COUNTY GOVERNMENT OF UASIN GISHU

PARTICIPATORY CLIMATE RISK ASSESSMENT (PCRA) REPORT

REPUBLIC OF KENYA

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FOREWORD

Participatory climate risk assessment is a process that has helped to identify the climate change risks, hazards and vulnerabilities, establish the probability and impact of climatic hazards currently and in the future in the County.

This process will lead to the development of the County Climate Change Action Plan (CCCAP) that will provide a framework for building resilience of communities and ecosystem to the effects of climate change and further sustainable development by providing mechanisms and measures to achieve low carbon climate resilient development in a manner that prioritizes adaptation.

CCCAP is a five-year plan (2023-2027), implemented through a rolling one-year plans. The Action Plan will facilitate a coordinated development in the county while harnessing synergies presented by the various players in the county's development realm. This will be achieved through the FLLoCA (financing locally led climate change action) program which is being funded, by the World Bank and the support of the national treasury through the project implementation unit (PIU).

The county has undertaken the PCRA process that will ultimately lead to the development of the CCCAP pursuant to the requirements of the constitution of CoK which is the foundation of the institutional and legal framework for climate change action. Article 10 sets out national values and principles of governance, such as sustainable development, devolution of government, and public participation, that are mandatory when making or implementing any law or public policy decisions, including climate change. Article 42 provides for the right to a clean and healthy environment for every Kenyan, which includes the right to have the environment protected for the benefit of present and future generations through legislative and other measures

The County Government of Uasin Gishu recognizes the important role played by the citizenry in the development process of the county. As a result, a rigorous Participatory Climate Risk Assessment process has been undertaken embodying aspirations of residents of Uasin Gishu County, Governor's Manifesto and other stakeholders.

During the Plan period (2023-2027), the government will prioritize and implement policies, programmes and projects geared towards realization of improved access to water, climate smart agriculture, drought and flood management, health and sanitation, environmental conservation and sustainable energy sources. To achieve this, the government will institute measures to enhance its resource mobilization and management endeavors.

The CCCAP is aligned to the CIDP 2023-2027 and national objectives as captured in the Kenya Vision 2030 and its fourth Medium-Term Plan (MTP). It is also linked with international plans and commitments including Sustainable Development Goals (SDGs), Paris Agreement on

Climate Change 2015, East Africa Community (EAC) Vision 2050, and Framework for Disaster Risk Reduction (2015 - 2030).

The County Government of Uasin Gishu commits to full implementation of the CCCAP through its transformative leadership that will create room for effective planning, budgeting, resource mobilization and management, and monitoring and evaluation.

H.E. Hon Jonathan Kimeli Bii Chelilim
GOVERNOR OF UASIN GISHU COUNTY

ACKNOWLEDGEMENT

The Department of Energy, Environment, Climate Change and Natural Resources through the PCRA taskforce coordinated and managed the overall preparation of this report. I take this opportunity to thank all Chief Officers, Directors, and the PCRA taskforce. Special appreciation goes to the World Bank for funding this process through the FLLoCA (financing locally led climate actions) program, the national treasury through the project implementation unit (PIU) for the financial and technical support and the entire technical team composed of: Mary Kerich (CO Climate change). Dr.Charles Nyabayo, Abraham Kiptanui, Philip Lagat, Abigael Kibet, Mercy Kemboi, Christopher Mbevi, Geoffrey Rono, Rafael Ruto, Sila Lagat, Boaz Korellach, Rose Sitienei, Caroline Ngerechi, Violet Mutai, Bethwel Kipletting, Meshack Amai, Gideon Kirwa, Nancy Korir, Roseline Sugut, Lizza Koech, Anne Chepkoech,Susan Kisorio and Charity Jebet who put in significant time and sacrifice in preparing this report. My thanks also go to the Sub County and ward climate change planning committee led by the ward administrators for their role in the preparation of the report.

I also take this opportunity to appreciate the County Secretary and all the County Executive Committee Members together with their staff for providing information that went into the preparation of this report.

I do also extend my gratitude and appreciation to all Members of the County Assembly Environment Committee, County Assembly members and the House leadership for their valuable advice during this process; and to the residents for showing keen interest when called upon to provide their views on how to help our county build resilience to the effect of climate change.

Special thanks also goes to all the stakeholders, development partners and the general public for providing their views and the national treasury Project Implementation Unit for their commitment in supporting the development of this document.

Finally, as a department, we register our special appreciation and gratitude to His Excellency the Governor and His Excellency the Deputy Governor for their general leadership in the development discourse of the county

Hon. Dr. Abraham Serem

CECM – DEPARTMENT OF WATER, IRRIGATION, SANITATION, ENERGY, ENVIRONMENT, NATURAL RESOURCES AND CLIMATE CHANGE

Acronyms

ASDP	Agricultural Sector Development Support Program
BAU	Business As Usual
CBO	Community Based Organization
CCCAP	County Climate Change Action Plan
CCD	Climate Change Directorate
CCRVA	Climate Change Risk and Vulnerabilities Assessments
CECM	County Executive Committee Member
CFA	Community Forest Associations
CIDP	County Integrated Development Plan
CO_2	Carbon dioxide
COP	Conference of the Parties
CSA	Climate Smart Agriculture
ELDOWAS	Eldoret Water and Sanitation Company
ETTI	Eldoret Technical Training Institute
FLLoCA	Financing Locally Led Climate Action
GHG	Greenhouse gas
IPCC	Inter-Governmental Panel on Climate Change
IPM	Integrated Pests Management
KALRO	Kenya Agriculture and Livestock Research Organization
KEPHIS	Kenya Plant Health Inspectorate Service
KEBS	Kenya Bureau of Standards
KEFRI	Kenya Forest Research Institute
KENHA	Kenya National Highways Authority
KES	Kenya Shilling
KeRRA	Kenya Rural Roads Authority
KMD	Kenya Meteorological Department
KNBS	Kenya National Bureau of Statistics
KURA	Kenya Urban Roads Authority
M&E	Monitoring and evaluation
MTP	Medium Term Plan
NAP	National Adaptation Plan
NCA	National Construction Authority
NCCAP	National Climate Change Action Plan
NCCRS	The National Climate Change Response Strategy
NDC	Nationally Determined Contribution

NEMA	National Environment Management Authority
PCRA	Participatory Climate Risk Assessment
PWD	Persons living With Disability
RCP	Representative Concentration Pathway
REREC	Rural Electrification and Renewable Energy Corporation
RVTTI	Rift Valley Technical Training Institute
SDG	Sustainable Development Goal
TIMPs	Technologies, Innovations and Management Practices
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNFCCC	United Nations Framework Convention on Climate Change
UOE	University of Eldoret
WHO	World Health Organization
WMO	World Meteorological Organization
WRA	Water Resources Authority
WRUA	Water Resource Users Association

List of Tables

List of figures

Definition of terms

Adaptation means adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects which moderates harm or exploits beneficial opportunities.

Adaptive capacity refers to the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of YH opportunities, or to respond to consequences (Birch, 2014)

Climate change means a change in the climate system which is caused by significant changes in the concentration of greenhouse gases as a consequence of human activities and which is in addition to natural climate change that has been observed during a considerable period.

Global warming refers to the gradual increase, observed or projected, in global surface temperature, as one of the consequences of climate change.

The main **greenhouse gases** that are measured in a GHG inventory are: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), Sulphur hexafluoride (SF6) and nitrogen trifluoride (NF3).

Mitigation means human interventions that seek to prevent or slow down the increase of atmospheric greenhouse gas concentrations by limiting current or future emissions and enhancing potential sinks for greenhouse gases.

Resilience refers to the capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure, while also maintaining the capacity for adaptation, learning and transformation (Los, n.d.)

Vulnerability refers to the propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt (Los, n.d.)

Climate Hazard: A physical process, event or phenomena that can harm human health, livelihood or natural resources

Executive Summary

The impacts of climate change have been and continue to be experienced in Kenya. The country has been ravaged by extreme climatic events such as droughts, extreme temperatures and floods that have damaged both property and livelihoods. Thus, climate change presents a threat to the achievement of Kenya's national goals, aspirations, and development priorities. In respect to climate change, a Participatory Climate Risk Assessment (PCRA) was conducted in Uasin Gishu County. The objective of this process was to; identify the climate change risks, hazards and vulnerabilities, establish the probability and impact of climatic hazards currently and in the future in the County, identify the vulnerable sectors to climate change in the County and identify their respective adaptive capacities, develop a climate change vulnerability and risk map of the County and develop a list of indicators for the vulnerability to climate change in the County. This is in line with international and national policies on climate change action that recognizes the role of climate change risk and vulnerability assessments in enhancing a targeted approach to tackling climate change. For instance, the Paris Agreement calls for the development of relevant plans and policies including the assessment of climate change impacts and vulnerability with a view to formulating nationally determined prioritized actions. The National Climate Change Framework Policy requires the Government to ensure integration of climate change risk and vulnerability assessment in environmental impact assessments and strategic environmental assessments to enhance climate resilience and adaptive capacity.

Results

The results of the assessment are based on the analysis of data obtained using the identified indicators and sub-indicators. The selection of the indicators was influenced by this assessment's need to determine how climate change is affecting the productive sectors in the County and the resultant impacts on people's livelihoods.

Contributing Factors to Climate Change Vulnerability and Risk in Uasin Gishu County

Uasin Gishu County is vulnerable to the impacts of climate change and faces the risk of the occurrence of climatic hazards such as droughts, extreme temperatures and floods. Several factors operating at the household and community level combine to contribute to the County's vulnerability to the impacts of climate change including: The Socio-demographic set-up; livelihood strategies used by communities; social networks in the communities; households' knowledge and skills; access to health services; food security; access to water; and exposure to climatic hazards. These factors also operate either negatively or positively, to contribute to the adaptive capacity, sensitivity and exposure of the County to impacts of climate change

Climate Change Risks, Hazards and Vulnerabilities in Uasin Gishu County

Uasin Gishu County faces various climate change risks, hazards and vulnerabilities. This assessment identified occurrence of droughts, disease outbreaks, increased flooding and extreme temperatures as some of the climate change risks in the County. These risks are occasioned by the occurrence of climatic hazards such as drought, high temperatures and floods as a result of either low or high precipitation, respectively. A combination of the climatic hazards and the risks eventually contribute to vulnerabilities to climate change such as:

Decreased productivity; emergence of aggressive and invasive insects and pests; food scarcity; loss of income; loss of livelihoods; and loss of lives. These vulnerabilities affect people's livelihoods and the ability or inability to cope with impacts.

Vulnerable Sectors in Uasin Gishu County and their Respective Adaptive Capacities

Agriculture is the mainstay the county contributing to about 80% of rural household income and food security.

According to Agricultural Sector Development Support Programme (ASDP) household baseline survey (Chipeta, Henriksen, Wairimu, Muriuki, & Marani, 2015), at least 56% of households are engaged in crop and livestock farming. Subsequently, the sectors that are most vulnerable to the impacts of climate change in the County are those that are closely related with agriculture such as: environment; water; and agriculture. Availability of and access to water in the County is critical for food production and good sanitation, hence the health of people. The health status of people in turn has an implication on their ability to undertake economic activities for their livelihoods. Despite the exposure of the sectors, they have adaptive capacities, which have either been built from progressive efforts or are in various stages of planning and implementation.

In the agricultural sector, farmers have been sensitized to adopt climate smart practices such cultivation of early maturing crops and keeping of improved livestock breeds. In the water sector, enhanced availability of and access to water is crucial. Despite some efforts towards this, the County still has a large part of its population accessing water from unsafe sources with parts of the County facing acute water shortages.

In the environment sector, efforts have been made to increase tree cover through annual tree planting, protection of riparian areas and wetland, despite these efforts climate hazards like drought are pushing communities to poverty and over use and destruction of natural resources like rivers, forests and wetlands. In the health sector, efforts have been made to increase health facilities and reducing distances travelled to the facilities, but there is still need for enhanced health service provision in the new facilities.

Climate Change Governance in Uasin Gishu County

Climate change governance in the County was assessed using three parameters: climate change capacity building; climate change mainstreaming; and public participation and stakeholder engagement on climate risk assessment. There are steps that have been taken towards building the County's capacity in tackling climate change. Key amongst these is the designation of a County Executive Committee Member to be in charge of climate change in accordance with the provisions of the Climate Change Act, 2016. There is a Uasin Gishu county Climate Change Policy and act in place. Formation of various climate change institution from the wars to the county executive levels and the county climate change Unit.

The County has not adequately taken measures to mainstream climate change action into its planning and decision-making process. The incoherence in County policy and planning on climate change is a challenge to climate change governance in the County. The County

Government is yet to develop a climate change education curriculum, implying that the County has not yet rolled out a public education program on climate change. However, the County Government has in the past mounted campaigns to encourage climate change relevant behavior change. This involved mass sensitization of communities and households to shift to the use of clean cooking and household lighting technologies such as solar and improved cook stoves. To enhance climate change governance, it is recommended that the County Government should prioritize mainstreaming of climate change actions into the County decision making processes, anchored in the County Integrated Development Plan.

1.0: CONTEXT OF THE PARTICIPATORY CLIMATE RISK ASSESSMENT (PCRA)

1.1 Background

Climate change has been a threat to the very existence of the Planet Earth for a long time. It poses significant risks to communities worldwide, necessitating the development of effective adaptation strategies. Participatory Climate Risks Assessment (PCRA) has emerges a valuable approach and mechanism for evaluating the risks and effects of climate change so that informed climate resilience actions that are sustainable can be designed at the community level. It's a participatory and inclusive process that involves key stakeholders in identifying and assessing climate related risks, vulnerabilities, and adaptation strategies.

Involvement of stakeholders in PCRA process ensures that adaptation efforts are grounded at the community level. This empowers communities and fosters a sense of ownership over adaptation strategies. The participation of multiple stakeholders including community members, local government officials, civil society organizations, and researchers brought together diverse perspectives, expertise, and resources, enabling a comprehensive understanding of climate risks and the development of context specific adaptation measures.

Through a participatory approach, a number of climate risks across sectors were identified and prioritized. This report provides a comprehensive understanding of the climate change impacts and risks faced by the county and locally recommended actions that enhance its climate resilience, protect ecosystems and promote sustainable development.

1.2 Policy Context

The climate change policy and legal framework in Kenya is based on the established international and national climate change agreements, treaties, policies and laws. This section presents an analysis of the climate change legal and policy framework in three categories namely:

a) International climate change policy and legal framework.

b) National climate change policy and legal framework; and,

c) County climate change policy and legal framework.

1.2.1 The International Climate Change Policy and Legal Framework.

The international climate change policy and legal regime is backed by a combination of treaties, agreements and conventions mainly negotiated within the United Nations (UN) system.

1.2.1.1 The United Nations Framework Convention on Climate Change (UNFCCC)

The main objective of the UNFCCC is to achieve stabilization of greenhouse gas concentrations in the atmosphere, at a level that would prevent dangerous anthropogenic interference with the climate system. The convention aims to achieve this in time to allow ecosystems to adapt

naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner. Article 4 of the convention outlines commitments expected from parties to the convention. About vulnerability assessments, the convention calls on parties to take climate change considerations into account in their social, economic and environmental policies and actions. In doing this, the parties are expected to employ appropriate methods such as impact assessments with the aim of minimizing adverse effects of policies and actions on the economy and the environment geared towards climate change mitigation and adaptation (Nations, 1992).

1.2.1.2 The Paris Agreement

On 12th December 2015, the Paris Agreement was adopted in Paris, France at the 21st Conference of the Parties (COP 21) of the UNFCCC. The Agreement is meant to enhance the implementation of the UNFCCC including the achievement of its objective. The Agreement set out to strengthen global response to the threat of climate change by: Holding the increase in the global average temperature to below 20℃ above preindustrial levels and pursuing efforts to limit temperature increase to 1.50℃ above pre-industrial levels in an effort to reduce the risks and impacts of climate change; increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and, making finance flow consistent with a pathway towards low greenhouse gas emission and climate resilient development .

The Agreement calls on the parties to engage in adaptation planning processes and the implementation of actions including the development of relevant plans and policies that may include, the assessment of climate change impacts and vulnerability with a view to formulating nationally determined prioritized actions, taking into account vulnerable people, places and ecosystems.

1.2.1.3 The Nationally Determined Contributions

The Nationally Determined Contributions (NDCs) are commitments made by countries who are parties to the Paris Agreement to reduce national emissions and adapt to the impacts of climate change. The Paris Agreement requires each party to prepare, communicate and maintain successive NDCs that it intends to achieve. Kenya first submitted its NDC on 28th December 2016. In the first NDC, (Government of Kenya - Ministry of Environment and Forestry, 2020) Kenya committed to reduce its emissions by 30 per cent by the year 2030 given the Business as Usual (BAU) scenario of 143 MtCO2 eq. On 24th December 2020, Kenya submitted its updated NDC with a commitment to reduce its national emissions by 32 per cent by the year 2030 relative to the BAU scenario of 143 MtCO2 eq. In the updated NDCs Kenya committed to meet 13 per cent (USD 8.06 Billion) of the total required costs (USD 62 Billion) of implementing the mitigation and adaptation actions. The updated NDCs contains Kenya's mitigation and adaptation goals.

Mitigation Goal: Kenya seeks to undertake an ambitious mitigation contribution towards the Paris Agreement. Kenya therefore seeks to abate her GHG emissions by 32 per cent by 2030 relative to the BAU scenario of 143 MtCO2eq: and in line with her sustainable development

agenda. Subject to national circumstances, Kenya intends to bear 21 per cent of the mitigation cost from domestic sources while 79 per cent of this is subject to international support in the form of finance, technology development and transfer, and capacity building

Adaptation Goal: Kenya aims to ensure a climate resilient society. This is to be achieved through mainstreaming climate change adaptation into the Medium-Term Plans (MTPs) and County Integrated Development Plans (CIDPs) and implementing adaptation actions. Subject to national circumstances, Kenya intends to mobilize domestic resources to cater for 10 per cent of the adaptation cost, while 90 per cent of the adaptation cost will require international support in form of finance, technology development and transfer, and capacity building10. The implementation mechanism for the NDC in Kenya is the five-year National Climate Change Action Plans.

1.2.2 The National (Kenya) Climate Change Policy and Legal Framework

At the national level, the climate change policy and legal framework consists of policies, laws, strategies and plans as discussed in the following sections.

1.2.2.1 The National Climate Change Response Strategy (NCCRS), 2010

The NCCRS was the first national document on climate change formulated in 2010 (GoK, 2010). The strategy focuses on ensuring that adaptation and mitigation measures are integrated in all government planning and development objectives. The objective of the strategy is to respond to climate change by: Enhancing the understanding of the global climate change negotiations process, international agreements, policies and processes and most importantly, the positions Kenya needs to take in order to maximize beneficial effects; assessing the evidence and impacts of climate change in Kenya; recommending robust adaptation and mitigation measures needed to minimize risks associated with climate change while maximizing opportunities; enhancing understanding of climate change and its impacts nationally and in local regions; recommending vulnerability assessment, impacts monitoring and capacity building framework needs; recommending research and technological needs and avenues for transferring existing technologies; providing a conducive and enabling policy, legal and institutional framework to combat climate change; and, providing concerted action plan, resource mobilization plan and robust monitoring and evaluation plan. The NCCRS laid the foundation for the establishment of the current climate change response policy and legislative framework in Kenya. The policies, plans and legislations emanating from the implementation of the strategy include: The National Climate Change Action Plans; the National Adaptation Plan; the National Climate Change Framework Policy of 2016; and the National Climate Change Act 2016.

1.2.2.2 The National Climate Change Framework Policy-2016

The National Climate Change Framework Policy was ratified by the National Assembly in 2016. The main objective of the policy is to enable a coordinated, coherent and effective response to the local, national and global challenges and opportunities presented by climate change. The policy aims to enhance adaptive capacity and build resilience to climate variability and change, while promoting a low carbon development pathway. The policy identifies the

adaptive capacity of individuals and communities as being key to improving their socio-economic situations. Thus, to effectively establish the adaptive capacities of individuals and communities, the policy recognizes the need for vulnerability assessment. As a policy statement on enhancing climate resilience and adaptive capacity, the Government commits to ensure integration of climate change risk and vulnerability assessment in environmental impact assessments and strategic environmental assessments. The policy further compels the Government to promote public and stakeholder consultation and participation, including with vulnerable groups, to enhance adaptive capacity and climate resilience (Government of Kenya, 2016).

1.2.2.3 The National Climate Change Action Plan (NCCAP)

The first NCCAP in Kenya was developed in 2012 to cover the five-year period between 2013-2017. The NCCAP 2013-2017 aimed to enhance the implementation of the NCCRS and to contribute to the achievement of t Vision 2030. The NCCAP 2013-2017 had eight indicators namely: long term national low carbon climate resilient development pathway; enabling policy and regulatory framework; adaptation analysis and prioritization; mitigation actions; technology; national performance and benefit measurement; knowledge management and capacity development; and finance. The plan specified priority actions for the realization of each of the eight indicators. The NCCAP 2013-2017 contributed to the improvement in Kenya's climate change policy and legal framework and to the establishment of climate change funds in five counties13. It also informed the development of the National Adaptation Plan (NAP). The National Climate Change Action Plan (NCCAP) 2018-2022 was developed pursuant to the provisions of the Climate Change Act, 201614. The NCCAP 2018-2022 builds on the NCCAP 2013-2017. It contains detailed actions that the country intended to take to tackle climate change from 2018 to 2023. The plan set out to support Kenya's development goals by providing mechanisms and measures to achieve low carbon climate resilient development in a manner that prioritizes adaptation and recognizes the essence of enhancing the climate resilience of vulnerable groups including children, women, youth, persons with disabilities, the elderly and marginalized and minority communities. The plan specifically seeks to: Align climate change actions in the country with the Government's development agenda, including the Big Four Agenda; encourage participation of the private sector, civil society and vulnerable groups within society, including children, women, older members of society, persons with disabilities, youth and members of minority or marginalized communities; provide the framework to deliver Kenya's NDC for the 2018-2022 period; and, provide a framework for mainstreaming climate change into sector functions at the National and County levels (Ministry of Environment and Forestry, 2021).

1.2.2.4 The National Adaptation Plan (NAP)

The National Adaptation Plan was developed following recommendations and activities resulting from the implementation of the NCCRS and NCCAP 2013-2017. The NAP forms the basis for the adaptation component of Kenya's Nationally Determined Contributions (updated in 2020). The objectives of the NAP are to: Highlight the importance of adaptation and resilience building actions in development; integrate climate change adaptation into national

and county level development planning and budgeting processes; enhance the resilience of public and private sector investment in the national transformation, economic and social pillars of Vision 2030 to climate shocks; enhance synergies between adaptation and mitigation actions in order to attain a low carbon climate resilient economy; and, enhance resilience of vulnerable populations to climate shocks through adaptation and disaster risk reduction strategies (MENR, 2016).

1.2.2.5 The Climate Change Act No. 11 of 2016

The Climate Change Act came into force in 2016. The main objective of the Act is to govern the development, management, implementation and regulation of mechanisms to enhance climate change resilience and low carbon development for the sustainable development of Kenya. The Act is to be applied to all sectors of the economy by both the national and county governments. Specifically the Act is to be applied to ensure among other objectives: Mainstreaming of climate change responses into development planning, decision making and implementation; building resilience and enhancing adaptive capacity to the impacts of climate change; formulation of programs and plans to enhance the resilience and adaptive capacity of human and ecological systems to the impacts of climate change; and, mainstreaming and reinforcing climate change disaster risk reduction into strategies and actions of public and private entities (MENR, 2016).

1.2.3 The Sub national Change Policy and Legal Framework

The sub-national framework refers to the climate change policy and legal framework in Uasin Gishu County. This framework included the Uasin Gishu County Integrated Development Plan (CIDP) 2018-2022 and the Uasin Gishu County Climate Change Policy, 2021.

1.2.3.1 The Uasin Gishu County Integrated Development Plan 2018-2022

The CIDP identifies population dynamics, environmental degradation and climate change as challenges to development in Uasin Gishu County. The plan further categorises the county as a low climate change resilient County that requires urgent interventions to build resilience. Thus, to achieve sustainable development the plan prioritises climate change action. The CIDP specifically prioritises the reduction of climate change risks and impacts and identifies education, training and awareness creation as one of the strategies for combatting the negative impacts of climate change. Thus, carrying out this climate change risk and vulnerability assessment will contribute to the realisation of the CIDP's objectives of tackling climate change and will inform the mainstreaming of climate actions into the next CIDP (2022-2027).

1.2.3.2 Climate change policy

This Policy was developed in cognizance of the multidisciplinary and cross-cutting nature of climate change in terms of disciplines and sectors. It also recognizes that most aspects of this strategy will only be realized through a coordinated, coherent and effective response to the local, national and global challenges and opportunities that climate change presents by focusing on the adoption of a mainstreaming approach that ensures integration of climate change

considerations into the development planning process, budgeting, and implementation in all sectors of the County Government of Uasin Gishu.

1.2.3.3 Uasin Gishu county climate change act,2021

This is an Act of Uasin Gishu County Assembly to put in place the framework and mechanisms for mobilization and facilitation of the county government, communities and other stakeholders to respond effectively to climate change through appropriate adaptation and mitigation measures and actions and for connected purposes

1.2.3.4 County risk and disaster management act

This is an Act of Uasin Gishu County Assembly to provide for a more effective organization of disaster risk reduction and mitigation of, preparedness for, response to and recovery from emergencies and disasters; and for connected purposes.

The act has two parts. Part II of the act speaks on the establishment and administration of the disaster management committee and the directorate of disaster management and part III talks about the measures by the county government for disaster management.

1.2.3.5 Climate change financing policy

This Policy is an important part of accelerating Uasin Gishu County's development aspirations.

The cost of managing climate change impacts is increasing in the County. Recent climate variability has had significant social and economic costs. Frequent floods and droughts have led to loss of life and damaged property, and exerted pressure on public finances – all of which can slow down County growth prospects. Private economic activities and infrastructure are being damaged by extreme climate events.

The cost of insurance where available is increasing, and many businesses have to divert financial resources to cover the additional costs of adapting to climate change impacts, thereby reducing more productive sector investments. Similarly, the government is forced to spend public resources on new or improved infrastructure, on efforts to seek alternative sources of food and water, and on relocation of communities and recovery operations from natural disasters. Climate change is reversing progress on poverty alleviation, economic growth and stability across the County.

This Policy on Climate Finance comes following the adoption of the Paris Agreement by all Parties to the UNFCCC in December 2015. The Policy will help Uasin Gishu to mobilize additional domestic and international climate finance resources to address its climate change, including the goals and objectives set out in its NDC and CDC.

1.2.3.6 Uasin Gishu County Climate risk profile

County Climate Risk Profiles are a key tool to guide climate smart agriculture (CSA) investments and priorities at the county level in Kenya. These documents provide analyses of the underlying causes of vulnerability and on-going and potential climate change adaptation strategies. They also provide a snapshot of the enabling environment for building resilience by providing a synthesis of the policy, institutional and governance context. Complementary materials such as map books and annexes for productivity of major agricultural commodities, climate analysis, adaptation options, and methodological details are also provided.

1.3 Purpose of the PCRA Report

The report serves as a strategic document that outlines the priorities, goals, and actions to address climate change risks and hazards within the County. It enhances the planning process on climate change for Uasin Gishu County through a paerticipatory process. It provides a roadmap for mainstreaming climate considerations into development plans, resource mobilization and policy formulation. It is one of the key requirements under FLLoCA program for accessing Climate Change Resilience Investment Grants from the National Treasury. This arose from the need for the effective adoption and implementation of national policies and legislations on climate change at the County and even at the Ward level. Of interest are the County Climate Change Action Plan, updated Nationally Determined Contributions (NDC) and the National Climate Change Action Plan (2023-2027).

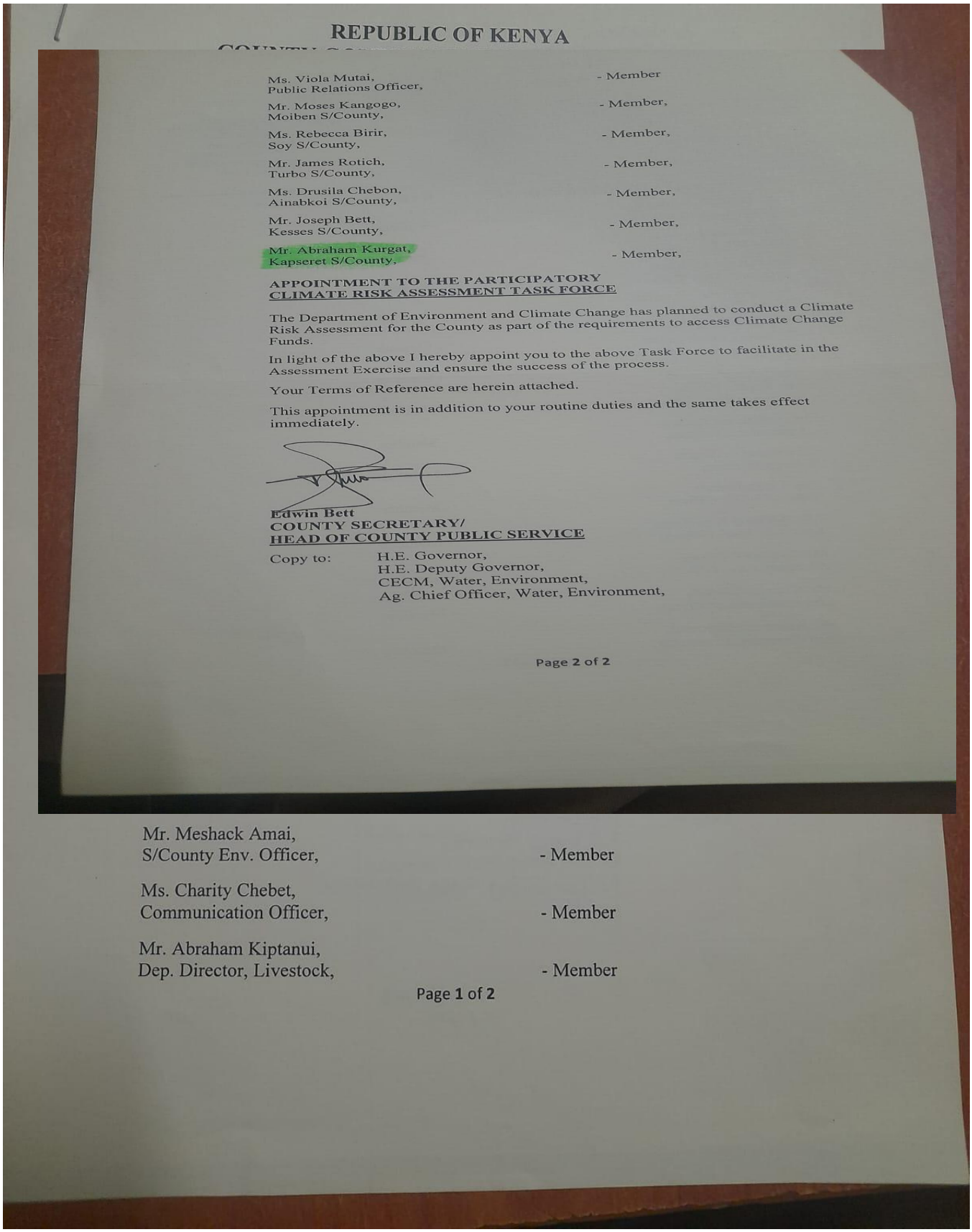
Besides, it is considered that participatory climate risk assessment would allow communities to own climate change resilience investments, would promote the prudent use of resources and enhance transparency and accountability especially on the use of climate change finances in Uasin Gishu County.

1.4 Key steps in the county's PCRA process

1.4.1 Step 1. Formation of cross-sectoral technical working group.

The technical working group was officially appointed by the county secretary on 9th February 2023. REF:UGD/ADM.1/31/CS/2023/VOL.1 (30).

