



MINISTRY OF LANDS, PUBLIC WORKS, HOUSING & URBAN DEVELOPMENT
STATE DEPARTMENT FOR HOUSING AND URBAN DEVELOPMENT

SECOND KENYA INFORMAL SETTLEMENTS
IMPROVEMENT PROJECT (KISIP 2)

CONSULTANCY SERVICES TO UNDERTAKE PHYSICAL PLANNING,
CADASTRAL SURVEY AND DETAILED TOPOGRAPHICAL SURVEY
OF 12 SELECTED INFORMAL SETTLEMENTS IN NYERI,
KIRINYAGA AND MARSABIT COUNTIES,
LOT VII – CLUSTER 1

NDUMANU INFORMAL SETTLEMENT
LOCAL PHYSICAL AND LAND USE
DEVELOPMENT PLAN REPORT



Submitted to:
The National Coordinator, KISIP 2,
P.O. Box 30199 – 00100,
Nairobi

Submitted by:
GEOSURV SYSTEMS LTD

📍 Garden Estate, Mukima Drive, House No. M76
✉ PO BOX 7811-00100, Nairobi,
✉ info@geosurv.co.ke

May, 2025

CONSULTANT

Signature.....Date.....

Catherine K. Katuma

Registered Practicing Physical Planner (R.P.P 0254)

CERTIFICATE

I certify that the plan has been prepared and published as per the requirements of the County Governments Act, 2012 (amended 2020), Physical and Land Use Planning Act No. 13 of 2019, Urban Areas and Cities Act, 2011 (amended 2019) and Planning Guidelines & Adoptive Standards.

.....
Signature Date

Name:
County Director in charge of Physical and Land Use Planning

CERTIFIED

.....
Signature Date

Name:
CEC Member in charge of Physical and Land Use Planning

APPROVAL

County Assembly Hansard No..... Date

ENDORSED.....
Signature Date

Name:

.....

H.E Governor, Nyeri County Government

Plan Reference No:

Approved Plan No:

EXECUTIVE SUMMARY

Ndumanu informal settlement Local Physical and Land Use Development Plan (2025 – 2035) is one of the deliverables for the consultancy services to undertake physical planning, cadastral survey and detailed topographical survey of twelve (12) selected informal settlements in Nyeri, Kirinyaga and Marsabit Counties Lot VII – Cluster 1. The settlement is one of the two (2) selected informal settlements in Nyeri County. It is located along the Itundu-Ragati Road Magutu ward, Mathira East Sub-County of Nyeri County, Kenya and covers approximately 8.14 Ha. The LPLUDP aims at upgrading Ndumanu informal settlement through provision of tenure security, provision of infrastructure and basic services to the community. The plan has been prepared through a comprehensive consultative process from the consultancy inception phase to the draft plan formulation phase. The plan report is presented in six chapters as outlined below:

Chapter one details out the KISIP 2 background information, guiding principles that informed the plan preparation, and project methodology employed for the successful execution of the assignment. The consultancy main objective is to facilitate the conferment/formalization of secure land tenure for the beneficiaries in the informal settlement. The community's common vision, **"To be a model planned commercially oriented urban informal settlement with security of tenure and ultra-modern infrastructure facilities"** was arrived at through a participatory process where the area residents provided their aspirations with regard to the kind of informal settlement they would love to reside in. The project methodology phases include; inception, topographical mapping and digital base map and environmental status map preparation, environmental and social screening, socio-economic survey and formulation of the draft LPLUDP for the informal settlement.

Chapter two highlights the planning context with regard to the settlement's location in the national, regional, county and local context. It also offers a brief description of the informal settlement and presents the policy and legal context that guided the plan preparation. It further presents the various stakeholders' engagements held that were critical in the plan formulation.

Chapter three presents the informal settlement's existing situation. It details out the physiography and natural conditions as well as the socio-economic survey findings of the project area. The socio-economic survey findings have been presented in several thematic sectors namely; population and demographic characteristics, social services and amenities, economic activities, infrastructure and utilities, land, land use and housing. Some of the key findings are:

Population and demographic characteristics

Ndumanu informal settlement has a total population of 240 people and is projected to be 355 people in 2035. The middle/young population (working group and below) is the largest segment of the population. They cumulatively make up 92% of the settlement population while the elderly population accounts for only 8% of the population. The young population of between 26-45 is the majority at 26% of the settlement population followed by the young population between 10 and 17 years at 18%.

Social services and amenities

The social facilities present within the settlement are; Muthea secondary school, tea collection centre, assistant chief's office and several religious facilities of various denominations. The residents have access to adequate educational facilities located within and outside the project area but within the recommended distances. The projected population within the settlement is too small to meet the threshold population required to sustain these facilities as the provision of educational facilities is always dictated by the prevailing demand conditions.

Economic assessment

Majority of the respondents within the informal settlement are casual labourers at the neighbouring tea farms accounting for 41% of all survey participants. About 17% of residents are self-employed or engaged in business activities while only 10% undertake crop farming and livestock keeping. The national government has employed 2% of the respondents with just 4% others employed by private entities. A significant portion of the population was however unemployed. This represented 26% of respondents, and is recipe for crime, drug peddling and abuse, among other social evils.

Infrastructure and utilities

The main road traversing Ndumanu informal settlement is Itundu-Ragati Road which connects the settlement to Nairobi – Nanyuki highway (A2) at Karatina via Ihwagi – Kagochi Road. At the local level, the interconnectivity is well laid out providing access to land parcels and activity spaces. The internal roads are however too narrow for vehicular access and there are a few missing links. The main sources of energy used for lighting are; kerosene, electricity, candle and solar at 43, 32, 8, and 7 percent respectively. Firewood is the main cooking energy source at 86% followed by charcoal at 5%. Water supply is undertaken by Kihore Water Project. Piped community water taps and rivers/streams are the main sources of water each at 48%. Other sources of water comprise of rainwater/roof catchment at 3% and piped water into the compound at 1%.

The settlement is faced by a number of challenges among them lack of storm water drainage channels and improper waste disposal and management. Solid waste is managed improperly by the residents through burning (52%), composting (42%) and burning/composting (6%). According to the survey, about 99% of the households use pit latrines while 1% use flush toilets

Land, land use and housing

The informal settlement covers an approximate area of 8.14Ha. The existing land uses include; residential, education, public purpose, business cum residential, transportation and agricultural. Being a settlement, residential land use is the dominant one at 45.47% followed by transport and education at 16.79% and 14.18% respectively. The informal settlement is on a public land managed by the County Government of Nyeri from the defunct County Council.

The chapter also offers a synthesis of the socio-economic survey findings with respect to the challenges and opportunities in the informal settlement. The challenges include; insecurity of land tenure, poor accessibility, inadequate supply of portable water, unsustainable development, encroachment on road reserves, informality, inadequate basic social infrastructure, poor housing quality, lack of storm water drainage channels, improper waste management and urban decay. The opportunities are; strategic location along the Itundu-Ragati Road which connects the settlement to Nairobi – Nanyuki Highway via Ihwagi – Kagochi Road, favourable topography for development, favourable climatic conditions for agricultural activities and government good will on social housing.

Chapter four details out the plan proposals outlining the structural elements, alternative planning options, proposed land use zones and the development guidelines and regulations. The structuring elements which guided the plan proposals are; claimed plot boundaries, the existing service lanes and footpaths, existing developments and stakeholders' concerns. Ndumanu informal settlement is characterized by relatively narrow footpaths. In order to achieve a well-planned settlement with access roads and minimize and/or prevent any form of displacement or impact of the plan proposals to the structures, three design options have been explored namely; standard planning approach, adoptive planning approach and hybrid planning approach.

The standard planning approach resulted to a total of 39 affected structures. This makes it challenging for the County Government of Nyeri to facilitate their resettlement as well as offer

compensation for the affected structures. To minimize the level of impacts, and reduce the number of Project Affected Persons (PAPs), the adoptive approach was explored to just provide the basic minimums. This approach however had the disadvantages of limited connectivity and accessibility to individual plots. The hybrid approach was thus explored so as to ultimately achieve wider roads. The approach proposes the incremental road expansion in accordance to the plan. The plan also outlines development control guidelines that will guide the implementation of the plan proposals.

Chapter five highlights the sectoral development strategies based on the findings from the socio-economic survey and the stakeholders' concerns. These development strategies include; transportation improvement strategies, environmental protection strategies, water provision improvement strategies, housing improvement strategies and economic improvement strategies.

Chapter six presents the implementation, monitoring and evaluation framework aimed at ensuring efficient plan implementation. The implementation framework outlines the project activities, objectives, indicators, actors and timeframe required to achieve the objectives. The implementation of the plan will be two phased. Phase one will entail the plan approval and cadastral survey to aid with the attainment of tenure security. Phase two provides for the implementation of the plan proposals. An implementation and coordination committee has also been provided as part of the implementation framework.

TABLE OF CONTENTS

EXECUTIVE SUMMARY.....	iv
TABLE OF CONTENTS	vii
LIST OF TABLES.....	x
LIST OF MAPS	xi
LIST OF FIGURES.....	xi
LIST OF PLATES.....	xii
LIST OF APPENDICES	xii
LIST OF ABBREVIATIONS.....	xiii
CHAPTER ONE.....	1
INTRODUCTION.....	1
1.1 Background Information	1
1.1.1 Project Components.....	1
1.1.2 Consultancy Main Objective	2
1.1.3 Scope of Services.....	2
1.1.4 Deliverable	2
1.1.5 Vision Statement.....	2
1.2 Guiding Principles	3
1.3 Project Methodology.....	3
1.3.1 Inception Phase	4
1.3.2 Preparation of Base Map and Environmental Status Map	6
1.3.3 Environmental and Social Screening.....	8
1.3.4 Socio-Economic Survey and Physical Mapping	8
1.3.5 Preparation of the Socio-Economic Survey Report	10
1.3.6 Participatory Planning	10
1.3.7 Draft Plan Formulation	11
CHAPTER TWO.....	12
PLANNING CONTEXT	12
2.1 Overview	12
2.2 Location Context	12
2.2.1 National Context	12
2.2.2 Regional Context.....	12
2.2.3 County Context.....	12
2.2.4 Local Context	12
2.3 Description of the Informal Settlement	16
2.4 Policy and Legal Framework	16
2.5 Stakeholders’ Participation and Engagement.....	31
CHAPTER THREE.....	33
BASELINE INFORMATION AND SOCIO-ECONOMIC SURVEY FINDINGS.....	33
3.1 Overview	33
3.2 Physical and Natural Environment.....	33
3.2.1 Climatic Conditions.....	33
3.2.2 Topography	34
3.2.3 Water Sources and Supply	36
3.2.4 Geology and Soils.....	36
3.2.5 Biodiversity	37
3.2.6 Green Spaces	39

3.2.7 Environmental Concerns.....	39
3.2.8 Emerging Issues.....	42
3.3 Population and Demographic Characteristics	45
3.3.1 Population Size	45
3.3.2 Population Distribution/Density.....	45
3.3.3 Population Projection.....	48
3.3.4 Demographic Characteristics	48
3.3.5 Emerging Issues.....	52
3.4 Social Services and Amenities.....	53
3.4.1 Education Facilities.....	53
3.4.2 Health Facilities	60
3.4.3 Community Facilities	63
3.4.4 Emerging Issues.....	63
3.5 Economic Activities	64
3.5.1 Agriculture	64
3.5.2 Trade and Commercial Activities	65
3.5.3 Household Economic Assessment.....	66
3.5.4 Opportunities and Challenges in Economic Activities	69
3.6 Infrastructure and Utilities	70
3.6.1 Overview.....	70
3.6.2 Transportation.....	70
3.6.3 Storm Water Drainage	73
3.6.4 Energy.....	76
3.6.5 Water Supply and Consumption.....	79
3.6.6 Sanitation and Hygiene.....	80
3.6.7 Communication.....	84
3.6.8 Infrastructure and Utilities Emerging Issues	86
3.7 Land and Housing Structures' Characteristics.....	87
3.7.1 Overview.....	87
3.7.2 Land Use	88
3.7.3 Land Tenure	91
3.7.4 Housing and Structures' Characteristics.....	92
3.7.5 Emerging issues.....	95
3.8 Occurrence of Disasters	96
3.9 Synthesis	96
3.9.1 Challenges.....	97
3.9.2 Opportunities	99
CHAPTER FOUR.....	100
PLAN PROPOSALS.....	100
4.1 Overview	100
4.2 Structuring Elements.....	100
4.3 Alternative Planning Options	101
4.3.1 Standard Planning Approach	101
4.3.2 Adoptive Planning Approach.....	103
4.3.3 Hybrid Planning Approach	105
4.4 Land Use Zones.....	107
4.4.1 Proposed Land Use Zones	107

4.5 Development Guidelines and Regulations	110
4.5.1 Residential Land Use Development Guidelines	110
4.5.2 Public Purpose and Commercial Land Use.....	111
4.5.3 Transportation Land Use	113
CHAPTER FIVE.....	114
DEVELOPMENT STRATEGIES AND IMPLEMENTATION FRAMEWORK	114
5.1 Overview	114
5.2 Transportation and Storm Water Drainage Improvement Strategies.....	114
5.3 Environmental Conservation and Improvement Strategies.....	117
5.4 Water Supply Improvement Strategies.....	122
5.5 Housing Improvement Strategies.....	123
5.6 Economic Development Improvement Strategies.....	124
CHAPTER SIX.....	126
IMPLEMENTATION, MONITORING AND EVALUATION FRAMEWORK.....	126
6.1 Overview	126
6.2 Implementation	126
6.3 Monitoring and Evaluation Framework.....	133
REFERENCES	134
APPENDICES	136

LIST OF TABLES

Table 1: Relevant Policy and KISIP Instruments Governing Plan Preparation.....	17
Table 2: Relevant Legal Framework Governing Plan Preparation	25
Table 3: Stakeholder Engagement and Participation Forums.....	31
Table 4: Annual Temperatures	34
Table 5: Emerging Issues – Physiography and Natural Environment	43
Table 6: Population Size	45
Table 7: Population Density.....	46
Table 8: Projected Population.....	48
Table 9: Population Structure- 2025	50
Table 10: Household Size.....	51
Table 11: Emerging Issues – Population and Demography.....	53
Table 12: Educational Facilities.....	54
Table 13: Distance to school	60
Table 14: Emerging Issues – Social Services and Amenities.....	64
Table 15: Occupation.....	66
Table 16: Emerging Issues – Economic Activities	70
Table 17: Cooking Energy Sources.....	79
Table 18: Emerging Issues – Physical Infrastructure.....	87
Table 19: Existing Land Use Budget	88
Table 20: Average Plot Sizes	91
Table 21: Structures Categorization	92
Table 22: Building Materials for Housing	94
Table 23: Emerging Issues – Land and Housing	95
Table 24: Affected Structures by Standard Planning Approach.....	101
Table 25: Land Use Zone Codes and Colours.....	107
Table 26: Proposed Land Use Budget	107
Table 27: Existing and Proposed Land Use Zones.....	109
Table 28: Residential Land Use Development Guidelines	110
Table 29: Public Purpose and Commercial Land Use Development Guidelines	111
Table 30: Proposed Road Expansion Guidelines.....	113
Table 31: Transportation Land Use Development Guidelines.....	113
Table 32: Transportation and Storm Water Drainage Improvement Strategies	115
Table 33: Environmental Conservation and Improvement Strategies.....	119
Table 34: Water Supply Improvement Strategies.....	122
Table 35: Housing Improvement Strategies.....	123
Table 36: Economic Development Improvement Strategies.....	124
Table 37: Implementation Framework – Phase one: Plan Approval and Cadastral Survey.....	127
Table 38: Implementation Framework – Phase two: Implementation of Plan Proposals.....	128
Table 39: Proposed Membership of the PICC	133

LIST OF MAPS

Map 1: Location of Ndumanu Informal Settlement in the National Context	13
Map 2: Location of Ndumanu Informal Settlement in the County and Sub-County Context	14
Map 3: Location of Ndumanu Informal Settlement in the Ward Context	15
Map 4: Digital Terrain Model	35
Map 5: Vegetation Cover Distribution	38
Map 6: Environmental Status Map	44
Map 7: Settlement Patterns	47
Map 8: Educational Facilities Distribution	55
Map 9: ECDE Centres Accessibility Index	57
Map 10: Primary Schools Accessibility Index	58
Map 11: Secondary Schools Accessibility Index	59
Map 12: Health Facilities Accessibility Index	62
Map 13: Existing Road Network	72
Map 14: Storm Water Drainage	75
Map 15: Electricity Distribution Network	78
Map 16: Waste Management	83
Map 17: Existing Land Use Map	90
Map 18: Types of Structures	93
Map 19: Standard Planning Approach	102
Map 20: Adoptive Planning Approach	104
Map 21: Hybrid Planning Approach	106
Map 22: Proposed Local Physical and Land Use Development Plan	108

LIST OF FIGURES

Figure 1: Project Methodology	4
Figure 2: DTM Generation process for Aerial Imagery	7
Figure 3: Rainfall Patterns	33
Figure 4: Population Structure – 2025	49
Figure 5: Gender of respondents	50
Figure 6: Marital Status of Respondents	50
Figure 7: Tenancy Type of Respondent	51
Figure 8: Highest Education Level Attained	52
Figure 9: Distance to Medical Facility	61
Figure 10: Place of Work	67
Figure 11: Income Levels	67
Figure 12: Daily Household Food Expenditure	68
Figure 13: Average Annual Expenditure on School Fees	69
Figure 14: Average Annual Expenditures on Clothing	69
Figure 15: Means of Transport	73
Figure 16: Source of Lighting Energy	76
Figure 17: Average Cost of Electricity	77
Figure 18: Household Water Sources	79
Figure 19: Average Daily Household Water Consumption (L)	80
Figure 20: Solid Waste Disposal Methods	82
Figure 21: Means of Access to Information	84

Figure 22: TV and Radio Ownership.....	85
Figure 23: Usage of Social Media	86
Figure 24: Disaster Occurrences	96
Figure 25: Common Disasters Suffered by Households.....	96

LIST OF PLATES

Plate 1: Introduction Meeting.....	5
Plate 2: Stakeholders' Sensitization, Mobilization and Awareness Workshop	5
Plate 3: Stakeholders' Workshop on Sensitization of Socio-Economic Survey	9
Plate 4: Socio-Economic Survey Presentation	10
Plate 5: Water Supply and Storage Facilities	36
Plate 6: Soil Characteristics.....	36
Plate 7: Vegetation Cover	37
Plate 8: Openly Burning of Solid Waste	39
Plate 9: Solid Waste Disposal	40
Plate 10: Human Waste Disposal.....	41
Plate 11: Muthea High School.....	56
Plate 12: Community Facilities	63
Plate 13: Crop Farming	65
Plate 14: Livestock Farming.....	65
Plate 15: Commercial Activities	66
Plate 16: Road Condition.....	71
Plate 17: Storm Water Drainage	74
Plate 18: Sample Identification Cards.....	92
Plate 19: Housing Structures	95

LIST OF APPENDICES

Appendix 1: Notice of Intention to Plan – Daily Nation	136
Appendix 2: Notice of Intention to Plan – Taifa Leo	137
Appendix 3: Base Map	138
Appendix 4: List of Beneficiaries	139
Appendix 5: List of Structures.....	159
Appendix 6: Minutes of the Technical Meeting on the Presentation of Socio-Economic Survey	169
Appendix 7: Minutes of the Stakeholders Workshop on the Presentation of Socio-Economic Survey, Visioning and Participatory Planning.....	176

LIST OF ABBREVIATIONS

ACK	Anglican Church of Kenya
AIPCA	African Independent Pentecostal Church of Africa
BCR	Business Cum Residential
CEREB	Central Region Economic Bloc
CIDP	County Integrated Development Plan
CGN	County Government of Nyeri
CO ₂	Carbon (IV) oxide
CPCT	County Project Co-ordination Team
CT-OVC	Cash Transfer for Orphans and Vulnerable Children
DGNSS	Differential Global Navigation Satellite System
DSM	Digital Surface Model
DTM	Digital Topographical Model
ECDE	Early Childhood Development and Education
EMCA	Environmental Management and Coordination Act
ESIA	Environmental and Social Impact Assessment
ESMF	Environment and Social Management Framework
FPEK	Free Pentecostal Fellowship of Kenya
GIS	Geographical Information System
GoK	Government of Kenya
GPS	Global Positioning System
GRC	Grievance Redress Committee
Ha	Hectare
ICT	Information and Communications Technology
INTP	Integrated National Transport Policy
KDHS	Kenya Demographic and Health Survey
KENSUP	Kenya Slum Upgrading Programme
KES	Kenya Shillings
KISIP	Kenya Informal Settlements Improvement Project
Km	Kilometre
KNBS	Kenya National Bureau of Statistics
KPHC	Kenya Population and Housing Census
KRA PIN	Kenya Revenue Authority Personal Identification Number
LIS	Land Information System
LPG	Liquefied Petroleum Gas
LPLUDP	Local Physical and Land Use Development Plan

M&E	Monitoring and Evaluation
MES	Monitoring & Evaluation System
m/s	Metre/second
NEMA	National Environment Management Authority
NGOs	Non-Government Organizations
NLC	National Land Commission
NMT	Non-Motorized Transport
NPCT	National Project Coordination Team
NSP	National Spatial Plan
ODK	Open Data Kit
PAD	Project Appraisal Document
PAPs	Project Affected Persons
PCEA	Pentecostal Church of East Africa
PICC	Project Implementation and Coordination Committee
PM	Particulate Matter
POM	Project Operation Manual
PWD	Person With Disability
RAP	Resettlement Action Plan
RIM	Registry Index Map
RTK	Real Time Kinematics
SDGs	Sustainable Development Goals
SEC	Settlement Executive Committee
SEF	Stakeholder Engagement Framework
SEP	Stakeholders Engagement Plan
SMP	Social Management Plan
SPSS	Statistical Package for the Social Sciences
TORs	Terms of Reference
TVET	Technical and Vocational Educational and Training
UACA	Urban Areas and Cities Act
UAV	Unmanned Aerial Vehicle
UNDP	United Nations Development Programme
VIP Latrine	Ventilated Improved Pit Latrine
WHO	World Health Organization

CHAPTER ONE INTRODUCTION

1.1 Background Information

Informal settlements in the country are sprawling at an alarming rate within cities, towns and emerging urban centres. This is as a result of rampant squatting, lack of urban planning and the increasing population of the urban poor. These informal settlements are characterized by tenure insecurity, relatively high poverty incidences due to economic vulnerability, congestion, housing informality and substandard living conditions as well as inadequate infrastructural and social facilities and services. It was against this backdrop that the Kenya Informal Settlement Improvement Project (KISIP) was initiated by the Government of Kenya supported by Development Partners in 2011 to address the challenges facing urban development in the country. KISIP complements the Kenya Slum Upgrading Programme (KENSUP), established in 2003. The programme is domiciled at Ministry of Lands, Public Works, Housing & Urban Development; State Department of Housing and Urban Development. Based on the lessons and experiences of KENSUP and KISIP 1, KISIP 2 was initiated to further improve informal settlements building on the success of KISIP 1.

1.1.1 Project Components

KISIP 2 comprises of the following four components: Component 1: Integrated Settlement Upgrading, Component 2: Socio-Economic Inclusion Planning, Component 3: Institutional Capacity Development for Slum Upgrading and Component 4: Programme Management and Coordination. These components are as outlined below:

Component 1: Integrated Settlement Upgrading

This component supports settlement upgrading through two main interventions classified under two sub-components:

- *Sub-component 1.1: Tenure regularization*

Coordinates regularization of tenure for people living on uncontested public lands whose process includes: Development of a local physical and land use development plan (LPLUDP) for the settlement which lays out land parcels and wayleaves for infrastructure like roads, drainage, walkways; Surveying with physical placement of beacons to demarcate the parcels as per the plan; Preparation of list of beneficiaries and or issuance of letters of allotment based on the survey plan; and Issuance of titles.

- *Sub-component 1.2: Infrastructure Upgrading*

Coordinates infrastructure investment portfolio which constitutes of water and sanitation systems, storm water drainage, solid waste collection and settlement sorting, pedestrian walkways, cycle paths, roads, street and security lighting, vending platforms, public parks, and green spaces. It further includes investments related to prevention of crime and violence, including but not limited to community centres.

Component 2: Socio-Economic Inclusion Planning

This component supports community development plans to enhance social and economic inclusion, identifies beneficiaries who fit the eligibility criteria of government programs but are excluded and connects them appropriately, supports participatory crime and violence mapping, monitors the employment of local labor, carries out community capacity building and awareness raising for various project interventions including community-based solid wastemanagement.

Component 3: Institutional Capacity Development for Slum Upgrading

This component supports institutional and policy development at national and county levels; develops a capacity building plan for national and county levels to implement the strategy and to develop understanding of slum upgrading processes; also supports technical assistance, training, workshops and learning events, experience sharing and peer-learning activities with other counties, and other capacity building activities.

Component 4: Program Management and Coordination

This component supports activities of the National Project Coordination Team (NPCT) and County Project Coordination Teams (CPCTs) related to national and county-level project management and coordination, including planning, surveying, engineering, fiduciary (financial management and procurement), safeguards compliance and monitoring, monitoring and evaluation (M&E), communication and community development.

The implementation of the project components is geared towards achieving the overall KISIP 2 objective which is to improve access to basic services and land tenure security of residents in participating urban informal settlements and strengthen institutional capacity for slum upgrading in Kenya. The consultancy services are anchored on the first KISIP 2 component under the tenure regularization sub-component. The component's objective is to coordinate & facilitate the conferment/formalization of secure land tenure for selected informal settlements in uncontested public lands. This is achieved through planning, surveying and title registration.

1.1.2 Consultancy Main Objective

The main objective of the consultancy is to facilitate the conferment/formalization of secure land tenure of the twelve (12) Selected Informal Settlements in Nyeri, Kirinyaga and Marsabit Counties, Lot VII – Cluster 1.

1.1.3 Scope of Services

The scope of assignment was to undertake physical planning, cadastral survey and detailed topographical survey for Ndumanu informal settlement covering an area of 8.14 Ha. The plan for the informal settlement is envisaged to cover a period of 10 years.

1.1.4 Deliverable

Ndumanu informal settlement Local Physical and Land Use Development Plan (2025 - 2035) is one of the deliverables for the consultancy services. The plan aims at regularizing the informal settlement by providing land tenure security and a spatial framework for infrastructure development. This will help in transforming the informal settlement into a more livable and sustainable community.

1.1.5 Vision Statement

The vision statement for the informal settlement is, **“To be a model planned commercially oriented urban informal settlement with security of tenure and ultra-modern infrastructure facilities”**. This was developed through a participatory process where the community members aired their aspirations on the character of informal settlement they would love to live in.

1.2 Guiding Principles

The plan formulation has been guided by a number of principles among them; stakeholder participation, tenure security, sustainability, adoptive planning approach and provision of basic services as explained below:

- **Stakeholder participation**

The plan preparation has been participatory and engaged all the stakeholders including the project beneficiaries, relevant National and County Government officials and service providers among others. The project beneficiaries were involved in all the stages of the consultancy services and were crucial in offering local information for a better understanding of the informal settlement. During the participatory visioning and planning workshop, the stakeholders helped coin the settlement's vision which has guided the plan proposals.

- **Tenure security**

The settlement is characterized by land tenure insecurity, a phenomenon that contributes to the informality of the existing developments. The aim of the plan is in tandem with the consultancy main objective; conferment/formalization of secure land tenure. Ndumanu Local Physical and Land Use Development Plan (LPLUDP) offers a framework for the subsequent cadastral survey and titling processes. Thus, the LPLUDP aims at enhancing tenure security.

- **Sustainability**

The preparation of this plan takes into account the social, economic and environmental needs of the community. These various needs were well highlighted during the several stakeholders' engagement forums. To tap into these needs, the plan provides physical and social infrastructure, promotes use of renewable energy sources and aspires to minimize the impact of development on the environment. In addition, the stakeholders' concerns highlighted during the engagement forums have also been considered to ensure the project viability and sustainability.

- **Adoptive planning approach**

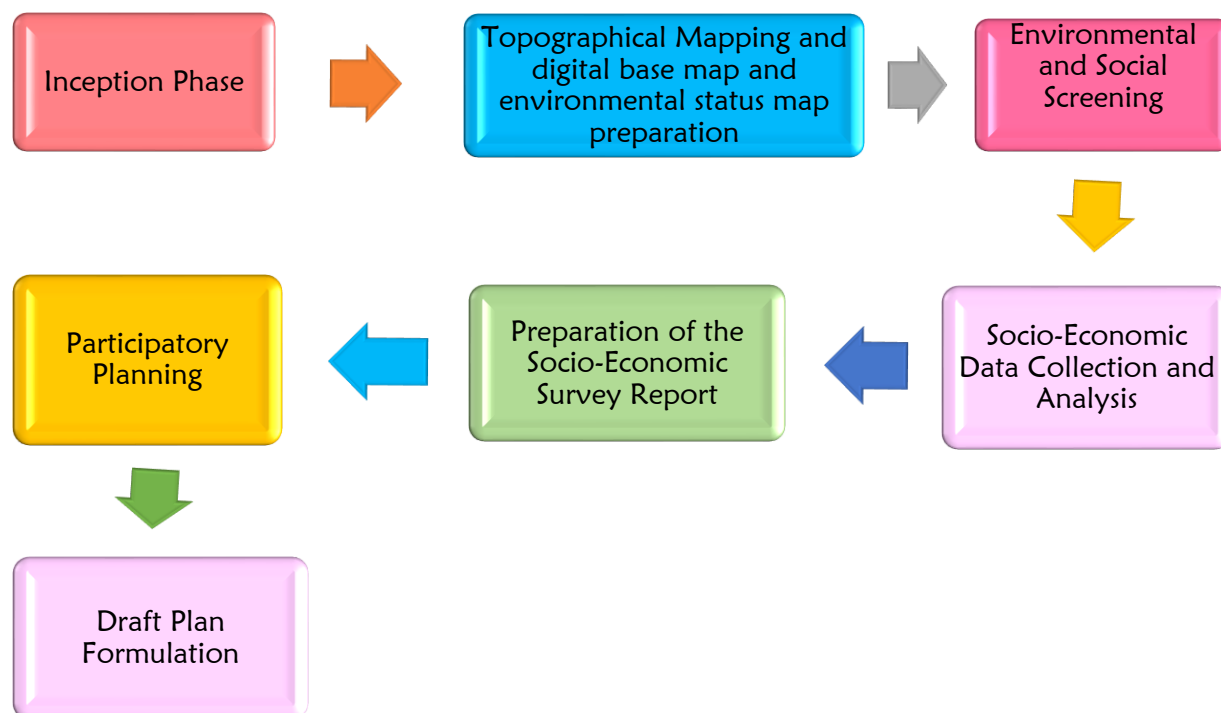
The informal settlement is fully developed with very minimal room for any major adjustments on its spatial structure. In this regard, an adoptive planning approach has been employed in the drafting of the LPLUDP. This approach proposes provision of 9m primary roads, 6m - 7m services lanes and footpaths ranging from 3m to 4m for immediate implementation depending on the intensity of development. In the long run, the plan proposes the widening of some of the roads through incremental implementation.

- **Provision of basic services**

As stated above, the settlement is fully developed to warrant any major basic services provision. The plan proposes the provision of basic services such as roads, water, sanitation and solid waste management as part of its development improvement strategies. These strategies have been formulated based on the socio-economic survey findings which highlighted the sector development challenges within the informal settlement.

1.3 Project Methodology

The LPLUDP preparation for Ndumanu Informal Settlement has been undertaken as per the stages summarized in the schematic chart overleaf.

Figure 1: Project Methodology

Source: Geosurv Systems Ltd, 2025

1.3.1 Inception Phase

This entailed the initial stage of the plan formulation process. The phase entailed several activities namely: commencement meeting; preparation of the inception report; introduction meeting of the consultant to the County KISIP 2 team, SEC and GRC members; stakeholders' mapping; stakeholders' sensitization, mobilization and awareness creation workshop and issuance of notice of intention to plan.

1.3.1.1 Commencement Meeting

The kick-off/commencement meeting was an introductory (first) meeting between the client and the consultancy team, whereby issues on modalities of engagement and assignment execution were discussed. The meeting was held on the 7th October, 2024 at Prism Towers, 15th floor boardroom.

1.3.1.2 Preparation of the Inception Report

The inception report was a representation of the consultant's understanding and interpretation of the terms of reference and methodology to be employed in the assignment execution. It was prepared taking into account the preliminary data reviewed. It detailed out the tasks, method of execution and the work plan for carrying out the assignment. It also provided a review of the policy and legal underpinnings guiding the assignment and offered a stakeholders' engagement plan.

1.3.1.3 Introduction Meeting of the Consultant to the County KISIP 2 Team, SEC and GRC Members

The consultant was introduced to the Nyeri county officials during a courtesy call held on 22nd October, 2024 at Karatina Town Hall, Nyeri County. Those present comprised of the KISIP officials, County Government officials and the consultant. The introduction meeting was held on 22nd October, 2024 at PCEA Ndumanu church (plate 1). The consultant was introduced to the Settlement Executive Committee Members (SECs), Grievance Redress Committee Members (GRC) and other stakeholders by the client (KISIP) and the County Government officials. During the

meeting, the background and objective of KISIP 2 as well as the consultant's tasks were presented and explained.

Plate 1: Introduction Meeting



Source: Field Survey, 2024

1.3.1.4 Stakeholders Mapping

The consultant, in close consultation with the relevant county officials and National KISIP 2 liaison officers mapped the stakeholders and defined their roles. The stakeholders were also categorized into affected and interested parties depending on their role on the project. Affected parties are individuals or groups who are directly or indirectly impacted by the project and are located either within or outside the project area, but have personal or business interests that may be directly affected by the project activities. Interested parties are stakeholders who are not directly affected by the project but consider or perceive their interests as being affected by the project and/or who could affect the project and the process of its implementation in some way as stipulated in the stakeholders' analysis and community engagement report. The communication channels were also discussed and agreed upon.

1.3.1.5 Stakeholders' Sensitization, Mobilization and Awareness Creation Workshop

The workshop was held on 22nd November 2024 at Ndumanu Informal Settlement (plate 2). The meeting comprised of the following stakeholders: Settlement Executive Committee members, Grievance Redress Committee Members, County Government officials, project beneficiaries, administration officers (the area chief and assistant chief) and the area MCA representative. The purpose of the workshop was to sensitize the stakeholders on the land tenure regularization process, project outputs, tenure options, assignment period and the grievance redress mechanism. The roles of all the key stakeholders were also spelt out.

Plate 2: Stakeholders' Sensitization, Mobilization and Awareness Workshop



Source: Field Survey, 2024

1.3.1.6 Issuance of Notice of Intention to Plan

The notices of intention to plan annexed as appendix 1 and 2 were placed in the Daily Nation and *Taifa Leo* on Wednesday, 25th December, 2024. They were meant to inform the wider public on the intended planning and surveying exercise so as to seek their participation, views and inputs on the project.

1.3.2 Preparation of Base Map and Environmental Status Map

1.3.2.1 Data identification and acquisition

The consultant carried out a desk study to determine the required topographical survey maps, Registry Index Maps (RIMs), and control data from the Survey of Kenya. The following relevant data sets were identified;

- i. Existing topographical map sheet 121/3,
- ii. Existing survey controls, namely 121.T.5, SKP211, MU24, MU01, NYK1, ISIO, and MCO4,
- iii. Triangulation Charts and Standard Traverse charts (TC & ST), TC & ST 1678, 1679, and 1680.
- iv. Trigonometric Index Cards (for coordinates and point description); SKP 211
- v. Registry Index Maps (RIMs); Magutu/Gatei sheet no 6 and 10, parcel number 514.

Land searches were also conducted to determine the current owners of the land parcel.

1.3.2.2 Existing Data Review

The datasets required for efficiency and planning of the base map's preparation and cadastral survey were analyzed and acquired. This involved georeferencing and digitization of the Magutu/Gatei sheet number 6 and 10 Registry Index Map, the topographical map sheet number 121/3 and TC & ST 1678 and 1680. The geo-referencing procedure ensured acceptable accuracies as depicted by the Root Mean Square Error (RMSE) was achieved. Feature layers were vectorised to form a GIS database that could be integrated in GIS software for analysis. The available information of the existing control points for the area of interest was obtained from the Director of Surveys.

1.3.2.3 Control Surveys using Geodetic GNSS Observation

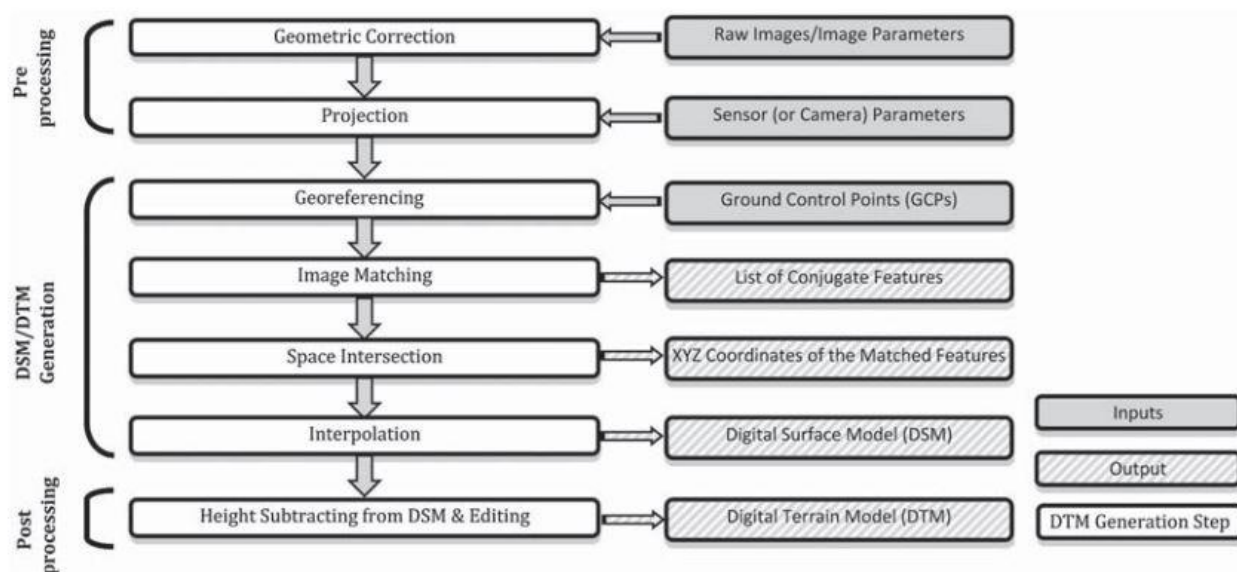
Densified control network was used to support the preparation of the base map, ground surveys and also cadastral surveys for the parcels that will establish the Land Information System. The densification network ensured that all the spatial data was defined in a uniform datum for seamless flow of operations and avoidance of overlaps.

1.3.2.4 Unmanned Aerial Vehicle Survey

To effectively create a detailed, accurate and georeferenced representation of the informal settlement, the consultant carried out aerial mapping of the settlement using Unmanned Aerial Vehicle (Drone) which yielded high resolution imagery that was used to complement the capture of topographical details and ensuring accurate project implementation. This yielded to the generation of a high resolution orthophoto, a Digital Surface Model and a Digital Terrain Model that were achieved by photogrammetric data processing. Topographical features that were clearly visible from the acquired high resolution imagery were then digitized.

1.3.2.5 DTM Generation Photogrammetric Data Processing

Digital Terrain Models (DTMs) were generated from a stereo pair of images, which had an overlapping region but taken from different viewpoints. The modelling started with the raw data obtained via imaging sensors mounted either on the airborne platforms as shown in the figure overleaf:

Figure 2: DTM Generation process for Aerial Imagery

The generation of a DTM was performed by subtracting the height of above ground objects from the DSM. A Digital Terrain Model covering the whole corridor was generated. The downloaded data was analyzed against ground control to check on consistency and to ensure any deviations are within threshold.

1.3.2.6 Ground Truthing

This entailed the validation and verification of remotely sensed data by comparing it with real world measurements or observations on the ground. It ensured that the data obtained from the UAV survey accurately represented the physical conditions on the surveyed area. This involved field measurements using GNSS receivers and total stations, where key points in the project area were physically visited to obtain measurements (E.g., elevation, distance, or area) and comparing them with the corresponding data from the UAV survey.

The Ground Control Points Coordinates were compared with those from the UAV-derived orthophotos to check for spatial accuracy. Elevation measurements at specific locations were taken using an RTK GPS and compared with the UAV-derived Derived Terrain Model. This was further done by comparing UAV data with existing Topographic maps to check significant differences in elevation. An accuracy assessment was performed to determine how well the UAV data matched the real - world conditions. The Ground truthing helped in detecting discrepancies and confirming that the UAV data was accurate.

The ground truthing exercise confirmed that the high-resolution imagery tallied well with the points picked using the GNSS receivers. The ground truthing data was combined with UAV data to refine the final products (e.g., orthophotos, DTMs or 3D models) ensuring that the results were spatially accurate.

1.3.2.7 Topographical Survey

The consultant first sensitized the project beneficiaries on their roles during the topographic survey exercise and scheduled the commencement dates for the exercise. The SEC, GRC, and County Government representatives accompanied the consultant team during the collection of detailed data on claimed parcel boundaries. This was vital in identifying the correct parcel boundaries and solving the disputes that arose, ensuring parcel beaconing would be a seamless activity after the spatial plan is prepared.

Using the established control points, all the topographical features were surveyed and recorded electronically using state-of-the-art survey equipment, which included GNSS Receivers working in RTK mode and total stations in dense canopy areas. The picked features included existing positions of parcels of land inhabited by the local community, rivers, and infrastructure (E.g. powerlines, road culverts, streetlights, exiting earth roads and footpaths, waste collection points, roads, buildings). Attribute and descriptive data useful for planning and engineering design like place names, institution names, utility inverts, and diameters, or any underground feature were also collected through ground surveys. The consultant also determined and picked the highest watermark for estimation of the riparian reserves along the seasonal river found in the informal settlements.

1.3.2.8 Data Processing and Map Compilation

The picked topographic data was downloaded on a daily basis for back up and continuous plotting of parcels by the survey team using Auto CAD software. The plotted features included existing positions of parcels of land inhabited by the local community, seasonal river, swampy areas and infrastructure. Boundary corner points were compared with the georeferenced images to check conformity with the picked boundaries and the ground positions. Contour interval of 0.5 metres for minor contours and 2.5 metre for major contours were generated from the DTM to show the elevations. This information was used to generate the base map Geodatabase, encompassing all relevant data and providing a comprehensive foundation for further analysis and planning.

The controls, digitized data and ground survey pickings resulted in layered thematic data that needed symbology to depict the information the best way possible in the base map. Additional information on the map included location of features, names of places and location of boundaries or gridlines. The scale of the base map was selected to ensure legibility of information and fitting in standard paper size using standard scale. The scale bar, north arrow, legend, map properties and project information were added in to the map layouts for best interpretation and interoperability with other data sets. The consultant drafted the base map by combining vectorised data and ground survey data to ensure accurate georeferencing, positioning and for good presentation.

Data compilation was guided by the accepted guidelines in the TORs that determined data formats and map properties. The consultant prepared digital base maps drawings for submission in KISIP GIS System, CAD (DXF) and PDF formats including surface models to ensure engineering designs could be carried out

1.3.3 Environmental and Social Screening

The purpose of undertaking the environmental and social screening was to determine the anticipated impacts which might result from the tenure regularization process. This involved conducting a desktop review to understand the project's nature, objectives and program interventions. The environmental and social screening tool provided by the client was used in the data collection during the field survey. The data collected formed the basis for determining the preliminary anticipated impacts and the mitigation measures.

1.3.4 Socio-Economic Survey and Physical Mapping

The purpose of this exercise was to collect socio-economic data that formed the basis for the preparation of the LPLUDP. The activity entailed collecting, analyzing and interpreting data related to several social and economic factors that influence the social and economic development of the

settlement residents. The activities carried out during the socio-economic survey are as discussed below:

1.3.4.1 Identification of Data Collection Methods and Tools

This entailed identification of the appropriate and effective data collection methods for the exercise. These methods included; administering household questionnaires, conducting interviews, field observation, mapping and photography. The client provided household and mapping questionnaires to be used by the consultant in the socio-economic exercise. The consultant and the client's team assessed the provided questionnaires to ensure that all the attributes of the expected outputs as outline in the terms of reference (TORs) were comprehensively covered. In addition, the consultant identified and availed some of the equipment that would be used in the field data collection such as; android mobile phones, digital cameras, hand-held GPS sets, note pads, pencils, and erasers among others.

1.3.4.2 Stakeholder's Engagement Workshop on Sensitization of Socio-Economic Survey

This was held on the 5th February, 2025 at Ndumanu informal settlement (plate 3). The purpose of the workshop was to present the base map and environmental status map to the project beneficiaries for their comments and validation as well as sensitize them on the subsequent socio-economic survey exercise. The consultant explained to the community the importance of carrying out the socio-economic survey was to aid in understanding the community's livelihood status, available amenities in the settlement, general challenges facing the residents; enumerate all existing structures and plot owners. It was also highlighted that the socio-economic survey findings would inform the formulation of the LPLUDP for Ndumanu informal settlement.

Plate 3: Stakeholders' Workshop on Sensitization of Socio-Economic Survey



Source: Field Survey, 2025

1.3.4.3 Preparation for the Socio-Economic Survey

With the help of the SEC members, the consultant recruited and trained youths (enumerators) from within the settlement to help with the socio-economic survey. The consultant then trained the enumerators on the socio-economic exercise and specifically on the use of ODK collect application for efficiency and quality data collection. The application was preloaded with a household questionnaire that was used to conduct the socio-economic survey. The consultant's team took the enumerators through all the sections of the socio-economic (household), structure enumeration and mapping questionnaires to ensure they fully understood the assignment.

1.3.4.4 Field Data Collection and Analysis

This entailed administering the household questionnaires to the residents and mapping of all the structures within the project area using ODK Collect Application. The data that was captured included; demographic characteristics, education, livelihood, housing, health access, mobility and development, water and sanitation, community facilities, energy, information and communication

technology and land, housing and structure characteristics. The public facilities were also mapped using the ODK Collect Application. The data collected was cleaned and analyzed by use of Microsoft Office (Excel) and ArcGIS software.

1.3.5 Preparation of the Socio-Economic Survey Report

The report was prepared containing the information on the status of the residents' livelihood in terms of the available infrastructure and services, population & demographic characteristics, vulnerable groups, social services and amenities available, economic, housing and structures characteristics. The report also contained the list of beneficiaries and list of structures.

1.3.5.1 Presentation of the Socio-Economic Survey Findings to the County Technical Team and Stakeholders

The findings were presented to the county technical team on 24th April, 2025 at GIS lab boardroom, Nyeri, for comments and validation (plate 4a). They were also presented to the stakeholders on 25th April, 2025 at Ndumanu tea collection centre for their comments and validation (plate 4b). The stakeholders validated the social economic findings.

Plate 4: Socio-Economic Survey Presentation



Source: Field Survey, 2025

Plate 4a



Plate 4b

1.3.6 Participatory Planning

Participatory Planning is a community-based planning approach whereby the stakeholders are fully involved in formulating plan proposals under the guidance of the technical personnel. This approach entailed several activities among them; holding of the stakeholders' workshop on visioning and participatory planning, evaluation of alternative proposals and stakeholders' resolutions.

1.3.6.1 Stakeholders' Workshop on Visioning and Participatory Planning

The stakeholders' workshop was held on 25th April 2025, at Ndumanu tea collection centre (plate 4b). During the workshop, the consultant team led the stakeholders in the critical assessment of the base map and socio-economic survey findings. The assessment of the findings confirmed a settlement characterized by insecurity of tenure, poor accessibility, inadequate supply of portable water, unsustainable development, poor housing quality, lack of basic social infrastructure, lack of storm water drainage, improper waste management system, urban decay and encroachment on the riparian reserve. After a comprehensive analysis of the settlement with regard to the challenges and opportunities, the consultant guided the community on the visioning process.

The visioning process entailed defining of the long-term goals and a shared vision for the current and future development of the settlement with the main purpose of enhancing the community's living standards. The community members were asked to highlight their visions for the settlements which were all recorded by the consultant's team. Once all the beneficiaries had exhausted their

visions, harmonization of all the stakeholders vision statements was done so as to arrive at one common vision.

1.3.6.2 Evaluation of Alternative Proposals

With regard to the stakeholders' concerns and the findings from the socio-economic survey, three alternative plan scenarios were discussed during the workshop; standard approach, adoptive planning approach and a hybrid of standard and adoptive planning approaches.

