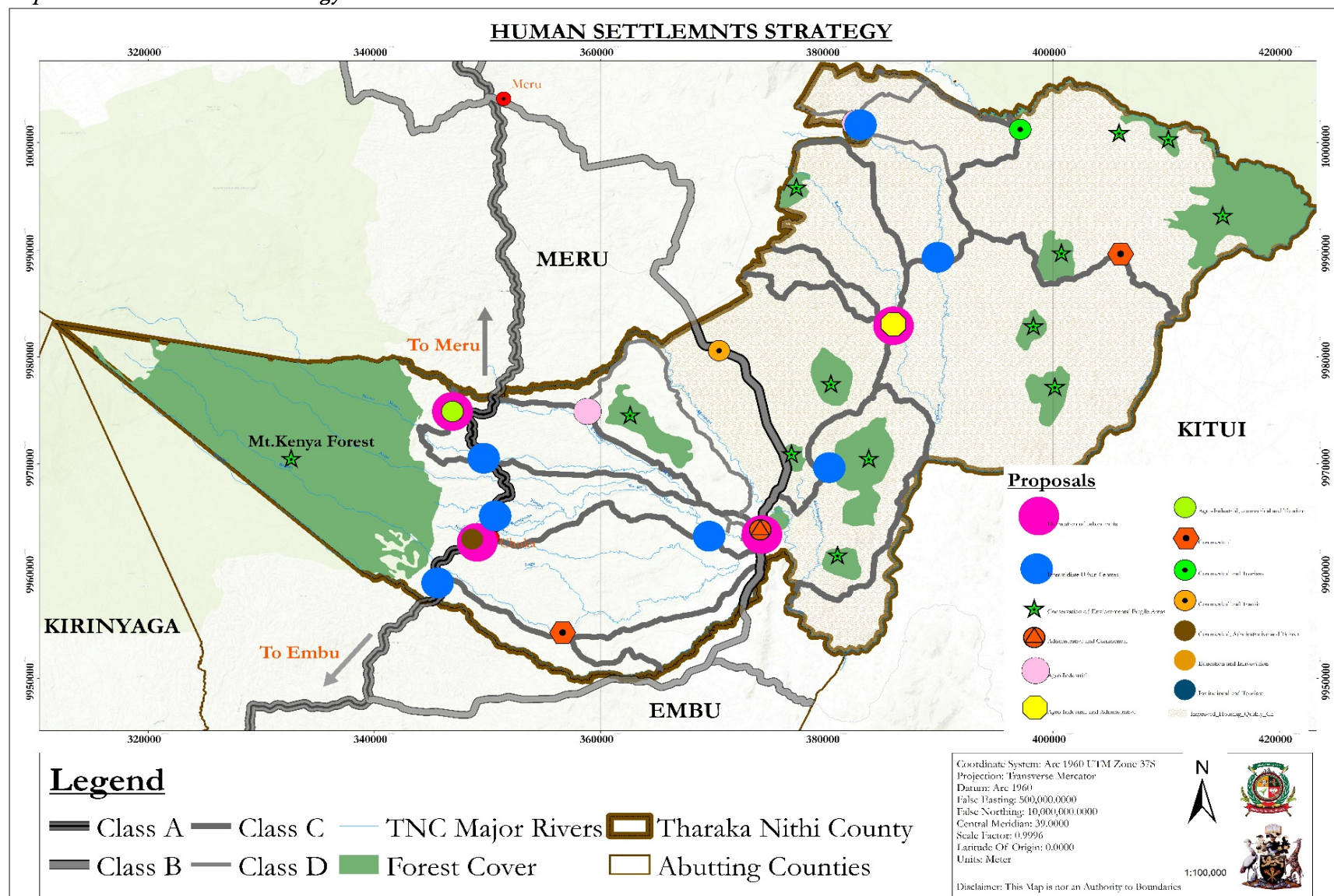
Planning issues	Location	Objective	Strategy – Action
Encroachment of human settlements into environmentally fragile areas	Riparian reserves and hills across the county.	To conserve all environmentally fragile areas.	- Enforce laws and regulations for promoting environmental protection. - Gazette all ungazetted hills (8) for conservation. - Community sensitization on the ways and importance of environmental conservation.
Urban sprawl and ribbon (linear) development	Urban Centres and Market Centres.	To plan all market and town centres.	- Demarcation of boundaries of all urban and market centres and contain their development within the boundaries by establishing urban service boundary (USB) and achieve compact centres. - Proactive planning and densification of development to contain urban sprawl. - Enforcement of existing development plans and development control guidelines. - Preparation of development plans for all market and urban centres. - Building capacity within the county government for development control.
Concentration of development in few high priority areas leading to unbalanced growth of centres.	Countywide	To revitalize economies of potential growth centres	- Stimulating growth of secondary towns and promoting a hierarchical urban pattern - Planning the markets and towns and provide them with adequate infrastructure, social services, affordable houses, employment and economic opportunities. - Develop urban-rural linkages.
High population that is not proportionate with infrastructure and service provision.	Urban areas	To provide requisite services and infrastructure.	Assessment, planning & installation of adequate infrastructure and social amenities.
Unsustainable human settlement patterns that undermine provision of services.	County wide	To reorganize the settlement into more sustainable patterns.	Sensitization of the people on proposal to reorganize settlement patterns into cluster (for areas to be irrigated) and linear (some of the sparsely settled areas) patterns to ease provision of essential services.
Poor quality of housing in rural areas.	County wide	To improve quality of rural housing	- Promote the use of locally available housing materials such as bricks. - Support development of rural housing schemes

Map 15.3: Urbanization Strategy



Source: TNCSP, 2024

Map 15.4: Human Settlements Strategy



Source: TNCSP, 2024

15.6 Economic Development Strategy

The main challenge of the economic sector in the county is the underutilization of available economic potential across the primary sector (agriculture, forestry, mining and quarrying), secondary sector (manufacturing and processing, construction industry), commerce and ICT, and revenue mobilization across the whole county. Weaknesses occur in a variety of nodes along the value chain, giving a comprehensive view of what needs to be done to raise income levels from approximately Kshs. 9000 to around 45,000 per person per month.

Economic policy goal: Optimization of all economic sub sector potentials spread out in the three altitude areas of the county (upper, middle, and lower).

Table 15.1: Economic Development Strategy

Issues in the sub sector	Location	Objective	Strategy	Actors
Sub Sector: Functional External Trade				
Dependence on external supplies in relation to inflows and outflow out of the county.	All the urban centres in the county and commercial farming	To alleviate dependence on external supplies (neighbor, economic block, Kenya, and beyond) by identifying what can be locally produced To encourage local innovations that drive industrialization within the county (TEVET-linkages to local untapped potential)	Develop both local agro industry capacity and off farm industrial opportunities in electronics, farm implements, organic fertilizer,	County Finance and Economic Planning, Private Sector Actors, National Treasury,
Accessibility challenges (internal and external) in 60 percent of the county and low service levels in urban and market centres to attract investments. Delinked from main two transport corridors	Urban centres in parts of the middle and lower altitude zones off the bitumen roads	To improve accessibility and connectivity in the lower altitude zones both internally and to external	Connect all the urban and market centres in the county by improving the roads in the lower altitude and middle altitude	County Engineer Department, KeRA, KURA, KENHA, and Local Communities
Sub Sector: Industrialization				
Issues in the sub sector	Location	Objective	Strategy	Actors
Underutilized industrial potential both in natural resource based and off farm industrial activities (Mining, Tea, Coffee, Milk, livestock and grain related)	Upper altitude zone Middle altitude zone	To utilize all the production potential of the county in all altitude areas for enough food and raw materials for industrialization (crop and livestock)	Preparation of a county industrialization mechanism focusing both inward and outward to enable increased wealth creation, employment and incomes	Farmers, Cooperative Societies, Ministry of Industrialization, County Government, Kenya Association of Manufactures, Kenya Private

Issues in the sub sector	Location	Objective	Strategy	Actors
Inadequate utilization of its value addition potential in all the three altitude regions of the county. Unfavorable production cost structure in the country is working against attracting local, national and international investments (Cost of electricity, interest rates, petroleum prices, taxation, transport costs) Inadequate and unequally distributed stock of capital in the county.	Lower altitude zone	To strengthen the implemented value chain crop and dairy areas and complete the chain for manufacturing and processing To optimize economic potential of the county in minerals, forestry products, crop, and livestock via a value chain in all the altitude areas (where not implemented) To diversify industrial opportunities by focusing on wood, metal, motor vehicle, electronics, biogas cookers, away from agro-based To create an enabling environment for the county economy to flourish To strengthen the collaboration between county and national government on certain key economic variables like taxation, fuel pricing, electricity prices, and interest rates, national projects in counties	Establish linkages across all nodes of the value chain and spatial planning to support industrialization locally (all crop, livestock) and off farm National government and county government to put in place an appropriate incentive system for investments through frequent policy dialogue Establish a mechanism of utilizing all the waste on a chain process in a circular economy manner from all the urban centres via value addition (spatial planning)	Sector Alliance, Central Bank, National Treasury, Economic Planning and National Development
Sub Sector: Commerce & Trade				
Issues in the sub sector	Location	Objective	Strategy	

Issues in the sub sector	Location	Objective	Strategy	Actors
Inadequate classification and planning of the centres displaying small irregular plot shapes unsuitable for high value commercial development	Upper zone	To classify all the urban centres in the Counties to inventory of service levels To prepare local area plans for all the centres including expected areas of expansion	Improved physical and social economic environment of doing business in the county Establish an enabling framework of inter trade mechanisms to boost trade among counties	Local Business Groups, County Government, National Government, Roads Agencies (KURA, KeRA, KENHA, and County), Cooperatives, Financial institutions.
High dependence of the commercial sector internally on imported supplies	Middle zone	To link all the urban centres, and markets with motorable roads (drainage, non-motorized transport, telecommunication) for easy access connected to major roads within the county	Establish tripartite linkage among agriculture, industry and commerce and trade so as to reduce external dependence on imported supplies	
High cost of doing business in the country-multiple taxation, transport costs and cost of electricity, interest rates,	Lower zone	To survey all the planned urban and market centres, issue titles	Improve framework of appropriate environment for commerce and trade activities through negotiations by county and national governments Establishment of ICT innovation centres to encourage use of skills from the youth	
Inadequate comprehensive data on formal and informal economic activities in the urban centres of the county (employment)		To provide the required networked infrastructure services to all the centres in the county especially the lower altitude zones		
		To provide solar lighting to all the urban and market centres in the county		
		To encourage inter regional trade among the counties in the central region economic block		
Sub Sector: Tourism				
Issues in the sub sector	Location	Objective	Strategy	Actors

Issues in the sub sector	Location	Objective	Strategy	Actors
Unutilized tourism sector of available tourism assets in the county Undeveloped local tourism circuit and connection to the wider circuit of aberdare and Mount Kenya Untapped traditional knowledge and associated assets No proper mechanisms of counties can benefit from tourism as well as the local people	Tourism location areas (Hills, Ura Gate, Rivers, and valleys, Mount Kenya, heritage sites, and material and non-material culture of the people	To develop all the tourism assets of the county, the circuit, and link to the external circuit To invest in tapping traditional knowledge and assets for various purposes including treatment To closely work with national government and establish mechanisms of sharing and community involvement	Identify and secure all tourism asset areas linking all of them and connected to the external circuit Establish a tourism package of the county and appropriate branding of the tourism facilities of the county Empower local communities to protect and benefit from the tourism assets found in the county	Count Government, Tourism Board, Local Communities.
Sub Sector: Revenue Generation				
Issues in the sub sector	Location	Objective	Strategy	Actors
• Fluctuating own source revenue collection and equitable transfers • High fiscal dependency on transfers indicating imbalance between the responsibilities and financial capacity • Un tapped revenue sources • Inadequate participatory budgeting and implementation	Urban Centres and markets of the County	To enhance own local revenue collection To carry out a comprehensive economic survey of the entire county as a basis for revenue improvement To mainstream participatory budgeting and implementation in all projects in the county (ward, sub county)	Revenue enhances man plan to optimize on own source revenue Integrated economic situational analysis and County Land Information System to support a variety of functions beyond revenue collection Explore through intergovernmental relations technical committee on the revenue sharing areas between national and county government Establish a framework of participatory budgeting and implementation of	County Government, Revenue Allocation Commission, KRA, Auditor General, National Treasury

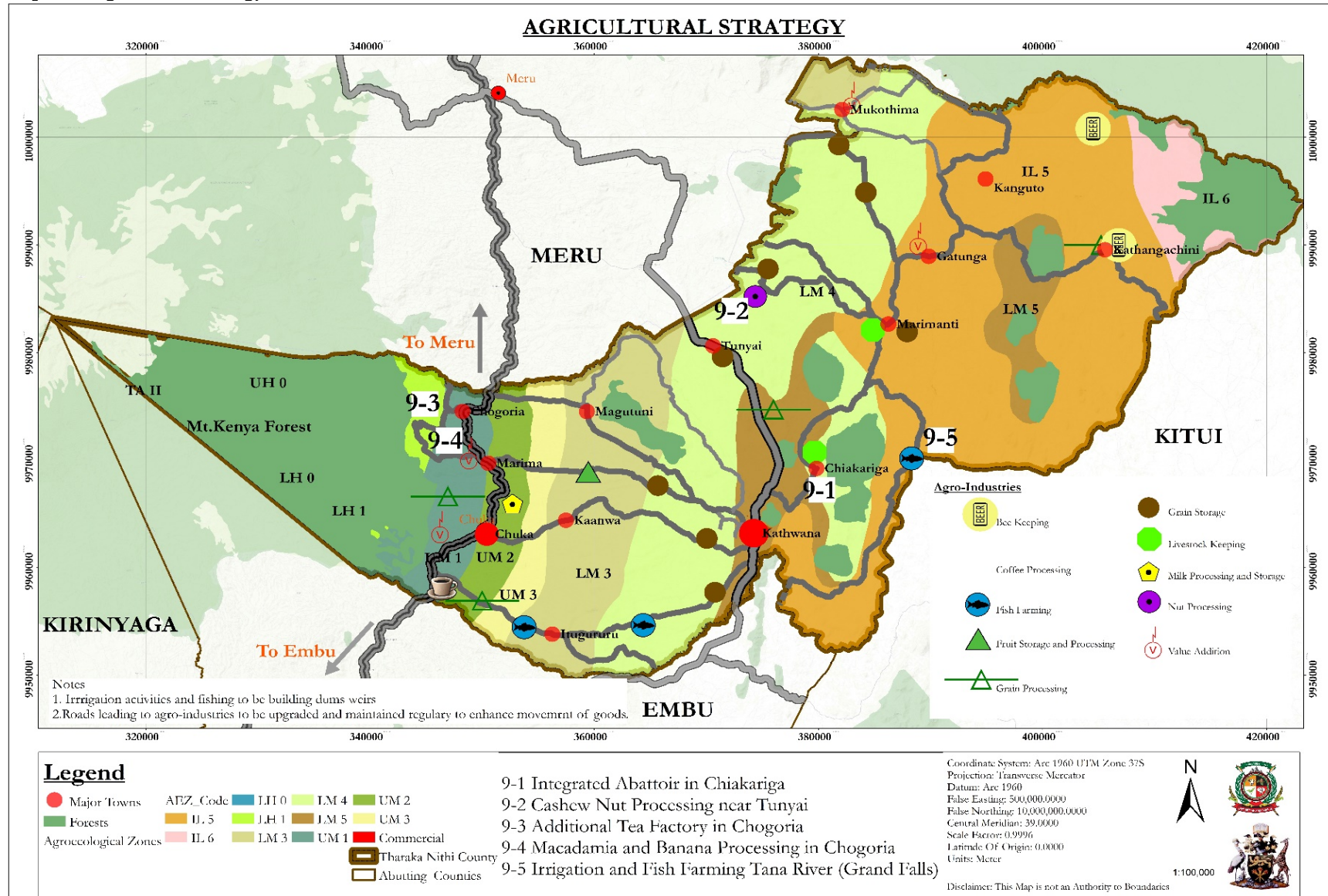
Issues in the sub sector	Location	Objective	Strategy	Actors
			county development projects for improved accountability and efficiency in the use of development expenditure	

15.7 Agricultural Development Strategy

No.	Planning issues	Location	Objective	Strategy - Action Plan
1.	Low agricultural production due to small land sizes and low farm productivity	Countywide	• Attain viable land sizes for optimal crop, livestock and forest production and productivity.	• Formulate minimum land sizes per crop/livestock and forest enterprise. • Intensify agricultural production to increase productivity • Registration of more farmers for increased production
2.	Limited access to inputs, credit and marketing services of farm produce	Countywide	• To ensure accessible and affordable farm inputs, credit and marketing services for farmers.	• Create/Strengthen Farmer Cooperative Societies to provide credit, farm inputs, and facilitate production, processing and marketing of farm produce.
3.	Poor livestock husbandry hence productivity	Countywide	• Attain Optimal Livestock Productivity	• Acquire high producing livestock breeds. • Enhance extension services to livestock farmers. • Improve fodder production • Enhance disease control and AI services.
4	Limited value addition on all farm produce.	Countywide	• Add value on all farm produce	• Construction of agro processing industries for all farm produce.
5	Few crop, livestock, forest and veterinary extension officers to support farm production	Countywide	• Build capacity of farmers to produce optimally	• Hire crops, livestock, forest and veterinary officers through farmer cooperatives to provide sufficient technical support to farmers. • Introduce a farmer certification programme to professionalize farming.

				• Introduce Ward Level Demonstration farms for continuous farmer Training.
6	Poor post-harvest handling of farm produce	Countywide	• Ensure adequate agricultural produce storage facilities	• Set up Grains Drying, Preservation, Storage, Packaging and Distribution Centres (GDSDC) at Strategic sites.
7	Unreliable and erratic rainfall for crop, livestock and forest production.	Tharaka North and Tharaka South	• Increase land productivity hence incomes through irrigation.	• Develop water supply and its related infrastructure to support irrigation • Promote rain water harvesting in individual homes and institutions.
8	Poor condition of roads hindering efficient transportation of farm produce.	Maara and Chuka Sub-Counties	• Efficient Transportation of farm produce	• Upgrade roads used for transporting farm produce.