A copy of the appointment letter:



REPUBLIC OF KENYA

Ms. Viola Mutai, Public Relations Officer, - Member

Mr. Moses Kangogo, Moiben S/County, - Member,

Ms. Rebecca Birir, Soy S/County, - Member,

Mr. James Rotich, Turbo S/County, - Member,

Ms. Drusila Chebon, Ainabkoi S/County, - Member,

Mr. Joseph Bett, Kesses S/County, - Member,

Mr. Abraham Kurgat, Kapseret S/County, - Member,

APPOINTMENT TO THE PARTICIPATORY CLIMATE RISK ASSESSMENT TASK FORCE

The Department of Environment and Climate Change has planned to conduct a Climate Risk Assessment for the County as part of the requirements to access Climate Change Funds.

In light of the above I hereby appoint you to the above Task Force to facilitate in the Assessment Exercise and ensure the success of the process.

Your Terms of Reference are herein attached.

This appointment is in addition to your routine duties and the same takes effect immediately.

Edwin Bett
COUNTY SECRETARY/
HEAD OF COUNTY PUBLIC SERVICE

Copy to: H.E. Governor,
H.E. Deputy Governor,
CECM, Water, Environment,
Ag. Chief Officer, Water, Environment,

Page 2 of 2

Mr. Meshack Amai, S/County Env. Officer, - Member

Ms. Charity Chebet, Communication Officer, - Member

Mr. Abraham Kiptanui, Dep. Director, Livestock, - Member

Page 1 of 2

1.4.2 Step 2. Stakeholder analysis and mapping

The technical working group did a stakeholder mapping and analysis on 6th January 2023 at the Municipality Boardroom as follows:

1. **Those formally responsible for climate action and building resilience**
   - Department of environment and climate change, agriculture, water, public health
   - KFS
   - NEMA
   - WRA
   - ELDOWAS
   - NRVWWDA
   - KWTA
   - KEFRI
   - Trade and tourism
   - Department of risk management (disaster response)
   - Municipality of Eldoret
2. **Those involved in climate action and responses to climate impacts**
   - Department of finance and economic planning
   - Department of Enforcement
   - Political leaders
   - CBOS and NGOs
   - Private sectors
   - Indigenous and local communities
   - Department of roads and infrastructure
   - Service provider (ELDOWAS, KPLC, REREC)
   - Chamber of commerce
   - Administration
   - KURA
   - KERRA
   - Media(Kass media, Nation media, Royal media, KBC, Upendo, Sayare)
   - Renewable energy organization (Alton, Kenya biogas program, ldocel, Sunculture, Davis and Shirtliff, Dlight)

3. **Those who have the knowledge and expertise relevant to climate action, resilience, including knowledge on climate systems and climate risks**

   - Institution of higher learning (UOE)
   - Technical institutions (ETTI, RVTTI)
   - Research organizations(KALRO, KEPHIS)
   - KMD
   - Indigenous knowledge(community)
   - Individual farms
   - Corporate institutions
   - Champions of environments

- Community forest associations (CFAs)

4. **Those impacted by climate change**
    - Farmers
    - Traders
    - Transporters
    - Students
    - Women
    - Youth
    - PWDS
    - Minority
    - Elderly
    - Children

5. **providers of scientific data**

- Economic planning
- Physical planning
- KNBS
- Research institution (KEFRI)
- KMD

Table 1-1: Stakeholder mapping

High interest, Low influence	High influence, High interest

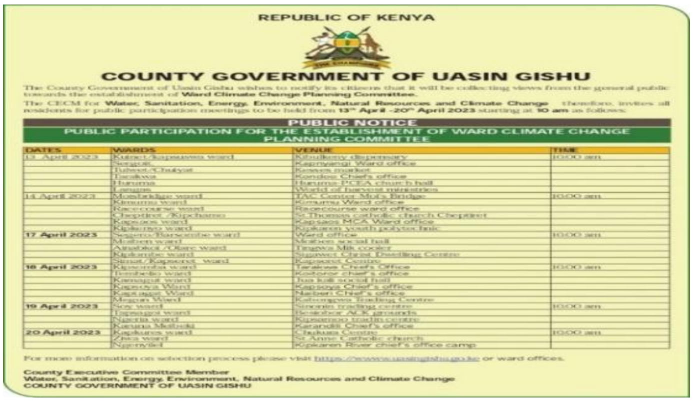
Farmers **Women** **Youth** **PWDS** **WRUAs** **CBOs** **Kenya biogas program** **CFAs**	Municipality of Eldoret Champions of environment/opinion leaders Corporate institutions (Safaricom, Banks, Hospitals) Service providers(KPLC, REREC, ELDOWAS, KURA, KERRA) Department of environment and climate change, agriculture, water, public health KFS NEMA WRA KEFRI Department of risk management (disaster response) NGOs CBOs NCA Renewable energy organization (Alton, Sunking , Eldocel, Sunculture, Davis and Shirtliff, Dlight)
Low interest, Low influence	**Low interest, high influence**
Religious organizations	Political leaders Children KNBS Media (Kass, Nation, Royal media)

1.4.3 Step 3. Stakeholder engagement at all levels.

This step was done at both the Ward and the County levels. Stakeholder engagement at the County level was done at an Eldoret Hotel on 17th February 2023. The process was led by the CECM for Water, Irrigation, Sanitation, Environment, Energy, Climate Change and Natural Resources. In attendance were all the stakeholders from all the relevant sectors, the Sub County Administrators, Ward administrators, the PCRA task force team, representatives from all County departments and a team from GIZ consortium.

Figure 1: County level Stakeholder engagement at Eldoret hotel on 17th February 2023

Stakeholder engagement was done across all the 30 Wards for 6 days. The process started on 13th April 2023 to 20th April 2023.The taskforce team led the process in all the 30 wards as per the attached notice that was run by the Daily Nation magazine dated 5th April 2023.



REPUBLIC OF KENYA

COUNTY GOVERNMENT OF UASIN GISHU

The County Government of Uasin Gishu wishes to notify its citizens that it will be collecting views from the general public towards the establishment of **Ward Climate Change Planning Committee.**

The CECM for **Water, Sanitation, Energy, Environment, Natural Resources and Climate Change** therefore, invites all residents for public participation meetings to be held from **13th April -20th April 2023** starting at **10 am** as follows:

PUBLIC NOTICE

PUBLIC PARTICIPATION FOR THE ESTABLISHMENT OF WARD CLIMATE CHANGE PLANNING COMMITTEE

DATES	WARDS	VENUE	TIME
13 April 2023	Kuinet/Kapsuswa ward	Kibulkony dispensary	10:00 am
	Sergoit	Kapnyangi Ward office	
	Tulwet/Chuiyat	Kesses market	
	Tarakwa	Kondoo Chief's office	
	Huruma	Huruma PCEA church hall	
	Langas	World of harvest ministries	
14 April 2023	Moisbridge ward	TAC Center Moi's Bridge	10:00 am
	Kimumu ward	Kimumu Ward office	
	Racecourse ward	Racecourse ward office	
	Cheptiret /Kipchamo	St Thomas catholic church Cheptiret	
	Kapsaos ward	Kapsaos MCA Ward office	
	Kipkenyo ward	Kipkaren youth polytechnic	
17 April 2023	Segero/Barsombe ward	Ward office	10:00 am
	Moiben ward	Moiben social hall	
	Ainabkoi /Olare ward	Tingwa Milk cooler	
	Kiplombe ward	Sugawet Christ Dwelling Centre	
	Simat/Kapseret ward	Kapseret Centre	
18 April 2023	Kipsomba ward	Tarakwa Chief's Office	10:00 am
	Tembelio ward	Koitoror chief's office	
	Kamagut ward	Jua kali social hall	
	Kapsoya Ward	Kapsoya Chief's office	
	Kaptagat Ward	Naiberi Chief's office	
	Megun Ward	Kabongwa Trading Centre	
19 April 2023	Soy ward	Sinonin trading centre	10:00 am
	Tapsagoi ward	Besiebor ACK grounds	
	Ngeria ward	Kipsamoo tradin centre	
	Karuna Meibeki	Karandili Chief's office	
20 April 2023	Kapkures ward	Chukura Centre	10:00 am
	Ziwa ward	St Anne Catholic church	
	Ngenyilel	Kipkaren River chief's office camp	

For more information on selection process please visit [illegible] or ward offices.

County Executive Committee Member
Water, Sanitation, Energy, Environment, Natural Resources and Climate Change
COUNTY GOVERNMENT OF UASIN GISHU

Figure 2: Public participation notice for establishment of ward climate change planning committee

Figure 4: Community engagement; Karona Meibeki Ward

Figure 3: Community engagement; Ainabkoi Olare ward

1.4.4 Step 4. Data collection at Ward and County level

Data collection was carried out in all the 30 wards from 8th May 2023 to 12th May 2023. The taskforce was grouped into six teams where each team covered one ward per day.

REPUBLIC OF KENYA

COUNTY GOVERNMENT OF UASIN GISHU
DEPARTMENT WATER, IRRIGATION, SANITATION, ENERGY, ENVIRONMENT, NATURAL RESOURCES AND CLIMATE CHANGE

PUBLIC NOTICE

INVITATION TO PARTICIPATORY CLIMATE RISK ASSESSMENT (PCRA) DATA COLLECTION EXERCISE

The County Government of Uasin Gishu invites all residents to a Participatory Climate Risk Assessment (PCRA) Data Collection exercise on views towards the development of the Climate Change Action Plan.

DATES	WARDS	VENUE	TIME
8th May 2023	Moi's Bridge	Town Managers Office	10.00 am
	Sergoit	Sergoit Ward Office	
	Tulwet/Chuiyat	Kesses Market	
	Tarakwa	Tarakwa Ward Office	
	Ngenyilel	Ngenyilel Ward Office	
	Langas	Langas Market	
9th May 2023	Segero Barsombe	Ward Office	10.00 am
	Kimumu	Kimumu Ward Office	
	Racecourse	Racecourse Ward Office	
	Kaptagat	Naiberi Ward Office	
	Kipkenyo	Kipkenyo Dispensary	
	Tapsagoi	Turbo Sub County Office	
10th May 2023	Kapsoya	Kapsoya Chief's Office	10.00 am
	Karuna/Meibeki	Karuna Ward Office	
	Megun	Kabongwa Trading Centre	
	Kamagut	Cheramei Social Hall	
	Cheptiret/Kipchamo	St. Thomas Catholic Church Cheptiret	
	Kapkures	Chukura Centre	
11th May 2023	Ziwa Ward	St. Annes Catholic Church	10.00 am
	Moiben Ward	Moiben Social Hall	
	Ainabkoi /Olare	Tingwa Milk Cooler	
	Kiplombe Ward	Ward Office	
	Simat/Kapseret	Kapseret Sub County Centre	
	Soy	Soy Ward Office	
12th May2023	Kipsomba	Tarakwa Chiefs Office	10.00 am
	Tembelio	Tembelio Ward Office	
	Huruma	Pcea Church	
	Kapsaos	Kapsaos Ward Office	
	Ngeria	Kipsamo Trading Centre	
	Kuinet/Kapsuswa	Kuinet Ward Office	

Dated the 28th April, 2023
County Executive Committee Member (CECM) Water, Irrigation, Sanitation, Energy, Environment, Natural Resources and Climate Change

Figure 6: Public Participation notice on climate risk assessement (PCRA) data collection exercise

Figure 5: Data collection; Sergoit ward

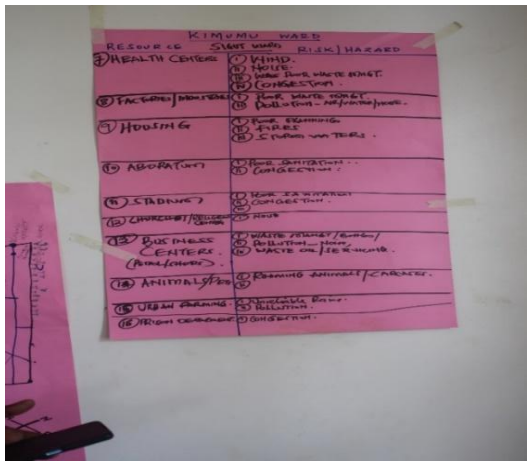



Figure 7: Data Collection; Sergoit ward

1.4.5 Step 5. Multi-stakeholder climate risk assessment workshop

A two-day multi stakeholder climate risk assessment workshop that was held on 15th May 2023 and 16th May 2023 at Goshen hotel as per the attached invitation letters signed by the CECM Environment and climate change.

The exercise was led by the Chief Officer for Environment, Energy, Climate Change and Natural Resources together with the Director for Environment and Climate Change.

COUNTY GOVERNMENT OF UASIN GISHU

DEPARTMENT OF WATER, SANITATION, ENVIRONMENT, ENERGY, NATURAL RESOURCES, ENVIRONMENT AND CLIMATE CHANGE
OFFICE OF THE COUNTY EXECUTIVE MEMBER

REF: UGC/EWNR.T/WM/ADM/4/5 /2023 (1) **DATE: 4TH May, 2023**

The County Director-
National Environmental Management Authority
ELDORET

Ecosystem Conservator
Kenya Forest Services
UASIN GISHU COUNTY

Regional Manager
Water Resource Management Authority
ELDORET

Managing Director
Eldoret Water and Sanitation Company
P. O. Box 8418
ELDORET

The County Director
Kenya Meteorological Department
UASIN GISHU COUNTY

The Regional Coordinator
Kenya Water Towers Agency
NORTHRIFT REGION

Regional Manager
Kenya Plantform for Climate Governance
Att: David Busienei: 07226620

Regional Manager
Kenya Power and Lighting Company
NORTHRIFT

Director
Kenya seed Company
UASIN GISHU COUNTY

Director
Kenyan Forestry Research Institute
ELDORET

Regional Coordinator
Kenya Water Towers Authority
NORTHRIFT

Director
Kenya Urban Rural Authority
Eldoret

The Director
Rural Electrification and Renewable
Energy Corporation
ELDORET

The Chief Executive Officer
North Rift Valley Water Works
Development Agency
P. O. Box 1012-30100
ELDORET

Regional Director
Kenya National Bureau of Statistics
ELDORET

Manager
Kenya Farmers Authority
Uasin Gishu County

Director
Kenya National Highways Authority
Uasin Gishu County

RE: INVITATION TO A PATRICIPATORY CLIMATE RISK ASSESSMENT DATA COLLECTION MEETING ON DEVELOPMENT OF COUNTY CLIMATE CHANGE ACTION PLAN

The County Government of Uasin Gishu through the department of Water, Irrigation, Sanitation, Environment, Climate Change and Natural resources is in the process of developing the County Climate Change Action Plan (CCCAP) through the Participatory Climate Risk Assessment (PCRA) process.

The purpose of this letter is to cordially invite you to the stake holder engagement meeting to be held at Goshen Hotel from 9.00 am as per the attached schedule.

Yours faithfully

Hon. Abraham Serem
CECM – WATER, SANITATION, ENVIRONMENT, ENERGY, NATURAL RESOURCES, ENVIRONMENT AND CLIMATE CHANGE

Figure 8: County level Stakeholder engagement at Eldoret hotel on 15th & 16th May 2023

1.4.6 Step 6: Climate Risk Assessment Report

The PCRA taskforce team retreated to a six days workshop from 14th May 2023 to 20th May 2023 for the data analysis, preparation of the PCRA report and the County Climate Action Plan.

Figure 9: Development of PCRA report by taskforce team

2.0. UASIN GISHU COUNTY CLIMATE HAZARD PROFILE

2.1 Introduction

2.1.1 Climate change and variability: historic and future trends

Uasin Gishu County has a relatively cool climate with mean annual temperatures across the county being predominantly below 21°C, a factor attributed to its location on a plateau that rises gently from 1500m a.s.l. to 2,700 m a.s.l .Rainfall in the county is relatively high with the northern and central parts receiving between 1000 and 1250mm of rainfall annually, the southern parts receiving 1250-1500mm annually and the western tip receiving above 1500mm.

Rainfall in the county is reliable and evenly distributed throughout the year and even the driest months between November and February receive some rainfall. The climatic conditions are favorable for crop and livestock production, and the County is referred to as a breadbasket for Kenya particularly in relation to its high maize production. Annual rainfall variability does occur, and year to year variations in rainfall between the months of July and September have been found to be most crucial in determining the county's maize yields.

Due to the importance of maize production in Uasin Gishu for Kenya as a whole, particular attention needs to be paid to changes in the County's weather and climate. Drought is not common in the County, however when they do occur the impacts have repercussions not just for the county but for Kenya as whole, due to Uasin Gishu being among the main maize producing counties in the country. Floods on the other hand have occurred every year since 2013 in different parts of the county, affecting crop and livestock production as well as infrastructure and sometimes resulting in loss of lives10. Analysis of temperature trends in the county over 25 years (1980 to 2005), showed that both first and second season temperatures have increased moderately over the years (0.5°C and 0.3°C respectively).

These temperature changes have however not resulted in any significant changes in the number of heat stress days. Analysis of rainfall over a 35-year period (1980- 2015) showed that average seasonal rainfall had remained relatively constant in the first season and had increased only slightly (≈25mm) in the second season. Although average annual precipitation has not changed significantly, there have been changes in rainfall intensity, with the number of days of high intensity rainfall11 increasing from an average of 20 days in the to 25 days in the second season and from 21 days to 23 days in the first season. The maximum 5-day running precipitation average has also increased from 15mm/day to over 20mm/day in the second season. The first season has however experienced a slight increase in the average maximum number of consecutive dry days from 17 to 20.

These changes have resulted in an increased flood and erosion risk in the second season. The increasing variability of rainfall has resulted in an increased drought risk in the second season. Despite some differences in the changes in rainfall patterns between the two seasons, rainfall in both seasons has become more variable with a tendency for more intense rainfall over shorter periods of time accompanied by longer dry spells in between, changes which can have a great impact on soils, crops, livestock, infrastructure12, livelihoods, and economic development in

the county. Looking ahead to the period 2021-2065, climate projections based on two representative concentration pathways (RCPs13) indicate that under both scenarios there is expected to be a reduction in the length of the growing period for both the first and second seasons. In addition, there is expected to be a change in the frequency and magnitude of intense rainfall episodes in both seasons, with the maximum 5-day running precipitation average expected to rise from an historical average of 22mm/day in a season to between 28 mm/day and 30mm/day.

Under both scenarios, there is also expected to be a moderate increase in dry spell length14 and this increase is more pronounced in the second season. These projections of future climate change under the two climate scenarios, show some differences but exhibit similar trends, and point to increasing climate risks to crop and livestock production in Uasin Gishu.

Even under the conservative GHG emissions scenario there are expected to be changes in climate and weather parameters and hence there is need to plan for and implement resilient agricultural practices.

2.1.2 Climate perceptions by farmers

Farmers in Uasin Gishu County perceive climate change in different ways. These include: changing dates in the onset of the rainy seasons, extreme temperatures with higher temperatures recorded during the dry season and much lower temperatures recorded during the wet season, reduced amounts of rainfall and overlap of seasons with rainfall extending into the dry periods. Hailstorms have also become more common especially in the maize growing areas.

Farmers have become apprehensive of dry planting especially of maize and now they have to wait for the actual rains to start before planting. The planting dates of wheat are shifting from May to June due to changing weather patterns. Farmers are reporting increased incidence of pests and diseases. For instance, wheat farmers complain of increased incidences of wheat rust and Setaria grass commonly referred to as “Arap Misoi”. Potato farmers have seen an increase in fungal diseases such as potato blight related to extremely low temperatures at night.

Maize farmers are reporting cases of emerging weeds, which have become a menace to crop production. These include the Niger weed that is christened “Arap Seroney” by the locals. This weed appears to be resistant to herbicides and poses a great danger in maize growing areas since it can lead to total crop failure. The net effect of these changes has been an increase in spraying regimes, which has resulted in increased production costs. According to farmers, there is an upsurge in animal diseases such foot and mouth disease as compared to a few years ago.

2.2 Current and Historical Climate Hazards and Trends

This section provides climatic information backed with data and infographics including both scientific data and the information provided by the key interest groups during the participatory climate risk assessment data collection exercise carried out in all the wards in Uasigishu County.

Table 2-1: Seasonal calendar

EVENTS	J	F	M	A	M	J	J	A	S	O	N	D
RAINY SEASON												
DRY SEASON												
FLOODS												
HIGH TEMPERATURES												
LOW TEMPERATURES												
PESTS AND DISEASES												
FOOD SHORTAGE												
WATER SHORTAGE												
PLANTING												

WEEDING												
HARVESTING												

LEGEND

Unpredictable

20 years and back

10 years to Current

From the PCRA workshop, it came out clearly that there are changing trends in seasonality calendar and this is as a result of changing climatic conditions.

Rainy season

20 years and back: Rainy seasons were experienced from mid-February to September across the county with mild rains experienced between late April to late May.

10 years to current: The rains have been occurring mostly in the months of April to September with June having mild rains.

Dry season

20 years and back: Experienced from the months of November to February

10 years to current: They start from the month of October to March.

Floods

20 years and back: Experienced in the month of August where heavy rain downfall was experienced.

10 years to current: Experienced between the months of April to August

High temperatures

20 years and back: Experienced between January to mid-February

10 years to current: Experienced from December to March

Low temperatures

20 years and back: Experienced between May to mid-November

10 years to current: Experienced between June to August

Pests and diseases

20 years and back: Experienced in the month of June

10 years to current: Experienced between April to July

Food shortage

20 years and back: Experienced in the month of June to July

10 years to current: Experienced between March to September

Water Shortage

20 years and back: Experienced in the month of November to mid-February

10 years to current: Experienced between October to March

Planting season

20 years and back: In the month of mid-February to Mid-April

10 years to current: From April to mid-May

Weeding

20 years and back: Done in the month of April

10 years to current: Done between Mid-April to May

Harvesting season

20 years and back: Undertaken in the month of November to January

10 years to current: Undertaken in the month of October to December

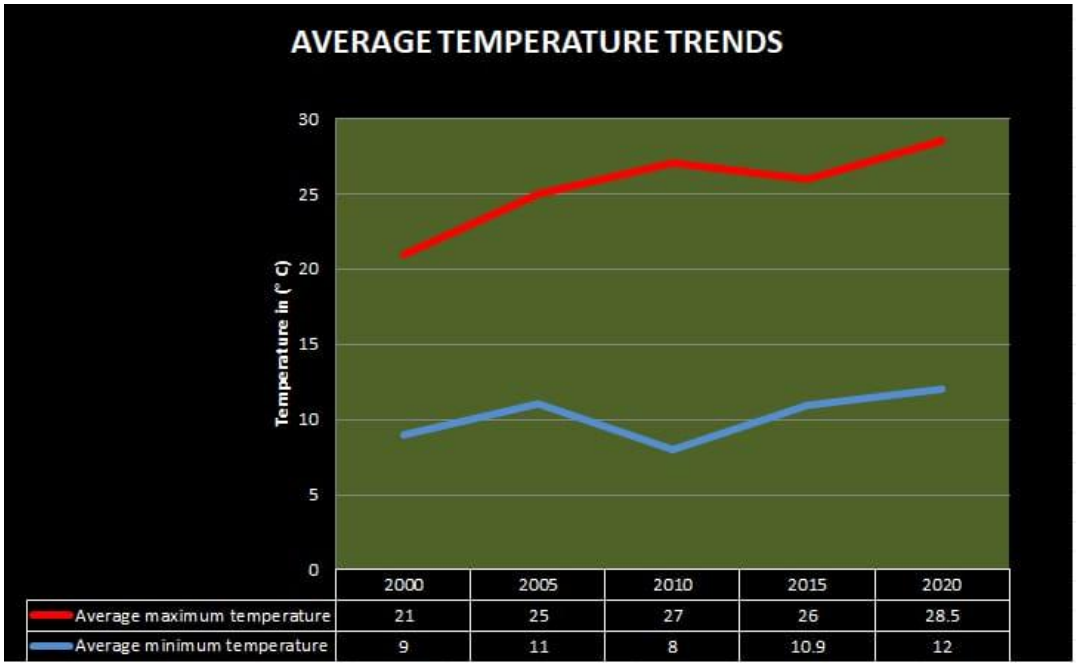


Figure 10: Average temperature trends in the county

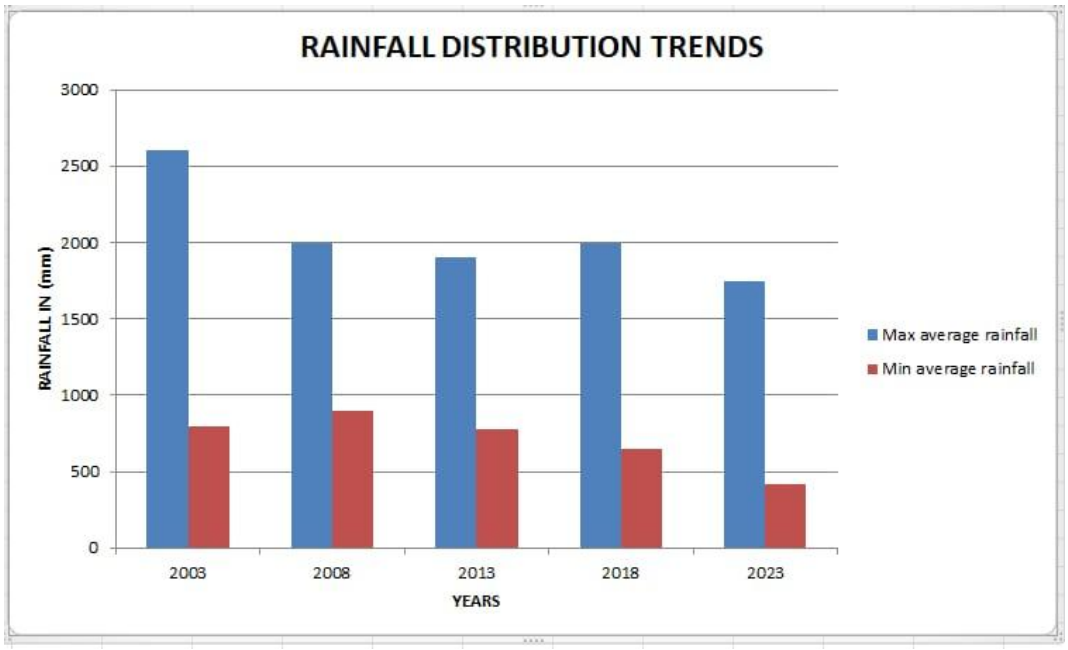


Figure 11: Average rainfall distribution trends in the county

2.3 Exposure and vulnerability profiles of the county

This section provides a summary of the exposure and vulnerability profiles of the key interest groups and their livelihood systems to climate hazards and trends.

Table 2-2: County exposure and vulnerability profile

Type of resource	Livelihood resources and assets	Drought	Extreme temperatures	Floods/Heavy rains	Invasive species/Pests and Diseases	Score	Ranking
Natural	Land/soil	3	3	3	3	12	1
	Pasture	3	3	2	3	11	2
	Wetlands	3	1	2	2	6	7
	Rivers, Streams and springs	3	1	3	2	9	4
	Hills	2	1	3	1	7	6
	Forest	2	1	1	2	6	7
Physical	Houses	0	1	2	0	3	10
	Roads	1	0	3	0	4	9
	Dams and Water pans	3	2	3	2	10	3

	Wells /Boreholes	3	1	3	2	9	4
	Factories/Industries	3	2	1	1	7	6
	Energy	3	2	1	0	5	8
Economic & Financial	Farming	3	2	3	3	11	2
	Livestock	3	2	2	3	10	3
Social	Farmers associations	2	1	1	0	4	9
	Women groups	2	1	1	0	4	9
	Family	1	0	0	0	1	11
	Culture and religion	2	2	2	0	6	7
	Arboretum	3	2	1	2	8	5
Human	Stadiums	2	3	3	0	8	8
	Security	1	0	0	0	1	11
	Skills	0	0	0	0	0	12

Total		**43**	**30**	**38**	**26**		
Ranking		**1**	**3**	**2**	**4**		

Scale:

0- No or positive impact on the resource
1- Low impact on the resource
2- Medium impact on the resource
3- High Impact on the resource

2.4 Differentiated impacts of climate trends and risks

This section describes the differentiated impacts of the past and current climate trends and risks on the different key interest groups in the county, with a particular focus on women, youth, ethnic minorities, people living with disabilities and other marginalized and vulnerable groups.

Table 2-3: Differentiated impacts of climate trends and risks

Interest Group	Duration	Drought	Floods/Heavy Rainfall	Extreme temperature	Invasive species/Pests/Diseases
Women	20 years (Past)	Difficulty in finding water in the months of January, February and March	No impacts on surface water run off Pollution of water due to floods thus some boil drinking water while others drink raw water harvested from their roofs	No challenge	No challenge
	10 years to present	Prolonged drought has made them travel longer distances in search of water. Women also find it difficult to get vegetables for their families.	Runoff negatively affects houses, which are the sole responsibility of women in terms of cleanliness. It also affects farming of vegetables and poultry by causing diseases. This affects domestic	Women have to boil water often for drinking due to high temperatures. This in turn demands more fuelwood, which is a responsibility of women to fetch.	Has reduced agricultural yields hence resulting to food shortage Diseases such as Newcastle, coccidiosis has impacted women since women are poultry farmers

			water supply Floods fill the wells and follow to the rivers therefore causing water pollution There's increased intensity of rainfall over a short period of time hence loss and destruction of property -Has led to waterlogging leading to waterborne diseases -Impassable roads leading to difficulty in accessing markets and hospitals		
Children	20 years (Past)	Girls and boys had to travel longer for water in the months of January and February. The boys had to take livestock to far distances for pasture and water during	The problem only affected school going boys and girls for a short time as the runoff was not a pronounced risk.	Was not a problem	There was no impact

		the short dry spell.			
	10 years to present	There has been prolonged drought, which has made girls travel longer distances over a longer period to look for water. The boys have to travel longer distances with the livestock during weekends in search of water and pasture than in the past.	Impassable roads and flooding streams negatively affect school going boys and girls. Runoff also makes playgrounds of schools unfit for games and sports. Impassable roads leading to difficulty in accessing schools -Has led to waterlogging leading to waterborne diseases	Reduced physical activity of the boys and girls.	Has resulted to malnutrition due to reduced yields and productivity.
People Living with Disability	20 years (Past)	They were not affected because they were less involved in the daily activities. There was less runoff since there was plenty of vegetation in rural side There was better management of run off in	They were not much affected by runoff as they had caretakers and were less active.	Was not a problem	There was no main challenge

		urban areas od.			
	10 years to present	They suffer a lot especially in cases where they live alone or are providers of their families. They find it difficult to meet the needs of water and food in their families.	Those who are able to move suffer the problems of impassable roads when there is runoff. Impassable roads leading to difficulty in accessing essential services and markets -Has led to waterlogging leading to waterborne diseases	High temperatures and scorching sun negatively affect those with albinism.	Reduced livelihoods due to the poor production and reduced yields in farming and livestock production.
Youths	20 years (Past)	Did not negatively affect the youth.	There was less runoff since there was plenty of vegetation in rural side. Better drainage especially in urban side hence easy access to markets	Was not a problem	
	10 years to	Drought affects horticulture farming and tree farming, which are practiced by the	The youth have to dig trenches for drainage in their homes. Runoff also	High temperatures coupled with drought causes high evapotranspiration rates	

	present	youth.	negatively affects the youth's horticulture and tree nurseries. Impassable roads leading to difficulty in accessing markets for their agricultural produce Lower farm productivity as a result of soil erosion-Has led to waterlogging leading to waterborne diseases	therefore demanding a lot of water for horticulture and tree nurseries.	