Standard approach

This approach entails the provision of standard hierarchical roads. The workshop participants discussed on the impact of providing standard roads of 9m and 6m service lanes within the informal settlement. Due to the settlement's informal nature, the participants noted that this approach would result to significant impacts on the structures and plots. They thus advocated for an alternative approach which would significantly reduce the impact, ensure all the plots are accessible and realize tenure security.

Adoptive planning approach

This approach entailed provision of the bare minimum access paths of 9m primary roads, 6m – 7m service lanes and 3m – 5m foot paths depending on the available space as depicted from the intensity of development highlighted in the basemap. This approach affects only one temporary structure. All the stakeholders endorsed this alternative as it resulted to no significant impact. However, they all agreed to the provision of wider roads where the available spaces could allow. In addition, they endorsed the incremental widening of the roads through the development regularization mechanism developed by the County Government.

Hybrid of standard and adoptive planning approaches

This approach combines the standard and adoptive approaches. The approach provides standard access roads and foot paths based on the available space. The stakeholders endorsed adoptive approach for immediate implementation. However, the major roads within the project area would be incrementally expanded in future to standard roads. The stakeholders agreed that the beneficiaries of the plots abutting these roads would be required to surrender the recommended widths for road expansion during plan implementation.

1.3.5.3 Stakeholders' Resolutions

The stakeholders unanimously agreed on the following:

- Use of adoptive planning approach to minimize the level of impacts
- The beneficiaries abutting the service lanes and footpaths that are to be expanded to surrender the recommended width in accordance to the plan
- Declaration of 25th April, 2025 as the cut-off date to allow the consultant proposed and implement interventions such as the provision of access roads based on the current conditions without disruption from new constructions.

1.3.7 Draft Plan Formulation

Based on the socio-economic survey findings, participatory planning outcome and the stakeholders' resolutions, the draft plan for Ndumanu informal settlement has been formulated. The plan contains; a detailed land use plan, development guidelines and regulations, development strategies and implementation framework as well as a monitoring and evaluation framework.

CHAPTER TWO

PLANNING CONTEXT

2.1 Overview

This chapter presents the location context, description of the informal settlement, policy and legal underpinnings that guide the plan formulation process and summarizes all the stakeholders' engagements held to ensure effective public participation during the plan preparation.

2.2 Location Context

This section describes the spatial setting of the planning area in the national, regional, county and local context.

2.2.1 National Context

Ndumanu's settlement's exact geographical coordinates, latitude and longitude are: -0.404165, 37.168225 respectively. The Trans-African Road, Nairobi - Nanyuki Road (A2) which connects the region to the Republic of Ethiopia through the Moyale border is located in close proximity to Ndumanu settlement. The settlement is connected to A2 Road through Ihwagi – Kagochi Road via Itundu – Ragati Road. Road A2 also links the settlement to the Kenya's Capital, Nairobi.

2.2.2 Regional Context

Ndumanu informal settlement is located within the Mt. Kenya and Aberdares/Central Region Economic Bloc (CEREB). The economic bloc presents the socio-economic aspirations of the 10 counties in the region namely; Nyeri, Nyandarua, Meru, Tharaka Nithi, Embu, Kirinyaga, Murang'a, Laikipia, Nakuru and Kiambu. It is intended to spur economic growth within the region through policy harmonization and resource mobilization. CEREB's main objective is to influence the economies of scale in joint development projects and activities so as to promote sustainable regional socio-economic development for the citizens' welfare. The settlement is linked to the regional hinterland through the Embu – Nairobi Highway (B6) and the Nairobi - Nanyuki Road (A2).

2.2.3 County Context

The settlement is located within the jurisdiction of the County Government of Nyeri. Nyeri County is located in the central region of the country. It borders Laikipia County to the North, Kirinyaga County to the East, Murang'a County to the South, Nyandarua County to the West and Meru County to the North East. The county lies between the equator and latitude 0° 38' S and longitudes 36°38' East and 37°20' East (County Government of Nyeri, 2018).

2.2.4 Local Context

Ndumanu informal settlement is located along the Itundu-Ragati Road which connects the settlement to Nairobi – Nanyuki Highway via Ihwagi – Kagochi Road. Administratively, the settlement is located in Magutu Ward, Mathira East Sub-County of Nyeri County, Kenya. The ward borders Ruguru Ward to the North, Iriani Ward to the East and South and Karatina Town Ward to the South and West. The settlement measures approximately 8.5 Hectares.

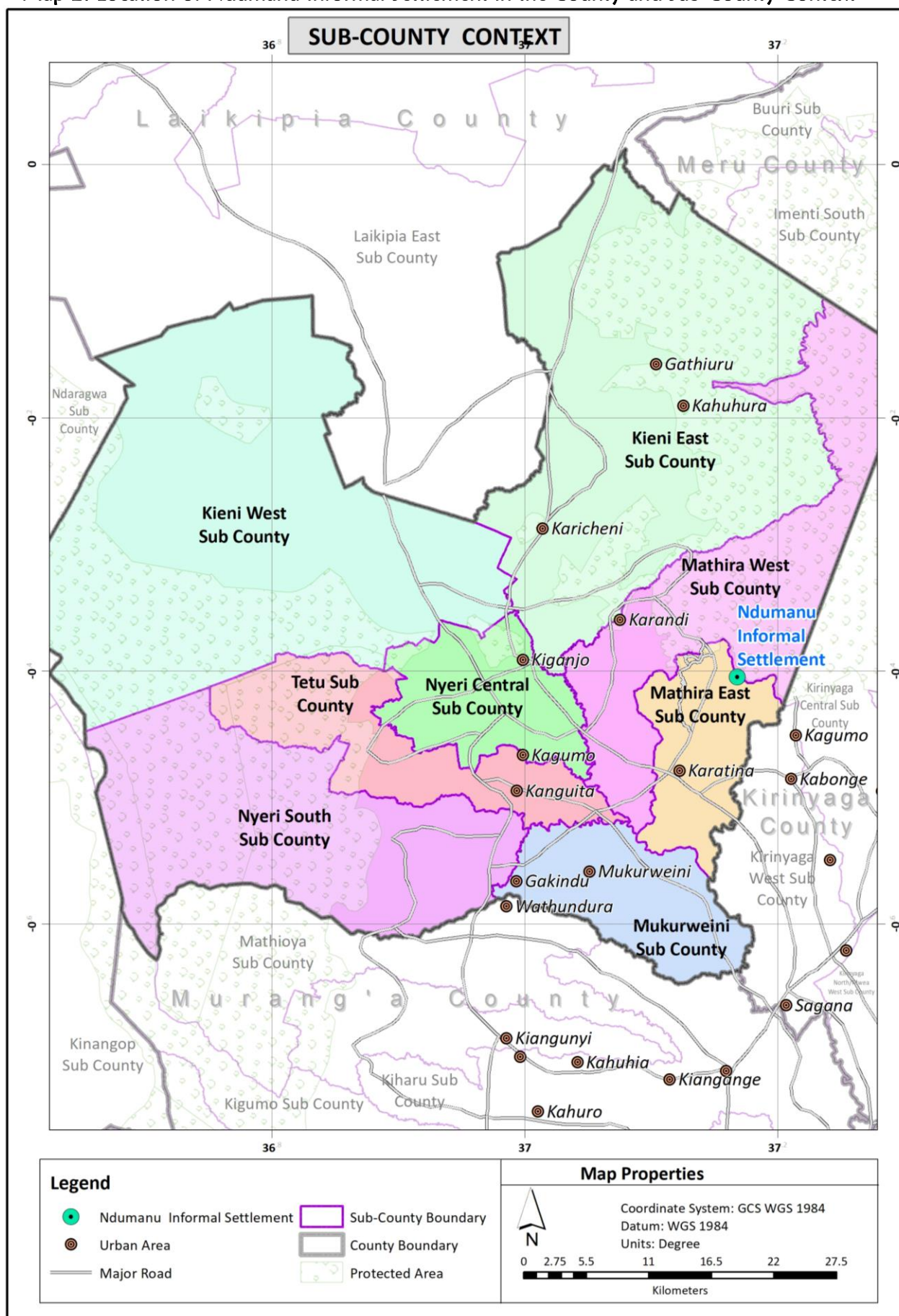
The maps below show the location of the informal settlement in the national, county/sub-county and ward context:

NATIONAL CONTEXT

The map displays the administrative divisions of Kenya, with county boundaries delineated by thin black lines. Major towns are marked with red dots, and cities are marked with red squares. Nyeri County is highlighted in pink. Protected areas are shown in light green, and water bodies are in light blue. The map includes a legend, a scale bar (0-500 km), and a north arrow. Neighboring countries are labeled: South Sudan, Ethiopia, Somalia, and Tanzania. The Indian Ocean is to the east.

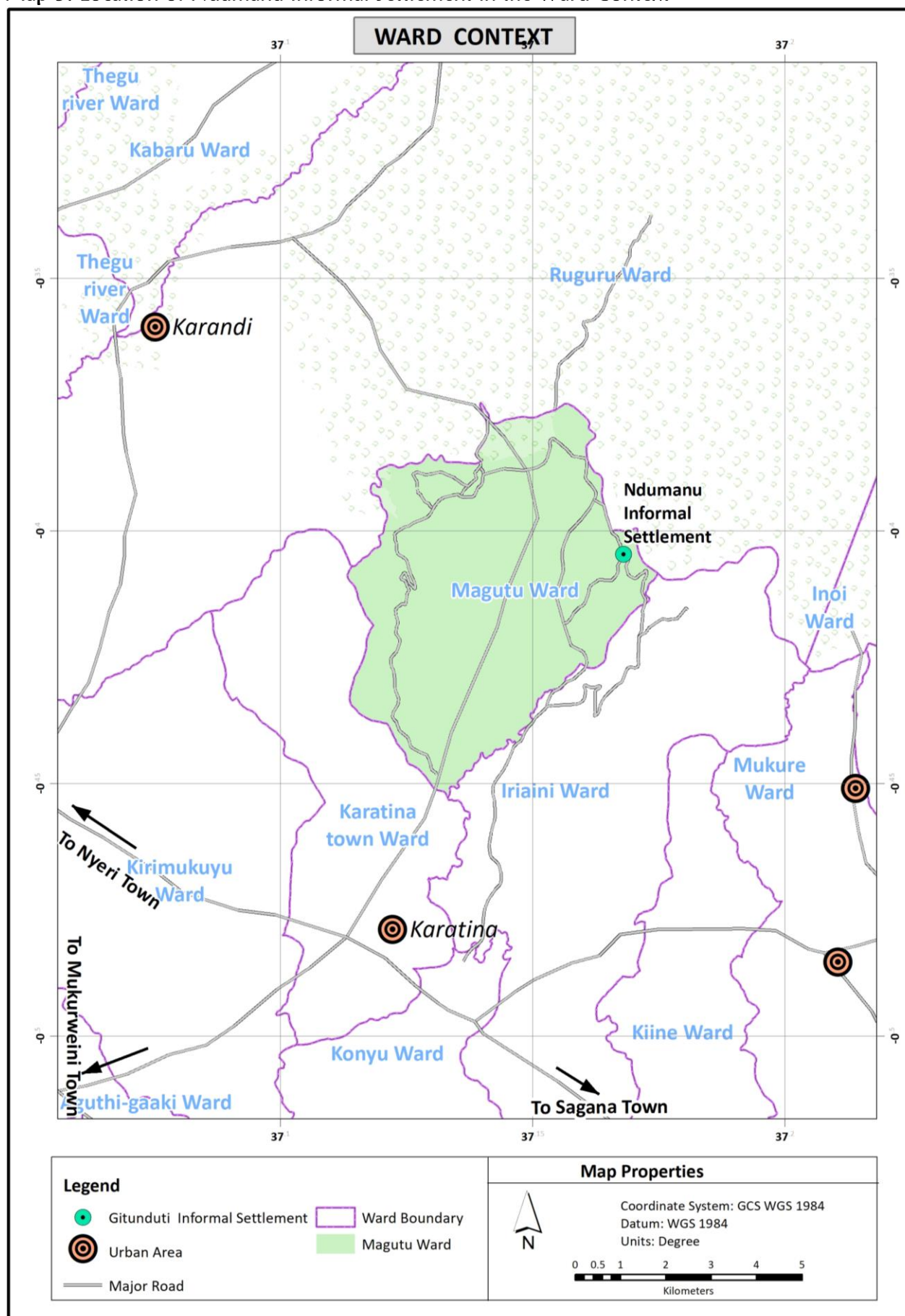
Consultancy Services to Undertake Physical Planning, Cadastral Survey and Detailed Topographical Survey of 12 Selected Informal Settlements in Nyeri, Kirinyaga and Marsabit Counties, LOT VII – Cluster 1

Map 2: Location of Ndumanu Informal Settlement in the County and Sub-County Context



Source: Geosurv Systems Limited, 2025

Map 3: Location of Ndumanu Informal Settlement in the Ward Context



Source: Geosurv Systems Limited, 2025

2.3 Description of the Informal Settlement

Ndumanu informal settlement was established during the colonial era in the year 1952 to serve as a communal concentration camp during the period of state of emergency. After independence, some people went back to their ancestral lands and others migrated to other areas. Those who did not have place to go where allocated some plots in the informal settlement by the local leadership. With time, a few shops were constructed to offer low order goods and services to the people. As population increased, more facilities started coming up like the churches and the tea collection centre since the area is a tea growing zone. As the population grew, people continued to subdivide the land without any guiding framework. The project area is dominantly inhabited by the Kikuyu community. The population has since grown to the current 240 as per the socio-economic survey conducted in February, 2025.

The informal settlement is characterized by haphazard development and has a myriad of development challenges among them: insecurity of land tenure, poor accessibility/road condition, inadequate water supply of portable water, unsustainable development, encroachment on the road reserves, informality, inadequate basic social infrastructure, lack of storm water drainage channels, improper waste management system, poor housing conditions and urban decay.

2.4 Policy and Legal Framework

Ndumanu Informal Settlement Local Physical and Land Use Development Plan has been prepared based on the policy and legal frameworks for spatial (physical) planning. The frameworks were analysed detailing out the relevant sections/articles and their relevance to the assignment. The tables below summarize the relevant policy and regulatory frameworks governing the preparation of the LPLUDP and its relevance to the assignment.

Table 1: Relevant Policy and KISIP Instruments Governing Plan Preparation

No.	Relevant Policy	Description of the Policy	Relevant Provisions	Relevance to the Assignment
1.	Sustainable Development Goals (SDGs), 2015 - United Nations Development Programme (UNDP)	The SDGs are global goals which are a collection of 17 interlinked objectives designed to serve as a shared blueprint to achieve a better and a more sustainable future for all by 2030.	The blueprint acknowledges that eradicating poverty and other deprivations must go hand-in-hand with strategies aimed at improving health & education, reducing inequality, and spurring economic growth while tackling climate change and working to preserve our forests. While all SDGs are relevant and interconnected, those that will significantly guide the KISIP 2 project include; ○ (SDG 11) which aims at making cities and human settlements inclusive, safe, resilient and sustainable. ○ (SDG 6) which focuses on ensuring availability and sustainable management of water and sanitation for all. ○ (SDG 1) goal aims at eradicating poverty in all its forms. ○ (SDG 3) objective is to ensure healthy lives and promote well-being for all at all ages. ○ (SDG 4) targets to ensure an all-inclusive & equitable quality education and promote lifelong learning opportunities for all. ○ (SDG 5) aims at achieving gender equality and empowering all women and girls. ○ (SDG 7)-aims at ensuring access to affordable, reliable, sustainable and modern energy for all. ○ (SDG 9) advocates for building of resilient infrastructure.	The plan aims at formalizing/regularizing the informal settlement land tenure and infrastructure provision such as road accessibility networks, storm water drainage channels and developing strategies targeting improvement of the living standards.
2.	The Kenya Vision 2030, 2008 - Government of Kenya	The Kenya Vision 2030 is the national development blue print covering the period 2008-2030 aimed at transforming the country into a newly industrializing middle-income country providing a high-quality life to all citizens by the year 2030. It is anchored on	In accordance to Chapter 5 on Social Strategy , the document advocates for urban planning, promoting environmental conservation and ensuring that improved water and sanitation are available and accessible to all residents.	Just as vision 2030 addresses the social and economic wellbeing of the citizens, the plan has provided development strategies meant to improve the living standards of the beneficiaries and the general

No.	Relevant Policy	Description of the Policy	Relevant Provisions	Relevance to the Assignment
		foundations of ensuring enhanced equity and wealth creation opportunities for the poor.		residents living in the informal settlement.
3.	Project Appraisal Document (PAD) for Kenya Informal Settlements Improvement Project 2, 2019	The project appraisal document details out the success and challenges faced during implementation of the KISIP 1 activities for further planning of KISIP 2. It provides measures aimed at mitigating against the challenges faced during KISIP 1 project implementation for successful implementation of KISIP 2 activities. It also introduces new interventions to deepen its overall project impact to the residents.	Under Section B.14, the document explains the interventions of KISIP 2 as to support regularization and infrastructure upgrading through; - Enhancing tenure security of informal settlements residents. - Upgrading roads to improve connectivity and link informal settlements to other areas of socio-economic opportunities. - Ensuring access to clean and safe water as well as hygiene. - Street lighting to improve security and reduce crime in the settlement. Section B.15 of the document introduces new interventions to deepen its overall impact. It enhances socio-economic inclusion by linking vulnerable people (women, elderly, orphans, and the disabled) of informal settlements to government programs. It further integrates the socio-economic and infrastructure benefits to the community. On the same section, KISIP 2 increases focus on resilience to natural hazards, on crime and violence prevention and on closing the gender gap across its interventions.	The plan has taken into account accessibility, sanitation, street lights and storm water drainage among other infrastructure provision as recommended by the document.
4.	Project Operation Manual, (2021)	The manual was developed to provide project implementation procedures to ensure effective execution of KISIP 2 project components.	The manual details out the project objectives as to improve accessibility to basic services and land tenure security of residents in the informal settlements. It also highlights the indicators of achievement of the project objectives as; population with enhanced land tenure security, access to enhanced infrastructure and services and number of beneficiaries linked to socio-economic opportunities. This is in accordance to Section 1.2 on Project Development Objective .	The plan has been prepared with a view of regularizing the land tenure in the informal settlement and provision of infrastructural services to the residents.
5.	Guidelines for Land Tenure	The guidelines have been developed to provide mechanism for addressing tenure	The Principles of Tenure Regularization as provided in Section 2.3 are listed overleaf;	The plan was preparation was informed by the Guidelines for Land

No.	Relevant Policy	Description of the Policy	Relevant Provisions	Relevance to the Assignment
	Regularization in Informal Settlements, 2018	insecurity in informal settlements and improvement of living conditions.	- Public participation - Transparency and accountability - Non-discrimination and protection of the most vulnerable groups The guidelines identify stakeholder engagement as the key component in tenure regularization. Some of the most critical stakeholders identified include; National Government, County Government, National Land Commission (NLC), Informal Settlement Community, Civil Society Organizations (CSOs), relevant professionals, regulatory agencies, service providers, the private sector and development partners as provided in Chapter 4 on Key Stakeholders in Tenure Regularization. Due to the nature of the informal settlements which are characterized by haphazard development, small & inaccessible plots and lack of social amenities, the guidelines in Chapter 5 on Tenure Regularization Options Section 5.3 on Tenure Arrangement Options provides several tenure options as; Individual lease certificate: - this occurs when a lease certificate is registered under one person/beneficiary. Co-tenancy lease certificate: - applicable when a lease certificate is registered under two or more persons/ beneficiaries. Block lease certificate: - occurs where several adjacent plots are too small to be registered individually and the issued lease certificate will bear the names of all the beneficiaries claiming the small plots.	Tenure Regularization in Informal Settlements.
6.	Safeguard Procedures Manual (SPM), 2022	The manual provides safeguards instruments to ensure that environmental and social impacts are adequately identified, assessed and mitigated to protect the environment and people from negative impacts in accordance to	The manual details out the recommended safety instruments in Section 2.4 , while Section 2.5 provides the procedures to be used in carrying out the various tasks of the project as explained overleaf;	Screening for potential impacts was done during the environmental and social screening phase and mitigations for all negative impacts addressed. Every provision of the Safeguard Procedure Manual was

No.	Relevant Policy	Description of the Policy	Relevant Provisions	Relevance to the Assignment
		the World Bank safeguard policies and Government of Kenya's legal and policy frameworks.	○ Screening for potential impacts: - the screening will be done during social economic survey using a checklist provided in the ESMF. ○ Assessment of potential environmental and social impacts (preparation of ESIA): - an ESIA will be prepared if the screening outcome determines it's required. ○ Resettlement Action Plans (RAPs): in case of adverse impacts, RAPs will be prepared in accordance with the procedures provided for in the Resettlement Policy Framework (RPF). ○ Social Management Plan- the manual provides that the SMP should be prepared and implemented in parallel with the ESIA during the planning stage of tenure regularization. ○ Vulnerable and Marginalized Groups- it provides procedure for identification of the Vulnerable and Marginalized Groups impacted by a project. ○ Grievance Redress: - Under section 9.7 the manual provides the process for receiving, processing and closing grievances as indicated below; ✓ Receiving and recording grievances. ✓ Analysis and classification of the grievances. ✓ Investigation, resolution/action and documentation. ✓ Update the grievance logs and give feedback. ○ Stakeholder Engagement and Disclosure: - The manual provides that a Stakeholders Engagement Plan (SEP) be prepared to promote inclusivity in stakeholder participation/ engagement.	strictly adhered to at every stage of the plan preparation process.
7.	Stakeholder Engagement Framework	The SEF is designed to ensure effective engagement with the local communities directly affected by the project and other	According to Section 1.5 on Roles and Responsibilities , the framework provides the criteria for stakeholders mapping and defines their roles and	The plan was prepared through a participatory process in line with the Constitution of Kenya, 2010, the

No.	Relevant Policy	Description of the Policy	Relevant Provisions	Relevance to the Assignment
	(SEF), 2019	key different stakeholders whose roles are identified, analysed and modalities for engagement defined.	responsibilities. The key stakeholders identified by the framework include; KISIP Team, consultants, County Governments, communities, Settlements Executive Committees and settlements Grievance Redress Committees. For the engagement process to be effective, the framework provides the following principles as per Section 4.3 ; - o Accessible venues. - o Cultural appropriateness with due respect to the local customs, norms and inclusiveness. - o Engaging all segments of the local society including disabled persons, the elderly, minorities and other vulnerable individuals.	Physical and Land Use Planning Act, 2019, Urban Areas and Cities Act, 2011 (amended 2019), County Governments Act, 2012 (amended 2020) and other relevant legislations and policy frameworks.
8.	National Spatial Plan 2015 – 2045 (NSP), 2017	The NSP provides a national spatial planning framework to guide the preparation of regional, county and local spatial plans.	Chapter 4 on Policies and Measures , provides for proper human settlements in line with sound environmental and natural resources conservation geared towards improving living conditions. It also advocates for provision of appropriate infrastructure to improve access to water and sanitation, education, health, energy, Information and Communication Technology (ICT), recreational and community facilities.	The Local Physical and Land Use Development Plan was prepared in cognizance of the principles contained in the NSP, the County Spatial Plan and other development plans.
9.	National Slum Upgrading and Prevention Policy, 2016	The policy aims at promoting security of tenure and improvement of the living conditions in the informal settlements by providing the necessary infrastructure and services and prevention of new formations of informal settlements through adherence to planning and development control.	The policy recognizes lack of security of tenure as a major challenge in land administration in slums and informal settlements. It further recommends development and implementation of a land tenure regime that recognizes differentiated rights; right to access, transfer, manage and own land as per 3.3 Section on Land Tenure and Administration . Most informal settlements lack space for infrastructural services, provisions due to failure of planning. The policy thus recommends for planning of slums and informal settlements through a participatory process as stipulated in Section 3.4 on Planning, Development and Management .	The informal settlement Local Physical and Land Use Development Plan is aimed at providing tenure security and improvement of the settlement through provision of basic social amenities and access roads. Once the plan is approved, it will provide the framework for development of the informal settlement in an orderly manner.

No.	Relevant Policy	Description of the Policy	Relevant Provisions	Relevance to the Assignment
10.	National Urban Development Policy, 2016	The policy provides framework for governance and management of urban areas for sustainable development.	According to Chapter 6 of the policy on Urban Land, Environment and Climate Change , the policy recommends formalization of land ownership in informal neighbourhoods to improve their living standards. It also calls for the need to have a proper and efficient digital Land Information System (LIS) data for land management. Under Chapter 10 , it advocates for spatial planning to ensure the provision of social amenities such as; education facilities, public open spaces, parks and recreational facilities.	Ndumanu Informal Settlement Plan was prepared in conformity to the National Urban Development Policy which advocates for sustainable urban development through effective spatial planning to provide a framework for infrastructure services development.
11.	The National Land Policy, Sessional Paper No. 3 of 2009- Ministry of Lands and Physical Planning	The policy offers a framework for land administration and management for sustainable growth.	The policy advocates for planning and surveying as a tool for effective land administration and management as stipulated in Chapter Three under Sub-Sections on Land Management 3.4 and Land Administration 3.5 . Informal settlements issues are discussed under Section 3.6.9 as follows; - o Ensure that land subject to informal settlement is developed in an orderly and sustainable manner - o Facilitate the regularization of existing squatter settlements found on public and community land for purposes of upgrading or development - o Develop, in consultation with affected communities, a slum upgrading and resettlement programme under specified flexible tenure systems - o Put in place measures to prevent further slum development - o Facilitate the carrying out of informal commercial activities in a planned manner - o Regulate the disposal of land allocated to squatters and informal settlers	The informal settlement plan has proposed interventions aimed at enhancing orderly development and optimal utilization of land. The plan was also prepared in line with the policy advocacy for a well-planned informal settlement.
12.	National Land Use Policy, 2017- Ministry of Lands and Physical Planning	The National Land Use Policy gives guidance on the optimal utilization and productivity of land related resources in a sustainable and desirable manner.	Under Section 2.5.3 on Social Infrastructure , the policy advocates for human settlements that are adequately provided with infrastructure such as safe water, sanitation, drainage, solid waste disposal services, security, recreation, education and health	The plan has provided provisions for access roads and social infrastructure aimed at improving the resident's standard of living.

No.	Relevant Policy	Description of the Policy	Relevant Provisions	Relevance to the Assignment
			facilities. The policy stresses the need for upgrading the informal settlements as they are an integral part of the urban economy as indicated in Section 2.5.5. on urban land uses section	
13.	Urban Land Use Planning: Monitoring and Oversight Guidelines	The guidelines were prepared by National Land Commission to provide the process of preparing, approving and implementing land use plans and instruments of monitoring and oversight of land use planning.	The guidelines provide the following major steps for plan preparation and approval process: preparatory stage, stakeholder awareness sensitization and visioning engagement, situation analysis, stakeholders' engagement for situational analyses report, plan proposal formulation, stakeholder's engagement for draft plan validation, final plan, approval and implementation as provided in section 3.0 on planning process.	The Informal Settlement Local Physical and Land Use Development Plan was prepared in accordance to the guidelines.
14.	National Housing Policy Sessional Paper No.3 of 2016	The policy envisages creation of an environment where every Kenyan has a right to access adequate shelter at an affordable cost especially in urban and peri-urban areas where the majority low-income earners reside.	Section 1.1.5 on Housing Provision advocates for access to standard housing, proper sanitation and water as envisaged in article 43 of the Kenyan constitution, 2010. Under Section 3.2.3 on Infrastructure the policy advocates for proper land use planning and zoning in all urban areas. This is aimed at integrating provision of infrastructural services in all housing developments by prioritizing provision of social amenities such as theatres, social halls, and markets, play grounds and trunk infrastructural services especially access road, water, sewer and electricity.	The plan has regularized the settlement by ensuring all the plots are accessible and there is connectivity. It has provided various strategies such as waste management, water provision and housing development strategies. It has also provided spaces for provision of the physical and social infrastructure with the aim of improving general living conditions of the residents in the settlement.
15.	Integrated National Transport Policy (INTP)	The urban transport policy aims at creating and integrating land use and transport network which is environmentally sound with all modes of transport working harmoniously.	According to Section 4.8.4 on Land Use and Spatial Development for Road Passenger Transport , the policy has identified lack of integration of land use planning and transport development. It further indicates that inadequate capacity to undertake urban planning has given rise to spatially dislocated settlements, urban sprawl, and long travel distances and times.	In order to ensure an efficient and effective mobility of the residents, the plan has used a combination of adoptive and standard planning on road provision.
16.	National Sustainable Waste Management	The policy aims at developing a sustainable waste management system to ensure a clean, healthy, safe and secure	The policy advocates for provision of sufficient land for waste management activities according to the waste hierarchy which recommends for establishment	The Local Physical and Land Use Development Plan has proposed waste management strategies in

No.	Relevant Policy	Description of the Policy	Relevant Provisions	Relevance to the Assignment
	Policy (Revised, 2019)	environment in a manner that is affordable, environmentally friendly and socially acceptable.	and improvement of waste management infrastructure to promote source segregation, collection, reuse, set up materials recovery facilities and controlled disposal in engineered landfills as stipulated in Chapter 3 on Achieving Sustainable Waste Management in Kenya . Section 3.1.3 on Re- Use of Products and Components , the policy advocates for provision of well managed central waste collection centres.	conformity with the provisions of this policy. Within the project area, use of skip bins will be appropriate given the small sizes of plots.
17.	National Environment Policy, 2013	The policy aims at providing a framework for an integrated approach to planning and sustainable management of the environment and natural resources for economic growth and improved livelihoods.	The policy expounds on Article 42 of the Kenyan Constitution, 2010 which provides for citizens' right to a clean and healthy environment. The policy is premised on the following principles as stipulated in section 3.2 ; - o Environmental right - o Public participation in environmental protection - o Community empowerment	Environmental protection strategies were prepared under the guidance of the policy.
18.	National Disaster Risk Management Policy, 2017	This Policy creates an integrated and coordinated disaster risk management system that focuses on preventing or reducing the risk of disasters, mitigating the severity of disasters, enhancing preparedness, rapid and effective response to disasters, and post- disaster recovery.	As per Section 3.1.4 , the policy aims at enhancing resilience at the local and county level to the impact of disaster risk and climate change by; - o Promoting the main-streaming of disaster risk assessment into land-use policy development and implementation - o Promoting the main-streaming of disaster risk assessment, mapping and management into rural development planning. The policy under Section 3.1.5 further gives strategies on effective and coordinated disaster preparedness, prevention, response, mitigation and recovery. The major one being on the need for community centres to be established for the promotion of public awareness and stockpiling of necessary materials to implement rescue and relief activities.	Noting the project area is prone to disasters such as floods and drought, the plan has provided strategies aimed at mitigating and preventing the disasters.

Table 2: Relevant Legal Framework Governing Plan Preparation

No.	Legal	Description	Relevant Provisions	Relevance to the Assignment
1.	Constitution of Kenya, 2010	It is the supreme law of republic that contains basic principles and laws that determines the powers and duties of the government and guarantee certain right to the people.	The Constitution of Kenya 2010, advocates for the citizens' right to live in a clean and healthy environment under Article 42. Article 43(b) states that each citizen should have access to proper housing and reasonable standards of sanitation. Article 62 defines public land as Government land while Article 60 (1) highlights the principle to ensure sustainable utilization of the land as follows; - o Equitable access to land - o Sustainable and productive management of land resources - o Transparent and cost-effective administration of land - o Sound conservation and protection of ecologically sensitive areas - o Elimination of gender discrimination in law, customs and practices related to land and property in land - o Encouragement of communities to settle land disputes through recognized local community initiatives consistent with the Constitution. Further, the constitution of Kenya, 2010, Article 66 recognizes the need to regularize the use of land through land use planning.	In line with the provisions of the constitution, the plan has provided environmental protection strategies to enhance clean and healthy environment for the residents.
2.	County Governments Act, 2012 (Amended, 2020)	The Act gives effect to Chapter Eleven of the Constitution of Kenya, 2010 which provides county governments' powers, functions and responsibilities.	The Act under Section 102 and 103 recognizes the need for protecting the interest of minorities and marginalized groups and communities; facilitating the development of a well-balanced system of settlements and ensuring productive use of scarce land, water and other resources of social, ecological across the county; provide the preconditions for integrating underdeveloped and marginalized areas to bring them to the level generally enjoyed by the rest of the count; make reservations for public security and other critical national infrastructure and other public utilities.	The plan provides the platform for regularization of land tenure and development of infrastructure services to improve the living conditions of the people.
3.	Urban Areas and Cities Act, 2011 (Amended, 2019)	The Act gives effect to Article 184 of the Constitution of Kenya, 2010 . It provides for the classification, governance and management of urban areas and cities. It also provides principles of governance and	Under Second Schedule, Section 22 the Act recognizes the importance of public participation during plan preparation process. Third Schedule - Section 38 of the Act, advocates for assessment of the social, cultural, economic and environmental conditions among others during planning process. It also advocates for identification of the community needs and promotion of the interests of minorities and marginalized groups.	The plan was prepared in accordance with the requirements of the act, which emphasizes on public participation. The process involved several forums such as awareness, sensitization and visioning workshop, socio-economic survey

No.	Legal	Description	Relevant Provisions	Relevance to the Assignment
		participation of residents during plan preparation process.		findings (situational analyses) report presentation workshop and data collection focus groups. Additionally, the plan aligns with the previous development plans of the county, such as the County Integrated Development Plan
4.	Physical and Land Use Planning Act No. 13 of 2019	This is the principal Act of parliament which stipulates the following; types of plans, planning process/methodology, purpose & contents of various plans, and the plans approval process.	The principles and norms of the physical and land use planning are clearly stipulated in Section 5 as follows; - Physical and land use planning should promote sustainable use of land and liveable communities which integrates human needs in any locality. - Development activities should be planned in a manner that integrates economic, social and environmental needs of present and future generations. - Physical and land use planning should be inclusive and must take into consideration the culture and heritage of the residents. - Physical and land use planning should take into account new approaches to achieve sustainable development and more efficient use of natural resources. The Act grants county governments powers to prepare local physical and land use development plans as stipulated in Section 45. The contents of a local physical and land use development plan are clearly stipulated in Section 48 while schedule 2 provides the flow of the contents in outline form. The plans purposes as indicated in Section 46 are to guide and coordinate development of infrastructure, regulate the land use and land development and provide framework for coordinating various sectoral agencies. The draft Local Physical and Land Use Plan for Ndumanu Informal Settlement Development plan was prepared principally according to the Physical and Land Use Planning Act 2019 and other relevant policy, legal and regulatory frameworks applicable. The Act also encourages public participation during plan preparation process under Section 38. In addition, Section 49 provides for placement of	The principles of the act guided plan preparation in terms of contents, procedure, and format, noting that the plan was being carried out in an informal settlement characterized by uncontrolled developments, congestion, and inaccessibility of some structures, narrow roads and inadequate basic infrastructure services. Adoptive planning approach was used to ensure all the plots are accessible. The aim was to achieve minimal or no displacement within the project area. To achieve the planning standards, standard roads have been prepared that would be implemented incrementally.

No.	Legal	Description	Relevant Provisions	Relevance to the Assignment
			notice of intention to plan in at least two newspapers before the start of the plan preparation process.	
5.	Physical Planners Registration Act, of 1996	It provides qualifications and procedure for the registration of physical planners in Kenya.	According to Section 21 of the Physical Planners Registration Act, no individual or any corporate body is allowed to practice as physical planner unless they are registered or recognized by the Physical Planner's Registration Board. The qualifications for registration of the physical planners are highlighted under Section 12 as listed below; (a) Be a holder of a bachelor's or postgraduate degree in urban or regional planning or both from any university which is recognized for the time being by the Board and has passed an examination prescribed by the Board (b) Has been admitted as a corporate member of an approved professional institution.	The plan was prepared in compliance with the act's regulations by registered physical planners who met the required qualifications.
6.	Land Act No. 6 of 2012 (Amended 2016)	This Act gives effect to Article 68 of the constitution of Kenya, to provide for the sustainable administration and management of land and land-based resources. The Act also describes various forms of tenure, methods of acquisition of title to land and outlines the process of acquiring interests on land and process of compensation in case of compulsory acquisition.	The Act stipulates that every public land should be planned and surveyed as per Section 12(7) and also provides the various forms of tenure under Section 5. The forms of tenure provided are; ○ Freehold; ○ Leasehold The procedure for formation of the land database through evaluation and georeferencing for potential land use planning are clearly stipulated in Section 8(a).	The plan was prepared in accordance with the provisions of the Act in section 8(a), which require proper evaluation and georeferencing of land databases. Additionally, the act emphasizes the importance of proper planning of public land before issuing any ownership documents. Therefore, the data used in preparing the plan adheres to these regulations, ensuring the plan aligns with the act's aspirations.

No.	Legal	Description	Relevant Provisions	Relevance to the Assignment
7.	Survey Act CAP 299 (Revised Edition 2012 [2010])	The Act makes provisions in relation to land surveys, geographical names and licencing of land surveyors.	The Act provides guidelines for land surveyors registration under Part IV of the act Section 10 to 14 . PART VI – section 24 highlights the process of survey plans preparation while PART VII of the same Act describes the process of approval of the survey plans by the Director of Survey.	The base map that informed the plan preparation was done in accordance with the Survey Act.
8.	The Land Registration Act, 2012	The Act principally concerns the registration of interests in land. It applies to: (a) registration of interests in all public land as declared by Article 62 of the Constitution of Kenya, 2010 .	The office in charge of surveying should prepare and maintain cadastral maps for every registration unit. In addition, the parcel boundaries on such maps should be geo- referenced and surveyed to such standards as to ensure compatibility with other documents required under this Act or any other law. This is in accordance to Part II, Section 15 of this Act. Under section 30 (2) on Certificate of Title and Certificate of Lease , the Act provides that only one certificate of title or certificate of lease should be issued in respect of each parcel.	The approved Local Physical and Land Use Development Plan will inform the Cadastral survey which will entail beaconing and preparation of the survey plan as per the provisions of the Act.
9.	Environmental Management and Coordination Act (EMCA) of 1999, (Amended 2015)	The Act provides for the establishment of an appropriate legal and institutional framework for the management of the environment in the country.	The Act under Part II gives effect to Article 42 of the Kenyan constitution, 2010 which states that every person in Kenya is entitled to a clean and healthy environment and has the duty to safeguard and enhance the environment. The Act outlines the need for protection and conservation of forests, biological diversity and protection of environmentally fragile areas as stipulated in Part V of the Act. It also prohibits discharging or applying poisonous, toxic, noxious or obstructing matter, radioactive or any other pollutants into aquatic environments as stipulated in Part VIII, Section 72 . Legal Notices Nos. 31 and 32 of Gazette Notice No. 62 of EMCA 1999 (Amended 2015) of the Act categorizes all the projects that require environmental impact assessment (EIA), Environmental and Social Impact Assessment (ESIA) among other environmental assessments.	The socio-economic survey results on environment informed the preparation of the environmental protection and management strategies. The strategies were prepared in accordance to the Act.
10.	Water Act, 2016	This is an Act that provide for the management, conservation, use and control of water resources	The Act actualizes the provisions of the Fourth Schedule of the Kenyan Constitution, 2010 which indicates that every person is entitled to access to clean water. The Act advocates for formulation of National Water Resource Strategy which shall majorly deal with identification existing water	The socio-economic component of the plan preparation process demonstrated a settlement

No.	Legal	Description	Relevant Provisions	Relevance to the Assignment
		and for the acquisition and regulation of rights to use water.	resources and their defined riparian areas and measures for the protection, conservation, control and management of water resources and approved land use for the riparian area, institutional capacity among others as stipulated in Section 10 (3). It establishes Water Resources Authority under Part III and provides functions stipulated in Section 12 as; - o Formulating and enforcing standards, procedures and regulations for the management and use of water resources and flood mitigation - o Regulating the management and use of water resources and enforce Regulations made under this Act. It further establishes National Water Harvesting and Storage Authority under Part II whose functions are stipulated in Section 32 as to develop a water harvesting policy and enforce water harvesting strategies.	characterized by inadequate water supply. The plan has provided the water supply efficiency strategies among other sectoral improvement strategies.
11.	Climate Change Act No. 11 of 2016	The Act provides for a regulatory framework for enhanced response to climate change and measures to achieve low carbon climate development.	Section 3 of the Act establishes National Climate Change Action Plan in accordance to the Article 10 of the Constitution of Kenya, 2010. It further prescribes measures and mechanisms that should be addressed by the National Climate Change Action Plan as outlined below; - o To guide counties toward the achievement of low carbon climate resilient sustainable development - o For adaptation to climate change - o For mitigation against climate change - o To set out actions for mainstreaming climate - o Change responses into sector functions to specifically identify all actions required as enablers to climate change response - o To mainstream climate change disaster risk reduction actions in development programmes - o To review and determine mechanisms for climate change knowledge management and access to information - o To enhance energy conservation, efficiency and use of renewable energy in industrial, commercial, transport, domestic and other uses - o To strengthen approaches to climate change research and development training and technology transfer. The Act advocates for public consultations under Part V, Section 24 (2) to be undertaken in a manner that ensure the public contribution makes an	Given the significant impact of climate change on the project area, the plan has incorporated climate-resilient strategies in accordance with the act.

No.	Legal	Description	Relevant Provisions	Relevance to the Assignment
			impact on the threshold of decision making when developing climate change mitigation strategies.	
12.	Public Health Act, Cap 242 (Revised Edition 2012 [1986])	This Act concerns the protection of public health in Kenya and lays down rules aiming at securing and maintaining public health.	The Act recognizes need for proper sanitation and standard dwelling fitted with adequate basic amenities such as water as stipulated under Part IX – Sanitation and Housing .	The act guided preparation of environmental conservation and improvement strategies.
13.	National Land Commission Act (Sessional Paper No. 5 of 2012)	The Act gives effect to the objects and principles of devolved county governments in land management and administration.	Section 5 & 6 of the Act outlines functions and powers of the commission while Section 15 gives powers to the commission on investigations of the historical land injustices in pursuant to Article 67 (3) of the Constitution of Kenya, 2010. Some of the functions of National Land Commission as stipulated in section 5 include; ○ To manage public land on behalf of the national and county governments ○ To encourage the application of traditional dispute resolution mechanisms in land conflicts ○ To monitor and have oversight responsibilities over land use planning throughout the country ○ To advise the national government on a comprehensive programme for the registration of title in land throughout Kenya It recognizes the need for cooperation and consultation between the commission, national and county governments subject to Article 10 and Article 232 of the Constitution.	The NLC representatives were involved in all stages of plan preparation process. The informal settlement is on uncontested public land which is managed by the NLC on behalf of the National and County Government

2.5 Stakeholders' Participation and Engagement

Stakeholder engagement is a critical component in the plan preparation process. Indeed, effective stakeholder engagement in the plan preparation process enhances project ownership and sustainability. Stakeholder engagement is important as it improves stakeholder's understanding of their roles in the project, key in building community support through their active participation and enhances better decision making as well as the project sustainability during both implementation and operational phases. For effective and adequate public participation, several stakeholders' participation and engagement forums have been held as tabulated below:

Table 3: Stakeholder Engagement and Participation Forums

Method of Engagement	Date	Venue	Objective	Outcome
Introduction meeting	22 nd October 2024	PCEA Ndumanu Church - Ndumanu informal settlement	To introduce consultant to the GRC, SEC, relevant county officials and other community opinion leaders.	The consultant was introduced to the GRC, SEC, relevant county officials and other community opinion leaders
Stakeholder's Sensitization, Mobilization and Awareness Workshop	22 nd November, 2024	Ndumanu informal settlement	To sensitize the community members and other stakeholders on the project activities.	The participants understood: ○ The importance of the project towards improving their livelihood status ○ The activities to be undertaken during the exercise ○ Their roles towards successful project execution
Publishing of the notice of intention to plan	25 th December 2024	Daily Nation newspaper <i>Taifa leo</i>	To inform the wider public on the proposed planning and surveying exercise and seek their participation in the project execution process.	Enhanced public participation process
Base map and environmental status map validation and sensitization of the community members on socio-economic survey workshop	4 th February, 2025	Ndumanu informal settlement	To present the base map and environmental status map for comments and validation To sensitize the community members on the socio-economic survey process	Validation of the base map and environmental status map Participants understood the activities to be undertaken during the socio-economic survey.
Administration of household questionnaires	February 2025	Project area	To collect socio-economic data for a better	The project beneficiaries and other stakeholders

Method of Engagement	Date	Venue	Objective	Outcome
and key informant interviews			understanding of the area's social and economic characteristics	provided the required socio-economic data
Technical meeting - Presentation of the socio-economic survey findings	24 th April 2025	Boardroom, Nyeri	To present the socio-economic survey findings to the county technical team	The county technical team provided the necessary comments on the findings.
Stakeholders workshop on the presentation of the socio-economic survey findings for validation and undertaking of visioning & participatory planning exercise	25 th April 2025	Ndumanu tea collection centre - Ndumanu informal settlement	To present the socio-economic survey for comments and validation. To undertake participatory planning and visioning	The socio-economic survey findings were validated The project beneficiaries discussed and agreed on the plan proposals Beneficiaries coined the settlement vision

CHAPTER THREE

BASELINE INFORMATION AND SOCIO-ECONOMIC SURVEY FINDINGS

3.1 Overview

This chapter presents the informal settlement's existing situation with regard to physical and natural environment, population and demographic characteristics, social services and amenities, economic activities, infrastructure and utilities, land and housing. It also identifies the growth challenges and opportunities within the project area. The findings in this chapter form the basis for the formulation of the plan proposals and the development guidelines and regulations.

3.2 Physical and Natural Environment

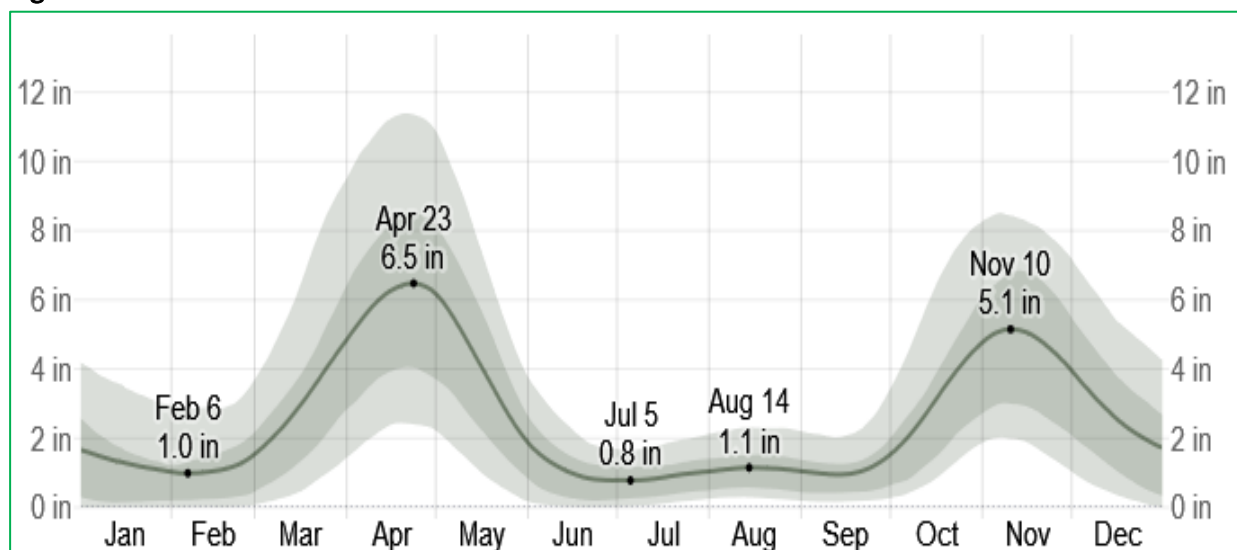
3.2.1 Climatic Conditions

Ndumanu informal settlement has a tropical climate and an equatorial rainfall pattern. The climatic condition is influenced by the settlement's position along the equator and on the windward side of Mt Kenya.

3.2.1.1 Rainfall

The location of Nyeri County within the country's highland zone enables it to receive conventional rainfall. Rain falls throughout the year. There are however two distinct rain seasons; long rains occurring from March to May and the short rains from October to December. The annual rainfall ranges between 1,200mm – 1600mm during the long rains and 500mm – 1,500mm during the short rains (County Government of Nyeri, 2023). The month of April has the highest precipitation with an average rainfall of 6.2 inches. The months between June to September have the lowest with July having the least rain of about 0.9 inches of rainfall on average.