Map 15.5: Agriculture strategy



Source: TNCSP, 2024

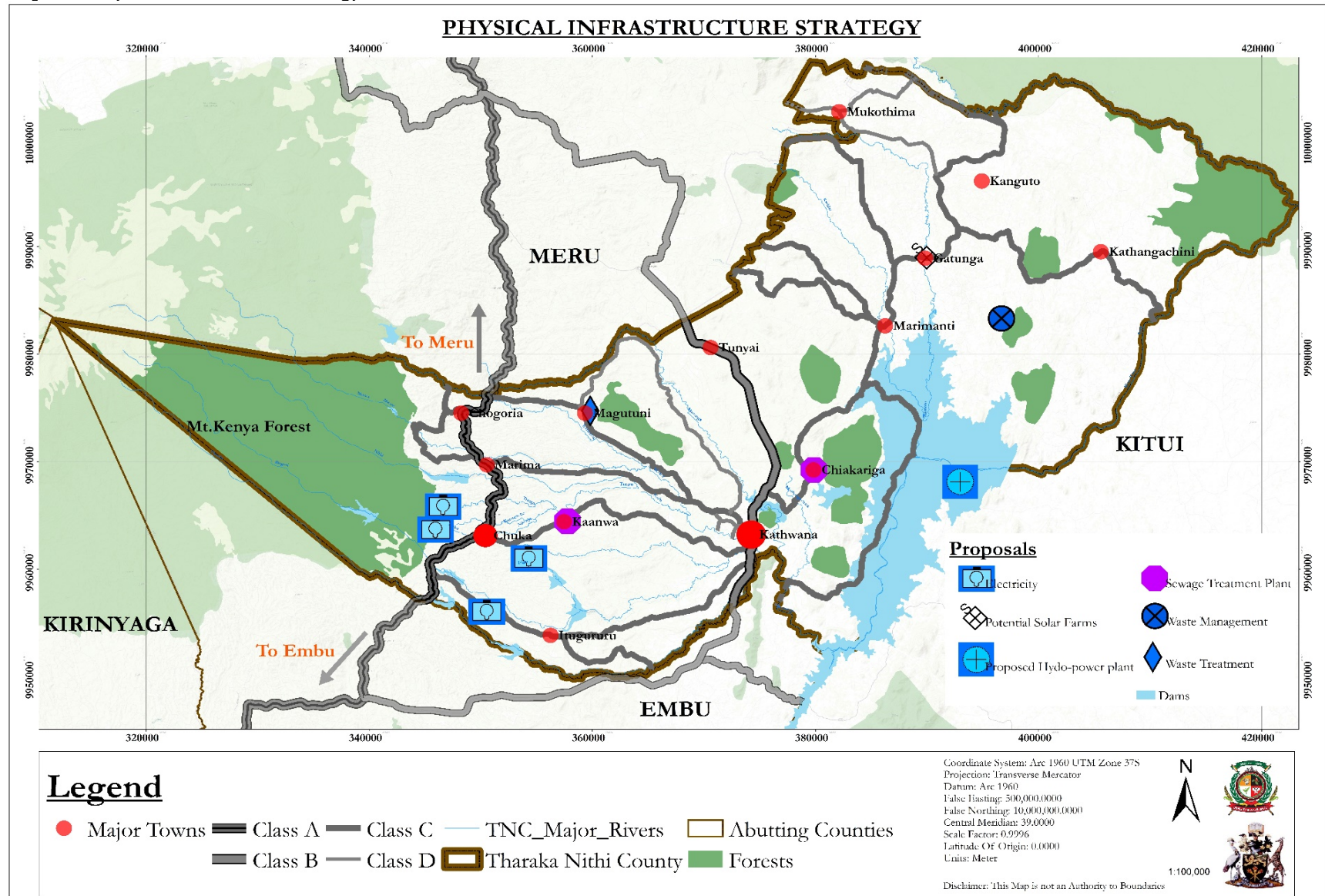
15.8 Infrastructure and Service Development Strategy

1. Physical infrastructure

Planning Issue	Location	Objective	Strategy
Inadequate portable water	Tharaka North and South Igamba Ngombe	To expand the water supply network	- Establishment of dams on Rivers Thuci, Nithi, Ruguti (Itugururu), Naka and Maara - Construction of the Grand Falls dam on the Tana River - Construction of a dam on the Mutonga, Tana River confluence - Construction of sand dams and weirs on seasonal rivers
	Urban centres	To ensure coverage of piped water supply	Expansion of coverage of existing water lines Establishing new water lines within unserved settlements
Waste management and sanitation	Major towns and trading centres	To promote a sustainable solid waste management system	Enhance solid waste collection and disposal Establish solid waste collection sites/bins Establish a landfill
	Markets Kaanwa and Chiakariga	Ensure proper waste disposal at markets, towns and transport terminal facilities Establish a sewage treatment plant	- Provide waste receptacles in markets, towns and transport terminal facilities to be managed by the County Government - Set up a sewage treatment plant at Kaanwa and Chiakariga
Poor stormwater drainage	Countywide	To enhance surface water drainage Establish a comprehensive stormwater drainage	- Ensure that all roads - have stormwater drains - Establish a stormwater reticulation master plan for the County
Energy	Countywide	To ensure electricity supply throughout the County To prioritize electricity connectivity in urban centres	- Establish electricity connections in Magenka, Makavani, Kathika, Nthambo, Nthima, Mutaaruni, Gatituni. - Establish an electricity reticulation masterplan for the County - Expand the support from the Last Mile program

	Grand Falls (River Tana)	To tap into the hydropower potential of the County Establish a hydropower plant to serve the County	Establish a hydropower plant on Grand Falls
	Tharaka South and North	To tap into solar power potential in the County	Establish a solar power plant in Tharaka South as it has the highest nominal solar radiation
Telecommunication	Tharaka South Mountain region	To ensure the County has adequate telecommunication and internet coverage Establish telecommunication masts in underserved areas	Establish telecommunication masts to boost network in underserved areas, especially in Tharaka South

Map 15.6: Physical infrastructure strategy



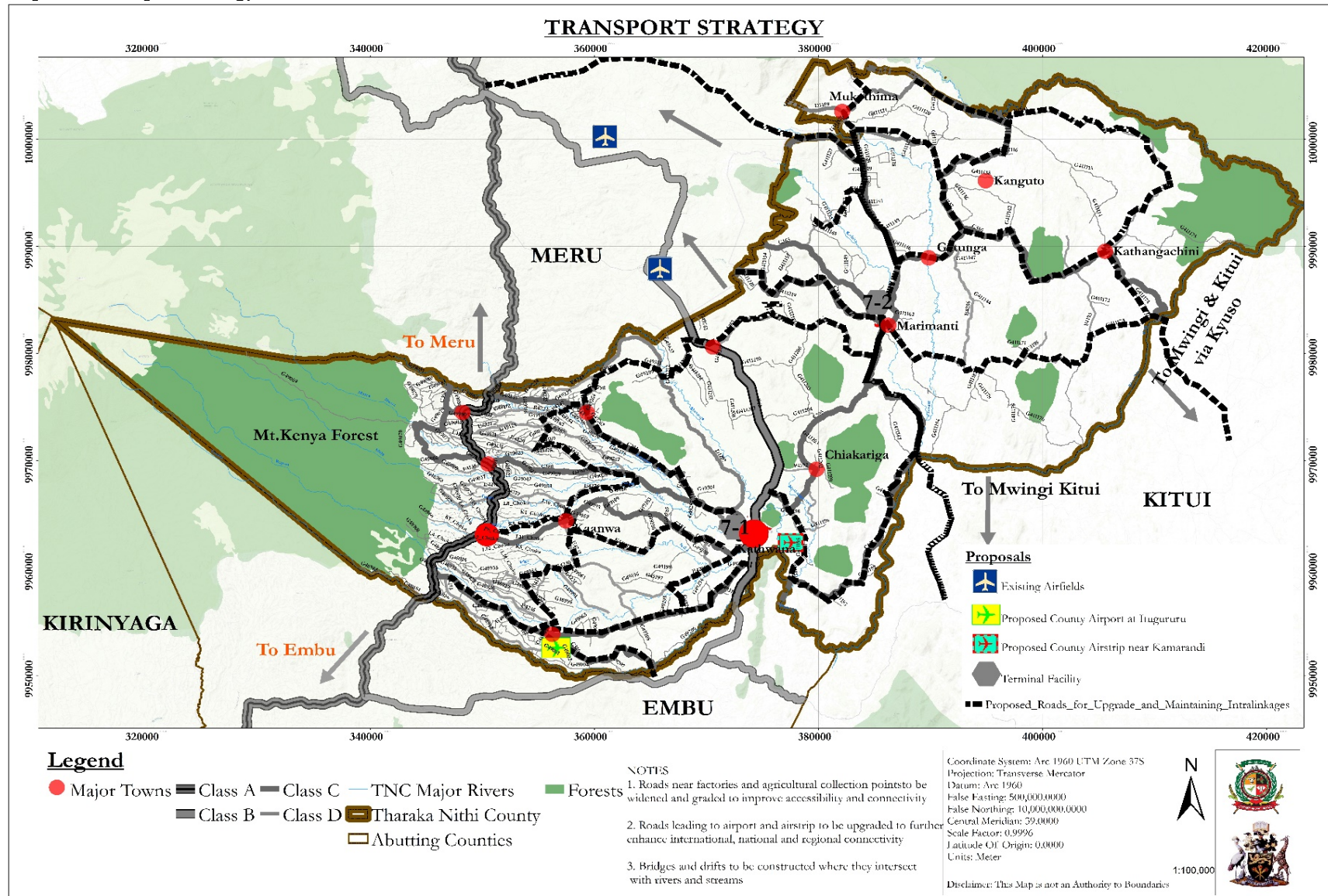
Source: TNCSP, 2024

2. Transport Development Strategy

Planning issues	Location	Strategy/Objective	Action Plan
Poor inter-county connectivity	Countywide	Enhance inter-county connectivity for economic development	- Establish an integrated plan for the road and proposed rails, airports/airstrips and road improvements. - Establish joint projects with neighbouring Counties such as Kitui, Meru, and Embu and to the LAPSET corridor.
Roads are not all-weather, and impassable during the rainy seasons, reducing accessibility and circulation	Countywide, especially Tharaka North and South	- Road transport promotion for inter-and-inter-county linkages - Promote accessibility and mobility across all seasons	- Opening of feeder roads. - Routine maintenance of feeder roads, especially to agriculture collection points for milk, coffee and tea. - Completion of upgrading of Chuka-Kathwana road (C384) - Upgrade to bitumen Kibugua-Itugururu (C381) - Upgrade to bitumen Keria-Magutuni-Kathwana (C383) - Completion of Chiakariga-Marimanti-Gatunga (C385 & C363). - Upgrade to bitumen Micheene-Ruiri-Kianjai-Mikinduri-Katithine-Usueni-Tseikuru (C353) - Upgrade to Bitumen Mitunguu-Marimanti-Ciambyu (C359) - Upgrade to bitumen Kamarandi-Mwerera (C382) - Upgrade to bitumen Magutuni-Kaanwa - Upgrade to bitumen Kaanwa-Weru (E760) - Upgrade to bitumen Weru-Itugururu (E754) - Upgrade to bitumen Itugururu-Ishara Road (E752) for inter-county connectivity - Upgrade to all-weather Makuti-Mwingi road (E788) for inter-county connectivity - Upgrade to all weather- Mwingi-Usueni (E800) for inter-county connectivity - Upgrade to bitumen Meru-Turima Tweru (R8) for inter-county connectivity
Traffic congestion in urban areas	Chuka Chogoria	To ensure traffic control to ease the	Incorporate traffic lights on Class A and B roads

Planning issues	Location	Strategy/Objective	Action Plan
		flow of vehicles	• Integrate signage into road design for efficient circulation and safety • Discourage on-street parking
Lack stormwater drains	Countywide	To provide proper stormwater drainage for road longevity.	• Integrate stormwater drainage masterplans into transportation masterplans • Building of culverts to improve drainage at junctions and access roads
Inadequate safe crossings along rivers and streams	Major rivers, especially Tana, Nithi,	• To ensure safe crossing improvement along trail networks and on rivers. • To enhance connectivity for inter and intra-county linkages.	• Bridge and drift construction countywide across rivers and streams. • Establishment of more bridge crossings along River Tana. • Establishment of the road network to and from the bridge crossings. • Review and build bridges along major and seasonal river crossings on primary roads.
• Limited public transport facilities • Poor road conditions	Chuka, Chogoria, Kathwana and Marimanti Tharaka North and South	• To develop an integrated public transport system • To promote public transport safety	• Upgrading public transport facilities- bus parks, bus stops, boda boda stands, taxi ranks and waiting bays for passengers • Promotion and enforcement of road safety measures. • Promotion of accessible public transport in the dispersed areas.
• Inadequate NMT facilities and financing • High accident cases of pedestrians and <i>boda bodas</i>	Countywide	• To promote NMT safety • To enhance equitable access to transport • To ensure the inclusion of PWDs in the NMT provision	• Development of pedestrian and cycling master plans especially for major towns and centres; Chuka and Chogoria. • Provision for NMT facilities i.e. sidewalks, walkways and cycling paths in major towns; Kathwana, Marimanti, Chiakariga, Gatunga, Gaciongo,
• Under-utilization of air transport	Countywide	To promote air transport promotion for inter and intra-county linkages.	• Expand and improve the airport at Itugururu and the airstrip near Kamarandi. • Improve access roads to airports and airstrips for enhanced accessibility.
• Lack of rail transport	Countywide	To promote rail transport promotion for inter and intra-county linkages.	• Establishment of a connection line through the county with the LAPSSET corridor. • Establishment of rail goods and passenger termini.

Map 15.7: Transport Strategy



Source: TNCSP, 2024

3. Social infrastructure

Issue	Location	Objective	Strategy
Provision of quality health care	Countywide Tharaka Nithi and South	To ensure hospitals have adequate staff, facilities, and medical equipment. To increase the number of facilities	- Equip the health facilities according to classification - Provide health facilities in Gatituni and Kamutiri - Provide maternity facilities in Kamacabi, Mukuuni, and Gatunga - Provide mortuary services at Gatunga hospital
Provision of quality education	County wide	To provide quality and competitive education services through-out the County Ensure school buildings are in good operable condition and that the schools are adequately staffed and equipped.	Improve the condition of schools including: Umoja Junior – Gatunga Ntongoro Pri – Gatunga Kaiga Ka Mbiti Pri – Gatunga Kabururu Pri – Igambang’ombe Nkobore Pri - Mariani Makomango Pri – Marimanti Kiuguni Pri – Marimanti Gakuyu Pri – Marimanti
Safety and Security facilities	Tharaka South Sub County	To ensure the County has adequate safety and security facilities Provide safety and security facilities such as fire-fighting facilities and police stations especially in underserved areas.	Establish a police station at Kathangacini and a police post in Usueni. Establish fire stations in all primary urban centres. Provide fire engines in the secondary centres
Libraries and social halls	Each sub county headquarters	To provide social infrastructure at sub county level Ensure each sub county is equipped with a library and a social hall.	Establish a library at each sub county headquarters Establish social halls at each sub county headquarters

Map 15.8: Social infrastructure strategy



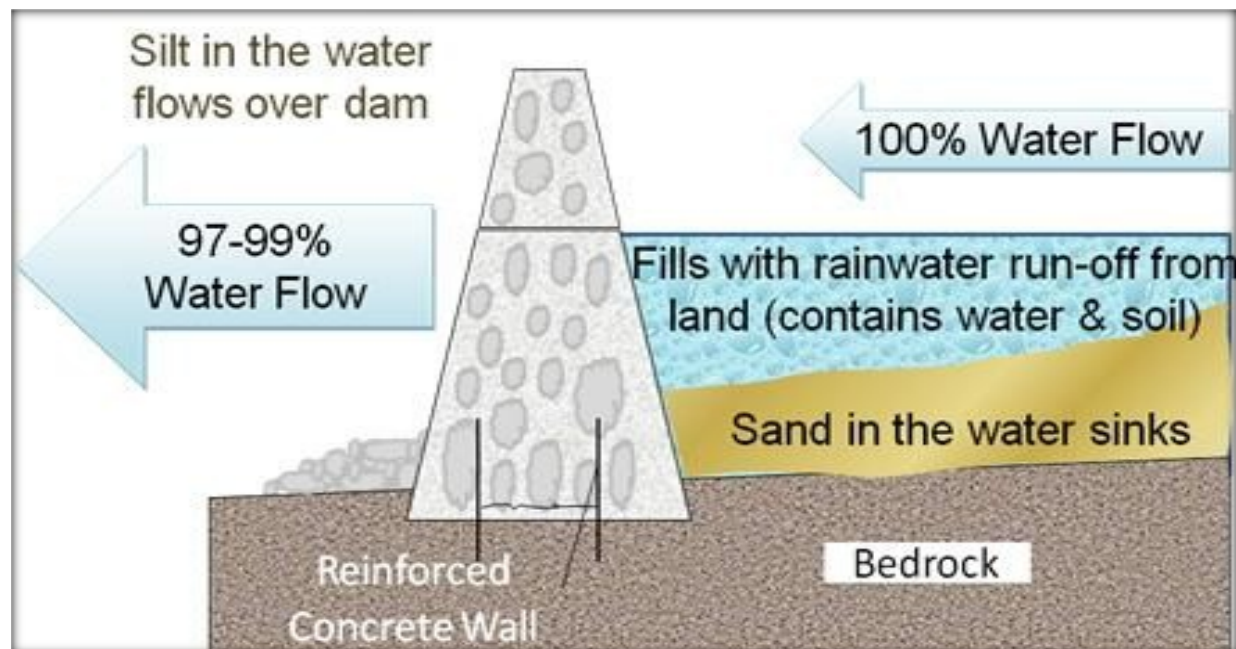
Source: TNCSP, 2024

15.9 Water Harvesting and Storage Strategy

Community-Based Development of Subsurface Dams/Sand Dams

A sand dam is a reinforced concrete wall (or a similarly robust and impermeable [weir](#)) built 1–5 meters high across a seasonal sand river. When it rains, the dam traps sand-laden water behind it – the sand in the water sinks to the bottom, while the silt remains suspended. The functioning of a sand dam is based on sedimentation of coarse sand upstream of the structure, by which the natural storage capacity of the riverbed aquifer is enlarged. The aquifer fills with water during the wet season, resulting from surface runoff and groundwater recharge within the catchment. When the riverbed aquifer is full, usually within one or two large rainfall events, the river starts to flow as it does in the absence of the dam. However, the groundwater flow through the riverbed is now obstructed by the sand storage dam, creating additional groundwater storage for the community.

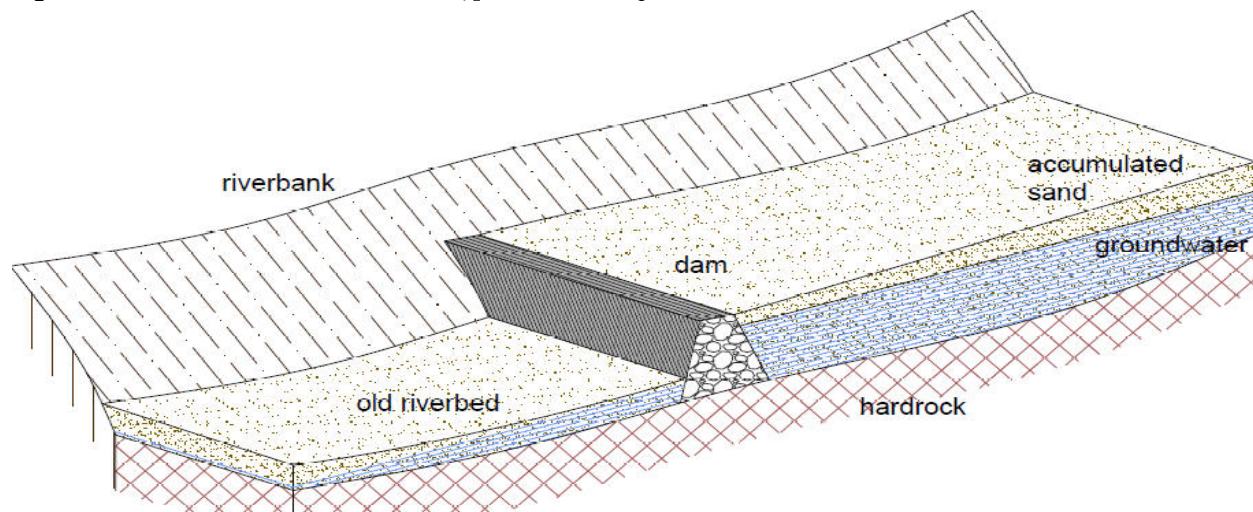
Figure 15.1: Layout of Subsurface Dams/Sand Dams



Source: (Borst & de Haas, 2006)

The volume of water available for abstraction is considerably larger than just the volume present in the riverbed sands. This is because a large quantity of water is also stored in the riverbanks, recharging the sand dam reservoir during the dry season. Sand dams effectively increase the volume of groundwater available for abstraction and prolong the period during which groundwater is available.

Figure 15.2: Schematic Cross Section of a Typical Sand Storage Dam



Source:(Borst & de Haas, 2006)

Research on Kenyan dams shows that only 1 to 3% of rainwater is retained behind any individual dam; the remainder continues its natural flow towards the ocean. Eventually, the dams fill with sand - sometimes after only one rainfall or over 1 – 3 seasons. 25 to 40% of the sand's volume is water. A mature sand dam can store millions of liters of water – refilling after each rainfall, providing a year-round supply of clean water to over 1,000 people.

During the dry season, water levels will drop due to abstraction of water, minor evaporation and possibly by leakage through the dam or vertical leakage into the bedrock. Meanwhile, subsurface flow (base flow) from the riverbanks towards the riverbed and through the riverbed itself will slowly and partly refill the riverbed aquifer. Because of its larger storage capacity and slower depletion, the river provides water throughout the dry season (when built under appropriate conditions), whereas otherwise the riverbed would have dried up long before the new rain begin.

Plate 15.1: Typical Sand Storage Dam During The Dry Season (



Types of sand dams

Sand storage dams can be classified according to their construction material

1. Stone-masonry dam:

A dam built of concrete blocks or stones. This type of dam can be easily constructed by local artisan. A stone-masonry dam is also durable and suitable for any dam height. The dam is cheap when construction materials are available within the dam area.

Plate 15.2: Stone-masonry dam:



2. Reinforced concrete dam:

A dam consisting of a thin wall made of reinforced concrete. It is a durable, relatively expensive structure suitable for any dam height.

3. Earth dam:

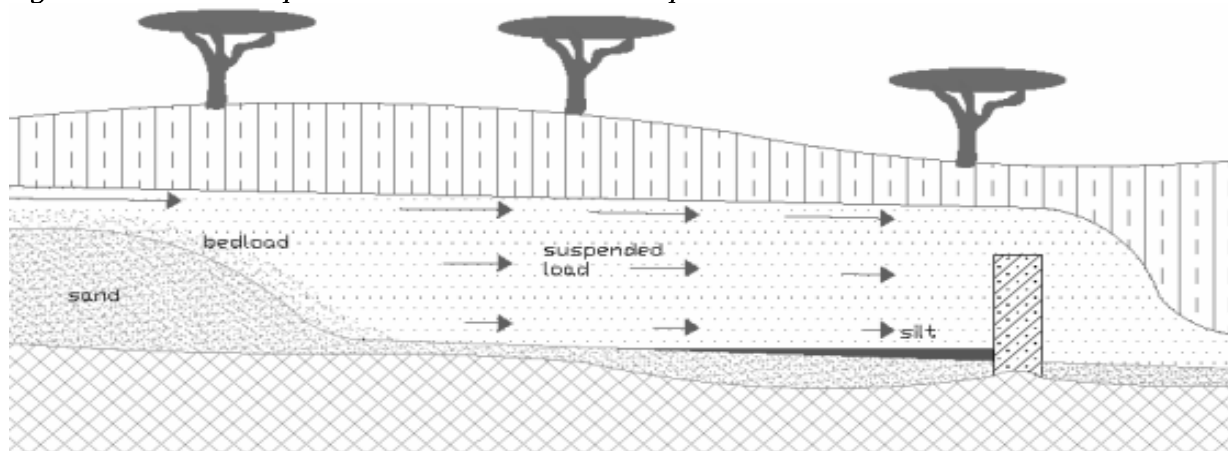
A dam consisting of impermeable soil material (mostly clay or clayey soils, or black soils). This type of dam is relatively expensive to construct and requires specialized skills for its design and construction. An earth dam can easily be damaged and even destroyed by underground flow. Earth dams are unpopular and seldom used (only for minor works).