2.5 Spatial distribution of risks

This section spatially breaks down the climate risk projections into smaller geographical planning units, linking to the main livelihood and economic sectors in each respective Ward

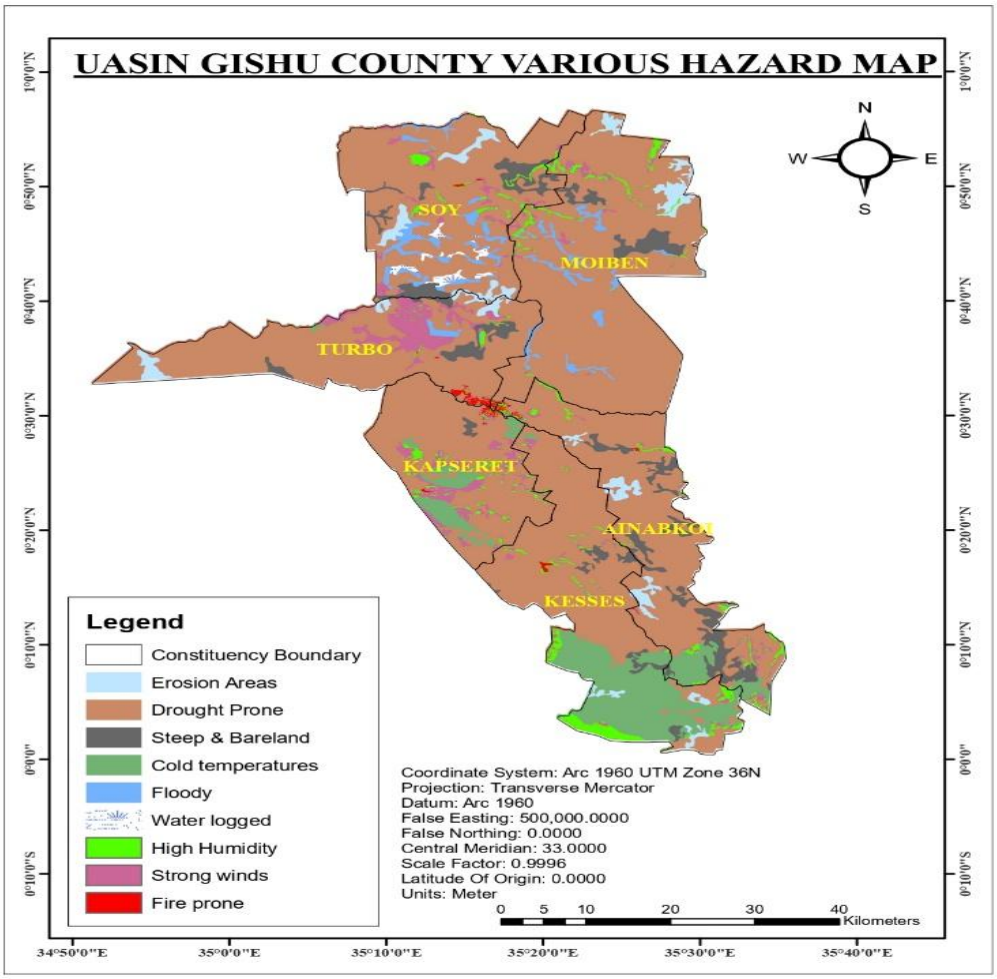


Figure 12: County hazard map

From the county hazard map; all the wards are prone to drought except Tarakwa and Ainabkoi Olare wards. Soy and Moiben Sub Counties are more susceptible to soil erosion and flooding while Ainabkoi and Kesses have a low likelihood. Ainabkoi Olare and Tarakwa Wards, and parts of Kapseret Sub county are likely to experience frost due cold tempretures.

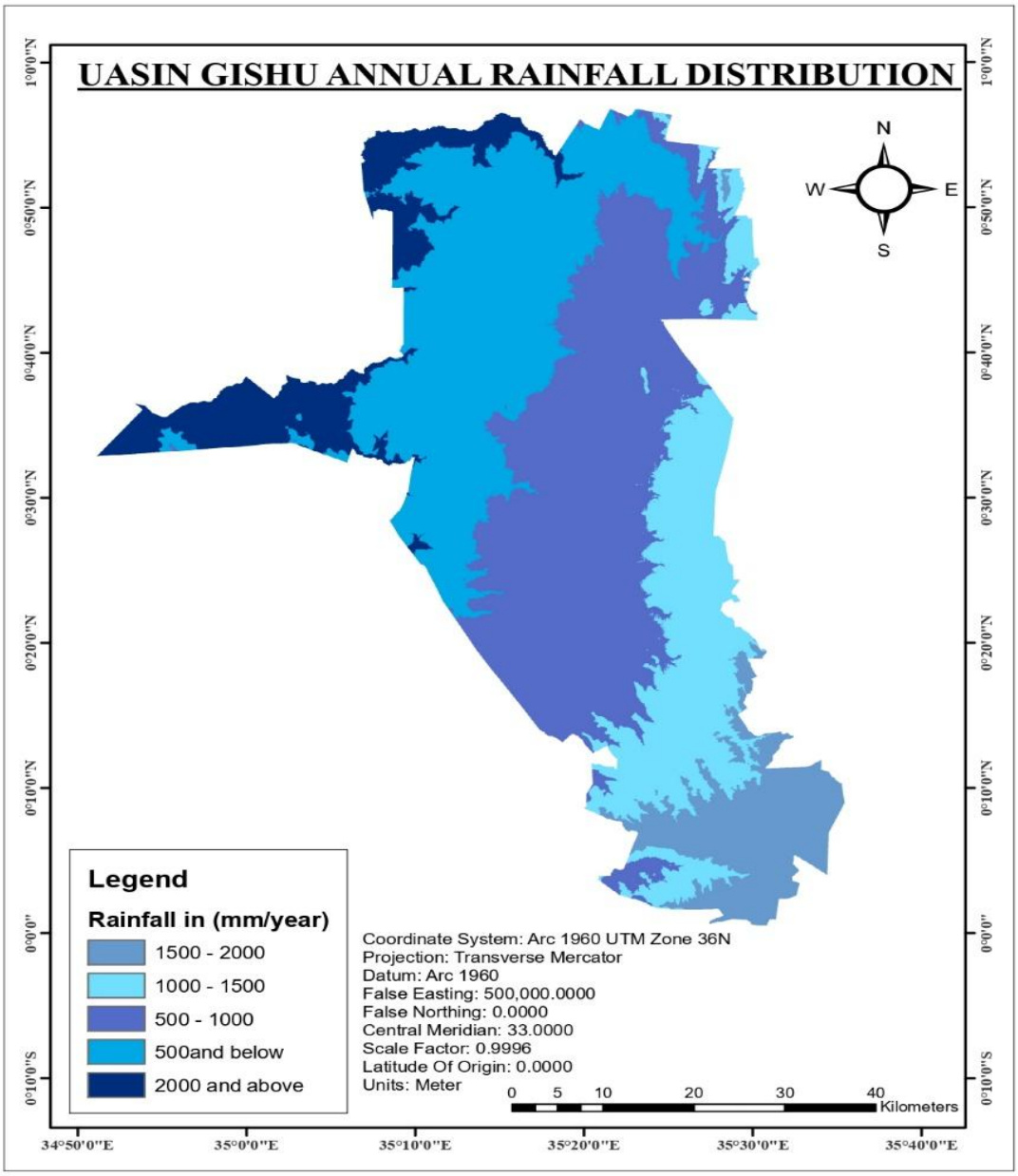


Figure 13: Average rainfall distribution in the last one year

From the annual rainfall distribution map, the county receives rainfall ranging from 500mm/yr to 2000mm/yr. Parts of Ainabkoi Olare, Tarakwa, Ngenyilel and Moisbridge wards receives 2000mm of rainfall and above while parts of Moiben, Soy and Kapseret Sub counties receives as low as 500mm per year.

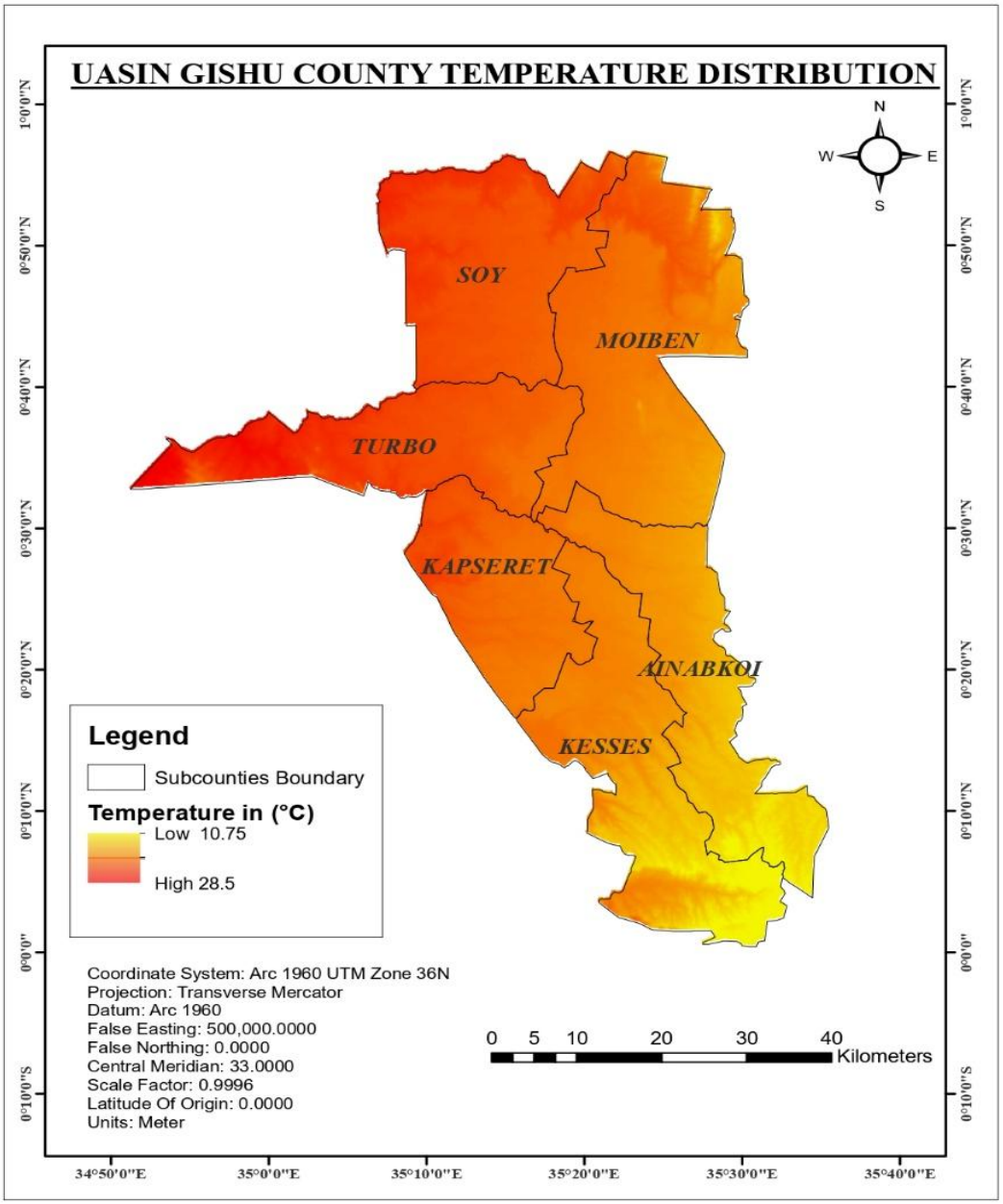


Figure 14: Temperature distribution in the last one year

From the temperature distribution map, the county receives an average temperatures ranging from 10.5 degrees Celsius to 28.5 degrees Celsius. Turbo and Soy Sub counties receives the highest while Ainabkoi and Kesses receiving the lowest.

3.0 FUTURE CLIMATE SCENARIOS FOR THE COUNTY

In Kenya, the frequency and magnitude of extreme weather events has had adverse impacts on both human and aquatic life. Uasin Gishu County too has been victim in extreme events such as loss of lives, diminished livelihoods, reduced crop and livestock production, and damaged infrastructure among others.

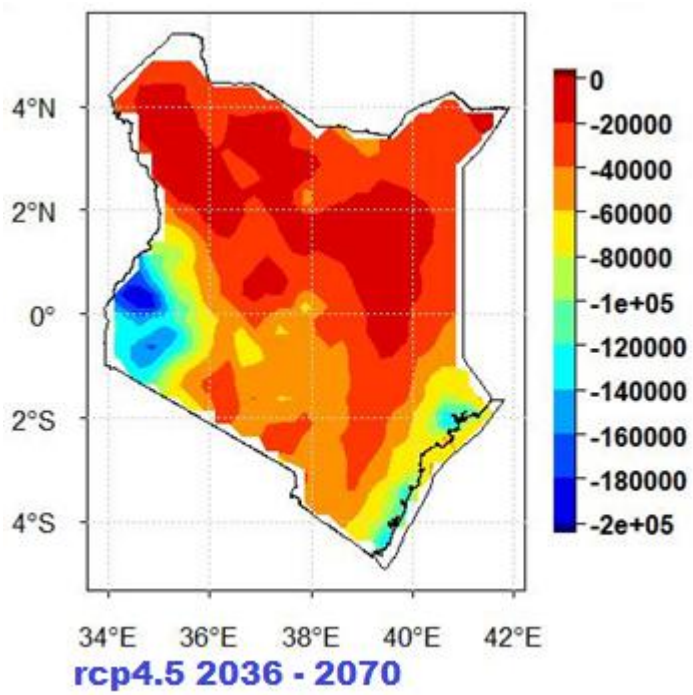
The negative impacts are projected to increase in Kenya through increasing temperatures from the 1960's coupled with increased frequency and intensity of extreme weather events such as floods, landslides, pests and diseases, locust invasion, and drought. Effects of climate change include declining agricultural productivity and general loss of citizen livelihoods due to changing temperatures and precipitation regimes.

County future climate risk scenarios

Climate projection for the county has been modeled based on two scenarios. The future projected changes were assessed for two period horizons. The **mid** period horizon (2036-2070) and **far** period horizon (2071-2100) considered relative to the historical climate (1981-2005) using CMIP5 model simulations under two carbon emission scenarios ; RCP 4.5 and RCP 8.5. RCP means Representative Concentration pathways. It portrays possible future greenhouse gas and aerosol emissions scenarios and is defined by total solar radiative forcing by 2100. To address uncertainty in future concentrations of greenhouse gases and emissions of aerosols, data made available via Cal-Adapt incorporates two RCPs: RCP 4.5 and RCP 8.5 scenarios.

These scenarios are described by the Intergovernmental Panel on Climate Change (IPCC) as follows:

1) Scenario one (Rainfall projection RCP 4.5): This is as a moderate scenario in which emissions peak around 2040 and then decline. Under this scenario, it is presumed that the decline in emission will be as a result of effective implementation of climate change mitigation efforts.



2) Scenario two (Rainfall projection RCP 8.5): This scenario presents the highest baseline emission scenario in which it is assumed that there will be no effort to implement climate change mitigation measures hence emissions continue to rise throughout the twenty-first century.

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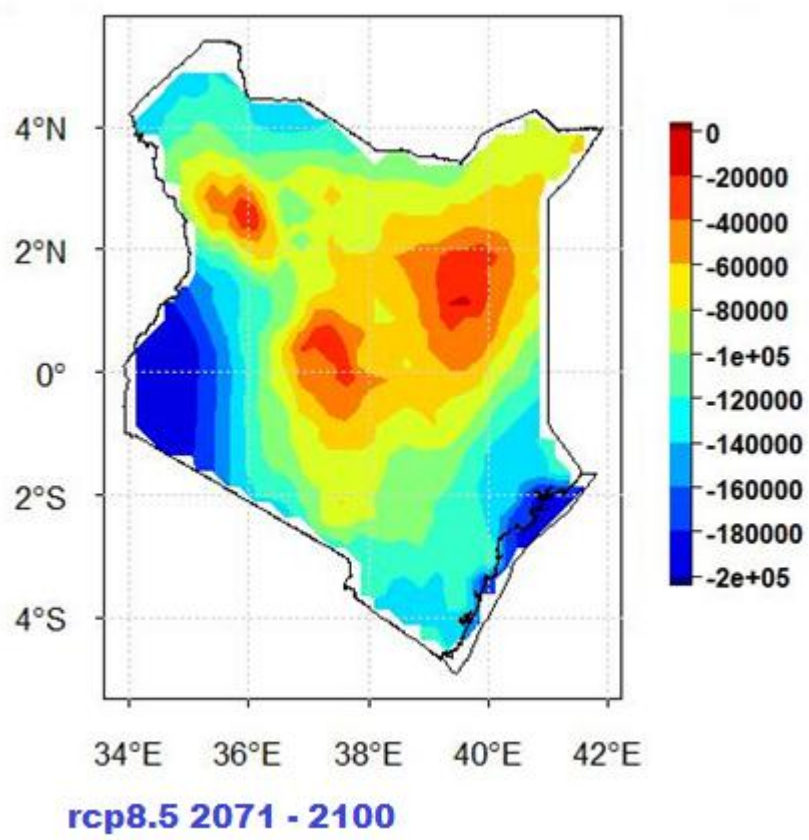


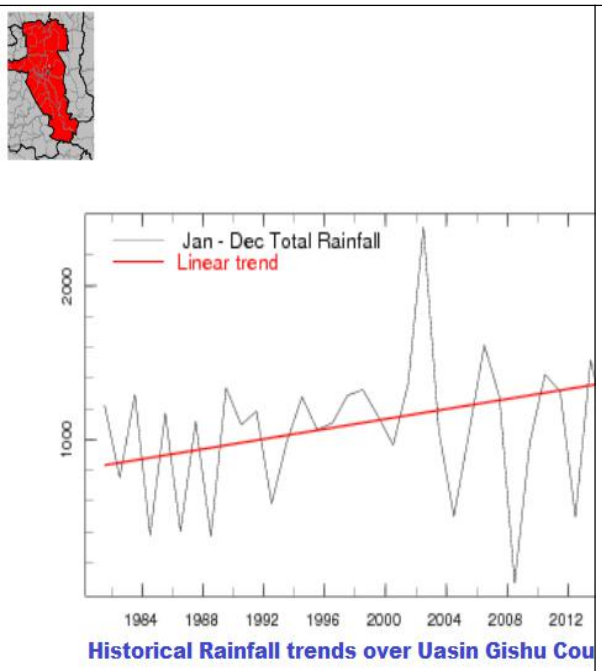
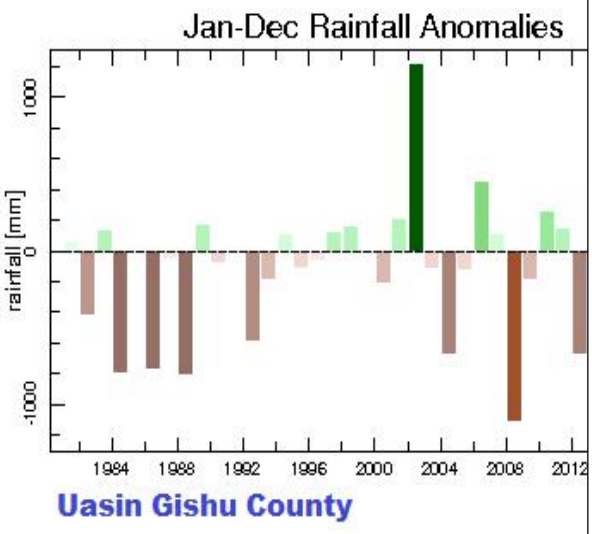
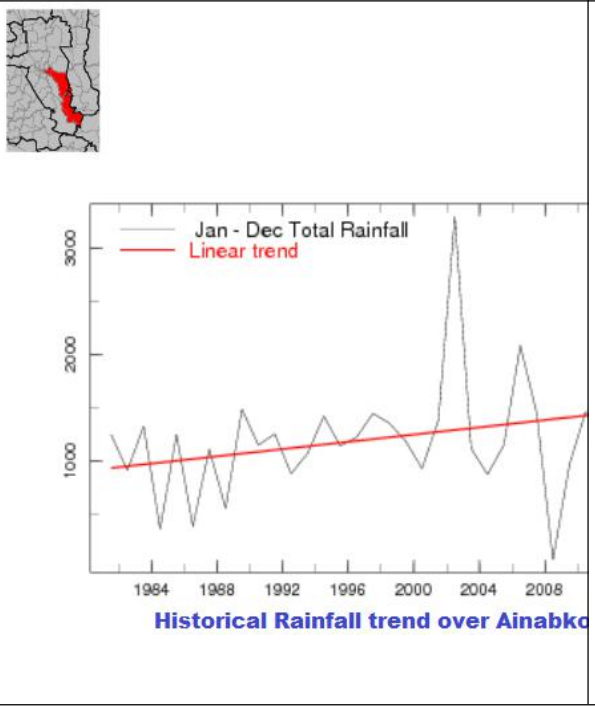
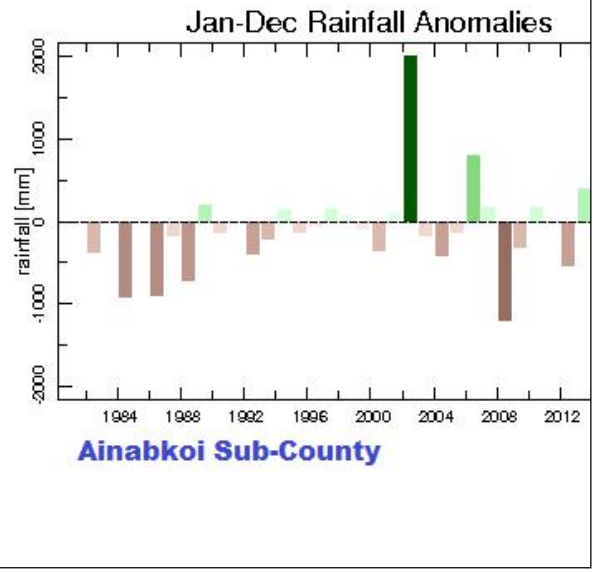
HISTORICAL RAINFALL TRENDS (1981 - 2022)

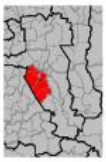
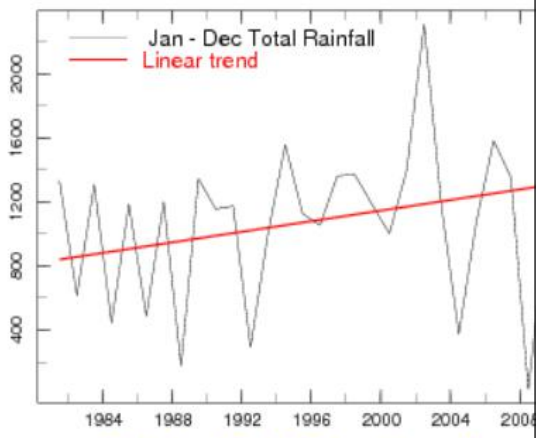
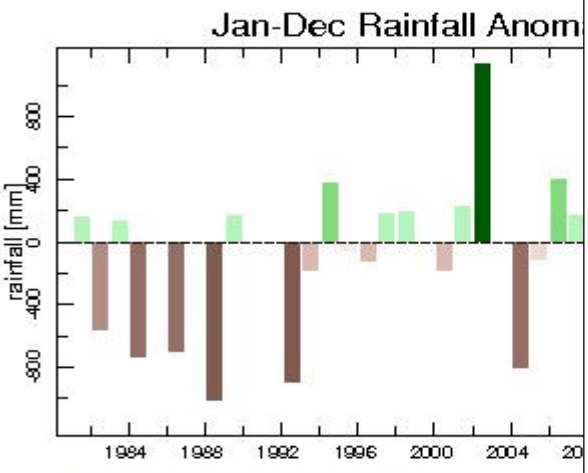
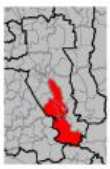
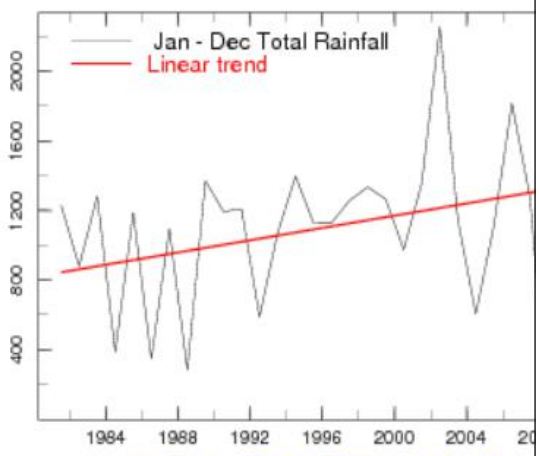
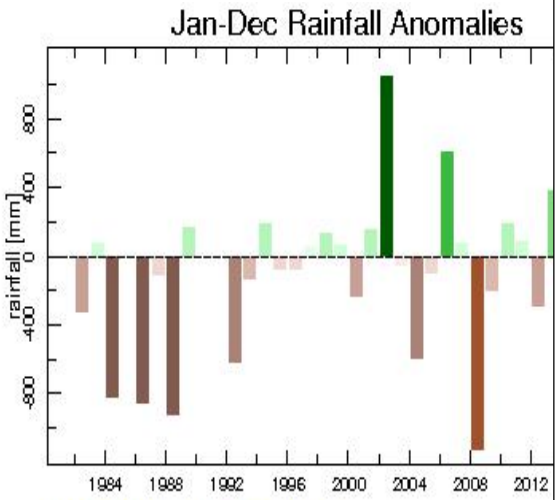
Uasin Gishu County has three significant rainfall seasons in a year namely:

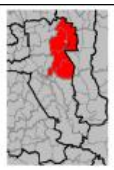
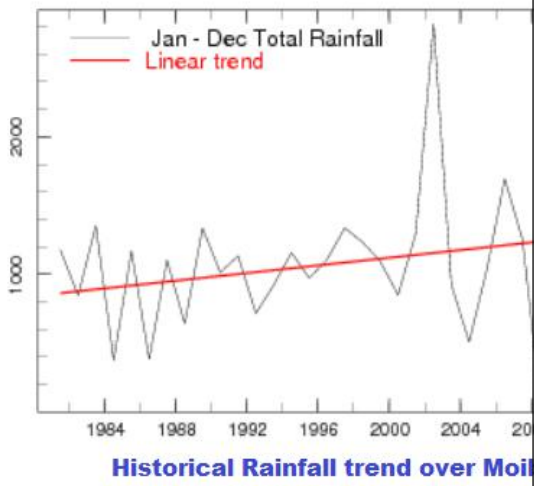
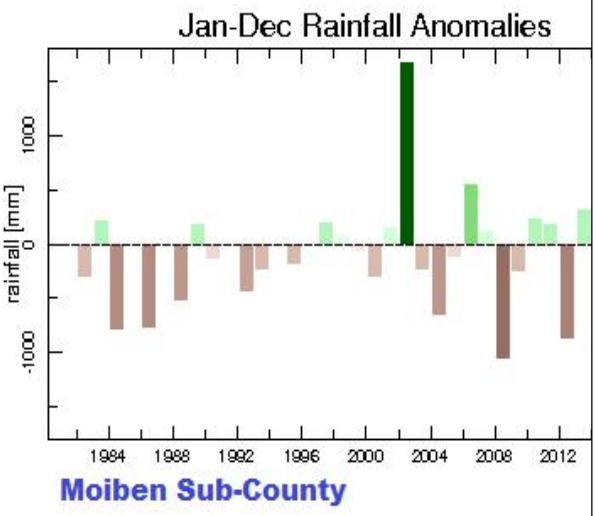
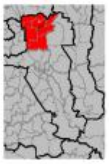
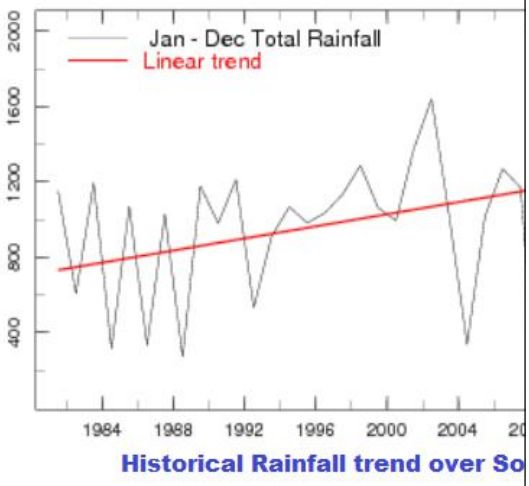
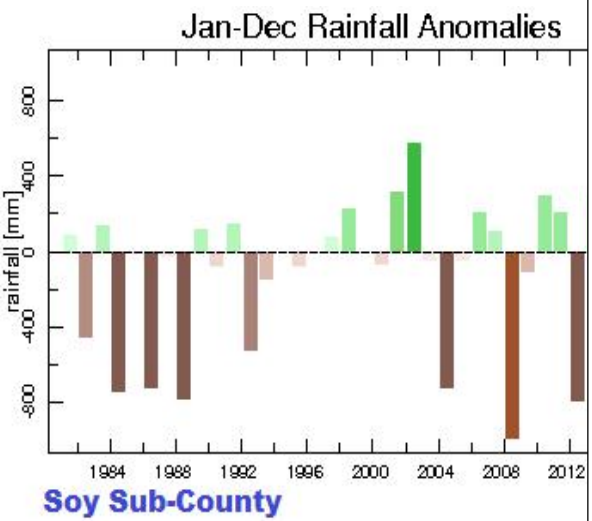
1. The long rains season that runs from March to May
2. Mid-year season that runs from June to August and
3. Short rains season that runs from October to December

The following graphs depict the County seasonal mean rainfall (Climatology/Historical) based on 1981 to 2022 monthly rainfall data. It shows that, in as much as the graphs indicate a general increase in annual rainfall in the period covering 1981 to 2022, increased variability is evident. As shown in the analysis on the second column, it is notable that the more variability extremes are on the negative compared to those on the positive.

Rainfall time series (1981-2022) were reconstructed from station observations, remote sensing and other proxies. This interface enabled a clear view of mean seasonal trends expressed per year, over the selected period.