Figure 3: Rainfall Patterns



Source: <https://weatherspark.com/y/99559/Average-Weather-in-Nyeri-Kenya-Year-Round>, 2024

The high rainfall potential in the settlement necessitates the need for rain water harvesting programs. The rains present an opportunity for the creation of large-scale runoff collection reservoirs that could be used during the relatively dry seasons in the year. In addition, proper, functional and well-laid out storm water drainage system is required to enhance the livability of the settlement.

3.2.1.2 Temperature

Most parts of Nyeri County experience mean temperatures ranging between 12.8°C to 20.8°C with February and March being the hottest months while July is the coldest month of the year (County Government of Nyeri, 2023). The summers are short, warm and overcast and the winters are short, cool, dry and partly cloudy. Throughout the year, the temperature varies from 10.6°C to 26.1°C and is rarely below 8.3°C or above 27.8°C. The warmest time of the year is from mid-August to mid-October. The table below summarizes the county's temperature. The temperatures in Ndumanu informal settlement and its environs are favorable for livestock keeping, human habitation, and crop production.

Table 4: Annual Temperatures

Temp.	Jan.	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High (°C)	24.4	25.6	25.6	23.3	22.2	20.6	19.4	20.0	22.2	23.3	22.2	23.3
Average High (°C)	17.8	18.3	18.9	18.3	17.8	16.7	15.6	15.6	17.2	18.3	17.2	17.2
Low (°C)	11.1	11.3	12.8	14.4	14.4	13.3	12.2	12.2	12.8	13.9	13.3	11.7

Source: <https://weatherspark.com/y/99559/Average-Weather-in-Kerugoya-Kenya-Year-Round-2025>

3.2.1.3 Wind

The wind experienced at any given location is highly dependent on local topography among other factors. The average hourly wind speed in the county experiences mild seasonal variation throughout the year. The windier part lasts for about 3.3 months from September 7 to December 16 with average wind speeds of more than 7.6mph (12.23km/h – 3.4m/s). The windiest month of the year is October with an average hourly wind speed of 8.4mph (13.5km/h). The calmer time of the year lasts for 8.7 months from December 16 to September 7. The calmest month of the year is July with an average hourly wind speed of 6.7mph (10.8km/h).

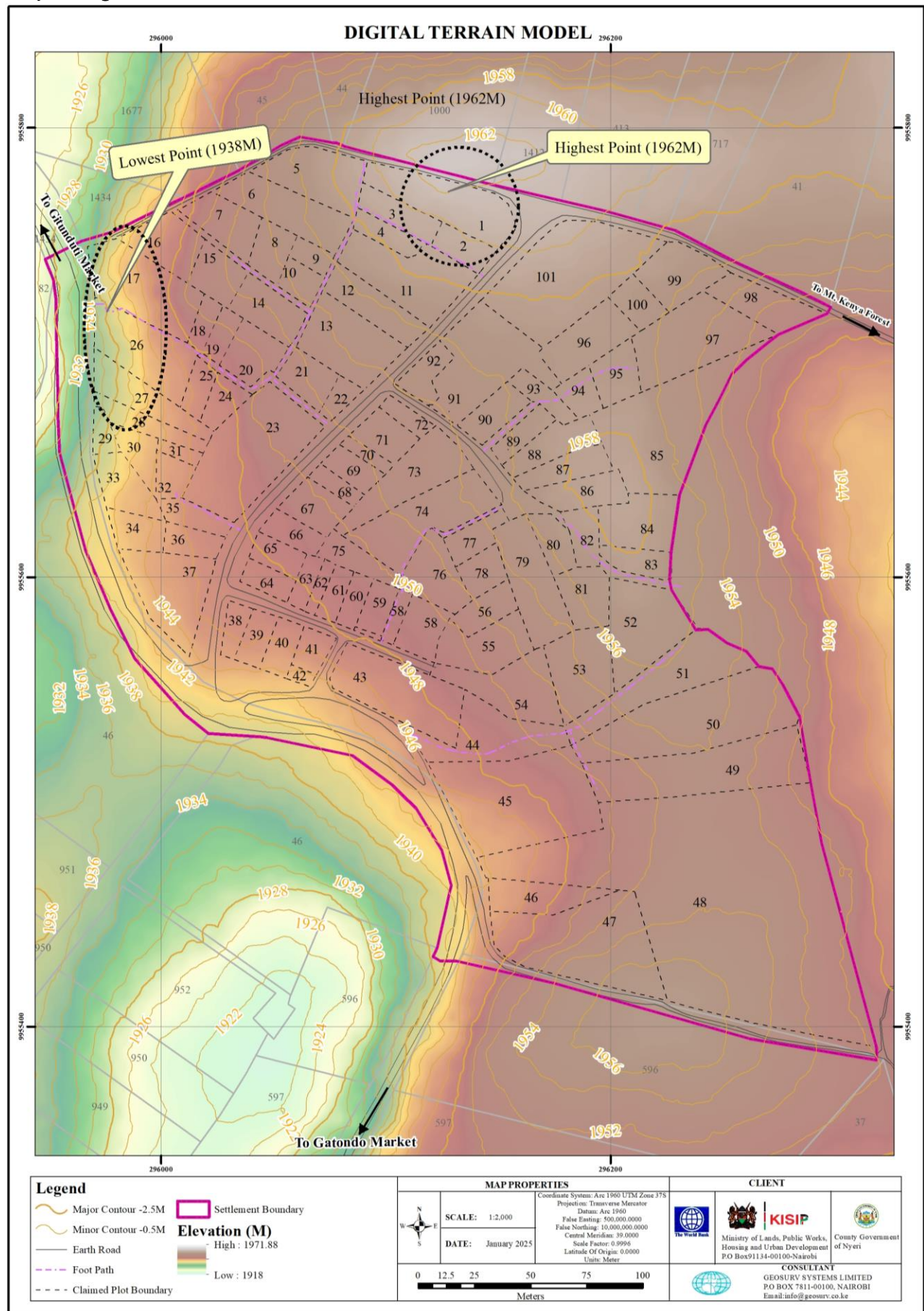
The average wind speed is beyond the cut-in-speed for small turbine to start generating energy which is set at 8km/h (2m/s). However, the wind potential in the settlement is not at the required maximum (10-15m/s) for large scale wind power generation. Thus, the wind can only generate power for households and medium industrial consumption but doesn't have the threshold for large scale wind power generation. The distribution of the wind speed and the general direction influences the harnessing of wind energy and building orientation to achieve natural ventilation in the settlement.

3.2.2 Topography

Ndumanu informal settlement has gentle to moderate slope making it favorable for human settlement and infrastructural development. The highest point in the settlement has an altitude of 1962 m while the lowest point is at 1938 m above sea level. The elevation range is 24 metres. This topographical configuration is conducive for a blend of residential, agricultural, and commercial activities. This settlement's topography plays a significant role in influencing various environmental aspects such as drainage patterns, distribution of natural resources and soil erosion dynamics. There are no major physiographic features within the vicinity of the settlement. The settlement's drainage is influenced by its topography and surface run-off drains into the seasonal stream to the West of the settlement.

The map overleaf presents the settlement's digital terrain model:

Map 4: Digital Terrain Model



Source: Geosurv Systems Limited, 2025

3.2.3 Water Sources and Supply

The main water supplier for Ndumanu informal settlement is Kihore Water Project. There are two main taps in the settlement where the residents fetch water. A few residents have erected tanks for water storage.

Plate 5: Water Supply and Storage Facilities



Source: Geosurv Systems Limited, 2025

3.2.4 Geology and Soils

The county is characterized by volcanic rocks formed from the extrusions of Mt. Kenya and Aberdare Ranges. Ndumanu informal settlement and its environs is made up of basalt rocks, high in silica content which is good for ceramics and building stone (County Government of Nyeri, 2019).

Soils impact development by determining the economic activities to be ventured into as dictated by soil type, characteristic and distribution. Depending on stability and fertility, decision making with regard to cultivation, construction and conservation occur. There are six main types of soils in Nyeri County namely greyzems, luvisols, phaeozems, podzols, regosols and vertisols. The soils of Ndumanu are generally deep well-drained basic red-volcanic soils, referred to as andisols. The soils are characteristically fertile for arable agriculture. They have closely packed particles and lack sand. They are sticky during wet seasons making weather roads unsustainable year-round.

Plate 6: Soil Characteristics



Source: Field Survey, 2025

3.2.5 Biodiversity

Biodiversity refers to all kinds of life found within an area including the variety of animals, plants, fungi and micro-organisms like bacteria that make up the natural world. This section outlines the flora and fauna found within Ndumanu informal settlement.

3.2.5.1 Flora

Flora is defined by trees, shrubs and grass which collectively constitute the vegetation cover within the settlement. Ndumanu informal settlement has both natural and planted vegetation. The natural vegetation consists of shrubs and indigenous trees such as grassland and shrubs. It is commonly found along the road reserves forming boundary vegetation, on some virgin lands which haven't been cultivated. Natural vegetation has however been on the decline due to various human activities in pursuit of farm land and settlement.

Planted vegetation is found within the farm land and homestead compounds. It comprises of blue gum trees, crops like nappier grass, maize, beans, passion fruits and vegetables (kales, cabbages, onions) among others. Threats facing the existing vegetation are; intensified human settlement and rapid logging for construction, furniture and firewood. The plate below exemplifies some of the existing vegetation.

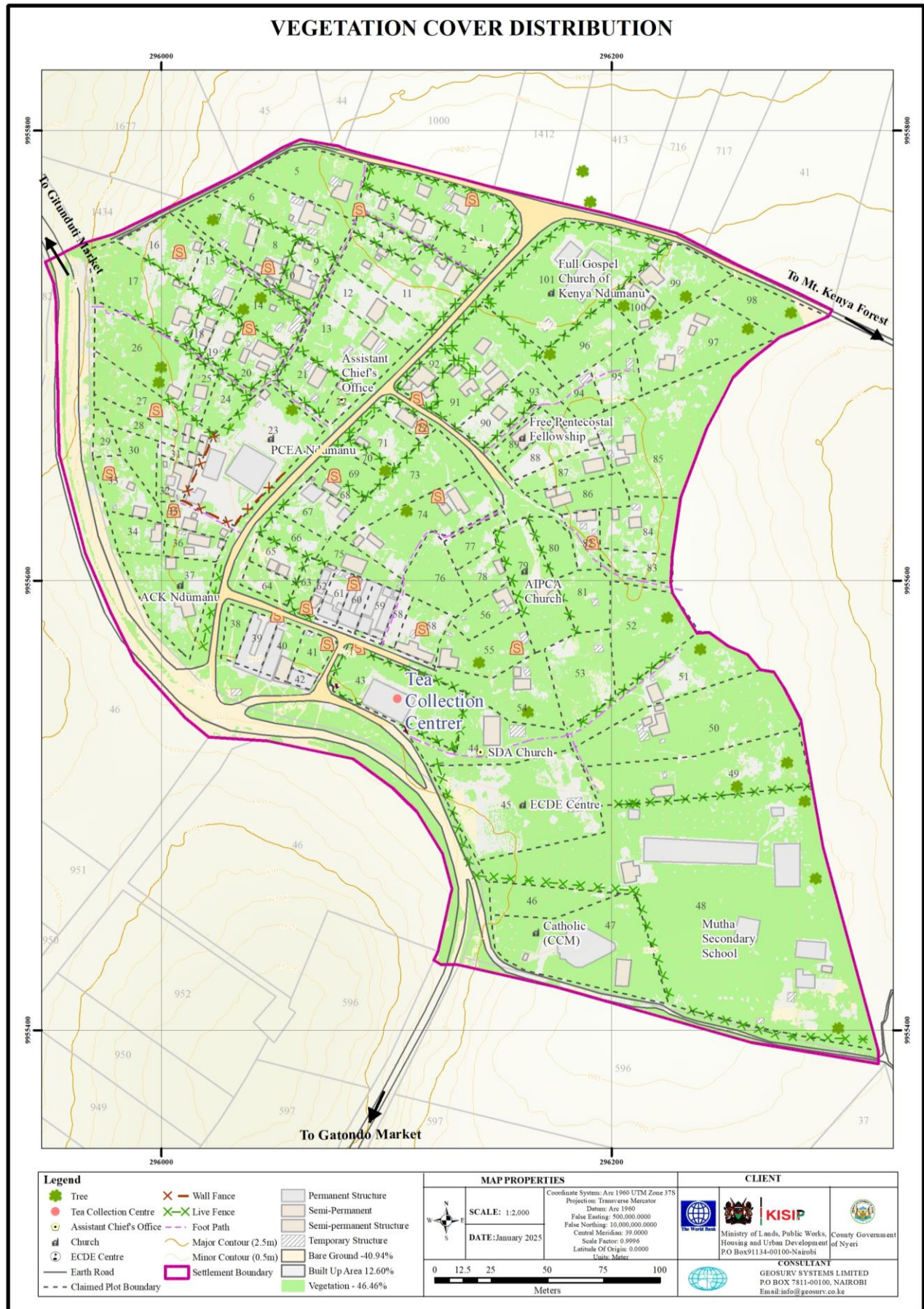
Plate 7: Vegetation Cover



Source: Field Survey, 2025

Ndumanu informal settlement has a relatively high vegetation cover of about 46.46% of its area. The built-up area stands at 12.6% and a bare land constitutes 40.94%. The map overleaf shows the distribution of vegetation cover in the settlement.

Map 5: Vegetation Cover Distribution



Source: Geosurv Systems Limited, 2025

3.2.5.2 Fauna

This comprises of the domestic animals reared within the homesteads. This activity is mainly done in small scale and mainly for subsistence due to the relatively small land parcels which cannot support large scale livestock farming. The kept animals include; cows, goats, chicken and pigs. The insects and rodents that inhabit the settlement also constitute part of the fauna.

3.2.6 Green Spaces

The green spaces within the settlement constitute the areas that are covered with vegetation like plants, trees and other greenery. These spaces act as breathers and carbon sinks within the settlement thus offering a natural and aesthetically pleasing environment. Despite the settlement's high vegetation cover, there are no designated green spaces within the settlement or in proximity where the residents can relax and recreate.

3.2.7 Environmental Concerns

Ndumanu Informal Settlement has several environmental concerns that warrant attention. Cooking energy sources such as firewood and charcoal and poor waste disposal mechanisms are some of the factors contributing to environmental hazards in the settlement. These hazards include; air pollution, solid waste management, water contamination, deforestation and climate change.

3.2.7.1 Air Pollution

The commonly used cooking fuel sources in the settlement are firewood and charcoal. The combustion of these fuels can result in the release of hazardous pollutants into the immediate environment posing significant health risks to the household members. Firewood and charcoal produce fine particulate matter (PM_{2.5}), which can cause respiratory illnesses. These fuels also release carbon (II) oxide (CO), which can cause headaches, dizziness, and nausea, and can be fatal in high concentrations. In addition, burning firewood can produce nitrogen oxides (NO_x) and volatile organic compounds (VOCs). The combustion of kerosene, a common fuel for lamps, can release a range of air pollutants that are a threat to the climate. These pollutants are commonly referred to as Short-Lived Climate Pollutants (SLCPs), including PM_{2.5}, tropospheric ozone and black carbon. Other gaseous emissions include sulfur dioxide (SO₂), and nitrogen dioxide (NO₂) which can cause respiratory problems, eye irritation, and other health problems.

Plate 8: Openly Burning of Solid Waste



Source: Field Survey, 2025

During open waste burning, some of the gaseous emissions include black carbon, carbon (IV) oxide, methane, nitrous oxides, fine particulate matter of particles up to 2.5µm and 10µm (PM_{2.5} and PM₁₀). The suspended particulate matter is harmful to the ecosystem as they can lead to severe environmental degradation and result in contamination of water and soils. This can result in imbalances in ecosystems and reduced biodiversity, directly damaging plants and animals as well as contributing to climate change.

Exposure to particulate matter (PM) and other air pollutants has been linked to a variety of conditions which impact on human health. Short term exposures to PM have been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic

bronchitis, asthma attacks and respiratory problems. In addition, PM reduces atmospheric visibility as PM_{2.5} affects visibility by altering the way light is absorbed and scattered in the atmosphere.

The burning of charcoal is usually done in a limited oxygen supply where wood is strongly heated to remove water and other volatile constituents. This process releases a range of pollutants into the air including carbon (II) oxide, fine particulate matter (PM_{2.5}), nitrogen oxides, and volatile organic compounds. These pollutants have serious health implication including respiratory problems, increased risk of heart disease and also contribute to climate change. In addition, charcoal production contributes to low vegetation cover and habitat destruction for fauna which significantly affects the climate. Trees play a vital role as carbon sinks as they absorb and store carbon dioxide from the atmosphere. Thus, when destroyed, this carbon is released back into the atmosphere.

3.2.7.2 Poor Solid Waste Management

The various types of solid wastes generated in the settlement include; household wastes such as plastics and papers. Other solid wastes included glass bottles, children's diapers and tea leaves remains among others. Ndumanu Informal Settlement lacks a designated solid management site. Most of the households in the settlement dump their waste indiscriminately along the road reserves and within their individual homesteads.

Improper management of solid waste in Ndumanu poses a significant risk to public health. The presence of uncontrolled waste disposal sites draws flies, exacerbating environmental deterioration. Furthermore, these unauthorized dumpsites invite various pests, including rodents and insects, which facilitate the spread of diseases. Additionally, the leachate from these sites contaminates soil, air, and groundwater, thereby undermining the overall quality of the environment.

Plate 9: Solid Waste Disposal



Source: Field Survey, 2025

3.2.7.3 Water Contamination

Ndumanu settlement has no conventional wastewater disposal and treatment system. Domestic waste water (grey water) flows freely in the homesteads. The waste water is generated from activities such as laundry, hand washing, bathing, and dish washing. Laundry and dish washing activities are carried out outside the houses where the waste water is discarded to the open ground. Most households in Ndumanu Settlement have no access to modern toilet facilities, which are crucial to preventing open defecation. They instead use pit latrines to dispose of their human waste. Bathrooms were located outside the houses.

Plate 10: Human Waste Disposal

Source: Field Survey, 2025

Improper waste management practices such as use of pit latrines, discharge of grey water to land and open solid waste dumping and burning are significant contributors of water contamination. The use of pit latrines and discharging of grey water to the land can lead to infiltration of pollutants to underground water sources, causing possible contamination. As a result, consumption of contaminated water may lead to outbreak of diseases like cholera owing to the high number of people who use pits latrines. This raises the need to promote and invest in the utilization of sustainable liquid management system suitable for urban population.

In addition, the ash formed as a result of open solid waste burning causes possible water contamination as it may contain a variety of pollutants, including heavy metals and organic compounds, that can leach into the soil and water. When ash is left on the ground, rainwater and groundwater can wash contaminants out of the ash and into the neighboring rivers. This can lead to water contamination and potentially raise health concerns for the residents who use the water for drinking, cooking, bathing and other purposes.

3.2.7.4 Deforestation

Deforestation in the settlement is as a result of the need for fuel wood which is the main cooking energy for the area residents. The high proportion of the population using wood fuel for cooking could result to detrimental environmental effects. Kenya already has a deficit in the production of wood fuel and the current consumption is depleting the already endangered remaining forest cover, a phenomenon that could result to desertification. Mitigation measures should therefore be put in place to address the high demand for wood fuel in the settlement. Some of the measures would include: ensuring the required forest cover by regular tree planting exercises and utilizing alternative renewable energy sources such as solar and wind energy.

Other negative impacts of deforestation include:

- Climate change: deforestation increases the amount of carbon dioxide in the atmosphere, which contributes to global warming.
- Habitat loss; deforestation destroys the habitats of animals and other organisms
- Erratic weather patterns; in the long run, deforestation leads to extreme droughts and floods negatively impacting on livelihood and food security.
- Loss of biodiversity; deforestation reduces the variety of life on earth

- Soil erosion; the roots of trees are crucial in soil stabilization. However, deforestation removes them hence exposing the soils to wind and rain.
- Flooding; deforestation increases flooding especially in lower areas.
- Increased temperatures; trees are natural coolants. Once they are fell down, temperatures automatically increase.

3.2.7.5 Climate Change

Climate change is a global concern that directly affects humanity and biodiversity. It is fueled by a number of factors among them; land use changes, pollution and environmental degradation. There are several activities that contribute to climate change in Ndumanu informal settlement like the cutting down of trees for fuelwood and house construction materials – timber, clearing of vegetation for settlement and farm expansion. In addition, pollution as a result of poor waste disposal is also a contributing factor. Consequently, the settlement and its environs has been vulnerable to effects of climate change. The settlement experiences increasing frequency and intensity of extreme weather events such as erratic rainfall which has a significant social, economic and environmental effects.

3.2.8 Emerging Issues

Physical features play a critical role in the development of the settlement. The favorable topography of the settlement promotes easier construction works. The climatic conditions of the settlement and its environs coupled with suitable ecological zones and fertile soils present favorable environment for the thriving of agricultural activities. The entire Nyeri County is a major food basket in the region supplying food commodities to the country's capital, Nairobi and other towns.

Resources such as wind and solar energy present an opportunity for the development of renewable energy in the settlement. Tapping into these renewable energy sources would subsidize and complement power generated from thermal sources hence reducing carbon print and cost of access to power. The relatively high rains in the settlement presents a challenge; with the gradual increase in impervious cover, the settlement's susceptibility to flooding is imminent.

The settlement is endowed with stable geology which can support urban development. Soils in the settlement impact development as they influence the economic activities to be undertaken as dictated by the soil type, distribution and characteristics. Soil characteristics such as texture, depth and drainage influence the fertility and stability of such soils. Decision making with regard to the crops to be cultivated, type of structures to be erected depend on the soil fertility and stability.

Waste management in the settlement is of critical concern, a phenomenon that would be gradually amplified with the increase of population and developments. There are no designated areas for solid waste management forcing the residents to indiscriminately dump or burn their waste within their compounds, along the road reserves or near the social hall. In addition, pit latrines are the main method for liquid waste disposal. The use of pit latrines has detrimental effects to underground water resources as the infiltration of sewer water contaminates the water resources.

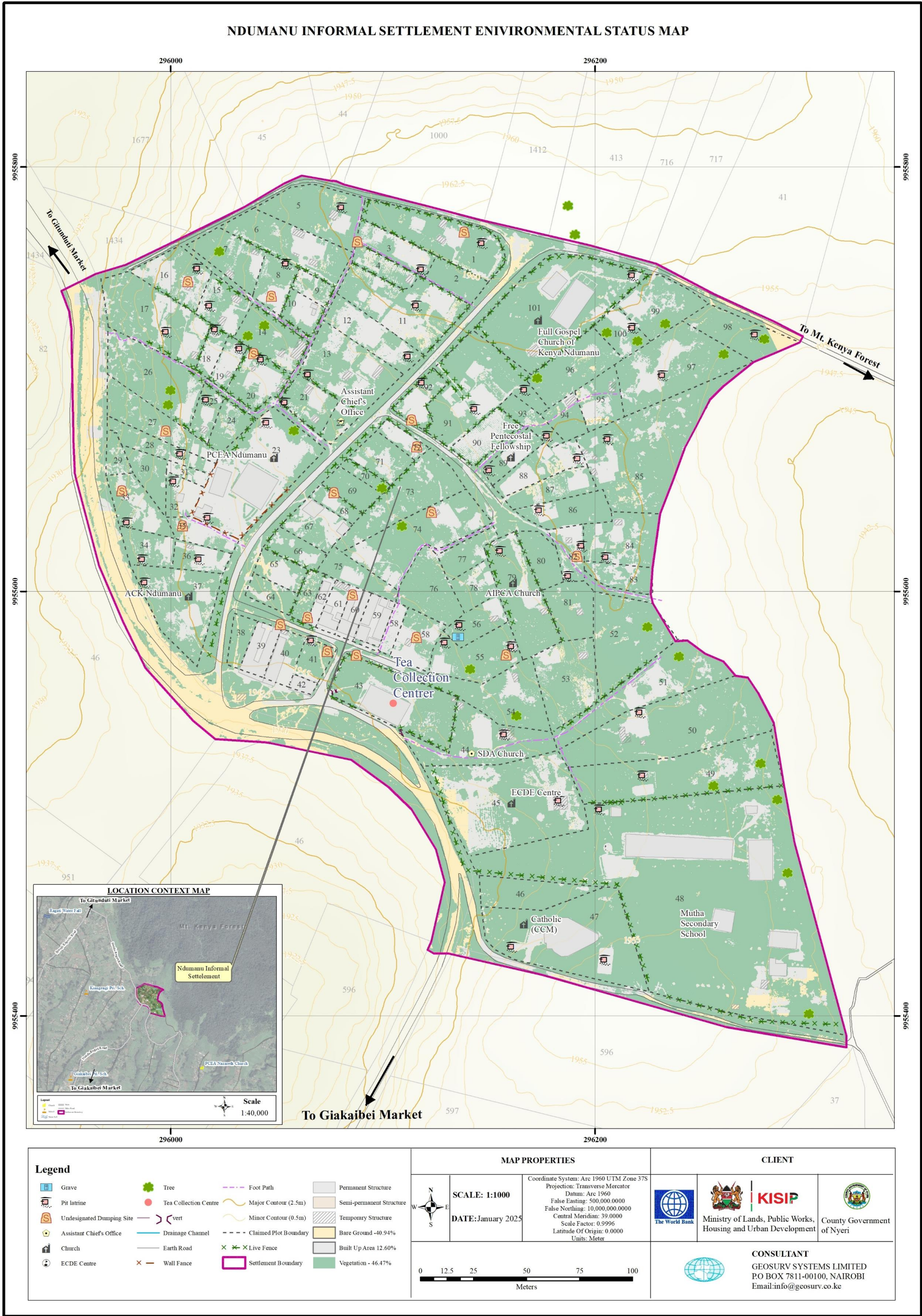
The table overleaf summarizes the emerging issues with regard to the settlement's physiography and natural environment.

Table 5: Emerging Issues – Physiography and Natural Environment

Element	Potential/Opportunities	Constraints
Climatic conditions	○ Favorable rainfall amounts for agricultural activities as its located within the Kenyan highland areas	○ High rainfall amounts and increase in impervious cover makes the market susceptible to flooding ○ Changing weather patterns
Topography	○ Favorable topography at the market section promotes easier construction works	○ Steep topography at the village section promotes soil erosion
Environment	○ Existence of appropriate waste handling technologies that can be tapped into ○ Availability of land for the setting up of waste management sites ○ 4Rs waste mechanisms – Reduce, Reuse, Recycle and Recover	○ No designated waste management site ○ Pollution due to poor waste disposal methods – use of pit latrines for human waste disposal results to contamination of underground water sources
Geology and soils	○ Stable geology and soils that can support urban development ○ Soils contain all the plant nutrients required for plant growth.	○ The soils are too acidic/infertile to sustain quality food production
Vegetation cover	○ Relatively high vegetation cover of 46.47%	○ Depletion of the vegetation cover due to deforestation and human encroachment ○ Planting of eucalyptus tree species – - Risk to buildings and people as they are prone to toppling. - Extensive water users causing water depletion.
Climate change	Better adaptation and mitigation strategies like tree planting	○ Pollution by poor waste disposal methods ○ Felling of trees for fuel wood and house construction materials

The map overleaf presents the informal settlement's environmental status:

Map 6: Environmental Status Map



Source: Geosurv Systems Limited, 2025

3.3 Population and Demographic Characteristics

The preparation of Ndumanu LPLUDP, survey and subsequent title registration processes are being undertaken for the benefit of the settlement population. Analysis of the population lays the basis upon which the needs of the current and future population are determined. Resource allocation and utilization is heavily dependent on population dynamics of an area. In addition, population dynamics provide a tool for defining equity with regard to provision of essential services. They are also key determinants of labour force provision, appraisal of resource exploitation and allocation as well as utilization of social amenities/ facilities. The knowledge of these variables is thus crucial in making essential decisions for provision of services. This necessitated the analysis and interpretation of the population dynamics of Ndumanu informal settlement to aid in evaluating applicable perspectives in resource allocation and use.

3.3.1 Population Size

As per the 2019 Kenya Population and Housing Census, Nyeri County had a population of 759,164 people comprising of 374,288 males, 384,845 females and 31 intersex. The county has an estimated 248,050 households and average household size of 3.0 people. Mathira East Sub-County where Ndumanu informal settlement is located had a total population of 99,065 people comprising of 48,070 males, 50,992 females and 3 intersex. It had estimated 35,044 households and an average household size of 2.8 people. As per the household socio-economic survey conducted in February 2025, Ndumanu informal settlement has a total population of 240 people comprising of 127 males and 113 females. The table below summarizes the population characteristics.

Table 6: Population Size

Geographical Area	Male	Female	Intersex	Total
Nyeri County	374,288	384,845	31	759,164
Mathira East Sub-County	48,070	50,992	3	99,065
Ndumanu Informal Settlement	127	113		240

Source: Field Survey, 2025 & KNBS, 2019

The population is composed of males at 53% while females are at 47%. These figures contrast the national, county and subcounty population by gender where females are the majority as per 2019 KPHC (KNBS, 2019). The table above provides the current population distribution by gender in the planning area, comparing it with actual 2019 census population of the host county and subcounty. Nyeri county has more females, 51% of the county population than the 49% males as per the 2019 census data. This population by gender trend is similar to that of Mathira East Sub-County. Hence, the planning area portrays a unique population structure by gender where there are more males than females.

3.3.2 Population Distribution/Density

Settlement patterns are influenced by soil fertility, topography, road networks, infrastructural facilities and services and rainfall patterns. Nyeri County has a current population density of 228 persons per sq.km. Ndumanu informal settlement has a very high population density of 2,617 persons per square kilometer and is projected to grow to 3,871 persons per square kilometer in the year 2035 as outlined in the table below. The planning exercise, subsequent survey and title

registration processes are projected to attract major investments as it will make the settlement more livable. In addition, attainment of tenure security will enable the construction of better structures.

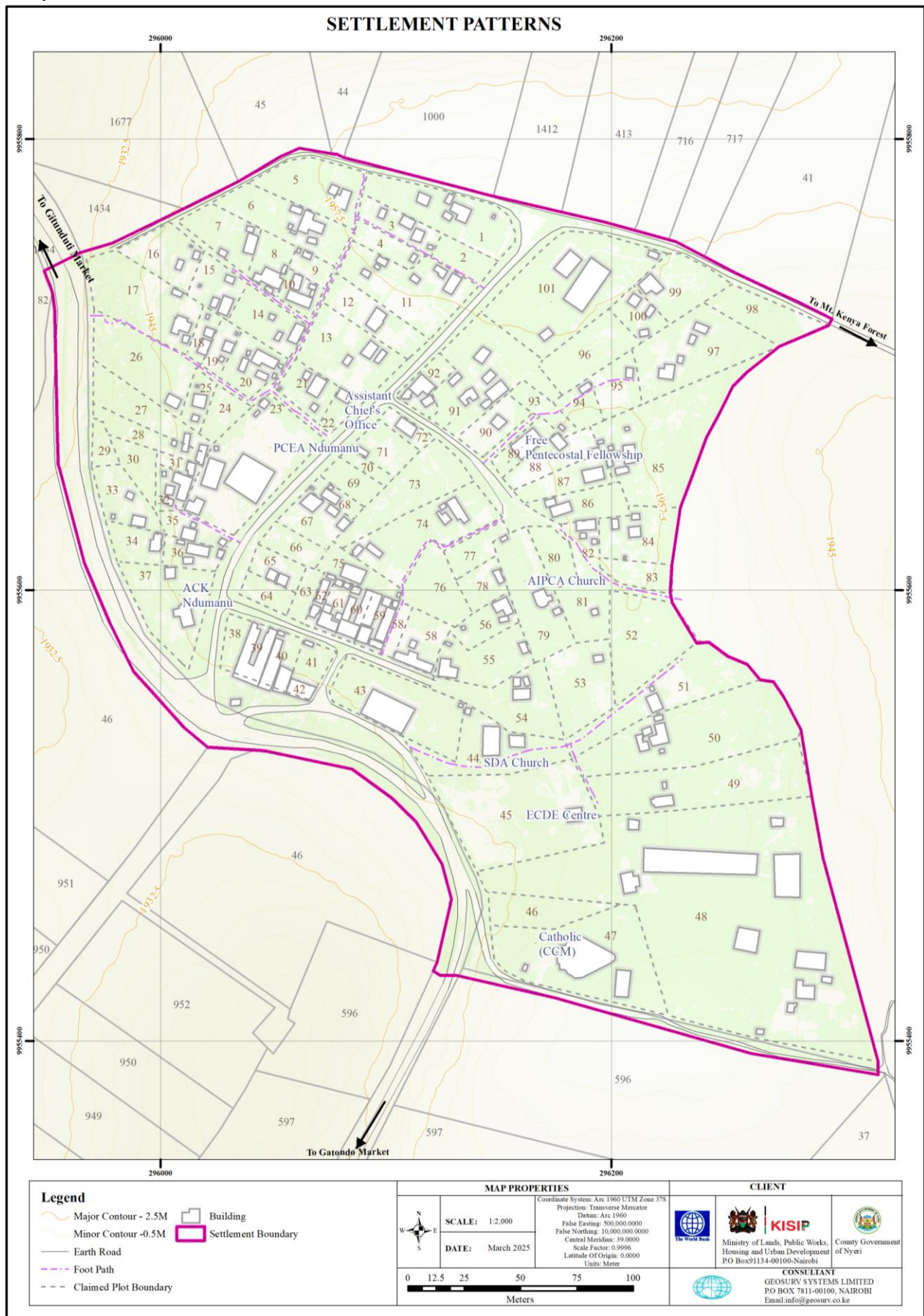
Table 7: Population Density

Administrative Unit	Population Size	Area (Km ²)	2019 Density	Projected Population Densities		
				2025	2030	2035
Nyeri County	759,164	3,325	228	253	275	300
Mathira East Sub-County	99,065	130.4	760	842	916	998
Ndumanu informal Settlement	-	0.0917	-	2,617	3,184	3,871

Source: KNBS, 2019 Volume II and Field Survey, 2025

The high population density within the settlement calls for the provision of services like; adequate water, reliable power supply, quality housing, proper solid and liquid waste management systems, high quality education and health facility as well as a clean – habitable environment. Due to the flat nature of the topography, the density is evenly distributed across the entire settlement though intensity of development is higher within the market (business cum residential area) as seen in the settlement patterns map overleaf:

Map 7: Settlement Patterns



Source: Geosurv Systems Limited, 2025

3.3.3 Population Projection

Population growth is influenced by several factors among them; growth rate, immigration, emigration and fertility rates. Ndumanu informal settlement consists of the market settlement and the village and has an estimated population of 240 people. The annual population growth rate for Nyeri County is 1.72 (CIDP, 2023), which is lower than the national average of 2.2%. However, Ndumanu informal settlement is situated within an urban centre whose national average growth rate is 4%. Thus, the population projection for the planning area is based on the urban annual population growth rate of 4%. The population projection for the planning area is based on the urban annual population growth rate of 4%. The projections show that a total 292 people will live in the planning area by 2030. Ndumanu informal settlement population will increase to 355 people by 2035. The growth will be driven by high rate of urbanization, natural increase in population, and better socio-economic opportunities for residents. The table below shows the population projections for the planning area as compared to the sub-county and county statistics.

Table 8: Projected Population

Year	Base Year	Projection		
Geographical Area	2019	2025	2030	2035
Nyeri County	759,164	840,957	915,810	997,326
Mathira East Sub County	99,065	109,738	119,506	130,143
Ndumanu Informal Settlement		240	292	355

Source: Field Survey 2025 & KNBS 2019

3.3.4 Demographic Characteristics

3.3.4.1 Population Structure

The Young Population is made up of children and teenage population group aged below 18years. In Ndumanu informal settlement, this cohort accounts for 39% of the total planning area population. Majority of the cohort population are males 54% to females 46%. This cohort forms part of the dependent population together with the elderly population group.

The labour force (18-65 years): The working group population is constituted by individual aged between 18 and 65 years. They are the driving force for a country's socio-economic growth. They ensure a nations continuity by being active in socio-economic activities where they offer their skills, abilities and capacities to steer the development. They are active in provision of labour to the labour market. A working population is highly depended up on to support the dependant population group, and to ensure continuity of a nation and its heritage through procreation. Within Ndumanu informal settlement, this forms the largest age group, accounting for 53% of the entire settlement population, considerably lower than the national average of 60%.

Just like the young population, males at 55% are the majority whereas females at 45% are 10% fewer than the males. In Ndumanu informal settlement, majority of the working population are unemployed or engaged in casual jobs. This derails socio-economic growth and indicates a need to invest in economic activities for creation of high-income jobs that facilitate meeting the dependency needs for this population. Investments in manufacturing, agriculture, technology, and capacity building initiatives would be critical to aiding creation of job opportunities as well as skills needed to access gainful income generating opportunities.

Elderly population (Above 65 years): This is a dependent population of individuals aged above 65 years, mainly retirees and senior members of the society. It makes up 8% of Ndumanu informal

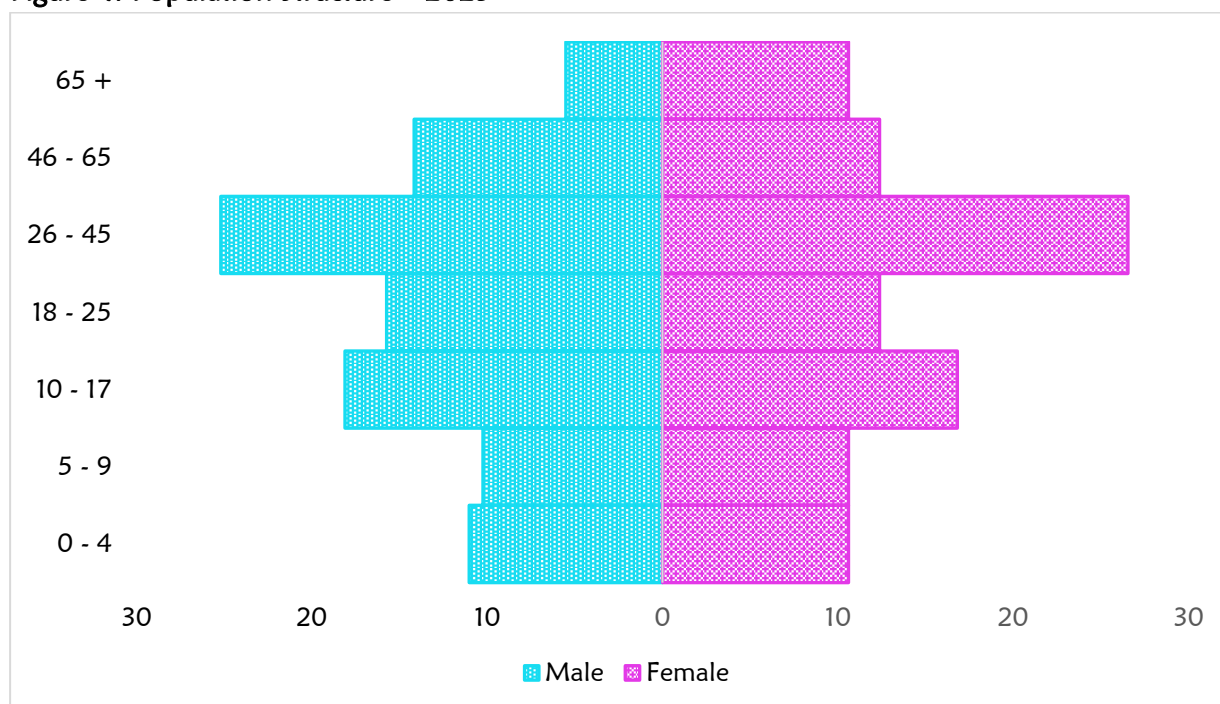
settlement population, a rate significantly higher than the national one of only 3%. This indicates a need to institute and/or enhance special programs that meet the needs of the elderly. Females are the majority at 63% of the elderly population group while males are 37%.

This indicates a low life expectancy for males than females, females live longer. Exposure to dangerous working conditions and environment could be among the contributing factors for the loss of more males since the transition from the working group being dominated by males to female dominating the elderly cohort is quite enormous. Further, there is a possibility that the elderly men retreat to their village homes to care for their grandchildren as they spend quality and quiet time of their sunset years. Another factor could be attributed to urban migration of elderly females to the safe custody, provision and care of their children in the working population age group, a situation that remains unfavourable for males. These among other factors influence the gender composition of the elderly population group in the planning area.

The dependent population comprises of the total population of children and elderly. Within the planning area, they cumulate to 47% of the population. This translates to high dependency rates as almost all working population group have dependants present in their households within the informal settlement. Dependency influences the living standards of the population. Overdependence on one individual by many reduces the ability of the depended to sustainably support the dependants, especially with low incomes as those of the working population in the planning area –averaging KES 8,000 a month.

The figure below demonstrates the population structure of Ndumanu Informal Settlement.

Figure 4: Population Structure – 2025



Source: Field Survey, 2025.

As shown in both the graph above and the table overleaf, middle/young population (working group and below) is the largest segment of the population. They cumulatively make up 92% of the settlement population while the elderly population accounts for only 8% of the population. The young population of between 26-45 is the majority population group within the informal

settlement. They add up to 28% of the settlement population. The other dominant population age set is that aged between 46 and 65 years at 24% of the settlement population

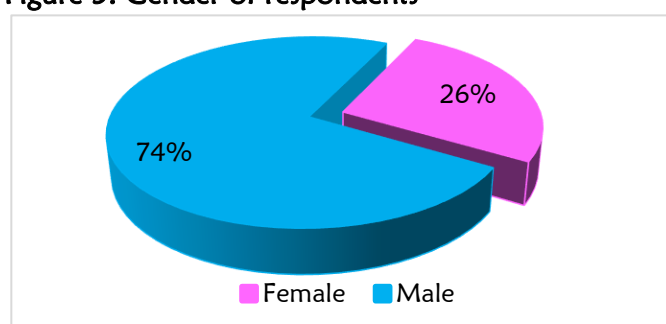
Table 9: Population Structure- 2025

Age Group	Male	Female	Total	Male	Female	Total
0 - 4	14	12	26	6%	5%	11%
5 - 9	13	12	25	5%	5%	10%
10 - 17	23	19	42	10%	8%	18%
18 - 25	20	14	34	8%	6%	14%
26 - 45	32	30	62	13%	13%	26%
46 - 65	18	14	32	8%	6%	13%
65 +	7	12	19	3%	5%	8%
Total	127	113	240	53%	47%	100%

Source: Field Survey, 2025 & KNBS, 2019

3.3.4.2 Gender of Respondents

Figure 5: Gender of respondents



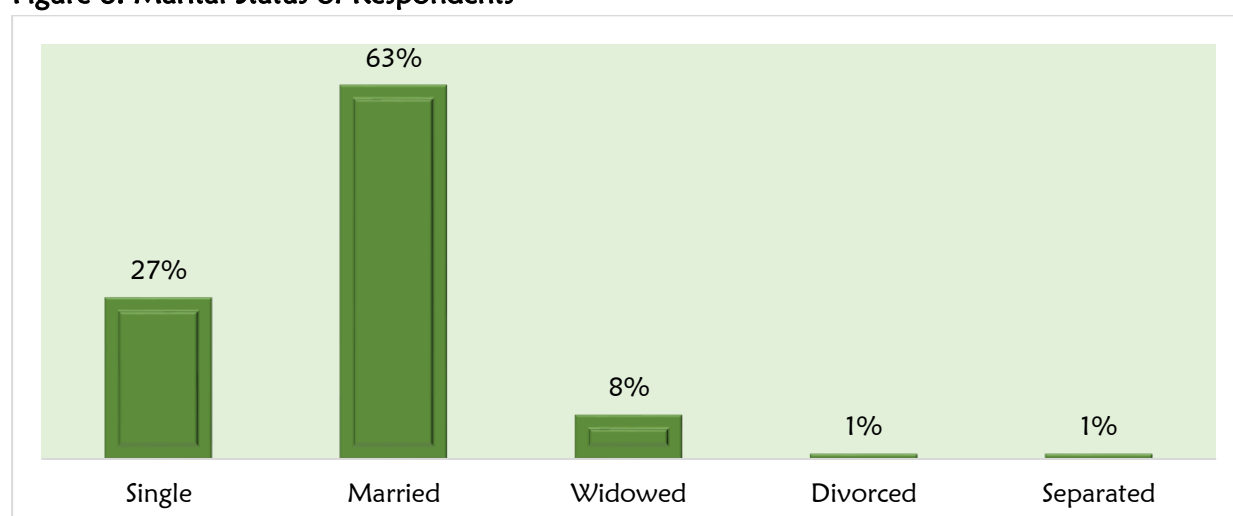
There were 106 respondents drawn from Ndumanu informal settlements. The respondents were composed of 74% males and 26% females. Each respondent represented a household within the planning area. The structure of the socio-economic survey participants is shown in the figure alongside.

Source: Field Survey, 2025

3.3.4.3 Marital Status

The field survey established that majority 63% of all respondents were married while the single respondents were 27%. There were 8% survey participants who were widowed. Separated and divorced population participated in the survey at 1% each. The marital status composition of respondents is shown in the figure below.

Figure 6: Marital Status of Respondents



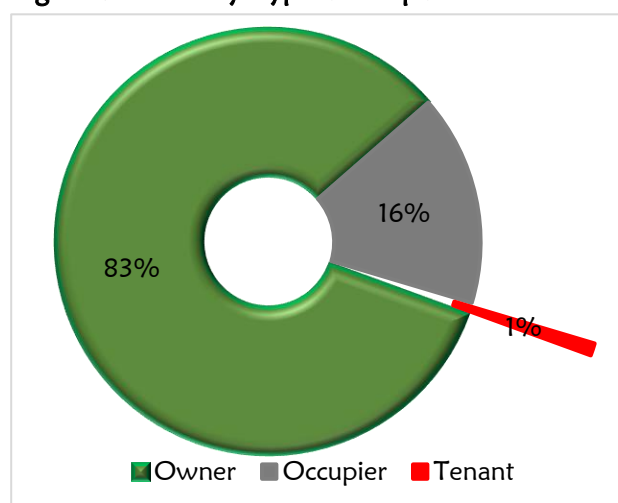
Source: Field Survey, 2025

3.3.4.4 Residence Profile

a. Type of respondent

The survey participants were classified on the type of tenancy they hold within the Ndumanu informal settlement.

Figure 7: Tenancy Type of Respondent



The chart alongside shows the respondent categories on basis of their tenancy types. Majority 83% of respondents were owners of the plots where they live. Occupiers participated in the survey at 16%. Occupiers comprise of individuals who live in dwelling units they do not pay for, either seconded by the landlords or are caretakers responsible for maintaining the property and hence do not pay for rent for the units they occupy. There were just 1% rent paying tenants who participated in the socio-economic survey.

Source: Field Survey, 2025

a. Residential Status

A total 96 of the 106 respondents live within the settlement. This is equivalent to 91% of the participants. Therefore, only 9% of respondents live outside the planning area. Out of the 9% who live outside the settlement, 30% live outside the settlement because they have plot/land within the town where they live, another 30% is forced to live outside the settlement because they do not have a building in their plots/land within the settlement, 10% decried the poor state of services in the settlement hence opt to live outside, with another 10% disinterested in living with their tenants. There were other reasons such as residing in working facility or in father's land situated elsewhere at 20% of all reasons for living outside the settlement 2025

3.3.4.5 Household Characteristics

a) Household Size

The average household size within the planning area is 2.3. The largest household size has 7 members while the least has just one member. Majority of households have one member at 49% of all household sizes while just one household has 7 members. The table below shows the grouped distribution of household sizes within the planning area.

Table 10: Household Size

Household Size	Percentage
1	49%
2 - 3	30%
4 - 5	17%
6 - 7	4%
Total	100%

Source: Field Survey, 2025

It can be noted that most households have fewer members, between 1 and 3 members. The context can be attached to adoption of effective family planning methods, a notable proportion of the

population is outside the child bearing window (below 18 years and above 46 years), and the population is male dominated, and potentially low fertility rates Nyeri county has fertility rates of 2.8 children per woman according to KDHS report (KNBS, 2022).