Hydrological principles of a sand dam

Sedimentation upstream of the sand storage dam occurs during heavy rainfall events, when river discharge is high and transports large quantities of sediment. The grain size of the transported sediments is dependent on river flow velocity and the material comprising the riverbanks. Since most of the land is bare at the start of the rainy season, the soil is poorly protected against erosion, resulting in high loads of silt and sand in the water. The sand dam will reduce the river's flow velocity at some distance upstream of the structure. This drop in flow velocity results in sedimentation. The materials found in the riverbed prior to construction are a good indication of the type of sediment the sand dam will collect.

These sediments form a ridge comparable to the formation of a delta. Upstream of the 'delta', flow velocity is higher and coarse sediments are transported. Where the 'delta' ends, a sudden drop in flow velocity causes coarse sediments to settle, building the 'delta' further towards the sand dam. Repeated repetition of this process causes the ridge of sand to move towards the dam, eventually filling the entire volume behind it.

Figure 15.3: Schematic representation of the sedimentation process



However, the river also transports finer materials, like silt and clay. These sediments have a lower settling velocity than sand, remain in suspension, and are transported over the dam. However, fine sediments can settle, resulting in a silt layer directly upstream of the sand dam. After the rainfall event, base flow will dominate river discharge. Coarse sediments can no longer be transported due to the low flow velocities and are deposited. Without the coarse material, the base-flow water has excess energy, leading to erosion of the riverbed. Fine sediments will be (re)taken into suspension and transported, leaving the coarser-grained material in the riverbed. Once the runoff has stopped completely, the residual silt layers on top will dry and crack. Animals and people walking on the riverbed will pulverize this dry silt layer, making it susceptible to wind erosion (Borst & de Haas, 2006).

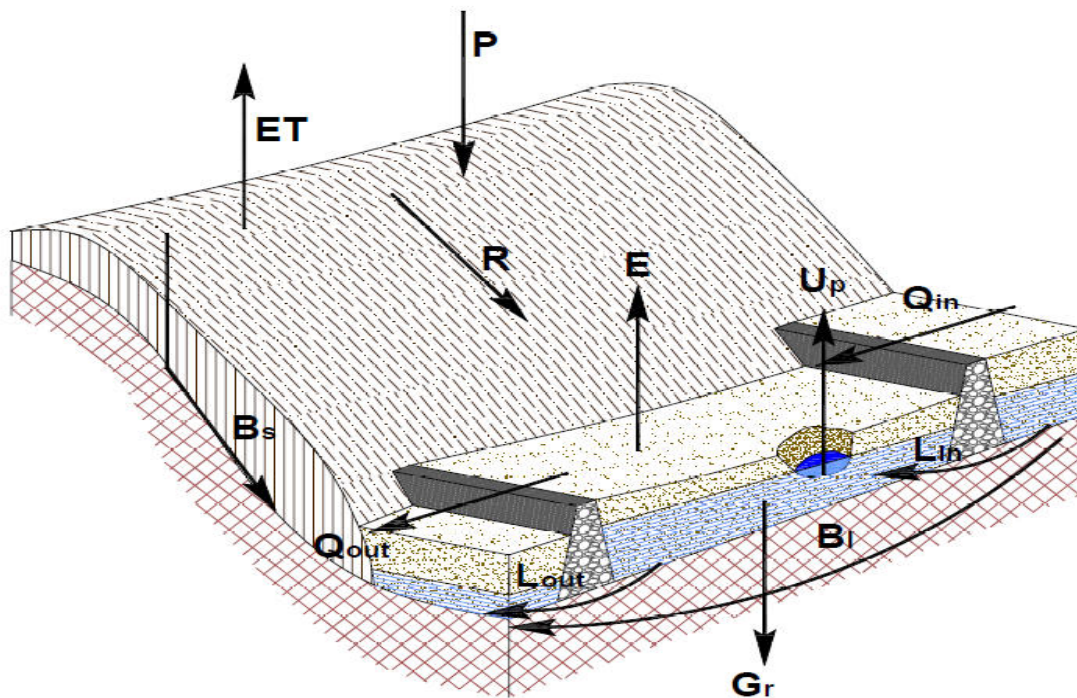
These processes limit the accumulation of silt and clayey material behind the sand dam. Sedimentation will continue until the 'delta' reaches the height of the sand storage dam. The sand storage dam is mature and filled with coarse sand. This can take several wet seasons, depending on the availability of coarse sediments, height of the sand dam, river discharge, catchment slope, and rainfall intensity. In upstream parts of a catchment, it is recommended that sand dams be built in stages, since the availability of coarse material is generally limited and base flow is small or absent. The optimum height of one stage is site-specific. The first stage is typically 50 cm.

Hydrological functioning of a sand storage dam

In most semi-arid regions, rivers hold water only during and shortly after rainfall events, especially in the more upstream parts of catchments. Due to the often short, intense rainfall events, combined with certain soil types such as silt and clay, a large part of the rainfall will leave the catchment as surface runoff rather than infiltrating the soil and recharging groundwater. Runoff coefficients up to 70% can be found.

A sand dam obstructs groundwater flow through the permeable riverbed. It only takes one or two heavy rainfall events to fill the enlarged riverbed aquifer completely, and after this, the river will start to flow as it would in the absence of a sand storage dam. The raised water table along the riverbanks results in groundwater flowing from the riverbanks towards the riverbed. This leads to replenishment of the created reservoir. Water will be available in the riverbed if the groundwater flow from the riverbanks continues. Therefore, it can be highly profitable to take soil and water conservation measures in the upstream areas of the catchment to increase rainwater infiltration, thereby creating more base flow within the catchment.

Figure 15.4: Demonstration of Water balance components



Important water-balance components for hydrological functioning

Water balance components

ET Evapo(transpi)ration from slopes

E Evaporation from the riverbed

P Precipitation

R Surface runoff from slopes to the river

Bs Groundwater baseflow from slopes to river

Bf Shallow and deep longitudinal baseflow

Qout River discharge outflow over the downstream dam

Lout Leakage underneath and around the downstream dam

Qin River discharge inflow over the upstream dam

Up Use of water (abstraction)

Gr Loss of water into the impermeable ground

There are three main ways to abstract water from sand dams. The community decides on the most appropriate option. These are:

- Scoop holes
- Pipe filtration
- Shallow wells

Where sand dams are appropriate

There are two prerequisites:

- 1) There are seasonal rivers with sandy sediments
- 2) There is a river bed with accessible bedrock

Benefits of Sand River Solutions:

- Less evaporation
- Filtered clean water
- Lower cost of implementation
- Lower cost of operation and maintenance
- An aquifer is recharged, not depleted
- Local access to water
- Year-round clean water supply
- Time saved

As a result, there is potential to use water and time to increase food production.

Functions of a sand dam

The primary function of a sand dam is to increase water availability by storing water in the riverbed and banks. Water is stored in the spaces (voids) in the sand, which can hold up to 35 percent of the volume of the sand. Sand dams obstruct groundwater flow through the riverbed, resulting in a

continuous replenishment of the enlarged groundwater reservoir upstream of the dam. Besides this, sand dams can have other functions and positive side effects, like:

1. Regional groundwater recharge:

A cascade of sand dams will cause a general rise in groundwater levels in a larger area. This positively affects the environment in the surrounding area of the dam, due to more water availability for people and vegetation

2. Sand harvesting and rehabilitation of gullies:

Sand dams can rehabilitate erosion gullies, while the sand sediments behind the dam can be harvested for sale. If a sand storage dam is built for this purpose, the dam does not have to be impermeable. Usage of plastic bags filled with soil is more profitable for this purpose

Advantages of a sand dam compared to surface water dams.

Sand storage dams have several important advantages over surface-water dams, resulting in higher water quality and improved environmental conditions.

1. Protection against evaporation
2. Reduction of contamination (by livestock and other animals)
3. Filtration of water flowing through the riverbed sand (disinfection)
4. Unsuitable for breeding mosquitoes (malaria) and other insects
5. Inexpensive structures with a high level of community involvement

Impacts on food production and income

- a) Soil and water conservation on farms
- b) Investing time in other improved farming techniques, e.g., manure/composting, zero grazing, drought-resistant crops, crop diversity
- c) Vegetable and tree nurseries near dams for year-round production
- d) Potential irrigation of nearby crops during the dry season

As a result, there is increased food production and income, along with a reliable, year-round supply of food and water for livestock, leading to higher yields.

Impacts on health

- a) The water in the Sand River Solutions is stored below the sand, providing a reliable, clean water supply:

- b) No open water source is created. As a result, there is:
- c) Reduced incidence of malaria
- d) Reduced incidence of waterborne diseases such as bilharzia, typhoid, and diptera as animals contaminate the water less

Sand storage dams to improve rural livelihoods in Tharaka-Nithi County

In Tharaka Nithi County, especially in the lower reaches of Igambangombe, Tharaka South, and Tharaka North, it is prudent to intensify sand dam construction. The sand dams can vary in size and height depending on the river profile. On average, sand dams should be 1-5 meters tall and about 20 meters long. Sand dams are simple and inexpensive technologies, unlike major dams. The dams can be constructed by communities using locally available materials.

The cost of an average sand storage dam with a minimum life span of 50 years and storage of at least 2,000 m³ is about US\$7,500-10,000. Some 40% of the overall construction cost is provided by the community. The community will be involved in constructing sand storage dams by providing labor and raw materials through sand dam management groups. After construction, these groups ensure the maintenance of dams and the protection of water quality, as well as promoting ownership and, thus, sustainability.

Sand dams are usually built in sequence to avoid the ecological damage caused by a single-point water source. Also, the water table rises higher and over a larger area compared to individual units. This will result in ecological regeneration. Apart from drinking water security, sand storage dams also provide water for the development of rural commercial activities such as small-scale irrigation (cash crops and tree nurseries), piped water supply to nearby villages, and industrial activities (brick making). Furthermore, since less time is needed to fetch water, school attendance increases significantly, and more time can be spent on other income-generating activities such as household industries (basket weaving, sewing). Normally, a well-constructed sand storage dam requires little maintenance; the sand dam committee is responsible for it

.Kaiboche Dam

Kaiboche Earth Dam is in the Chiakariga ward of Tharaka Nithi County at GPS coordinates S 0.290618, E 37.923973. The dam was constructed several years ago by the community with assistance from the Mount Kenya East Pilot Project. The dam water was intended to supply the livestock in the area. There are no reliable sources of water in the vicinity, which provides the rationale for the dam

location. The need to rehabilitate the dam was occasioned by siltation, which has greatly reduced its storage capacity to almost 2,000 M3.

The Chiakariga location is characterized by chronic water shortages, a common phenomenon in the sub-county and across most ASAL areas nationwide. After each rainy season, surface runoff drains into seasonal streams and rivers, and very little of it is retained for livestock or domestic use. During the dry season, family members travel long distances to find water for their livestock and domestic use. Most community members face severe water shortages for human and livestock consumption due to the drying up of water sources. As a result, people must travel 5-10 km to find water during the dry season.

Plate 15.3: Kaiboche Earth Dam.



Naikara Sand Dam

Naikara Sand Dam is transforming lives in Tharaka Nithi County. The community-driven sand dam along the Ndii Seasonal River will supply 52,309m³ of water to 1,800 residents and 1,320 livestock. The dam's impact will include the supply of clean water for the Kanyaga market community, improved livelihoods and health, Rainwater harvesting and storage, combating land degradation and flooding, and strengthening climate resilience.

Proposed Dams

According to the Ministry of Water, Sanitation and Irrigation, there are 3 main proposed dams in Tharaka-Nithi County. The County will host several key water infrastructure projects, most notably the mega High Grand Falls Dam. The proposed dam will span the Tana River between Tharaka-Nithi and Kitui. The Ministry has also proposed regional water-supply dams such as Kanjogu and Thambo.

The High Grand Falls Multipurpose Dam is a massive Ksh 325 billion (\$2.5 billion) project on the Tana River that will benefit Embu, Kitui, and Tharaka Nithi. It is designed to hold 5.6 billion cubic meters of water, generate up to 1,000 MW of hydropower, and irrigate 400,000 acres of land.

The Kanjogu Dam is an 18-meter-high water supply dam designed to harness the floodwaters of the South Maaraa River. It has a capacity of 893,395 m³ and is currently under construction to serve Chogoria, Muthambi, and Igoji East. The dam will significantly improve access to potable water for thousands of families in the County. .

The Thambo Dam, an 18-meter-high dam with a storage capacity of 439,007 m³, will benefit communities in Igoji East, Mwimbi, and parts of Chogoria Ward. Although the project is 42% complete, progress has stalled due to contractor challenges. The implementing agency is the Tana Water Works Development Agency. These projects are critical to providing sustainable water solutions and improving livelihoods in the region.

15.10 Governance Development Strategy

Main challenge of institutional and governance of the county is inadequacy in three critical areas namely; inadequate in capacity of public administration to deliver services, inadequate capacity of legislative conduct of county assembly responsibilities, and inadequacy in coordination of various actors towards achieving leaving no one behind. Key observation on devolution is incomplete devolution at count level, and challenge of fully enabling municipal boards (governments) fully discharge their competencies. The inadequacy in the three areas arise from the multiplicity of actors in the county space ranging from national, county, state corporations, private sector, community groups, development partners, cooperatives, and non-government organizations.

Governance policy goal: To effectively, and efficiently govern the multiplicity of actors to achieve social economic development goals by implementing the county spatial plan.

Table 15.2: Governance Strategy

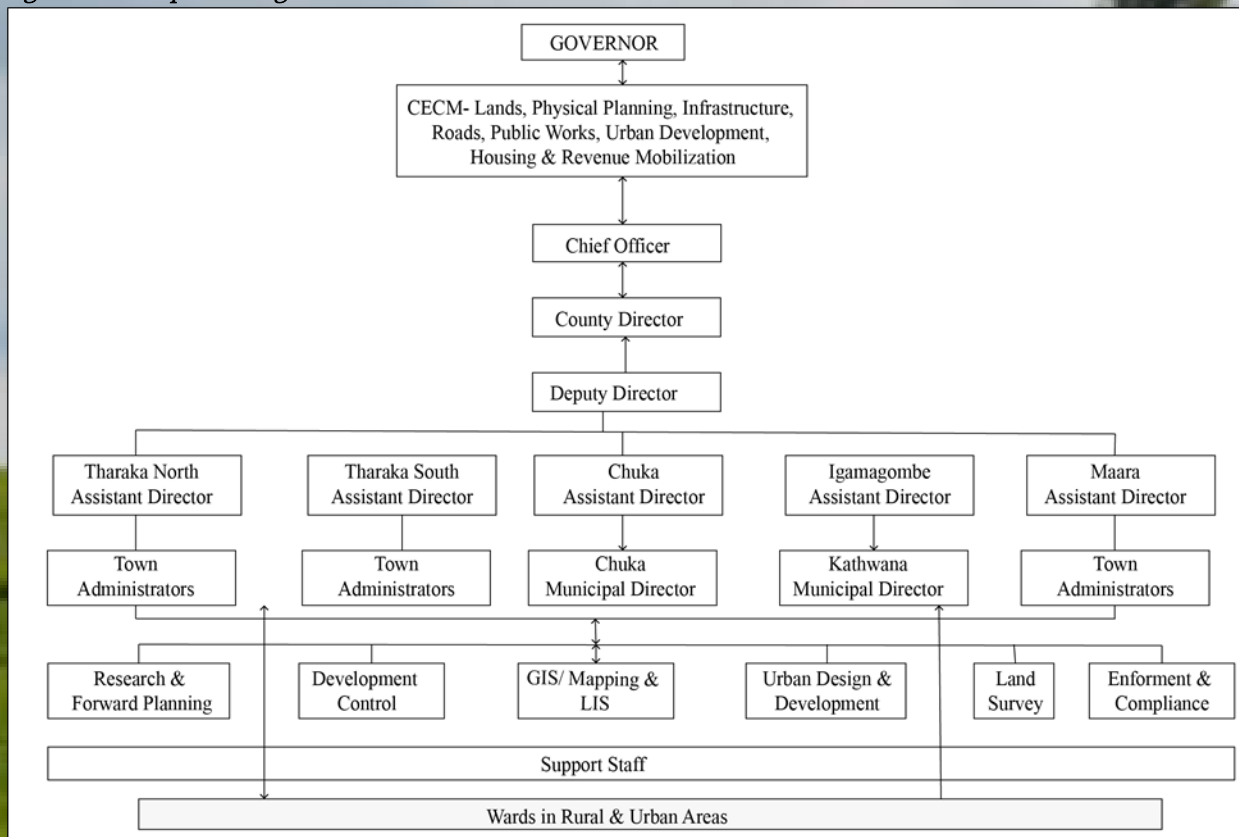
Issues in the Sub sector	Location	Objective	Strategy
Subsector: Inter Governmental Relations			
Unresolved boundary issues between County of Meru and Tharaka Nithi County	Boundary areas of two counties of Meru County and Tharaka Nithi	To resolve inter boundary conflicts between Meru and Tharaka Nithi Counties	Collaborative resolution of both the county assembly and county executive to pursue the matter under relevant institutions of IGRA, and article 188 of the constitution
Inadequate consultation on policy economic policy issues that impact on county economies (taxation, prices of fuels, electricity prices, interest rates, and	Entire County	To fully comply with article 6, and article 189 of the Kenyan constitution, and section 7 (j) of inter-governmental relations act To focus national attention of state corporations such as	Regularize consultations and collaborations on economic policy and legal issues that affect the Counties as required by the constitution- Council of

Issues in the Sub sector	Location	Objective	Strategy
Sectoral Acts like on Agriculture, Livestock, Seeds and seed variety Acts) Inadequate involvement of county in planning of projects of national and inter county significance	Area affected by the project	irrigation board, KURA, KeRA, WARAM, KENHA, KPLC, to the state of unequal distribution of road infrastructure, water, sanitation, irrigation, and electricity in the lower parts of the County To comply fully with the requirement of participation of county and citizens affected in areas of projects of national, and inter-county significance while adhering to article 6, and relevant sections CGA, IGRA, and PLUPA	Governors, National and County Government Coordinating Summit section 7, and Inter Governmental Relations Technical Committee section 11. , Lobby key state corporations with required needs to budget for provision of the infrastructure in lower altitude areas of the county Procedural institutionalization of con current spatial planning projects, and those under section 69 of the Physical and Land Use Planning Act of 2019
Sub Sector: Public Administration			
Issues in the sub sector	Location	Objective	Strategy
Inadequate capacity in the county in terms of essential professional staff, budgets for spatial planning and implementation, required equipment to facilitate planning-RTK survey equipment, GIS lab, and vehicles for fieldwork) Inadequate development Expenditures and inability to utilize funds due to delays in disbursement Inadequate participation in decision making, budgeting and implementation	County	To enhance the capacity of the county across all departments and focusing specifically on planning (staff, budgets for planning, equipment, and offices) To make a case for more development expenditure which will enable affirmative action in the lower altitude areas of the Municipality To extend the participation of the community in affairs of the County Government beyond seeking their views and incorporation to budgeting and implementation of projects	Capacity enhancement of the planning department led by appropriate institutional structure (required professional staff, equipment, offices, and budgets) Institutionalization of service charter by the planning department and weekly reporting of all the activities and revenue streams Enhance the capacity of utilization of development expenditure in the county Implement a participatory mechanism of participation in all the project cycles of the county Government

Issues in the Sub sector	Location	Objective	Strategy
Sub sector: County Assembly			
Issues in the sub sector	Location	Objective	Strategy
Insufficient civic education and engagement with county elected members Inadequate monitoring and oversight Inadequate awareness sectoral contributions, synergies and technical requirements		To make use of relevant section of CGA to carry out regular civic education and engagement with the citizens of the county in wards To carry out capacity building on mechanisms and tools of monitoring and oversight functions, and awareness of sectoral functions with their required technical issues To ensure equitable distribution of development facilities and services to all parts of the County especially to the lower 60 percent part of the county	Implement periodic civic engagement and education of the citizens at the ward level up to the villages Empowering county assembly members through capacity building to effectively carry out monitoring and oversight Require more focus of development expenditure allocation to the lower altitude area of the county
Sub Sector: Coordination and coordination for synergy			
Issues in the sub sector	Location	Objective	Strategy
Lack of a coordinating framework Inadequate clarity between competencies of municipalities and those of sub counties and wards	Entire county	To facilitate coordination of various actors in the implementation of various activities in the county both horizontally and vertical To ensure harmony in inter departmental discharge of functions within and across jurisdictions To streamline competencies between the county government functions and municipalities as specified in articles 184, UACA, and CGA sections 48 to 52.	Develop implementation agreements, and supervision mechanisms as per competencies of each actor Awareness enhancement of the importance of coordination, and effective communication on the linkages among departments Develop a variety of models of the relationships among statutory actors at the municipal and city levels

Proposed Organizational Structure for Lands & Physical Planning

Figure 15.5: Proposed Organisational Structure



Source: UoN-DURP 2024

PART VI: PLAN IMPLEMENTATION

INTRODUCTION

16 PLAN IMPLEMENTATION FRAMEWORK

16.1 Overview

This chapter provides the framework for translating the proposed strategies into actionable projects by outlining expected outcomes, costs, implementation timelines, and responsible actors. It includes an implementation matrix that defines key actions and responsibilities across sectors, an institutional framework for effective coordination and governance, and a capital investment framework identifying the resources required to finance proposed interventions. The chapter also outlines the monitoring and evaluation framework for tracking progress, assessing performance, and informing corrective actions to ensure successful implementation of the plan.