1		
2		

3	  Historical Rainfall trend over Kapse	 Kapseret Sub-County
4	  Historical Rainfall trend for Kes	 Kesses Sub-County

5	  Jan - Dec Total Rainfall Linear trend 2000 1000 1984 1988 1992 1996 2000 2004 Historical Rainfall trend over Moi	 Jan-Dec Rainfall Anomalies rainfall [mm] 1000 0 -1000 1984 1988 1992 1996 2000 2004 2008 2012 Moiben Sub-County
6	  Jan - Dec Total Rainfall Linear trend 2000 1600 1200 800 400 1984 1988 1992 1996 2000 2004 Historical Rainfall trend over So	 Jan-Dec Rainfall Anomalies rainfall [mm] 800 400 0 -400 -800 1984 1988 1992 1996 2000 2004 2008 2012 Soy Sub-County

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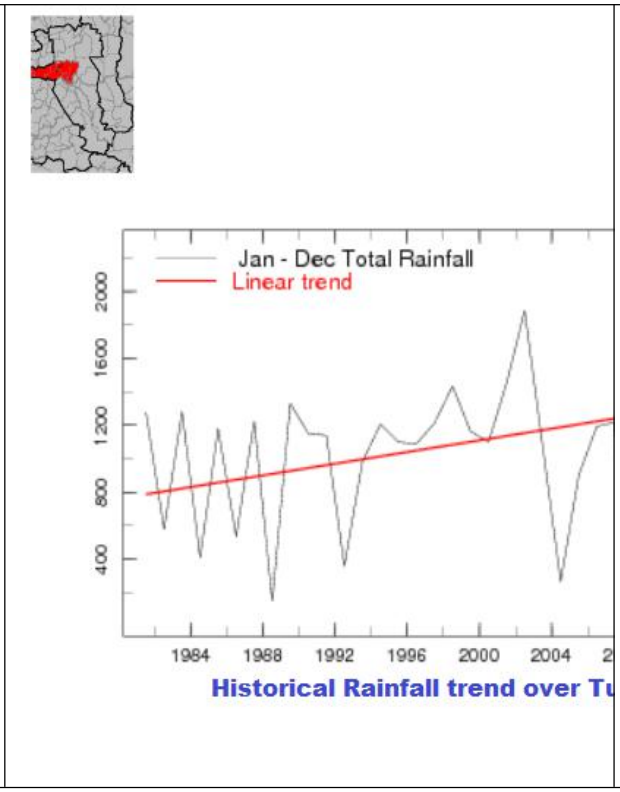
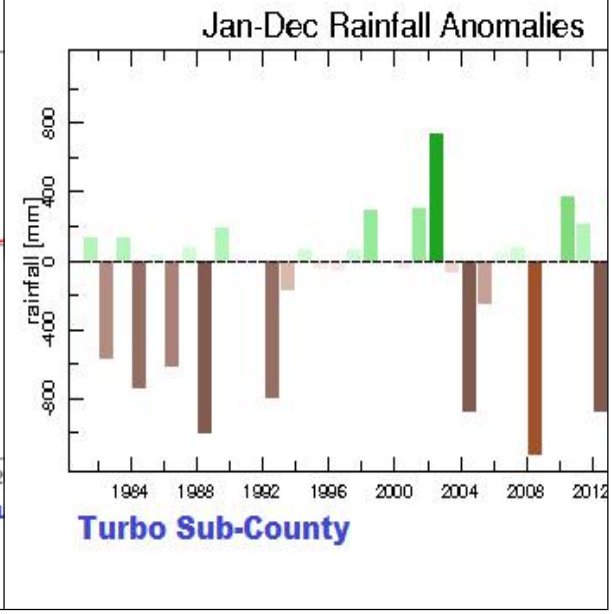
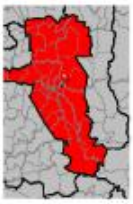
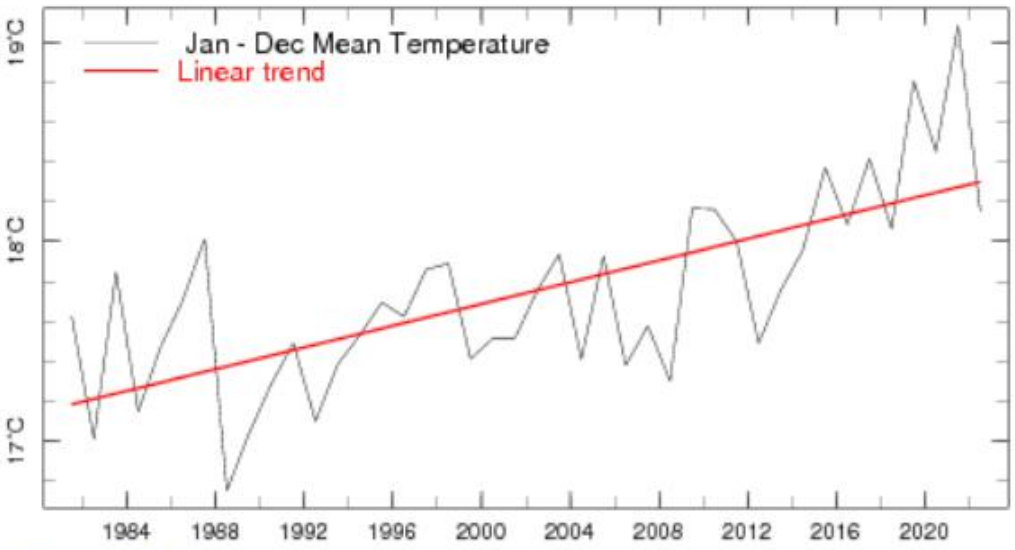
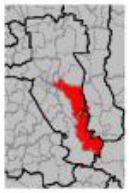
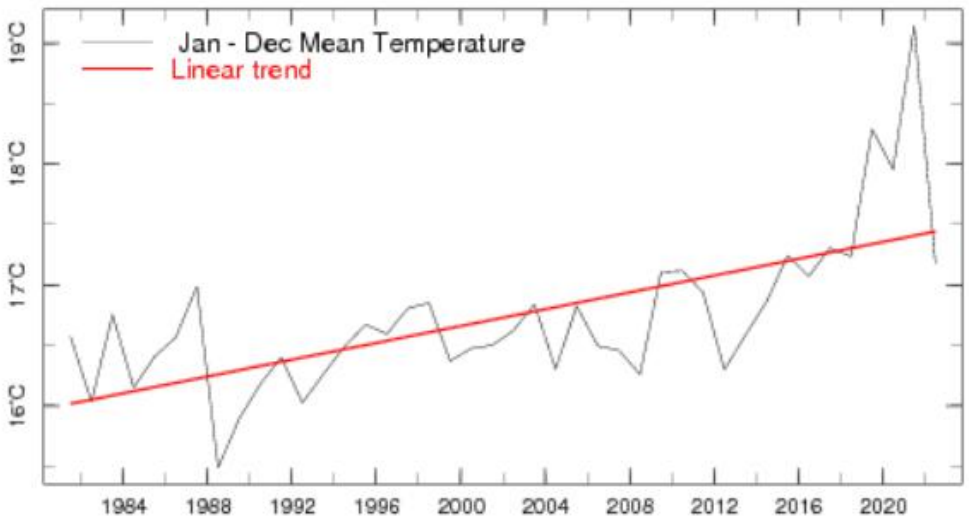


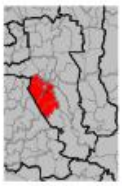
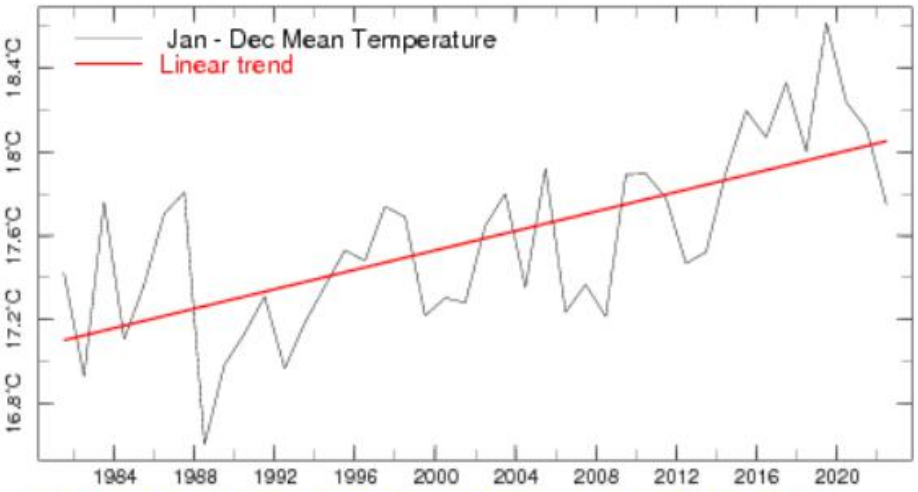
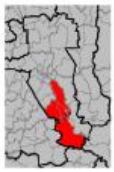
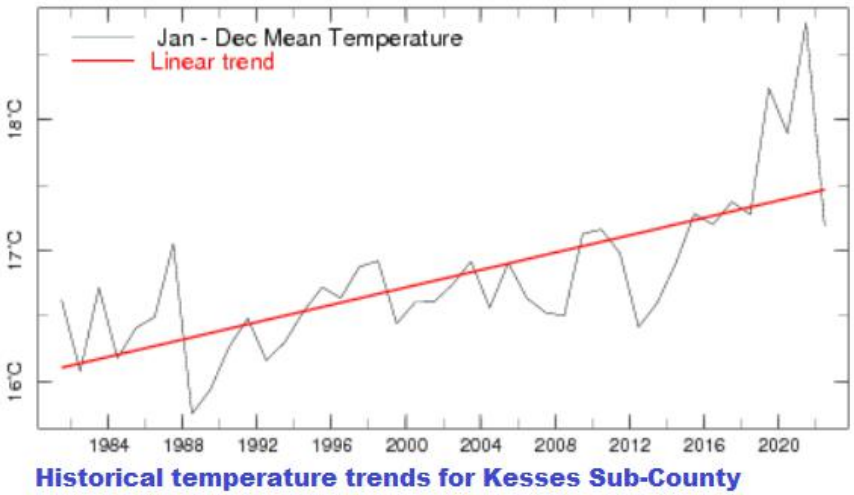


Courtesy: Uasin Gishu County Meteorological Office

HISTORICAL TEMPERATURE TRENDS (1981 - 2022)

Like rainfall, temperature time series (1981-2022) were reconstructed from station observations, remote sensing and other proxies. This interface enabled a clear view of mean seasonal trends expressed per year, over the selected period.

1	  **Historical mean temperature trends for Uasin Gishu County**
2	  **Historical temperature trends for Ainabkoi Sub-County**

3	 Analysis for**Kapseret, Uasin Gishu**  **Historical temperature trends for Kapseret Sub-County**
4	  **Historical temperature trends for Kesses Sub-County**

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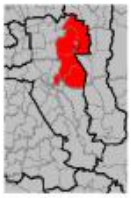

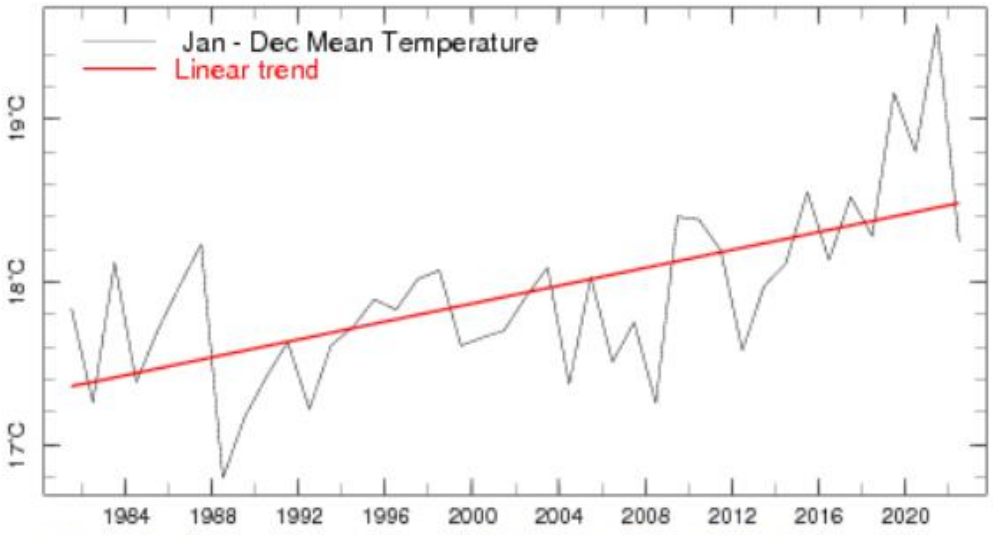

Historical temperature trends for Moiben Sub-County

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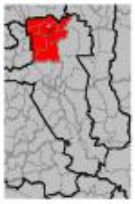
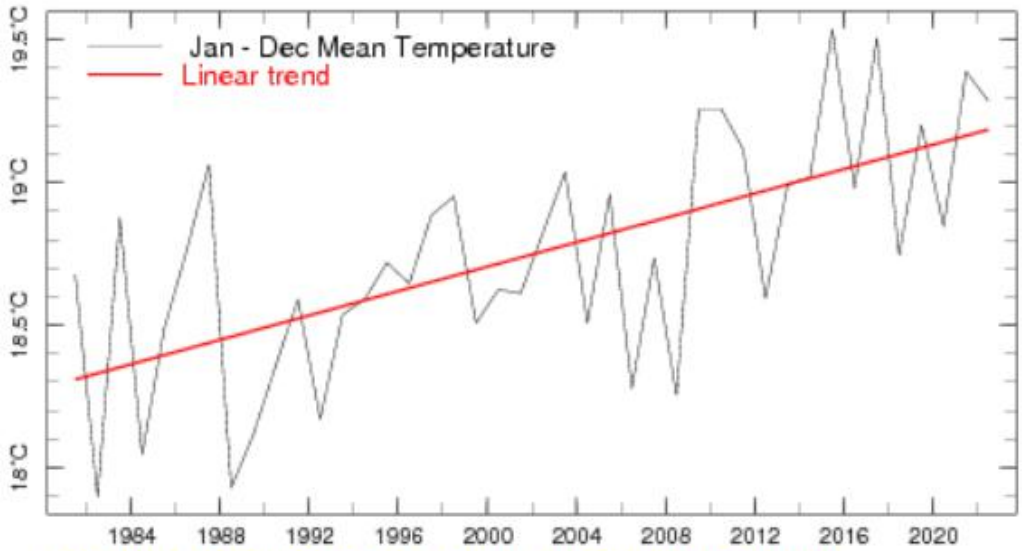
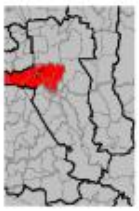
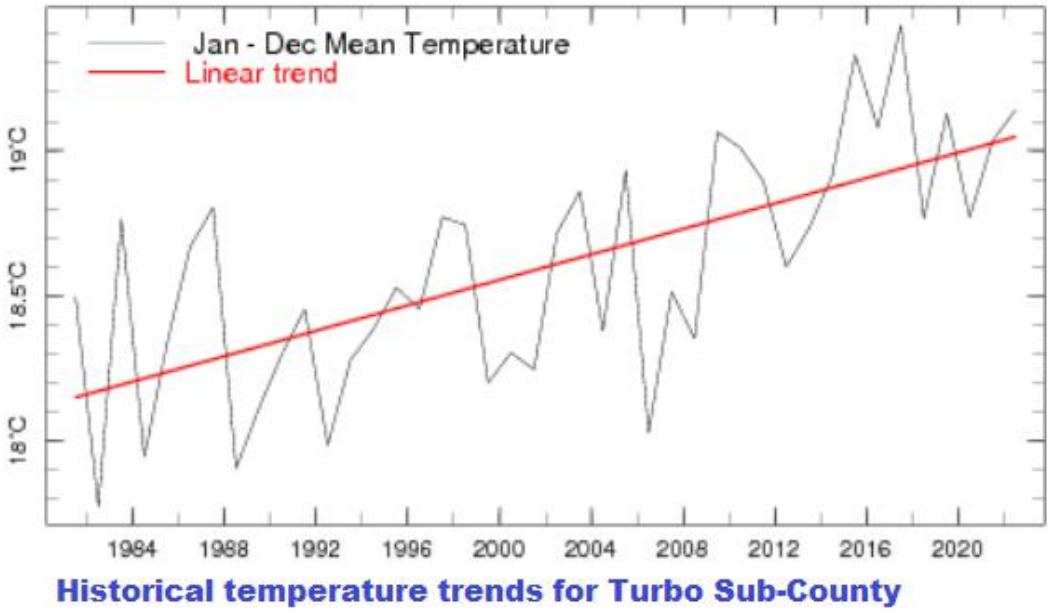




Historical temperature trends for Soy Sub-County

7	 

Courtesy: Uasin Gishu County Meteorological Office

4.0 ANALYSIS OF EXISTING RESILIENCE/ADAPTATION STRATEGIES TO CURRENT AND FUTURE CLIMATE RISKS

4.1 Overview of existing adaptation/resilience strategies and their effectiveness to current climate risks

This section provides an overview of existing climate resilience strategies, differentiated by livelihood and producer systems, stakeholder groups, economic and social sectors etc. with a particular focus on women, youth, ethnic minorities, persons with disabilities and other marginalized and vulnerable groups. It analyses the effectiveness of these strategies to current climate risks and the resources or actions that could make these strategies more effective.

Table 4-1: Existing adaptation/resilience strategies and their effectiveness to current climate risks

Risk/Hazard	Livelihood/Economic System	Current Climate Resilience Strategies	Stakeholder Group Applying the Strategy	Gender and Social Inclusion information	Effectiveness
Drought/prolonged dry season	**Livestock farming** Scarcity of animal feeds Reduced yield Loss of livestock Scarcity of drinking water	Feeding livestock with maize stovers, wheat straws and use of sugarcane tops A few farmers plant fodder and conserve for dry season e.g. hay while others make silage Reducing number of animals and moving to other areas in search pasture Taking livestock to long distances in search of water, buying water from water suppliers, some use	Farmers	Men Women Youth PWDs	Low

		water in their reservoirs			
	Crop production Reduced crop yield Food shortage	Planting of drought resistant and short term crops A few construct green houses Irrigation of horticultural crops for those close to reliable water bodies e.g. rivers, dams and wetlands Some use modern kitchen gardens Resort to one meal a day	Farmers	Men Women Youth PWDs children	Low
	Trade Scarcity of trading commodities(farm produce) Reduced buying capacity	Increase prices of the limited commodities Travel long distances in search of the produce Reduce the weights of the produce Some businesses close up while others reduce stocks	Traders	Men Women Youth PWDs	Low
	Water scarcity Reduced water levels	Water harvesting and storage Purchase of water	Households County	Youth Women and	Low

	Reduced water supply	Sinking of shallow wells and boreholes Desilting of dams for water supply Travelling long distances to fetch water from streams and rivers Taking animals to water sources to drink water Planting of food crops along riparian and wetlands Some farmers do irrigation	government	Children PWDs	
	Forests/deforestation /reforestation	Planting of trees Few use green energy for lighting and biogas for cooking Some use energy saving jikos	Farmers Government	Men Women Youth PWDs	Low
Unpredictable/ short rainfall	Arable land/crop farming	Some farmers plant short season crops varieties Crop diversification	Farmers	Women Youth Men PWDs	Low

	Livestock farming	Planting of quality pasture Improve livestock breeds Livestock diversification	Farmers	Women Youth Men PWDs	Low
	Water scarcity	Water storage	Farmers Households	Women Youth Men PWDs	Low
Heavy rainfall/ floods/storms/hailstones	Crop/livestock farming Reduced crop and livestock production Soil erosion leading to soil infertility Damage of crops Crop and livestock diseases	Making of terraces Some do not respond therefore leading to high losses Grading and murraming of roads Construction of drainage system Desilting of dams Boiling of drinking water	Farmers County government	Men Women Youth Children PWDs	Low

	Siltation of rivers and dams Pollution of water sources Impassable roads limiting accessibility to markets Loss of property(Flooding of houses and collapse of toilets) Blockage of drainages Power cuts leading to business losses and blackouts Siltation and pollution of Water bodies **Health** Water logging leading to malaria and waterborne diseases Loss of lives	Building of terraces Planting of trees and cover crops Using of fungicides Use of mosquito nets Medication and treatment			

Extreme temperatures **Low temperature** **High temperature**	Crop farming Causes crop diseases Loss of crops Low crop production Health Respiratory diseases Crop farming Increase pest invasion in crops Low yields Health High breading of mosquitoes	Spray with fungicides Seek medical attention Keep warm Spray with fungicides Seek medical attention Use of mosquito nets	Farmers households	Men, Women, Youth, PWDs children	Low
Invasive species/ pests and diseases	Crop farming Loss of crops	Spray with pesticides and local remedies	Farmers County government	Women Men	Low

	Low production Increase cost of production Forests /trees Trees drying and dying by the parasitic species	 Tried pesticides but not working Cutting and burning of the trees		Youth PDWs	

4.2 Effectiveness of adaptation/resilience strategies to future climate risks

This section examines the effectiveness of adaptation/resilience strategies to the future climate scenarios identified in section 3 as well as options for additional adaptation/resilience strategies. It includes an analysis of the resources or actions that could make these strategies more effective. This analysis takes into consideration the specific and differentiated needs of women, youth, ethnic minorities, people living with disabilities and other marginalized and vulnerable groups.

Table 4-2: Future climate resilience strategies

Risk/Hazard	Livelihood/Economic System	Future Climate Resilience Strategies	Stakeholder Group Applying the Strategy	Gender and Social Inclusion information	Effectiveness
Drought/prolonged dry season	**Livestock farming** Scarcity of animal feeds Reduced yield Loss of livestock Scarcity of drinking water	Capacity building farmers on planting of high yielding, quality and drought resistant fodder Proper management and storage of fodder Improvement of livestock breeds Reducing number of animals and keeping of high production breeds Installation of water reservoirs and harvesting of water Desilting of dams and supply of water to farmers	Farmers County government	Men Women Youth PWDs	High
	Crop production	Planting of drought resistant and short term crops Capacity building interested farmers to construct and manage green houses Enforcement of arable land use	Farmers	Men Women Youth PWDs	

	Food shortage	policy as well as capacity building the farmers Desilting and equipping of dams and boreholes to supply water for irrigation increase use of modern kitchen gardens for continuous supply of food Store more food during rainy season Practice crop diversification		children	High
	Trade Scarcity of trading commodities(farm produce) Reduced buying capacity	Capacity build and empower farmers on irrigation of horticultural crops especially vegetables to increase supply Encourage the citizens who are mainly farmers to diversify so as to ensure income supply	Traders	Men Women Youth PWDs	High
	Water scarcity Reduced water levels	Water harvesting and storage Sinking of shallow wells and	Households County	Youth	

	Reduced water supply	boreholes Desilting of dams for water supply -Provision of water for irrigation to avoid planting of horticultural crops along riparian and wet lands Cutting of eucalyptus on riparian and wet lands Protection of water springs and water towers	government	Women and Children PWDs	High
	Forests/deforestation /reforestation	Increase planting of trees Increase use of green energy for lighting and biogas for cooking Increase use of energy saving jikos Enforcement of laws on charcoal burning Encourage use of briquettes Capacity build and empower youth, women and PWDs on establishment and management of	Farmers Government	Men Women Youth PWDs	High

		tree nurseries			
Unpredictable/short rainfall	**Arable land/crop farming** **Livestock farming** **Water scarcity**	Capacity build farmers on short season and drought resistant crops varieties Enforce arable land use policy Crop diversification Introduce irrigation by creation of water pans Planting of quality pasture Improve livestock breeds Plant short season fodder varieties Crop and livestock diversification Water storage	Farmers	Women Youth Men PWDs	High
Extreme temperatures **Low temperature**	**Crop farming** Causes crop diseases Loss of crops	Spray with fungicides Seek medical attention	Farmers	Men, Women, Youth, PWDs children	High

High temperature	Low crop production **Health** Respiratory diseases **Crop farming** Increase pest invasion in crops Low yields **Health** High breading of mosquitoes	Keep warm Spray with fungicides Seek medical attention Use of mosquito nets	households		
Heavy rainfall/floods/ storms/ hailstorms	**Agricultural production** Reduced crop and livestock production Soil erosion leading to soil infertility Damage of crops Crop and livestock diseases	Capacity build farmers on proper making of terraces Encourage every farmer to respond to prevention of soil erosion Grading, murraming and compacting of roads Construction of drainage system	Farmers County government	Men Women Youth PWDs	High

	Siltation of rivers and dams Pollution of water sources **Infrastructure (Roads, Drainages, buildings)** Impassable roads limiting accessibility to markets Loss of property(Flooding of houses and collapse of toilets) Blockage of drainages Power cuts leading to business losses and blackouts **Health** Water logging leading to malaria and waterborne diseases	Desilting of dams Boiling of drinking water Protecting the shallow wells to avoid in flowing of runoff water Prevention of soil erosion by building gabions Construction of dams and water pans to harvest runoff water Planting of trees and cover crops Using of fungicides Diversion trenches for storms Construction of dams and water pans to harvest runoff water Use of mosquito nets Medication and treatment Improve drainage to drain stagnant water			

	Loss of lives				
Invasive species/ pests and diseases	**Crop farming** Loss of crops Low production Increase cost of production **Forests /trees** Trees drying and dying by the parasitic species named Cuscuta species	More research needed Biological control More research needed	Farmers County government	Women Men Youth PDWs	High

5.0: UASIN GISHU COUNTY CLIMATE STRATEGIC ADAPTATION INVESTMENT/ACTION PRIORITIES

This section takes a cross-sectoral perspective and focus on strategic investment priorities that strengthen the adaptive capacity and resilience of key livelihood, social and economic systems within the county, reflecting the key interest/stakeholder groups that were represented in the climate risk assessment workshop. It also aligns with County Integrated Development Plans and County Climate Policies. Strategic adaptation/resilience investment priorities identified in session 5 of the climate risk assessment workshop is presented in this section. These priorities are consistent with the analysis of the effectiveness of existing strategies in section 4. These priorities reflect the differentiated needs of women, youth, ethnic minorities, people living with disabilities and other marginalized and vulnerable groups. Strategic priorities address the county, sub-county and ward levels.

Priorities cover a wide range of strategies, including strengthening local processes and systems, building local capabilities as well as physical infrastructure investments

Table 5-1: Climate strategic adaptation investment/action priorities

HAZARD	Priority areas of Investments				
	Agriculture and Livestock	**Water**	**Environment & Energy**	**Health**	**Infrastructure & other sectors**
Drought/Prolonged dry spell	Disaster risk management practices Capacity building on Climate Smart Agriculture and Livestock technologies, innovations and management practices. Adoption of Climate Smart Agriculture and Livestock technologies, innovations and management practices. ✓ Feed conservation	Disaster risk management practices Sensitization on conservation and protection of water catchment areas Wetland restoration initiatives Implementing	Disaster risk management practices Capacity building on climate change Promote use of green energy solutions such as solar and biogas for cooking and lighting Implementing existing policies	Sensitization and training of the community on health and nutrition. Planting of fruit and medicinal trees	Establishment of green spaces such as arboretums in urban and peri-urban centres

	technologies; Hay making, Silage making ✓ Construction of feed stores ✓ Planting of high yield fodder varieties ✓ Drought resistant feed varieties ✓ Disease control such us vaccination ✓ Planting of short season varieties ✓ Drought resistant crop varieties ✓ Planting of fruit trees ✓ Planting of cover crops ✓ Agroforestry ✓ Irrigation Establishment of fish ponds Planting drought resistant and short season crops Practicing conservation and regenerative agriculture. Crop and livestock diversification Implementing existing policies	existing policies Formulating new policies Adoption of Water harvesting and treatment technologies like harvesting surface water run-off and Roof catchment Construction of new dams & water pans Conservation and protection of water catchment areas; Planting of indigenous trees along the water catchment areas, Fencing Spring protection Reclamation of encroached riparian	Formulating new policies Afforestation and reforestation(using indigenous trees) Tree planting in public institutions Establishment of community tree nurseries Afforestation and reforestation Establishment of tree nurseries. Agroforestry Conservation of endangered tree species e.g mahogany, cedar, olive and elgon teak		

	Formulating new policies Insurance policies	lands Rehabilitation of existing water sources e.g. Desilting of existing dams, rehabilitation and equipping of existing colonial boreholes Provision of water distribution networks and extension of existing ones			
Floods/Heavy rains/Storms/Whirl wind	Disaster risk management practices Capacity building on Climate Smart Agriculture technologies, innovations and management practices. Adoption of Climate Smart Agriculture technologies, innovations and management practices;	Disaster risk management practices Construction of dams and water pans Building of terraces and gabions Construction of cut-off drains to reduce	Disaster risk management practices Sensitization on the importance of conservation and protection of the water catchment areas Afforestation and reforestation Conservation and	Introduction of public health programs Issuing of mosquito nets Medication and treatment Promote growing of medicinal trees	Construction of proper drainages systems Diversion trenches for storms & floods Murraming and gravelling of roads

	Planting of high yielding varieties Planting of short season varieties Planting of trees and cover crops Agroforestry Building of terraces and gabions Harvesting surface runoff for agricultural use Insurance policies for crops and livestock Enforcement of land use policies	siltation Diversion trenches for storms & floods Implementing existing policies Formulating new policies	protection of water catchment areas; Planting of indigenous trees along the water catchment areas, Fencing Reclamation of encroached riparian lands Agroforestry		
Extreme temperatures - **High** - **Low**	Capacity building of farmers on CSA Adoption of CSA TIMPs			Sensitization on health concerns associated with the hazard	
Invasive species - Pest & diseases - Parasitic Plants	Promote growing of disease resistant crop varieties Implementation of IPM Livestock vaccination and	Sensitization on invasive species	Sensitization on invasive species		

	undertaking further research on the management of the invasive species				

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

The County Participatory Climate Risk Assessment Report offers a thorough analysis of the climate change challenges faced by the county. It provides valuable insights into the risks and vulnerabilities that need to be addressed. The participatory approach that involved a wide range of stakeholders ensured that local voices and knowledge are incorporated into the decision-making process. The findings highlight the urgent need for action to build climate resilience, enhance livelihoods and promote sustainable development in County. The main drivers of climate change as identified during the PCRA process include; deforestation, pollution (air,soil and water), increase in population and poor land use. Some notable impacts which have largely affected the local community include; water scarcity, food shortage, reduced crop and livestock production, increase in cost of production, siltation of water sources, wetlands degradation, soil erosion leading to soil infertility, invasive species, pests and diseases, human respiratory and waterborne diseases among others.

During the PCRA Process the community highlighted a number of existing adaptation/resilience strategies; however their effectiveness to current climate risks was low. Therefore several mitigation measures to curb the risks of climate change and their associated impacts have been proposed. These includes; construction of new dams and desilting of existing ones, wetland restoration initiatives, conservation and protection of water catchment areas, afforestation and reforestation, promote use of green energy such as solar and biogas, establishment of tree nurseries, construction of proper drainage facilities, disaster risk management practices, capacity building and adoption of Climate Smart Agriculture and livestock technologies, innovations and management practices, feed conservation technologies; hay making, silage making, construction of feed stores, planting of high yield fodder varieties, drought resistant feed varieties, disease control such as vaccination, planting of short season varieties. Other measures include; planting of fruit trees, planting of cover crops, agroforestry, irrigation, establishment of fish ponds, practicing conservation and regenerative agriculture, crop and livestock diversification, implementing existing policies, formulating new policies building of terraces and gabions, harvesting surface runoff for agricultural use, insurance policies for crops and livestock, enforcement of land use policies, implementation of IPM, livestock vaccination and undertaking further research on the management of the invasive species

The highlighted mitigation measures to curb the risks of climate change will lead to the development of the County Climate Change Action Plan (CCCAP) that will provide a framework for building resilience of communities and ecosystem to the effects of climate change. This will enhance and further sustainable development by providing mechanisms and measures to achieve low carbon climate resilient development in a manner that prioritizes adaptation. It will facilitate a coordinated development in the county while harnessing synergies presented by the various players in the county's development realm.

6.2 RECOMMENDATIONS

Though the Participatory Climate Risks Assessment (PCRA) process emerged as a valuable approach and mechanism for evaluating the risks and effects of climate change so that informed climate resilience actions that are sustainable can be designed at the community level; a number of shortcoming were notes and recommendation given as highlighted below.