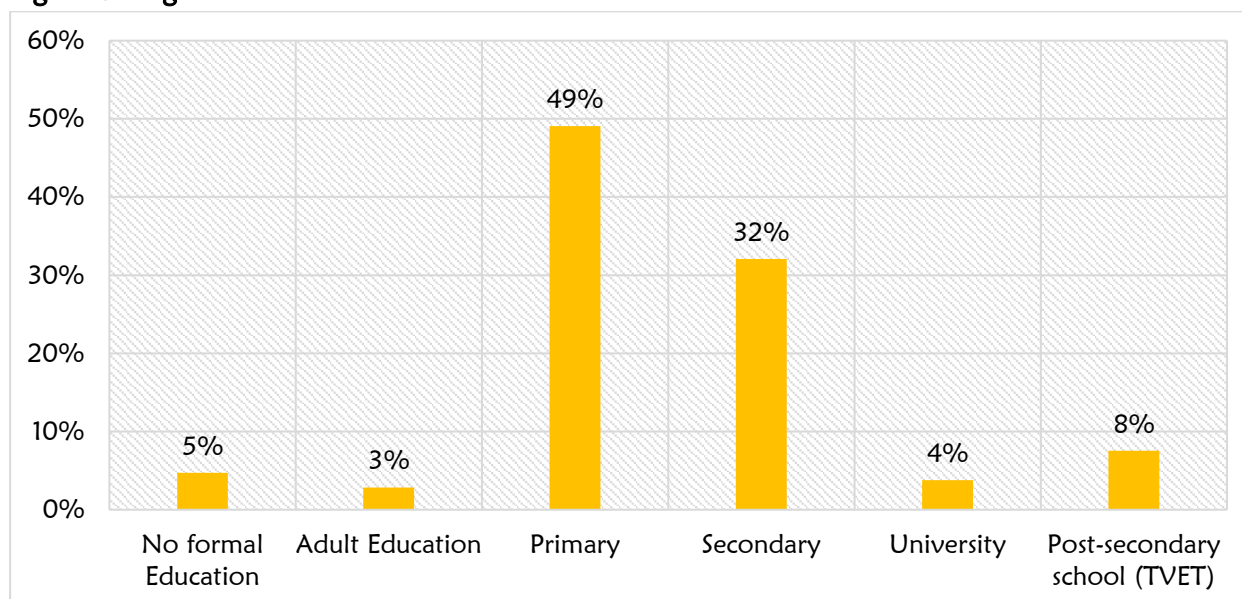
b) Households with People Living with Disability

The socio-economic survey findings show that only 3% of households have people with disability living with them. Majority 97% do not have any family members who are living with any kind of disability. Among the individuals living with disability 67% were mentally challenged and 33% physically challenged. They constitute the vulnerable members of the society present within the settlement.

3.3.4.6 Education Level

There were some 5% of Ndumanu informal settlement residents who had not attained any formal education. Those who had completed adult literacy education were only 3%. The majority of residents have however completed formal education, making up 92% of the settlement population. This indicates a significant literacy level in the settlement where majority 49% have completed primary education, and 32% have attained secondary education. Those who have gone through post-secondary vocational and technical training were a tiny 4%. This is the only group together with just 8% others who have attained university education with groomed skills and capacity required in the labour market as shown in the figure overleaf.

Figure 8: Highest Education Level Attained



Source: Field Survey, 2025

There is need for investment on creation of awareness for post primary and post-secondary technical and vocational education. It should match up with subsidized fees for the affordability of target population as well as expansion of available facilities to meet demand for the skills and training.

3.3.5 Emerging Issues

The population structure has an implication on the settlement's development. The middle/young population (working group and below) is the largest segment of the population. They cumulatively make up 92% of the settlement population while the elderly population accounts for only 8% of the population. The high number of working population (53%) calls for investment in activities

that offer job opportunities to the area residents. The aging population which together with the young population (0-14 years) forms part of the dependent population, requires investment in health services so as to improve the health and life expectancy levels in the settlement.

The under 5 year's population calls for the establishment of proper health care so as to prevent cases of neonatal, infant and under five mortalities. Investment in the education system is required for the school going population so as to equip them with the prerequisite skills and knowledge to enhance their employability once they finish school.

The youthful population which forms part of the labor force requires massive investment in skill development, through creation and equipping of mid-level and higher educational institutions as well as job creation through the establishment of agro-processing industries. In this regard, a conducive environment for investors needs to be created in the region for the creation of job opportunities so as to tap on the readily available labor force. In addition, this population requires investment in facilities like resource centres and sports facilities to enable them showcase their talents, entrepreneurial skills and innovations.

The table below summarizes the emerging issues with regard to the settlement's population and demographic characteristics.

Table 11: Emerging Issues – Population and Demography

Element	Potential/Opportunities	Constraints
Population size and distribution	High day population in the settlement's market presents a ready market for goods and services	Low night population within the settlement's market reduces its vibrancy
Population density	- High population density is ideal for development of compact structures - Available market for the goods and services sold in the market	Encroachment on public lands and road reserves for farming activities
Population structure	Availability of skilled and unskilled labour force – 53%	- Low young population – 11%, a threat to the continuation of the lineage. - High dependent population – 47%

3.4 Social Services and Amenities

3.4.1 Education Facilities

Access to education is a fundamental right enshrined in the Kenya Constitution, 2010. Education is essential in improving the living standards of members in the society as it provides them with an opportunity to realize their full potential and fulfill their dreams. It is therefore important to make provisions for education facilities and services, as these will translate into higher rates of innovation, higher levels of productivity and faster adoption of new technology.

The provision of adequate educational facilities implicates positively on a society's wellbeing. An educated population provides valuable human capital which is able to invest its knowledge in productive activities like the adoption of technology in production, managerial skills, and promotion of entrepreneurial activities. In addition, the right skills empower citizens to participate

in various development forums and government initiatives for the betterment of their communities.

Muthea Secondary School is the only educational facility within Ndumanu informal settlement. There is no public primary school. Despite this, the primary school-going children can access six public primary schools. In addition to the existing secondary school, the students can access five other public secondary schools as per the requirements of the Physical Planning Handbook, 2007. These facilities are outlined in the following table:

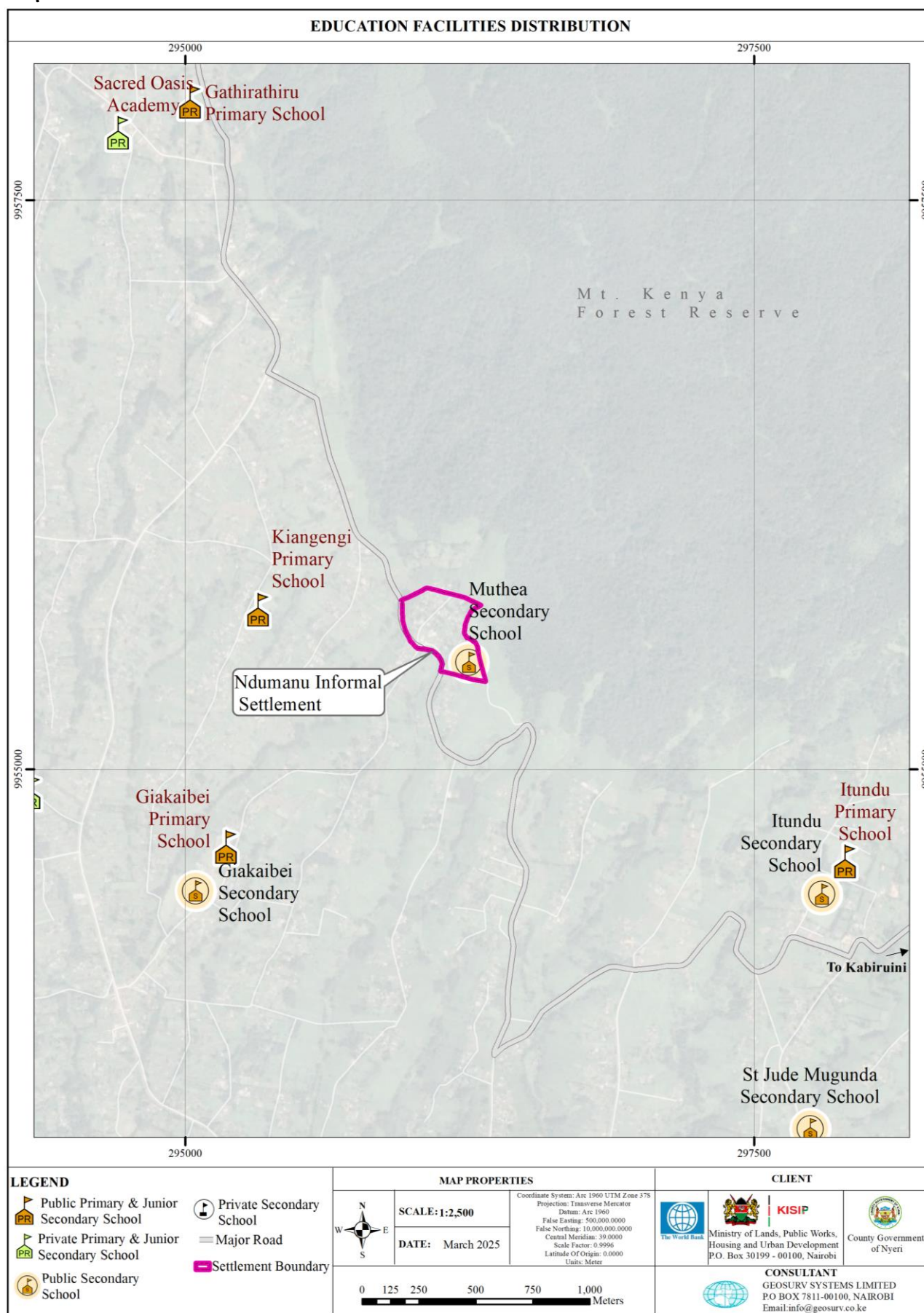
Table 12: Educational Facilities

No.	Name	Level	Ownership	Location		Distance from the project area (km)
				Sub County	Ward	
1.	Kiangengi Primary school	Primary	Public	Mathira East	Magutu	0.7
2.	Giakaibei Primary school	Primary	Public	Mathira East	Magutu	1.4
3.	Itundu primary School	Primary	Public	Mathira East	Iraini	2.1
4.	Kanjuri Primary School	Primary	Public	Mathira East	Magutu	2.1
5.	Gathirathiru Primary School	Primary	Public	Mathira East	Magutu	2.5
6.	Gathehu Primary School	Primary	Public	Mathira East	Magutu	3.5
7.	Muthea Secondary school	Secondary	Public	Mathira East	Magutu	Within the settlement
8.	Kiangengi Secondary school	Secondary	Public	Mathira East	Magutu	0.7
9.	Giakaibei Secondary school	Secondary	Public	Mathira East	Magutu	1.4
10.	Itundu Secondary school	Secondary	Public	Mathira East	Iraini	2.1
11.	Kanjuri Secondary school	Secondary	Public	Mathira East	Magutu	2.2
12.	St. Jude Magunda Secondary school	Secondary	Public	Mathira East	Iraini	2.7

Source: Field Survey, 2025

Map 8 overleaf shows the educational facilities distribution in close proximity to the project area.

Map 8: Educational Facilities Distribution



Source: Geosurv Systems Limited, 2025

3.4.1.1 Early Childhood Development and Education Centre (ECDE)

The nursery school-going children from the project area have access to only one public ECDE facility (Kiangengi ECDE) which is located within 0.7km from the central point of the planning area. There is also a space for a public ECDE facility within the informal settlement which is yet to be developed. The rest of the neighboring ECDE facilities; Giakaibei ECDE, Itundu ECDE and Gathirathiru ECDE are located about 1.4km, 2.1km and 2.5km respectively from the settlement. The Physical Planning Handbook, 2007 recommends a walking distance of 500m for nursery school-going children. Using an accessibility index of 0.5km, the entire section of the households within the project area are not within the recommended accessibility index as shown in map 9. This calls for the need to construct an ECDE facility within the informal settlement.

3.4.1.2 Primary Schools

There is no public primary school within the project area. However, Kiangengi Primary School, Giakaibei Primary School and ACK Itundu Primary School located about 0.7km, 1.4km and 2.1km respectively from the settlement are accessible to the primary school-going pupils within the project area. Other accessible primary schools include Kanjuri Primary School, Gathirathiru Primary School and Gathehu Primary School located about 2.2km, 2.5km and 3.5km respectively from the informal settlement. Using an accessibility index of 2km as stipulated in the Physical Planning Handbook, (2007), all the homesteads are within the recommended proximity distance as shown in map 10.

3.4.1.3 Secondary Schools

Plate 11: Muthea High School

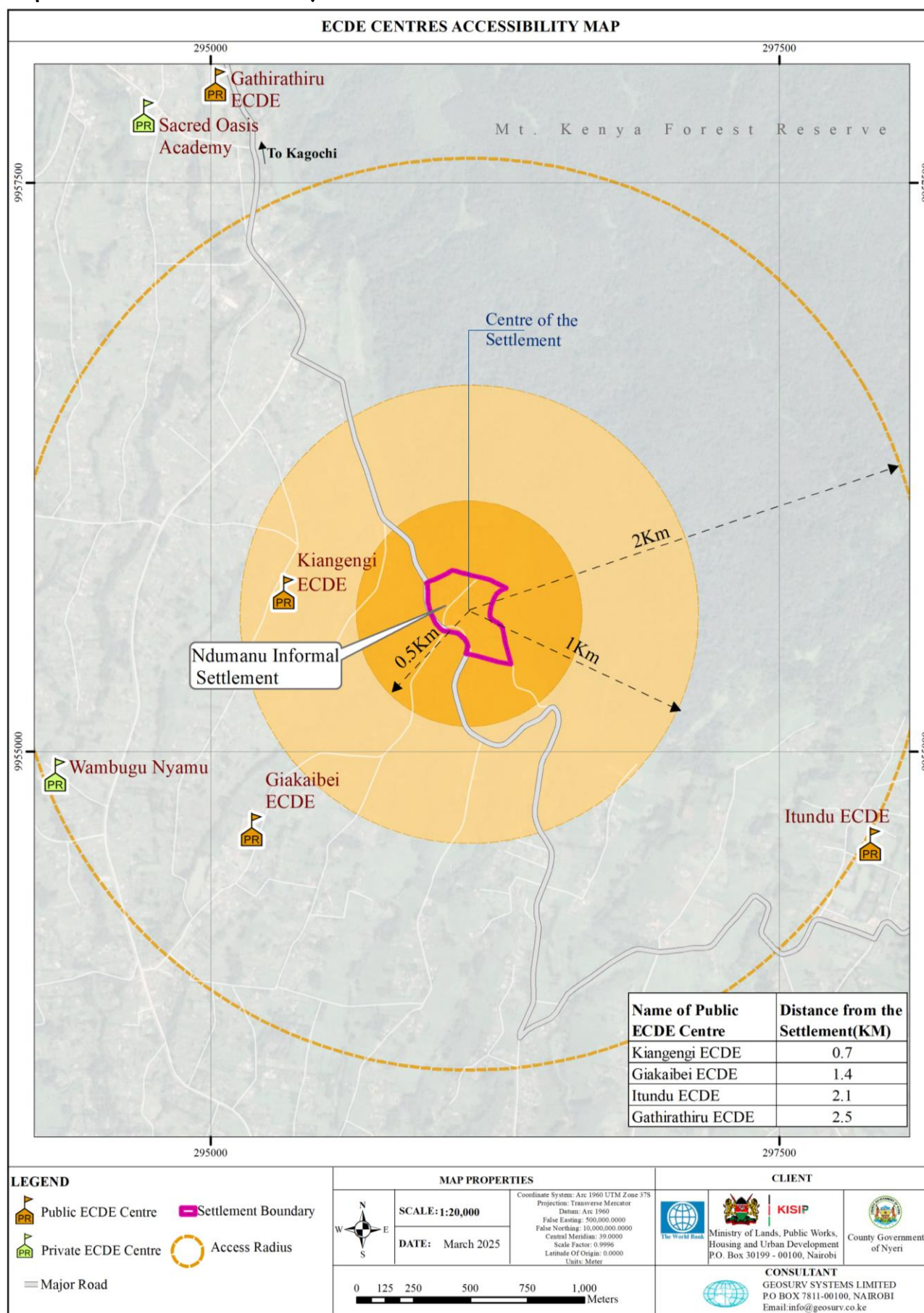


Muthea secondary school is located within the informal settlement's boundaries. Other accessible public secondary schools include; Kiangengi secondary school, Giakaibei secondary school, Itundu secondary school, Kanjuri secondary school and located about 0.7km, 1.4km, 2.1km and 2.2km and respectively from the settlement. These facilities are within the recommended 2.5km walking distance for secondary school going students as per the Physical Planning Handbook, 2007.

Source: Field Survey, 2025

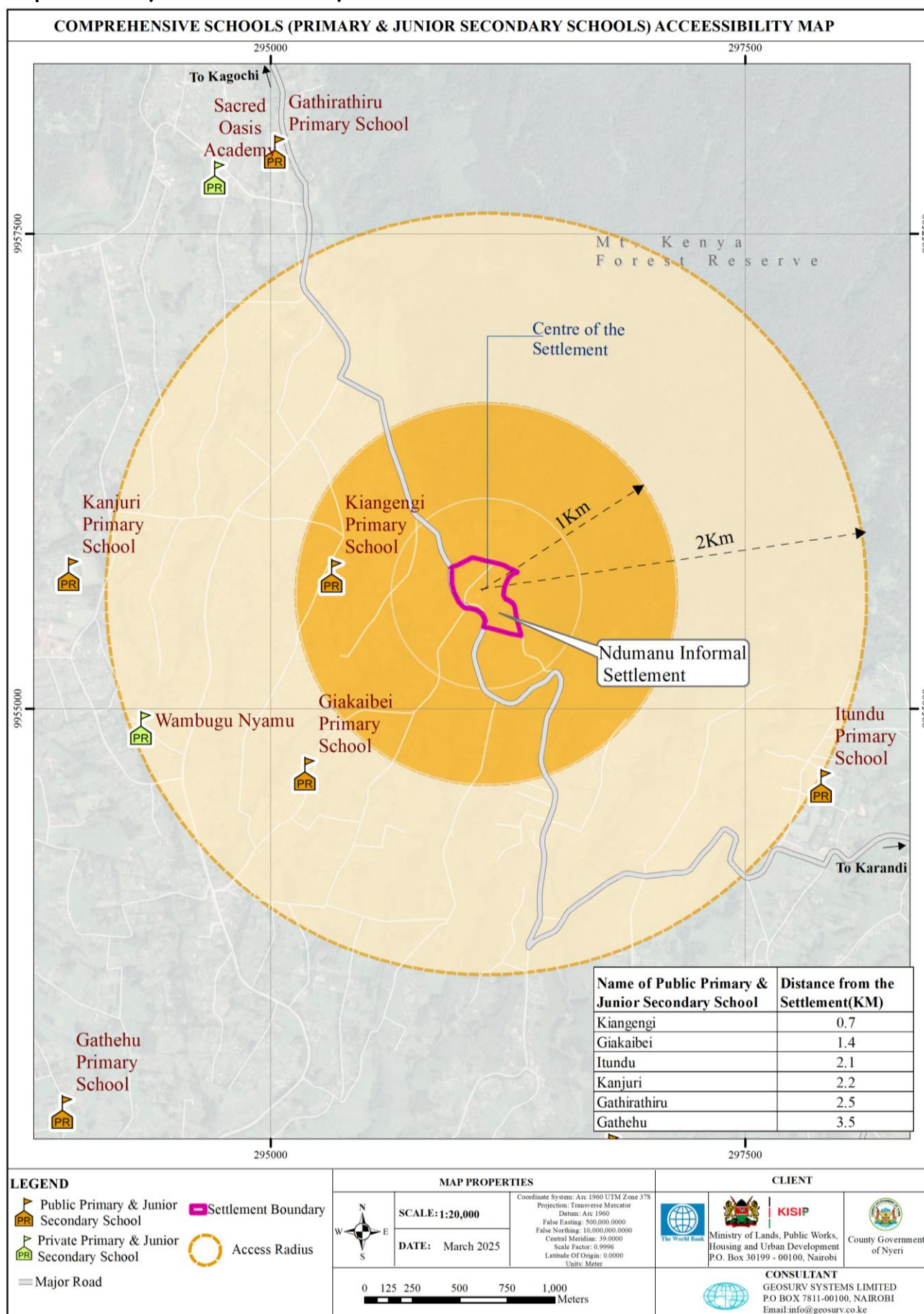
Students can also access secondary education from St. Jude Magunda secondary school approximately 2.7km away from the settlement, and outside recommended distance of 2.5km. These secondary schools can however come in handy to support secondary education needs of the population within the settlement. Map 11 shows the accessibility index of secondary schools within the planning area.

Map 9: ECDE Centres Accessibility Index



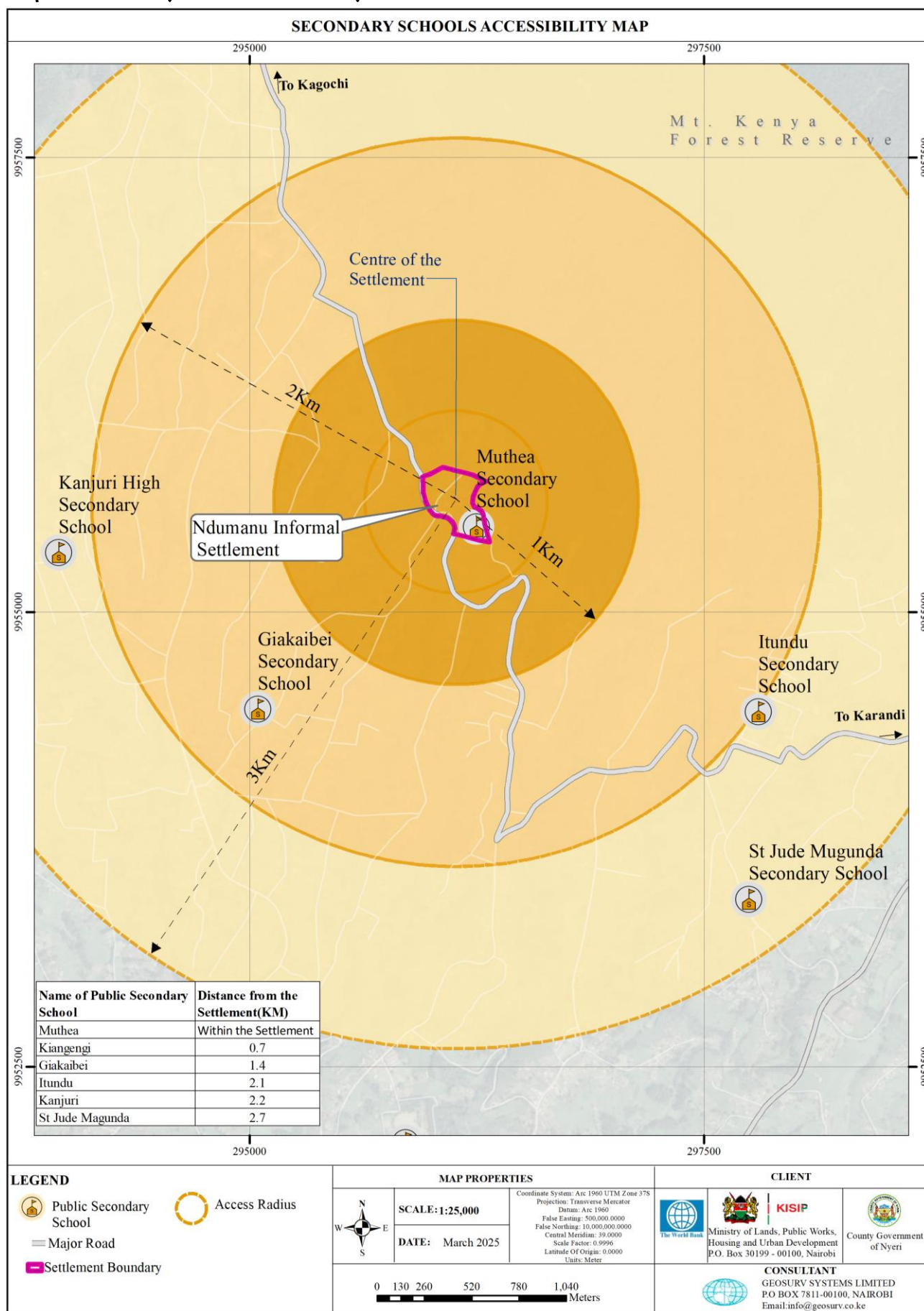
Source: Geosurv Systems Limited, 2025

Map 10: Primary Schools Accessibility Index



Source: Geosurv Systems Limited, 2025

Map 11: Secondary Schools Accessibility Index



Source: Geosurv Systems Limited, 2025

3.4.1.4 State of Education Facilities and Services

Half of the households have school going children. The population trends of the settlement validate this position since the young depended population accounts for 38% of the population. Similarly, the middle child bearing population of between 18- and 45-years accounts for 39% of the total settlement population. Of the 50% households with school going children, 95% of them have access and use public education facilities with only 5% attending private schools.

The school going children travel on average 5.2km to access and use public school. The minimum distance covered to a public school is 0.5km while the maximum is 80km. Majority of the school going children however travel between 2 and 4km to a public school. This population of school going children accounts for 33% while those covering between 0 and 2km are 29%. All private school going children cover over 6km to access and use a private school. The table below shows distance covered by school going children to access their respective learning centres.

Table 13: Distance to school

Distance (KM)	Public (%)	Private (%)
0.0 - 2.0	29%	0%
2.0 - 4.0	33%	0%
4.0 - 6.0	27%	0%
Above 6	12%	100%
Grand Total	100%	100%

Source: Field Survey, 2025

3.4.1.5 Projection of Required Educational Facilities within the Project Area

According to the Physical Planning Handbook (2007), one nursery school is required for every 2,500 people, one primary school for every 4,000 people and one secondary school for every 8,000 people. From the computations, it was deduced that the project area population had adequate accessible schools in the next 10 years. The projected population within the settlement is too small to meet the threshold population required to sustain these facilities as the provision of educational facilities is always dictated by the prevailing demand conditions. Thus, the neighbouring facilities will continue serving the settlement population. However, for the ECDE, the distance travelled to access Kiangengi ECDE, the closest facility, is more than the recommended walking distance. Thus, an ECDE needs to be constructed within the settlement to meet the demand.

Emerging Issues

Although there are no public primary schools within the project area, the population analysis based on the Physical Planning Handbook, 2007 show that the residents have access to adequate primary and secondary schools as recommended. Despite the fact that a few of the accessible primary and secondary schools are not within the recommended distance accessibility index of 2km and 2.5km respectively, the introduction of school transport negates the issue of accessibility of schools by distance covered. In addition, the secondary facilities are boarding schools hence the students don't have to walk daily to access them. Moreover, considering the population of the settlement, it would not be economically viable to provide another educational facility.

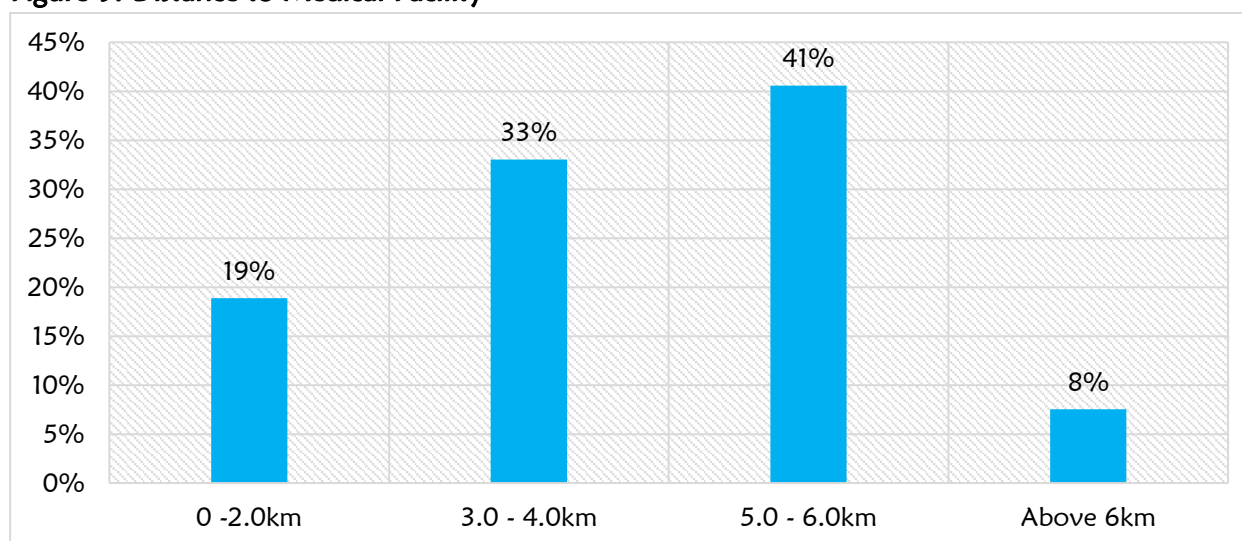
3.4.2 Health Facilities

The Constitution of Kenya, 2010, article 43 calls for the provision of standard health care services. Health services constitute some of the devolved functions as provided for in the fourth schedule of the Constitution. Access to efficient health services is a contributor to a healthy population.

Moreover, ease of access to these facilities influences their level of utilization as difficulties in access hinders their optimal utilization. Access to health services is described by the state of existing health facilities, health personnel and their distribution within an area.

The majority 96% of Ndumanu informal settlement residents indicated medical facilities are located outside the settlement and only 4% specified that a health facility is located within the settlement. On average, residents travelled about 5.2km to access a medical facility. As demonstrated in the chart below, majority 41% of respondents covered between 5 and 6 kilometres to the nearest public health facility. Another high proportion of 33% covered an estimated 3 to 4 kilometres to access medical services from a public health facility. This is attributed to absence of a health facility within the planning area since only 19% of respondents accessed medical services in under 2 km from their dwelling units as shown in the figure below.

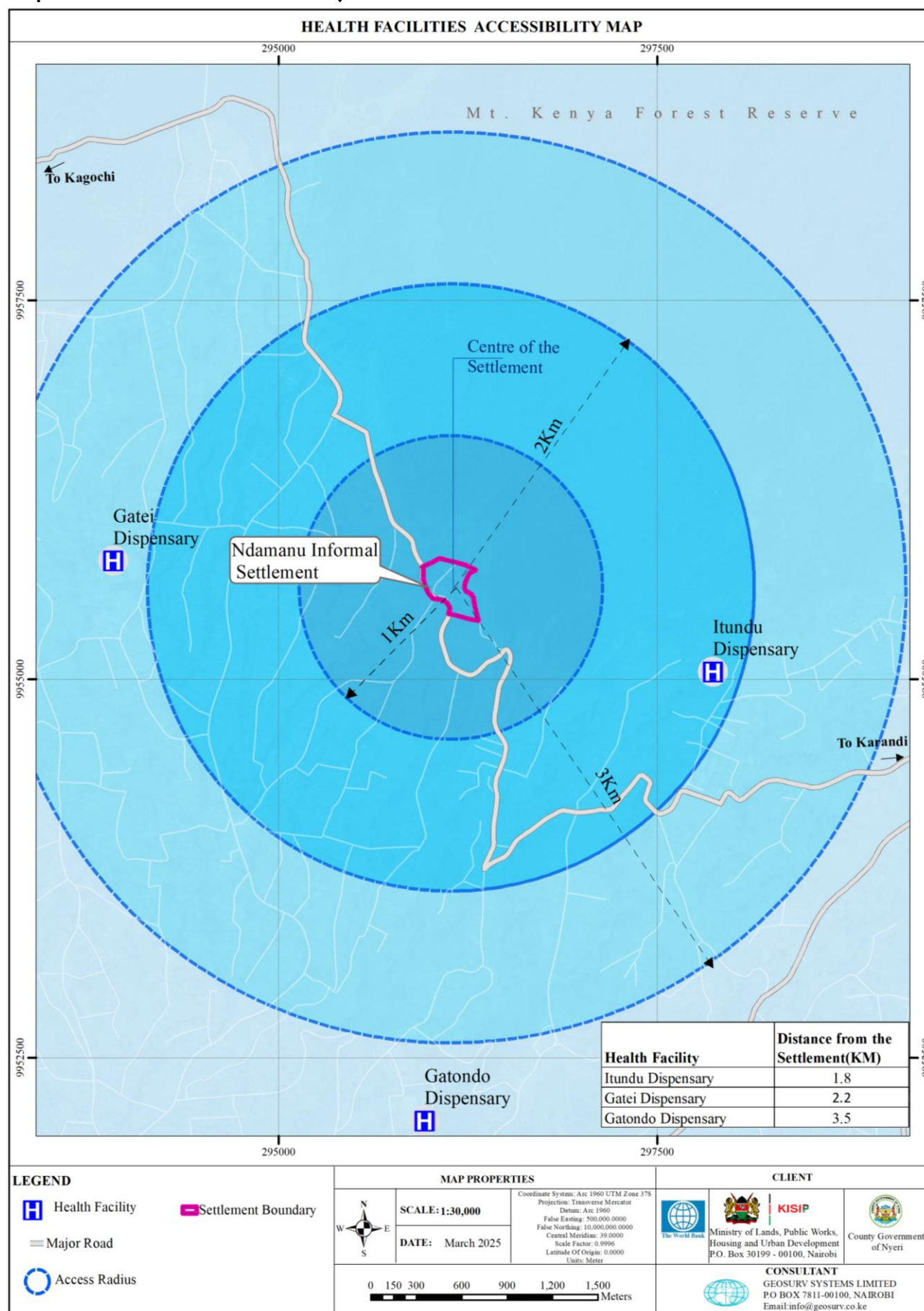
Figure 9: Distance to Medical Facility



Source: Field Survey, 2025

The residents of Ndumanu informal settlement have access to three health facilities all located outside the settlement. These facilities include; Itundu dispensary, Gatei dispensary and Gatondo dispensary located about 1.8km, 2.2km and 3.5km respectively from the settlement as shown in the accessibility index map overleaf.

Map 12: Health Facilities Accessibility Index



Source: Geosurv Systems Limited, 2025

3.4.3 Community Facilities

Religious Institutions

There are several religious facilities within the informal settlement namely; Full Gospel Church of Kenya, Free Pentecostal Fellowship, PCEA Ndumanu, ACK Ndumanu, SDA Church, AIPCA and Catholic Church.

Administrative Offices

Ndumanu informal settlement has one administration office; assistant chief's office.

The plate below shows some of the community facilities within the settlement.

Plate 12: Community Facilities



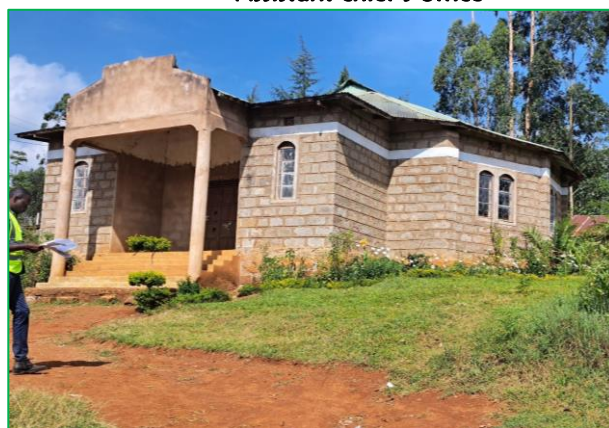
PCEA Church



Assistant chief's office



F.P.F.K Church



Catholic Church

Source: Field Survey, 2025

3.4.4 Emerging Issues

- The administrative office, assistant chief's office located within the settlement attracts people in need of administrative services.
- The presence of religious facilities increases the demand for goods and services during the days of worship

The table overleaf summarizes the emerging issues with regard to the settlement's social infrastructure/services.

Table 14: Emerging Issues – Social Services and Amenities

Element	Potential/Opportunities	Constraints
Education	○ Presence of Muthea secondary school ○ Accessible educational facilities within the recommended distances	○ Old and dilapidated structures in the public primary schools ○ Poor learning conditions in the public primary schools
Health	○ Accessible health facilities	○ Inadequate drugs and facilities hinder access to quality health care
Security and administrative facilities	○ Presence of assistant chief's office	○ Lack of other administrative/ security facilities in proximity to the settlement
Religious facilities, recreation and other social amenities	○ Presence of several religious facilities increases the demand for goods and services in the market during the days of worship	○ Lack of recreational facilities forcing children to play in the open grounds ○ Lack of a social hall – people hold meetings in the open or in churches

3.5 Economic Activities

A vibrant urban economy is made possible by the market's economic functions, infrastructure facilities, skilled human capital, stable property rights, and a safe environment. Analysis of economic systems is prudent for the understanding of human interactions, growth and development of an area. Kenya's Vision 2030 is founded on the economic, social and political pillars. Being one of the pillars identified to guide national agendas, the economy is therefore integral to any region's growth and development. Ndumanu informal settlement has a range of economic activities as outlined below.

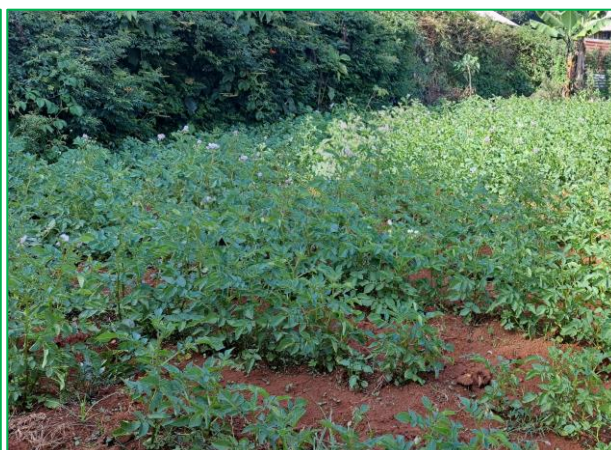
3.5.1 Agriculture

Agriculture is one of the main economic activities within Ndumanu informal settlement. It is practiced majorly on individual farms at household level within the village section of the informal settlement. It includes both crop farming and livestock keeping. Agriculture is facilitated by the location of the informal settlement in a favourable climatic condition for agricultural activities.

3.5.1.1 Crop Farming

Crops grown within the informal settlement include: maize, beans, bananas, sugarcane, sweet potatoes, cabbages, kales, pumpkins, passion fruits, potatoes, onions, arrow roots and avocados mainly for subsistence as shown in the plate below. Tea is the main cash crop grown within the settlement and its environs.

Crop production is however affected by a myriad of factors among them soil infertility, which renders soil nutrients unavailable for crop use like the case of failed maize crops above. Although the monthly earnings from crop production can't be specifically accounted for, the small land holdings can't guarantee any meaningful crop production. This implies that the farmers cannot rely only on agriculture, rather supplement it with other sources of income. To address the soil infertility challenges, the farmers need to shun from the use of conventional fertilizers that have been excessively used taking a toll on their output and instead use organic fertilizers to boost soil health.

Plate 13: Crop Farming**Passion fruits****Potatoes****Maize****Tea leaves***Source: Field Survey, 2025***3.5.1.2 Livestock farming****Plate 14: Livestock Farming***Source: Field Survey, 2025*

The main livestock kept in the area is mainly dairy cattle, poultry, goats and sheep. Despite being the main economic activity, agriculture in Ndumanu and its environs is sabotaged by; high cost of farm inputs (fertilizers, pesticides and seeds), pests and diseases, inadequate market for goods, deteriorating soil quality and diminishing land sizes. Agriculture is the backbone of our country; thus, more support can be accorded to the farmers and educating them on best agricultural practices that give maximum yield.

3.5.2 Trade and Commercial Activities

The market section of the settlement has several commercial activities offering low order goods and services to the informal settlement's population. These activities are scattered all over the market and are largely driven by the informal sector. This includes transport (bodaboda), small scale commercial activities (retail shops and bars) and sale of *mitumba* clothing as shown in the plate overleaf:

Plate 15: Commercial Activities

Source: Field Survey, 2025

These commercial activities can be categorized into two; formal and informal businesses. The formal businesses are set up on permanent or semi-permanent buildings and have the statutory requirements such as trading licenses. They comprise of general shops, chemists and pharmaceuticals, posho mills and salons among others. The informal ones on the other hand are located on temporary stalls encroaching on the road reserves and don't have the required statutory documentation with regard to their establishment. These mainly include green groceries, charcoal and firewood selling among others. In most cases, the informal businesses front the formal businesses housed on permanent structures. This results to conflicting interests between the formal and informal businesses resulting to space contestation issues.

3.5.2.1 Financial Services

Safaricom M-pesa service providers' offer financial services through the provision of money deposits, withdrawal and electronic money transfers.

3.5.2.2 Transportation

Transportation as an economic activity has employed a number of youths in the settlement who ferry passengers and goods using motorcycles popularly known as *boda bodas* to various destinations.

3.5.3 Household Economic Assessment

3.5.3.1 Occupation

The main occupation is casual labourer at 41% of all forms of occupation for residents of Ndumanu informal settlement as shown in the table above, other major forms of occupation for residents include business/self-employment at 17% and farming/livestock production at 10% as shown in the table below.

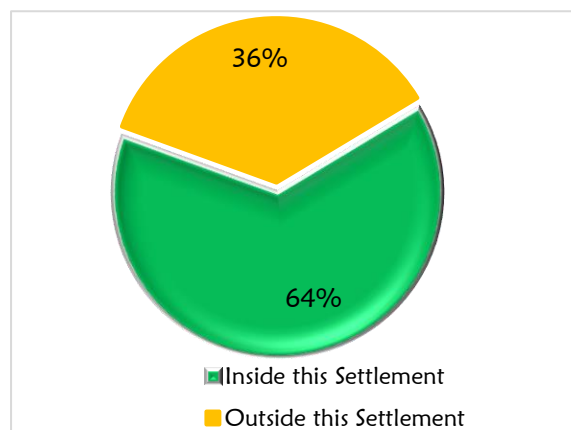
Table 15: Occupation

Occupation	Percentage
Casual Laborer	41%
Self-employed/Business	17%
Farming/Livestock keeping	10%
Private Company employment	4%
National Government Employment	2%
Unemployed	26%
Total	100%

Source: Field Survey, 2025

The high rate of unemployment calls for strategic interventions in availing and encouraging them to join vocational and technical training schools to better their skills, capacities and abilities to meet labour market demands, create employment opportunities for them in agriculture and animal husbandry, industries and agro-processing among other development sectors of the economy. Creating a conducive business environment would also encourage private investments in business and development projects that would create employment opportunities for residents.

Figure 10: Place of Work



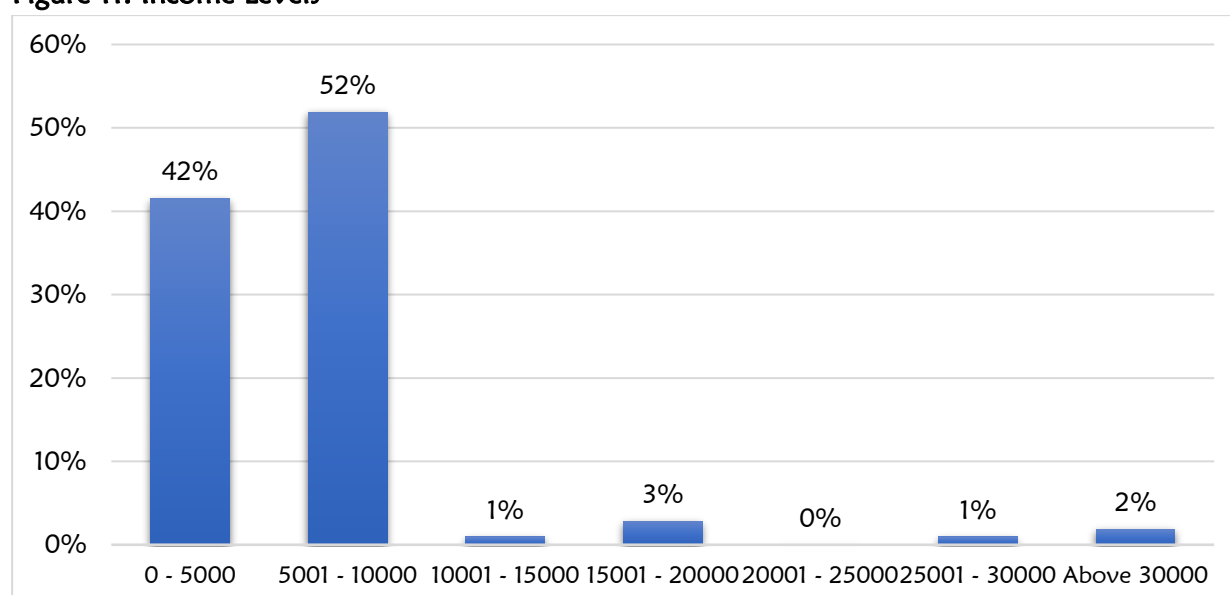
A high proportion of 64% of residents work within the informal settlement. There were 36% of respondents who work outside Ndumanu informal settlement. This relates to the nature of occupation for residents who are self-employed people carrying out business within the settlement. Farming and livestock keeping especially dairy farming is usually sedentary and hence movements are limited as feeds and agricultural practices are on a fixed land, hence working within the settlement. casual labourers move place to place in search for casual jobs.

Source: Field Survey, 2025

3.5.3.2 Income

The average monthly income for residents was KES 8,088. The least amount earned by a respondent is KES 800 while the maximum amount is KES 100,000 a month. This shows enormous income disparities for residents with a very high-income gap between the highest and lowest earning individuals. Almost three quartiles of the population earn less than KES 10,000 a month. They account for 94% of the entire settlement population. Therefore, just 6% of the settlement working population earn more than KES 10,000 a month as shown in the figure below.

Figure 11: Income Levels



Source: Field Survey, 2025

Intervening measure for are needed to reduce the wage gap, increase purchasing power of residents and improve on their living standards. As it can be deduced, majority (73%) of the residents live

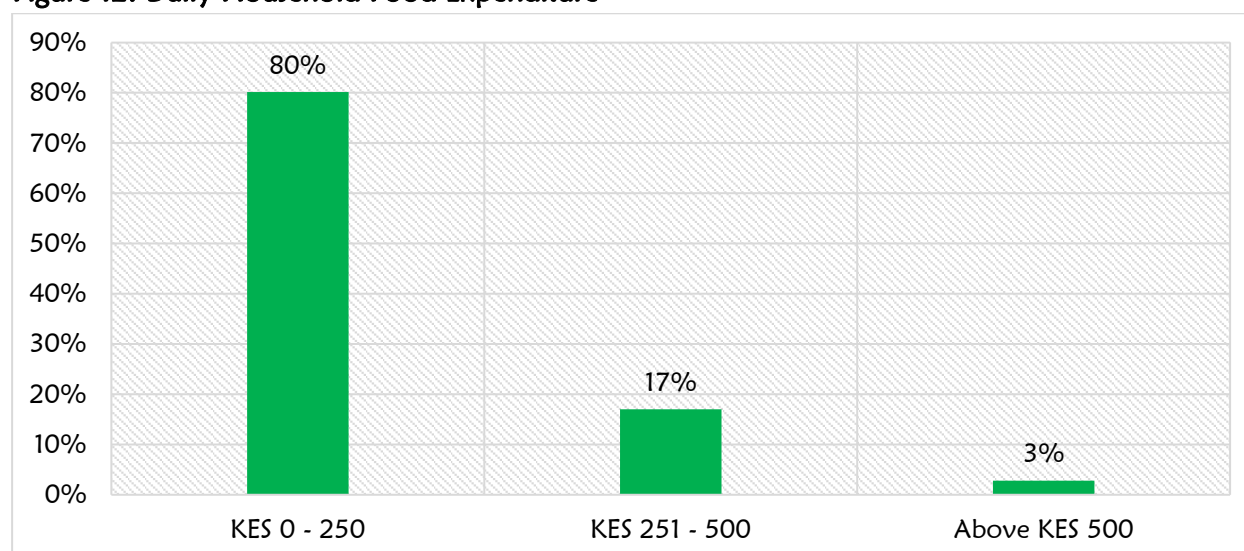
below the poverty line of \$2.15, equivalent to KES 279.50 a day. These residents earn a maximum monthly income of KES 8000, equivalent to KES 266.67 a day. Capacity building, training and creation of high-income generating opportunities are due to bridge the income gaps within the settlements. These could include agro-processing and value addition for agricultural produce, upscaling agricultural production to meet international standards and create opportunities for export of the produce, industrialization, and infrastructure development programs are some potential opportunities for addressing the prevailing income gaps.

3.5.3.3 Households' Expenditure

Daily Expenditure on Food

Majority of households in Ndumanu informal settlement spend below KES 250 on food a day. This accounts for 80% of the settlement's household population. There were some 17% of households with an average daily expenditure of between KES 250 and KES 500 a day. Just a small share of 3% of households whose daily food expenses exceed KES 500. The average daily expenses on food within the informal settlement is KES 306.32. The following graph provides a distribution of daily food expenses per household within the planning area.