16.2 Implementation matrix

The following implementation matrices provide a detailed framework for the execution of key projects across several critical sectors within the County. These sectors, including Natural Resources and Environment, Socio-cultural Development, Land Use and Land Management, Human Settlements and Urbanization, Economic Development, Agricultural Development, Infrastructure and Service Development, and Governance, are central to the County's strategic development agenda. Each matrix outlines specific projects, detailing their location, scale, expected outcomes, and associated costs. Additionally, the matrices identify the primary actors involved in the implementation process and propose realistic timelines for completion. This structured approach ensures that all initiatives are systematically planned and aligned with the County's broader objectives, facilitating efficient resource allocation and effective project management.

1. Natural Resources and Environment

PROJECTS					COST		TIMELINE (YEARS)		
	LOCATION/AREA	UNITS	QUANTITY	OUTCOME	Million Ksh.	ACTORS	SHORT (1-3)	MEDIUM (4-6)	LONG (7-10)
Strategy 1 - Formulate and implement a solid waste management plan for all urban centres in the County									
Solid waste management plan formulation	All urban centres in the County	No.	36	Clean and livable urban centres	3.0	- County Government - NEMA			
- Ban plastic use in the County - Formulate plastics management guidelines for the County	Countywide	No.	1	Clean and livable urban centers	3.0	- County Government - NEMA			
Purchase 1-5 acres of land for solid waste recycling centres (size to differ according to the hierarchy of the urban centers - (10, 5, 4, 3, 1 acres) in the peri-urban areas of each urban centre for solid waste recycling.	All urban centres	Acres	23	- Clean and livable urban centers - Economic benefits from waste	50.0	County Government			
Establish and facilitate solid waste management committees for each urban centre and recruit members for the committees	All urban centres	No. of committees	36	- Competent capacity to manage urban solid waste - Clean and livable urban environments	15.0	- County Government - NEMA			
Establish and operationalize solid waste recycling centres in all the urban centres by installing solid waste management machines	All urban centres	No.	36	- Income from recycled solid waste - Organic manure - Employment created	150.0	- County Government - NEMA			
Strategy 2 – Restoration of degraded land and control of soil erosion									
Promote terracing of all slopping farmlands and enhance tree and shrub growing on terraces for soil erosion prevention	All sloping lands	Acres	150,000	- Increased crop yield - Reduced silt in water bodies - Cleaner environment - Increased wood products	30.0	- County Government - Departments of agriculture, cooperative, and livestock - KFS - Development partners - Civil Society			
Sensitize, map, and restore riverine reserves of major	All rivers in the county	No.	31	Clean water	100.0	- County Government - Kenya Forest Service			

PROJECTS	LOCATION/AREA	UNITS	QUANTITY	OUTCOME	COST	ACTORS	TIMELINE (YEARS)		
					Million Ksh.		SHORT (1-3)	MEDIUM (4-6)	LONG (7-10)
rivers and plant indigenous trees and shrubs				- Enhanced bio-diversity - Increased river water volume		- Water Users Association - Communities Forest Associations			
Reduction of river and air pollution through monitoring river and air pollution levels and implementing preventive measures	Countywide	Level of pollution	100%	- Clean water - Clean air - Reduced respiratory diseases	10.0	- Ministry of Water - NEMA - Ministry of public health			
Facilitate sustainable management of the County's Indigenous forests by gazette the un-gazetted hills.	Un-gazetted hills	No.	8	- Sustainably managed Indigenous forests - Increased tourism and research activities - Increased income from beekeeping	25.0	- County Government - Kenya Forest Service - Civil Society Organizations			
Establish one Community Forest Management Committee for each hill for the sustainable management of the hills.	All hills	No.	23	- Well-managed Indigenous forests and hills - Increased tourism and research activities - Increased income from beekeeping	25.0	- Kenya Forest Service - County Government - Civil Society			
Promote hills as research and tourist sites by facilitating the restoration of all hills for tourism, research, education, and documentation of indigenous knowledge.	All hills	No.	23	- Increased recreation facilities - Increased Indigenous knowledge	30.0	- Ministry of Tourism - Ministry of Education			
Strategy 3 – Formulate and implement a disaster management plan for each sub-county									
Map disaster-prone areas in each Sub-County and implement the mitigation measures	Countywide	No.	5	Reduced disaster incidences and associated losses	10.0	- Ministry of Environment - County Government - NEMA			
Strategy 4 - Intensive afforestation and practice of smart agriculture									
Promote planting of a minimum of 10% of all land with trees and shrubs.	Countywide	Acres	14,000	- Reduced climate variability - Increased forest products	280.0	- Kenya Forest Service - Department of Agriculture - Livestock - Cooperatives			

PROJECTS					COST		TIMELINE (YEARS)		
	LOCATION/AREA	UNITS	QUANTITY	OUTCOME	Million Ksh.	ACTORS	SHORT (1-3)	MEDIUM (4-6)	LONG (7-10)
				Income from commercial forestry		- Civil Society - Youth groups - Community forest association			
Strategy 5 - Regulate mining activities in the County									
- Formulate quarrying regulations. - Organize miners into associations or cooperatives by counties - Formulate and implement a mining management plan for the county to scale up activities for viable household incomes.	Countywide	No.	1	Sustainable mining of the County minerals	2.0	- County Government - Ministry of mining and industry			
		No.	5	Income and revenue from minerals	10.0				
		No.	1		2.0				
Sub-Total	-	-	-	-	745.0	-			

2. Socio-cultural Development

Projects	Location	Unit	Quantity	Outcome	Actors/Partners	Estimated Cost Million Kshs.	Timelines		
							Short	Medium	Long
- Formulation of guidelines for land utilization at Ura Gate - Formulation of an operational PPP policy	Ura Gate, Mukothima Ward	No	1	Approved guidelines and PPP Policy	- County Government - Cultural community groups - Community	5			
Designate land for a resort and mobilize private investors to develop a resort	Ura Gate	No.	1	Built Resort and Vibrant Tourism	- County Government - Cultural community groups - Community	7			
Formulation of a policy to guide cultural activities	Countywide	No	1	Order in Cultural Development	County Government	10			
Empowering community members through SACCO/ Cooperatives or Self-help Groups	- Ura Gate - Chuka - Tharaka North	No.	3	Economically empowered communities	- Ministry of SMES and Cooperatives - NGOS	60			
Gazettment of all the shrines	Countywide	No.	10	Gazette notices for Shrines	County Government	10			
- Fill the gap in the number of schools and health centers - Upgrade the existing ECD centers and - Upgrade Health centers	Countywide				- County Government - MOE				

Projects	Location	Unit	Quantity	Outcome	Actors/Partners	Estimated Cost Million Kshs.	Timelines		
							Short	Medium	Long
Development of a community cultural center in each Ward	Countywide	No.	15	Operational Community Cultural Centres	- County Government - Communities	75			
Formulation of a policy towards shared community facilities e.g. schools play grounds with community sports programmes	Countywide	No.	1	Approved policy for shared community facilities	- County Government - MOE	10			
- Sensitization/education strategy /mechanism to address FGM - Formation of an integrated task force to address FGM	County wide Tharaka North	No.	1	Reduced Practice of FGM	- National government - County government - Faith-Based Organizations	2			
Developing ICT hubs in all Wards	In all wards	No.	15	Digitally Literate Communities	- National Government - County Government	300			
Equip the TVETs and Vocational Training Centers	TVETs at the constituencies	No.	3	Attractive TVETS for Skills Training	- National Government - County Government	15			
Developing sports facilities and social halls in all Wards for talent development in the County	All Wards	No.	15	Community spaces and Ward Public Functions Spaces	County Government Communities	75			
Supporting annual talent development programme that could involve competitions at Ward Level (April Holidays) ,Sub-county Level (August Holidays), County Level (November-December Holidays)	All Wards	No.	15	Sober and active County population		75			
Creation of credit systems targeting the youth such as revitalized Youth Fund	County wide County wide	No.	1	Economically empowered youth	County Government National Government NGOs/CBOs	50			
Developed data base for the special groups and sensitize groups on their rights and available resources	County wide	No.	1	Updated data bases for PWDs guiding plans for the same.	County Government National Government NGOs/CBOs	10			
Providing equipment and infrastructure that boosts PWDs such as providing wheelchairs and building ramps.	County wide	-	-	Capacitated PWDs	County Government National Government	50			
Sub-total	-	-	-		-	754			

3. Land Use and Land Management

Project	LOCATION/AREA	UNITS	QTY	Expected outcome	Actors	Estimated Cost (Ksh)	Short Term	Medium Term	Long Term
							1-3 Years	4-6 Years	7-10 Years
Strategy 1: Adjudication, registration and titling of all unadjudicated land									
Adjudication, registration and titling	Igambang’ombe, Tharaka North and Tharaka South	Sub Counties	3	Registration of land and issuance of title deeds.	Ministry of Lands (Directorate of Land Adjudication & Settlement).	150,000,000			
Development of valuation rolls to facilitate collection of land revenue in all urban areas	Proposed primary centres .	No.	8	i)Predictability of land revenue. ii)Efficiency in collection of land revenue. iii)Increased land revenue for the county.	County government of Tharaka Nithi.	To be determined on the basis of: i)The size of the urban area. ii)The number of land parcels within the urban area. 15,000,000/= for Chuka town and 10,000,000/= for each of the other towns.			
Strategy 2: Resolution of any County boundary disputes									
Project	LOCATION/AREA	UNITS	QTY	Expected outcome	Actors	Estimated Cost (Ksh)	Short Term	Medium Term	Long Term
							1-3 Years	4-6 Years	7-10 Years
Petition the National Assembly and the Senate as directed in Art. 188 on the resolution of any County boundary disputes.	County-wide	No.	1	Resolution of county boundary disputes.	County government of Tharaka Nithi.	To be determined by Parliament (for it is the one to appoint an independent Commission to resolve the disputes) or SRC.			
Strategy 3: Formulation of an efficient land succession system.									
Project	LOCATION/AREA	UNITS	QTY	Expected outcome	Actors	Estimated Cost (Ksh)	Short Term	Medium Term	Long Term
							1-3 Years	4-6 Years	7-10 Years
Process succession matters for those unable to, by using the office of the County Attorney.	County-wide	No.	As per the matters presented	Hastened land adjudication	County government of Tharaka Nithi.	Statutory payments + lawyer’s fee = 100,000/= per case.			
Sensitisation of the public on land issues particularly succession matters to create the necessary awareness.	County-wide	No.	In all sub-counties	Increased public knowledge about succession	County government of Tharaka Nithi.	Chiefs, Assistant Chiefs, Ward Administrators, Village and Nyumba Kumi elders to mobilise public. 3, 000, 000/= per Ward.			
Strategy 4: Digitization of all land records to enhance their integrity and management.									
Project	LOCATION/AREA	UNITS	QTY	Expected outcome	Actors	Estimated Cost (Ksh)	Short Term	Medium Term	Long Term

Project	LOCATION/AREA	UNITS	QTY	Expected outcome	Actors	Estimated Cost (Ksh)	Short Term	Medium Term	Long Term
							1-3 Years	4-6 Years	7-10 Years
							1-3 Years	4-6 Years	7-10 Years
Digitization of all land records to enhance their integrity and management.	County-wide	No.	As per available RIM sheets	Higher integrity Digitized land records.	County government of Tharaka Nithi.	KES 27,228,938/=			
Strategy 5: Increasing budgetary allocations for planning and hiring more technical personnel.									
Project	LOCATION/AREA	UNITS	QTY	Expected outcome	Actors	Estimated Cost (Ksh)	Short Term	Medium Term	Long Term
							1-3 Years	4-6 Years	7-10 Years
Raising low technical capacity and constrained budgetary allocation for planning by increasing budgetary allocations and hiring more technical personnel.	County-wide	-	-	Increased technical capacity and planned urban and market centres that attract investments.	County government of Tharaka Nithi.	200,000,000/=			
Strategy 6: Create a zoning plan for land use management and enforce zoning regulations.									
Project	LOCATION/AREA	UNITS	QTY	Expected outcome	Actors	Estimated Cost (Ksh)	Short Term	Medium Term	Long Term
							1-3 Years	4-6 Years	7-10 Years
Decline requests for change of use from agricultural use to other uses.	County-wide	-	-	Protection of agricultural land	County government of Tharaka Nithi.	Commitment by County government technical personnel.			
Strategy 7: Allocate land for public use during planning and adjudication.									
Project	LOCATION/AREA	UNITS	QTY	Expected outcome	Actors	Estimated Cost (Ksh)	Short Term	Medium Term	Long Term
							1-3 Years	4-6 Years	7-10 Years
Earmarking land for public use during planning and adjudication.	County-wide	-	-	Public Land Bank	County government of Tharaka Nithi and the Directorate of Land Adjudication & Settlement of the Ministry of Lands.	To be done within the adjudication and planning budgets already provided. Commitment by the County technical personnel in the Lands docket.			
Strategy 8: Identification, survey and titling of all public land									
Project	LOCATION/AREA	UNITS	QTY	Expected outcome	Actors	Estimated Cost (Ksh)	Short Term	Medium Term	Long Term
							1-3 Years	4-6 Years	7-10 Years
Identification, survey and titling of all public land	County-wide	-	-	Secured public purpose land	County government of Tharaka Nithi.	County government to budget on the basis of the inventory of public land.			

Project	LOCATION/AREA	UNITS	QTY	Expected outcome	Actors	Estimated Cost (Ksh)	Short Term	Medium Term	Long Term
							1-3 Years	4-6 Years	7-10 Years
Strategy 9: Development of different typologies of green spaces:									
Project	LOCATION/AREA	UNITS	QTY	Expected outcome	Actors	Estimated Cost (Ksh)	Short Term	Medium Term	Long Term
							1-3 Years	4-6 Years	7-10 Years
Development of different typologies of green spaces: Neighborhood parks, parks, botanical gardens, tree-lined streets, tree-lined riparian reserves.	In the primary and secondary centres	No.	16	Increased green spaces for recreation and aesthetics.	County government of Tharaka Nithi and Local communities.	For the municipalities a 3 acre park at 100,000,000/= each. Tree-lined streets, tree-lined riparian reserves to be determined by size/length.			
Development of different typologies of open spaces: Playgrounds and sports fields, squares and plazas, and courtyards				Increased sports fields and other recreational grounds.	County government of Tharaka Nithi.	100,000,000/=			
Strategy 10: Preparation of development plans for all unplanned land									
Project	LOCATION/AREA	UNITS	QTY	Expected outcome	Actors	Estimated Cost (Ksh)	Short Term	Medium Term	Long Term
							1-3 Years	4-6 Years	7-10 Years
Preparation of development plans for all unplanned land.	In the proposed primary and secondary centres	No.	16	Spatial plans to guide physical development in the county.	County government of Tharaka Nithi.	KES 400,000,000/=			
Enforcement of development control.	County-wide	Sub-Counties	5	Orderly development and implementation of plans.	County government of Tharaka Nithi.	Trained technical staff, Instruments for development control, Regulations & Standards, zoning plans, vehicles. 300,000,000/=			
Develop and enforce a county land use policy to forestall unsustainable land use practices and address the current ones such as the substandard land subdivisions and informal urbanization.	County-wide	No	1	Orderly use of land and application of planning standards.	County government of Tharaka Nithi.	6,000,000/=			
Public sensitization on proper land use management	County-wide	-	-	Increased knowledge on land use management.	County government of Tharaka Nithi.	To be done within the Land policy budget provided above.			
Strategy 11: Introduce agroforestry in bare steep areas, decommissioning and rehabilitation of disused quarries.									
Project	LOCATION/AREA	UNITS	QTY	Expected outcome	Actors	Estimated Cost	Short	Medium	Long

Project	LOCATION/AREA	UNITS	QTY	Expected outcome	Actors	Estimated Cost (Ksh)	Short Term	Medium Term	Long Term
							1-3 Years Term	4-6 Years Term	7-10 Years Term
							1-3 Years	4-6 Years	7-10 Years
Introduce agroforestry in bare steep areas, decommissioning and rehabilitation of disused quarries.	County-wide	-	-	Conservation of steep areas and rehabilitated disused quarries for new uses.	County government of Tharaka Nithi, KFS and NEMA.	Refer to Environment sector.			

4. Human Settlements and Urbanization

Project	LOCATION/AREA	UNIT	QTY	Expected outcome	Actors	Estimated cost	Short	Medium	Long
							1-3 Years	4-6 Years	7-10 Years
Strategy 1: Enforce laws and regulations for promoting environmental protection.									
Survey all the riverine reserves of major rivers for restoration.	County-wide	-	-	Secured and restored riparian reserves.	County government of Tharaka Nithi.	To be budgeted by the County surveyors guided by the length of the rivers.			
Enforce laws and regulations for promoting environmental protection.	County-wide	-	-	Protected and healthy environment.	County government of Tharaka Nithi and NEMA.	To be done within development control budget provided in the Land sector marix.			
Gazette all un-gazetted hills for conservation.	County-wide	No.	6	Gazetted and conserved hills.	County government of Tharaka Nithi.	KES 50,000/= for each ungazetted hill = KES 300,000/=			

Project	LOCATION/AREA	UNIT	QTY	Expected outcome	Actors	Estimated cost	Short	Medium	Long
							1-3 Years	4-6 Years	7-10 Years
Community sensitization on the ways and importance of environmental conservation.	County-wide	-	-	Increased awareness of environmental conservation.	County government of Tharaka Nithi.	To be done within Environment Sector budget.			
Strategy 2: Establishing urban service boundary (USB) and achieve compact centres.									
Project	LOCATION/AREA	UNITS	QTY	Expected outcome	Actors	Estimated Cost (Ksh)	Short Term	Medium Term	Long Term
							1-3 Years	4-6 Years	7-10 Years
Demarcation of boundaries of all urban and market centres and contain their development within the boundaries	County-wide	No.	16	Reduced urban sprawl and therefore protection of agricultural land.	County government of Tharaka Nithi.	To be done within the planning budget provided in the Land sector matrix.			
Proactive planning and densification of development to contain urban sprawl.	County-wide	-	-	Guided urban sprawl.	County government of Tharaka Nithi.	To be done within the planning budget provided in the Land sector matrix.			
Build capacity for development control.	Within the county government	Staff	15	Well equipped development control section and achievement of regulated development.	County government of Tharaka Nithi.	To be done within the budget for development control provided in the Land sector matrix (LULMS15).			
Strategy 3: Stimulating growth of secondary towns and promoting a hierarchical urban pattern									
Project	LOCATION/AREA	UNITS	QTY	Expected outcome	Actors	Estimated Cost (Ksh)	Short Term	Medium Term	Long Term
							1-3 Years	4-6 Years	7-10 Years
Strengthen urban-rural linkages.	County-wide	-	-	Well-developed urban-rural linkages that promote development of the rural economy.		To be done within the planning and infrastructure budgets provided in the Land sector and infrastructure matrices.			
Strategy 4: Promote the use of locally available housing materials such as bricks.									
Project	LOCATION/AREA	UNITS	QTY	Expected outcome	Actors	Estimated Cost	Short	Medium	Long

Project	LOCATION/AREA	UNIT	QTY	Expected outcome	Actors	Estimated cost (Ksh)	Short	Medium	Long
							1-3 Years	4-6 Years	7-10 Years
							Term	Term	Term
							1-3 Years	4-6 Years	7-10 Years
Implementation of recommended types of housing in different areas and encouraging the use of locally available housing materials.	County-wide	Sub-Counties	5	Affordable and decent housing typologies.	County government of Tharaka Nithi and National governments' Department of Housing.	County Architect to design various housing typologies for different areas as per local conditions.			