(i) The process requires adequate time so that the community can participate fully
(ii) Sensitization of the community on the process need to be done early enough and the community given enough time to prepare
(iii) The process require allocation of adequate resources
(iv) There is need to ensure deliberate involvement women and persons living with disabilities during

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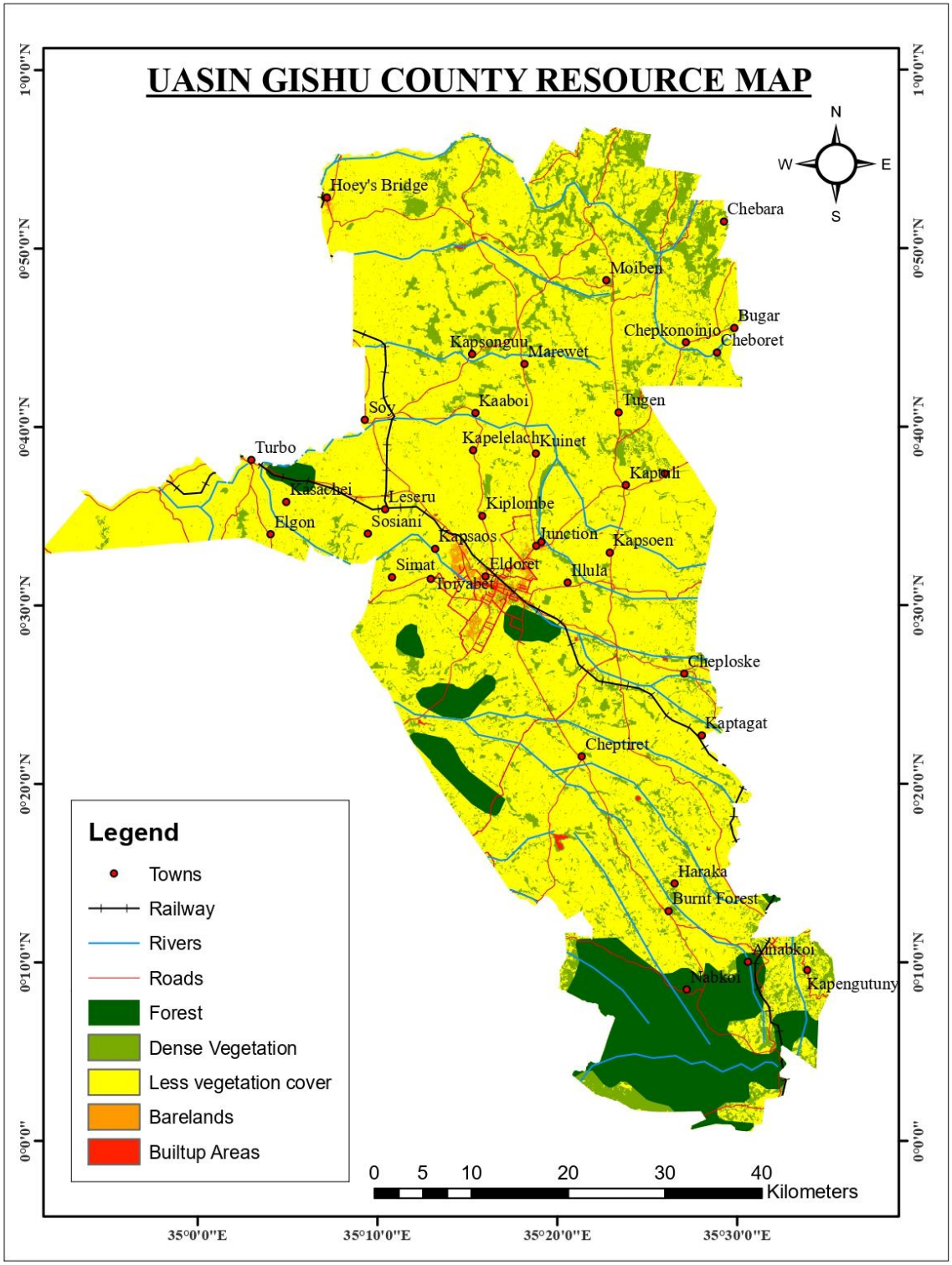
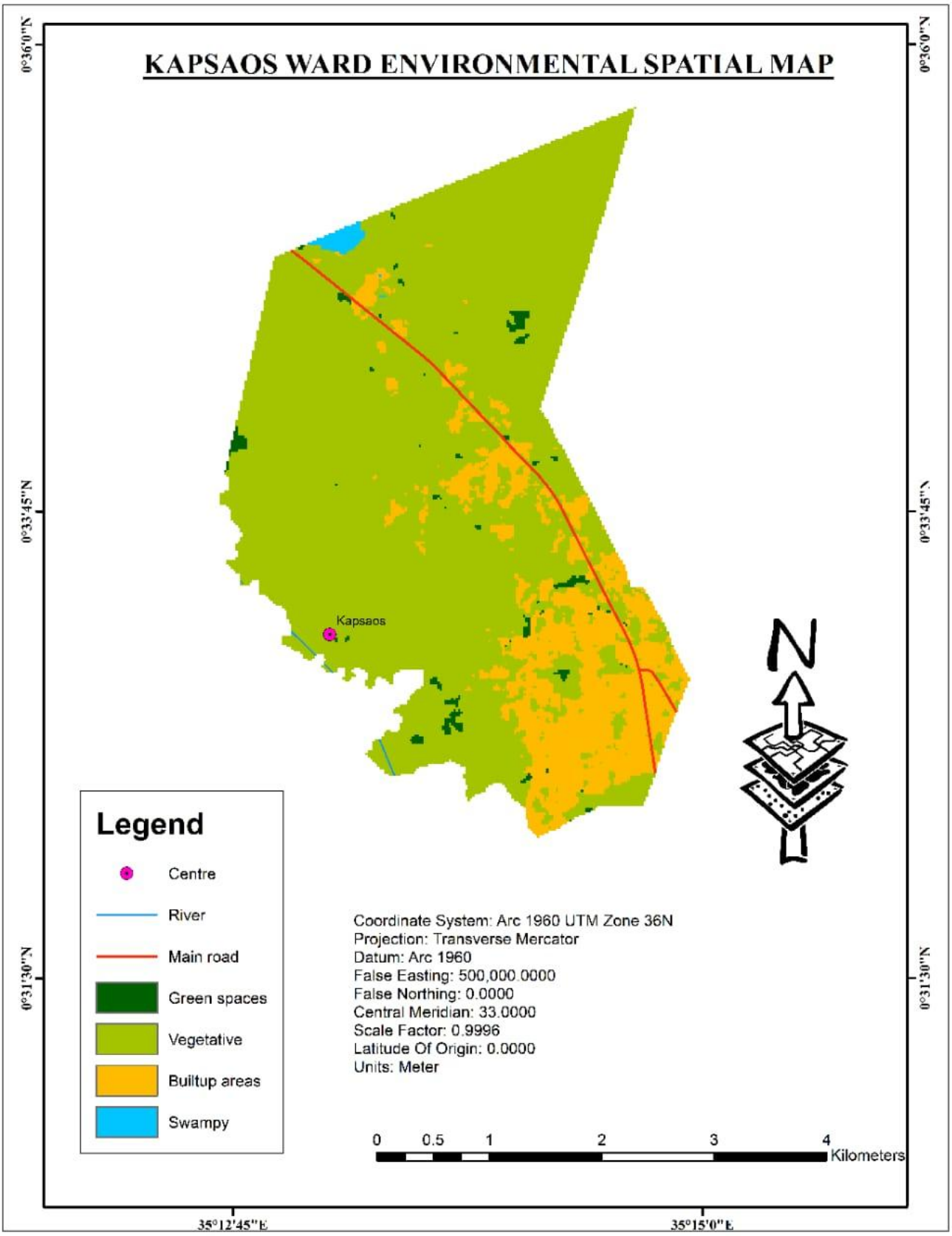
8.0: ANNEXES

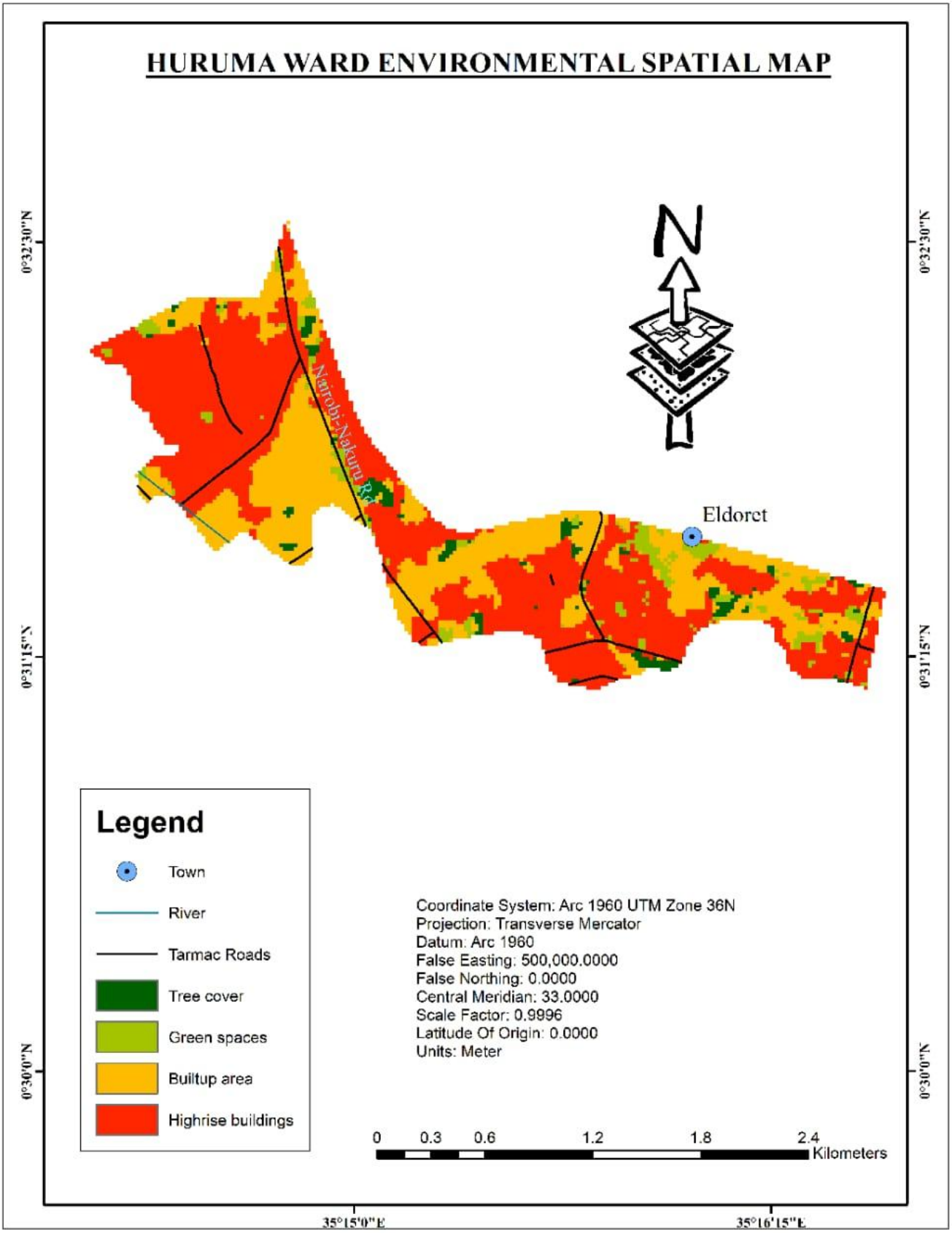
Other important information are annexed in this document. This section contains information on participants in the overall participatory climate risk assessment process as well as in the workshop. It gives detailed information on the participation of women, youth, ethnic minorities, people living with disabilities and other marginalized and vulnerable groups. It also contains the county resource map and the spatial maps for all the 30 wards in the county

ANNEX A: COUNTY RESOURCE MAP



ANNEX B: WARD SPATIAL MAPS




HURUMA WARD ENVIRONMENTAL SPATIAL MAP
N
Nairobi-Nakuru Rd
Eldoret
Legend
Town
River
Tarmac Roads
Tree cover
Green spaces
Builtup area
Highrise buildings
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
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False Northing: 0.0000
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Units: Meter
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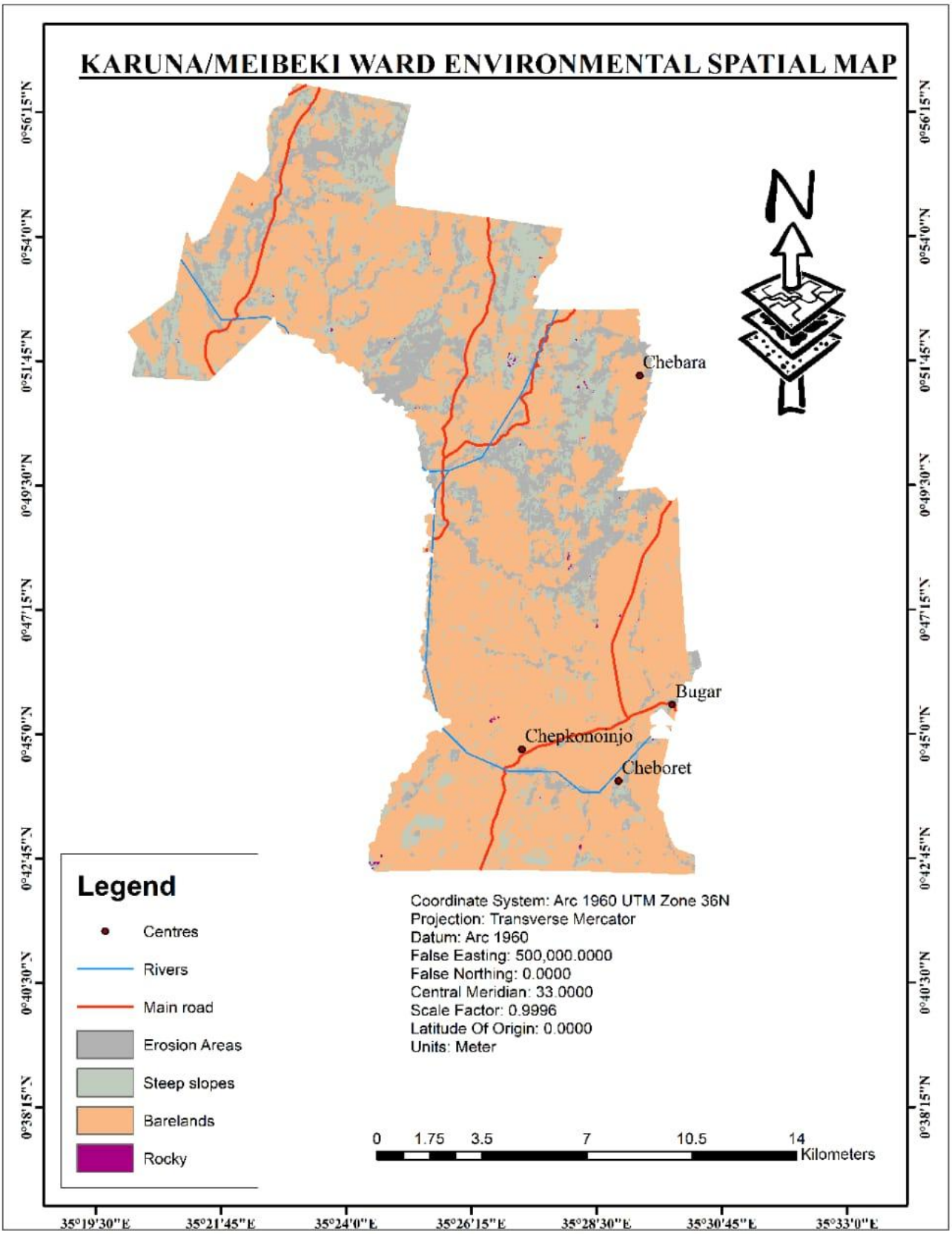
0°31'15"N
0°30'0"N
35°15'0"E
35°16'15"E


KARUNA/MEIBEKI WARD ENVIRONMENTAL SPATIAL MAP
N
Chebara
Bugar
Chepkonoinjo
Cheboret
Legend
Centres
Rivers
Main road
Erosion Areas
Steep slopes
Barelands
Rocky
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
0 1.75 3.5 7 10.5 14
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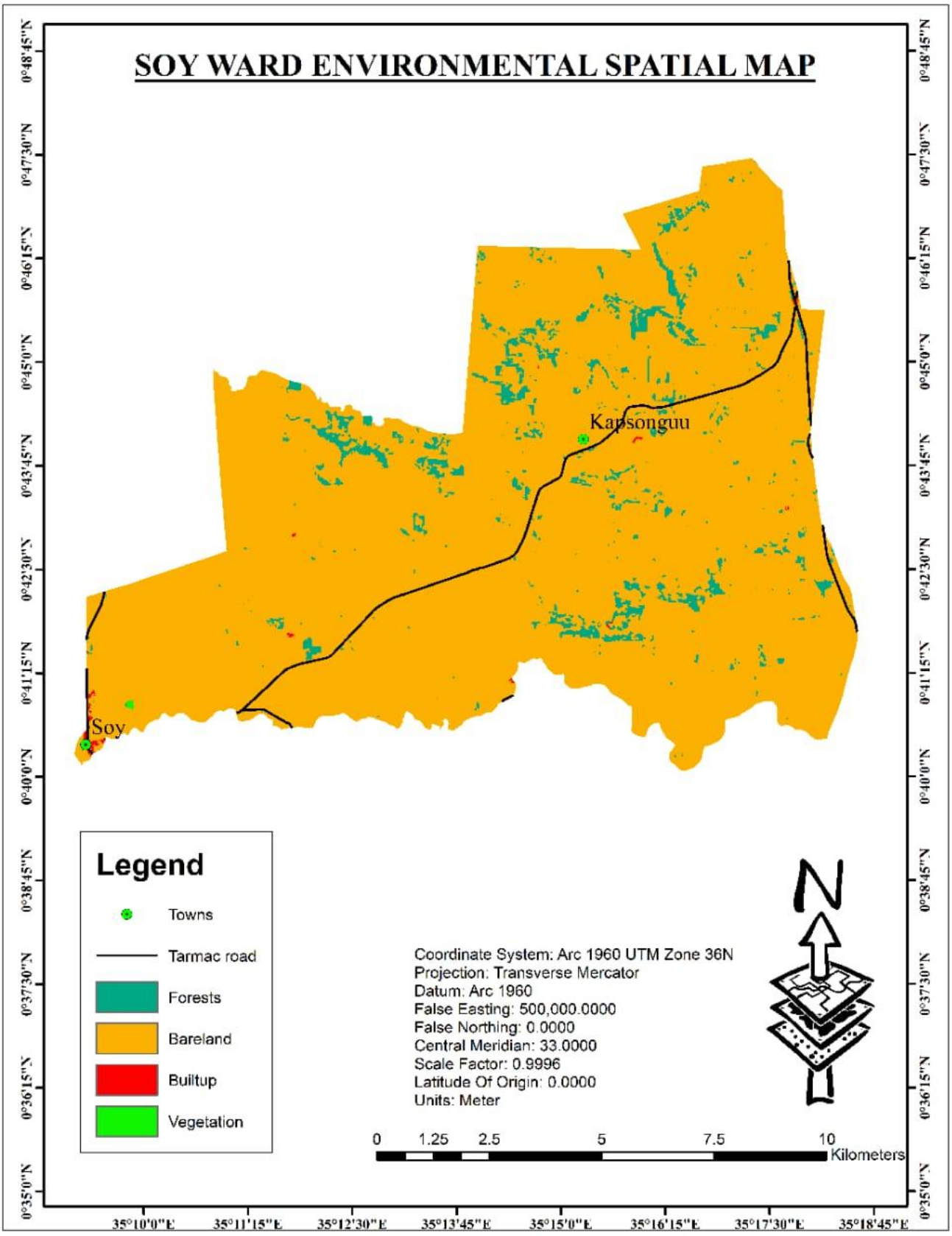
0°54'0"N
0°51'45"N
0°49'30"N
0°47'15"N
0°45'0"N
0°42'45"N
0°40'30"N
0°38'15"N
35°19'30"E
35°21'45"E
35°24'0"E
35°26'15"E
35°28'30"E
35°30'45"E
35°33'0"E


SOY WARD ENVIRONMENTAL SPATIAL MAP
Kapsonguu
Soy
Legend
Towns
Tarmac road
Forests
Bareland
Builtup
Vegetation
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
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False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
N
0 1.25 2.5 5 7.5 10
Kilometers
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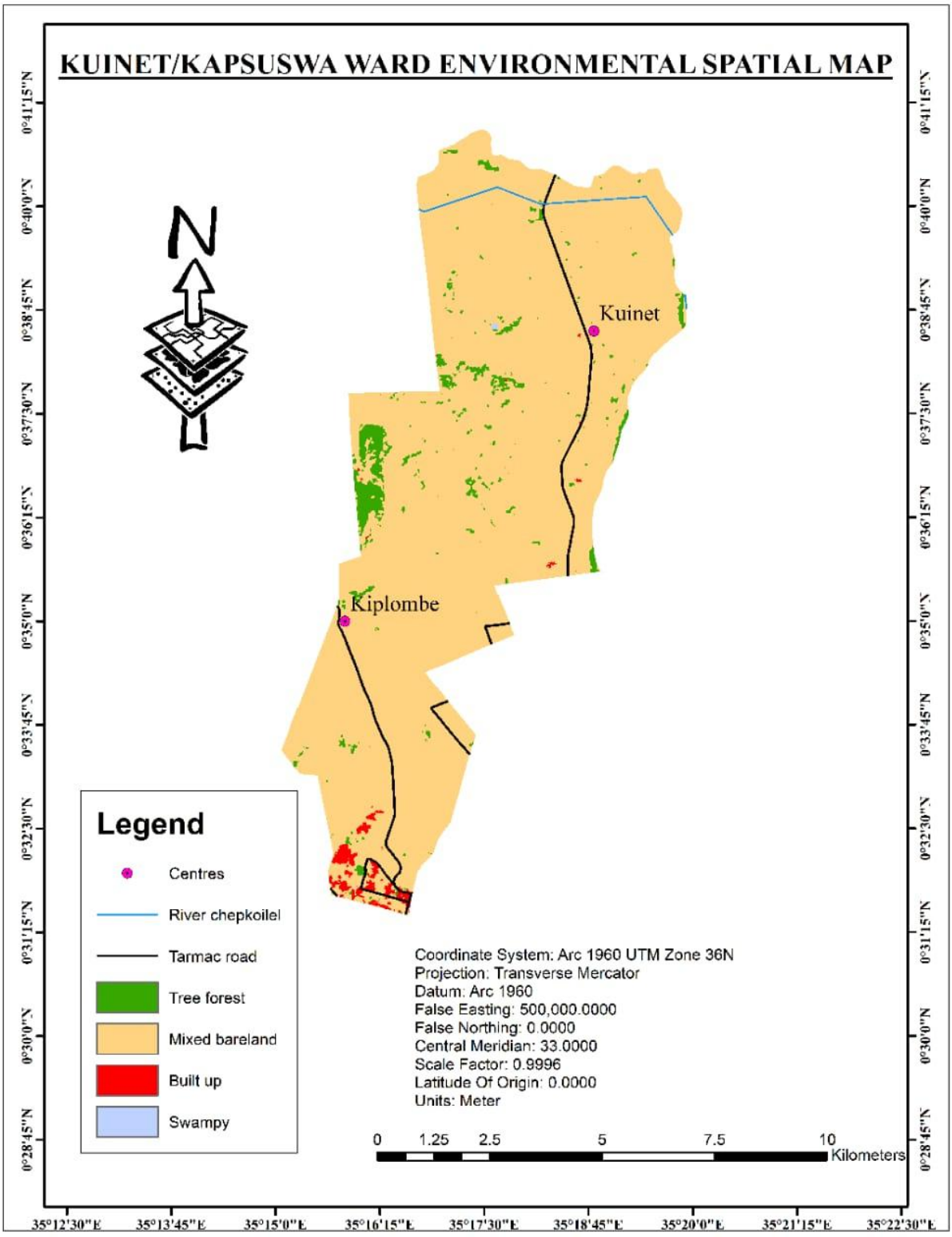
0°47'30"N
0°46'15"N
0°45'0"N
0°43'45"N
0°42'30"N
0°41'15"N
0°40'0"N
0°38'45"N
0°37'30"N
0°36'15"N
0°35'0"N
35°10'0"E
35°11'15"E
35°12'30"E
35°13'45"E
35°15'0"E
35°16'15"E
35°17'30"E
35°18'45"E


KUINET/KAPSUSWA WARD ENVIRONMENTAL SPATIAL MAP
N
Kuinet
Kiplombe
Legend
Centres
River chepkoilel
Tarmac road
Tree forest
Mixed bareland
Built up
Swampy
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
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False Northing: 0.0000
Central Meridian: 33.0000
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Units: Meter
0 1.25 2.5 5 7.5 10
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0°38'45"N
0°37'30"N
0°36'15"N
0°35'0"N
0°33'45"N
0°32'30"N
0°31'15"N
0°30'0"N
0°28'45"N
35°12'30"E
35°13'45"E
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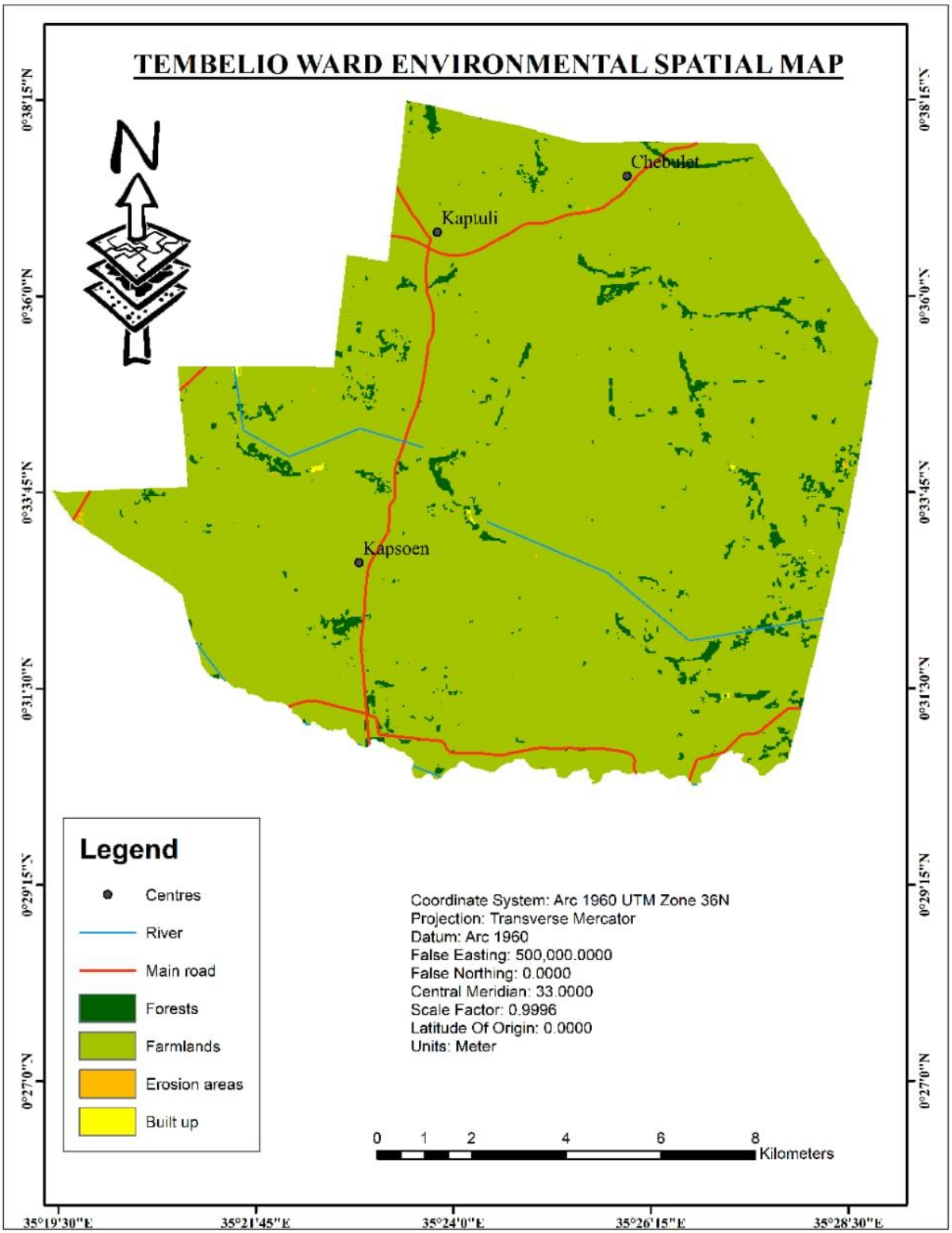
TEMBELIO WARD ENVIRONMENTAL SPATIAL MAP
N
Chebulet
Kaptuli
Kapsoen
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0°36'0"N
0°33'45"N
0°31'30"N
0°29'15"N
0°27'0"N
35°19'30"E
35°21'45"E
35°24'0"E
35°26'15"E
35°28'30"E
Legend
Centres
River
Main road
Forests
Farmlands
Erosion areas
Built up
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
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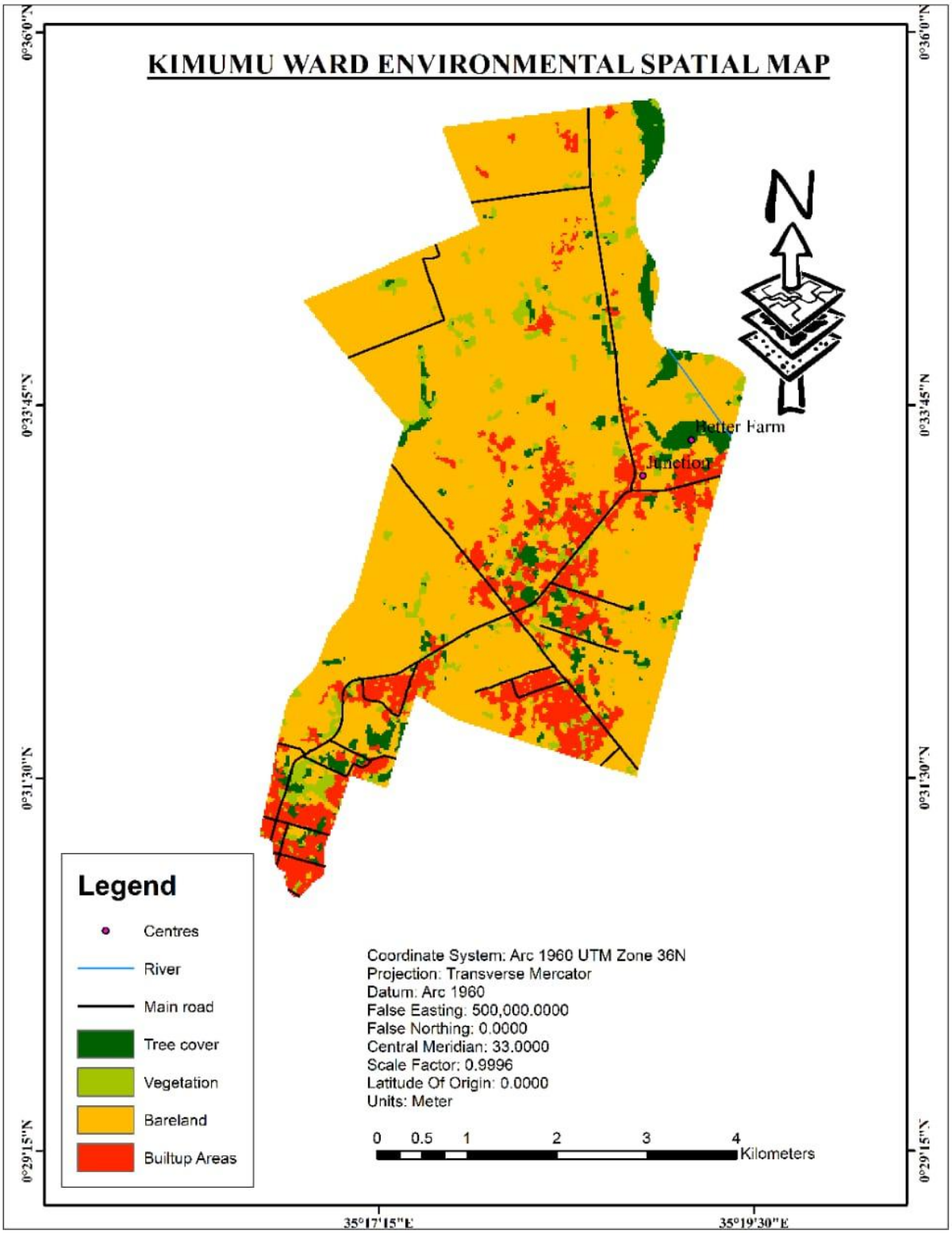
0 1 2 4 6 8
Kilometers