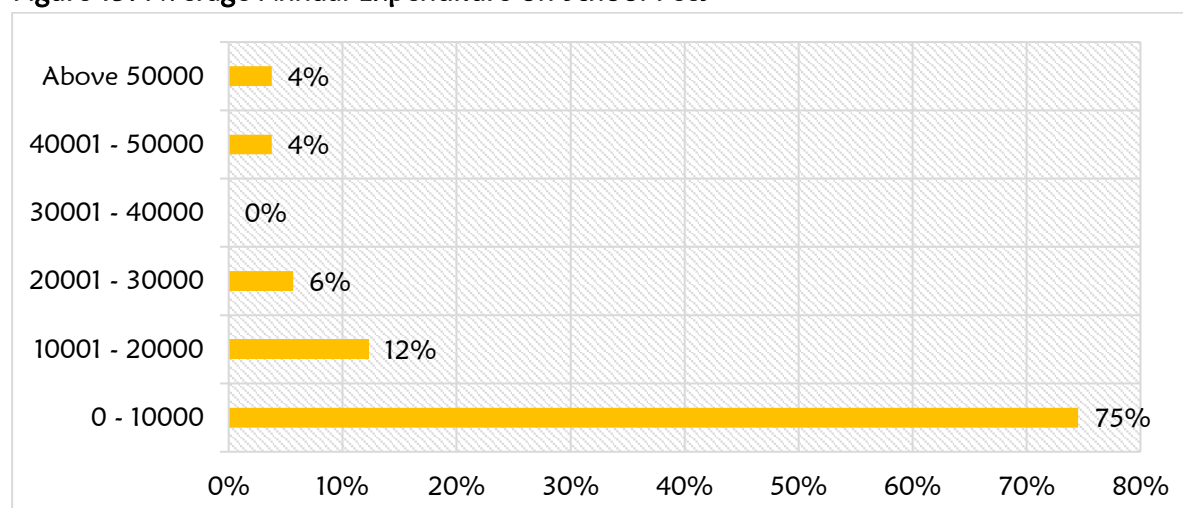
Figure 12: Daily Household Food Expenditure



Source: Field Survey, 2025

Annual Expenditure on School Fees

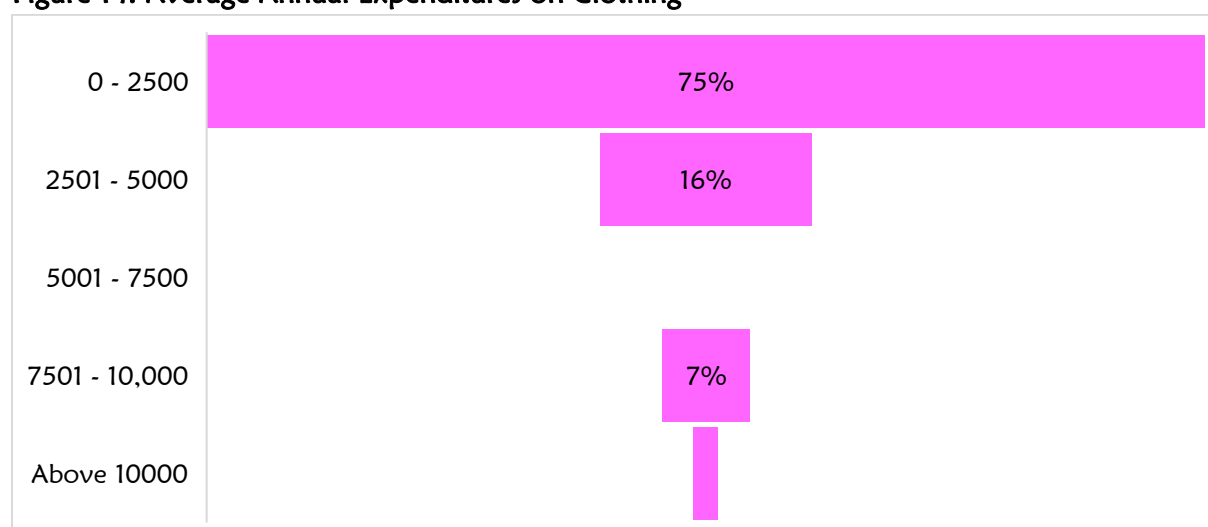
Majority of households with school going children incur school fees expenses. According to the socio-economic survey, majority 75% of the households have an average annual school fees expense of below KES 10,000. There were another 12% households with an annual expenditure on school fees of above KES 10,000 and KES 20,000. Just 8% of households whose average annual expenditure on school fees exceeded KES 40,000. This is shown in the figure above. The average school fees expenses per household per year is KES 12,642.45 as shown in the figure overleaf:

Figure 13: Average Annual Expenditure on School Fees

Source: Field Survey, 2025

Annual Expenditure on Clothing

On average, majority 75% of households within the planning area have annual clothing expenses of less than KES 2500. There were only about 16% of households in Ndumanu informal settlement with an average household expenditure on clothing for between KES 2,500 and KES 5000. Only 9% of the households with annual average expenses for clothing that were above KES 7,500. The meagre annual expenses on clothing greatly correlate with the average income levels for residents with majority earning little to just survive a day.

Figure 14: Average Annual Expenditures on Clothing

Source: Field Survey, 2025

3.5.4 Opportunities and Challenges in Economic Activities

3.5.4.1 Opportunities

- Market is well connected to other higher order towns by a good road network from which various goods and services flow to and from the market
- Employment and income can be enhanced via proper value chain planning of the economy to utilize all the available potential accruing to the market and its environs
- High potential for agricultural production hence the need for modernization farming so as to increase farm yields.

3.5.4.2 Challenges

- Low agricultural production as a result of climate change, soil infertility, emerging pests/diseases and diminishing plot sizes which can't support any meaningful agricultural production
- Inadequate infrastructure facilities and services in the settlement

The table below summarizes the emerging issues with regard to the settlement's economic activities.

Table 16: Emerging Issues – Economic Activities

Element	Potential/Opportunities	Constraints
Connectivity	○ Well connected to higher order towns – easy access for trade activities	○ Unreliable means of transport – the matatus plying the route are not ideal for transportation of bulk agricultural products
Agriculture	○ High potential for agricultural activities due to the favorable climatic conditions	○ Low agricultural production due to acidic soils and uneconomical land sizes
Trade and commerce	○ Available land for expansion of trading activities ○ High connectivity of the market to other towns enhances trading activities ○ High potential for expansion of business activities ○ Presence of M-banking services (Mpesa) is a catalyst for business growth	○ Dormant commercial activities – small scale businesses offering low order goods and services ○ Lack of the threshold vibrancy for business prosperity ○ Duplication of trading activities – retail shops rather than diversifying to other activities

3.6 Infrastructure and Utilities

3.6.1 Overview

The adequacy of infrastructure helps determine one country's success and another's failure in diversifying production, expanding trade, coping with population growth, reducing poverty or improving environmental conditions. Good infrastructure raises productivity and lowers production costs but it has to expand fast enough to accommodate growth. Most of the poor segment of the population resides in the rural areas and the growth of farm productivity and non-farm rural employment is linked closely to infrastructure provision. The urban poor often benefit most directly from good infrastructure services because they are concentrated in settlements subject to unsanitary conditions, hazardous emissions and accident risks. This sub-section examines transport, energy, and water provision, liquid and solid waste management.

3.6.2 Transportation

An efficient transportation system is a prerequisite for socioeconomic growth and development as it opens up resource potential areas, links activity spaces (employment and service areas) and enables the circulation of goods and services. Proficient transport connectivity is crucial as it opens up the market locally, regionally and internationally thus providing access to the market for the agricultural produce, employment opportunities in other areas and offering investment opportunities in and outside the county.

3.6.2.1 Existing Road Network

The main road traversing Ndumanu informal settlement is Itundu-Ragati Road. The Trans-African Road, Nairobi - Nanyuki Road (A2) which connects the region to the Republic of Ethiopia through the Moyale border is located in close proximity to Ndumanu informal settlement. Road A2 also links the settlement to the Kenya's Capital, Nairobi. At the local level, the interconnectivity is well laid out providing access to land parcels and activity spaces. Itundu-Ragati Road connects to Nairobi – Nanyuki highway (A2) at Karatina via Ihwagi – Kagochi Road.

3.6.2.2 Road condition

Itundu-Ragati Road is murramed and in fair condition. The road is currently being upgraded to bitumen standards. The main external roads are murramed and in fair condition. The rest of the access roads are of earth surface type, hence dry weather roads and are impassable during the rainy season. This affects the accessibility to various activity spaces. Grading of the roads will improve interconnectivity of the different settlement functions. In addition, there is need for the widening of the internal roads which are too narrow for vehicular transport. The photographs in the plate below show the condition of the existing roads.

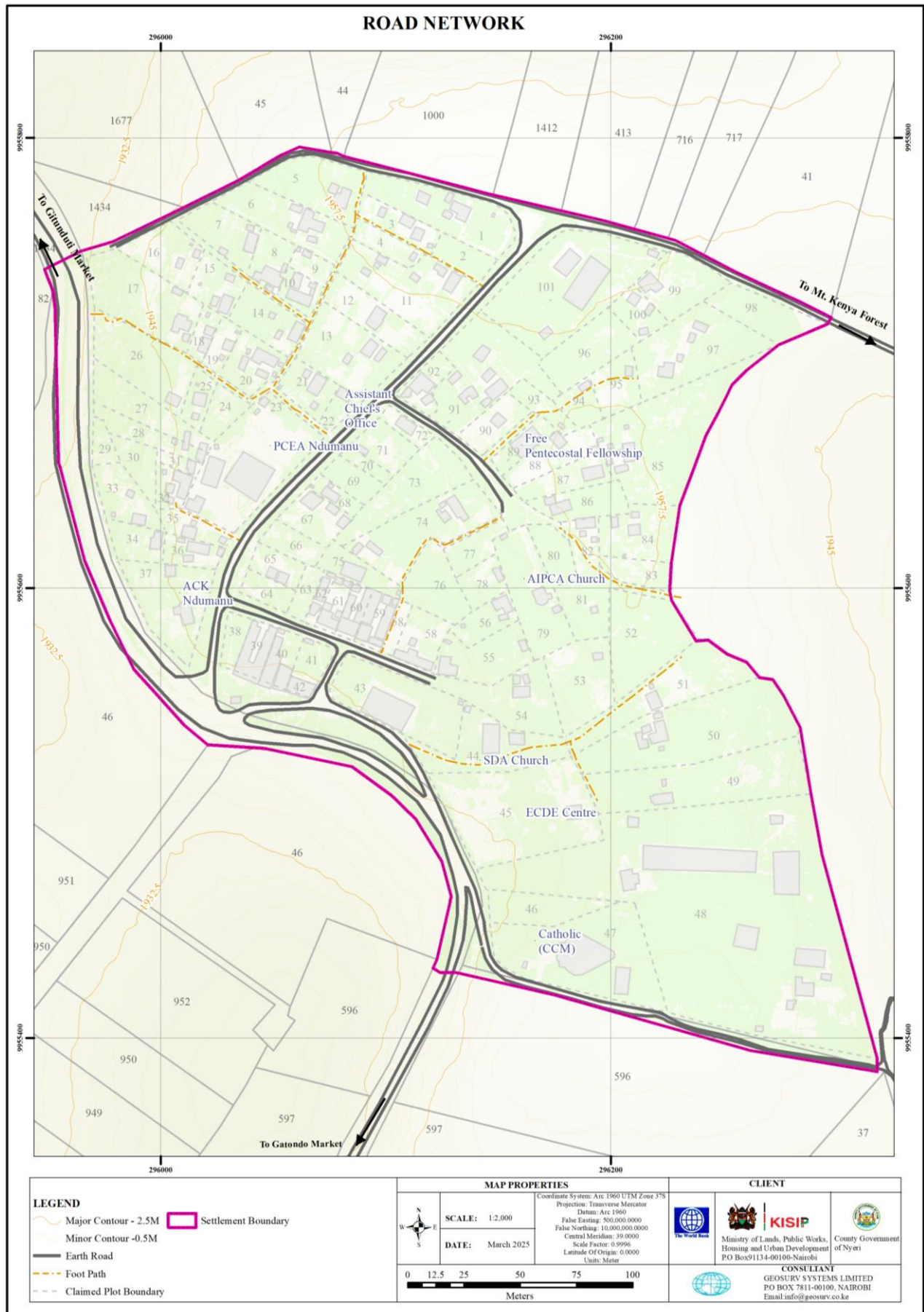
Plate 16: Road Condition



Source: Field Survey, 2025

The map overleaf shows the local road network

Map 13: Existing Road Network

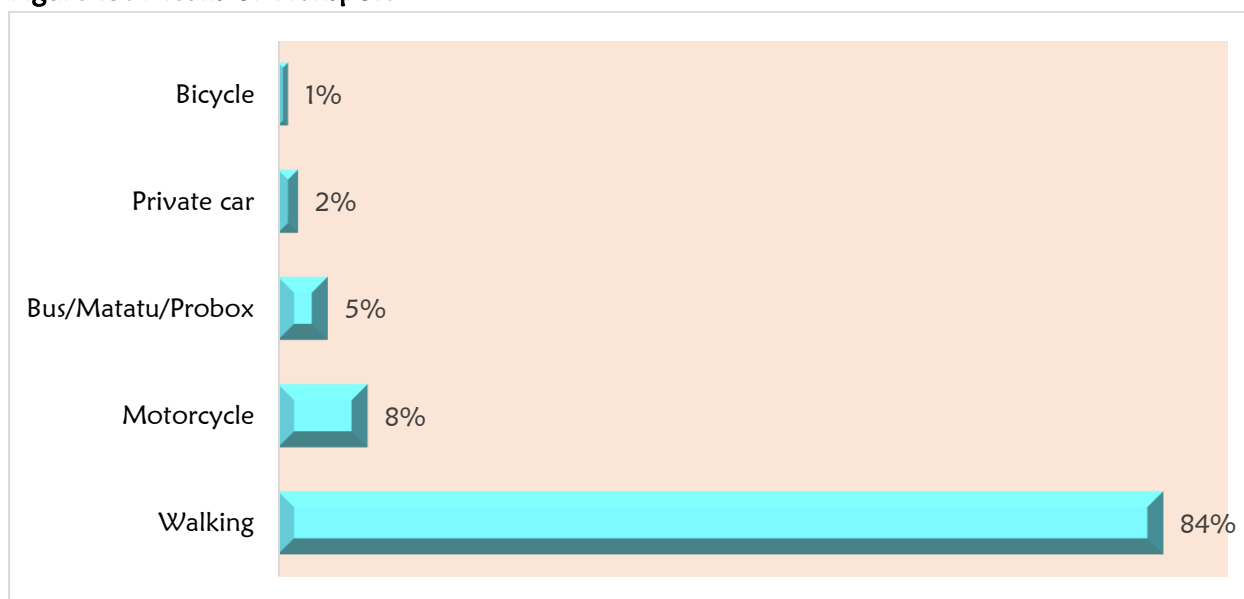


Source: Geosurv Systems Limited, 2025

3.6.2.3 Means of transport

Walking is the primary means of transport for residents in Ndumanu informal settlement. It accounts for 84% of all transport means used by residents to move from one activity place to another. Other means of transport include use of motorcycles at 8%, use of bus/Matatu/probox at 5%, use of private car at 2% and bicycling at 1% as shown in the figure below. Walking is a non-motorised transport (NMT) means, highly environmentally sustainable, a human age-old transport mode. It contributes to environmental conservation and protects the planet by being pollution free. There is need to provide sufficient facilities to make walking fascinating. This means installation of paved pedestrian footpaths, street furniture in strategic tree shade stations, and flowered/vegetated and manicured walking lanes. There is need to encourage bicycling which is another NMT by developing cycling lanes that are safe and secure for cyclists.

Figure 15: Means of Transport



Source: Field Survey, 2025

3.6.3 Storm Water Drainage

Surface drains which play a key role in managing runoff and flood management are lacking in Ndumanu. The access roads don't have storm water drainage channels. Stormwater traverses the roads following the natural gradient as there isn't a defined drainage system in the settlement thus surface run-off makes pools around the lowest points. This interferes with the settlement's aesthetics. The plate below shows the flow of surface run-off into a low point (plate 17a) and the lack of storm water drainage channels along the access roads (plate 17b).

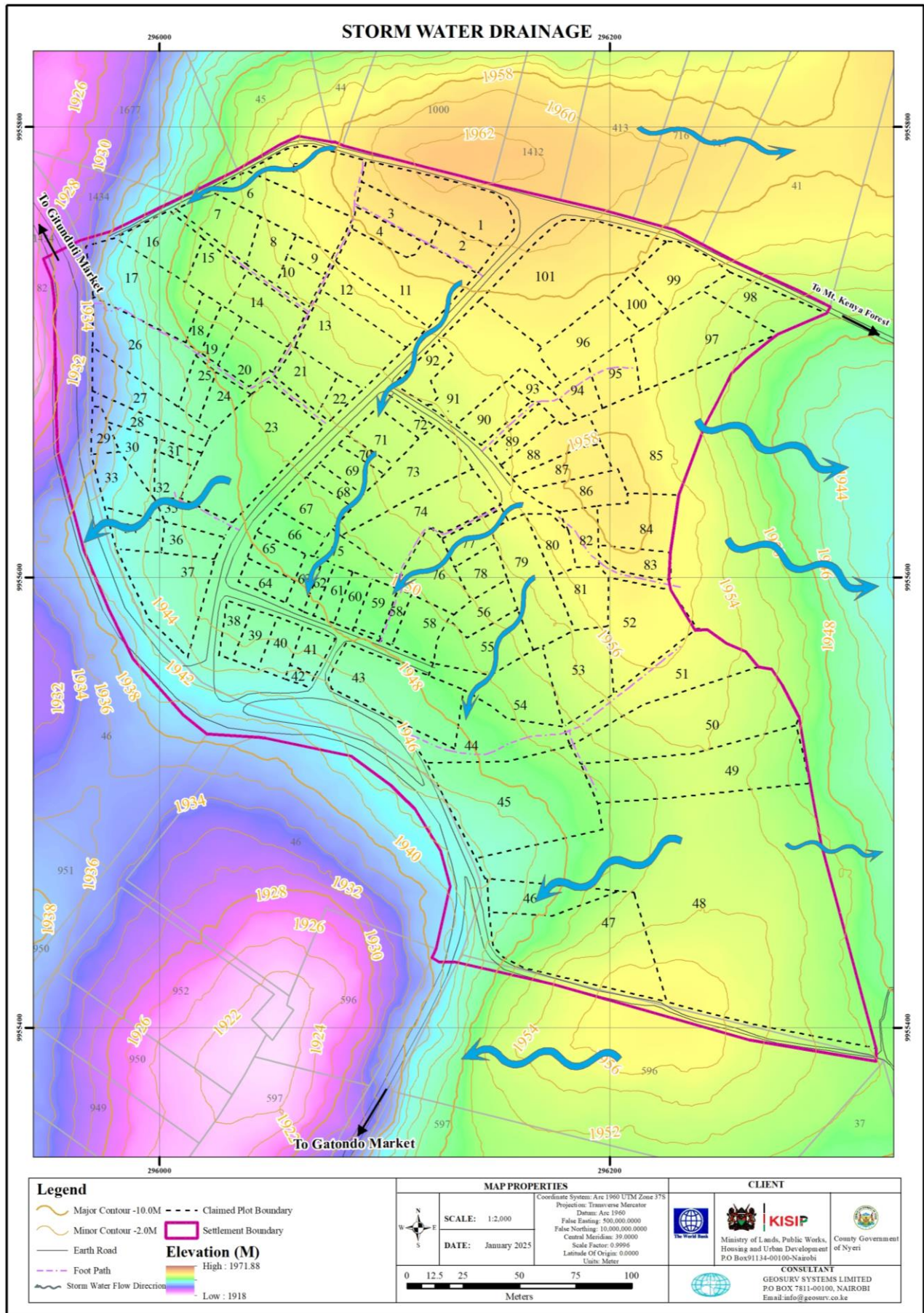
Plate 17: Storm Water Drainage

Source: Field Survey, 2025

There is need for installation of proper drainage channels for surface run-off so as to mitigate any possible flooding in the settlement. To reduce the surface run-off, rain water harvesting programs need to be promoted as well as harvesting of the surface run-off for agricultural activities. In addition, enhancing urban forestry would help reduce the impervious layers thus increasing water infiltration into the ground.

The map overleaf shows the flow of storm water drainage in the settlement

Map 14: Storm Water Drainage



Source: Geosurv Systems Limited, 2025

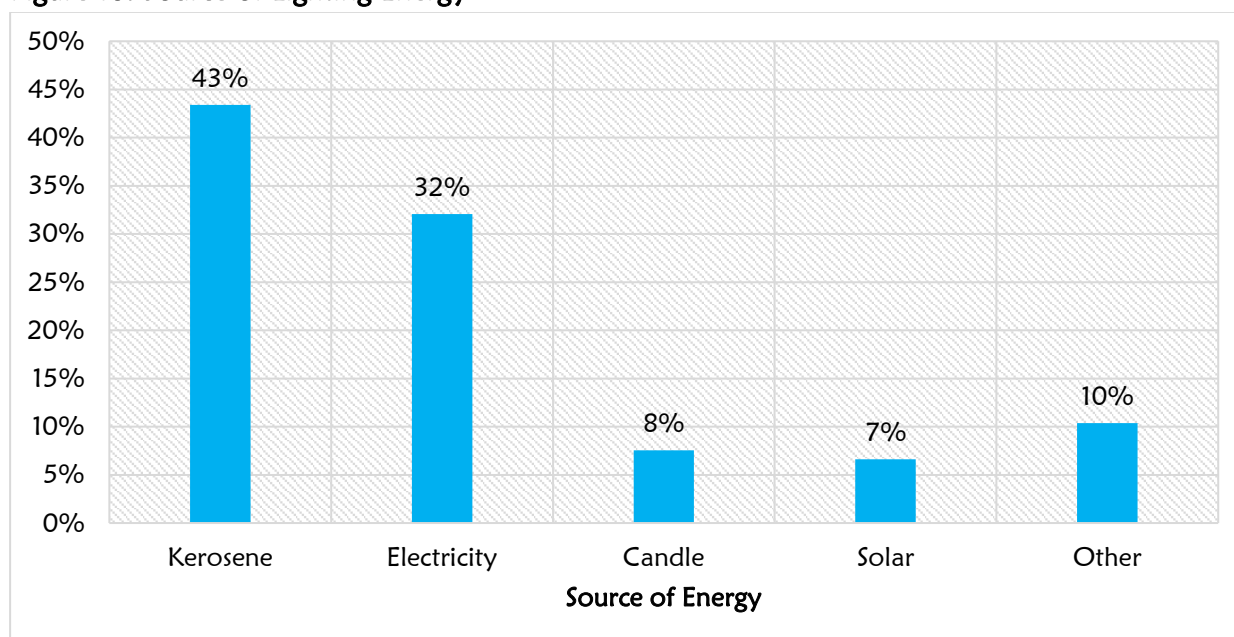
3.6.4 Energy

Energy and especially electricity is a key factor of production in economic development. Energy provision results in both household and industrial production. Access to electricity has an impact on attracting investors to a region. Thus, electricity provision especially in the rural areas boosts industrial development through investment in agro-processing industries and cottage industries.

3.6.4.1 Lighting

The main sources of energy used for lighting by households in Ndumani settlement include kerosene, electricity, candle and solar. These were used by 43, 32, 8, and 7 percent respectively as shown in the figure below.

Figure 16: Source of Lighting Energy



Source: Field Survey, 2025

Kerosene and electricity are therefore the primary sources of energy for lighting within the settlement. The use of kerosene poses health and fire safety issues with wick smoke a recipe for ailments. Its extraction mode, just as electricity, have environmental implications. There is noted low-rate consumption of solar energy for lighting. This is a green sustainable energy type. Measures such as reducing the cost of purchase and installation of solar should be championed for the sake of environmental care and protection. Besides, after installation, solar energy is highly sustainable, has low maintenance costs, and is reliable. Candles are unsustainable lighting modes and exposes dwelling units to fire outbreaks, especially if not correctly monitored and handled.

3.6.4.2 Electricity Connection

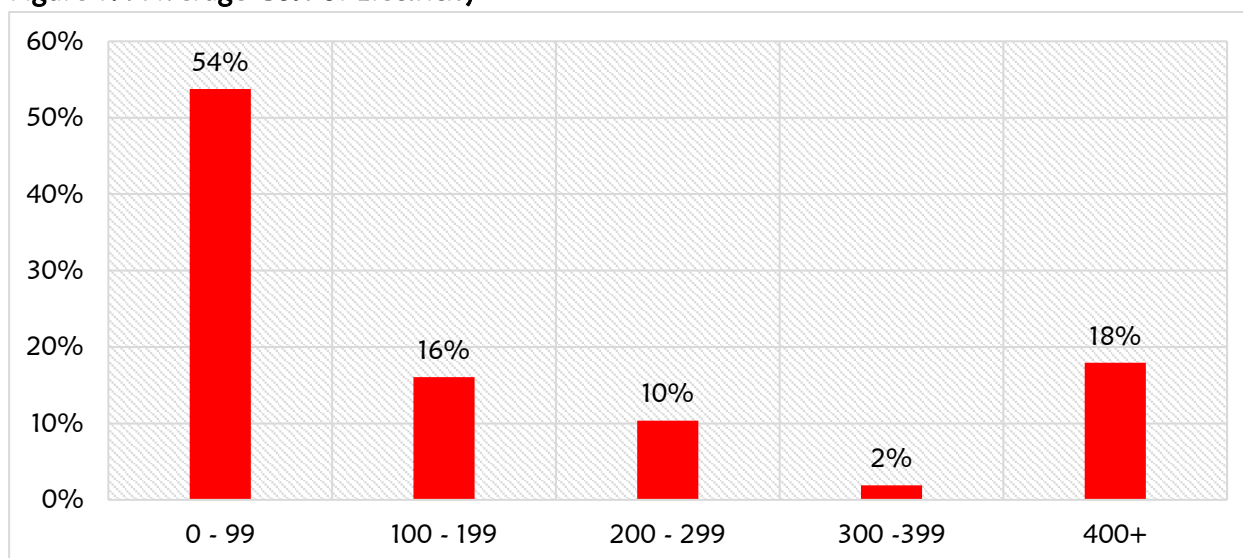
Majority 68% of households within the planning area were not connected to electricity. Just a small proportion of 32% of households are connected to electricity. The low rate of connection to electricity is attributed to a myriad of factors among them; high cost of connection, and tedious and lengthy procedure for electricity connection.

3.6.4.3 Average Cost of Electricity per Monthly

A household connected to electricity paid an average of KES 237.23 a month for electricity consumption. The minimum amount paid by a household was KES 20 a month while the maximum electricity bill was KES 1000. Most of the households, about 54%, paid below KES 100 for electricity

a month. There were some 18% households whose monthly electricity cost exceeded KES 400. The figure below demonstrates electricity expenses by connected households a month.

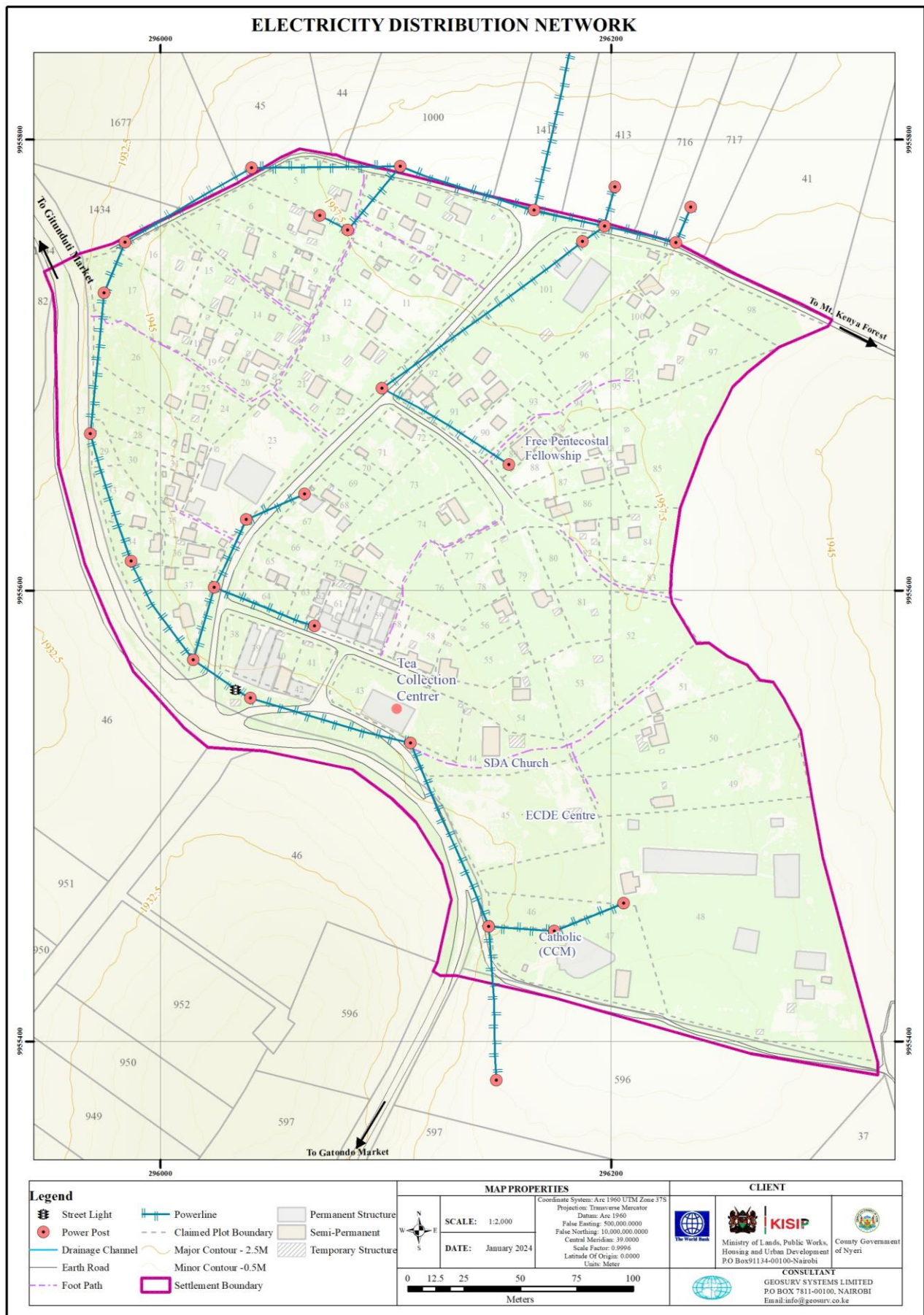
Figure 17: Average Cost of Electricity



Source: Field Survey, 2025

The map overleaf shows electricity distribution network in the settlement:

Map 15: Electricity Distribution Network



Source: Geosurv Systems Limited, 2025

3.6.4.5 Cooking Energy

The primary source of cooking energy for households in Ndumanu informal settlement is firewood. It accounts for 86% of all energy sources used for cooking in the planning area. Charcoal is the other major source of cooking energy at 5%. Other types of energy used for cooking at the planning area are paraffin, and electricity each at 1% as shown in the table below.

Table 17: Cooking Energy Sources

Energy Type	Percentage
Firewood	86%
Charcoal	5%
Paraffin	1%
Electricity	1%
Other	8%
Total	100%

Source: Field Survey, 2025

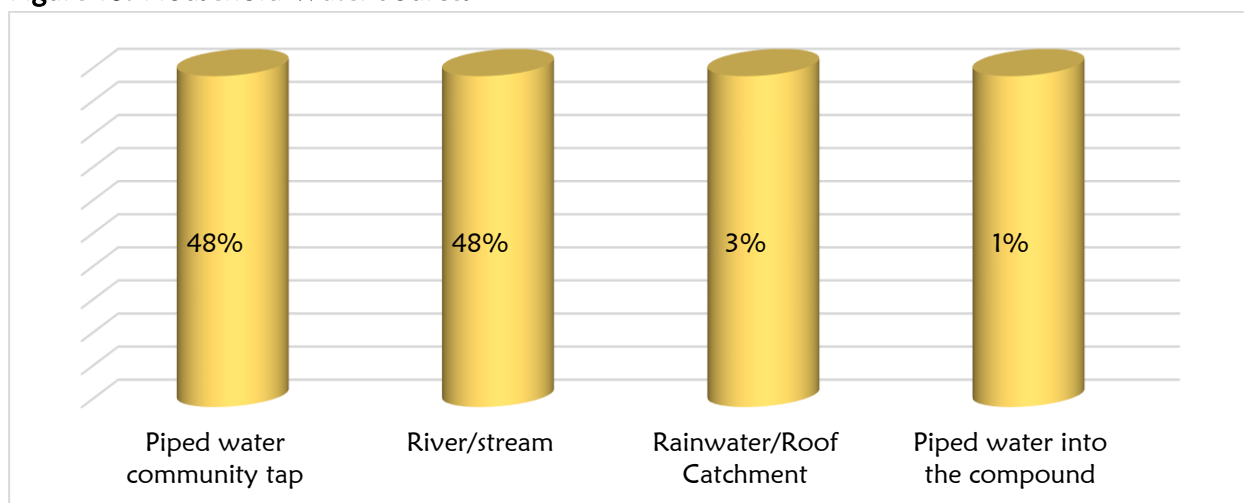
The use of timber for cooking energy is highly unsustainable. To access firewood and charcoal, trees and vegetation have to be cleared, hence use of firewood and charcoal contributes to deforestation. This results to loss of vegetation cover, and contributes to climate change effects. There is zero use of clean energy such as LPG for coking. There is need to undertake sensitization initiatives and subsidize on the cost of clean renewable energy sources such as LPG and Solar for cooking, with a key focus on environmental sustainability. The introduction of Biogas as a cooking energy source will help mitigate the environmental effects associated with firewood and charcoal. The average household cost of cooking energy is KES 114 per month in Ndumanu informal settlement.

3.6.5 Water Supply and Consumption

3.6.5.1 Water Supply

The main water supplier for Ndumanu informal settlement is Kihore Water Project. Piped community water taps and rivers/streams are the main sources of water for majority of the households within the planning area. Each account for 48% of all household that source water from either water sources. Other sources of water comprise of rainwater/roof catchment by 3% of households. There are only 1% of households with piped water into their compounds.

Figure 18: Household Water Sources



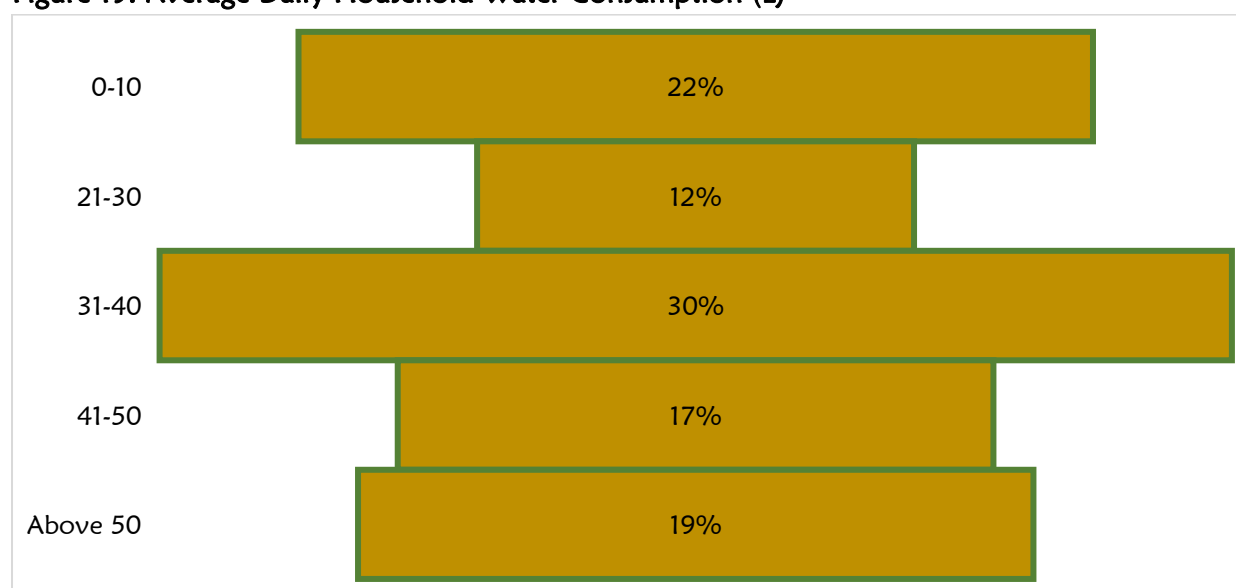
Source: Field Survey, 2025, 2025

There were zero households with piped water connected into their dwelling units. Rainwater/roof catchment is taken raw, untreated, just like river or stream water. While the rate of contamination of rainwater can be managed at household level through proper handling and storage, residents have no control over contamination of river/stream water. Therefore, they are exposed to contracting waterborne diseases including typhoid, cholera, dysentery, hepatitis among others. As such, river/stream water, as well as untreated rainwater/roof catchment is unsuitable for domestic consumption. There is need to invest in water filtration and treatment plant to treat and supply the river/stream water to residents. Water reticulation and household connection rates should be increased for ease of access to clean and safe water for household consumption. Households within the settlement spent on average KES 37 on water a day.

3.6.5.2 Water Consumption

Majority of households within the planning area use between 31 and 40 litres of water daily. There were some 22% households with a daily water consumption rate of below 10 litres. An estimated 19% of households participating in the survey had an average daily water consumption rate of more than 50 litres. These are the only residents who meet the recommended daily human water consumption threshold of between 50 and 100 litres by world health organization (WHO). The figure below demonstrates the daily average water consumption metrics within the planning area.

Figure 19: Average Daily Household Water Consumption (L)



Source: Field Survey, 2025

Most of the residents need to increase water consumption. This can be addressed by addressing water access challenges such as providing clean and safe water for their use instead of stream/river water, reducing the cost of water for them to afford, and undertaking sensitization and awareness initiatives to promote water consumption for better health of residents.

3.6.6 Sanitation and Hygiene

Sanitation and hygiene are critical for promoting better health, clean and liveable environment. Within the planning area, sanitation and hygiene conditions are classed into solid and liquid waste management. These broader aspects of the settlement are discussed as follows as per the socio-economic survey findings.

3.6.6.1 Liquid Waste Disposal

There is absence of conventional sewer system for liquid waste management in Ndumanu informal settlement. Dwellers dispose of the wastewater and grey water they generate through traditional wastewater disposal methods.

a) Access to bathrooms

According to the socio-economic survey, just a small proportion of about 37% have access to bathrooms. The majority 73% therefore lack access to a bathroom. Among those with access to bathrooms, the majority 49% share a bathroom within the plot of residence, another 41% have their private bathroom inside their living structure, and the other 10% share a bathroom situated outside the plot where they live. Those without access to bathroom, the majority in the settlement, have devised alternative bathroom facilities. The majority 63% of them did not specify the other alternative bathroom they use while 25% bath outside the plot at night in darkness, 9% inside the plot at night in darkness, and 3% request to use their neighbours' bathroom facility.

b) Access to toilet

The 2025 socio-economic survey found out that majority 89% of respondents had access to a toilet facility. However, an estimated 11% did not have access to a toilet. Pit latrine was the main type of toilet used by 99% of households with access to toilet with only 1% using flush toilet. Pit latrines are unsustainable liquid waste disposal mechanism since it infiltrates to underground water available to residents in streams/rivers.

The residents in their majority use streams/rivers as major water sources. Therefore, infiltration of liquid waste contaminates underground water domestically used by residents, exposing them to water borne disease. The 11% without access to toilet devised alternatives to toilet which include use of public toilet at 27%, open defaecation in the bush at 18%, and request to use their neighbours' toilet at 18%. There were other alternatives at 36%, though unspecified. There is need to invest in public toilet facilities that are clean and affordable to residents to contain open defecation. Carry out sensitization and awareness creation to control open defecation and associated ailments.

3.6.6.2 Solid Waste Disposal

a) Waste streams

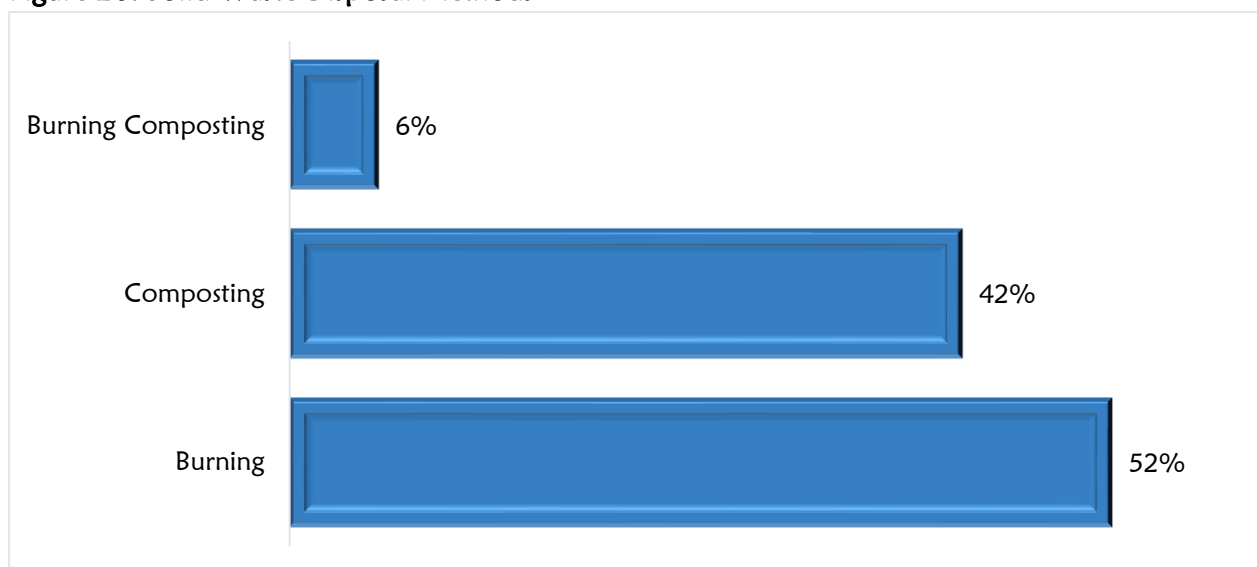
Two main waste streams of organic and inorganic waste are generated by households in Ndumanu informal settlement. organic waste type generated in households and comprises of household refuse, paper waste and others. It accounts for at least 85% of all waste type generated in the settlement. A mix of both organic and inorganic waste is generated at 15% of all waste types churned out at households in Ndumanu informal settlement. it comprises of glass, plastics, metals among other waste non-decomposing wastes.

b) Solid Waste Management

The settlement lacks conventional solid waste management system. There are no waste dustbins in any part of the settlement neither is there a designated waste disposal site. Households manage their waste following their own approaches and intuitions. Waste sorting is alien to the majority 65% with just 35% of households sorting the waste they generate in their homes. Organic and paper waste are the commonly sorted waste types at 49 and 35 percent accordingly. Plastics are also sorted at 11% of the households, and a combination of both plastics and paper is the least sorted at only 5% of the households. Further, some 26% of the households reuse the solid waste

they generate, yet the majority 74% do not reuse any of the waste they generate, disposing all of their household waste.

Figure 20: Solid Waste Disposal Methods

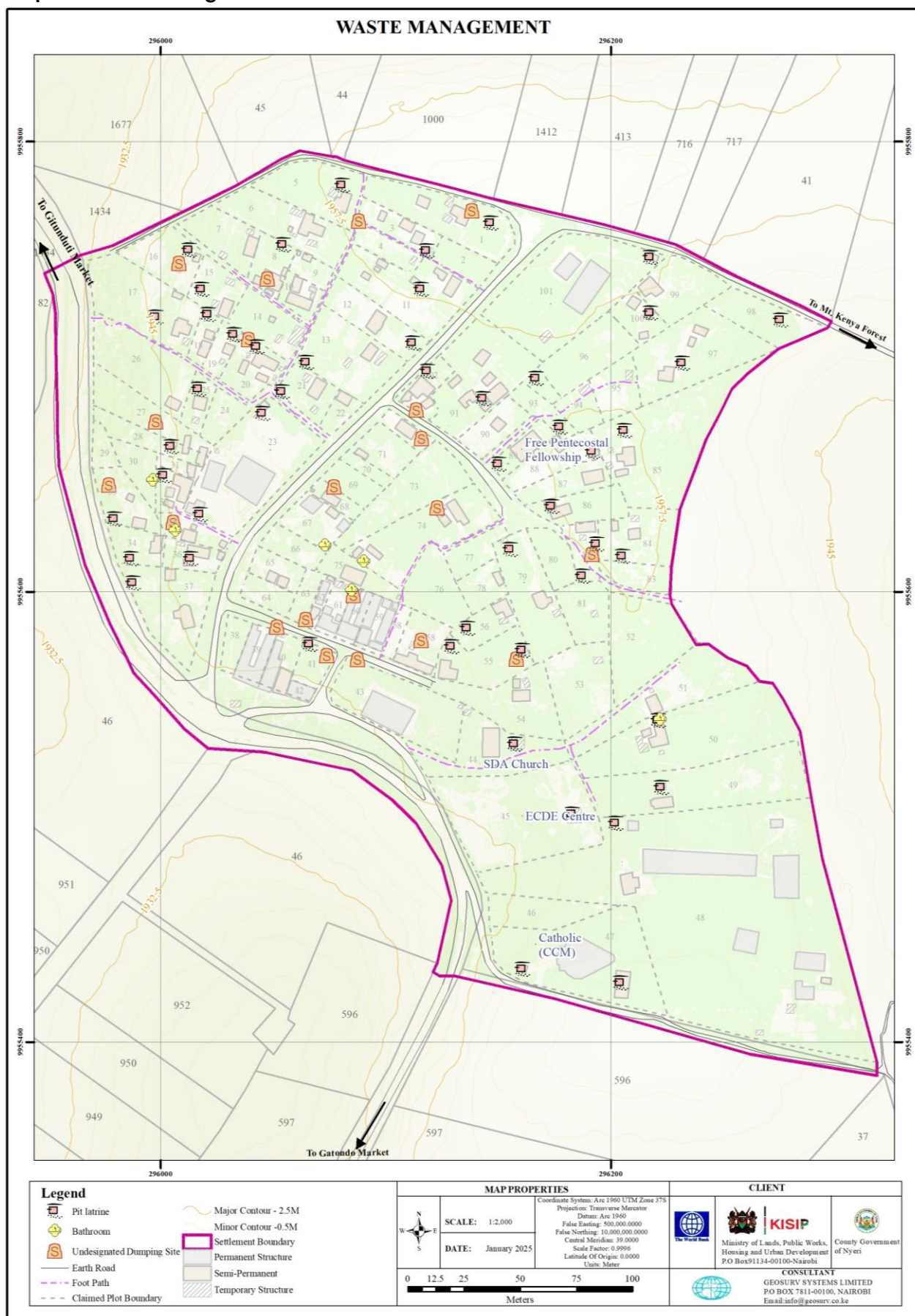


Source: Field Survey, 2025

There were an estimated 52% of households that composited the waste they generate. Waste compositing is a sustainable approach to solid waste management, especially for all forms of organic waste. It increases nutrients into the soil, making the soil rich and fertile for crop production, hence a proper method for waste recycling. Solid waste compositing is the second most adopted method of waste disposal in the settlement. It is undertaken in 42% of the households, only second to burning which is the dominant waste disposal method for 52% of the households. The other approach to solid waste disposal practiced by the area households is a combination of both composting and burning of waste at 6%. Burning contributes to air pollution, and hence degrades the environment. It is an unsustainable mode of solid waste disposal despite it being an age-old tradition.

The map overleaf presents the undesignated solid waste disposal sites and distribution of pit latrines within the settlement.