5. Economic Development

Economic Development Strategy Matrix									
Sub Sector: External Functional Economic Relations									
Strategy 1: Develop both agro and off farm industrial capacities of the county									
Projects	Location	Units	Qty	Outcome/s	Actors	Cost	Time Frame		
						Costs Kshs	Short Term (1-3) Years	Medium Term (4-6) Years	Long Term 7-10) Years
Prepare and implement a county agricultural development Plan	Countywide	No	1	Increased production Reduced imports of agricultural products	National Government CS Agriculture, Industry, and Treasury, County Government, Private sector, Community, SAGAs				
Prepare and implement a county industrialisation plan	County wide		1	Increased off farm employment Linkages Reduced imports of industrial products					
Strategy 2: Improve internal connection of urban centres as well as external connection of lower altitude zones									

Prepare a roads improvement plan	Middle and lower altitude zones of the county	No of roads No of centres to be linked No of external connections		Reduced inequality between the upper zone and lower zone Increased mobility Increased trade	National Government County Government, KENHA, KURA, KeRA , Community, KTDA, KWS				
Sub Sector: Industry									
Strategy 3: Formulate a county industrialisation policy									
Projects						Estimated costs			
Carry out industrial potential assessment both resource based and non - farm	County wide	No	1	Actual industrial potential and diversification	County, NG, Private Sector, and the Community	7.0M			
Prepare the county industrial policy	County wide	No	1	Generation of investment opportunities	County, NG, Private Sector, and community				
Strategy 4: Establish integrated value chain nodes with spatial planning to support industrialisation									
Strengthen existing value chains and link to spatial planning	In banana, Dairy, and traditional chicken Extend to the rest of the county County wide	No	3	Improved linkages Increased output	County, NG, Communities, SAGAs County, NG, SAGAs, Private Sector, & Communities				
Prepare value chains for the remaining crops and livestock sector linked to spatial planning		No	3 Livestock	Expanded opportunities Availability of markets	County, NG, Private Sector, Communities & SAGAs				
Prepare value chains for off-farm industrial activities	County wide	No	4 (Coffee, tea, pyrethrum, cotton) 1 legume 2 cereals	Increased output Attraction of investments Vibrant county economy					
		No	3 for off-farm industrial activities						
Strategy 5: Revitalize existing inter-governmental structures towards improvement of the economic environment for business									
						Estimated Costs			

To implement regular Bi annual meetings between Council of Governors, CECMs of Finance & Economic Planning	County-wide and inter-county trade	No	2	Improvement in business environment Increased investments Increased employment	NG, CoG, CECMs, IRTC KEPSA	0.5M			
Strategy 6: Integrate waste management processes from all urban centres via spatial planning									
Prepare waste management value chain processes	All urban centres	No	1	Clean environment	County, SAGAs, Communities, & Private Sector	2.0M			
Identification of various spatial requirements in the chain processes	Selected areas in three altitude zones			Employment generation Reduced space for waste disposal		15.0M			
Sub Sector: Commerce and Trade									
Strategy7: Classification of all urban centres in the County									
Identify all the urban centres and available service levels	County wide	No	Identified	Assigned functions	County, NG, Communities, SAGAs				
Using appropriate criteria develop a classification of all the urban centres	County wide	No	4 levels of centres	Ordered hierarchy of centres	County, NG, Communities, SAGAS				
Strategy 8: Preparation of Local Physical and Land Use Plans of all the urban centres									
Prepare a sequence of preparing urban plans	County Wide	No	As per centres	Enhanced rates	County, Communities, SAGAs, NLC, Private Sector,				
Select appropriate methods of delivering the Local Physical and Land Use Plans				Improved business environment Attraction of investments					
Strategy 9: Formulate a comprehensive market and informal sector improvement programme with adequate social facilities									
Plan and construct markets appropriately in urban centres of the county equally distributed in the three zones	County wide	No	As per selected centres	Reduced informal sector spread Improved trading environment	County, Community, County Commissioner, SAGAs				
Sub sector: Information and Communication Technology and Money Transfers									
Strategy 10: Establish a county ICT framework Utilization in all sectors									

Prepare a county ICT policy	County wide	No	1	Service delivery efficiency	County, NG, Private Sector, Communities, Development Partners, TEVETs	5.0M			
Plan for Sub County ICT hubs with appropriate infrastructure	Sub County Headquarters	No	5	Reduced costs		7.5M			
Link the ICT Hubs to TEVETs in the sub counties	Sub County Headquarters	No	5	Innovations and employment of youth					
Sub Sector: Tourism									
Strategy 10: Develop all the tourism assets/nodes with appropriate linkage to internal and external circuits									
						Estimated Costs			
Identify and secure all the tourism assets and circuits internally connected to external circuits	County wide	No	1	Investment opportunities	County, Tourism Board, Communities. KFS, KWS, Private Sector	40M			
Prepare the tourism plan with circuits linking to resort assets/centres	County wide	No	1	Increased visibility of the county Employment opportunities					
Strategy 11: Establish a comprehensive tourism package and appropriate county brand for marketing									
						Estimated Costs			
Prepare a tourism brand of the county	County wide	No	1	Attraction of more visitors Increased visibility of the county	County, Tourism Board, Private Sector, and Communities	1.5M			
Strategy 12: Empower local communities to benefit from local tourism opportunities in the county									
						Estimated Costs			
Identification and sensitization of communities near tourism assets and resort centres	County wide	No	As per wards	Local innovations and awareness	County Government, NGOs, community Development Partners, Private Sector	3.0M			
Promotion of both material and non-material culture of the communities during organized cultural festivals	County wide	No	Continuous	Stimulate local production Employment and incomes	County, Community, Private Sector, and NG	2.5M			
Sub Sector: Revenue Mobilization by the County									
Strategy 13: Formulate a county revenue enhancement plan									
						Estimated Costs			
Carry out a three-year interval of an integrated social economic situational	County wide	No	1	Untapped revenue sources	County Government, Communities, Development Partners	18M			

analysis and survey to establish actual economic potential				Economic base					
Strengthen internal local revenue controls through automation	Revenue departments, Streams and collection units	No	Core revenue streams	Priority investment areas	County Government, KRA, National Treasury Office				
Strategy 14: Establish a county land information management system for a variety of purposes									
						Estimated Costs			
Prepare up to date GIS Based Cadastre	County wide	No	1	Ease of decision making on planning	County Government, National Survey Office (NG), NLC, FAO, KFS, KWS & communities	30M			
Prepare a robust land information system with social economic data	County wide	No	1	Information for planning	County, Community, NG, SAGAs				
Prepare valuation rolls for urban centres	All urban centres		As per no of Urban Centres 4- Chogoria, Chuka, Kathwana, Marimanti	Increased revenue collection	County, NG, Communities and	7.0M			
						15M			
Strategy 15: Establish a framework of participatory budgeting and implementation for community oversight and monitoring									
						Estimated Costs			
Sensitization of communities on community oversight and monitoring of county expenditure	County wide	No	2	Decision making know how	County, Communities, National Audit Office, Development Partners, NGOs,	2.5M			
Identification of community members for training per ward	Wards	No	3	Empowerment of community	County, Community, NGOS, CBOs	2.5M			
Assignment of trained people to various projects	Wards	No	As per projects	Increased accountability					
Quarterly interval briefing of communities at ward levels and senate	Wards	No		Community satisfaction with county government	County Executive, County Assembly and Senate, Development Partners				
	Wards, county executive, Assembly and Senate	No	4			2.5 M			

6. Agricultural Development

AGRICULTURE MATRIX									
Strategy 1: Implement minimum land sizes for crop, livestock, fishery, apiary and forest enterprises									
						COST	TIMELINE (YEARS)		
PROJECT	LOCATION/AREA	UNITS	QTY	OUTCOME	ACTORS	MILLION Ksh.	SHORT (1-3)	MEDIUM (4-6)	LONG (7-10)
- Formulation of land use policy for minimum land sizes - Formulate and enact legislation and regulations for minimum land sizes	• County-wide	No.	1	Optimal utilization of agricultural land	Ministry of Lands and Physical Planning Ministry of Agriculture, Livestock and Fisheries Development County government SAGAs	6.0			
Strategy 2: Introduction of modern agriculture technology and innovation									
PROJECT	LOCATION/AREA	UNITS	QTY	OUTCOME	ACTORS	COST	SHORT (1-3)	MEDIUM (4-6)	LONG (7-10)
						MILLION Ksh.			
Promotion of technology-induced farming e.g. Online marketing, use of applications etc.	Upper zone	%	70	Livelihood opportunities and income	Departments of Agriculture, Livestock, Fisheries, KFS, Cooperatives and Lands	250.0			
	Lower zone	%	50						
Piloting Cooperative Farming (CFM) Models to accommodate the surplus households.	Chuka, Maara, Tharaka South	No.	Two (2), Two (2), One (1),						
Introduction of new high-value crops e.g. horticultural crops, spices, mushrooms to optimize utilization of small land sizes in urban agriculture	County-Wide	No.	One (1) per sub-county						
Strategy 3: Enhance capacity and governance systems in farmer Cooperative Societies to intensify agricultural production and increase productivity to optimal levels									
PROJECT	LOCATION/AREA	UNITS	QTY	OUTCOME	ACTORS	COST	SHORT (1-3)	MEDIUM (4-6)	LONG (7-10)
						MILLION Ksh.			
- Creating and strengthening Farmer Cooperative Societies through: -Training -Injection of sufficient funds into cooperatives -Automation of services and transactions. (To provide credit, farm inputs, extension services and facilitate production, collection, processing and marketing of farm produce.)	• One per enterprise per Ward (minimum of 3 per ward) -Cash crop, --Livestock -Forest	No.	15	- Strong farmer organizations - Increased farm produce, food, income and livelihood security	Departments of Cooperatives Agriculture Livestock Fisheries KFS Farmer Saccos	750.0			

Recruitment of extension officers in cooperatives for all enterprises	Countywide (6 per ward – 2 per cooperative)	No.	90	- Increased farm production and productivity - Employment of extension staff	375.0	Department Cooperatives Livestock Agriculture KFS Fisheries			
Strategy 4: Develop a database for farmers, professionalize farming and carry out demand driven/planned production									
Register all farmers in each Ward into cooperatives based on enterprises.	• Countywide	No.	All farmers	- Database for farmers according to enterprise - Planned/demand driven production of agricultural produce.	15.0	Department of Livestock Agriculture Fishery KFS Cooperatives Farmers			
Introduce farmer certification through initial training for all enterprises	• Countywide	No.	All farmers	- Knowledgeable farmers - High yields	25.0	Department of Agriculture Livestock KFS Cooperatives Farmers			
- Introduce demonstration farms - Empower champion farmers in all Wards for continuous mentorship of farmers	Countywide	No.	15	Increased farm production hence food income and livelihood security	30.0	Department of Agriculture Livestock Cooperatives KFS NGOs Development Partners.			
	Countywide	No.	150		15.0				
Strategy 5 – Enhance livestock numbers and productivity for increased household and county income									
Increasing household livestock numbers for livestock farmers in the lowlands to the recommended minimum	Tharaka North Tharaka South Igambang’ombe sub-counties	No.	-80 goats -18 Meat cattle -40 goats + 9 cows	Increased income and livelihood security	450.0	County Government Livestock Cooperatives Farmers			
Establish a dairy cattle breeders cooperative to supply farmers with high yielding breeds	Countywide	No.	1	Increased production of milk	200.0	Department of Livestock Cooperatives Farmers			
Promote fodder production for increased livestock productivity	Countywide UM 1, 2, 3 LM 4, 5, 6	Acres	-0.5 acres/hh in -6 acres/hh	Increased livestock productivity	150.0	Department of Livestock Cooperatives Farmer Cooperatives Livestock Farmers			
Strengthen the dairy goat breeder’s association to supply farmers with high yielding breeds	Chuka Maara Igambang’ombe Sub counties	No.	1	Increased dairy goat milk yield and household income	15.0	Department of Livestock Cooperatives Farmer Cooperatives Livestock Farmers			

Enhance Dairy Cattle AI services by establishing a well equipped centre in each Ward	Chuka Maara Igambangombe sub-counties	No.	3	Improved breeds and increased milk production	15.0	Department of Veterinary Services Livestock Production			
Enhance livestock disease control services by having a well equipped clinic in each Ward	Countywide	No.	15	Healthy animals translating to high meat productivity	50.0	County Government Department of Livestock Farmers			
Construct agro-industries in all the sub-counties depending on the raw material location.	-Milk cooling plants in all Dairy Wards -Milk processing factory at the County Industrial Park -Avocado processing for oil -Meat processing in Marimanti -Slaughter house in Kathwana -Hides and skins processing in Gatunga -Honey processing in Mukothima and Chuka -Sunflower processing for edible oil production in Kanwaa -Sunflower processing for animal feeds in Kanwaa -Cotton ginnery in Marimanti -Spinner in Marimanti -Shoes manufacture in Igamba Ngombe -Clothes manufacture at the industrial park and cottage industries -Tea Factory in Chuka -An additional hatchery in Igamba Ngombe -Fish processing in Chuka	No. Industrial Park	8 1 1 1 1 1 1 1 1 1	- Market for farmers produce - Increased income	3500.0	Departments of Cooperatives Industry Agriculture Fisheries KFS			

	-Pork and bacon processing in Kanwaa		1						
	-Animal feeds production in all sub-counties		1						
	-Ballast production in Igamba Ngombe		1						
	-Cottage industry in each sub-county headquarter		1						
	-Maize milling in Mukothima		1						
	-Banana processing plant in Maara		1						
Set up Grains Drying, Preservation, Storage, Packaging and Distribution Centres (GDSDC) at Strategic sites.	Mukothima	No.	5	Increased returns	40.0	Department of Agriculture Farmer Cooperative			
Strategy 6 – Promote irrigated agriculture									
Construct water supply infrastructure to support irrigated cotton farming	Tharaka North Tharaka South Maara Igambang’ombe	Acres	25,000	Increased cotton production, fabric manufacture and apparel making	2,000.0	Departments of Water Agriculture Livestock			
Promote rain water harvesting in individual homes and institutions. Through affordable loans for water tanks	Countywide	No.	5,000	Increased water availability and reduced water bills Increased water availability and reduced water bills	250.0	Departments of Water Agriculture KFS Farmer Saccos.			
Upgrade roads used for transporting farm produce and work with Farmer Cooperatives to improve rural roads on a continuous basis	Countywide	No.	5 sub-counties	Reduced transportation cost hence farm produce profitability	100.0	KERRA Farmer Cooperatives			
Sub-total	-	-			8,236	County Government Households Banks Investors Development Partners SACCOS			

7. Infrastructure and Service Development

a) Transport

TRANSPORTATION INFRASTRUCTURE MATRIX									
Strategy 1: To develop comprehensive transportation links, including roads, railways, and airports within the county.									
						COST	TIMELINE (YEARS)		
PROJECT	LOCATION/AREA	UNITS	QTY	OUTCOME	ACTORS	MILLION Ksh.	SHORT (1-3)	MEDIUM (3-5)	LONG (5-10)

- Establish an integrated plan for the road and proposed rails, airports/airstrips and road improvements. - Establish joint projects with neighboring Counties such as Kitui, Meru, and Embu and to the LAPSSET corridor.	County-wide	No	-	Developed comprehensive transportation links.	County Government, National Government, Development Partners, Neighboring Counties, LAPSSET Authority	50.0			
Project 2: Upgrade and maintenance of road infrastructure.									
PROJECT	LOCATION/AREA	UNITS	QTY	OUTCOME	ACTORS	MILLION Ksh.	SHORT (1-3)	MEDIUM (3-5)	LONG (5-10)
- Opening of feeder roads. - Routine maintenance of feeder roads, especially to agriculture collection points for milk, coffee and tea. - Upgrade of roads	- Completion of upgrading of Chuka-Kathwana road (C384) - Upgrade to bitumen Kibugua-Itugururu (C381) - Upgrade to bitumen Keria-Magutuni-Kathwana (C383) - Completion of Chiakariga-Marimanti-Gatunga (C385 & C363). - Upgrade to bitumen Micheene-Ruiru-Kianjai-Mikinduri-Katithine-Usueni-Tseikuru (C353) - Upgrade to Bitumen Mitunguu-Marimanti-Ciambyu (C359) - Upgrade to bitumen Kamarandi-Mwerera (C382) - Upgrade to bitumen Magutuni-Kaanwa - Upgrade to bitumen Kaanwa-Weru (E760) - Upgrade to bitumen Weru-Itugururu (E754) - Upgrade to bitumen Itugururu-Ishiara Road (E752) for inter-county connectivity - Upgrade to all-weather Makuti-Mwingi road (E788) for inter-county connectivity - Upgrade to all weather- Mwingi-Usueni (E800) for inter-county	km	14	Improved road connectivity and support agricultural transport.	County Government, National Government, Contractors, Kenya National Highways Authority (KeNHA)	800.0			

	connectivity • Upgrade to bitumen Meru-Turima Tweru (R8) for inter-county connectivity								
Project 3: Incorporate safety features in road designs									
PROJECT	LOCATION/AREA	UNITS	QTY	OUTCOME	ACTORS	MILLION Ksh.	SHORT (1-3)	MEDIUM (3-5)	LONG (5-10)
• Incorporate traffic lights • Integrate signage into road design for efficient circulation and safety • Discourage on-street parking.	• Class A and B roads especially Nairobi Meru highway • Across all roads in the county	No	All roads	Enhanced road safety and traffic flow.	County Government, Traffic Police,	150.0			

b) Social Infrastructure

EDUCATION SECTOR MATRIX									
Strategy 1: School Infrastructure Development									
						COST	TIMELINE (YEARS)		
PROJECT	LOCATION/AREA	UNITS	QTY	OUTCOME	ACTORS	MILLION Kshs	SHORT (1-3)	MEDIUM (3-5)	LONG (5-10)
Renovation and construction of school buildings	Construction of more schools in Marimanti, Gatunga and other parts of Tharaka North Construction of more schools in Chuka/Igambang'ombe Renovation of school's county wide	No	-	Number of renovated and newly built schools, Improved learning environment	County Government, National Government	350.0			
Strategy 2: Special Education Programs									
PROJECT	LOCATION/AREA	UNITS	QTY	OUTCOME	ACTORS	MILLION Ksh.	SHORT (1-3)	MEDIUM (3-5)	LONG (5-10)
Build and equip special needs schools	Build more schools for the people with special needs in Kathwana ,Chiakariga, Marimanti ,Chuka town and Gatunga Special needs equipment's to be distributed County-wide.	No		Improved access to special education	County Government, National Government, Development partners (World Bank, African Development Bank, Local communities)	200.0			

Strategy 3: Gender Parity Programs									
PROJECT	LOCATION/AREA	UNITS	QTY	OUTCOME	ACTORS	MILLION Ksh	SHORT (1-3)	MEDIUM (3-5)	LONG (5-10)
Scholarships, bursaries, and support programs	County-wide	No	-	Improved boy-to-girl ratio in schools	County Government, National Government, Ministry of Education, Development partners (World Bank, African Development Bank, Local communities)	250			
Strategy 4: Teacher Recruitment									
						COST	TIMELINE (YEARS)		
PROJECT	LOCATION/AREA	UNITS	QTY	OUTCOME	ACTORS	MILLION Ksh.	SHORT (1-3)	MEDIUM (3-5)	LONG (5-10)
Hire more professionally trained teachers	More teachers in Tharaka North and Chuka County-wide	No	-	Improved teacher-student ratios	County Government, National Government, Ministry of Education, KNUT, TSC, Development partners (World Bank, African Development Bank, NGOs)	150.0			
Project 5: Education Financing Programs									
PROJECT	LOCATION/AREA	UNITS	QTY	OUTCOME	ACTORS	MILLION Ksh.	SHORT (1-3)	MEDIUM (3-5)	LONG (5-10)
Fundraising and grants	County-wide	No	-	Increased education budget	County Government, National Government, Local communities, KNUT	50.0			
Project 6: Literacy Programs									
PROJECT	LOCATION/AREA	UNITS	QTY	OUTCOME	ACTORS	MILLION Ksh	SHORT (1-3)	MEDIUM (3-5)	LONG (5-10)
Adult education and literacy campaigns	County-wide	No	-	Increased literacy rates	County Government, Ministry of Education, National Government, Local community, World Bank, African Development Bank	100.0			