KIMUMU WARD ENVIRONMENTAL SPATIAL MAP
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0°33'45"N
0°31'30"N
0°29'15"N
35°17'15"E
35°19'30"E
N
Better Farm
Junction
Legend
Centres
River
Main road
Tree cover
Vegetation
Bareland
Builtup Areas
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
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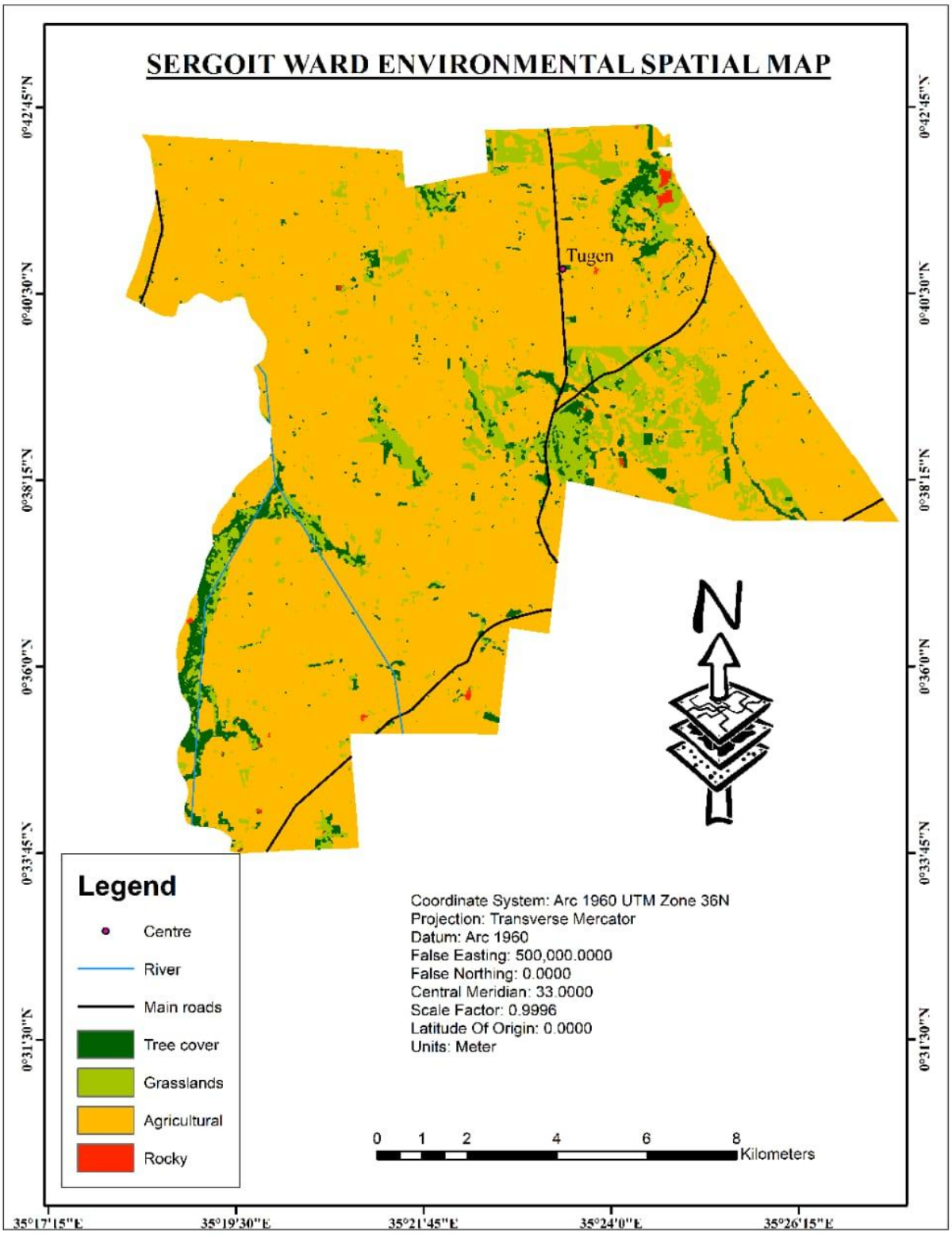
Kilometers


SERGOIT WARD ENVIRONMENTAL SPATIAL MAP
Tugen
N
Legend
Centre
River
Main roads
Tree cover
Grasslands
Agricultural
Rocky
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
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Units: Meter
0 1 2 4 6 8
Kilometers
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0°40'30"N
0°38'15"N
0°36'0"N
0°33'45"N
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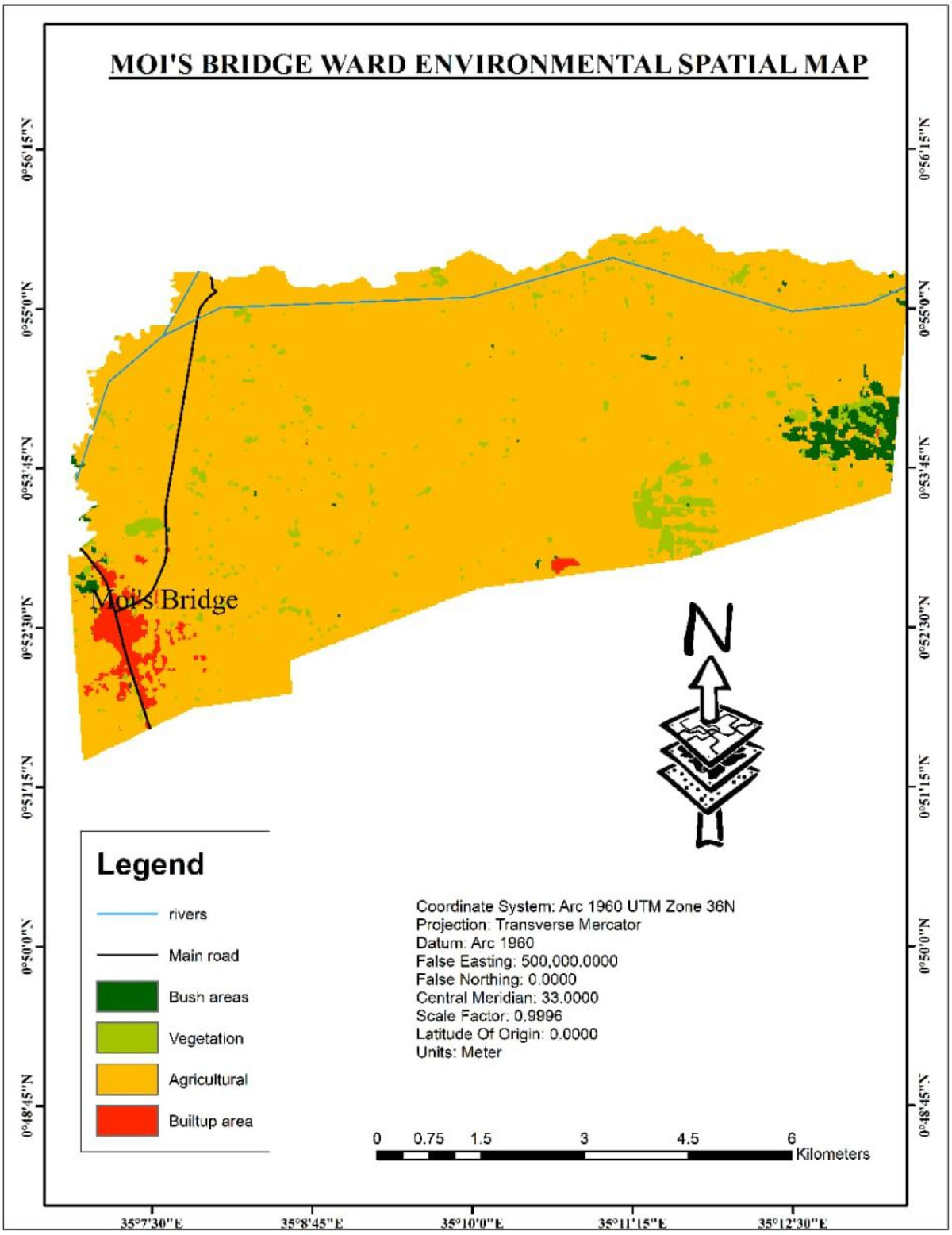
35°24'0"E
35°26'15"E


MOI'S BRIDGE WARD ENVIRONMENTAL SPATIAL MAP
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0°55'0"N
0°53'45"N
0°52'30"N
0°51'15"N
0°50'0"N
0°48'45"N
Moi's Bridge
N
Legend
rivers
Main road
Bush areas
Vegetation
Agricultural
Builtup area
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
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0 0.75 1.5 3 4.5 6
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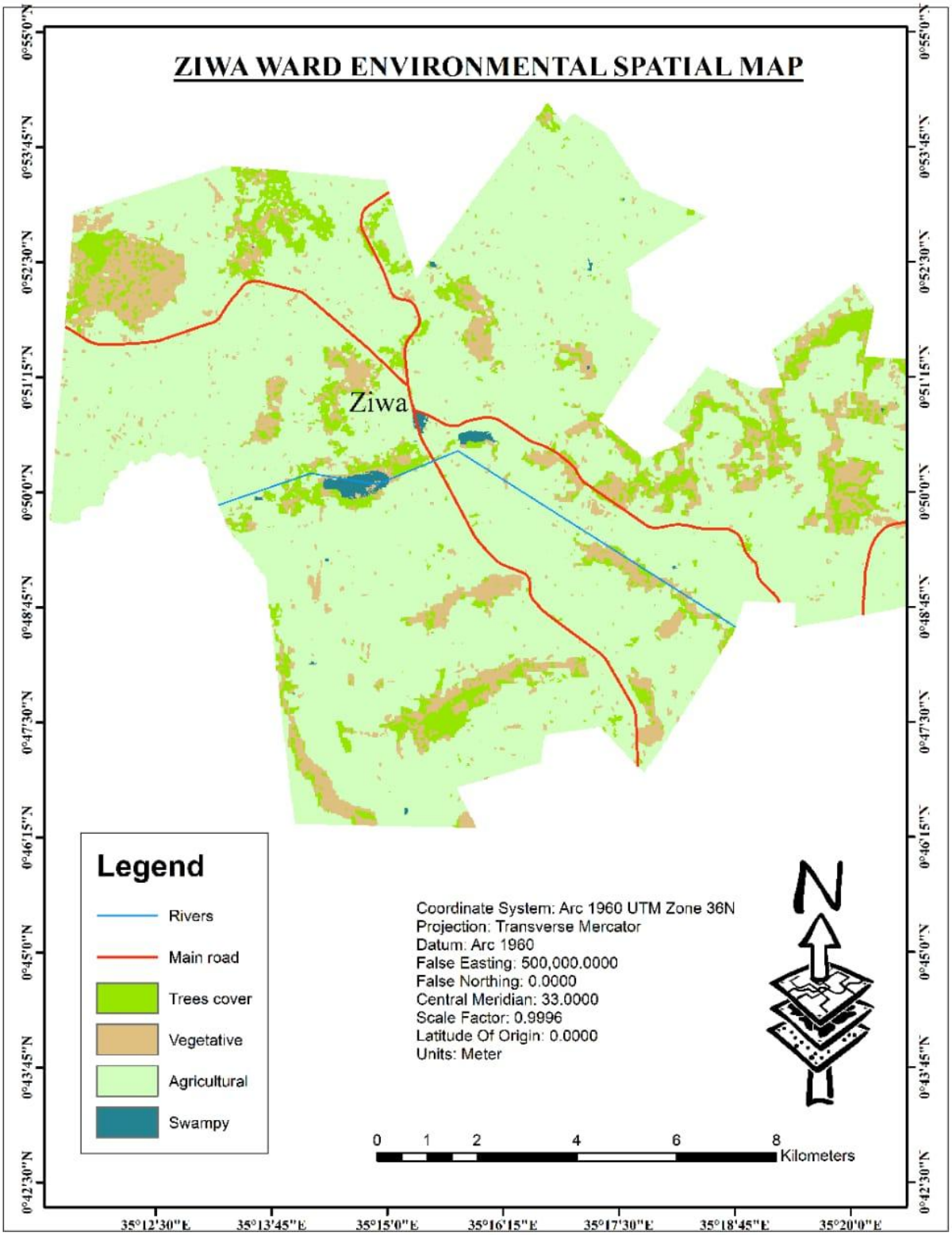
35°12'30"E


ZIWA WARD ENVIRONMENTAL SPATIAL MAP
Ziwa
Legend
Rivers
Main road
Trees cover
Vegetative
Agricultural
Swampy
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
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False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
N
0 1 2 4 6 8
Kilometers
0°55'0"N
0°53'45"N
0°52'30"N
0°51'15"N
0°50'0"N
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0°47'30"N
0°46'15"N
0°45'0"N
0°43'45"N
0°42'30"N
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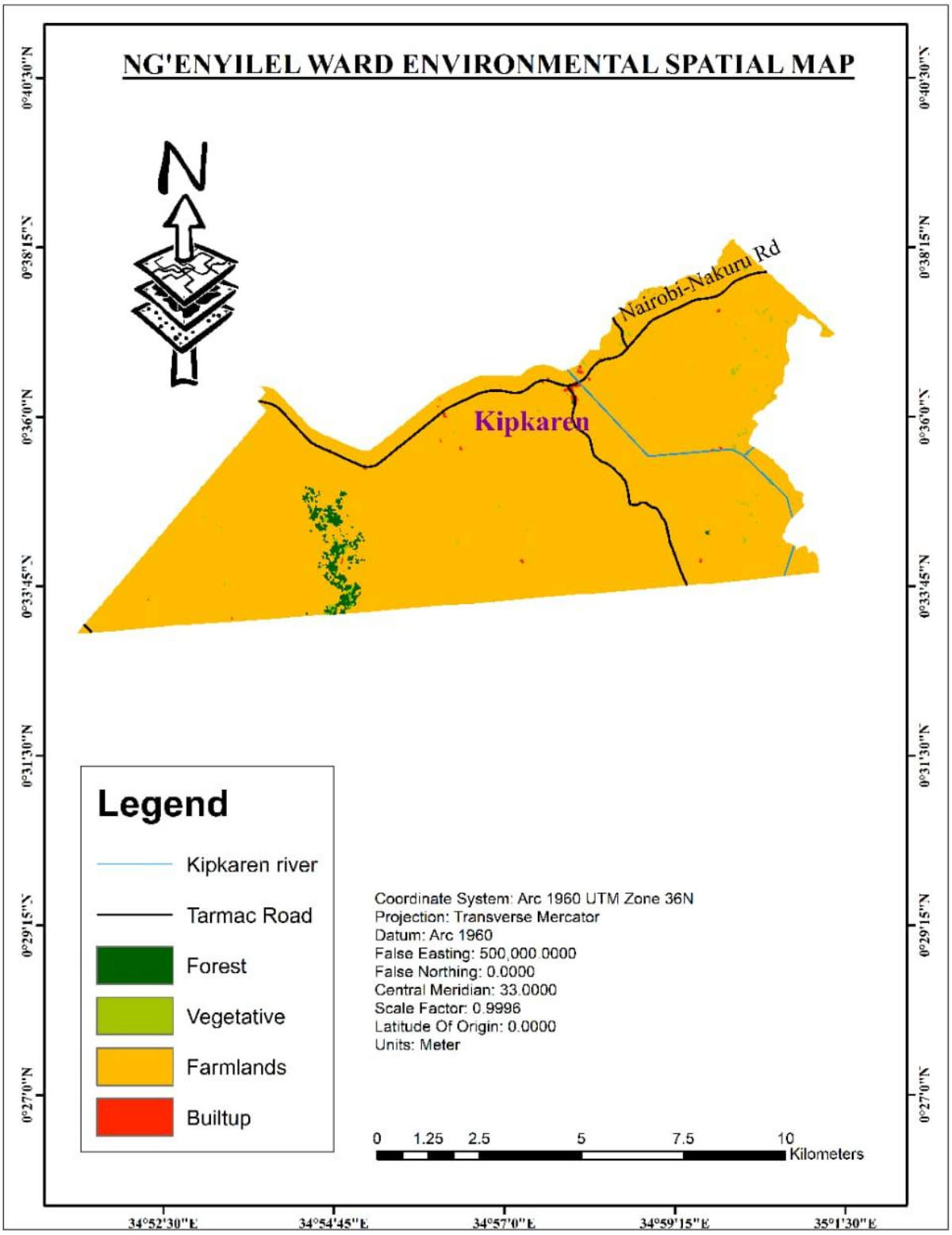
35°20'0"E


NG'ENYILEL WARD ENVIRONMENTAL SPATIAL MAP
N
Nairobi-Nakuru Rd
Kipkaren
Legend
Kipkaren river
Tarmac Road
Forest
Vegetative
Farmlands
Builtup
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
0 1.25 2.5 5 7.5 10
Kilometers
0°40'30"N
0°38'15"N
0°36'0"N
0°33'45"N
0°31'30"N
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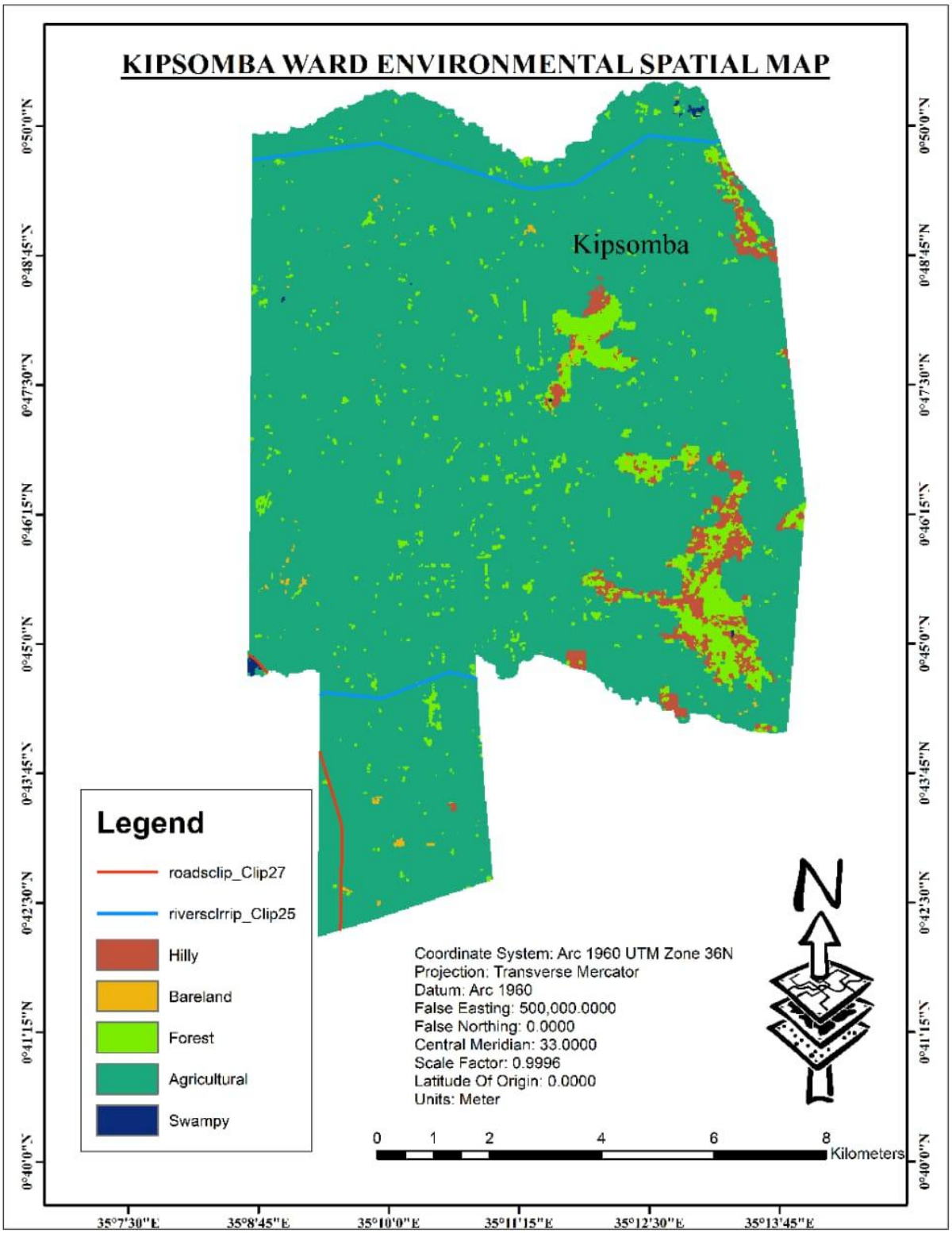
KIPSOMBA WARD ENVIRONMENTAL SPATIAL MAP
Kipsomba
Legend
roadsclip_Clip27
riversclrrip_Clip25
Hilly
Bareland
Forest
Agricultural
Swampy
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
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False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
N
0 1 2 4 6 8
Kilometers
35°7'30"E
35°8'45"E
35°10'0"E
35°11'15"E
35°12'30"E
35°13'45"E
0°50'0"N
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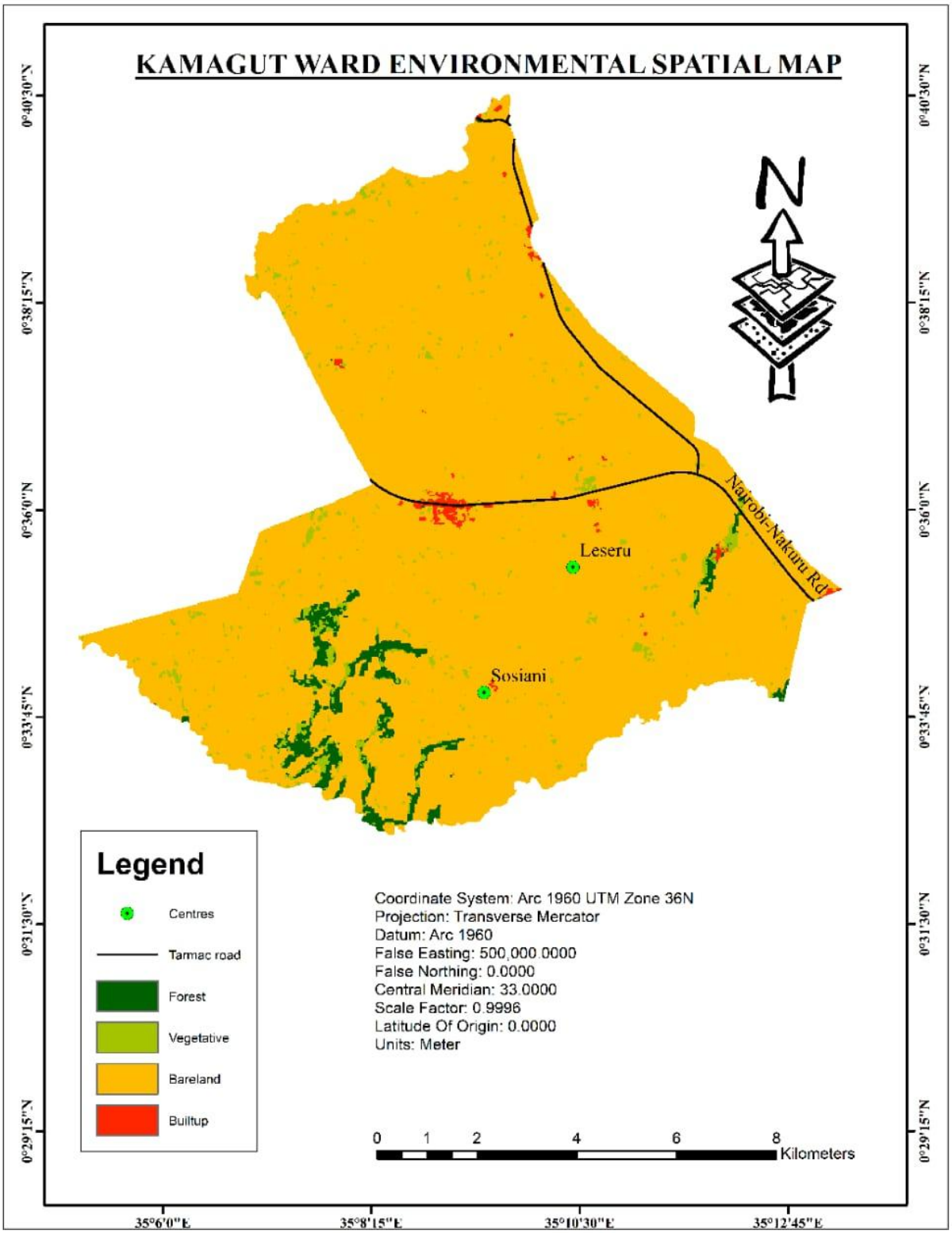
0°40'0"N