Map 16: Waste Management



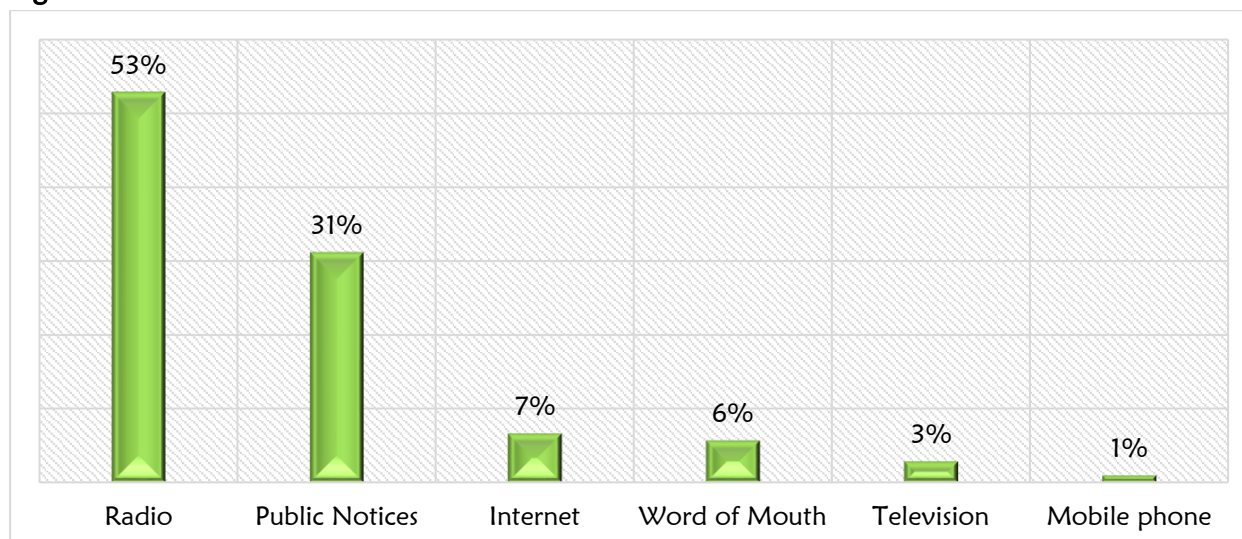
Source: Geosurv Systems Limited, 2025

3.6.7 Communication

3.6.7.1 Access to information

Radio is the primary means of information access for majority 53% of households within Ndumanu informal settlement. Public notices are also main sources of information access, relied upon for information by 31% of households within the planning area. Other means of information access include internet, word of mouth, television, and mobile phones as seen in the figure below.

Figure 21: Means of Access to Information



Source: Field Survey, 2025

There is significant overreliance on rudimentary methods to access information by residents within Ndumanu informal settlement. Radio and public notices are some of the oldest means of information access while the use of word of mouth is as old as the existence of man. Internet and mobile phones are the recent innovations facilitating information access. Unfortunately, they are among the least used means of information access in Ndumanu informal settlement. Provision of an enabling environment can aid in increased adoption and use of modern information access means such as the use of internet and mobile phones. Some of the solutions comprise of installation of the support infrastructure facilities and awareness creation. Also cutting the cost of access devices and consumption costs can contribute to their increased use.

3.6.7.2 Mobile phone ownership

An estimated 98% of survey participants own and use a mobile phone. This is a significantly high rate of mobile phone ownership, far above the national mobile phone ownership rate of 94% (KNBS, 2022). Just a small proportion of 2% of the respondents who do not own a mobile phone. Reduced cost of mobile devices can thus result to 100% mobile phone ownership in the informal settlement. Further, 93% of individuals owning a mobile phone use mobile money service. Therefore, a notable proportion of 7% of mobile phone holders do not use mobile money services. Mobile money has become central to Kenya's socio-economic growth and transformation. The services have revolutionised business and commerce, finance and banking, cash transfer and payments, and are fulcrum to the growth of the country's economy.

The country rides on mobile money platforms to an extent that a downtime in the systems contributes to unimaginable socio-economic losses nationally, and even globally. This affirms on the need to attain 100% use of mobile money services to sustain communities and ensure financial inclusion for all. Multistakeholder engagements and collaborations under the leadership of the

communications authority (CA) can spearhead this progress that should include among others the reduction of cost of mobile devices for all to afford and purchase, provision of support infrastructure for 100% access of mobile services nationwide, and the reduction of the cost of mobile money transactions for affordability.

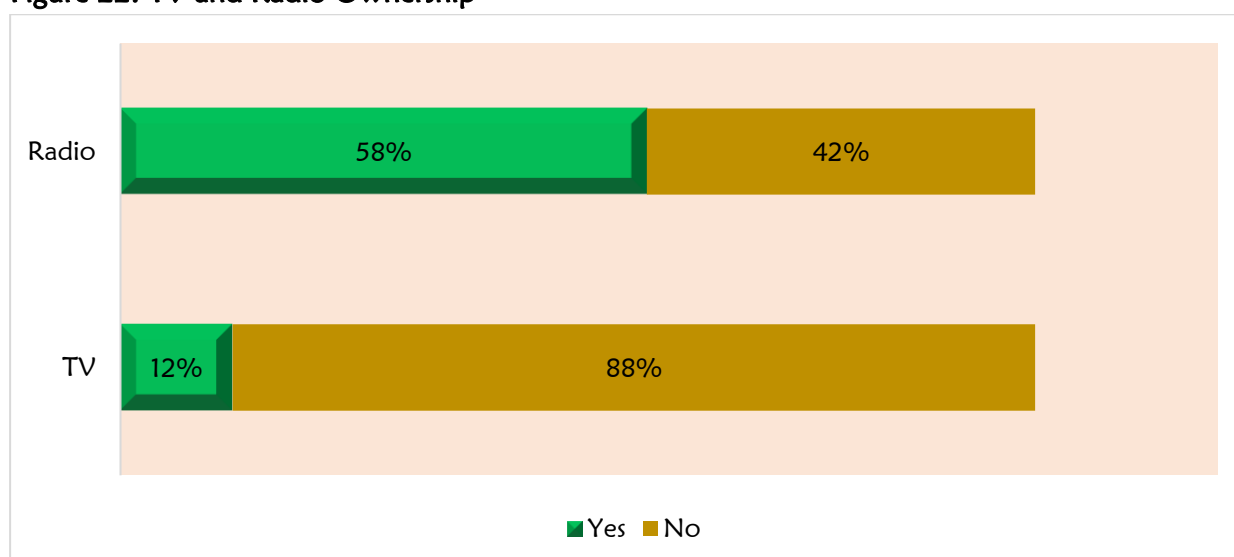
3.6.7.3 Ownership of a computer/laptop

In Ndumanu informal settlement, a substantial majority of 98% of households in the planning area do not own a computer. Therefore, only a paltry 2% of the respondents own a computer/laptop. The rate of computer/laptop ownership is significantly lower than the national average of 11% (KNBS, 2022). This could be attributed to lack of knowledge on how to access and own a computer/laptop, and the technical knowhow to use a computer/laptop. This situation can be remedied by awareness creation and sensitization on the value of owning and using a computer/laptop, instituting short term computer training courses in nearby Technical and Vocational Education and Training (TVET) centres or other technical institutions nearby, reducing the cost of computer/laptops via tax incentives and investment in local assembly among other approaches.

3.6.7.4 Radio and TV ownership

The rate of 12% of TV ownership in Ndumanu informal settlement is significantly lower. An estimated majority of 88% of the households in the informal settlement do not own a TV. This low rate of TV ownership is not commensurate with the national ownership of TV which is at 50% of all households in Kenya (KNBS, 2022). The TV ownership rate in Ndumanu informal settlement aligns with its use as a source of information access by only 3% of the households. Therefore, TV ownership and use is significantly lower in the informal settlement, calling for action to increase the rate to at least match the national ownership level of half of the households.

Figure 22: TV and Radio Ownership



Source: Field Survey, 2025

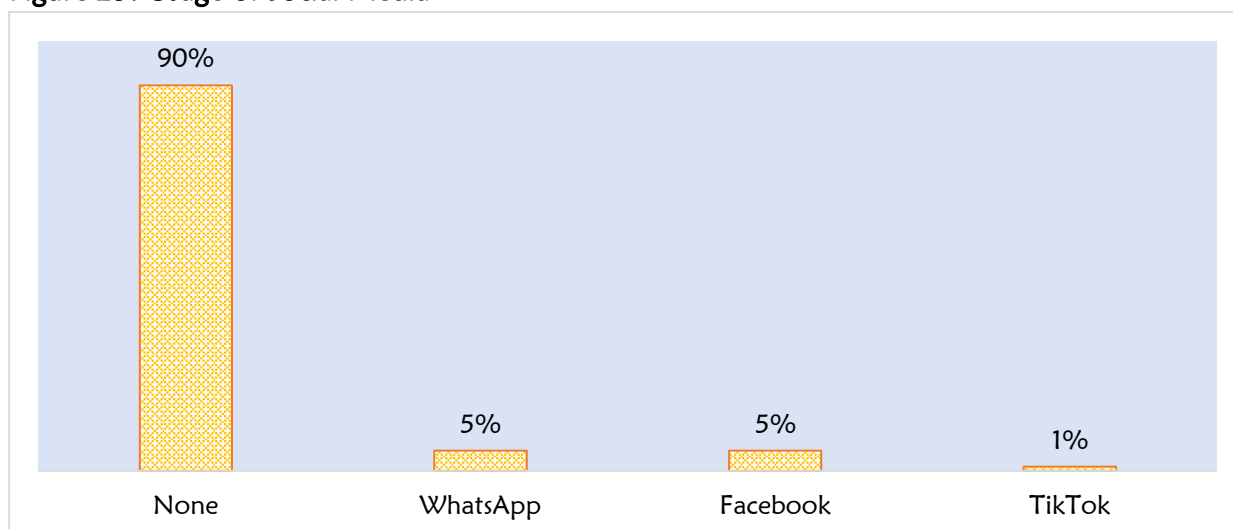
Fifty eight percent of households in Ndumanu informal settlement own a standalone functional radio as seen in the figure above. This rate of radio ownership is much lower than the national radio ownership rate of 66% (KNBS, 2022). It however corresponds with its dominant use as a means of information access by 53% of the households in the planning area. Nonetheless, the 42% of households' non-holders of standalone radio are notable numbers, demanding for action to raise the rate of radio ownership as a primary source of information for residents. This can be

attained by reducing the cost of radio and TV devices, TV and radio infrastructure expansion, reducing the cost of pay TV devices, reducing subscription fees for digital pay TV, reducing the cost of internet for internet and smart TV, and undertaking out awareness creation and sensitization initiatives.

3.6.7.5 Use of social media

A majority 90% of survey participants do not use any social media platform. WhatsApp, Facebook and TikTok are the only social media platforms used by residents. WhatsApp and Facebook are each used in 5% of households while TikTok is used in under 1% of households in the planning area.

Figure 23: Usage of Social Media



Source: Field Survey, 2025

The low rate of uptake of social media matches the low rate of internet use as a means of information access. This could be attributed to absence of internet access infrastructure, inability to access smart devices to facilitate access to social media, lack of technology knowledge on use of social media, and high cost of internet connectivity/data bundles. These among others can be addressed by installation of fibre optic cable and other internet facilitative infrastructure, reduction of cost of social media embedded devices such as smartphones, computers and laptops, installation of cybercafé to support access to internet and social media platforms, reduction of cost of internet and data bundles, technical skills training on internet and computer access and use, and sensitization programs on value of social media as a tool to better governance, income generation, communication and other socio-economic benefits.

3.6.8 Infrastructure and Utilities Emerging Issues

- High connectivity of the settlement to the hinterland and regional markets – located along Itundu-Ragati Road
- High potential for rain water harvesting
- Lack of key infrastructure utilities
- Inadequate water supply.
- Unsustainable water supplies due to overreliance on the piped water – need for introduction of rain water harvesting programs.
- Poor waste management practices as there are no designated sites for waste management
- Inadequate storm water drainage channels resulting to poor drainage in the settlement

- There is threat of pollution of underground water sources by pit latrines

The table below summarizes the emerging issues with regard to the settlement's physical infrastructure:

Table 18: Emerging Issues – Physical Infrastructure

Element	Potential/Opportunities	Constraints
Transport	○ High connectivity of the market ○ Land availability for road expansion	○ Narrow and poor road condition of the internal roads ○ Lack of terminus facilities for motorized transport ○ Undesignated NMT facilities
Storm water drainage	○ Gently sloping terrain for easier flow of surface run-off within the market section	○ Lack of proper storm water drainage channels along the roads ○ High rainfall amounts increase surface runoff ○ Gradual increase of impervious layer reduces infiltration
Energy supply	○ Existence of renewable energy sources like solar which can be tapped though in small scale to supplement the existing sources	○ Overreliance on fuelwood is a threat to the existing tree cover and could result to environmental degradation
Water supply	○ High potential for rain water harvesting ○ Availability of natural water sources – wetland ○ Availability of water reticulation system	○ Inadequate water supply during the dry seasons ○ Threat of underground water pollution by pit latrines ○ Old and dilapidate water reticulation system
Waste management	○ Existence of appropriate waste management technology which can be tapped into ○ Land availability of the location of waste management site ○ 4Rs waste mechanisms – Reduce, Reuse, Recycle and Recover	○ Lack of designated waste management site ○ Poor waste disposal methods ○ Unavailability of sewer reticulation system ○ Threat of underground water pollution by pit latrines ○ Poor aesthetics from the existing waste disposal mechanisms
ICT and Communication	○ Relatively good ownership and use of mobile phone communication modes	○ Poor rate of use of social media platforms ○ Lack of fibre optic cable

3.7 Land and Housing Structures' Characteristics

3.7.1 Overview

Land and land-based resources enables social and economic developments as land is a requisite for all human undertakings. It's a resource that encapsulates all other resources in both geographical and constitutional contexts as it is required for the sustainability of nearly all biological and environmental resources. In addition, all production activities require land space to be actualized.

Planning involves sitting of various land uses on land, thus understanding the various aspects on land issues is essential in planning and development processes. This sub-section analyses land in terms of use, tenure and housing in terms of the structures' characteristics within the project area.

3.7.2 Land Use

Land is a scarce resource increasingly affected by the competition of mutually exclusive uses. Land use involves the management and modification of natural environment or wilderness into built environment such as settlements and semi-natural habitats such as arable fields, pastures, and managed woods. The informal settlement covers an approximate area of 9.17 Ha. The existing land uses include; residential, education, public purpose, business cum residential, transportation and agricultural. Being a settlement, residential land use is the dominant one at 45.47% followed by transport and education at 16.79% and 14.18% respectively. The existing land use budget is tabulated below:

Table 19: Existing Land Use Budget

Code	Land Use	Area (Ha)	Percentage (%)
0	Residential	4.17	45.47
2	Education	1.3	14.18
4	Public Purpose	1.25	13.63
5	Business Cum Residential	0.20	2.18
6	Transportation	1.54	16.79
7	Agricultural	0.71	7.74
Total		9.17	100.0

3.7.2.1 Residential Land Use

This is the main land use in the settlement and takes up about 45.47% of the total informal settlement land. It is dispersed all over the informal settlement with row houses and bungalows/typical rural homesteads being the dominant housing typologies.

3.7.2.2 Educational Land Use

This land use accounts for about 14.18 % of the total land area covering an area of 1.3 Ha. It consists of Muthea secondary school and the ECDE centre land.

3.7.2.3 Public Purpose Land Use

This land use covers about 1.25 Ha and accounts for 13.63% of the total land area. It accommodates various religious institutions namely; ACK Church, PCEA, Full Gospel Church of Kenya, Free Pentecostal Fellowship, AIPCA Church, SDA Church and Catholic Church. It also includes the administrative office; assistant chief's office and the tea collection centre.

3.7.2.4 Business Cum Residential Land Use

This land use accounts for 2.18% of the total land area. It's located within the commercial section of the informal settlement. The structures house commercial activities at the front part of the plot and residential function at the rear part within a row housing typology. There are various commercial activities including retail shops, bar and hotels, chemists, beauty shops, fruits and groceries stalls. These activities are both formal and informal offering mainly low order goods and services. The formal activities are housed in permanent/semi-permanent structures while the informal ones are housed on semi-permanent and temporary structures or the wares are displayed on the ground.

3.7.2.5 Transportation Land Use

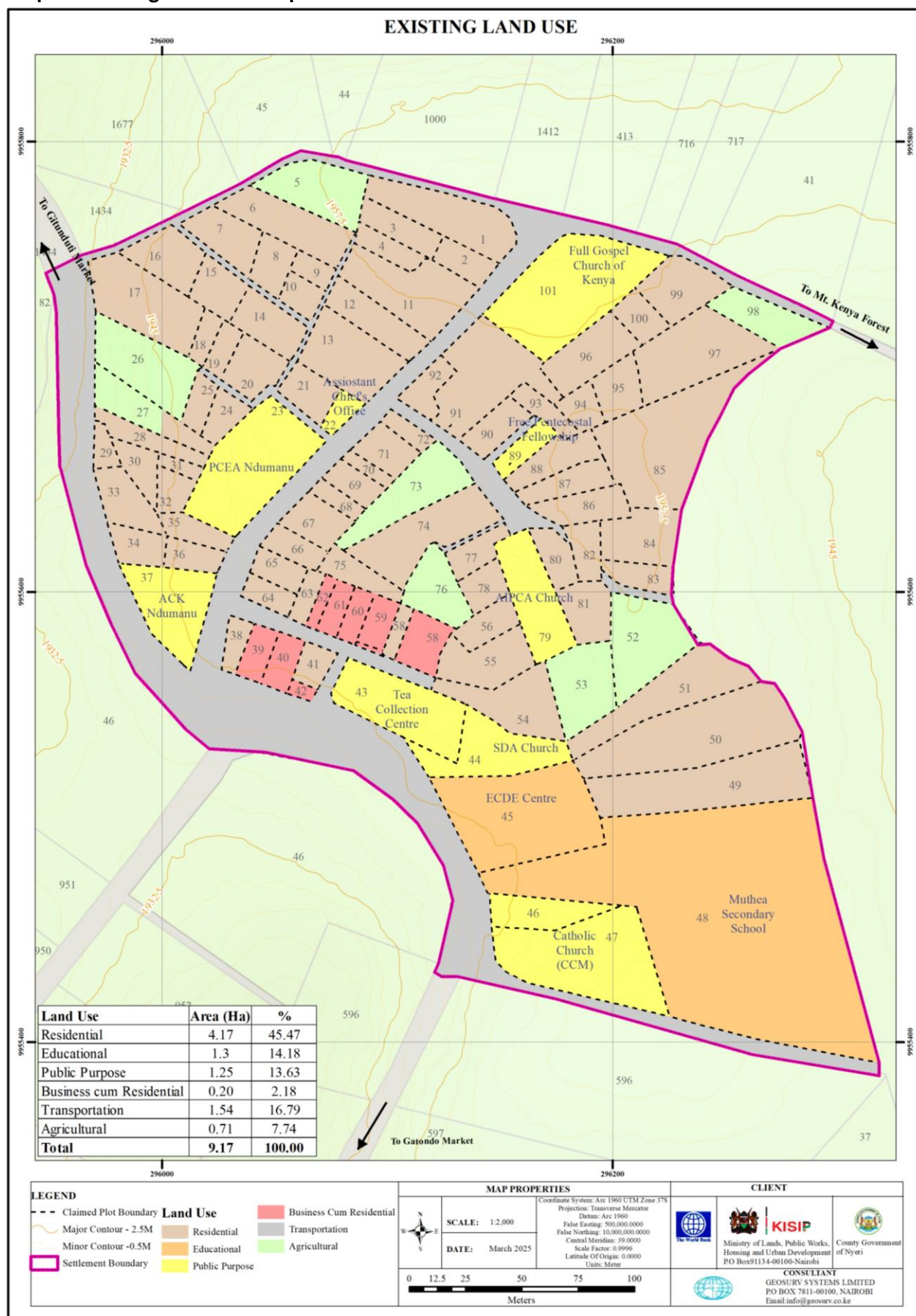
Ndumanu informal settlement is externally linked by Itundu-Ragati Road which connects the settlement to Karatina Town via Ihwagi – Kagochi Road. Locally, the settlement has laid out dirt roads to access various activity spaces. This land use covers an approximate area of 1.54 Ha which is equivalent to 16.79% of the total land area. The spatial distribution of the land uses above is shown in the map overleaf:

3.7.2.6 Agricultural Land Use

Agriculture is the main economic activity within the informal settlement. It is practiced majorly on individual farms at household level within the village section of the informal settlement. It includes both crop farming and livestock keeping. Crops grown within the informal settlement include: maize, beans, bananas, sugarcane, sweet potatoes, cabbages, kales, pumpkins, passion fruits, potatoes, onions, arrow roots and avocados mainly for subsistence. Tea is the main cash crop grown within the settlement and its environs. Livestock kept include; sheep, dairy and poultry.

The spatial distribution of the land uses above is shown in the map overleaf:

Map 17: Existing Land Use Map



Source: Geosurv Systems Limited, 2025

3.7.3 Land Tenure

The Constitution of Kenya, 2010 provides for three types of land ownership namely public, private and community ownership. Private land ownership is further categorized into freehold and leasehold. Public land is owned by the Government or State organizations; private land is owned by individuals while communal land is owned and utilized by the community collectively. Freehold land ownership allows the owners to hold the land for an indefinite period while leasehold is a limited term which can be extended upon expiry.

3.7.3.1 Mode of Land Acquisition and Ownership Documents

The settlement is on a public land managed by the County Government of Nyeri from the defunct County Council. Conversion of the public land to private land occurred through direct allocation by the county council as evidenced by the minutes of allocation. The allotted plots were transferred to other owners either through purchase, self-acquisition or inheritance. Currently, the land parcels in the settlement are occupied by individuals who lack legal ownership documents which is the major challenge towards access to services and credit by the area residents.

In Ndumanu informal settlement, 83% of dwelling structure occupants are land owners of the land and house they occupy. Majority of these land owners in the informal settlement are male alone at 75%. Female alone own just 21% of the properties in the planning area while the 3% others are co-owned jointly by males and females. All proprietors of the co-owned property have equal share on the properties. There is only one tenant who participated in the survey. The tenant pays KES 3,000 a month as rent for the housing structure occupied. Rent is paid to the parent to the tenant and have only a verbal agreement between them.

3.7.3.2 Plot Sizes

Ndumanu informal settlement has a total of 107 plots. Due to the informal nature of the settlement, the plot sizes are uneven and relatively small, with only 16 plots being above 0.10 Ha. This creates a challenge with regard to provision of access roads thus affecting the settlement's accessibility. The table below outlines an analysis of the plot sizes within the project area.

Table 20: Average Plot Sizes

No.	Average Plot Sizes (Ha)	Number of Plots
1.	Below 0.010	0
2.	0.01 - 0.0125	1
3.	0.0126-0.0250	0
4.	0.0251-0.0450	61
5.	0.0451-0.100	29
6.	Above 0.1	16
Total		107

3.7.3.3 Preliminary List of Beneficiaries

The preliminary list of beneficiaries annexed in this report was prepared based on data collected during the socio-economic survey. The list contains the following beneficiaries' details; name, national identification number, gender, year of birth, KRA PIN and telephone number. In addition, the beneficiaries' identification cards were prepared based on the above information. The plate overleaf shows the sample identification cards.

Plate 18: Sample Identification Cards

IDENTIFICATION CARD	
Name: MARY WANJIRU WAINUKU ID No: 28266734 KRA PIN: A01128559F Tell: 0726853864 Parcel No: 002 Settlement: NDUMANU Beneficiary Sign: Consultant:	

IDENTIFICATION CARD	
Name: MARGRATE WANJIRU NJOGU ID No: 9671146 KRA PIN: A0007015233G Tell: 0726827844 Parcel No: 006 Settlement: NDUMANU Beneficiary Sign: Consultant:	

IDENTIFICATION CARD	
Name: BONFACE MURIITHI WAHOME ID No: 31685109 KRA PIN: A009407510M Tell: 0740146956 Parcel No: 008 Settlement: NDUMANU Beneficiary Sign: Consultant:	

IDENTIFICATION CARD	
Name: MARY WAIRIMU GACHEMI ID No: 31830567 KRA PIN: A008065146Q Tell: 0708399722 Parcel No: 018 Settlement: NDUMANU Beneficiary Sign: Consultant:	

3.7.4 Housing and Structures' Characteristics

3.7.4.1 Structures Characteristics

The settlement is characterized by haphazard development with three main types of housing structures; permanent, semi-permanent and temporary. The permanent structures are built of iron sheets roofs, stone, bricks or concrete block walls and cement or ceramic tile floors. The semi-permanent ones are built of iron sheet roofs, mud or wooden walls and earth or cement floors while the temporary structures are characterized by dilapidated iron sheet roofs or grass thatched, mud-walled and earth floors. Based on the socio-economic survey, the settlement has a total of 173 structures with 13.3% being permanent, 39.9% semi-permanent and 46.8% temporary as outlined in the table below.

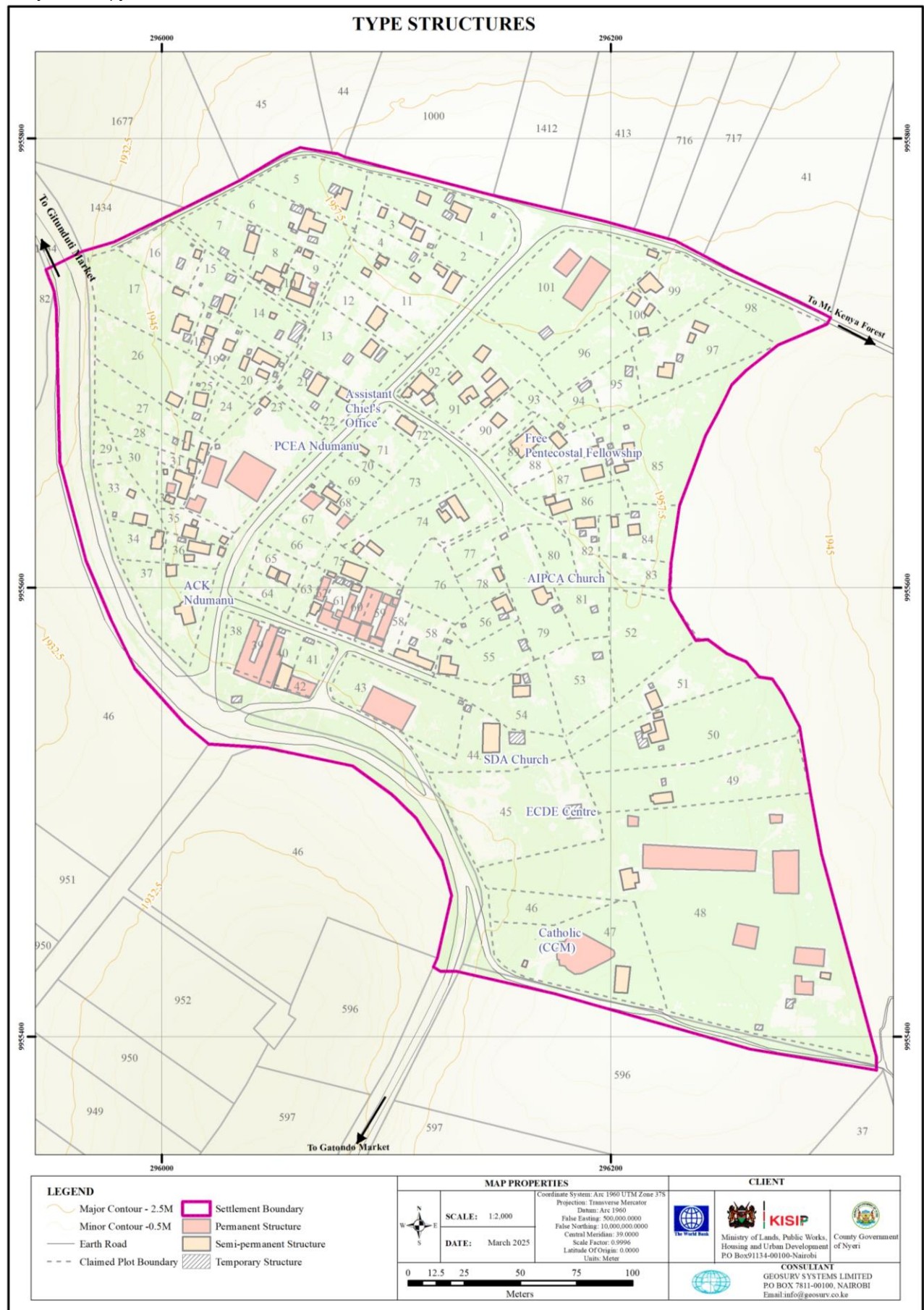
Table 21: Structures Categorization

Structure Type	Number of structures	Percentage
Permanent	23	13.3%
Semi-Permanent	69	39.9%
Temporary	81	46.8%
Total	173	100.00

Source: Field survey, 2024

The high percentage, 86.7%, of semi-permanent and temporary structures is a result of the sprawling informality within the settlement. The structures and structures' beneficiaries within the settlement were enumerated as part of the socio-economic survey. From this exercise, a list of all the structures was generated. The list has attributes such as the parcel number, the beneficiary, the nature of the structures and their use. This list is annexed to the report as appendix 5. Map 18 overleaf shows the types of structures within the settlement.

Map 18: Types of Structures



Source: Geosurv Systems Limited, 2025

3.7.4.2 Housing Profile

Iron sheets are the only roofing materials in the informal settlement. Wood is the most prevalent wall material, making up 69.4% of the buildings followed by stone at 13.3%. The most common floor material in the informal settlement is cement, accounting for 52.6% of the structures followed by earth at 38.7%. Tiles and wooden floors account for 0.6% and 8.1% of the total structures as shown in the table below.

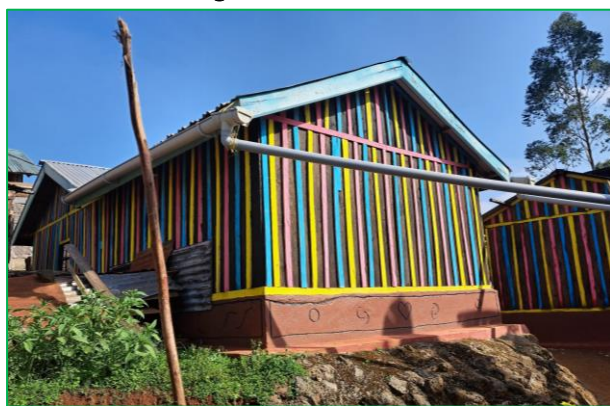
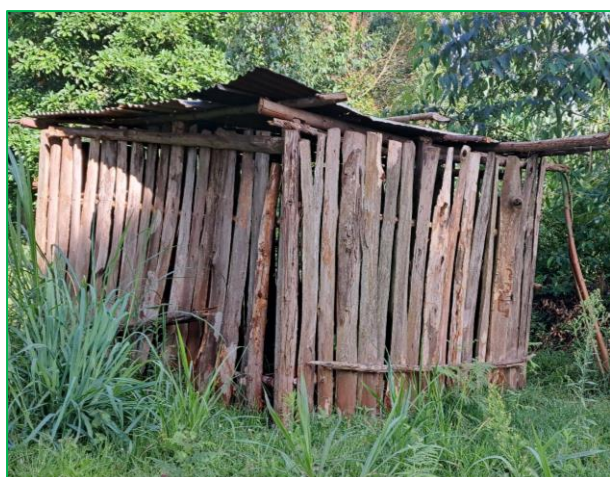
Table 22: Building Materials for Housing

Roof Material	Total	Percentage %
Iron sheets	173	100.0%
Total	173	100%
Wall Material	Total	Percentage
Stone	23	13.3%
Iron sheets/Stone	2	1.2%
Earth/wooden	1	0.6%
Iron sheets	13	7.5%
Wooden/stone	1	0.6%
Wooden	120	69.4%
Wooden/earth	10	5.8%
Wooden/iron sheets	2	1.2%
Wooden/Stone	1	0.6%
Total	173	100%
Floor Material	Total	Percentage
Cement	91	52.6%
Earth	67	38.7%
Tiles	1	0.6%
Wooden	14	8.1%
Total	173	100%

Source: Field Survey, 2025

3.7.4.3 Types of Housing Structures

The classification of the housing structures was based on the types of building materials used. Based on the construction materials, the housing structures were categorized as permanent at 13.3%, semi-permanent at 39.9% and temporary at 46.8% as described above. Plate 19 overleaf shows some of the existing types of housing structures in the project area.

Plate 19: Housing Structures**Semi - permanent****Permanent****Temporary****Permanent***Source: Field Survey, 2025*

3.7.5 Emerging issues

- Insecurity of land tenure as the occupants of the plots are squatters.
- Lack of land use framework to guide land development resulting to haphazard developments
- Availability of land for urban development
- Urban decay and poor aesthetics
- Poor housing conditions

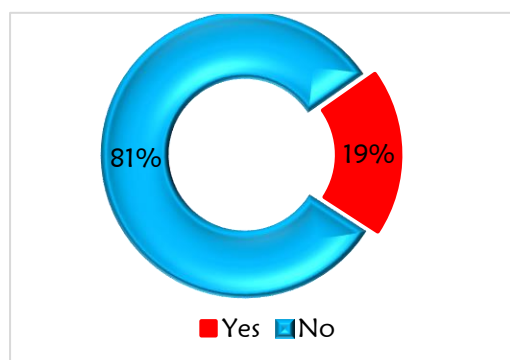
The table below summarizes the emerging issues with regard to the settlement's land and housing:

Table 23: Emerging Issues – Land and Housing

Element	Potential/Opportunities	Constraints
Land	○ Available land for future developments	○ Insecurity of land tenure hindering the construction of major developments ○ Unstandardized plot sizes ○ Irregular plot shapes and sizes
Land use	○ Availability of land for urban development	○ Haphazard developments due to lack of a land use framework to guide developments
Housing	○ Stable geology and soils for urban development ○ Government good will on social housing	○ Dilapidated structures ○ Urban decay and poor aesthetics ○ Degrading living conditions

3.8 Occurrence of Disasters

Figure 24: Disaster Occurrences

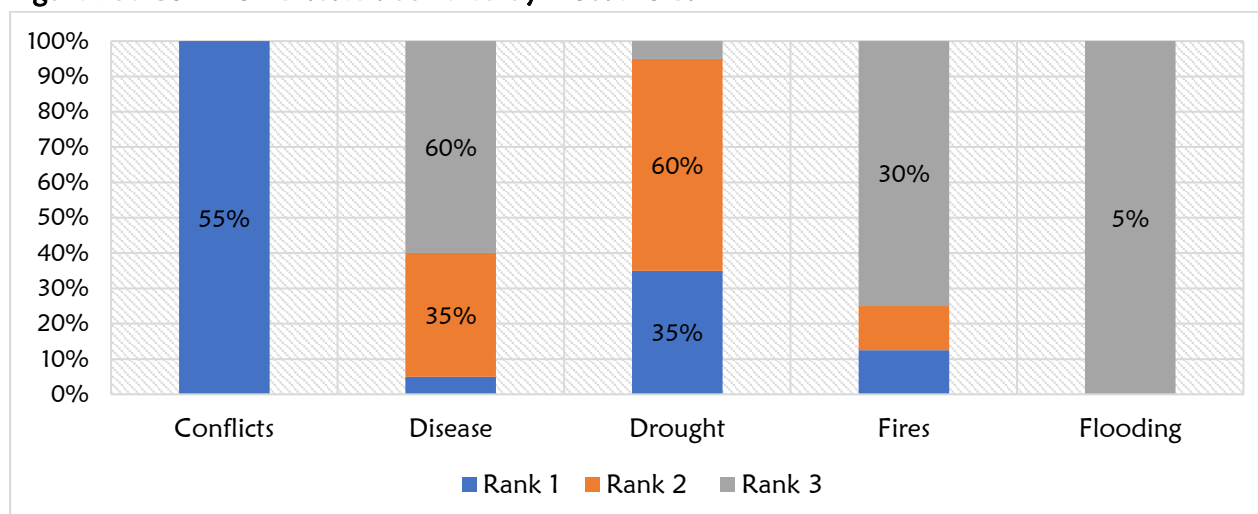


According to the socio-economic survey, majority 81% of the households are not prone to occurrence of disasters. There are just 19% of households that are susceptible to disasters. This is demonstrated in the figure alongside. The most recurring disasters in the settlement include conflicts, drought/famine, disease outbreaks, and at times fires and floods. The represented households ranked the three most common of occurring disasters that have affected their households in the last 10 years.

Source: Field Survey, 2025

The first rank has conflicts and drought highly ranked by 55 and 35 percent of households respectively. This indicates that most households experience high frequency of conflicts and recurring drought/famine. At rank 2, drought rated highest at 60% while disease outbreaks were common to 35% of households. Rank 3 had disease outbreaks rating highest at 60% whereas 30% of households suffered from fire incidences, being the third most recurring disaster. The ranking of disasters common to residents of Ndumanu informal settlement in the last 10 years is demonstrated in the figure below.

Figure 25: Common Disasters Suffered by Households



Source: Field Survey, 2025

3.9 Synthesis

Ndumanu Informal Settlement has various planning and development challenges and at the same time opportunities which if well utilized could transform the settlement into a decent sustainable human settlement. The challenges facing the informal settlement include; insecurity of land tenure, poor accessibility/road condition, inadequate water supply of portable water, unsustainable development, encroachment on the road reserves, informality, inadequate basic social infrastructure, lack of storm water drainage channels, improper waste management system, poor housing conditions and urban decay. Majority of these challenges are as a result of insecurity of tenure and lack of planning resulting to uncoordinated developments. The opportunities include;

strategic location, favourable climatic conditions and favourable topography for the laying of sewer reticulation network.

3.9.1 Challenges

i. Insecurity of land tenure

The residents of Ndumanu informal settlement are squatters on a public land owned by the County Government of Nyeri. They also lack legal ownership documents to the parcels they occupy. This situation makes them lose significant opportunities like access to credit facilities from financial institutions which require collateral. However, since the planning and survey of the settlement is expected to provide a guideline for the provision of land tenure security, the subsequent title registration exercise will help to actualize tenure security.

ii. Poor accessibility/road condition

Itundu-Ragati Road is murramed and in fair condition. The road is currently being upgraded to bitumen standards. The main external roads are murramed and in fair condition. The rest of the access roads are of earth surface type, hence dry weather roads and are impassable during the rainy season. This affects the accessibility to various activity spaces. Grading of the roads will improve interconnectivity of the different settlement functions. In addition, there is need for provision of access roads to all the land parcels and widen the existing ones that are too narrow for vehicular transport.

iii. Inadequate supply of portable water

The main water supplier for Ndumanu informal settlement is Kihore Water Project. Piped community water taps and rivers/streams are the main sources of water for majority of the households within each account for 48% of all households. Other water sources comprise of rainwater/roof catchment at 3% and piped water into the compound at 1%. Though there exist a water reticulation system, piped water is only available to 49% of the residents. About 48% source water from a nearby stream. This presents a constrain on the availability of portable water to the majority of the residents since the stream water is usually consumed raw and untreated hence unsafe.

iv. Unsustainable development

The settlement is characterized by lack of /inadequate basic infrastructural facilities like roads, sewer and water supply that are critical for proper functionality of a human settlement. The access roads within the village section are too narrow to support any motorized mode of transport as they are merely foot paths. Some of the plots have no roads of access and the owners pass through people's homes/plots to access their homesteads. The settlement lacks a sewer reticulation network and has to rely on pit latrines for human waste disposal. In addition, piped water to the compound is only available to about 1% of the residents as explained above.

v. Encroachment on road reserves

There are several encroachments on the road reserves mainly by farming activities or land parcels that have been fenced off bringing an access road to a dead end.

vi. Informality

Informal businesses mainly those selling groceries, food and essential household items like clothes have found their way into the market. These businesses are housed in temporary structures, mainly kiosks along the road reserves or building pavements. Though they fill a niche in the market, the informal businesses bring about issues of space contestation with the formal businesses housed in permanent structures and paying permits to the County Government.

vii. Inadequate basic social infrastructure

Ndumanu informal settlement has a few basic social infrastructures like an ECDE centre (not yet constructed), a secondary school, religious facilities, assistant chief's office as well as a tea collection centre. The settlement however lacks recreational facilities such as playground and recreational spaces which offer avenue for residents' interaction and relaxation. The lack of a social hall also forces the area residents to hold meeting in the open grounds or in churches.

viii. Poor housing quality

The settlement is characterized by poor quality housing as a big proportion of the houses within the village section are built of timber walls and dilapidated iron sheets. This may be attributed to the lack of tenure security which discourages the residents from investing in quality housing or their low-income levels rendering them unable to construct proper houses. Poor housing conditions are associated with a wide range of health conditions including respiratory infections.

ix. Lack of storm water drainage channels

Surface drains which play a key role in managing runoff and flood management are lacking in Ndumanu. The access roads don't have storm water drainage channels. Stormwater traverses the roads following the natural gradient as there isn't a defined drainage system in the settlement thus surface run-off makes pools around the lowest points. This interferes with the settlement's aesthetics. There is need for installation of proper drainage channels for surface run-off so as to mitigate any possible flooding in the settlement. To reduce the surface run-off, rain water harvesting programs need to be promoted as well as harvesting of the surface run-off for agricultural activities. In addition, enhancing urban forestry would help reduce the impervious layers thus increasing water infiltration into the ground

x. Improper waste management system**Solid waste management**

Ndumanu Informal Settlement lacks a designated solid management site. Most of the households in the settlement dump their waste indiscriminately along the road reserves and within their individual homesteads. Improper management of solid waste in Ndumanu poses a significant risk to public health. The presence of uncontrolled waste disposal sites draws flies, exacerbating environmental deterioration. In addition, these unauthorized dumping areas invite various pests, including rodents and insects, which facilitate the spread of diseases. Additionally, the leachate from these sites contaminates soil, air, and groundwater, thereby undermining the overall quality of the environment.

Liquid waste management

The settlement lacks an operational sewerage system. This has led to adoption of unsustainable refuse water disposal methods since the residents dispose liquid waste on the ground outside their structures or pit latrines. The use of pit latrines and discharging of grey water to the land can lead to infiltration of pollutants to underground water sources, causing possible contamination. Consuming contaminated water may lead to waterborne diseases like cholera.

xi. Urban decay

Some of the structures within the settlement are dilapidated and in bad state especially those build of semi-permanent building materials. This calls for the need of urban renewal for some sections of the settlement.

3.9.2 Opportunities

- o Strategic location: The settlement is located along the along the Itundu-Ragati Road which connects the settlement to Nairobi – Nanyuki Highway via Ihwagi – Kagochi Road.
- o Favorable climatic conditions for agricultural activities – a tea growing zones
- o Favorable topography for development
- o Being an administrative centre, the informal settlement attracts a number of people in search of services.
- o Government good will on social housing

CHAPTER FOUR

PLAN PROPOSALS

4.1 Overview

This chapter presents the settlement's proposed spatial structure, which outlines how the available space will be utilized for optimal and sustainable land utilization. The plan will help in the attainment of social, economic, physical and environmental goals.

4.2 Structuring Elements

These constitute both the natural and man-made features that influence the spatial form and development patterns. They include; claimed plot boundaries, the existing service lanes and footpaths, existing developments and stakeholders' concerns.

- **Claimed plot boundaries**

The claimed plot boundaries were picked during the topographical survey and base map preparation with the assistance of members of the SEC, GRC and project beneficiaries. The claimed plot boundaries greatly informed the settlement's spatial structure.

- **Existing service lanes and footpaths**

The informal settlement is characterized by 6m service lanes and footpaths. There are several parcels within the residential section with no roads of access, forcing the residents to access their homesteads through neighbouring parcels. To address the issue of inadequacy with regard to access roads, the footpaths were used as a guide to identify suitable locations of new roads of access. In addition, for the parcels without any form of access roads, the consultant's team enquired from the residents how they currently access their parcels and traced the routes so as to provide a formal access road. This approach ensured that the proposed access roads and paths are compatible with the settlement's existing development so as to avoid any possible conflicts within the neighbours.

- **Existing developments**

Ndumanu informal settlement has been developed without any spatial framework to guide its developments. This has resulted to several missing links especially within the residential section of the settlement. There are several parcels without roads of access while majority are accessed by very narrow footpaths. The conferment of land tenure security requires the provision of access roads/paths to every land parcel in question. To avoid and/or minimize displacement of project beneficiaries and loss of property, an adoptive planning approach has been employed whereby the proposals for roads, service lanes and footpaths have been done in the sections free of structures.

- **Stakeholder's concerns**

During the various stakeholders' consultative forums, all the concerns raised by the stakeholders were well documented. These concerns include; secure land tenure, minimal disruption, vibrant commercial centre, improvement of physical infrastructure like road connectivity and condition, enhance clean water supply, improve electricity connection, provision of conventional waste management system and installation of storm water drainage channels as well as provision of basic social services (cemetery, social hall, market and playground). This planning exercise and subsequent cadastral survey and titling process is meant to regularize tenure within the informal settlement. Adoptive planning approach has been employed to address the rest of the challenges as it minimizes or prevents any displacement. This approach proposes 9m primary roads, 6m service lanes and footpaths ranging from 3m – 5m depending on the intensity of development. The plan has also proposed for incremental implementation of the service lanes and some of the footpaths to 9m roads of access.

4.3 Alternative Planning Options

Ndumanu informal settlement is characterized by insecurity of land tenure, poor accessibility, inadequate supply of portable water, unsustainable development, encroachment on road reserves, informality, inadequate basic social infrastructure, poor housing quality, lack of storm water drainage channels, improper waste management and urban decay. In order to achieve a well-planned settlement with access roads and minimize and/or prevent any form of displacement or impact of the plan proposals to the structures, several design options have been explored so as to derive suitable interventions for the settlement's improvement. The options are specifically focused on enhancing the accessibility of the land parcels and ensuring minimal disruptions. Three options namely; standard planning approach, adoptive planning approach and hybrid planning approach have been considered.

4.3.1 Standard Planning Approach

This approach proposes for provision of standard hierarchical road network. It provides 9m primary roads that branches from the 20m Itundu-Ragati Road. These primary roads form the northern, eastern and southern boundary of the settlement. The approach also proposes other 9m roads and 6m service lanes to provide access to individual plots and enhance the connectivity of the informal settlement. The approach envisions the desired state of the settlement after the conventional planning standards with respect to the provision of hierarchical roads have been adhered to. However, this option affects 5 permanent structures, 20 semi-permanent structures, 14 temporary structures and 1 perimeter wall as shown in the table below and the map overleaf.

Table 24: Affected Structures by Standard Planning Approach

Structure type	No. of structures affected by the standard roads
Permanent	5
Semi-Permanent	20
Temporary	14
Perimeter wall	1
Total	40

The option has a number of advantages and disadvantages as outlined below:

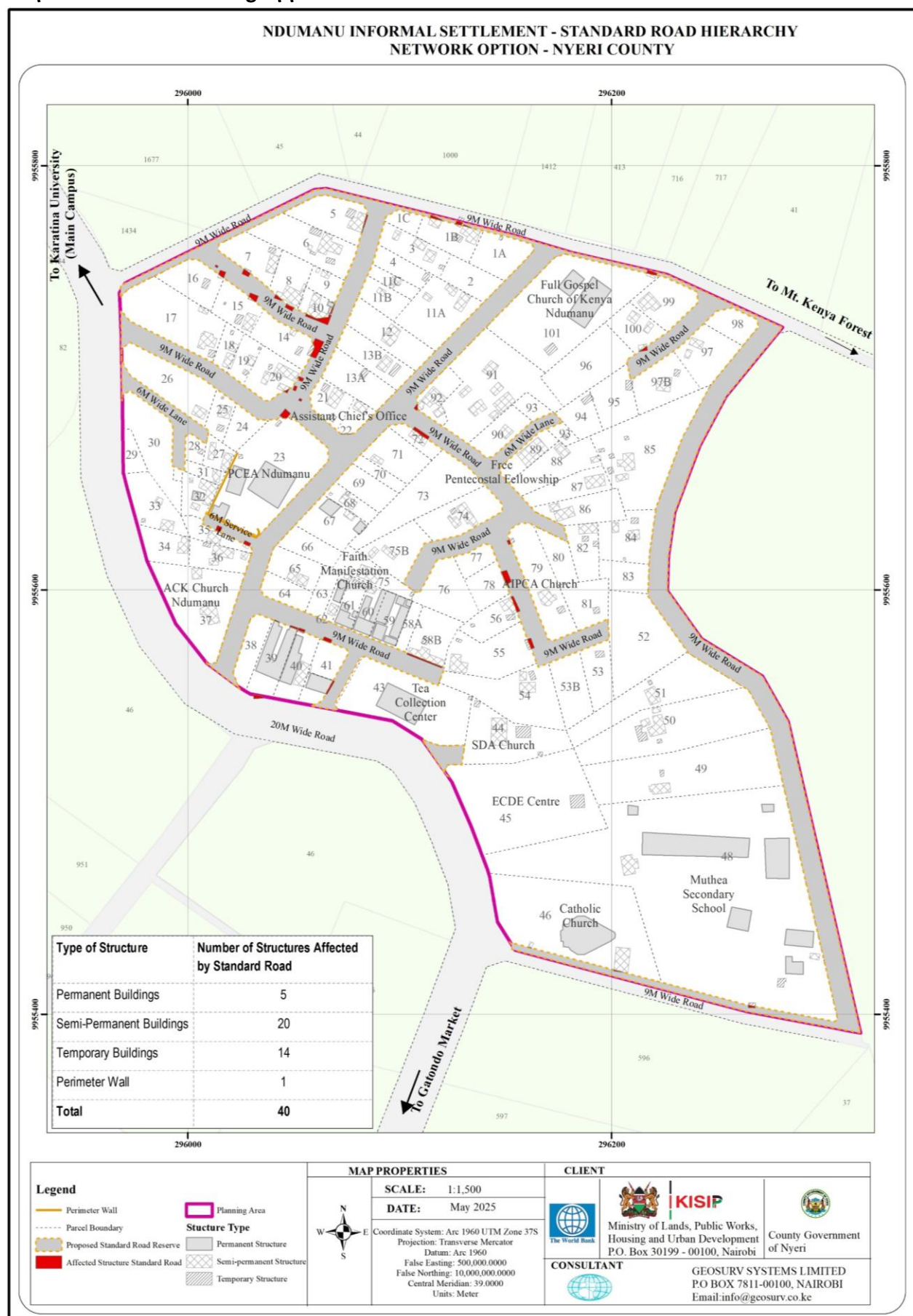
Advantages

- Improved road connectivity
- Enhanced settlement accessibility

Disadvantages

- High disruptions, a situation that's against the stakeholders' concern of ensuring minimal disruption
- The high number of Project Affected Persons (PAPs) would result to high cost of compensation
- High implementation cost

Map 19: Standard Planning Approach



Source: Geosurv Systems, Ltd, 2025

4.3.2 Adoptive Planning Approach

The first option of provision of standard roads resulted to a high number of PAPs as the proposed road expansions affected many adjacent structures. To implement component 1.2 of KISIP 2 on infrastructure development, it would be extremely difficult to compensate all the PAPs due to the high compensation cost, a cost that has been delegated to the County Government. This clearly makes the implementation of the infrastructure component extremely expensive and almost unattainable bearing in mind that the World Bank Social Safeguard policies requires that all the PAPs should be fully compensated.