HEALTH INFRASTRUCTURE & SERVICES									
Strategy 1: Infrastructure Development									
PROJECT	LOCATION/AREA	UNITS	QTY	OUTCOME	ACTORS	COST (Million Ksh.)	TIMELINE (YEARS)		
							(1-3)	(3-5)	(5-10)
Install Reliable Electricity and Water Supply	Nkondi, Marimanti, Kamwathu and Kathwana.	Facilities		Reliable utilities in healthcare facilities	County Government, Ministry of Health, World Bank, African Development Bank, NGOs, Faith-Based Organizations	100.0			
Strategy 2: Human Resources Development									
PROJECT	LOCATION/AREA	UNITS	QTY	OUTCOME	ACTORS	COST (Million Ksh.)	(1-3)	(3-5)	(5-10)
Hire and Train Doctors, Nurses, Specialists	Tharaka North, Tharaka South, chogoria and Kathwana	Staff		Increased healthcare workforce	County & National Governments, Ministry of Health	300.0			
Strategy 3: Healthcare Financing									
PROJECT	LOCATION/AREA	UNITS		OUTCOME	ACTORS	COST (Million Ksh.)	(1-3)	(3-5)	(5-10)
Fundraising and Grants	Countywide	Programs	-	Sustainable healthcare funding	County & National Governments, Ministry of Health, NGOs, World Bank, African Development Bank, Faith-Based Organizations	250.0			
Strategy 4: Community Health Education									
Health Campaigns and Programs	Marimanti, Chiakariga Chogoria, Kathwana Tharaka South (Nkondi and Tunyai)	Campaigns	-	Increased health literacy	County Government, Ministry of Education, Universities, Community Leaders	70.0			
Strategy 5: Disease Prevention									
Vaccination and Treatment Programs	Igambang'ombe, Mwimbi and Muthambi.	Programs	-	Decreased incidence of diseases	County Government, Ministry of Health, NGOs, World Bank, African Development Bank	150			
Strategy 6: Cultural Competency Development									
Cultural Competency Training for Healthcare Workers	Tharaka North and Tharaka South	Staff		Improved healthcare accessibility	County Department of Health, National Government, Universities such as KMTC	50			

Institutional and Governance Matrix									
Sub Sector: Inter-Governmental Relations									
						Cost	Time Frame		
	Location/Area			Outcome	Actors		Short Term	Medium Term	Long Term
Strategy 1: Collaborative resolution of both county assembly and county executive to pursue boundary conflict under relevant institutions of IGRA and article 188 of the constitution									
							(1-3)	(3-5)	(5-10)
Form a committee under the relevant articles of the constitution and law to deal with the matter	Boundary conflict areas between Tharaka Nithi and Meru Counties	No	1	Peaceful coexistence	Two Counties, IGRTC, IEBC, NG	5 M (Equal Contribution by Two counties)			
Identify the issues and present them for handling by the committee				Increased partnership among communities	Two Counties, IGRTC, IEBC, NG				
Strategy 2: Regularize consultations and collaborations on economic policy and legal issues that affect counties									
Formation of inter-governmental technical committee to handle economic policy issues between two levels of government	County Wide	No	1	Vibrant county economies	County, Council of Governors, NG, KIPPRA, IGRTC , Private Sector	7 M			
Prepare inter-governmental policy guide and dialogue to handle consequences of national policy and legal matters on counties	County Wide			No					
Strategy 3: Procedural Institutionalization of con-current projects and those under section 69 of PLUPA									
Formulate inter county spatial planning policy to deal with con current planning functions	County Wide	No	1	Reduced conflicts between two levels of government	County, Council of Governors, NG, SAGAs, Communities,	8 M			
Harmonization of legal instruments dealing with the same matters to provide both technical/professional and administrative clarity	County wide			No	1				
Sub Sector: County Public Administration or Executive									
Strategy 4: Capacity enhancement of the planning department and appropriate organizational structure									
Implement the proposed organizational structure and personnel	County wide	No	1	Planned county	County executive, CECM, CPSB, County Finance and Treasury, County Assembly	To be worked			
Allocate more funds to the planning department				Increased revenue					
Provide more office space for personnel and equipment for delivery of planning function	County wide	No	Continuous						
				5 Sub Counties 2 Municipalities					

Strategy 5: Institutionalization of a service charter by the planning department and regular reporting									
Prepare a planning service charter for implementation	County wide	No	1	Transparency	County, CPSB, County Assembly, Development Partners	20 M			
Implement a virtual development planning permit system to reduce paper work	County wide	No	1	Efficiency Reduced complaints	Governor, CECM, County Director, Chief Officer, World Bank, FAO				
Strategy 6: Establish an inclusive public participation framework extending to project cycles within the county : See Strategy no 15									
Prepare a complete base of stakeholder mapping per ward	County wide	No	1	Fair and just	County, CA, NGOs, NG, SAGAs, Development Partners, CBOs, FBOs				
Sensitize communities on role of participation and value in planning and implementation of projects	County wide			Share in decision-making		15 M			
Prepare and distribute participation materials regularly		No	5 in Wards	Increased responsibility					
	County Wide								
Sub Sector : County Assembly									
Strategy 7: Enhance periodic civic engagement and education of the citizens at wards and villages									
Carry out at least 4 civic engagement meetings in each ward per year	County Wide	No	4	Increased awareness	County Executive, County Assembly, NGOs, CBOs, Development Partners, SAGAs, Senate	9 Million			
Prepare quarterly reports of community engagement meetings in each ward	County wide	No	4	In touch with real needs and challenges of the community					
Strategy 8 : Empower county assembly members through capacity building to effectively monitor and oversight									
Carry out capacity building sessions to all MCAs on the technical aspects of all departments and processes	County wide	No	4	More informed Improved oversight	County, Development Partners, NGOs, County Assembly	15 M			
Sub sector: Coordination for synergy and effectiveness									
Strategy 9: Develop implementation agreements and supervision mechanisms according to the competencies of each stakeholder									
Assign responsibilities of implementation to stakeholders according to their activities	County Wide and beyond	No	Stakeholder networks	More resources for implementation					
Create supervision committee to track and report on plan implementation		No	Stakeholder networks	Improvements in the conditions of people					

Strategy 10: Awareness enhancement of the importance of horizontal and vertical coordination and effective communication									
Have regular sensitization sessions among staff on coordination	County wide	No	4	Improved service delivery	County, KSG, Count Assembly				
Implement Network teams within and between departments for coordination	County wide			Reduced duplication					
Build capacity of county planning unit to strengthen coordination		No	Continuous	Unity of direction from county	County, KSG, County Assembly				
Strategy 11: Develop a variety of appropriate models of the relationship among statutory actors namely Municipal and Sub Counties									
Prepare models of governance of urban areas within the developed system of governance	Municipality and Town areas (Chuka, Chogoria, Kathwana, & Marimanti)	No	4	Reduced overlaps	County Executive, Municipal Boards, County Assembly, Town Managers, Community, Development Partners	2.5 Million			
Select the appropriate model for governance of urban areas consistent with available legal frameworks		No	1	More autonomy to carry out their functions					
	Municipality and Town Areas (Chuka, Kathwana, Chogoria and Marimanti)			Effectiveness and efficiency					

16.3 Institutional framework

The implementation mechanism connects what exists to what is proposed to be achieved. Past and present operations of institutional and governance structures, from the national to the county level, including other diverse actors, are part of the explanation for the situation the spatial plan seeks to move away from. Formulating an all-purpose institutional and governance platform to implement and lead well-balanced spatial development of the county, one that is vibrant and attractive to investment and innovation, is essential.

Coordination of various actors contributing at different levels in plan implementation, both horizontally and vertically, is traced right from the method of plan preparation, stakeholder engagements, and their spatial presence, directly or indirectly, in Tharaka Nithi County. We have government actors, both county, national, and semi- autonomous government agencies, private sector, NGOs, CBOs, FBOs, development partners, and individuals. These actors are reflected in the methodology and strategy project matrix of implementation. This subsection of spatial planning in our country is the weakest and is rarely critically reflected upon.

i. Basis of Implementation

It is an area of mismatch between governance and planning, and, by extension, between planning and legislative processes at the county level, the national government, and the Senate, as well as between planning and budgeting. It is therefore imperative that all actors meet at a roundtable to finalize the final part of the CSP before submission for approval. It is envisaged that this new way of looking at implementation will contribute significantly to plan implementation by leveraging finances from various actors.

All actors, especially the government and the public sector, work for the benefit of all citizens, guided by values, norms, and ethics as stipulated in laws and regulations. Other actors, too, although working to advance varied interests, are guided by the country's values, norms, and ethics as reflected in its laws and regulations. Contributions of the actors to achieve the plan proposals are carried out along a continuum of functions, such as plan assignment of functions, allocation of resources, policy-making, execution of assignments, adjudication and resolution of conflicts, and monitoring and oversight of all activities, which incorporates evaluation of progress made. Implementation of the county spatial plan shall be guided by the following principles:

- Timely collaborations and consultations among actors for the best implementation action
- Subsidiarity principle, where service delivery at the lowest spatial unit is adhered to
- Social justice and fairness, where all actors are part of the process, and the spatial distribution of development initiatives is emphasized
- All implementation actions are for the good of the sovereign people of the county and those visiting the county
- Capacity enhancement of the county departments, and especially of the directly leading ministry and department, as suggested in the governance strategy.

ii. Assignment of Responsibilities

From the above, the proposed county spatial plan is a statutory policy instrument binding all government actors in the space of Tharaka Nithi based on their legally assigned responsibilities to achieve the common good of the citizens. Coordination and harmony in operations is of great necessity among all government actors. The CSP at another lower level assigns what has been planned for implementation by each actor in the form of county spatial plan agreements or pacts, with precise

timeframes for responsibilities, budgets, and commencement, and reporting mechanisms for progress. The assignment of responsibilities is among the following actors:

- National government, state corporation, independent commissions,
- All the ministries and departments of the county
- Private sector in urban areas (formal and informal)
- Financial institutions and cooperatives
- NGOs, CBOs, FBOs, and others
- Communities and individuals

The implementation agreements should be presented in a table that specifies the actor, sector, type of project being implemented, the budget, the start and end dates, and remarks. Each actor's individual table will contribute to the macro implementation table.

Table 16.1: CSP Implementation Partner Agreements Table

Actor	Sector	Project	Budget	Start Date	End Date	Remarks	
1							
2							
3							

Source: Spatial Governance Expert 2024

This will enable each actor to report on implementation progress at an agreed-upon time after the plan is approved. This will be reported to a supervision committee, which in turn reports to the policy coordinating committee comprising CECMs in the county planning unit. The county director of physical and land use planning is responsible for guiding the supervisory committee, in liaison with the chief office and CECM, in the areas of land, physical planning, and urban development. Successful implementation of the work requires immediate provision and tackling of the three issues

1. Work on enabling a policy and legal environment for the benefit of plan implementation and communities
2. Work on enabling network infrastructure, utilities, and services with great attention on spatial justice and fairness
3. Capacity building in the areas identified first, the public sector, the county assembly, and later the community in specified action areas according to the implementation matrix.

Capacity building in the planning department is at the county level, and the newly created municipalities will tentatively follow the guidance in the table below.

Table 16.2: Human Resource Personnel

Directors	Dep-Director	Assistant Directors	Principal Planners	Planners 1	Technicians	Engineers	Architects	Building Inspectors
CD-1 MD 2	1	5	6	8	8	9	9	16
Required support staff, offices, and equipment								

Source: Spatial Governance Expert 2024

The above aims to strengthen the county planning system up to the two municipalities, so that they can play a critical role in facilitating other actors in plan implementation. Three organizational

structures for the County as a whole and two for the municipalities of Kathwana and Chuka are envisaged.

From the county spatial plan, the sequence of implementing the plan is as follows:

Figure 16. 1: CSP Implementation Process

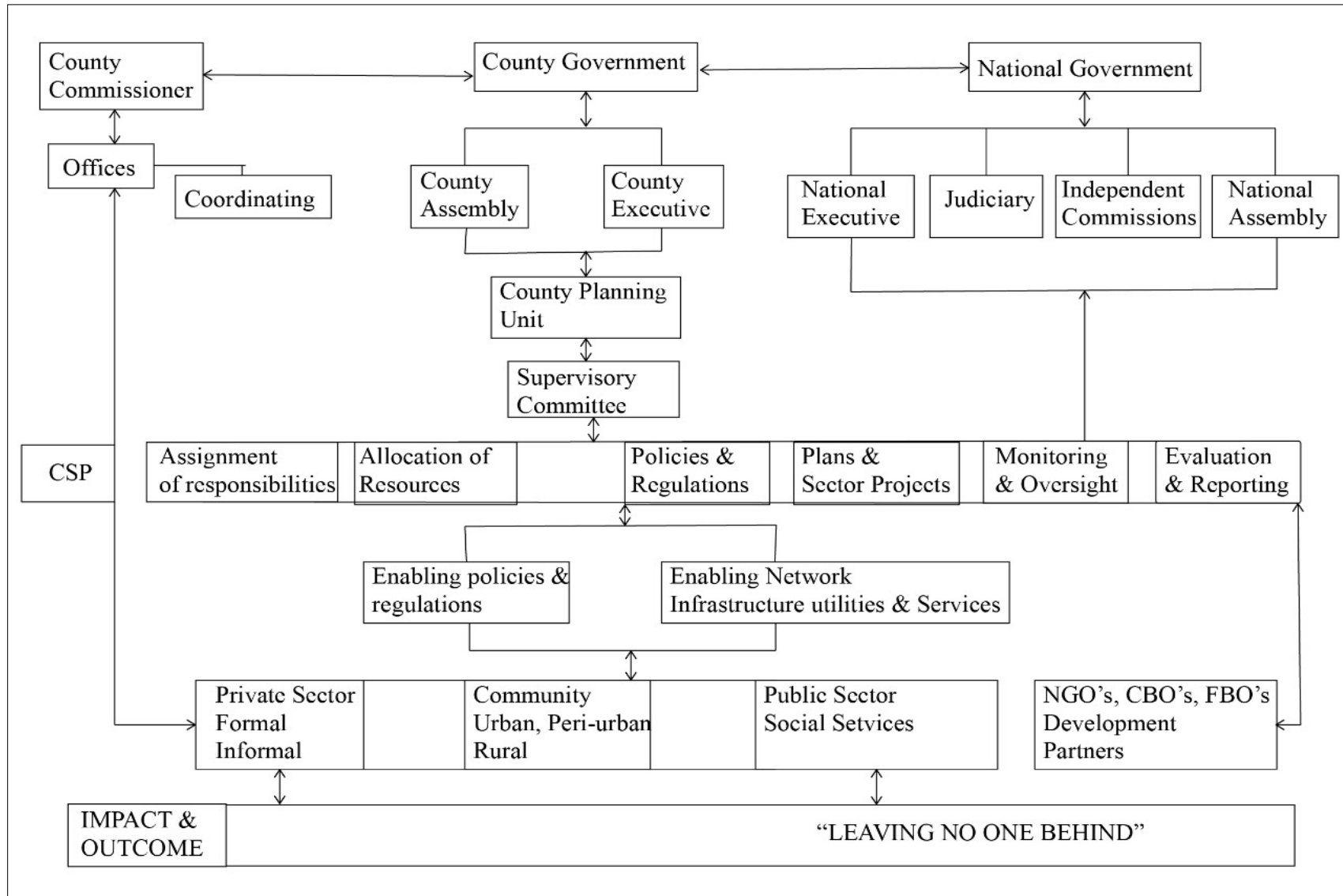
Assignment of Plan responsibility	Allocation of Resources	Formation of Policies & Regulations (Internal)	Execution of sector plans Project activities	Monitoring & Oversight	Evaluation & Progress Reporting
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Source: Spatial Governance Expert: 2024

The final CSP forms the starting point for the assignment of responsibilities in a consultative forum of stakeholders. This will enable precise budget allocation, improved costing of activities to be implemented in the plan, commitments to internal county formulation of relevant policies and sector plans, execution of sector plans and project activities by various actors, monitoring and oversight, and, hence, evaluation of progress and internal reporting. This may require the county to conduct a medium-term review of CIDP to align it with CSP’s implementation. Each actor should note emerging project needs outside the CSP that may form the basis for building a case for periodic review of the CSP.

The overall organization of the implementation has been tentatively designed as follows.

Figure 16.2: Implementing Institutional Organization



Source: Spatial Governance Expert 2024

16.4 Capital Investment Plan

The Capital Investment Plan (CIP) is designed to guide the allocation of resources towards infrastructure and development projects that will drive economic growth and improve the quality of life for residents in the next 10 years. The plan prioritizes projects that align with the county's long-term vision for sustainable development, focusing on enhancing public services, expanding economic opportunities, and promoting environmental sustainability. The CIP aims to lay a solid foundation for the county's future prosperity by systematically investing in key areas.

The projects outlined in the CIP are thoughtfully distributed across the County's 15 wards, ensuring that development efforts are both inclusive and equitable. Each Ward has been carefully assessed in the sub-county reports in the annexures to identify its unique needs and potential, leading to the selection of projects that will deliver the most significant impact. From infrastructure improvements to social services and economic development initiatives, the plan addresses the diverse requirements of each ward, fostering balanced growth and ensuring that no area is left behind in the county's development journey.

To implement these projects effectively, the CIP also emphasizes the importance of resource mobilization, strategic partnerships, and alignment with national government programs. Recognizing that the available county funds may be insufficient to fully realize the proposed projects, the plan advocates for leveraging additional funding sources, including Public-Private Partnerships (PPPs), grants, and donor funds. This approach is essential for bridging the resource gap and ensuring the successful execution of the CIP, ultimately achieving the County's development goals.

a) Countywide Priority Projects

Specific Project / (Id): TNC1	
Project:	Adjudication of all unadjudicated land
Project Location / Site:	Countywide
Project Unit / Quantity:	All unadjudicated land (76% of the County)
Project Description / Detail:	Identification of unadjudicated areas, surveying and registration
Estimated Total Costs:	To be determined-County/National Government to engage experts

Specific Project / (Id): TNC2	
Project:	Planning of all unplanned towns and market centres
Project Location / Site:	countywide
Project Unit / Quantity:	All unplanned towns and market centres
Project Description / Detail:	Preparation of Local Physical and Land Use Development Plans for all unplanned towns and market centres
Estimated Total Costs:	Cost to be determined-County to engage expert Planners

Specific Project / (Id): TNC3	
Project:	Preparation of valuation rolls for the all towns
Project Location / Site:	Countywide
Project Unit / Quantity:	All towns
Project Description / Detail:	Preparation of valuation rolls for rating
Estimated Total Costs:	Cost to be determined -County to develop a valuation roll supported by a land information management system for major urban areas. GIS data centres should be developed in major urban areas

b) Priority Projects per ward

MUKOTHIMA WARD

Specific Project / (Id): Mkt1	
Project:	Establish a cultural resort centre (with a crafts market, eco-lodge & cultural manyatta)
Project Location / Site:	Ura Gate
Project Unit / Quantity:	Approx. 2.02Ha (5 acres)
Project Description / Detail:	Identification and acquisition of land for establishment of the cultural resort center Identify a private investor
Estimated Total Costs:	To be determined

Specific Project / (Id): Mkt2	
Project:	Set up a grains drying facility (Drying, Preservation, Storage, Packaging and Distribution Centres (GDSDC)
Project Location / Site:	Mukothima
Project Unit / Quantity:	Approx. 3.2Ha (8 acres)
Project Description / Detail:	Identification and acquisition of land for the grains drying facility
Estimated Total Costs:	To be determined

Specific Project / (Id): Mkt3		
Project:		Upgrading of the Gatunga-Kanguto-Makutano-Meru Rd
Project Location / Site:		Mukothima
Project Unit / Quantity:		Approx.21km
Project Description / Detail:		Upgrading of the road Tarmacking
Estimated Costs:	Total	21km. Engage Road agencies and other experts to determine the cost per kilometre

PRIORITY PROJECTS FOR GATUNGA WARD

Specific Project / (Id): Gtg1		
Project:		Construct an integrated livestock facility (modern abattoir, meat processing, leather tanning, holding ground and laboratory).
Project Location / Site:		Gatunga
Project Unit / Quantity:		Approx.320Ha (Approx. 800 acres)
Project Description / Detail:		Identification and acquisition of land for the construction of livestock development and value-addition facilities and for holding ground.
Estimated Costs:	Total	To be determined-Follow procurement guidelines to pre-qualify the most cost-effective and qualified experts and contractors

Specific Project / (Id): Gtg2		
Project:		Upgrading and Construction of bridges on the Marimanti-Gatunga-Kathangacini-Usweni Rd
Project Location / Site:		Gatunga- Marimanti-Kathangacini-Usweni
Project Unit / Quantity:		Approx. 15km
Project Description / Detail:		Upgrading of the Gatunga-Kathangacini-Usweni road to Class C Construction of bridges
Estimated Costs:	Total	To be determined

PRIORITY PROJECTS FOR NKONDI WARD

Specific Project / (Id): Nkd1	
Project:	Upgrading of the Marimanti-Nkondi-Turima-Meru Rd to Class B
Project Location / Site:	Nkondi
Project Unit / Quantity:	Approx. 40km
Project Description / Detail:	Upgrading of the road to Class B
Estimated Total Costs:	To be determined