KAMAGUT WARD ENVIRONMENTAL SPATIAL MAP
N
Nairobi-Nakuru Rd
Leseru
Sosiani
Legend
Centres
Tarmac road
Forest
Vegetative
Bareland
Builtup
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
0 1 2 4 6 8
Kilometers
0°40'30"N
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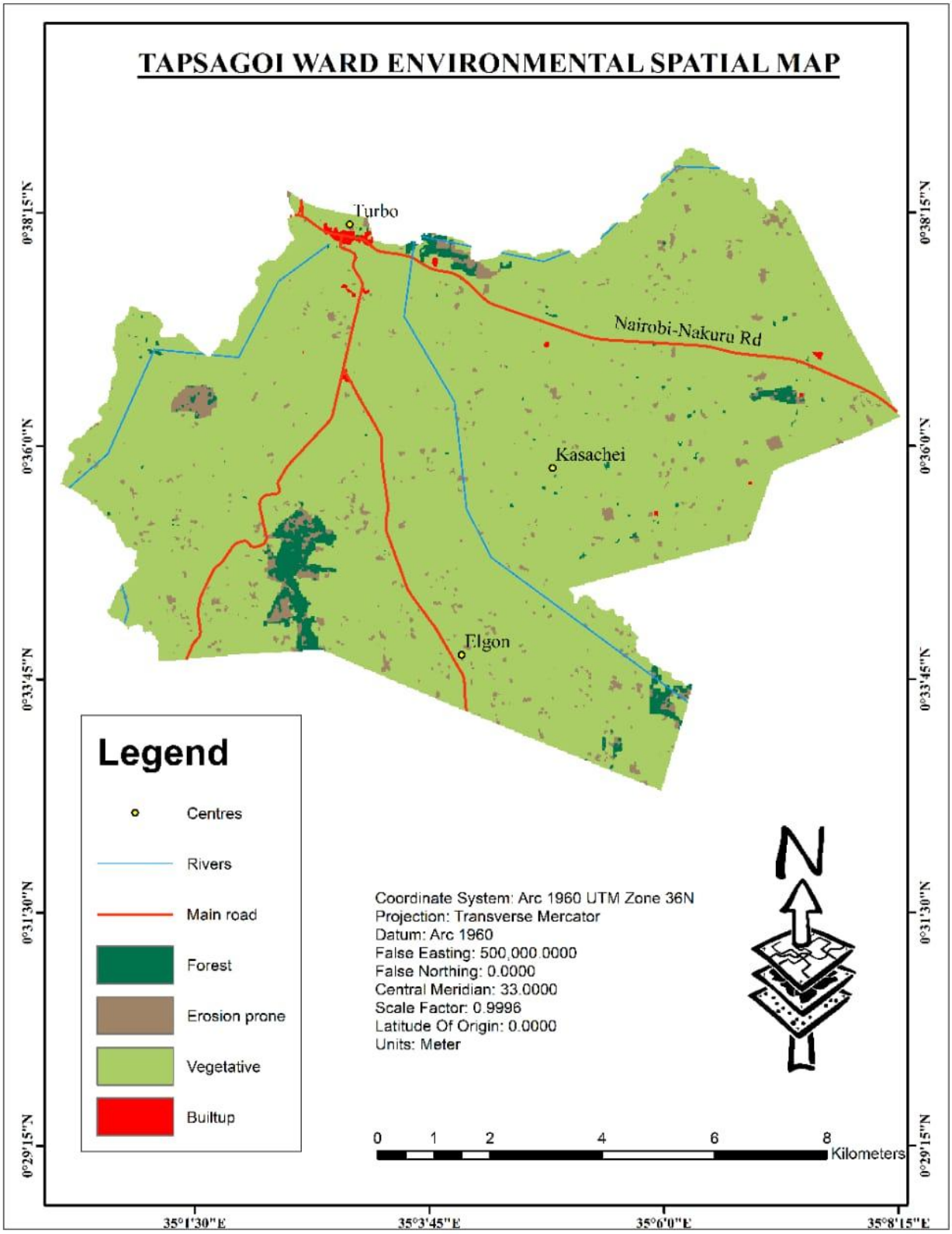
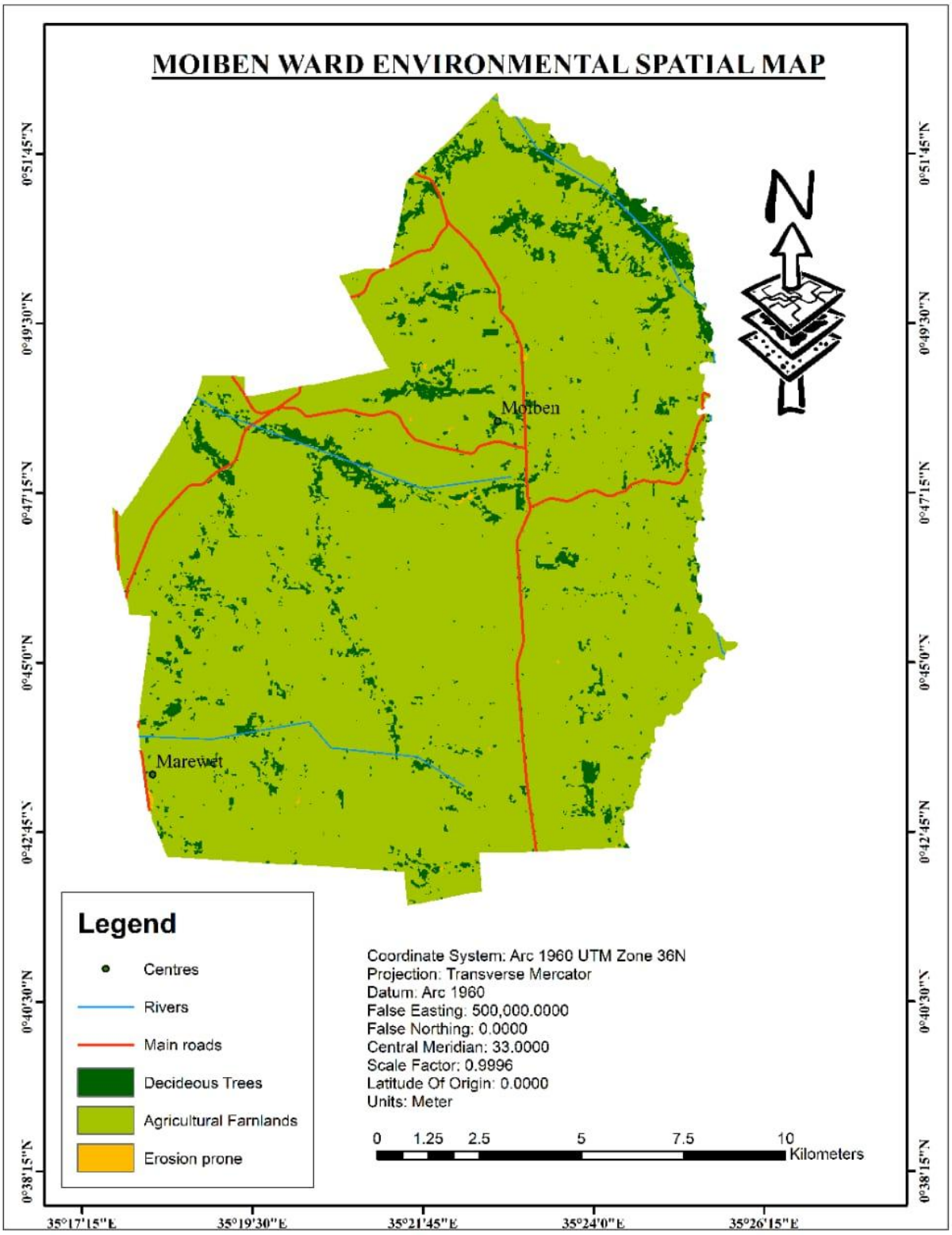
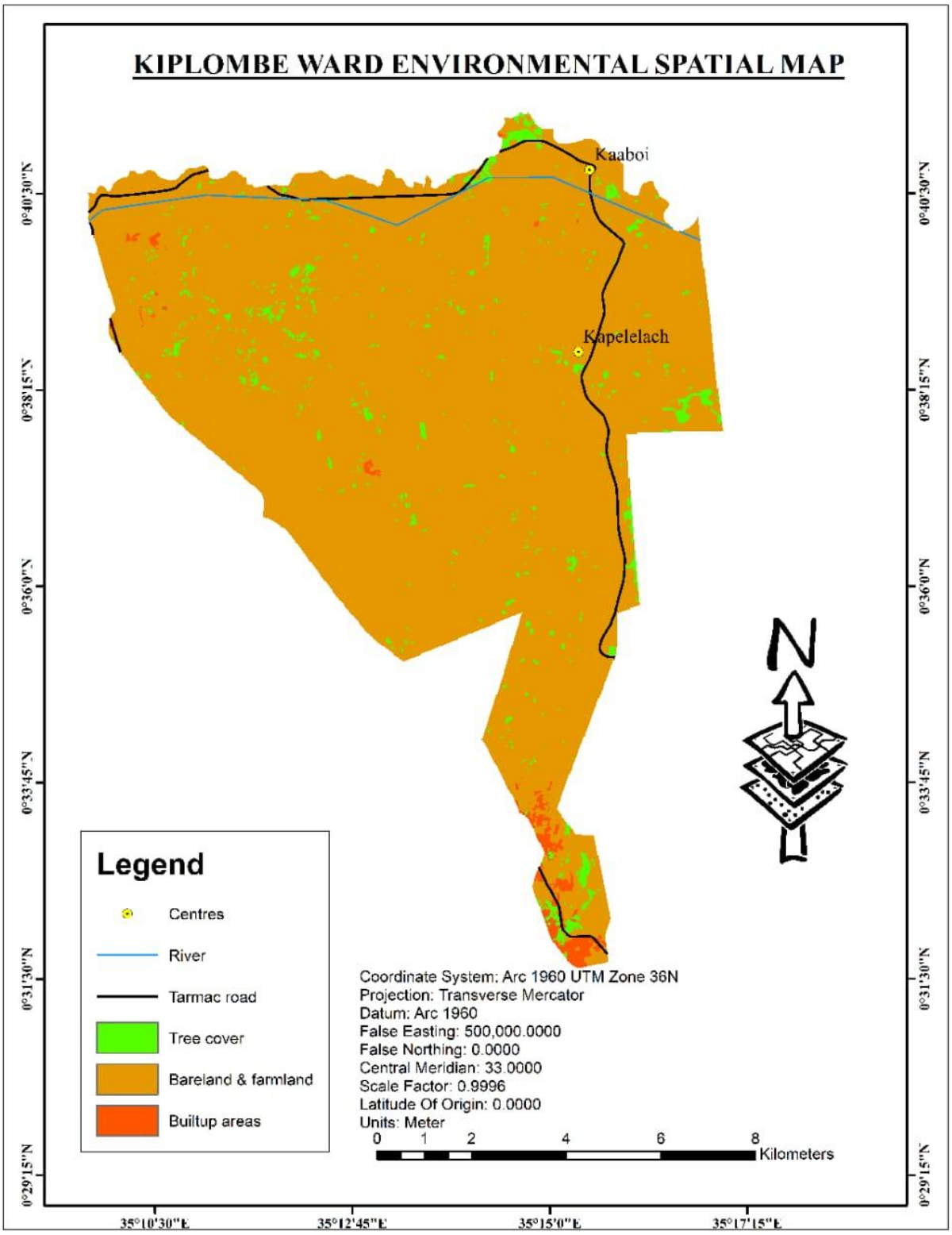
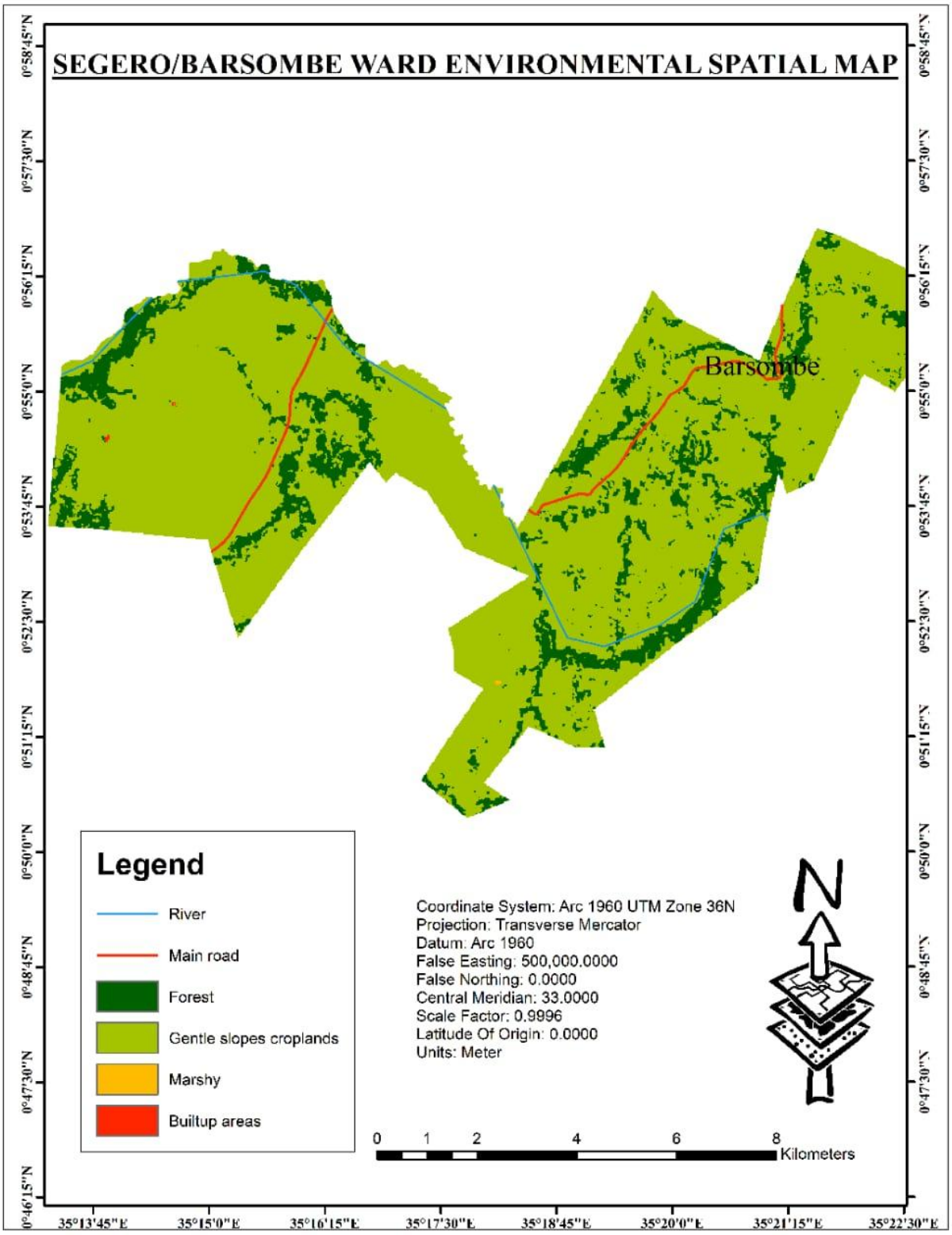
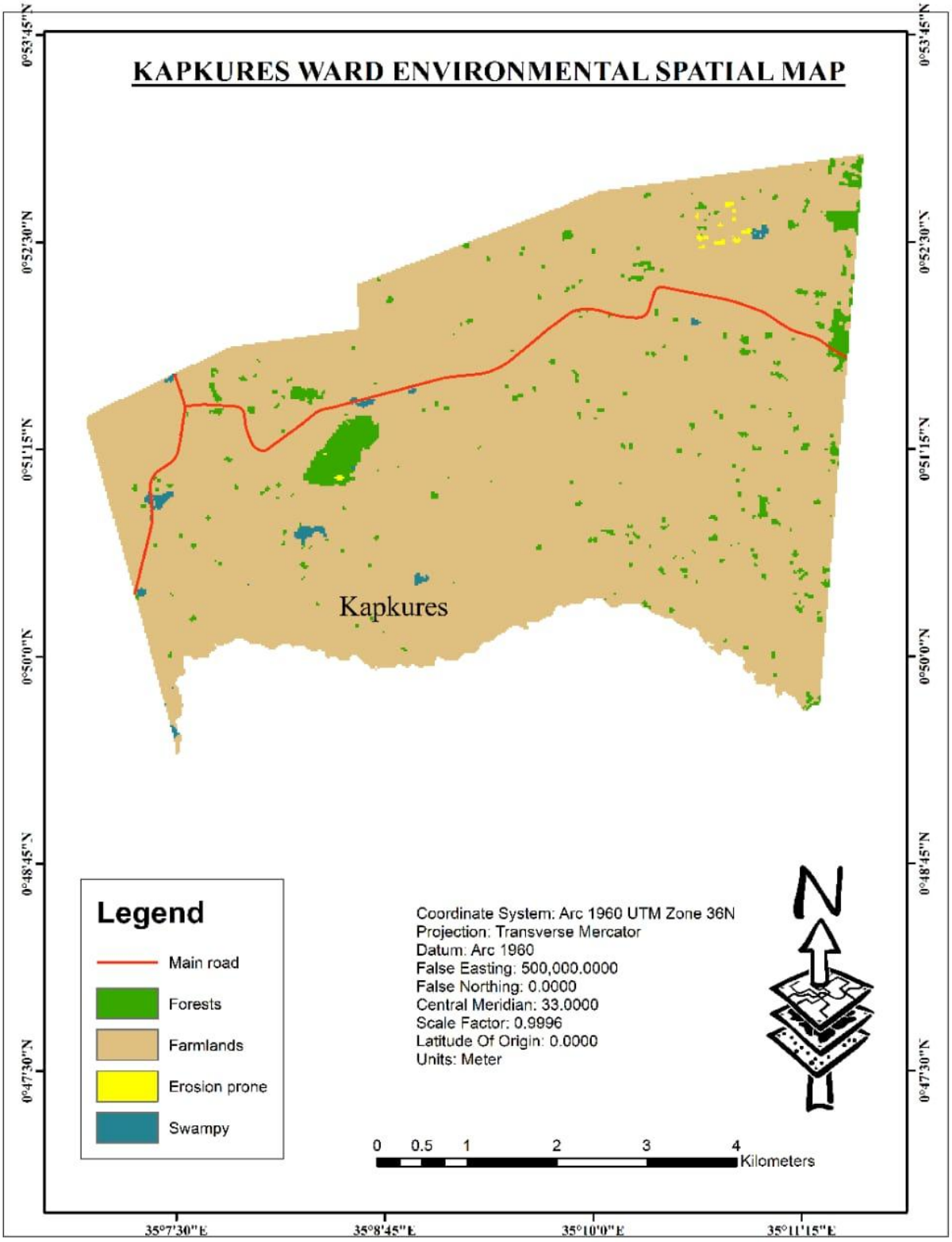
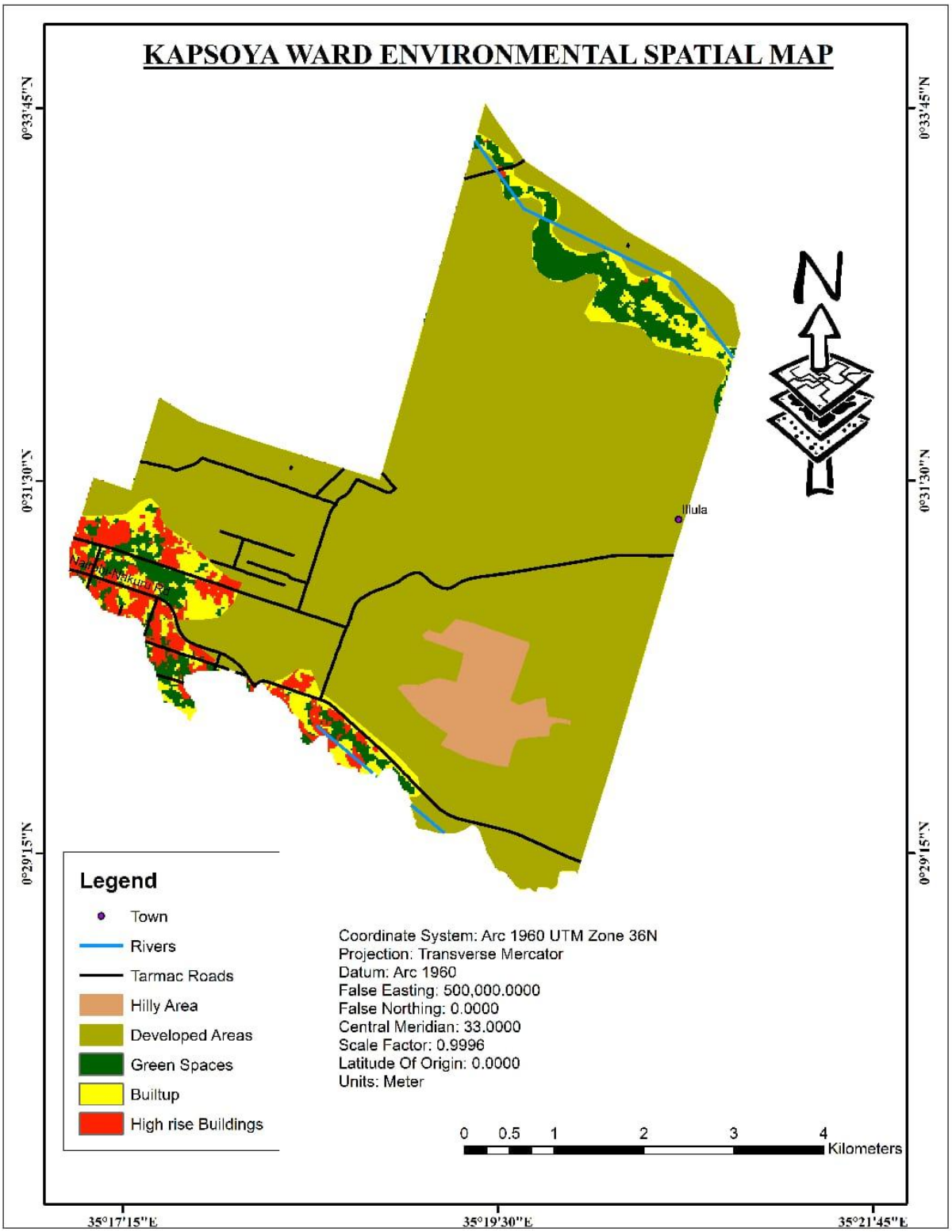

TAPSAGOI WARD ENVIRONMENTAL SPATIAL MAP
Turbo
Nairobi-Nakuru Rd
Kasachei
Elgon
Legend
Centres
Rivers
Main road
Forest
Erosion prone
Vegetative
Builtup
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
N
0 1 2 4 6 8
Kilometers
0°38'15"N
0°36'0"N
0°33'45"N
0°31'30"N
0°29'15"N
35°1'30"E
35°3'45"E
35°6'0"E
35°8'15"E

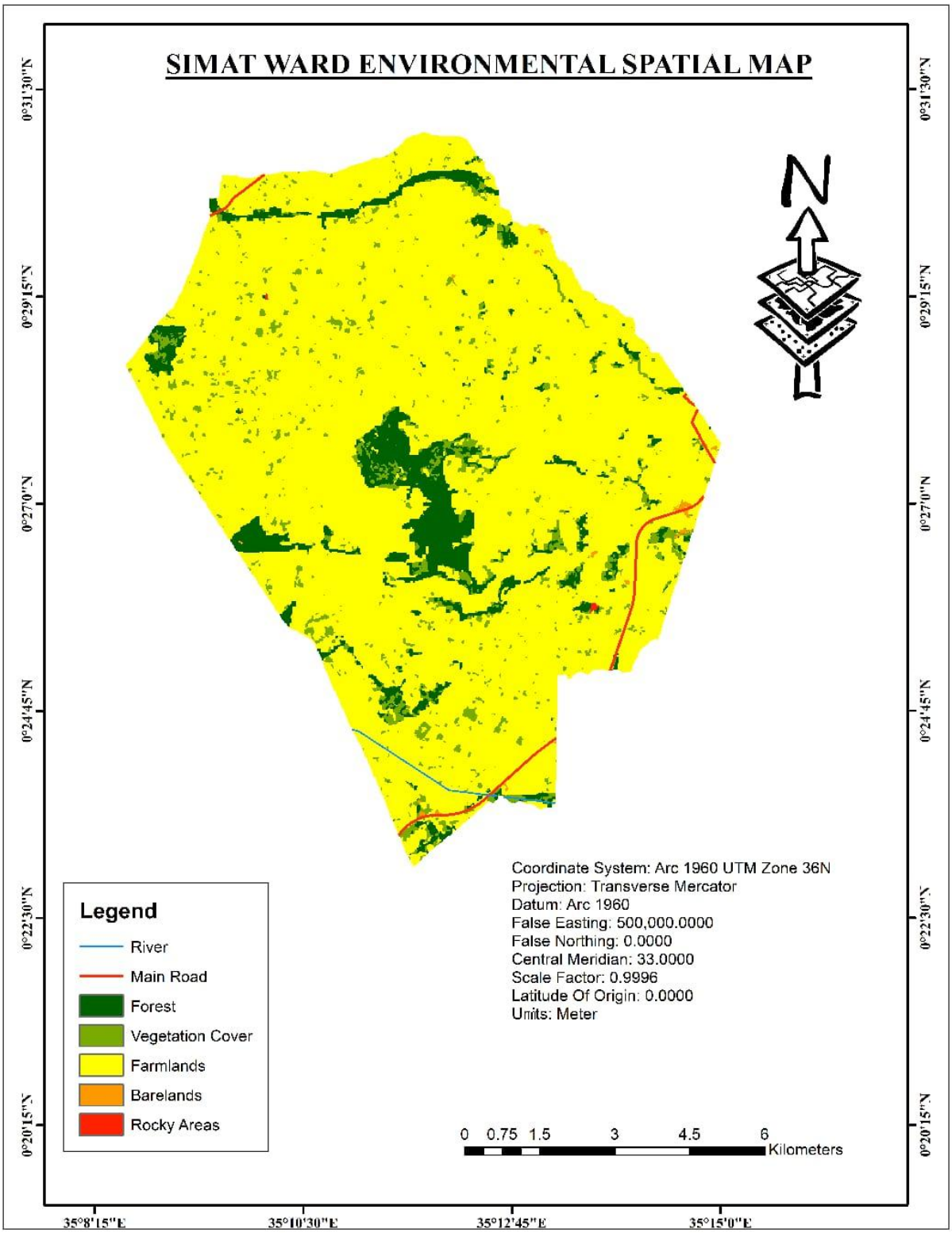

MOIBEN WARD ENVIRONMENTAL SPATIAL MAP
N
Moiben
Marewet
Legend
Centres
Rivers
Main roads
Decideous Trees
Agricultural Farnlands
Erosion prone
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
0 1.25 2.5 5 7.5 10
Kilometers
0°51'45"N
0°49'30"N
0°47'15"N
0°45'0"N
0°42'45"N
0°40'30"N
0°38'15"N
35°17'15"E
35°19'30"E
35°21'45"E
35°24'0"E
35°26'15"E

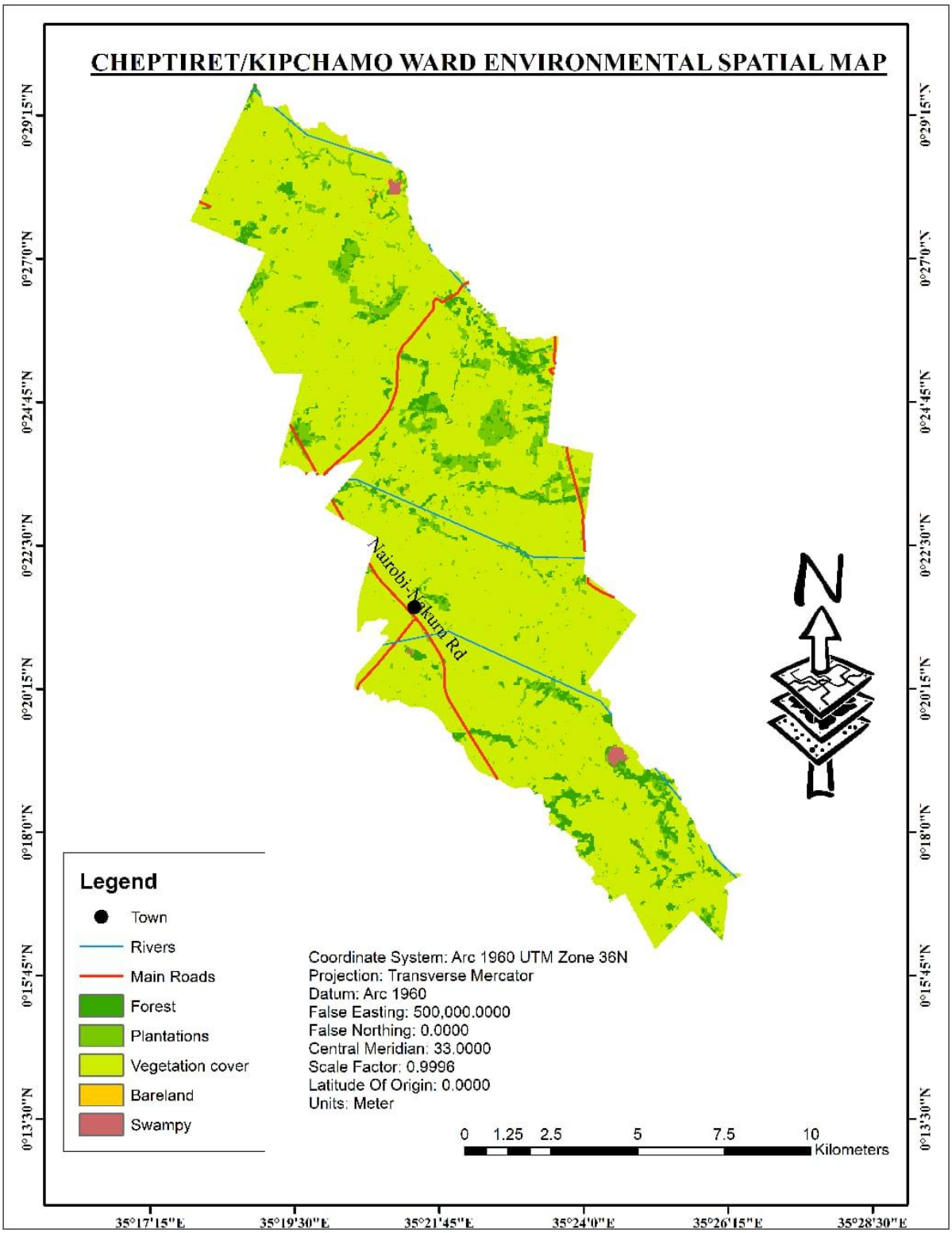

KIPLOMBE WARD ENVIRONMENTAL SPATIAL MAP
Kaaboi
Kapelelach
N
Legend
Centres
River
Tarmac road
Tree cover
Bareland & farmland
Builtup areas
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
0 1 2 4 6 8
Kilometers
0°40'30"N
0°38'15"N
0°36'0"N
0°33'45"N
0°31'30"N
0°29'15"N
35°10'30"E
35°12'45"E
35°15'0"E
35°17'15"E

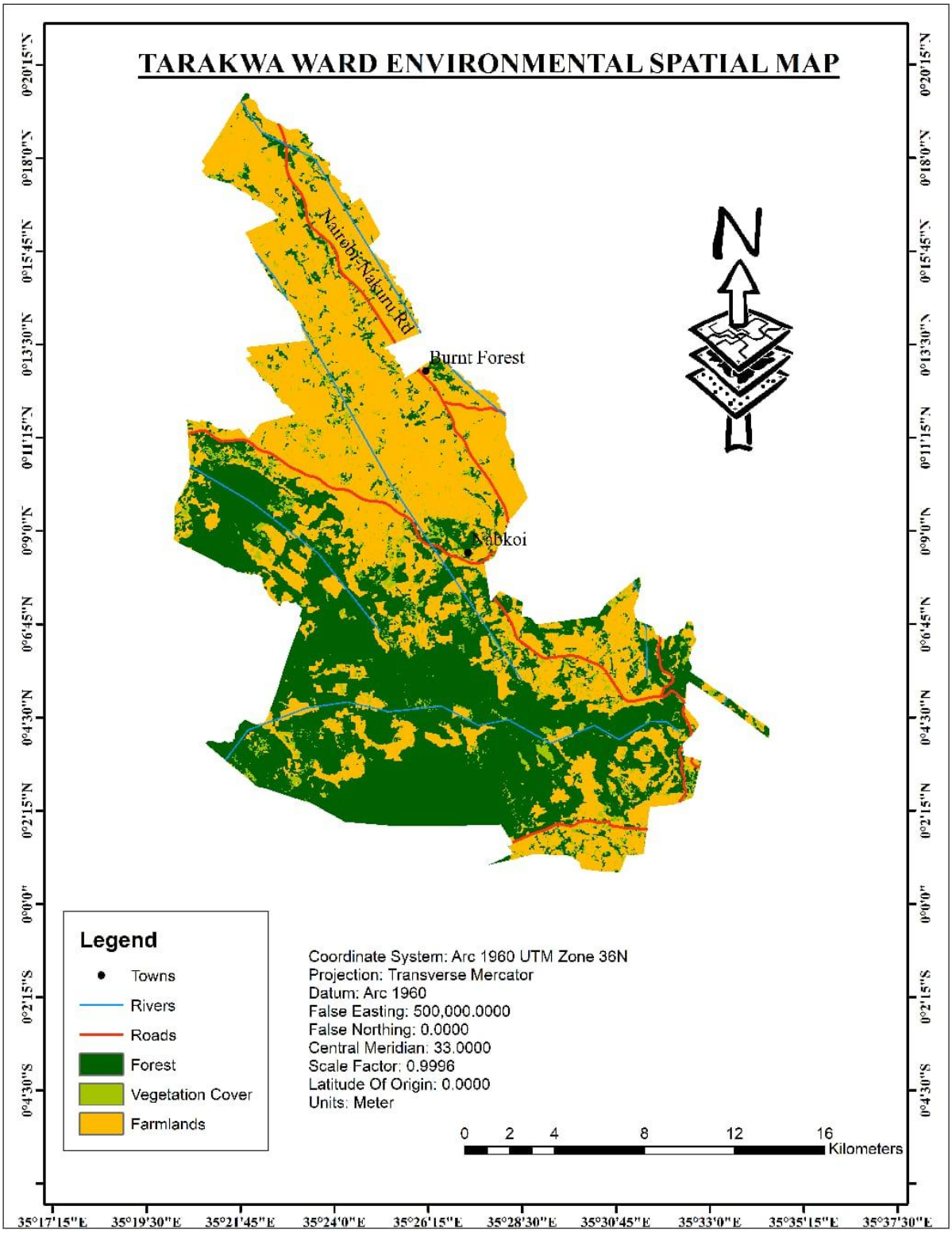

SEGERO/BARSOMBE WARD ENVIRONMENTAL SPATIAL MAP
Barsombe
Legend
River
Main road
Forest
Gentle slopes croplands
Marshy
Builtup areas
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
N
0 1 2 4 6 8
Kilometers
0°58'45"N
0°57'30"N
0°56'15"N
0°55'0"N
0°53'45"N
0°52'30"N
0°51'15"N
0°50'0"N
0°48'45"N
0°47'30"N
0°46'15"N
35°13'45"E
35°15'0"E
35°16'15"E
35°17'30"E
35°18'45"E
35°20'0"E
35°21'15"E
35°22'30"E

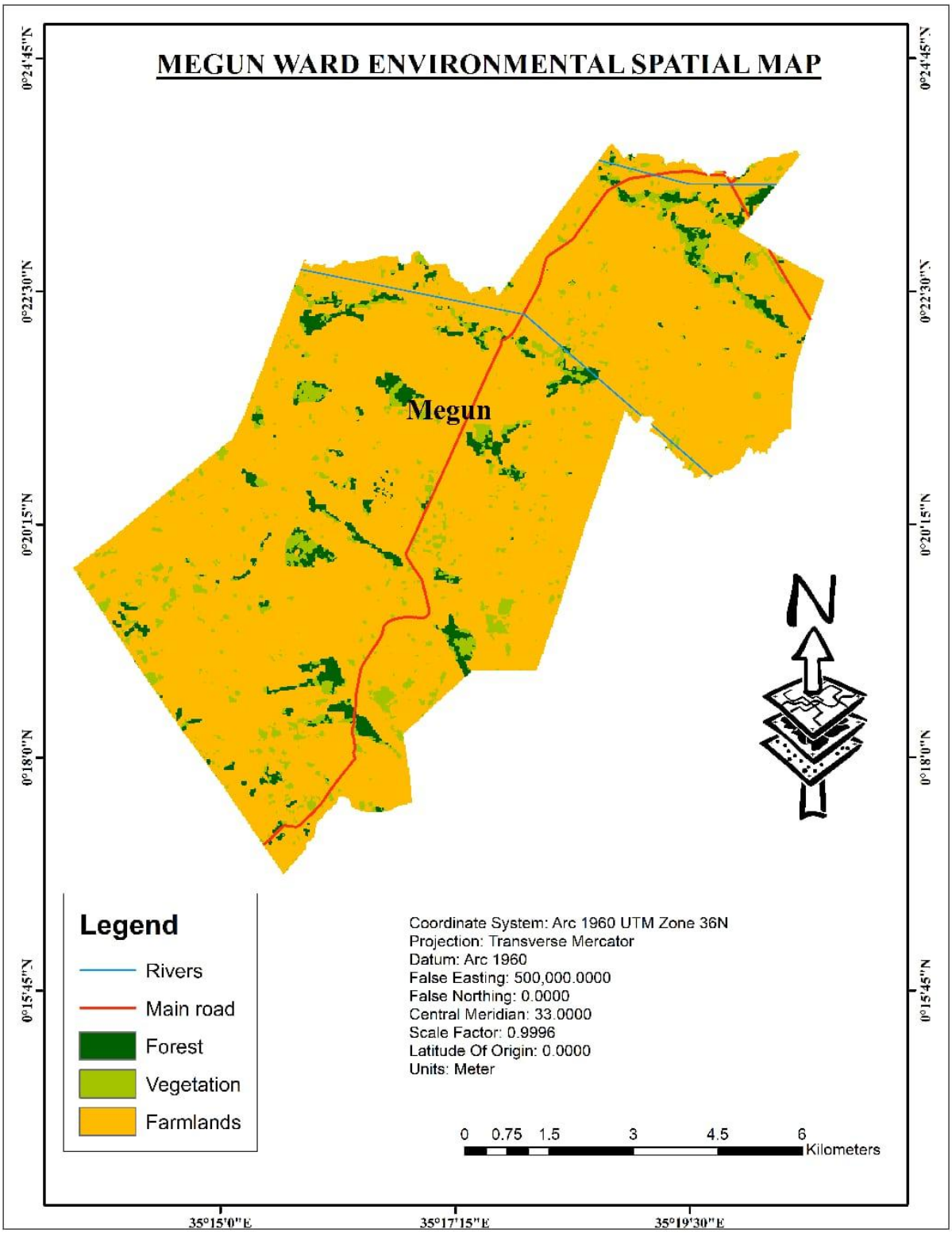

KAPKURES WARD ENVIRONMENTAL SPATIAL MAP
0°53'45"N
0°52'30"N
0°51'15"N
0°50'0"N
0°48'45"N
0°47'30"N
35°7'30"E
35°8'45"E
35°10'0"E
35°11'15"E
Kapkures
Legend
Main road
Forests
Farmlands
Erosion prone
Swampy
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
N
0 0.5 1 2 3 4
Kilometers