To minimize the level of impacts, the community with the help of the consultant team had to reconsider and explore possible ways of reducing the PAPs, probably go against the conventional planning standards and just provide the basic minimums. The adoptive approach entails provision of minimum access roads of 9m primary roads, 6m - 8m service lanes and 4m – 5m footpaths depending on the intensity of developments on the ground. The option affects only three temporary structures as shown in map 20 overleaf. This alternative however has its own share of advantages and disadvantages as outlined below:

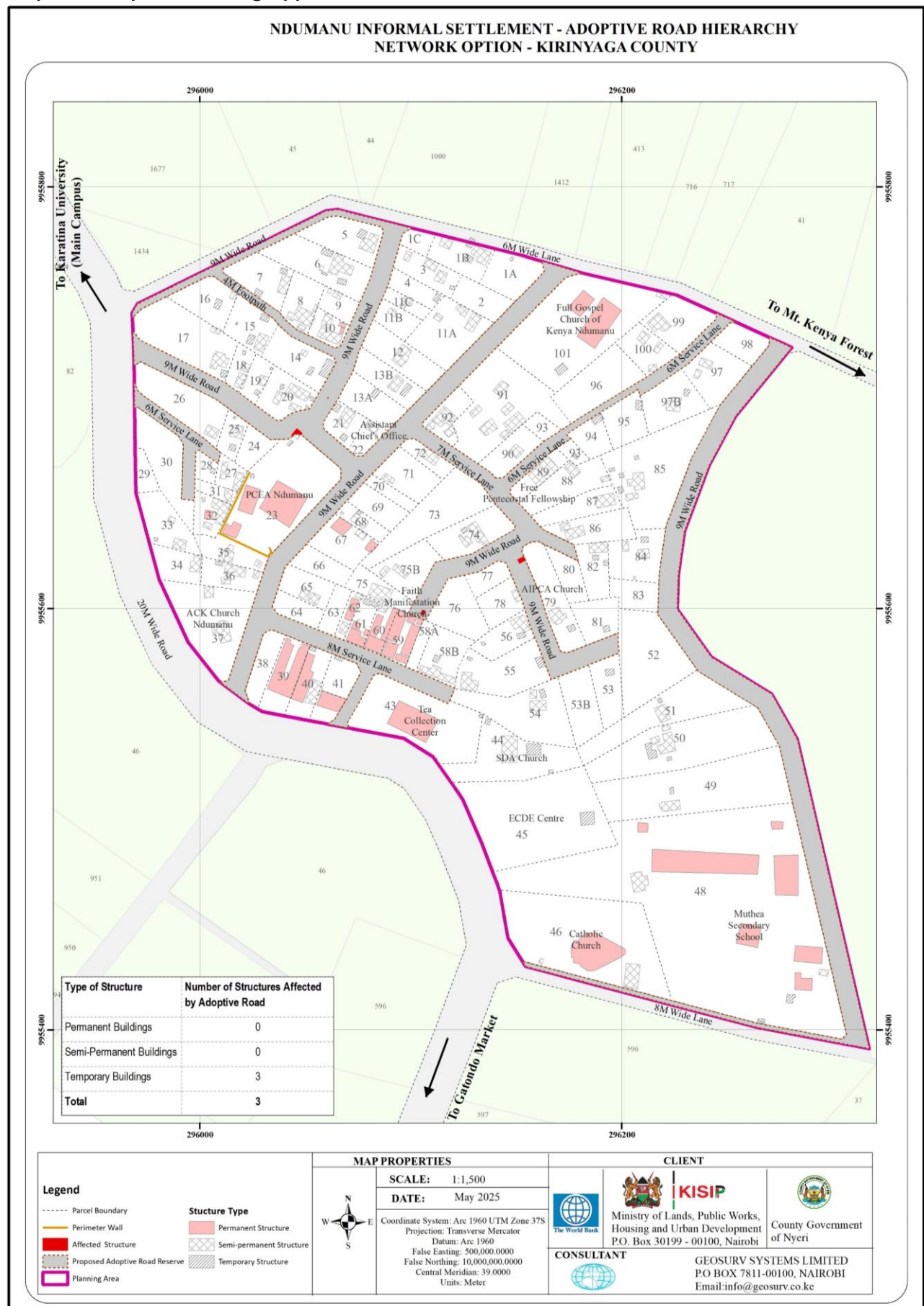
Advantages

- Minimal disruption
- Low implementation cost in the short run
- Zero PAPs

Disadvantages

- Limited road connectivity
- Limited access to individual land parcels
- High cost of road expansion in the future

Map 20: Adoptive Planning Approach



Source: Geosurv Systems Ltd, 2025

4.3.3 Hybrid Planning Approach

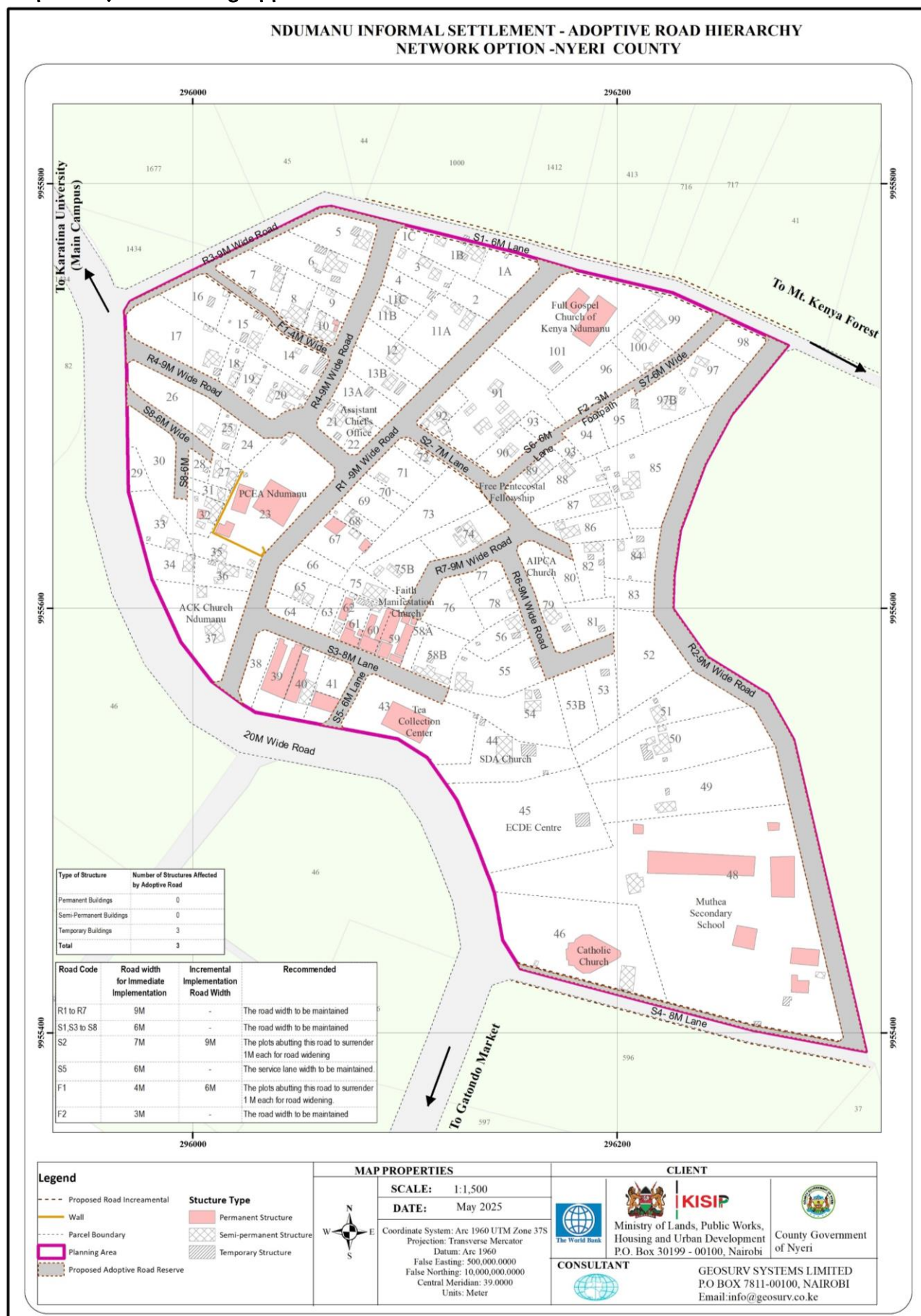
This approach combines the standard and adoptive planning approach to maximize on the advantages of each alternative and water down on the disadvantages. It balances between improving accessibility and ensuring minimal disruption. The approach proposes provision of 9m primary roads, 6m - 8m service lanes and footpaths from 3m to 5m for immediate implementation.

To achieve standard roads capable of accommodating all the prerequisite facilities; carriage way, storm water drainage channels, pedestrian walkways, power lines and sewer reticulation lines, the service lane (S2) within the project area will be expanded incrementally from its current 7m to 9m road reserves. In addition, footpath F1 will be expanded from 4m to 6m service lane. The beneficiaries of the plots abutting these service lanes and footpaths to be expanded will surrender the recommended widths for road expansion as per the approved plan when they submit their development applications for approval during the development regularization process.

This approach has several advantages among them; improved road connectivity, results to few PAPs hence low implementation costs and incremental widening of the access roads to the desired widths. The stakeholders agreed that this hybrid of the conventional planning standards and adoptive planning was the preferred option.

Map 21 overleaf illustrates the hybrid approach:

Map 21: Hybrid Planning Approach



Source: Geosurv Systems Ltd, 2025

4.4 Land Use Zones

The planning discipline has established guidelines that ensure universal presentation, understanding and clear representation of land use zones. In this regard, various land use zones have been classified into eleven categories, each represented by a class, code number and colour as outlined in the table below:

Table 25: Land Use Zone Codes and Colours

Land Use Code	Land Use Name	Colour
0	Residential	Brown
1	Industrial	Purple
2	Educational	Orange
3	Recreational	Green
4	Public purpose	Yellow
5	Commercial	Red
6	Public utility	Blue
7	Transportation	Grey
8	Conservation	Pale greenish
9	Agricultural	Greenish
10	Water Bodies	Bluish

Source: Urban Land Use Planning and Oversight Guidelines (National Land Commission) – 2016).

The preparation of this plan was guided by the land use coding reference outlined above in the definition of the land use zones.

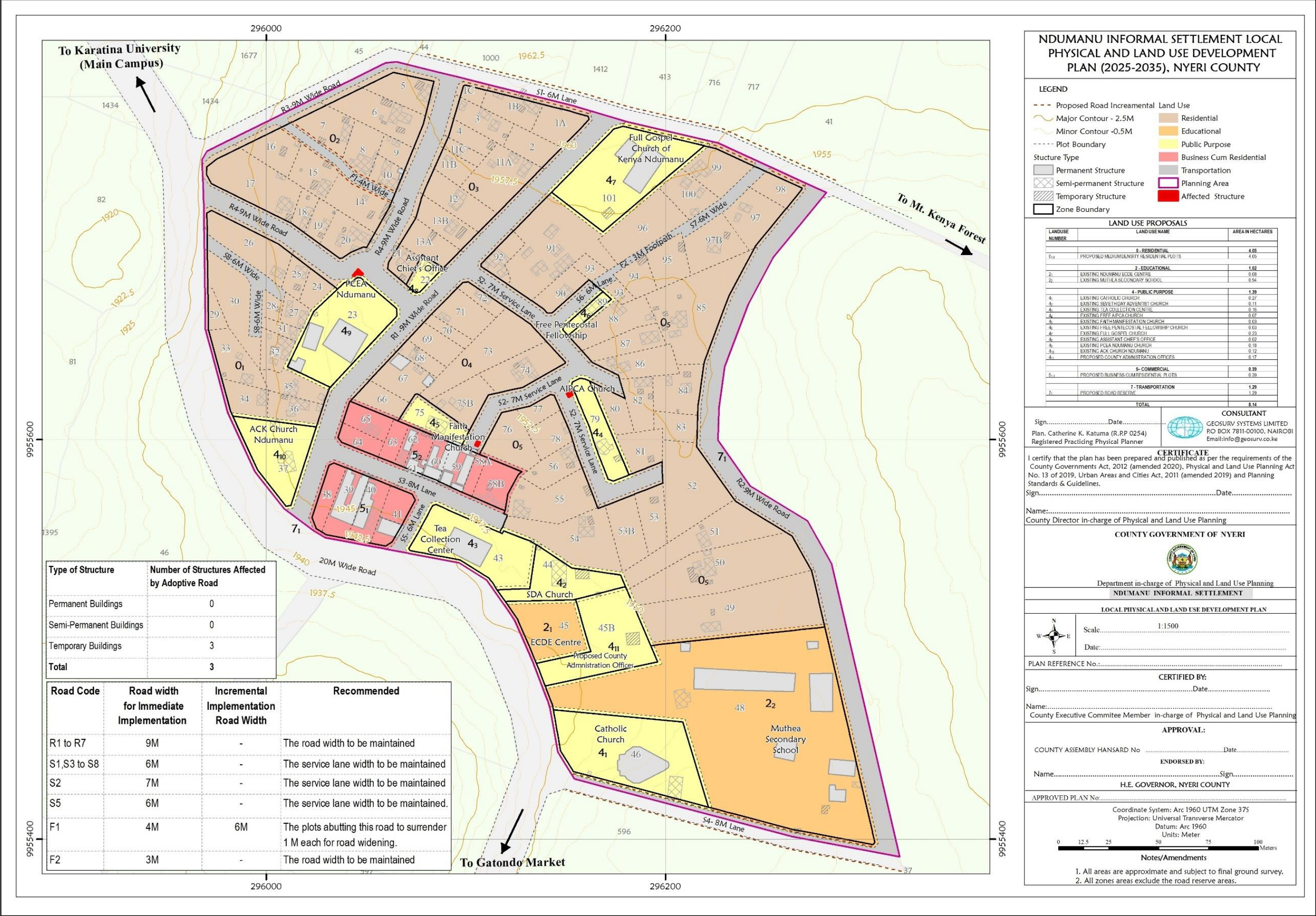
4.4.1 Proposed Land Use Zones

The plan covers an approximate area of **8.14 Ha**. It comprises of the Business Cum Residential (BCR) area, public purpose facilities, educational area and the residential zone. Being a settlement, residential land use takes up the highest percentage at 49.8% while commercial land use takes up the least percentage at 4.8%. The table below shows the proposed land use budget while the map overleaf shows the spatial distribution of the land uses.

Table 26: Proposed Land Use Budget

Code	Land Use	Area In (Ha)	Percentage
0	Residential	4.05	49.8
2	Educational	1.02	12.5
4	Public Purpose	1.39	17.1
5	Commercial	0.39	4.8
7	Transportation	1.29	15.8
Total		8.14	100.0

Map 22: Proposed Local Physical and Land Use Development Plan



As outlined in the proposed land use budget, the LPLUDP has various land uses; residential, educational, public purpose, business cum commercial and transportation. These land uses have been adopted from the existing land uses. The residential land use zone has not been further classified in the plan as there are no distinct areas with land sizes to be categorized as either low, medium or high density residential. This is because both the small and large plot sizes are located within the same area with no particular order. Thus, the residential land use has been categorized into one zone.

Table 27: Existing and Proposed Land Use Zones

Land Use Code	Land Use Name	Area (Ha)
0-Residential		
O ₁₋₅	Proposed Medium Density Residential Plots	4.05
Subtotal		4.05
2- Educational		
2 ₁	Existing Ndumanu ECDE Centre	0.08
2 ₂	Existing Muthea Secondary School	0.94
Subtotal		1.02
4-Public Purpose		
4 ₁	Existing Catholic Church	0.27
4 ₂	Existing Seventh Day Adventist Church	0.11
4 ₃	Existing Tea Collection Centre	0.16
4 ₄	Existing AIPCA Church	0.07
4 ₅	Existing Faith Manifestation Church	0.03
4 ₆	Existing Free Pentecostal Fellowship Church	0.03
4 ₇	Existing Full Gospel Church	0.23
4 ₈	Existing Assistant Chief's Office	0.02
4 ₉	Existing PCEA Ndumanu Church	0.18
4 ₁₀	Existing ACK Church Ndumanu	0.12
4 ₁₁	Proposed County Administration Offices	0.17
Subtotal		1.39
5-Commercial		
5 ₁	Proposed Business Cum Residential plots	0.39
Subtotal		0.39
7-Transportation		
7 ₁	Proposed Road Reserve	1.29
Subtotal		1.29
Total		8.14

4.5 Development Guidelines and Regulations

Development guidelines and regulations have been formulated for the various existing and proposed land use zones so as to coordinate the implementation of the plan. They aim at ensuring that the implementation of the plan will bring order, harmony and compatibility of the land uses. All new developments carried out within the informal settlement should conform to the set-out guidelines.

4.5.1 Residential Land Use Development Guidelines

The plot sizes within the informal settlement are non-homogenous. In this regard, the proposed guidelines are based on the plot sizes. The table below shows the development guidelines for residential land use

Table 28: Residential Land Use Development Guidelines

Size (Ha)	Plot Coverage (%)	Plot Ratio	No. of Floors	Typology
0.020 and below	75	0.75	Ground level only	Bungalow
0.020-0.045	70	1.4	2	Flats
0.045-0.1	60	1.8	3	Flats
0.1 -0.2	50	2	4	Flats

4.5.2 Public Purpose and Commercial Land Use

Table 29: Public Purpose and Commercial Land Use Development Guidelines

Zone No.	Description			Development Control Measures						Permitted Development	
	Land Name	Use	Actual Plot Size (Ha)	Rec. plot size (Ha)	Plot coverage	Plot ratio	No. of floors	Building line (m)	Set Back (m)		
									S		R
Public Purpose											
4 ₁	Existing Catholic Church		0.28	0.1	25%	0.6	1	2	1.5	1.5	The permitted buildings within these zones will be in line with the respective public purpose activities. These zones are recommended for the construction of high-rise structures to utilize the vertical space, cater for the inadequacies in land size and leave part of the horizontal space for greening activities.
4 ₂	Existing Seventh Day Adventist Church	Day	0.09	0.1	25%	0.6	1	2	1.5	1.5	
4 ₃	Existing Tea Collection Centre	Tea	0.16	0.1	25%	0.6	1	2	1.5	1.5	
4 ₄	Existing AIPCA Church		0.09	0.1	25%	0.6	1	2	1.5	1.5	
4 ₅	Existing Faith Manifestation Church		0.04								
4 ₆	Existing Free Pentecostal Fellowship Church	Free	0.03	0.1	25%	0.6	1	2	1.5	1.5	
4 ₇	Existing Full Gospel Church	Full	0.23	0.1	25%	0.6	1	2	1.5	1.5	

4 ₈	Existing Assistant Chief's Office	0.02	0.1	25%	0.6	1	2	1.5	1.5	
4 ₉	Existing PCEA Ndumanu Church	0.19	0.1	25%	0.6	1	2	1.5	1.5	
4 ₁₀	Existing ACK Church Ndumanu	0.12	0.1	25%	0.6	1	2	1.5	1.5	
4 ₁₁	Proposed County Administration Offices	0.17	0.1	25%	0.6	1	2	1.5	1.5	
Commercial Land Use										
5 ₁₋₂	Proposed Business Cum Residential Plots	0.18	0.045	75%	4	4	2	1.5	1.5	Commercial cum residential multi story buildings housing commercial functions on the ground floors and residential functions on the upper floors

4.5.3 Transportation Land Use

The proposed road reserves for immediate implementation are the 9m road, 6m and 7m services lanes and the footpaths ranging from 3m – 4m. To achieve wider roads, the services lanes and some footpaths are proposed to be widened to 9m roads of access while some of the footpaths are proposed to be widened to 6m service lanes as tabulated below:

Table 30: Proposed Road Expansion Guidelines

Road code	Road width for immediate implementation	Incremental implementation road width	Recommendation
R1 – R7	9M	-	The road width to be maintained
S1, S3 – S8	6M	-	The service lane width to be maintained
S2	7M	-	The service lane width to be maintained
F1	4M	6M	The plots abutting this footpath to surrender 1m each for road widening
F2	3M	-	The road width to be maintained

Additionally, in order to achieve harmony in the result developments, all future developments within the informal settlement will need to observe the set building lines and set back as shown in the table below:

Table 31: Transportation Land Use Development Guidelines

Road Size (m)	Building Line (m)	Setback (m)	
		Side	Rear
9	2	1.5	1.5
6	1.5	1.5	1.5

CHAPTER FIVE

DEVELOPMENT STRATEGIES AND IMPLEMENTATION FRAMEWORK

5.1 Overview

To promote equitable growth in the project area, these strategies have been developed through public participation and in line with the stakeholders concerns and the settlement's derived vision. They are meant to improve the quality of life for the settlement residents. The strategies are sector-specific. They highlight the existing problems per sector, the area affected, strategic objective, improvement strategies, time frame as well as the actors to be involved in their implementation. Several sector specific strategies have been formulated namely:

- Transportation and storm water drainage improvement strategies
- Environmental conservation and improvement strategies
- Water supply improvement strategies
- Housing improvement strategies
- Economic development improvement strategies

These sector improvement strategies form the basis for the plan implementation which aims at transforming the informal settlement into a more habitable place through sustainable and environmentally friendly developments.

5.2 Transportation and Storm Water Drainage Improvement Strategies

These strategies have been developed with the aim of promoting accessibility and connectivity within the informal settlement. The project area has inadequate access roads and lacks storm water drainage channels, NMT facilities and other prerequisite support infrastructure like streetlights and floodlights. The strategies focus on two key areas; road provision and expansion and storm water drainage strategies.

Due to the intensity of developments within the project area and its informal nature, a hybrid of standard planning approach and adoptive approach has been employed. This approach applies minimal planning standards so as to minimize and/or avoid any loss of structures leading to displacement of the some of the residents. This option proposes provision of 9m primary roads and 6m & 8m service lane as the main roads of access and footpaths ranging from 3m – 5m for immediate implementation. In order to achieve wider roads, a two phased implementation has been proposed. The first phase will entail implementation of the adoptive roads while the second phase will involve the widening of some of the footpaths and service lanes to 9m access roads through incremental implementation. The beneficiaries abutting these service lanes and footpaths to be widened will be required to surrender the recommended width as per the approved plan at no cost.

The table overleaf presents the overall transportation strategies aimed at improving accessibility and ensuring the provision of prerequisite road infrastructure.

Table 32: Transportation and Storm Water Drainage Improvement Strategies

Challenge	Affected Area	Objective	Mitigation/Strategies	Time frame	Actors
Inaccessibility within the informal settlement.	Entire project area.	To promote accessibility and connectivity within the project area.	○ Opening up new roads as guided by the plan in order to provide access to every plot.	Short term	○ CGN– Transport, Public Works, Infrastructure, & Energy ○ Development partners
			○ Upgrade all access roads to motorable condition.	Short term	○ CGN– Transport, Public Works, Infrastructure, & Energy ○ Development partners
			○ Installation of streetlights and street furniture along the access roads.	Short term	○ CGN– Transport, Public Works, Infrastructure, & Energy ○ Development partners
Inadequate space for provision of wider roads.	Project area	To achieve wider roads for enhanced accessibility.	○ Incremental implementation of a 4m footpath to a 6m service lanes. ○ Beneficiaries abutting these service lanes and footpaths to surrender the recommended width as per the approved plan at no cost.	Short term	○ CGN– Transport, Public Works, Infrastructure, & Energy ○ Project beneficiaries
Existence of narrow roads/paths.	Entire Project area.	To provide adequate road reserves.	○ Surrender the recommended road widths for road widening as per the approved plan. ○ Roads widening and construction. ○ Observe the set building lines and setbacks.	Short term	○ Project beneficiaries ○ CGN ✓ Transport, Public Works, Infrastructure, & Energy ○ Lands, Physical Planning, Housing & Urban Development ○ Development partners

Poor road conditions.	Entire project area.	Improve the road conditions.	○ Upgrade all access roads to motorable condition.	Short term	○ CGN– Transport, Public Works, Infrastructure, & Energy
			○ Constant road maintenance and repairs.	Short term – medium term	○ CGN– Transport, Public Works, Infrastructure, & Energy
Lack of NMT facilities	Entire project area	Create an inclusive integrated transportation system for the settlement	○ Provision of pedestrian walkways/lanes	Short term	○ CGN– Transport, Public Works, Infrastructure, & Energy ○ Development partners
			○ Provision of street furniture i.e. street light & waste bins along the walkways	Short term	
Lack of storm water drainage channels.	Entire project area.	To improve storm water drainage.	○ Provision of storm water drainage channels on all the access roads.	Short term – medium term – long term	○ CGN– Transport, Public Works, Infrastructure, & Energy ○ Development partners

KEY: Short Term – up to 3 years
Medium Term – up to 5 years
Long Term – up to 10 years

5.3 Environmental Conservation and Improvement Strategies

These strategies focused on various sectors; solid and liquid waste management, pollution, energy sources and climate change.

Solid Waste Management

Ndumanu informal settlement is characterized by improper solid waste management system a phenomenon that is fuelled by lack of designated waste disposal sites. The residents dump their waste indiscriminately along the roadside, within individual homesteads or burn it along the road reserves. To promote proper solid waste collection and disposal, the following strategies have been proposed:

- Establishment of waste collection points
- Public sensitization on non-littering in the project area
- Sensitizing the residents on the need to embrace the use of 4Rs (Reduce, Reuse, Recycle & Recover) for non-biodegradable waste such as plastics and glasses.
- Provision of trash bags to the households in order to encourage waste segregation and sorting at the household level
- Establishing a monitoring and evaluation system to monitor waste management activities. The regular monitoring will help identify areas for improvement and ensure the long-term success of waste management initiatives
- Increasing the waste collection frequency by developing a system for regular waste collection and transportation from the settlement to appropriate disposal sites. This will ensure consistent and timely collection.
- Privatization of waste collection will enhance effectiveness which will in turn promote proper waste management and also create employment among the youth.

Liquid Waste Disposal

The settlement lacks the conventional sewerage system. Majority of the residents use pit latrines for human excreta disposal. The use of pit latrines as a liquid and human waste disposal method is a health threat as it could lead to infiltration and contamination of underground water due to the settlement's high-water table. The waste can also be washed into the stream downstream. The plan proposes for the provision of sewer reticulation in the long run and use of standard septic tanks in the short run. For effective liquid waste disposal in the settlement, a few strategies have been formulated;

- Establishment of a sewer reticulation system for efficient liquid waste management.
- Use of septic tanks - proper construction and regular emptying of septic tanks is essential to prevent contamination of groundwater sources and the spread of diseases.
- Establishment of proper drainage channels and proper maintenance to avoid blockages and overflow in order to manage storm water and wastewater. This will also prevent possible waterlogging and flooding within the project area

Pollution Reduction

Within Ndumanu informal settlement, pollution is mostly as a result of poor waste management practices and use of inefficient cooking fuels as a result of lack of access to clean energy sources. To mitigate against pollution, a few strategies have been formulated;

- Adoption of proper waste management system – designate solid waste collection site and use of septic tanks for liquid waste disposal.
- Creating awareness on the available alternative sources of clean energy sources
- Promotion of conservation measures for the existing vegetation within the settlement as its a natural purifier, absorbing pollutants and improving air quality.

Cooking Energy Sources

Firewood and charcoal are the dominant sources of cooking energy in Ndumanu informal settlement. They account for 86 and 5 percent respectively of all sources of energy used for cooking. Cumulatively, fuelwood account for 91% of cooking energy source. This source of energy is non-renewable and thus not sustainable due to increase in greenhouse gases emission, particularly CO₂, which largely contributes to global warming and climate change. This necessitates the need for development and adoption of sustainable urban energy sources thus the formulation of these strategies:

- Community sensitization on the available various types of renewable energy sources.
- Educating the settlement residents on the importance of constructing energy-efficient housing designs so as to reduce the need for artificial lighting, cooling and heating hence reducing the energy demand.
- Carrying out awareness and training programmes to educate the residents on energy efficient practices like use of energy saving appliances, turning off lights when not in use so as to minimize energy wastage.

Climate Change

There are several activities that contribute to climate change in Ndumanu informal settlement like the cutting down of trees for fuelwood and house construction materials – timber, clearing of vegetation for settlement and farm expansion, encroachment on the riparian reserve by farming activities where the owners of the land parcels fronting the stream plant arrow roots and bananas and use of non-renewable energy sources. To enhance climate change resilience within the informal settlement, a few strategies have been developed;

- Adoption of renewable energy sources
- Construction of compact developments to leave space for the thriving of vegetation cover.
- Conservation of the seasonal stream by observing the recommended riparian reserve and planting of appropriate vegetation for the thriving of the riparian ecosystem.
- Sensitize the community on the available water conservation practices like rain water harvesting to reduce surface run-off and its associated problems like soil erosion.
- Construction of appropriate drainage channels along all the roads of access for proper surface run-off drainage.

The table overleaf outlines the proposed environmental protection strategies, time frame and the actors responsible for their implementation.

Table 33: Environmental Conservation and Improvement Strategies

Challenge	Affected Area	Objective	Mitigation / Strategies	Timeframe	Actors
Poor solid waste management.	Entire project area	To enhance efficiency in solid waste management.	o Provision of waste collection bins and trash bags	Continuous	o CGN – County Public Service & Solid Waste Management o NEMA o Community members o Development partners
			o Public sensitization on non-littering within the project area.	Short term – medium term -long term	
			o Promote waste sorting through provision of waste collection bins colored green, blue and brown for composting, recyclable and non-biodegradable waste respectively.	Short term – medium term -long term	
			o Promote waste reuse, recycling and reduction.	Continuous	
			o Increase the frequency of waste collection.	Continuous	
			o Privatize waste collection and management.	Continuous	
			o Establish a system to monitor waste management activities.	Medium term	
Liquid waste management.	Entire project area.	To ensure proper liquid waste management.	o Establishment of the sewer reticulation system for efficient liquid waste management.	Long term	o CGN – Transport, Public Works, Infrastructure & Energy o Development partners.
			o Construction of sewer treatment plant outside the settlement.	Long term	
			o Buffering the sewer treatment plant site with trees belt of 15m.	Long term	
			o Establishment of proper drainage channels in order to manage storm water and wastewater.	Short term	
			o Encourage use of septic tanks - proper construction and regular emptying of septic tanks is essential to prevent contamination of groundwater sources and the spread of diseases.	Short term	o CGN – County Public Service & Solid Waste Management o Community members

Challenge	Affected Area	Objective	Mitigation / Strategies	Timeframe	Actors
Use of unsustainable sources of energy.		To enhance sustainable use of energy. To reduce environmental impacts.	○ Sensitizing and creating awareness to the community members on the various types of renewable energy such as solar energy. ○ Conducting awareness and training programmes to educate the residents about energy efficient practices like use of energy-saving appliances, turning off lights when not in use to minimize wastage. ○ Educating the residents on the importance of constructing energy-efficient housing designs so as to reduce the need for artificial lighting, cooling and heating, hence decreasing energy demand.	Short term – medium term -long term	○ CGN – Water, Environment, & Climate Change ○ Community members
Pollution of underground water.	Entire project area.	Protect underground water.	○ Construction of water tight concrete septic tanks to hold water for a minimum of 19 hour to 3 days to allow anaerobic decomposition	Continuous	○ CGN – Transport, Public Works, Infrastructure & Energy ○ Development partners ○ Community members
			○ Discourage use of pit latrines and build aqua privy or pour flush latrines drained by septic tanks for people with no water closet	Short term and continuous	
			○ Provision of sewer reticulation network.	Long Term	
Air pollution.	Entire project area,	To reduce level of air pollution.	○ Educating and creating awareness on the available alternative sources of energy that do not emit CO₂. ○ Adopting proper methods of solid waste management such as provision of skips and bins within the project area. ○ Conserving the existing vegetation within the project area as it acts as natural filter which absorbs pollutants and improves air quality. ○ Planting of appropriate trees within homesteads.	Short term – medium term -long term	○ CGN – Water, Environment, & Climate Change ○ Development partners ○ Community members

Challenge	Affected Area	Objective	Mitigation / Strategies	Timeframe	Actors
Climate change.	Entire project area	To mitigate the impacts of changing climate patterns.	○ Sensitizing the residents on the available water conservation practices such as rain water harvesting in order to address challenges exacerbated by climate change.	Short term – medium term -long term	○ CGN – Water, Environment, & Climate Change ○ Development partners ○ Community members
			○ Construction of proper drainage channels to prevent any possible flooding in the project area during rainy seasons.	Short term	○ CGN – Transport, Public Works, Infrastructure & Energy ○ Community members
			○ Conservation of the indigenous trees and existing vegetation as they help regulate temperature and absorb surface run-off.	Short term – medium term -long term	○ CGN – Water, Environment, & Climate Change ○ Development partners ○ Community members
			○ Promote use of green energy such as solar energy to reduce usage of wood fuel through creation of awareness and sensitization.	Short term – medium term -long term	
Loss of vegetation cover	Entire project area	Enhance vegetation cover in the informal settlement	○ Establishment of nurseries and planting of appropriate vegetation ○ Encourage green fencing/green infrastructure ○ Encourage use of alternative fuel especially for cooking	Continuous	○ CGN – Water, Environment, & Climate Change ○ Community members

KEY: Short Term – up to 3 years
Medium Term – up to 5 years
Long Term – up to 10 years
Continuous - short term, medium term and long term

5.4 Water Supply Improvement Strategies

These water supply strategies will help minimize water wastage and optimize its usage. These strategies focus on leak detection and repair for the existing water reticulation system, expansion of the reticulation system and rainwater harvesting as outlined in the table below.

Table 34: Water Supply Improvement Strategies

Challenge	Affected Area	Objective	Mitigation/Strategies	Time frame	Actors
Inadequate water supply.	Project area	To enhance adequate water supply.	- Expansion of the existing water reticulation systems - Devise mechanisms for early leak detection and repair of the water pipes	Short term	- Kihore Water Project - Development Partners - Community Members
			- Provision of water tanks to the residents. - Sensitize the community members on various methods of water collection - rooftop rainwater harvesting systems to offer additional water source for various purposes. - Conduct awareness campaigns to educate residents about water conservation practices such as turning off taps when not in use, using water sparingly and reporting water leaks immediately.	Short term – medium – long term	- CGN – Water, Environment, & Climate Change - Kihore Water Project - Community members - Development Partners
			Establish committees comprising of community members responsible for managing water resources and promoting efficient water practices to coordinate water-related initiatives, monitor usage and implement conservation measures.	Short term	- CGN – Water, Environment, & Climate Change - Kihore Water Project - Community members

5.5 Housing Improvement Strategies

The residential function of an urban area is one of its most critical roles since all its inhabitants require safe and conducive environments to live in. Though the plan has outlined the various development guidelines and regulations to guide the development of the residential structures, the efficiency and sustainability of these developments should also be considered. In respect to this, strategies have been formulated to address the challenges observed in housing provision so as to enhance its efficiency. These problems include; insecurity of land tenure, disregarding building lines, informality in housing provision, poor urban design and inadequate social (residential support) facilities. The strategies formulated are outlined in the table below:

Table 35: Housing Improvement Strategies

Challenge	Affected Area	Objective	Mitigation/ Strategies	Time Frame	Actors
Insecurity of land tenure	Project area	Provide security of tenure.	- Land survey and issuance of lease certificates. - Developing a Land Information System (LIS).	Short term	- National Government - CGN – Lands, Physical Planning, Housing & Urban Development
Urban informality	Project area	Minimize informality	Provide a spatial framework to guide housing development in the informal settlement	Short term	CGN – Lands, Physical Planning, Housing & Urban Development
		To provide access roads.	Opening up of access roads per the approved plan.	Short term	CGN – Transport, Public Works, Infrastructure & Energy
		To promote secure neighbourhoods.	Installation of streetlights and floodlights within the project area.	Short term	Development partners
Poor housing conditions	Project area	To provide infrastructural facilities. To improve housing conditions.	Provision of basic infrastructural services within the project area such as sewerage system, electricity,	Short and medium term	- CGN – Transport, Public Works, Infrastructure & Energy - Development Partners

			roads, water etc.		
Degraded living condition	Project area	To promote liveable environment	○ Ensure land tenure security through surveying and titling process	Immediate	○ National Government ○ CGN – Lands, Physical Planning, Housing & Urban Development
			○ Train the community on appropriate building technologies	Short term	○ CGN – Transport, Public Works, Infrastructure & Energy

5.6 Economic Development Improvement Strategies

These strategies focus on enhancing livelihood opportunities, promoting entrepreneurship and improving access to economic opportunities within the informal settlement. Various issues have been considered namely; adequate provision of commercial land use zones, provision of support infrastructure in the open-air market and enhancing the commercial section's economic vibrancy. The table below outlines the proposed economic development strategies aimed at improving the residents' livelihoods.

Table 36: Economic Development Improvement Strategies

Challenge	Affected Area	Objective	Mitigation/Strategies	Time frame	Actors
Inadequate technical skills and capacity building.	Project area	To promote job creation. To improve the residents' technical skills	○ Provide vocational training and skill development programmes to residents, focusing on areas with local demand and market potential such as jua kali sector, construction and service industries.	Short – medium – long term	○ CGN – Trade, Tourism, Culture & Cooperative Development ○ Development Partners ○ Community members
Lack of community empowerment	Project area	To enhance residents' livelihood.	○ Encourage residents to actively participate in	Short – medium – long term	

and participation.			local development projects in order to contribute towards their economic improvement.		
Lack of infrastructure development.	Project area	To provide basic infrastructure.	○ Improve basic infrastructure, like access roads and support infrastructure - streetlights and floodlights to support economic activities.	Short – medium term	○ CGN – Transport, Public Works, Infrastructure & Energy Development Partners
Stagnant economic activities	Market section	To enhance the economic vibrancy of the market	○ Promote diversification of economic activities	Continuous	○ CGN – Trade, Tourism, Culture & Cooperative Development

CHAPTER SIX

IMPLEMENTATION, MONITORING AND EVALUATION FRAMEWORK

6.1 Overview

This chapter presents the implementation, monitoring and evaluation framework to ensure an effective plan implementation. The County Government of Nyeri is mandated to oversee the implementation and enforcement of the development guidelines. The plan provides land use allocations, plot sizes, development guidelines for the various land use zones and improvement strategies for the identified sectors. This implementation framework is meant to guide the County Government in ensuring the plan is sustainably implemented to bring forth the desired future development scenario.

6.2 Implementation

The implementation framework outlines the project activities, objectives, indicators, actors and time frame required to achieve the objective. It has been categorized into two phases;

Phase one: plan approval, cadastral survey and issuance of lease certificates. The plan approval and cadastral survey will be completed under this consultancy. The issuance of lease certificates which entails the process of registration and issuance of lease certificates as guided by the approved plan and amended RIM will be undertaken by the National Government; Ministry of Lands, Public Works, Housing and Urban Development.

Phase two: plan implementation, outlining the implementation framework for the proposed plan interventions. The tables overleaf outline the proposed implementation framework:

Table 37: Implementation Framework – Phase one: Plan Approval and Cadastral Survey

Task	Activity description	Purpose	Indicators	Actors	Timeframe
Phase One: Plan Approval and Cadastral Survey					
Approval of the plan	- Approval by the Nyeri County Assembly - Endorsement by H.E the Governor, Nyeri County.	- To be the policy document for guiding development - To form the basis for cadastral survey.	- Approved plan. - County Assembly approval minutes.	County Government of Nyeri	Short term
Cadastral Survey.	Beaconing of the individual plots as per the approved plan.	To establish plots boundaries.	Beacon certificates.	Consultant	Short term
	Submission of the survey plan and signed beacon certificates to the Director of Survey.	To serve as proof that the plots were beaconed accurately.	Signed beacon certificates.	Consultant	Short term
	Authentication of the survey plan by the Director of Survey.	To ascertain survey plan accuracy and compliance with the Survey Act CAP 299 (Revised Edition 2012 [2010]) and other governing laws and regulations.	Approved survey plan.	Consultant	Short term
	Amendment of Registry Index Maps (RIMs) by the Director of Survey.	To incorporate the surveyed sections into the larger Registry Index Maps (RIMs).	Amended Registry Index Maps (RIMs).	Director of Survey	Short term
Preparation of the lease certificates.	- Processing lease documents. - Registration of lease documents and issuance of lease certificates.	To enhance tenure security.	Issued lease certificates.	Ministry of Lands, Public Works, Housing & Urban Development.	Short term

Table 38: Implementation Framework – Phase two: Implementation of Plan Proposals

Thematic Area	Strategy	Project	Indicator	Time frame				Actors
				Short term	Medium term	Long term	Continuous	
Physiography and natural environment	Adopt climate change mitigation strategies	Implement the recommended 10% tree cover	Increased tree cover				✓	County department of Water, Environment, & Climate Change Development partners Community
		Sensitize the general public on the climate change and its mitigation measures	- Number of workshops held - Knowledgeable community on climate change				✓	
		Sensitize the community on the need for conservation of the existing vegetation to help in the absorption of surface run-off.	Well conserved vegetation cover				✓	
		Promote the use of cabros for paving to enhance water infiltration	Internal roads of cabro paving			✓		County department Transport, Public Works, Infrastructure & Energy
		Educating and creating awareness on the available alternative sources of energy that do not emit greenhouse gases.	- Number of workshops held - Reduced usage of non-renewable energy sources				✓	County department of Water, Environment, & Climate Change Community
		Sensitize the public on the available data relating to early warning signs on floods or longer dry seasons	Number of workshops held				✓	County department of Water, Environment, & Climate Change Community
	Increase vegetation cover	- Sensitize the farmers on tree planting - Provision of free tree seedlings	- Number of workshops held - Increased tree cover				✓	County department of Water, Environment, & Climate Change Community

Thematic Area	Strategy	Project	Indicator	Time frame				Actors
				Short term	Medium term	Long term	Continuous	
		Planting of appropriate tree species within the homesteads and along the riparian reserve	Conserved riparian ecosystem					
Economic activities	Promote economic growth in the project area	- Improve basic infrastructure to support economic activities - Promote diversification of economic activities	- Improved basic infrastructure - Diversified economic activities	✓				County department of Trade, Tourism, Culture & Cooperative Development Community
Infrastructure	Enhance accessibility of all activity spaces	Opening of the roads	Opened roads	✓				County department of Transport, Public Works, Infrastructure & Energy Development partners
		Upgrade the earth roads into motorable all-weather roads	Upgraded access roads	✓				
		Conduct regular road maintenance	Well maintained roads				✓	
		Integrate NMT facilities within the proposed road network	Integrated NMT facilities			✓		
	Promote efficient mobility	Incremental widening of footpath F1 from 4m to 6m service lane	Widened roads as per the approved plan			✓		County department of Lands, Physical Planning, Housing & Urban Development Community
		Beneficiaries abutting these roads to surrender the recommended width as per the plan free of any cost.				✓		
	Ensure efficient storm water drainage	Incorporate natural storm water drainage in road design and construction	Constructed storm water drainage channels			✓		County department of Transport, Public Works, Infrastructure & Energy
		Improve natural storm water drainage on the existing roads	Proper removal of surface run-off	✓				

Thematic Area	Strategy	Project	Indicator	Time frame				Actors
				Short term	Medium term	Long term	Continuous	
		Construction of civic drains for new roads	o Reduced water pools			✓		Development partners Community
		Construction of culverts for proper drainage of surface run off			✓			
		Ensure a balance between built and natural environment to ensure maximum surface water infiltration					✓	
	Increase access to piped water	Rehabilitation of the water reticulation system	Rehabilitated reticulation system		✓			Kihore Water Project Development partners
		Expansion of the water reticulation system	More households connected to piped water		✓			
		Construction of water kiosks to retail water to the properties not connected to piped water	Installed water kiosk		✓			
	Promote rain water harvesting	Sensitize the public on rainwater harvesting and water recycling technologies	Number of households practicing rain water harvesting				✓	County department of Water, Environment, & Climate Change Development partners Community
		Provide the residents with water harvesting equipment				✓		
	Increase water supply	Initiate water harvesting programs	Number of water harvesting projects	✓				
		Promote water recycling	Amount of water conserved				✓	
		Introduce water storage tanks	Number of water storage tanks	✓				
		Designate a solid waste collection site		✓				

Thematic Area	Strategy	Project	Indicator	Time frame				Actors
				Short term	Medium term	Long term	Continuous	
	Ensure proper solid waste management	Sensitize the public on proper waste disposal mechanisms	Availability of a waste collection site				✓	County department of County Public Service & Solid Waste Management
		Create awareness on the 4R waste management mechanisms	Availability of waste bins and skips within the settlement				✓	
		Identification of appropriate sites along major access roads for the placement of waste bins Acquisition of the waste bins and skips		✓				
	Ensure proper liquid waste disposal	Discourage use of pit latrines and build aqua privy or pour flush latrines drained by septic tanks for people with no water closet.	Reduced number of pit latrines	✓				County Department of Transport, Public Works, Infrastructure & Energy
		Construction of water tight concrete septic tanks to hold water for a minimum of 19 hours to 3 days to allow anaerobic decomposition	Availability of septic tanks		✓			Community
		Preparation of sewer reticulation plan and construction of sewer reticulation network	Availability of sewer reticulation network			✓		
	Enhance security and boost the area economy	Installation of street lights and flood lights	- Enhanced security - Installed streetlights and floodlights				✓	County Department of Transport, Public Works, Infrastructure & Energy
	Promote use of green energy	Sensitize the public on alternative sources of clean energy i.e., biogas from agricultural organic waste for cooking energy	Number of workshops held				✓	County department of Water, Environment, & Climate Change

Thematic Area	Strategy	Project	Indicator	Time frame				Actors
				Short term	Medium term	Long term	Continuous	
Land and Housing	Ensure a livable environment	Empower the community in the acquisition of energy saving equipment	○ Reduced usage of non-renewable sources of energy	✓				Development partners Community
		Promote solar installation as an alternative to electricity			✓			
		Promote alternative building technologies	○ Number of trainings held ○ Adoption of better building technologies	✓				County Department of Transport, Public Works, Infrastructure & Energy Development partners Community
		Train the local on appropriate building technologies					✓	
		Carry on demonstrations on better building technologies					✓	

6.3 Monitoring and Evaluation Framework

Monitoring entails the systematic and continuous collection and analysis of information aimed at tracking the progress of the project implementation against pre-set targets and objectives. Evaluation framework on the other hand studies the outcome of a project with the aim of informing the design of future projects. In urban planning practices, monitoring and evaluation framework (MEF) is a powerful project management tool with regard to achieving related goals and objectives, enhancing sustainability, improving the quality of life and is a key decision-making tool. Monitoring and evaluation are importance as they;

- Measure and report progress on all proposed implementation status
- Provide a basis for questioning and testing assumptions
- Provide a way to assess the crucial link between implementers, project beneficiaries on the ground and decision makers
- Improve management, performance and decision making
- Enhance knowledge generation and sharing including collecting, tracking and analysis of data so as to determine what's happening where and for whom among different stakeholders.