Specific Project / (Id):Nkd2	
Project:	Set up a grains drying facility for cleaning, drying, preservation, storage, packaging and distribution of greengrams and cowpeas Set up a value addition facility for processing of sorghum and millet flour
Project Location / Site:	Nkondi
Project Unit / Quantity:	Approx. 3.2Ha (8 acres)
Project Description / Detail:	Identification and acquisition of land for the grains drying and value-addition facility
Estimated Total Costs:	To be determined

PRIORITY PROJECTS FOR MARIMANTI WARD

Specific Project / (Id): Mrm1	
Project:	Construct a modern abattoir for meat processing
Project Location / Site:	Marimanti
Project Unit / Quantity:	Approx. 240Ha (Approx. 600 acres)
Project Description / Detail:	Securing of land for construction of the livestock development and value addition facilities.
Estimated Total Costs:	To be determined

Specific Project / (Id): Mrm2	
Project:	Construct a cotton ginnery and spinning
Project Location / Site:	Marimanti
Project Unit / Quantity:	Approx. 20Ha (Approx. 50 acres)
Project Description / Detail:	Identification and acquisition of land for the cotton ginnery
Estimated Total Costs:	To be determined

Specific Project / (Id): Mrm3	
Project:	Construction of a market
Project Location / Site:	Marimanti
Project Unit / Quantity:	Approx. Ha (Approx. acres)
Project Description / Detail:	Construction of the market facility on the land set aside for the market
Estimated Total Costs:	To be determined

Specific Project / (Id): Mrm4	
Project:	Construction of a termini
Project Location / Site:	Marimanti
Project Unit / Quantity:	Approx. 7.18Ha (Approx. 17.95 acres)
Project Description / Detail:	Identification of a suitable site and Construction of the termini
Estimated Total Costs:	To be determined

PRIORITY PROJECTS FOR CHIAKARIGA WARD

Specific Project / (Id): Chg1	
Project:	Development of an irrigation scheme
Project Location / Site:	Chiakariga ward
Project Unit / Quantity:	Approx. 500 acres
Project Description / Detail:	Irrigation scheme for cotton farming, horticulture

Estimated Total Costs:	To be determined
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Specific Project / (Id): Chg2	
Project:	Construction of a resort facility at the Grand Falls Dam
Project Location / Site:	Kamarandi
Project Unit / Quantity:	Approx. 5 acres
Project Description / Detail:	Resort facility
Estimated Total Costs:	To be determined

PRIORITY PROJECTS FOR IGAMBANGOMBE WARD

Specific Project / (Id): Igb1	
Project:	Development of the Itugururu airstrip
Project Location / Site:	Itugururu
Project Unit / Quantity:	60 acres
Project Description / Detail:	Construction of the airstrip
Estimated Total Costs:	To be determined

Specific Project / (Id): Igb2	
Project:	Construction of bridges along the Chiakariga- Marimanti Rd
Project Location / Site:	
Project Unit / Quantity:	Approx. km
Project Description / Detail:	Construction of xxx bridges along the Chiakariga-Marimanti Rd
Estimated Total Costs:	To be determined

Specific Project / (Id):Igb3	
Project:	Construction of a bus terminus
Project Location / Site:	Kathwana
Project Unit / Quantity:	Approx. Ha. (Acres)
Project Description / Detail:	Construction of the bus park on the earmarked land
Estimated Total Costs:	To be determined

PRIORITY PROJECTS FOR MARIANI WARD

Specific Project / (Id): Mrn1	
Project:	Development of the industrial park
Project Location / Site:	Marembo
Project Unit / Quantity:	Approx. 100 acres
Project Description / Detail:	Construction of an industrial park
Estimated Total Costs:	To be determined

Specific Project / (Id): Mrn2	
Project:	Development of a waste management facility
Project Location / Site:	Near Kaanwa Town
Project Unit / Quantity:	Approx.
Project Description / Detail:	Construction of the waste management facility
Estimated Total Costs:	To be determined

PRIORITY PROJECTS FOR MAGUMONI WARD

Specific Project / (Id): Mgm1	
Project:	Construction of Ruguti dam
Project Location / Site:	Along Ruguti river
Project Unit / Quantity:	Approx. 20.23 Ha (50 acres)
Project Description / Detail:	Construction works
Estimated Total Costs:	To be determined

Specific Project / (Id): Mgm2	
Project:	Tarmacking of the Kibugua-Magenka-Kamwimbi Rd
Project Location / Site:	Magumoni
Project Unit / Quantity:	Approx. xxx km
Project Description / Detail:	Construction works
Estimated Total Costs:	To be determined

Specific Project / (Id): Mgm3	
Project:	Construction of the market facility
Project Location / Site:	Magumoni
Project Unit / Quantity:	Approx. acres
Project Description / Detail:	Identification of the land, acquisition and construction of the market facility
Estimated Total Costs:	To be determined

Specific Project / (Id): Mgm4	
Project:	Establish a fire sub-station
Project Location / Site:	Magumoni ward
Project Unit / Quantity:	Approx. acres
Project Description / Detail:	Construction of the sub-station
Estimated Total Costs:	To be determined

PRIORITY PROJECTS FOR MUGWE WARD

Specific Project / (Id):Mgw1	
Project:	Revitalization of Iringu coffee factory
Project Location / Site:	Mugwe ward
Project Unit / Quantity:	Its current acreage
Project Description / Detail:	Prepare a master plan for the coffee factory, and construction of new infrastructure for coffee processing
Estimated Total Costs:	To be determined

Specific Project / (Id): Mgw2	
Project:	Upgrading of the Kaanwa -Itugururu linkage
Project Location / Site:	Mugwe ward
Project Unit / Quantity:	Approx. 17km of tarmac road
Project Description / Detail:	Construction of the road
Estimated Total Costs:	To be determined

PRIORITY PROJECTS FOR KARINGANI WARD

Specific Project / (Id): Krg1	
Project:	Construction of transport terminus
Project Location / Site:	Chuka town
Project Unit / Quantity:	Approx. acres
Project Description / Detail:	Construction of a bus terminus at the identified site
Estimated Total Costs:	To be determined

PRIORITY PROJECTS FOR MITHERU WARD

Specific Project / (Id): Mtr1	
Project:	Enhance the capacity of existing cold rooms and milk coolants
Project Location / Site:	Mitheru ward
Project Unit / Quantity:	The current acreage
Project Description / Detail:	Expansion of existing milk coolants and cold rooms
Estimated Total Costs:	To be determined

Specific Project / (Id): Mtr2	
Project:	Construction of NMT and stormwater drains on the Mitheru-Kaanwa Road
Project Location / Site:	Mitheru Ward
Project Unit / Quantity:	Approx. 11km
Project Description / Detail:	Construction of non-motorized transport facilities and stormwater drains
Estimated Total Costs:	To be determined

PRIORITY PROJECTS FOR MUTHAMBI WARD

Specific Project / (Id): Mtm1	
Project:	Revitalize coffee factories
Project Location / Site:	Muthambi Ward
Project Unit / Quantity:	The current acreage
Project Description / Detail:	Renew dilapidated infrastructure
Estimated Total Costs:	To be determined

Specific Project / (Id): Mtm2	
Project:	Tarmacking of the Marima-Iriga- Chogoria Rd
Project Location / Site:	Muthambi Ward
Project Unit / Quantity:	Approx. 15km of tarmac road
Project Description / Detail:	Construction of the road
Estimated Total Costs:	15Km x cost per Km

PRIORITY PROJECTS FOR CHOGORIA WARD

Specific Project / (Id): Chg1	
Project:	Redevelopment of the Kinondoni Campsite
Project Location / Site:	Chogoria Gate
Project Unit / Quantity:	Entire campsite
Project Description / Detail:	Rehabilitation of the campsite
Estimated Total Costs:	To be determined

Specific Project / (Id): Chg2	
Project:	Upgrading of the access road to Chogoria gate
Project Location / Site:	Chogoria Ward
Project Unit / Quantity:	Approx. 30km of tarmac road
Project Description / Detail:	Construction of the road
Estimated Total Costs:	30Km x cost per Km

PRIORITY PROJECTS FOR GANGA WARD

Specific Project / (Id): Gng1	
Project:	Revitalize coffee factories
Project Location / Site:	Ganga ward
Project Unit / Quantity:	The current acreage
Project Description / Detail:	Renew dilapidated infrastructure
Estimated Total Costs:	To be determined

Specific Project / (Id): Gng2	
Project:	Construction of the Magutuni-Kaanwa Linkage
Project Location / Site:	Ganga Ward
Project Unit / Quantity:	Approx. 30km of tarmac road
Project Description / Detail:	Construction of the road
Estimated Total Costs:	30km x cost per km

PRIORITY PROJECTS FOR MWIMBI WARD

Specific Project / (Id):Mwm1	
Project:	Enhance the capacity of existing cold rooms and milk coolants
Project Location / Site:	Mwimbi Ward
Project Unit / Quantity:	The current acreage of the facilities
Project Description / Detail:	Expansion of existing milk coolants and cold rooms
Estimated Total Costs:	To be determined

Specific Project / (Id): Mwm2	
Project:	Fencing and reforestation of Kierra Hills
Project Location / Site:	Kierra Hills
Project Unit / Quantity:	Approx. 100 acres
Project Description / Detail:	Fencing and afforestation activities in the hills
Estimated Total Costs:	To be determined

Specific Project / (Id): Mwm3	
Project:	Upgrade Keria-Magutuni-Kathwana road
Project Location / Site:	Mwimbi Ward
Project Unit / Quantity:	Approx. 35km.
Project Description / Detail:	Upgrading of the road
Estimated Total Costs:	35km x cost per km

16.5 Monitoring and evaluation

This section provides a comprehensive framework for tracking project progress and assessing impact across all key sectors outlined in the County's proposed plan. This section is essential to ensuring that the initiatives in natural resources and environment, socio-cultural development, land use and land management, human settlements and urbanization, economic development, agricultural development, infrastructure and service development, and governance are effectively implemented and achieve the intended outcomes. The M&E framework includes clearly defined outcomes and indicators for each project, enabling stakeholders to measure performance, identify challenges, and make informed decisions to optimize resource use and achieve the County's strategic objectives. This systematic approach to monitoring and evaluation is crucial for maintaining accountability, enhancing transparency, and ensuring the successful realization of the County's development goals.

Projects	Outcomes	Indicators
Sector: Natural Resources and Environment		
Solid waste management plan formulation	Clean and livable urban centers	Approved solid waste management plan
Ban plastic use in the County and formulate plastics management guidelines for the County	Clean and livable urban centers	Adopted plastics management guidelines
Purchase 1-5 acres of land for solid waste recycling centers Establish and operationalize solid waste re-cycling centers in all the urban centers by installing solid waste management machines	Clean and livable urban centers Economic benefits from waste Income from recycled solid waste Organic manure Employment created	Presence of solid waste recycling centers
Establish and facilitate solid waste management committees for each urban center and recruit members for the committees	Competent capacity to manage urban solid waste Clean and livable urban environments	Established solid waste management committees in each urban center
Sensitize, map, and restore riverine reserves of major rivers and plant Indigenous trees and shrubs Reduction of river and air pollution through monitoring river and air pollution levels and implementing preventive measures	Clean water Enhanced biodiversity Increased river water volume Clean air Reduced respiratory diseases	Revitalized riverine reserves
Facilitate sustainable management of the County's Indigenous forests by gazetting the 8 un-gazetted hills.	Sustainably managed Indigenous forests Increased tourism and research activities Increased income from beekeeping	Gazettement of hills
Establish one Community Forest Management Committee for each hill for sustainable management of the hills.	Well-managed Indigenous forests and hills Increased tourism and research activities Increased income from beekeeping	Established community Forest Management Committee for each hill
Promote hills as research and tourist sites by facilitating the restoration of all hills for tourism, research education, and documentation of indigenous knowledge.	Increased recreation facilities Increased Indigenous knowledge	Restored hills
Promote planting of a minimum of 10% of all land with trees and shrubs.	Reduced climate variability Increased forest products Income from commercial forestry	Increased tree cover
Formulate quarrying regulations. Organize miners into associations or cooperatives by counties Formulate and implement a mining management plan for the county to scale up activities for viable household incomes.	Sustainable mining of the County minerals Income and revenue from minerals	Adopted quarrying regulations Approved mining management plan
Sector: Population and socio-cultural Development		
Projects	Outcomes	Indicators
Formulate guidelines for Land Utilization at Ura Gate Encourage private investors to develop a resort	Increased revenue from tourism activities	Adopted guidelines for Land Utilization at Ura Gate

Projects	Outcomes	Indicators
An operational PPP policy Land aside for the resort		Established resort at Ura gate
A policy to guide cultural activities Empowered community members through SACCO/cooperatives or self-help groups	Improved livelihoods	Adopted Cultural activities policy
Fill the gap in the number of schools and health centers Upgrade the existing ECD centers and health centers	Improved livelihoods Improved literacy level	Increased number of schools and health facilities across the county Upgraded ECD centers
Develop a community cultural centre in each ward	Increased revenue from tourism activities Improved livelihoods	Established community cultural center
Developing ICT hubs in all Wards Equip the Technical and Vocational Training centers Developing social facilities such as social halls.	Improved livelihoods for the youth	Established ICT hubs in all Wards Equipped TVETs Established social facilities
Creation of credit systems targeting the youth Revitalized Youth Fund	Improved livelihoods for the youth	Functional youth fund
Develop database for the special groups Sensitized groups on their rights and available resources	Improved level of public participation	Up to date database for special groups
Providing equipment and infrastructure that boosts PWDs such as providing wheelchairs and building ramps.	Inclusivity	All-inclusive structures
Sector: Land Use and Land Management		
Projects	Outcomes	Indicators
Adjudication, registration and titling of all unadjudicated land in the county to enhance security of tenure, raise value of land and attract investments.	Registration of land and issuance of title deeds.	An up-to-date cadastre for the whole county
Development of valuation Rolls to facilitate collection of land revenue in all urban areas.	Predictability of land revenue. Efficiency in collection of land revenue. Increased land revenue for the county.	Valuation rolls for each urban area
Petition the National Assembly and the Senate as directed in Art. 188 on resolution of any County boundary disputes.	Resolution of county boundary disputes.	Well-established county boundaries
Process succession matters for those unable to, by using the office of the County Attorney. Sensitization of the public on land issues particularly succession matters to create the necessary awareness.	Hastened land adjudication Increased public knowledge about succession	Issuance of more title deeds
Digitization of all land records to enhance their integrity and management.	Higher integrity Digitized land records.	An up-to-date GIS- database for the county
Decline requests for change of use from agricultural use to other uses.	Protection of agricultural land	Retained agricultural land

Projects	Outcomes	Indicators
Make agriculture more profitable and predictable through irrigation and value addition	Increased uptake of agriculture and production.	Established irrigation schemes
Earmarking land for public use during planning and adjudication. Identification, survey and titling of all public land	Public Land Bank Secured public purpose land	Existence of public lands
Development of different typologies of green spaces: Neighborhood parks, parks, botanical gardens, tree-lined streets, tree-lined riparian reserves.	Increased green spaces for recreation and aesthetics.	Developed green open spaces
Preparation of development plans for all unplanned land.	Spatial plans to guide physical development in the county.	Approved development plans for all unplanned land.
Enforcement of development control.	Orderly use of land and application of planning standards.	Approved developments
Develop and enforce a county land use policy to forestall unsustainable land use practices and address the current ones such as the substandard land subdivisions and informal urbanization.	Increased knowledge on land use management.	Adopted county land use policy
Public sensitization on proper land use management	Protection of agricultural land.	Adherence to land use management
Establishment of minimum land holding sizes for the various agricultural land zones.	Availability of guidelines for development control.	Adopted agricultural land use guidelines
Introduce agroforestry in bare steep areas, decommissioning and rehabilitation of disused quarries.	Conservation of steep areas and rehabilitated disused quarries for new uses.	Increased vegetation cover
Upgrade existing and develop new physical infrastructure: roads, transport infrastructure, and utility services to open up the areas and attract settlement and investment.	Accessible areas with usable roads and attraction of investments.	Increased and improved infrastructure
Sector: Human Settlements and Urbanization		
Projects	Outcomes	Indicators
Enforce laws and regulations for promoting environmental protection. Community sensitization on the ways and importance of environmental conservation.	Protected and healthy environment. Increased awareness of environmental conservation.	Well conserved environment
Demarcation of boundaries of all urban and market centres and contain their development within the boundaries by establishing Urban Service Boundary (USB) and achieve compact centres.	Reduced urban sprawl and therefore protection of agricultural land.	Established urban center boundaries
Prepare development plans for all market and urban centres.	Planned urban and market centres.	Approved development plans for all urban centers

Projects	Outcomes	Indicators
Stimulating growth of secondary towns and promoting a hierarchical urban pattern	A clear hierarchical urban pattern of secondary towns.	Growth of secondary towns
Plan the markets and towns and provide them with adequate infrastructure, social services, affordable housing, employment and economic opportunities.	Planned towns and market centres and with adequate infrastructure, social services, affordable housing, employment and economic opportunities.	Approved plans for the local markets
Strengthen urban-rural linkages.	Well-developed urban-rural linkages that promote development of the rural economy.	Developed roads linking towns
Assessment, Planning & installation of adequate infrastructure and social amenities.	The entire county being well served with both physical and social infrastructure.	Improved and increased infrastructure
Sensitization of the people on proposal to reorganize settlement patterns into cluster (for areas to be irrigated) and linear (some of the sparsely settled areas) patterns.	Better organized settlement patterns that promote the provision of services and enhanced agricultural production.	Organized human settlement across the county
Implementation of recommended types of housing in different areas and encouraging the use of locally available housing materials. Use of appropriate building technologies	Affordable and decent housing typologies. Affordable and decent housing typologies.	Improved housing
Sector: Economic development		
Projects	Outcomes	Indicators
Prepare and implement a county agricultural development Plan to drive Prepare and implement a county industrialization plan	Increased production Reduced imports of agricultural products Increased off farm employment Linkages Reduced imports of industrial products	Approved county agricultural development Plan Approved county industrialization plan
Prepare a roads improvement plan	Reduced inequality between the upper zone and lower zone Increased mobility Increased trade	Approved transportation plan
Carry out industrial potential assessments both resources based and non-farm Prepare the county industrial policy	Actual industrial potential and diversification Generation of investment opportunities	Adopted county industrial policy
Strengthen existing value chains and link to spatial planning Prepare value chains for remaining crops and livestock sector linked to spatial planning Prepare value chains for off-farm industrial activities	Improved linkages Increased output Expanded opportunities Availability of markets Increased output Attraction of investments Vibrant county economy	Established strong value chains

Projects	Outcomes	Indicators
To implement regular Bi-annual meetings between the Council of Governors, CECMs of Finance & Economic Planning	Improvement in business environment Increased investments Increased employment	Organized and conducted Bi-annual meetings between the Council of Governors, CECMs of Finance & Economic Planning
Prepare waste management value chain processes Identification of various spatial requirements in the chain processes	Clean environment Employment generation Reduced space for waste disposal	Established waste management value chain processes
Identify all the urban centres and available service levels Using appropriate criteria develop a classification of all the urban centres	Assigned functions Ordered hierarchy of centers	An inventory of all urban centers
Prepare a sequence of urban plans Select appropriate methods of delivering the Local Physical and Land Use Plans	Enhanced rates Improved business environment Attraction of investments	Approved plans for the urban centers
Plan and construct markets appropriately in urban centers of the county equally distributed in the three zones	Reduced informal sector spread Improved trading environment	More constructed markets
Prepare a county ICT policy	Service delivery efficiency Reduced costs Innovations and employment of youth	Adopted county ICT policy
Identify and secure all the tourism assets and circuits internally connected to external circuits Prepare the tourism plan with circuits linking to resort assets/centers	Investment opportunities Increased visibility of the county Employment opportunities	An up-to-date inventory of all tourism assets Approved tourism plan
Prepare a tourism brand for the county	Attraction of more visitors Increased visibility of the county	An approved and established tourism brand for the county
Identification and sensitization of communities near tourism assets and resort centres Promotion of both material and non-material culture of the communities during organized cultural festivals	Local innovations and awareness Stimulate local production Employment and incomes	Increased participation in tourism activities
Carry out a three-year interval of an integrated social economic situational analysis and survey to establish actual economic potential Strengthen internal local revenue controls through automation	Untapped revenue sources Economic base Priority investment areas Increased revenue	Up-to-date social economic reports
Prepare up to date GIS Based Cadastre Prepare a robust land information system with social economic data Prepare valuation rolls for urban centres	Ease of decision making on planning Information for planning Increased revenue collection	Established and up-to-date GIS Based Cadastre Functional land information system
Sensitization of communities on community oversight and monitoring of county expenditure Identification of community members for training per ward	Decision making know-how Empowerment of community Increased accountability	Increased number of community members in public participation forums