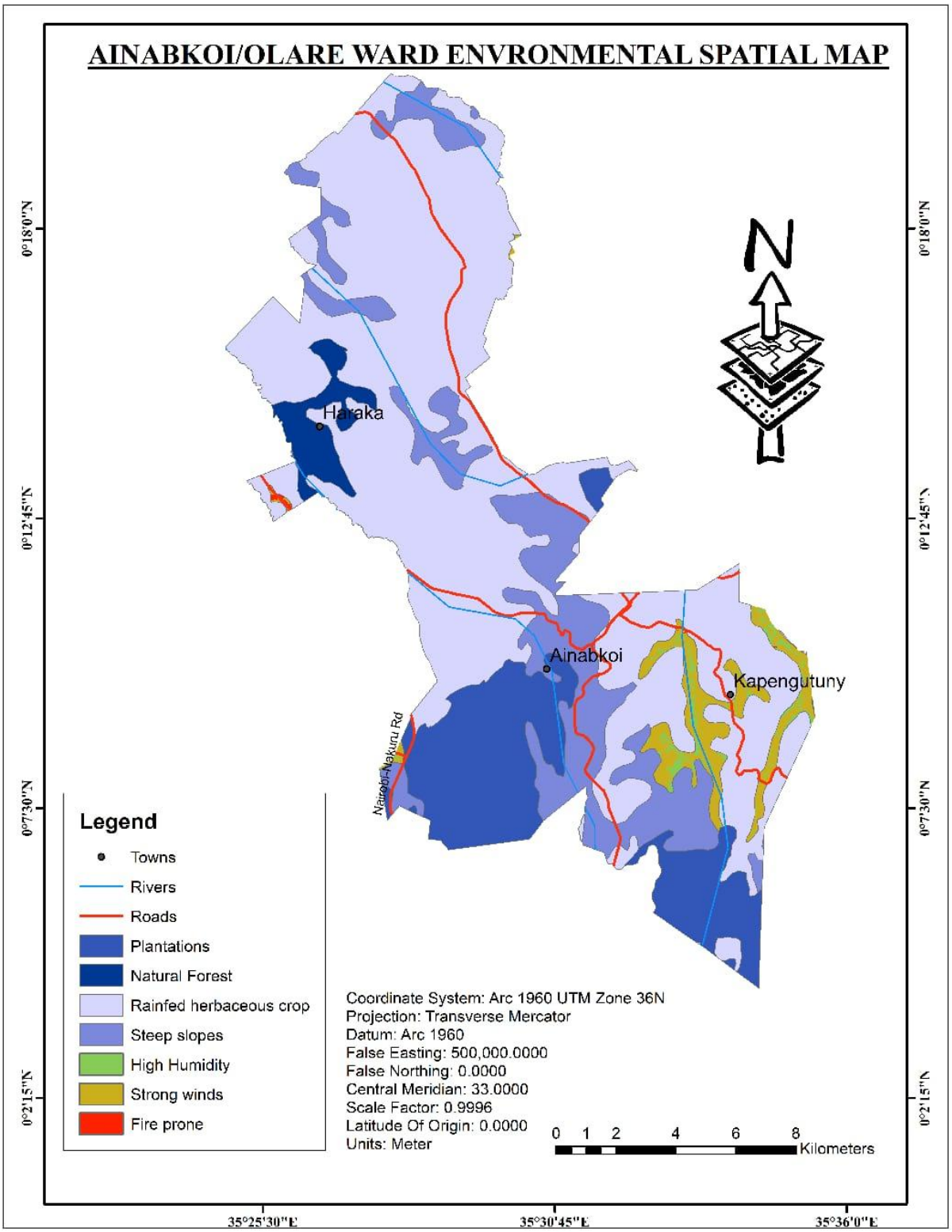

KAPSOYA WARD ENVIRONMENTAL SPATIAL MAP
0°33'45"N
0°31'30"N
0°29'15"N
35°17'15"E
35°19'30"E
35°21'45"E
N
Illula
Legend
Town
Rivers
Tarmac Roads
Hilly Area
Developed Areas
Green Spaces
Builtup
High rise Buildings
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
0 0.5 1 2 3 4
Kilometers

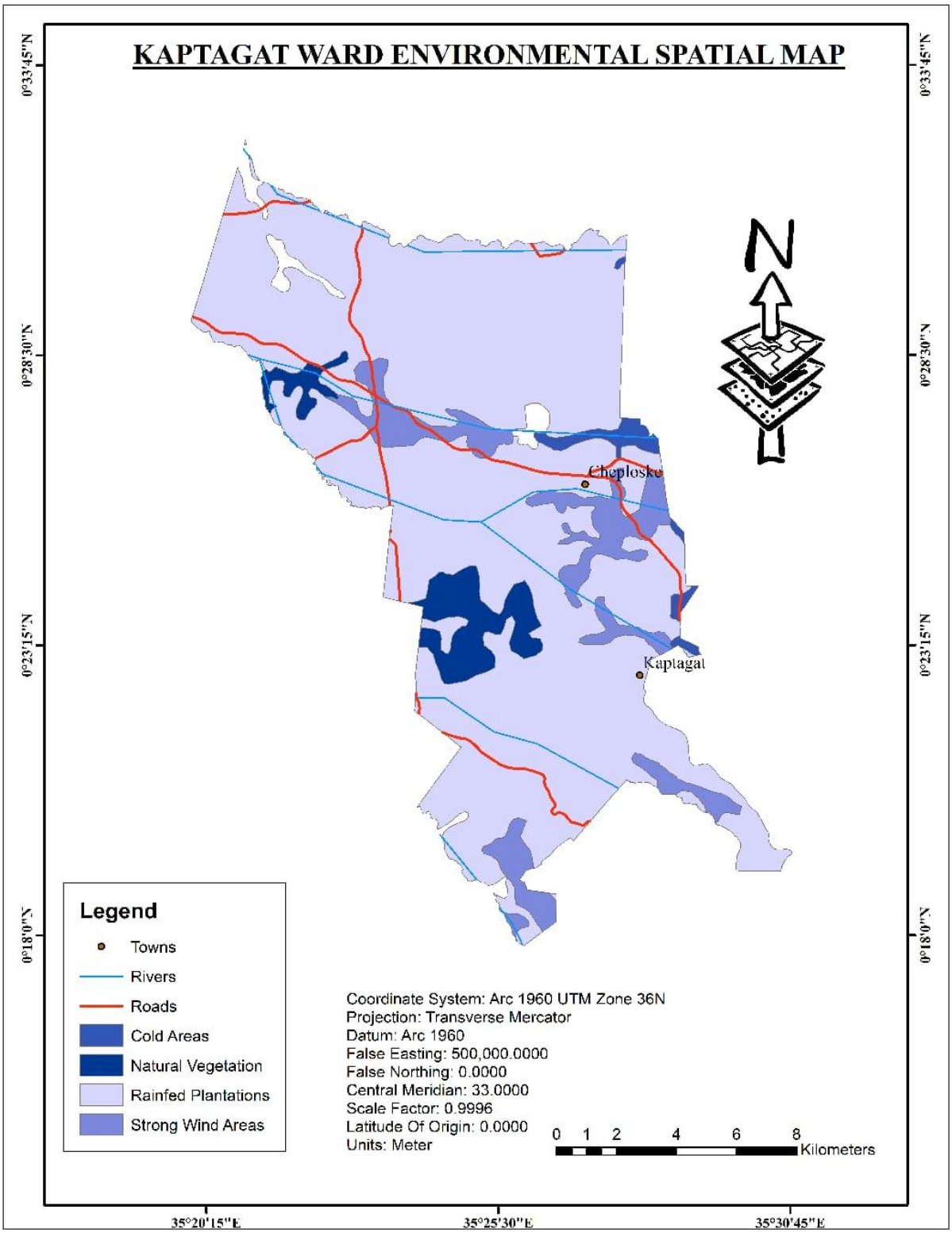

SIMAT WARD ENVIRONMENTAL SPATIAL MAP
N
0°31'30"N
0°29'15"N
0°27'0"N
0°24'45"N
0°22'30"N
0°20'15"N
35°8'15"E
35°10'30"E
35°12'45"E
35°15'0"E
Legend
River
Main Road
Forest
Vegetation Cover
Farmlands
Barelands
Rocky Areas
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
0 0.75 1.5 3 4.5 6
Kilometers

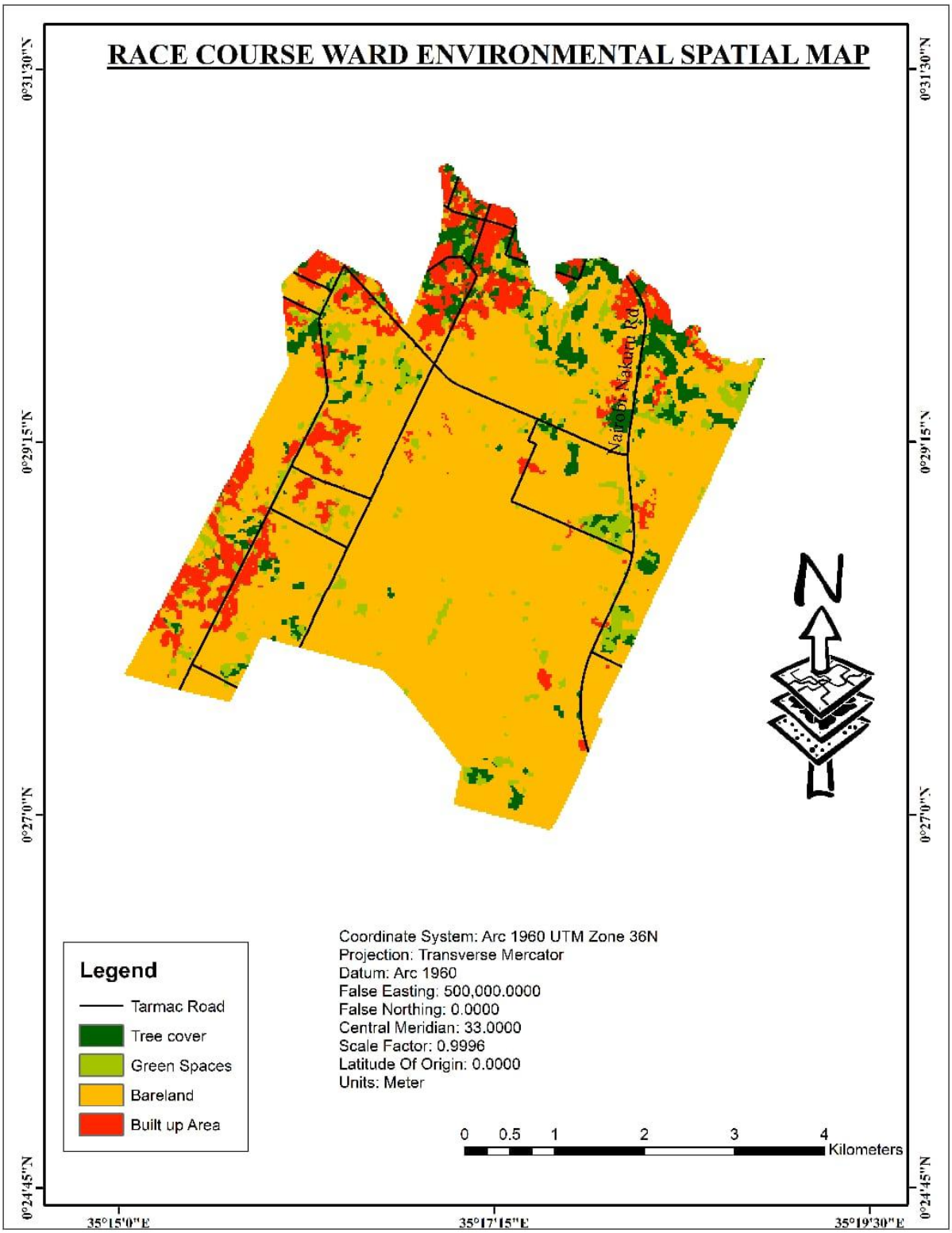

CHEPTIRET/KIPCHAMO WARD ENVIRONMENTAL SPATIAL MAP
0°29'15"N
0°27'0"N
0°24'45"N
0°22'30"N
0°20'15"N
0°18'0"N
0°15'45"N
0°13'30"N
35°17'15"E
35°19'30"E
35°21'45"E
35°24'0"E
35°26'15"E
35°28'30"E
Nairobi-Nakuru Rd
N
Legend
Town
Rivers
Main Roads
Forest
Plantations
Vegetation cover
Bareland
Swampy
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
0 1.25 2.5 5 7.5 10
Kilometers

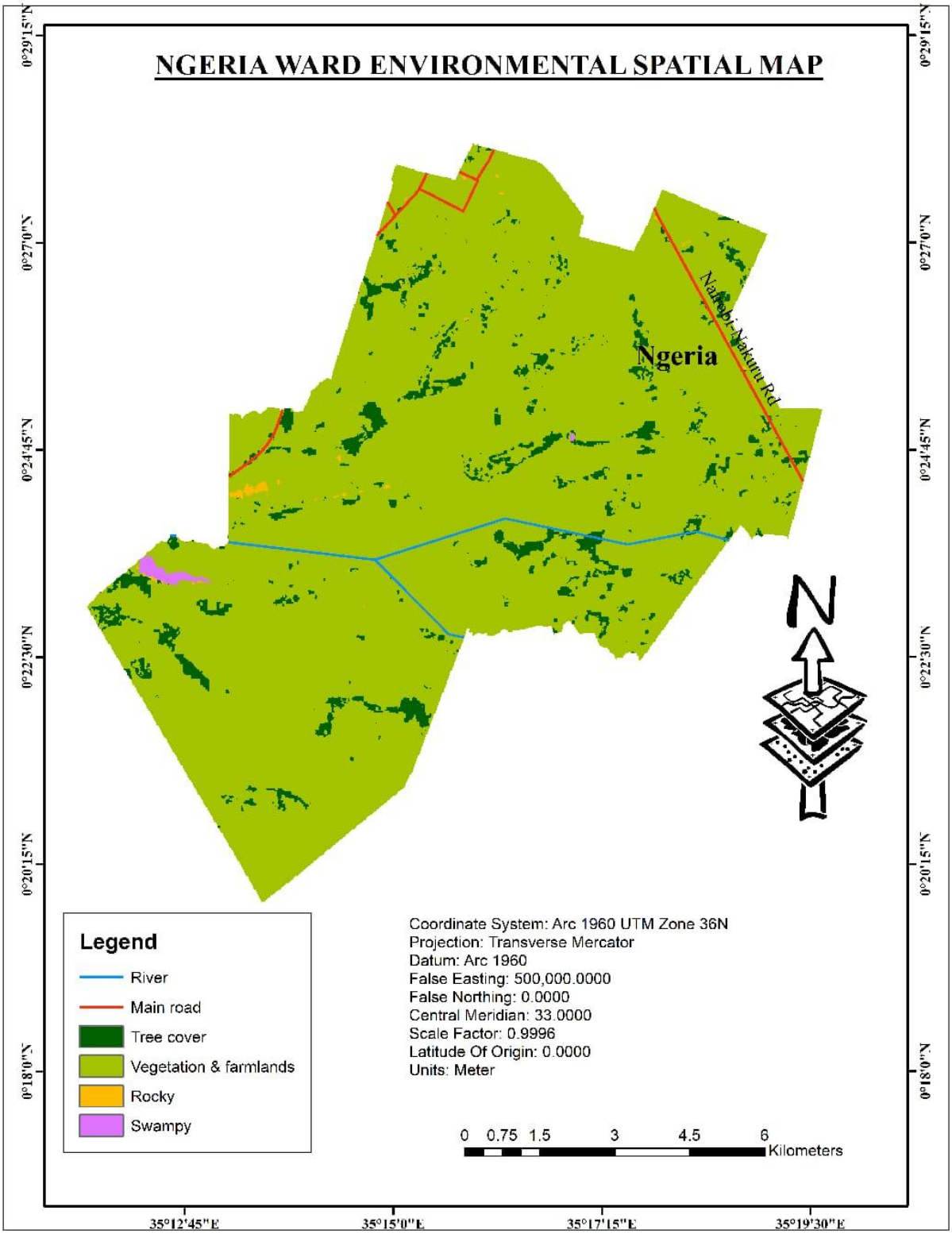

TARAKWA WARD ENVIRONMENTAL SPATIAL MAP
Nairobi-Nakuru Rd
Burnt Forest
Kabkoi
N
Legend
Towns
Rivers
Roads
Forest
Vegetation Cover
Farmlands
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
0 2 4 8 12 16
Kilometers
0°20'15"N
0°18'0"N
0°15'45"N
0°13'30"N
0°11'15"N
0°9'0"N
0°6'45"N
0°4'30"N
0°2'15"N
0°0'0"
0°2'15"S
0°4'30"S
35°17'15"E
35°19'30"E
35°21'45"E
35°24'0"E
35°26'15"E
35°28'30"E
35°30'45"E
35°33'0"E
35°35'15"E
35°37'30"E

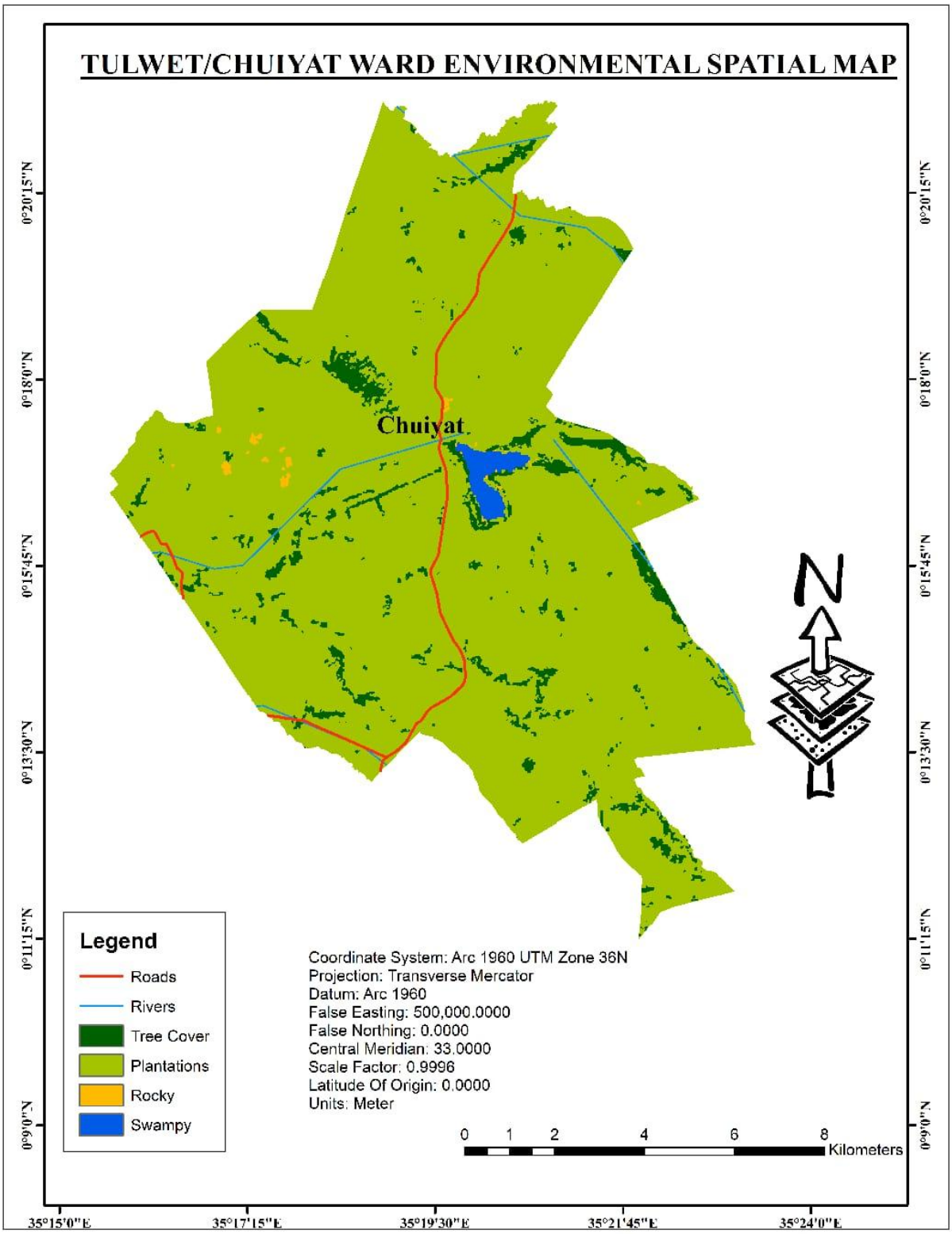

MEGUN WARD ENVIRONMENTAL SPATIAL MAP
Megun
N
Legend
Rivers
Main road
Forest
Vegetation
Farmlands
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
0 0.75 1.5 3 4.5 6
Kilometers
0°24'45"N
0°22'30"N
0°20'15"N
0°18'0"N
0°15'45"N
35°15'0"E
35°17'15"E
35°19'30"E

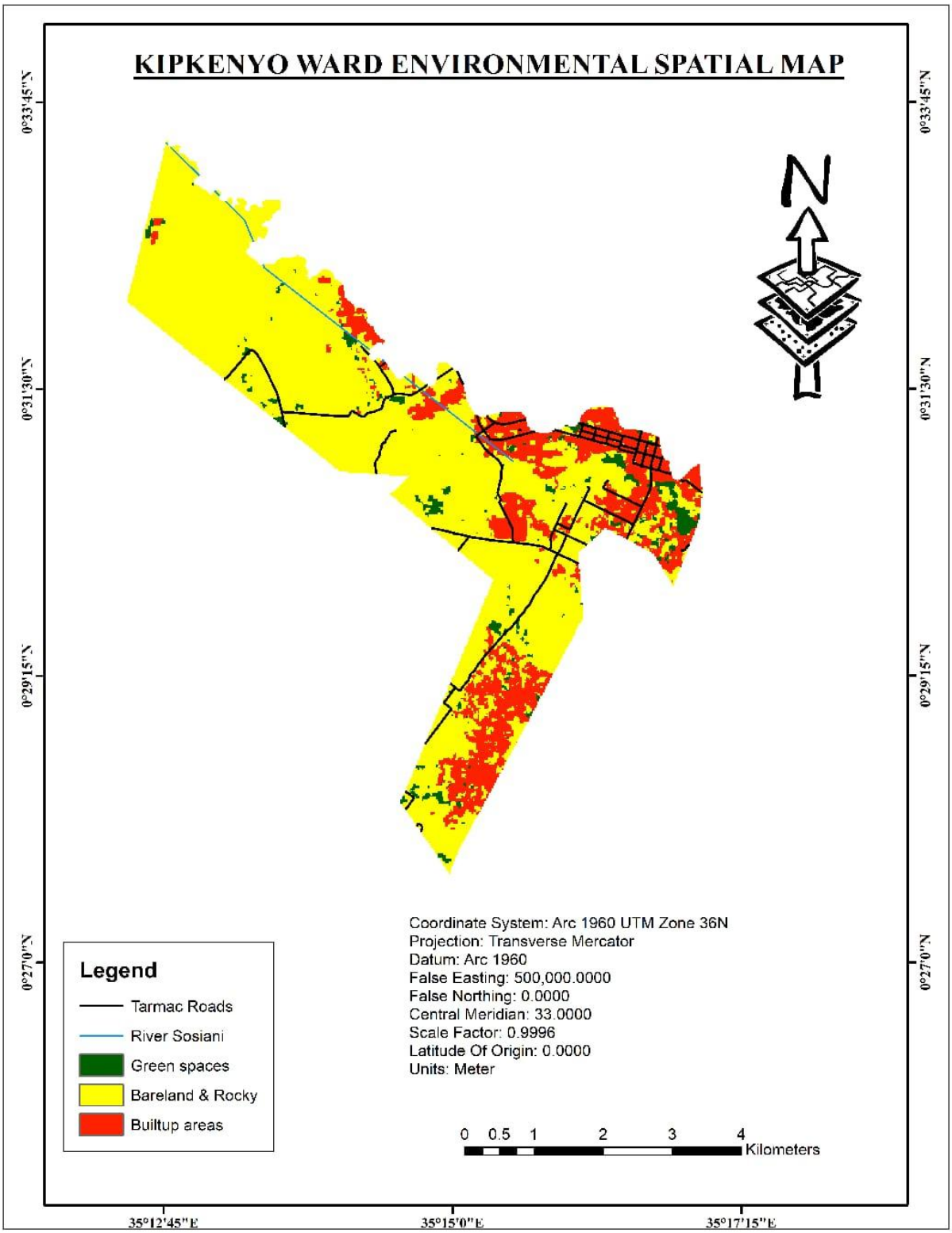

AINABKOI/OLARE WARD ENVRONMENTAL SPATIAL MAP
N
Haraka
Ainabkoi
Kapengutuny
Nairobi-Nakuru Rd
Legend
Towns
Rivers
Roads
Plantations
Natural Forest
Rainfed herbaceous crop
Steep slopes
High Humidity
Strong winds
Fire prone
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
0 1 2 4 6 8
Kilometers
0°18'0"N
0°12'45"N
0°7'30"N
0°2'15"N
35°25'30"E
35°30'45"E
35°36'0"E

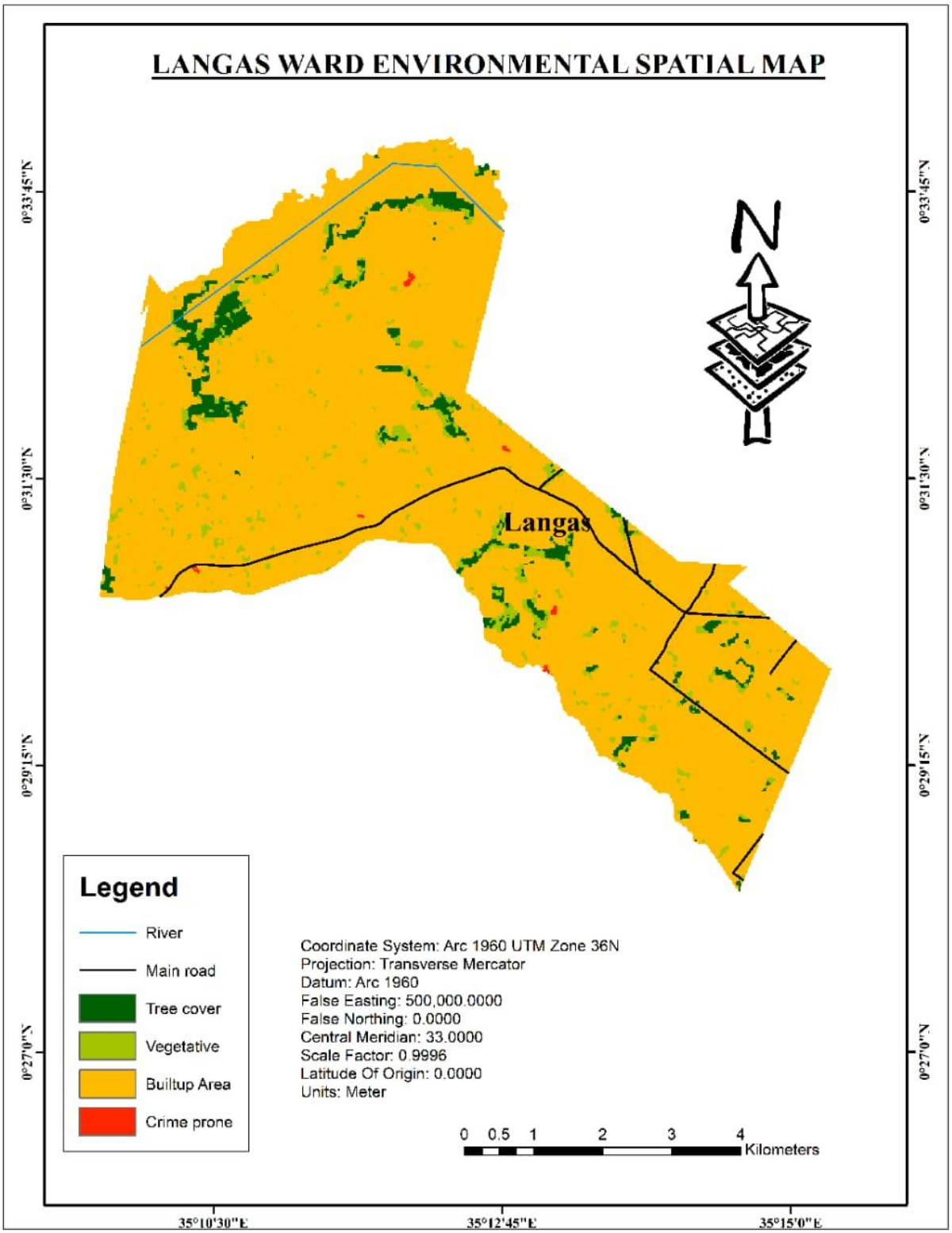

KAPTAGAT WARD ENVIRONMENTAL SPATIAL MAP
0°33'45"N
0°28'30"N
0°23'15"N
0°18'0"N
35°20'15"E
35°25'30"E
35°30'45"E
N
Cheploske
Kaptagat
Legend
Towns
Rivers
Roads
Cold Areas
Natural Vegetation
Rainfed Plantations
Strong Wind Areas
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
0 1 2 4 6 8
Kilometers


RACE COURSE WARD ENVIRONMENTAL SPATIAL MAP
0°31'30"N
0°29'15"N
0°27'0"N
0°24'45"N
35°15'0"E
35°17'15"E
35°19'30"E
Nairobi Nakuru Rd
N
Legend
Tarmac Road
Tree cover
Green Spaces
Bareland
Built up Area
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
0 0.5 1 2 3 4
Kilometers


NGERIA WARD ENVIRONMENTAL SPATIAL MAP
Ngeria
Nairobi-Nakuru Rd
N
Legend
River
Main road
Tree cover
Vegetation & farmlands
Rocky
Swampy
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
0 0.75 1.5 3 4.5 6
Kilometers
0°29'15"N
0°27'0"N
0°24'45"N
0°22'30"N
0°20'15"N
0°18'0"N
35°12'45"E
35°15'0"E
35°17'15"E
35°19'30"E


TULWET/CHUIYAT WARD ENVIRONMENTAL SPATIAL MAP
Chuiyat
N
Legend
Roads
Rivers
Tree Cover
Plantations
Rocky
Swampy
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
0 1 2 4 6 8
Kilometers
0°21'0"N
0°18'0"N
0°15'45"N
0°13'30"N
0°11'15"N
0°9'0"N
35°15'0"E
35°17'15"E
35°19'30"E
35°21'45"E
35°24'0"E


KIPKENYO WARD ENVIRONMENTAL SPATIAL MAP
N
0°33'45"N
0°31'30"N
0°29'15"N
0°27'0"N
35°12'45"E
35°15'0"E
35°17'15"E
Legend
Tarmac Roads
River Sosiani
Green spaces
Bareland & Rocky
Builtup areas
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
0 0.5 1 2 3 4
Kilometers


LANGAS WARD ENVIRONMENTAL SPATIAL MAP
N
Langas
Legend
River
Main road
Tree cover
Vegetative
Builtup Area
Crime prone
Coordinate System: Arc 1960 UTM Zone 36N
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 33.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
0 0.5 1 2 3 4
Kilometers
0°33'45"N
0°31'30"N
0°29'15"N
0°27'0"N
35°10'30"E
35°12'45"E
35°15'0"E

COUNTY GOVERNMENT OF UASIN GISHU
THE CHAMPIONS

PARTICIPATORY CLIMATE RISK ASSESSMENT (PCRA) REPORT