Projects	Outcomes	Indicators
Assignment of trained people to various projects Quarterly interval briefing of communities at ward levels and senate	Community satisfaction with county government	
Sector: Agricultural Development		
Formulation of land use policy for minimum land sizes Formulate and enact legislation and regulations for minimum land sizes	Optimal utilization of agricultural land	Approved land use policy
Promotion of technology-induced farming e.g. Online marketing, use of applications etc. Piloting Cooperative Farming (CFM) Models to accommodate the surplus households. Introduction of new high-value crops	Livelihood opportunities and income	More established and functional farming applications
Creating and strengthening Farmer Cooperative Societies	Strong farmer organizations Increased farm produce, food, income and livelihood security	Established and operational Farmer Cooperative Societies
Recruitment of extension officers in cooperatives for all enterprises	Increased farm production and productivity Employment of extension staff	Increased number of extension officers
Register all farmers in each Ward into cooperatives based on enterprises.	Database for farmers according to enterprise Planned/demand-driven production of agricultural produce.	Established up-to-date farmer databased for each ward
Introduce farmer certification through initial training for all enterprises	Knowledgeable farmers High yields	More farmers with certificates
Introduce demonstration farms Empower champion farmers in all Wards for continuous mentorship of farmers	Increased farm production hence food income and livelihood security	Developed demonstration farms
Increasing household livestock numbers for livestock farmers in the lowlands to the recommended minimum	Increased income and livelihood security	Increased number of household livestock
Establish a dairy cattle breeders cooperative to supply farmers with high yielding breeds	Increased production of milk	Established dairy cattle breeders cooperative
Promote fodder production for increased livestock productivity	Increased livestock productivity	Increased fodder production Increased livestock productivity
Strengthen the dairy goat breeders association to supply farmers with high-yielding breeds	Increased dairy goat milk yield and household income	Strong and functional dairy goat breeders' association
Enhance Dairy Cattle AI services by establishing a well-equipped centre in each Ward Enhance livestock disease control services by having a well-equipped clinic in each Ward	Improved breeds and increased milk production Healthy animals translating to high meat productivity	Well-established Dairy Cattle AI services and clinics in each ward

Projects	Outcomes	Indicators
Set up Grains Drying, Preservation, Storage, Packaging and Distribution Centres (GDSDC) at Strategic sites.	Increased returns	Developed silos
Construct water supply infrastructure to support irrigated cotton farming	Increased cotton production, fabric manufacture and apparel-making	Established water supply infrastructure
Promote rainwater harvesting in individual homes and institutions. Through affordable loans for water tanks	Increased water availability and reduced water bills Increased water availability and reduced water bills	Developed rainwater harvesting infrastructure
Upgrade roads used for transporting farm produce and work with Farmer Cooperatives to improve rural roads on a continuous basis	Reduced transportation cost hence farm produce profitability	Upgraded roads
Sector: Infrastructure and Service Development		
Establish an integrated plan for the road and proposed rails, airports/airstrips and road improvements. Establish joint projects with neighboring Counties, such as Kitui, Meru, and Embu, and with the LAPSSET corridor	Developed comprehensive transportation links.	Approved transportation plan Launched and implemented inter-county projects
Upgrade and maintenance of road infrastructure.	Improved road connectivity and support agricultural transport.	Upgraded road infrastructure
Incorporate traffic lights on Class A and B roads especially Nairobi Meru highway Integrate signage into road design for efficient circulation and safety Discourage on-street parking	Enhanced road safety and traffic flow.	Functional traffic lights Well put signage on the roads Clear roads
Integrate stormwater drainage masterplans into transportation masterplans Building of culverts to improve drainage at junctions and access roads	Protected road infrastructure from water damage.	Well-designed and implemented transportation master plans More constructed culverts
Bridge and drift construction countywide across rivers and streams. Establishment of more bridge crossings along River Tana. Establishment of the road network to and from the bridge crossings. Review and build bridges along major and seasonal river crossings on primary roads.	Enhanced connectivity across rivers and streams.	More constructed bridges Improved road network
Upgrading public transport facilities- bus parks, bus stops, boda stands, taxi ranks and waiting bays for passengers Promotion and enforcement of road safety measures. Promotion of accessible public transport in the dispersed areas.	Promoted accessible and safe public transport.	More constructed transport facilities
Develop pedestrian and cycling master plans, especially for major towns and centres like Chuka and Chogoria.	Promoted non-motorized transport (NMT) options.	Approved pedestrian and cycling master plans for major towns and centers

Projects	Outcomes	Indicators
Provision for NMT facilities		
Expand and improve the airport at Itugururu and the airstrip near Kamarandi. Improve access roads to airports and airstrips for enhanced accessibility.	Enhanced air transport for economic growth.	A functional airstrip at Itugururu Improved access to the airport
Establishment of a connection line through the county with the LAPSSET corridor. Establishment of rail goods and passenger termini.	Improved county integration into national transport networks.	Established and operational rail termini
Sector: Governance		
Form a committee under the relevant articles of the constitution and law to deal with the matter Identify the issues and present them for handling by the committee	Peaceful coexistence Increased partnership among communities	Established committees
Formation of an inter-governmental technical committee to handle economic policy issues between two levels of government Prepare inter-governmental policy guide and dialogue to handle consequences of national policy and legal matters on counties	Vibrant county economies Reduced resistance from communities or non-compliance	A functional inter-governmental technical committee Adopted inter-governmental policy guides
Formulate inter-county spatial planning policy to deal with concurrent planning functions Harmonization of legal instruments dealing with the same matters to provide both technical/professional and administrative clarity	Reduced conflicts between two levels of government Effectiveness and efficiency	Adopted inter-county spatial planning policy
Implement the proposed organizational structure and personnel Allocate more funds to the planning department Provide more office space for personnel and equipment for delivery of planning function	Planned county Increased revenue Community satisfaction	Established new organizational structure and personnel More funds at the planning department More developed office spaces Better and more equipment in the office spaces
Prepare a planning service charter for implementation Implement a virtual development planning permit system to reduce paperwork	Transparency Efficiency Reduced complaints	An adopted and functional planning service charter Functional virtual development planning permit system
Prepare a complete base of stakeholder mapping per ward Sensitize communities on the role of participation and value in the planning and implementation of projects Prepare and distribute participation materials regularly	Fair and just Share in decision-making Increased responsibility	Up-to-date stakeholder database for each ward Increased number of community members being involved in public participation forums Active public participation
Carry out at least 4 civic engagement meetings in each ward per year	Increased awareness	Increased number of civic meetings held

Projects	Outcomes	Indicators
Prepare quarterly reports of community engagement meetings in each ward	In touch with the real needs and challenges of the community	Prepared quarterly reports of community engagement
Assign responsibilities of implementation to stakeholders according to their activities Create a supervision committee to track and report on plan implementation	More resources for implementation Improvements in the conditions of people	Improved level of implementation of projects Established supervision committees Increased project monitoring reports
Have regular sensitization sessions among staff on coordination Implement network teams within and between departments for coordination Build capacity of county planning unit to strengthen coordination	Improved service delivery Reduced duplication Unity of direction from the county	Well-linked and coordinated departments within the county
Prepare models of governance of urban areas within the developed system of governance Select the appropriate model for governance of urban areas consistent with available legal frameworks	Reduced overlaps More autonomy to carry out their functions Effectiveness and efficiency	Established and functional urban areas governance models

17 ANNEXES

Annex 17.1: Inventory of KERRA Roads

THARAKA CONSTITUENCY						
CODE	ROAD NAME	PAVED	GRAVEL	EARTH	MIXED	LENGTH
C356	DB Meru-Gatithini- Shauri - Usueni		8	50		58
C411	Nkondi-Machegene		3	16.5		19.5
C363	DB Meru-Marimanti-Gatunga				25	25
C359	DB Meru-Ruungu-Kasarani-Makomango-Grandfalls				31	31
C382	Mutonga- Grandfalls				23	23
C385	Jnc C92-Ciakariga-Makomango	10.7		10		20.7
		10.7	11	76.5	79	177.2
MAARA CONSTITUENCY						
C383	Keria-Magutuni-Kathwana		10	21.012		31.012
C362a	Polepole-Kanoro		12	5.812		17.812
C380	Chogoria-Kianjagi-Iriga-Marima-Makutano		5	29.722		34.722
C380a	Old Marima-Kiriani			4.896		4.896
C362	B6-Chogoria-Kiangua	4.4				4.4
		4.4	27	61.442		92.842
CHUKA/IGAMBANGOMBE CONSTITUENCY						
C386	Itugururu-Kamwimbi-Kiaritha				12.5	12.5
C381	Kibugua-Kamaende	2	6	26.167		34.167
C409	Weru-Kairini-Kabururu			13.109		13.109
C384	Kaanwa-Kajuki				11.774	11.774
		2	6	39.276	24.274	71.55
	TOTAL (COUNTY)	17.1	44	177.22	103.27	341.59

Source: KeRRA

Annex 17.2: Inventory of KURA Roads

Road I.D.	Road Name	Surface Type & Length	Total		Road Condition	Non-Motorised Traffic Facilities	Storm-Water Drainage Facilities
		Unpaved	Paved				
UCB1-Chuka	B9-Kiangondu-Forest	0	5.2	5.2	Excellent	Walkways provided	Drainages lined for protection to prevent scouring
UCB2-Chuka	Baaru-Muungoni-B9	4	0	4	Poor		
UCB3-Chuka	B9-Ndagani-Kaanwa	6.8	0	6.8	Poor		
UCB4-Chuka	B9-KMTC-Mariani-kaanwa	7	0	7	Poor		

UCB5-Chuka	B9-Kahawa-KeRRA offices	2.5	0	2.5	Poor		
UCB6-Chuka	B9-Ndiruni-Kirege Factory	4	0	4	Poor		
UCB7-Chuka	Chuka Cbd roads-Muringa Rd, Police Rd, Ushirika rd, Chuka Market rd, bB9-DC's Office rd, Cooperative Rd, Access to Chuka boys Sch, Access to PCEA Church, Access to Consolata Church.	2	6	8	Fair	Walkways provided	Drainages lined for protection to prevent scouring
In the office	Kathwan-Kajuki	6.8		6.8	Poor		
TOTAL		33.1	11.2	44.3			

Source: KURA

Annex 17.3: Rural Water Supply Schemes in Maara Sub-County

Name of Scheme	Area served		Source of Water	Approximate Population
	Location	Sub-location		
Murugi Mugumango	Murugi West, Murugi East, Kirumi,	Murugi West, Murugi East, Kirumi, ganga	Mara South River, Maramani	30,000
Mwichuri Self Help Group	Chogoria	Chogoria, Mbogori, Kiraru, Kyeganguru	Maara River	1,600
Nkumari/Mikuu	Mitheru	Mikuu, Karimb	Tungu River	364
Muthambi 4K Water Association	Muthambi, Gitije,	Muthambi, Gitije, Kandugu, Kaandungu and Kamonka	Maara River, Mwithaga River, Nithi River	19,373
Kamwene Water and Sanitation	Mitheru	Gatua, Ruguta, Karimba, Mikuu, Ndumbeni Mitheru	Nithi River	20,000
Gatua Kariba Water project	Mitheru Gatua	Gatua, Ruguta, Karimba, Mikuu, Ndumbeni	Nithi River	1,500

Source: TNC, 2019

Annex 17.5: Rural Water Supply Schemes In Chuka Sub-County

Name of Scheme	Area served		Source of Water	Approximate Population Served
	Location	Sub-location		
Murugi Mugumango Water Society	Murugi West, Murugi East, Kirumi, ganga	Murugi West, Murugi East, Kirumi, ganga	Mara South River, Maramani River	30,000
Mwichuri Self Help Group	Chogoria	Chogoria, Mbogori, Kiraru, Kyeganguru, Kimusia, Maiera	Maara River	1,600
Nkumari/Mikuu Water Project	Mitheru	Mikuu, Karimba	Tungu River	364
Muthambi 4K Water Association	Muthambi, Gitije,	Muthambi, Gitije, Kandugu, Kaandunou and	Maara River, Mwithaga River	19,373
Kamwene water and sanitation project	Mitheru	Gatua, Ruguta, Karimba, Mikuu, Ndumbeni, Mitheru	Nithi River	20,000
Gatua Kariba Water project	Mitheru, Gatua	Gatua, Ruguta, Karimba, Mikuu, Ndumbeni, Mitheru	Nithi River	1,500

Source: TNC, 2019

Annex 17.6: Rural Water Supply Schemes, Tharaka South Sub-County

Name of Scheme	Area served		Source of Water	Number of Members/ Households served	Population Served
	Location	Sub-location			
Kathwana Water Project	Chiakariga	Chiakariga	Borehole	30	
Chiakariga/Kijege Water Project	Chiakariga	Chiakariga	Borehole/Spring		3,000
KEWI Chiakariga Borehole	Chiakariga	Chiakariga	Borehole		
Kombo Borehole	Chiakariga	Chiakariga	Borehole		
Mutonga-Gituma Water Project	Chiakariga	Chiakariga	Mutonga River		65,700
Ng'uru-gakwire Water Project	Tunyoi	Chiakariga	Kithinu River		
Nkondi Primary School Borehole	Chiakariga	Nkondi	Borehole		204
Kithiru Water scheme	Nkondi	Nkondi	Borehole	60	420
Kaurani Community Borehole	Makatiri	Nkondi	Borehole	345	
Kiraruni Water Project	Nkondi	Nkondi	Borehole	354	

Irimba Primary-Community Borehole	Nkondi	Nkondi	Borehole	720	
Mutakiri Primary-Community borehole	Makatiri	Nkondi	Borehole		

Source: TNC, 2019

Annex 17.7: Rural Water Supply Schemes, Tharaka North Sub-County

Name of Scheme	Area served		Source of Water	Number of Members/ Households served	Population Served
	Location	Sub-location			
Kamatumo Water Pan	Gatunga	Gatunga	Water Pan		
Manyaga Market Water Supply	Gatunga	Gatunga	Borehole		
Mugwi Water Pan	Khangacini	Khangacini	Water Pan		204
Manchege Water Pan	Khangacini	Twathanju	Water Pan		1150
Gaceuni Water Pan	Khangacini	Twathanju	Water Pan		1200
Gacuragua Water Pan	Khangacini	Khangacini	Water Pan		
Kiarathe Water Pan	Khangacini	Khangacini	Water Pan		
Ngaani Borehole	Maragua	Kamaguna	Borehole		289
Kamagun Earth Dam	Maragua	Kamaguna	Water Pan		
Irunduni Market Borehole	Gikingo	Irunduni	Borehole	50	350
Majengo Borehole	Gikingo	Irunduni	Borehole	54	378
Mutethia Borehole	Gikingo	Mukothima	Borehole	50	350
Sisi kwa Sisi Water Project	Gikingo	Mukothima	Thanantu River	600	4,200
Umoja Borehole		Mukothima	Borehole	70	490
Nkione Nkumburu Project	Igarie	Igarie	Mukothima springs	100	700
Kirigicha Borehole		Mukothima	Borehole		1,000

Name of Scheme	Area served		Source of Water	Number of Members/ Households served	Population Served
	Location	Sub-location			
Diocese of Meru Water Point	Igarie	Igarie	Murini springs		70
Tairi Solar Borehole	Ntoroni	Ntoroni	Borehole	400	2800
Ura-Kathanga Cini Water Project	Kanjoro	Mauthini	Ura River		
Mauthini Water Pan	Kanjoro	Mauthini	Water Pan		
Kamarengge Water Pan	Kanjoro	Mauthini	Water Pan		
Iria Mbogo Water Point Establishmnet	Kanjoro	Kanjoro	Water Pan	500	
Gacionggo Rock Catchment	Irunduni	Irunduni	Rock catchment		

Source: TNC, 2019

Annex 17.8: Water Supply Service Types in the County for Urban and Rural Areas

	Individual Connection (IC) %			Non-Individual Connection (NIC) %		
	Initial	Future	Ultimate	Initial	Future	Ultimate
Urban Areas						
High and Medium Class Housing	100	100	100	0	0	0
Low class Housing	85	100	100	0	0	0
Rural Areas				0	0	0
High potential	85	100	100	15	0	0
Medium potential	20	40	80	80	60	20
Low potential	5	10	20	95	90	80

Source: TNC, WMP, 2019

Annex 17.9: Per Capita Demands per Constituency

Constituency	With Individual Connection (IC)	Without Individual Connection (NIC)
	Per Capita Water Demand (L/Head/Day)	Per Capita Water Demand (L/Head/Day)
Tharaka	40	10
Chuka/Igamban'gombe	60	20
Maara	60	20

Source: TNC, WMP, 2019

Annex 17.10

ACTIVITY 1 – ENTERPRISE CHOICE

CROPS – Each farmer to select only one crop per category

1. Tea – 1 Acre
2. Coffee – 1 Acre
3. Bananas – 1 Acre
4. Avocado – 1 Acre
5. Macadamia - 1 Acre
6. Sun-flower – 1 Acre

LIVESTOCK – Each farmer to select a livestock enterprise

1. 2 Dairy Cows – Fresian or Aryshire
2. 500 Meat Chicken – Improved Kienyeji
3. 500 Layer Chicken – Layers
4. 500 Meat Chicken – Broilers
5. 600 Tilapia Fish (100 sq. Metres)

FORESTRY – Each farmer to select a tree species to plant (250 Trees)

1. Eucalyptus grandis
2. Grevillea robusta
3. Cupressus lusitanica (Cyprus)
4. Pinus patula (Pinus)
5. Casuarina equisetifolia
6. Acacia mearnsi (wattle tree)

ACTIVITY 2 – COOPERATIVE FORMATION OR STRENGTHENING

1. Tea Cooperative
2. Coffee Cooperative
3. Banana Cooperative
4. Avocado Cooperative
5. Macadamia Cooperative
6. Dairy Cooperative
7. Poultry Cooperative
8. Timber, Poles and Firewood Cooperative
9. Housing Cooperative (All households)
10. Biogas Cooperative – Biogas Constructors
11. Traders Cooperative

ACTIVITY 3 – ESTABLISHMENT OF INDUSTRIES

1. Dairy Cottage Industry (XX Market Centre)
2. Animal Feeds (Dairy and Poultry) Factory (XX Market Centre)
3. Coffee Milling Factory (XX Market Centre)
4. Banana Products Factory (XX Market Centre)
5. Avocado Cottage Industry (XX Market Centre)
6. Poultry Meat Processing Factory (XX Market Centre)
7. Macadamia Factory (XX Market Centre)
8. Biogas Appliances Factory (XX Market Centre)
9. Timber Sawmill, Poles, Posts Processing (XX Market Centre)
10. Organic Fertilizer Production – From poultry and dairy animals (XX Market Centre)

ACTIVITY 4 – FINANCE MOBILISATION

1. All Banks in Chuka Sub-county
2. All Saccos in Chuka Sub-county
3. Agricultural Finance Corporation
4. County Government – Housing Department
5. All Development Partners in the Agricultural, Livestock and Forestry Sector – Various
6. National Government – Ministry of Lands, Works and Urban Development – Rural Housing Department

7. Individual Investors from the Sub-county, County and Other Counties and beyond

ACTIVITY 5 – LIVESTOCK/DAIRY CATTLE ACQUISITION

1. Scouting for high yielding dairy cows from other counties – Nyeri, Kiambu and Nyandarua
2. Dairy cows multiplication program (for each farmer to have at least two (2) animals)
3. Poultry hatchery identification or establishment – for layers, broilers, improved kienyeji, kienyeji
4. Fingerlings production.
5. Pig-lets acquisition.

ACTIVITY 6 – CROP INTENSIFICATION

1. Establish nurseries for seedlings for avocado, bananas, coffee, macadamia, grevillea, eucalyptus, pinus, cyprus, casuarina and wattle tree.
2. Document current production levels as a baseline to increase production to optimal levels.

ACTIVITY 7 – LAND REFORMS TO ATTAIN MINIMUM LAND SIZE

1. Register all farmers according to land size.
2. Register all farmers according to enterprises.
3. Harmonize land sizes.

ACTIVITY 8 – FORMULATE A HOUSEHOLD RE-LOCATION POLICY

1. Register all youth who have no land and are un-employed
2. Identify those interested in farming.
3. Group them according to the enterprises they are interested in.
4. Identify peri-urban land that can be leased to them for intensive farming such as dairy, poultry, pigs, sheep, goats, feedlots, vegetables and fruits.
5. Organize for leasing of the land for the youth to farm (Issue lease certificate)
6. Link the youth to the different cooperatives according to their enterprises.

ACTIVITY 9 – INITIATE THE URBAN HOUSING PROGRAM

1. Determine the urban housing needs of the Ward – number, size and typology (Apartments, Masionettes, Bungalows) or a mix of the three.
2. Identify potential land for residential housing development.
3. Identify potential developers.
4. Identify potential financiers.
5. Link the different teams and launch the program.
6. Link them with the farmer cooperatives for repayment of the loans for housing.

ACTIVITY 10 – SOCIAL PROVISIONS

1. Farmers to retire at 75 years.
2. Farmer Pension at 75 years.
3. Medical Insurance Cover for all farmers.
4. Member Welfare – Continuous.
5. Last Respect Cover – Ksh. 200,000.
6. Livestock Insurance Cover.

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