As part of the MEF, the plan proposes a project's implementation and coordination committee (PICC) which will be mandated to ensure all the plan proposals are fully implemented within the scheduled timeframe. The proposed membership of the PICC is tabulated below:

Table 39: Proposed Membership of the PICC

Institutions	Actors
All Relevant National Government Ministries and Departments.	Ministry of Lands, Public Works, Housing & Urban Development: State Department for Housing and Urban Development.
	National Environment Management Authority (NEMA).
County Government.	All the County Executive Committee Members. All the County Departmental Chief Officers.
Service Providers.	Kihore Water Project
Others	Development Partners.
	Non-Governmental Organizations.
	Community Members Representatives.

The proposed PICC will also be responsible for monitoring projects' implementation, carrying out supervision of the overall plan's implementation and reviewing of projects implementation reports. The committee will continuously monitor and report on the progress of implementation, results achieved, challenges and opportunities arising from the process. Monitoring has four main components; system, data, analysis and reporting and action.

- **System:** Monitoring and Evaluation System (MES) provides the guidelines to monitor the implementation of the identified key priority projects and programmes. The monitoring system component clarifies the purpose, context, system parameters, agreed outcomes and indicators to be monitored.
- **Data:** This entails the data collection, processing, and quality assurance component.
- **Analysis and reporting:** This entails reporting against targets and making comparisons at the local levels.
- **Action:** This constitutes the decisions made on strategies, service delivery, operations, resources and evaluation.

REFERENCES

- GoK. (2019) Stakeholder Engagement Framework (SEF). Kenya Informal Settlements Improvement Project II (KISIP II). Ministry of Transport, Infrastructure, Housing, Urban Development and Public Works. State Department for Housing and Urban Development. Government of Kenya
- GoK. (2019) Vulnerable and Marginalized Groups Framework. KISIP II. Ministry of Transport, Infrastructure, Housing and Urban Development. Government of Kenya
- GoK. (2019) National Sustainable Waste Management Policy. Ministry of Environment and Forestry. Republic of Kenya.
- GoK. (2019) Physical and Land Use Planning Act No.13. Government of Kenya.
- GoK. (2018) Guidelines for Land Tenure Regularization in Informal Settlements. Ministry of Transport, Infrastructure, Housing and Urban Development. Republic of Kenya
- GoK. (2017) National Spatial Plan (NSP) (2015 – 2045). Ministry of Lands and Physical Planning. Government of Kenya.
- GoK. (2017) Urban Land Use Planning – Monitoring and Oversight Guidelines. Government of Kenya.
- GoK. (2017) National Disaster Risk Management Policy. Republic of Kenya.
- GoK. (2016) National Land Use Policy. Ministry of Lands and Physical Planning. Republic of Kenya.
- GoK. (2016) National Housing Policy for Kenya. Sessional Paper No. 3 of 2016. Government of Kenya
- GoK. (2016) National Slum Upgrading and Prevention Policy. Sessional Paper No. 2. Ministry of Land, Housing and Urban Development. Government of Kenya.
- GoK. (2016) National Urban Development Policy. Ministry of Transport, Infrastructure, Housing and Urban Development. Government of Kenya.
- GoK. (2016) Water Act. Government of Kenya.
- GoK. (2016) Climate Change No. 11 Government of Kenya.
- GoK. (2013) National Environment Policy. Ministry of Environment, Water and Natural Resources. Government of Kenya.
- GoK. (2013) Matrimonial Property Act No 49 of 2013, Ownership of Matrimonial Property. Government of Kenya.
- GoK. (2012) County Governments Act (Amended 2020). Government of Kenya.
- GoK. (2012) The Land Registration Act. Government of Kenya.
- GoK. (2012) Land Act No.6 of 2012 (Amended 2016). Government of Kenya.
- GoK. (2012) Public Health Act, Cap 242 Government of Kenya.
- GoK. (2012) National Land Commission Act Sessional No. 5 of 2012. Government of Kenya
- GoK. (2012) Land Act No.6 of 2012 (Amended 2016). Government of Kenya
- GoK. (2011) Urban Areas and Cities Act (Amended 2019). Government of Kenya
- GoK. (2010) The Constitution of Kenya 2010. Government of Kenya.

- GoK. (2010) Survey Act CAP 299 (Revised Edition 2012). Government of Kenya
- GoK. (2009) Integrated National Transport Policy. Ministry of Transport. Republic of Kenya
- GoK. (2009) National Land Policy. Sessional Paper No. 3 of 2009. Republic of Kenya
- GoK. (2007) The Kenya Vision 2030. Government of Kenya
- GoK. (1999) Environmental Management and Coordination Act (EMCA), (Amended 2015). Government of Kenya
- GoK. (1996) Physical Planners Registration Act. Government of Kenya
- The World Bank. (2017) Project Appraisal Document. To the republic of Kenya. Kenya Informal Settlements Improvement Project 2.
- United Nations Development Programme (UNDP). (2015) Sustainable Development Goals
- World Bank, OP/BP 4.11 (Revised 2013). Physical Cultural Resources

APPENDICES

Appendix 1: Notice of Intention to Plan – Daily Nation

39.50	39.20	194.900
47.40	46.25	9.100
140.00	136.25	5.600
Ord. 5.00	280.25	273.25
0	15.70	15.80
		63.600

0.45
1.07
3.60
1.36
3.45
1.200
1.000

0.50	4.66
	3.83
	2.30
	2.15
	40.800
	12.45
	13.05
	5.000
	2.35
	2.34
	4.300
	4.95
	4.95
	600
	14.85
	14.40
	200
	0.17
	0.18
	772.500
	2.32
	2.14
	24.100

	5.55
	57.50
	58.25
	5.700
	32.90
	32.00
	1.000
	1.04
	0.98
	68.600
	32.25
	32.85
	200

	3.43
	3.41
	1.302.300
	4.11
	4.04
	353.300
	4.00
	6.00
	20.35
	5.900
	16.75
	16.60
	2.900

	5.92
	5.90
	268.200
	2.10
	2.14
	28.000
	174.00
	181.00
	1600
	1.20
	1.17
	3.564.400
	7.16
	7.14
	600
	4.52
	4.52
	2.600

	3.43
	3.41
	1.302.300
	4.11
	4.04
	353.300
	4.00
	6.00
	20.35
	5.900
	16.75
	16.60
	2.900

	5.92
	5.90
	268.200
	2.10
	2.14
	28.000
	174.00
	181.00
	1600
	1.20
	1.17
	3.564.400
	7.16
	7.14
	600
	4.52
	4.52
	2.600

	3.43
	3.41
	1.302.300
	4.11
	4.04
	353.300
	4.00
	6.00
	20.35
	5.900
	16.75
	16.60
	2.900

	5.92
	5.90
	268.200
	2.10
	2.14
	28.000
	174.00
	181.00
	1600
	1.20
	1.17
	3.564.400
	7.16
	7.14
	600
	4.52
	4.52
	2.600

	3.43
	3.41
	1.302.300
	4.11
	4.04
	353.300
	4.00
	6.00
	20.35
	5.900
	16.75
	16.60
	2.900

	5.92
	5.90
	268.200
	2.10
	2.14
	28.000
	174.00
	181.00
	1600
	1.20
	1.17
	3.564.400
	7.16
	7.14
	600
	4.52
	4.52
	2.600

	3.43
	3.41
	1.302.300
	4.11
	4.04
	353.300
	4.00
	6.00
	20.35
	5.900
	16.75
	16.60
	2.900

	5.92
	5.90
	268.200
	2.10
	2.14
	28.000
	174.00
	181.00
	1600
	1.20
	1.17
	3.564.400
	7.16
	7.14
	600
	4.52
	4.52
	2.600

	3.43
	3.41
	1.302.300
	4.11
	4.04
	353.300
	4.00
	6.00
	20.35
	5.900
	16.75
	16.60
	2.900

	5.92
	5.90
	268.200
	2.10
	2.14
	28.000
	174.00
	181.00
	1600
	1.20
	1.17
	3.564.400
	7.16
	7.14
	600
	4.52
	4.52
	2.600

	3.43
	3.41
	1.302.300
	4.11
	4.04
	353.300
	4.00
	6.00
	20.35
	5.900
	16.75
	16.60
	2.900

	5.92
	5.90
	268.200
	2.10
	2.14
	28.000
	174.00
	181.00
	1600
	1.20
	1.17
	3.564.400
	7.16
	7.14
	600
	4.52
	4.52
	2.600

	3.43
	3.41
	1.302.300
	4.11
	4.04
	353.300
	4.00
	6.00
	20.35
	5.900
	16.75
	16.60
	2.900

	5.92
	5.90
	268.200
	2.10
	2.14
	28.000
	174.00
	181.00
	1600
	1.20
	1.17
	3.564.400
	7.16
	7.14
	600
	4.52
	4.52
	2.600

	3.43
	3.41
	1.302.300
	4.11
	4.04
	353.300
	4.00
	6.00
	20.35
	5.900
	16.75
	16.60
	2.900

	5.92
	5.90
	268.200
	2.10
	2.14
	28.000
	174.00
	181.00
	1600
	1.20
	1.17
	3.564.400
	7.16
	7.14
	600
	4.52
	4.52
	2.600

	3.43
	3.41
	1.302.300
	4.11
	4.04
	353.300
	4.00
	6.00
	20.35
	5.900
	16.75
	16.60
	2.900

	5.92
	5.90
	268.200
	2.10
	2.14
	28.000
	174.00
	181.00
	1600
	1.20
	1.17
	3.564.400
	7.16
	7.14
	600
	4.52
	4.52
	2.600

	3.43
	3.41
	1.302.300
	4.11
	4.04
	353.300
	4.00
	6.00
	20.35
	5.900
	16.75
	16.60
	2.900

	5.92
	5.90
	268.200
	2.10
	2.14
	28.000
	174.00
	181.00
	1600
	1.20
	1.17
	3.564.400
	7.16
	7.14
	600
	4.52
	4.52
	2.600

	3.43
	3.41
	1.302.300
	4.11
	4.04
	353.300
	4.00
	6.00
	20.35
	5.900
	16.75
	16.60
	2.900

	5.92
	5.90
	268.200
	2.10
	2.14
	28.000
	174.00
	181.00
	1600
	1.20
	1.17
	3.564.400
	7.16
	7.14
	600
	4.52
	4.52
	2.600

	3.43
	3.41
	1.302.300
	4.11
	4.04
	353.300
	4.00
	6.00
	20.35
	5.900
	16.75
	16.60
	2.900

	5.92
	5.90
	268.200
	2.10
	2.14
	28.000
	174.00
	181.00
	1600
	1.20
	1.17
	3.564.400
	7.16
	7.14
	600
	4.52
	4.52
	2.600

	3.43
	3.41
	1.302.300
	4.11
	4.04
	353.300
	4.00
	6.00
	20.35
	5.900
	16.75
	16.60
	2.900

	5.92
	5.90
	268.200
	2.10
	2.14
	28.000
	174.00
	181.00
	1600
	1.20
	1.17
	3.564.400
	7.16
	7.14
	600
	4.52
	4.52
	2.600

	3.43
	3.41
	1.302.300
	4.11
	4.04
	353.300
	4.00
	6.00
	20.35
	5.900
	16.75
	16.60
	2.900

	5.92
	5.90
	268.200
	2.10
	2.14
	28.000
	174.00
	181.00
	1600
	1.20
	1.17
	3.564.400
	7.16
	7.14
	600
	4.52
	4.52
	2.600

	3.43
	3.41
	1.302.300
	4.11
	4.04
	353.300
	4.00
	6.00
	20.35
	5.900
	16.75
	16.60
	2.900

	5.92
	5.90
	268.200
	2.10
	2.14
	28.000
	174.00
	181.00
	1600
	1.20
	1.17
	3.564.400
	7.16
	7.14
	600
	4.52
	4.52

Appendix 2: Notice of Intention to Plan – Taifa Leo

ma Piny Luo Festival itanza Desemba 30 na kukamilika Januari 2, 2025.

Itahusisha jamii ya Waluo kutoka Kenya, Tanzania, Uganda, Sudan Kusini, Jamuhuri ya Kidemokrasia ya Congo (DRC) miongoni mwa maeneo mengine ya Afrika.

Rais Museveni ataungana na mwenyeji wake Rais William Ruto kwenye kilele cha sherehe hizo kitakachohusisha kufunguliwa kwa uwanja mpya wa Jaramogi Oginga Odinga (Uwanja wa Kaunti ya Siaya) ambao una uwezo wa kuwasitiri mashabiki 20,000 wa soka.

ga akizungumza katika eneo bunge la Bondo, Siaya kwenye hafla iliyoandaliwa na mwana siasa wa ODM Andiwo Mwai, alitoa wito kwa Waluo wajitokeze kwa wingi na kumkaribisha Rais Museveni.

“Kila mara tumekuwa na tabia nzuri ya kuwakaribisha wageni wanaotutembelea. Ninawaomba watu wetu wajitokeze kwa wingi na kumkaribisha Rais Museveni na wageni wote watakaokuja hapa,” akasema Bw Odinga.

“Wanakuja hapa kufahamu mila, tamaduni na desturi yetu na tunastahili kuonyesha ulimwengu wote kuwa sisi ni wa-

tu na ndiyo silaha yetu, hata nikishiriki siasa za Afrika chama lazima kiwe imara na kilindwe kwa hali yoyote ile,” akasema.

Katika harakati ya kuimarisha maandalizi ya Rais Museveni na Rais Ruto Siaya, Katibu katika Wizara ya Usalama wa Ndani Raymond Omollo alitembelea Kaunti ya Siaya Jumatatu, akazuru uwanja ambao utafunguliwa na kuanza mazungumzo na Gavana James Orengo.

“Rais Museveni, Rais Ruto na Mheshimiwa Raila Odinga pamoja na wageni wengi wakuu watakuja. Raila ni mwenyeji wa hapa, Afrika Mashariki na Afrika nzima ina fursa ya kusherehekea utamaduni wa Waluo,” akasema Bw Omollo.

“Tunapania kuwakaribisha wageni wote. Ni wakati wa kuonyesha umoja wetu na tujandae kuwakaribisha watu wote tuwaonyeshe tamaduni zetu,” akaongeza Bw Omollo.

Gavana Orengo naye alisema kuwa maandalizi yote yamekamiliwa na akatoa wito kwa watu kujitokeza kuwakaribisha Marais Museveni, Ruto na waziri mkuu wa zamani, Raila pamoja na wageni wengine.

“Nawakaribisha Wakenya wote na Waluo wote kwa sababu ni wakati wa kusherehekea na kujivunia utamaduni wetu, historia na lugha yetu,” akasema gavana huyo.

Ujio wa Rais Museveni Siaya unajiri wakati ambapo kiongozi huyo amekuwa mstari wa

nataalu sha sifa ongeza I

Kiong sha Rail Februar da ya ku kwake K

Wawil hata Bw Rais kw chama v lini wak damand mnamo

huu. Ma kuangus to.

Katika ili hao v ti kubw ana kwa zi wa n mfano, E mu waf Kibera kusamb bidhaa h

Wakat ya uchag damand ambayo Uganda na utawa ta polisi wakabili

Mzozo wani Mig la amba idisha ul na Rais M

Wavu wameku hangaisl Uganda na kuzui baada ya



**SERIKALI YA KAUNTI
YA NYERI**



Jamhuri ya Kenya
Wizara ya Ardhi, Kazi za Umma,
Makazi na Maendeleo ya Miji
Idara ya Serikali ya Makazi na
Maendeleo ya Miji
Mradi wa Pili wa Kuboresha
Makazi Yasiyo Rasmi ya Kenya

**IDARA YA ARDHI, MPANGO WA
MIJI NA USTAWI WA MIJI**

Serikali ya Kaunti
ya Nyeri
Idara ya Ardhi, Upangaji
wa Ardhi, Makazi na
Maendeleo ya Miji

SHERIA YA UPANGAJI WA ARDHI NA MATUMIZI YA ARDHI, 2019
TAAARIFA YA NIA YA KUPANGA

Eneo la Mradi. Makazi yasiyo rasmi ya Gitunduti na Ndumanu katika Kaunti
ndogo ya Mathira Mashariki, Kaunti ya Nyeri

Taarifa hii inatolewa kwa wakazi wote na wadau wa Kaunti ya Nyeri kwamba kulingana na kifungu cha 6, 10(2), 60, 66, 67, 184, 186 na ratiba ya kwanza na ya nne ya Katiba ya Kenya 2010; Sheria ya Tume ya Ardhi ya Taifa 2012, Sheria ya Serikali za Kaunti 2012, Sheria ya Ardhi 2012, Sheria ya Upangaji wa Ardhi na Matumizi ya Ardhi 2019, Sheria ya Usajili wa Wapanga 1996 na sheria nyingine za kuunga mkono.

Serikali ya Kaunti ya Nyeri kwa ushirikiano na Wizara ya Ardhi, Kazi za Umma, Makazi na Maendeleo ya Miji, inakusudia kuandaa Mipango ya Maendeleo ya Upangaji na Matumizi ya Ardhi ya maeneo ya mradi yaliyotajwa hapo juu.

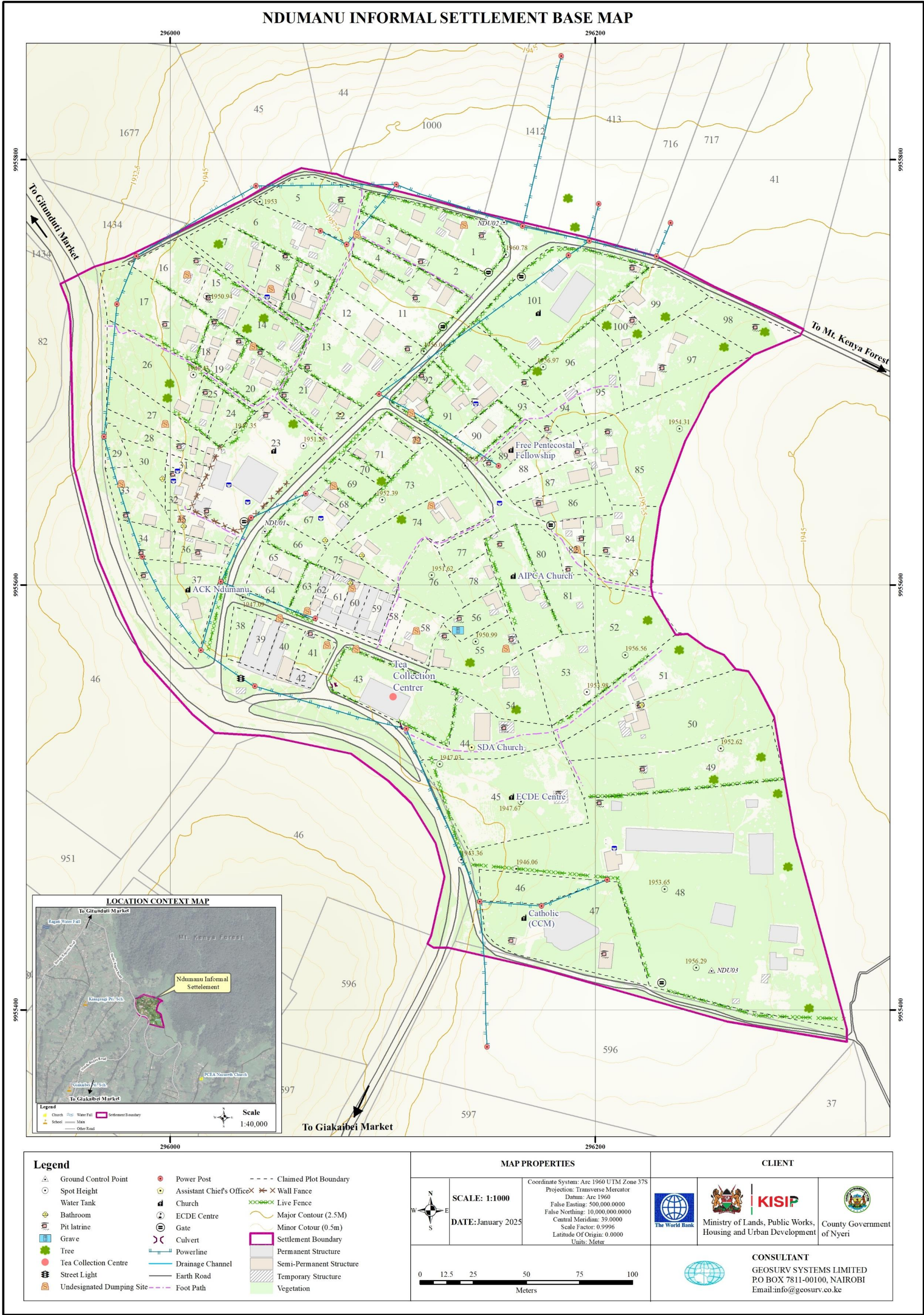
Zoezi hili litafanyika chini ya Mradi wa Pili wa Kuboresha Makazi Yasiyo Rasmi ya Kenya (KISIP 2), mradi wa Serikali ya Kenya ambao madhumuni yake ni kuboresha huduma za msingi na usalama wa umiliki wa ardhi kwa wakazi wa makazi yasiyo rasmi ya mijini yanayoshiriki na kuimarisha uwezo wa kimuundo wa kuboresha miji nchini Kenya.

Maandalizi ya mipango hii itafanyika kwa kushirikisha wananchi na hivyo wadau wote wanakaribishwa kushiriki katika mchakato wa kupanga. Maoni, maswali au mapendekezo kuhusu hili yanaweza kutumwa kwa maandishi kwa: **Mjumbe wa Kamati ya Utendaji ya Kaunti, Idara ya Ardhi, Upangaji wa Ardhi, Makazi na Maendeleo ya Miji. S. L. P. 1112-10100 Nyeri.**

Imetolewa tarehe: 28 Novemba 2024.

MJUMBE WA KAMATI YA UTEKELEZAJI YA KAUNTI
IDARA YA ARDHI, UPANGAJI WA KIMWILI, MAKAZI NA MAENDELEO YA MIJI

Appendix 3: Base Map



Appendix 4: List of Beneficiaries

Serial No	Enum No	Type of Ownership	Name	Gender	ID	KRA PIN	Phone	Photo	Signature
1.	KSP/NDU/P001	Single	James Kihihia Matheri	Male	9671634	A007187609U	0727026809		
2.	KSP/NDU/P002	Single	Mary Wanjiru Wainuku	Female	28266734	A011285597F	0726853864		
3.	KSP/NDU/P003	Single	Joseph Karumba Maina	Male	38147957	A021676414W	0742098345		
4.	KSP/NDU/P004	Single	Stephen Mwangi Wachira	Male	29067461	A011275158T	0798523919		
5.	KSP/NDU/P005	Single	Mathew Mwangi Mwai	Male	23779029	A00825847OE	0727379366		
6.	KSP/NDU/P006	Joint	Faith Wambui Wagura	Female	–	–	–	–	

Serial No	Enum No	Type of Ownership	Name	Gender	ID	KRA PIN	Phone	Photo	Signature
			Margrate wanjiru Njogu	Female	9671146	A0007015233G	0726827844		
7.	KSP/NDU/P007	Single	Martha Wagechi Gachihi	Female	31665382	A011932008K	0745314190		
8.	KSP/NDU/P008	Single	Boniface Muriithi Wahome	Male	31685109	A009407510M	0740146956		
9.	KSP/NDU/P009	Joint	David Machira Karimi	Male	11678365	A003825004Z	0717610142		
			Robert Peter Kiruki Gikandi	Male	10189591	A006310699X	0721764015		

Serial No	Enum No	Type of Ownership	Name	Gender	ID	KRA PIN	Phone	Photo	Signature
10.	KSP/NDU/P010	Single	Wambui Gujandi	Female	5557409	A009631189C	0716503028		
11.	KSP/NDU/P011A DISPUTED	Single	Charles Gachiri Matheri	Male	21833859	A007165996I	0722687384		
12.	KSP/NDU/P011B	Single	Patrick Gathogo Wahome	Male	26813704	A014062476Z	0720459093		
13.	KSP/NDU/P011C	Single	Samuel Maranga Wambui	Male	23884602	A0221411358G	0798537712		
14.	KSP/NDU/P012	Single	William Theuri Nyanguthi	Male	35774438	—	0702976901		

Serial No	Enum No	Type of Ownership	Name	Gender	ID	KRA PIN	Phone	Photo	Signature
15.	KSP/NDU/P013A	Single	Njogu Peterson Ngare	Male	1870465	A001175480Q	0722644761		
16.	KSP/NDU/P013B	Single	Samuel Kaburia Nyaguthi	Male	29634618	A016382923Z	0741821394		
17.	KSP/NDU/P014	Single	Alice Nyaguthii Wacira	Female	35787078	A021893523Z	0713360601		
18.	KSP/NDU/P015	Single	Daniel Kinyua Wambui	Male	21258874	A021709497V	0712610619		
19.	KSP/NDU/P016	Single	Joyce Muthoni Nyaguthii	Female	30694943	A021893423Y	0793788049		

Serial No	Enum No	Type of Ownership	Name	Gender	ID	KRA PIN	Phone	Photo	Signature
20.	KSP/NDU/P017	Single	Karue Murage	Male	8978686	A009260551M	0742067030		
21.	KSP/NDU/P018	Single	Mary Wairimu Gachemi	Female	31830567	A008065146Q	0708399722		
22.	KSP/NDU/P019	Single	Charles Kang'ang'i Gachemi	Male	8678797	A004574829B	0757362161		
23.	KSP/NDU/P020	Single	Peter Muthiri Wachira	Male	21650099	A011125393Z	0706799097		
24.	KSP/NDU/P021	Single	Gladys Wanjiku Mugo	Female	5564007	A021795508E	0713910185		
25.	KSP/NDU/P022	Single	Paul Njeru Kamaru	Male	9143599	A003570671U	0724211783	–	
26.	KSP/NDU/P023	–	PCEA Ndumanu	–	–	–	0723999137	–	

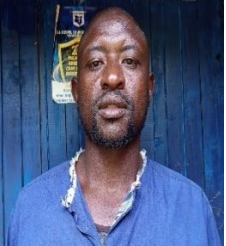
Serial No	Enum No	Type of Ownership	Name	Gender	ID	KRA PIN	Phone	Photo	Signature
27.	KSP/NDU/P024	Single	Robert Kaburia Muriuki	Male	23646269	A007060019W	0725835817		
28.	KSP/NDU/P025	Single	Jane Grace Gathoni Muhami	Female	5924076	A022153187R	0727503580		
29.	KSP/NDU/P026	Single	Kenneth Murimi Nyaguthii	Male	33533565	A016480586Z	0723737768		
30.	KSP/NDU/P027	Single	George Kinyua Njogu	Male	22128898	A02134680P	0794504857		
31.	KSP/NDU/P028	Single	Josphat Mwangi Njogu	Male	14648380	A018919010W	0726894099		

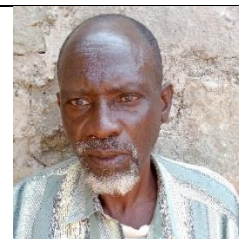
Serial No	Enum No	Type of Ownership	Name	Gender	ID	KRA PIN	Phone	Photo	Signature
32.	KSP/NDU/P029	Single	Jane Nyaguthi Mureithi	Female	13573393	A003168110B	0721688989		
33.	KSP/NDU/P029	Single	Stephen Murage Maina	Male	39548562	A016476917Y	0745235631		
34.	KSP/NDU/P030	Single	Mary Wambui Njogu	Female	3487993	A002403478H	0726676132		
35.	KSP/NDU/P031	Single	Peter Murage Njogu	Male	12774526	A004174456P	0745506753		
36.	KSP/NDU/P032	Joint	Grace Wainuku Njogu	Female	3213921	A021894925H	0726676132		

Serial No	Enum No	Type of Ownership	Name	Gender	ID	KRA PIN	Phone	Photo	Signature
			Samuel Wanjohi Murage	Male	347155	A001605399I	0723168167		
37.	KSP/NDU/P033	–	Evalyne Wanjira Nyaguthii	Female	30694967	A021894200R	0790672960		
38.	KSP/NDU/P034	Single	Stephen Gikandi Kamau	Male	29380430	A009407399Z	0711191588		
39.	KSP/NDU/P035	Single	Duncan Kamunge Njogu	Male	12774523	A005593606T	0715790459		
40.	KSP/NDU/P036	Single	Elizabeth Waceke	Female	12778982	A013756411Q	0728124143		
41.	KSP/NDU/P037	–	ACK Diocese of Mt Kenya West	–	E.1984	P051100570K	0727239571	–	

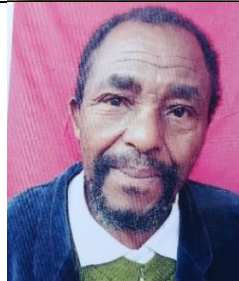
Serial No	Enum No	Type of Ownership	Name	Gender	ID	KRA PIN	Phone	Photo	Signature
42.	KSP/NDU/P038	Single	Jacinta Muthoni Mbuthia	Female	3226981	A008564641Y	0712789356		
43.	KSP/NDU/P039	Single	Samuel Wanjohi Murage	Male	347155	A001605399I	0723168167		
44.	KSP/NDU/P040	Single	Robert Murimi Muhami	Male	583784	A001226259T	0758649532		
45.	KSP/NDU/P041	Single	Robert Murimi Muhami	Male	583784	A001226259T	0758649532		
46.	KSP/NDU/P042	Single	Joseph Kabucwa Muya	Male	3375601	A001840220E	0704072951		
47.	KSP/NDU/P043	—	—	—	—	—	—	—	

Serial No	Enum No	Type of Ownership	Name	Gender	ID	KRA PIN	Phone	Photo	Signature
48.	KSP/NDU/P044	–	Seventh-Day Adventist Church, East African Union	–	5276	P000594353Y	0727939925	–	
49.	KSP/NDU/P045	–	Ndumanu ECDE Centre	–	–	–	–	–	
50.	KSP/NDU/P046	–	Muthea Local Church Giakaibei Catholic Parish	–	Diocese of Nyeri Trustees (Registered)	P000626033Q	0722406603	–	
51.	KSP/NDU/P048	–	Muthea Secondary School	–	198 0030 0019	P051410456V	0721242995	–	
52.	KSP/NDU/P049	Single	Christopher Karume Kinyua	Male	13540617	A010719414S	0723371554		
53.	KSP/NDU/P050	Single	Samuel Kinyua Wachira	Male	23131180	A011257054Q	0727813134		
54.	KSP/NDU/P051	Single	Nancy Nyawira Wachira	Female	14648292	A011014161A	0724556513		
55.	KSP/NDU/P052	Single	Peter Karueru Rungurua	Male	3497350	A001504561Q	0724536760		

Serial No	Enum No	Type of Ownership	Name	Gender	ID	KRA PIN	Phone	Photo	Signature
56.	KSP/NDU/P053	Single	Dickson Githinji Mugo	Male	21442317	A021714680D	0790396242		
57.	KSP/NDU/P053B	Single	Joseph Karuri Magondu	Male	29094867	A022144685V	0745653033		
58.	KSP/NDU/P054	Single	Ened Ciomotho Magondu3	Male	5554513	A021895715E	0702403443		
59.	KSP/NDU/P055	Single	Doris Kanini Githenya	Female	2040378 6	A004295130L	0711772297		
60.	KSP/NDU/P056	Single	Patrick Waigandu Magondu	Male	27547446	A017576155G	0716455677		
61.	KSP/NDU/P057	—	—	—	—	—	—	—	

Serial No	Enum No	Type of Ownership	Name	Gender	ID	KRA PIN	Phone	Photo	Signature
62.	KSP/NDU/P058	Single	James Kimaru Mahindi	Male	1336179	A001639063E	0721645453		
63.	KSP/NDU/P058A	Single	Henry Mwai Weru	Male	5494384	A003228300F	0720794397		
64.	KSP/NDU/P059	Single	John Mwanzia Muhoti	Male	27606748	A008670263X	0724877652		
65.	KSP/NDU/P060	—	—	—	—	—	—	—	
66.	KSP/NDU/P061	Single	Simon Gichuki Kabethi	Male	5554204	A001799578Y	0722306113		
67.	KSP/NDU/P062	Single	James Nduati Kamau	Male	9619508	A018024813C	0727005887		

Serial No	Enum No	Type of Ownership	Name	Gender	ID	KRA PIN	Phone	Photo	Signature
68.	KSP/NDU/P063	Single	Moses Mwangi Muriuki	Male	10683975	A006189890K	725373268		
69.	KSP/NDU/P064	Single	Antony Kaburi Kario	Male	3090379	A004207022F	0724799413		
70.	KSP/NDU/P065	Single	Stephen Wachira Maina	Male	1831513	A004259807X	0712078060		
71.	KSP/NDU/P066	Single	Mary Wamuyu Kabuchwa	Female	5494708	A021897424J	0727201979		

Serial No	Enum No	Type of Ownership	Name	Gender	ID	KRA PIN	Phone	Photo	Signature
72.	KSP/NDU/P067	Single	Michael Githae Mwangi	Male	3067306	A007752304O	0720890846		
73.	KSP/NDU/P067/S002	Single	Faith Wambui Wagura	Female	–	–	–	–	
74.	KSP/NDU/P068	Single	Richard Mwai Ngima	Male	23212948	A004499979Y	0724967392		
75.	KSP/NDU/P069	Single	James Maina Gakui	Male	351196	A001626705S	0718817828		
76.	KSP/NDU/P070	Single	Gichuki Benjamin Gachachi	Male	3375712	A004529403U	0725066135		

Serial No	Enum No	Type of Ownership	Name	Gender	ID	KRA PIN	Phone	Photo	Signature
77.	KSP/NDU/P071	Single	Michael Kang'angi Wanjihi	Male	10188386	A001705919V	0722276527		
78.	KSP/NDU/P072	Single	Rose Wanjiru Wamae	Female	7995545	A017715434Y	0728943060		
79.	KSP/NDU/P073	Single	James Warutere Mwangi	Male	28253181	A010967422A	0723694355		
80.	KSP/NDU/P074	Single	Lucy Njoki Mugo	Female	30446893	A015040745D	0718724074		
81.	KSP/NDU/P075A	Single	Stephen Mwangi Njogu	Male	7994474	A009131838H	0713825703		
82.	KSP/NDU/P075B	–	Faith Manifestation Church	–	–	P051440512I	0714268903	–	

Serial No	Enum No	Type of Ownership	Name	Gender	ID	KRA PIN	Phone	Photo	Signature
83.	KSP/NDU/P076A	Single	John Maina Njogu	Male	27057619	A010797214O	0769357353		
84.	KSP/NDU/P076B	Single	Stephen Murage Maina	Male	39548562	A016476917Y	0745235631		
85.	KSP/NDU/P077	Single	Kinyua Njogu	Male	31388572	A021734911Q	0742985324		
86.	KSP/NDU/P078	Single	Michael Njogu Kinyua	Male	2705808 2	A021714059A0	0702453344		
87.	KSP/NDU/P079	–	AIPCA(Headquarters)	–	–	P051166042T	0724848733	–	
88.	KSP/NDU/P080	–	–	–	–	–	–	–	
89.	KSP/NDU/P081	–	–	–	–	–	–	–	

Serial No	Enum No	Type of Ownership	Name	Gender	ID	KRA PIN	Phone	Photo	Signature
90.	KSP/NDU/P082	Single	Virginia Wambui Nyaguthii	Male	30257719	A021674352A	0710173042		
91.	KSP/NDU/P083	Single	Simon Kanyeki Matheri	Male	33269550	A011479383I	0715226309		
92.	KSP/NDU/P084	Single	Ephraim Mathenge Matheri	Male	2639570 0	A007149892J	0721401675		
93.	KSP/NDU/P085	Single	Anna Wanbui Kinyua	Female	10242411	A009940590H	0710685654		
94.	KSP/NDU/P086	Single	Joseph Murimi Kamunyi	Male	25639594	A021727707C	0794196293		

Serial No	Enum No	Type of Ownership	Name	Gender	ID	KRA PIN	Phone	Photo	Signature
95.	KSP/NDU/P087	Single	Laurance Kinyua Wambugu	Male	27663312	A021893530Y	0710897878		
96.	KSP/NDU/P088	Single	Nicholas Munuhe Wambugu	Male	31038145	A018298843G	0748122503		
97.	KSP/NDU/P089	–	Free Pentecostal Fellowship in Kenya	–	4110	P051093266B	0726102558	–	
98.	KSP/NDU/P090	Single	Mary Wanjugu Wachira	Female	22699137	A006288123T	0729014463		
99.	KSP/NDU/P091	Single	Karume Muchiri	Male	4473461	A011285525N	0706018384		
100	KSP/NDU/P092	Single	John Kigundu Mugo	Male	11565814	A003205987C	0725374236		

Serial No	Enum No	Type of Ownership	Name	Gender	ID	KRA PIN	Phone	Photo	Signature
101.	KSP/NDU/P093	Single	John Maina Njogu	Male	27057619	A010797214U	0717403995		
102	KSP/NDU/P094	Single	Moses Muriithi Mbui	Male	9717966	A021739093Q	0726987102		
103	KSP/NDU/P095	Single	Njogu Muriuki	Male	5510472	A011155302W	0725643393		
104	KSP/NDU/P096	Single	Lawrence Ngatia Matheri	Male	21621402	A007187819V	0725080618		
105	KSP/NDU/P097	Single	Simon Maina Kinyua	Male	20474932	A005091790P	0729639832		

Serial No	Enum No	Type of Ownership	Name	Gender	ID	KRA PIN	Phone	Photo	Signature
106	KSP/NDU/P097B	Single	Stephen Mwangi Wairimu	Male	30816791	A011077605J	0702106916		
107	KSP/NDU/P098A	Single	David Machira Karimi	Male	11678365	A003825004Z	0717610142		
108	KSP/NDU/P098B	Single	John Muriuki Murage	Male	3212660	A001810089W	0726103807		
109	KSP/NDU/P099	Joint	David Kinyua Wairimu	Male	26072078	A007734008R	0710319557		
			Esther Wairimu Kinyua	Female	3211261	A011726720B	070351694		
110.	KSP/NDU/P100	Joint	Ruth Mwihaki Wanjohi	Female	23126327	A021750330K	0712274481	–	
			Mary Hiuko Wairimu	Female	32343318	–	–	–	
111.	KSP/NDU/P101	–	Full Gospel Churches of Kenya	–	LR NO. 82/7	P051504375I	0717231274	–	

Appendix 5: List of Structures

Parcel No	Type	Structure ID	Structure Typology	Wall Material	Roof Material	Floor Material	Structure Use	X Coordinate	Y Coordinate
KSP/NDU/P001	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296105.81	9955766.07
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296120.82	9955769.88
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Residential	296124.27	9955771.70
	Temporary	S004	Shanty	wooden & Iron Sheets	Polythene paper	Earth	Tea leaves store	296124.66	9955771.47
	Temporary	S005	Shanty	wooden	Iron Sheets	Earth	Pit Latrine	296131.24	9955754.00
KSP/NDU/P002	-	-	Undeveloped Space	-	-	-	Agricultural	296135.37	9955739.71
KSP/NDU/P003	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Residential	296113.44	9955752.95
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296097.90	9955763.65
	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296091.88	9955759.43
	Temporary	S004	Row-housing	wooden	Polythene paper	Earth	Latrine	296104.77	9955750.82
KSP/NDU/P004	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296112.56	9955746.40
KSP/NDU/P005	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296068.18	9955784.30
	Semi Permanent	S001	Row-housing	wooden	Iron Sheets	Cement	Residential	296074.40	9955773.22
KSP/NDU/P006	Semi Permanent	S001	Row-housing	wooden	Iron Sheets	Cement	Residential	296058.72	9955763.15
	Semi Permanent	S002	Row-housing	wooden	Iron Sheets	Cement	Residential	296056.11	9955763.95
KSP/NDU/P007	Temporary	S001	Row-housing	wooden earth	Iron Sheets	Earth	Residential	296038.31	9955753.85
	Temporary	S002	Row-housing	earth wooden	Iron Sheets	Earth	Residential	296044.47	9955758.47
	Temporary	S003	Row-housing	wooden earth	Iron Sheets	Earth	Residential	296041.41	9955752.26
KSP/NDU/P008	Temporary	S001	Shanty	wooden	Iron Sheets	wooden	Chicken Shed	296053.21	9955744.86
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296044.92	9955750.51
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Kitchen	296043.91	9955749.12
KSP/NDU/P009	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296064.04	9955745.78
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296062.53	9955745.85

Parcel No	Type	Structure ID	Structure Typology	Wall Material	Roof Material	Floor Material	Structure Use	X Coordinate	Y Coordinate
KSP/NDU/P010	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296061.73	9955734.83
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296064.46	9955734.72
KSP/NDU/P011A	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Residential	296119.49	9955733.71
	Temporary	S004	Row-housing	wooden	Iron Sheets	Earth	Latrine	296120.11	9955734.18
	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296121.85	9955732.43
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296128.46	9955735.74
	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296097.87	9955741.21
KSP/NDU/P011C	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296097.50	9955748.63
	Temporary	S002	Shanty	wooden	Iron Sheets	Earth	Kitchen	296101.29	9955781.28
KSP/NDU/P012	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296088.92	9955722.93
KSP/NDU/P013A	-	-	Undeveloped Space	-	-	-	Residential	296092.17	9955681.91
KSP/NDU/P013B	Temporary	S001	Bungalow	wooden	Iron Sheets	Earth	Residential	296108.51	9955707.92
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296110.40	9955707.46
KSP/NDU/P015	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296026.55	9955733.06
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296021.23	9955733.35
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Residential	296022.91	9955731.22
KSP/NDU/P016	Temporary	S001	Row-housing	wooden earth	Iron Sheets	Earth	Residential	296023.25	9955748.88
	Temporary	S002	Row-housing	wooden earth	Iron Sheets	Earth	Residential	296009.16	9955748.12
KSP/NDU/P017	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296006.24	9955714.86
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296009.05	9955718.39
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Residential	296001.34	9955731.11
KSP/NDU/P018	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296013.40	9955713.36
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296008.88	9955712.03
KSP/NDU/P019	Temporary	S002	Shanty	wooden	Iron Sheets	Earth	Residential	296042.57	9955690.65
	Temporary	S001	Row-housing	Iron Sheets	Iron Sheets	Earth	Residential	296029.36	9955705.67
KSP/NDU/P020	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296039.08	9955698.09
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296043.22	9955702.78

Parcel No	Type	Structure ID	Structure Typology	Wall Material	Roof Material	Floor Material	Structure Use	X Coordinate	Y Coordinate
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Residential	296038.77	9955707.32
	Temporary	S004	Row-housing	wooden	Iron Sheets	Earth	Residential	296035.98	9955696.44
KSP/NDU/P021	Temporary	S001	Row-housing	wooden earth	Iron Sheets	Earth	Residential	296069.77	9955700.78
	Temporary	S002	Row-housing	wooden earth	Iron Sheets	Earth	Residential	296064.50	9955681.95
KSP/NDU/P022	Temporary	S001	Row-housing	wooden earth	Iron Sheets	Earth	Residential	296077.96	9955680.81
KSP/NDU/P023	permanent	S001	Row-housing	stone	Iron Sheets	Cement	Religious	296028.07	9955641.83
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296017.97	9955638.72
	permanent	S004	Row-housing	stone	Iron Sheets	Cement	Toilet	296044.78	9955684.60
	semi-permanent	S003	Row-housing	wooden	Iron Sheets	Cement	Residential	296031.70	9955646.34
KSP/NDU/P024	-	-	Undeveloped Space	-	-	-	Farming	296025.82	9955686.21
KSP/NDU/P025	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296023.03	9955684.06
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Kitchen	296023.27	9955684.58
KSP/NDU/P026	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296006.15	9955689.67
KSP/NDU/P027	Semi Permanent	S001	Row-housing	stone wooden	Iron Sheets	Cement	Residential	296006.68	9955662.16
KSP/NDU/P028	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296004.30	9955661.06
	Temporary	S002	Row-housing	wooden Iron Sheets	Iron Sheets	Earth	Residential	296007.36	9955665.76
	Semi Permanent	S003	Row-housing	wooden stone	Iron Sheets	Cement	Chicken House	296016.49	9955661.88
KSP/NDU/P029	-	-	Undeveloped Space	-	-	-	Agriculture	295989.39	9955663.52
KSP/NDU/P030	-	-	Undeveloped Space	-	-	-	Agriculture	296011.54	9955654.29
KSP/NDU/P031	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296007.26	9955655.74
KSP/NDU/P032	Semi Permanent	S001	Row-housing	stone wooden	Iron Sheets	Cement	Residential	296015.18	9955642.60
	Semi Permanent	S002	Row-housing	wooden stone	Iron Sheets	Cement	Residential	296008.27	9955645.00

Parcel No	Type	Structure ID	Structure Typology	Wall Material	Roof Material	Floor Material	Structure Use	X Coordinate	Y Coordinate
	Semi Permanent	S003	Row-housing	Iron Sheets stone	Iron Sheets	Cement	Bathroom	296002.97	9955643.55
KSP/NDU/P034	Semi Permanent	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296001.58	9955624.58
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Kitchen	296001.17	9955623.79
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Poultry farming	295998.74	9955621.84
	Temporary	S004	Shanty	wooden	Iron Sheets	Earth	Pit Latrine	295995.75	9955618.55
	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296018.56	9955626.52
KSP/NDU/P035	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296010.52	9955634.11
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Residential	296023.93	9955624.49
	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296015.55	9955630.26
KSP/NDU/P036	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Kitchen	296008.53	9955591.11
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Latrine	296015.75	9955611.38
	Temporary	S004	Row-housing	Iron Sheets	Iron Sheets	Earth	Residential	296025.12	9955601.33
	Temporary	S005	Row-housing	wooden	Iron Sheets	Earth	Poultry farming	296002.87	9955622.12
	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Religious	296008.00	9955581.84
KSP/NDU/P037	Semi Permanent	S001	Row-housing	wooden	Iron Sheets	Earth	Religious	296008.00	9955581.84
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Cooking	296011.16	9955591.46
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Latrine	296012.12	9955590.78
KSP/NDU/P038	-	-	Undeveloped Space	-	-	-	Grazing	296035.39	9955591.94
KSP/NDU/P039	permanent	S001	Row-housing	stone	Iron Sheets	Cement	Residential	296049.68	9955566.55
	permanent	S002	Row-housing	stone	Iron Sheets	Cement	Residential	296042.77	9955570.40
	permanent	S003	Row-housing	stone	Iron Sheets	Cement	Residential	296042.65	9955570.47
KSP/NDU/P040	permanent	S001	Row-housing	stone	Iron Sheets	Cement	Residential and Business	296042.70	9955554.00
KSP/NDU/P041	Temporary	S001	Row-housing	wooden	Iron Sheets	Cement	Business	296049.19	9955559.48
KSP/NDU/P042	permanent	S001	Row-housing	stone	Iron Sheets	Cement	Business	296094.03	9955555.00
KSP/NDU/P044	Semi Permanent	S001	Row-housing	wooden Iron Sheets	Iron Sheets	Cement	Religious	296159.37	9955554.49
	Semi Permanent	S002	Row-housing	Iron Sheets stone	Iron Sheets	Cement	Religious	296135.62	9955548.45

Parcel No	Type	Structure ID	Structure Typology	Wall Material	Roof Material	Floor Material	Structure Use	X Coordinate	Y Coordinate
	Temporary	S003	Row-housing	Iron Sheets	Iron Sheets	Earth	Religious	296161.30	9955524.53
KSP/NDU/P045	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Educational	296177.82	9955486.73
KSP/NDU/P047	permanent	S001	Bungalow	stone	Iron Sheets	Cement	Religious	296162.40	9955427.54
	Temporary	S002	Row-housing	Iron Sheets	Iron Sheets	wooden	Pit Latrine	296163.29	9955428.47
	Temporary	S003	Row-housing	wooden	Iron Sheets	Cement	Religious	296164.77	9955429.03
KSP/NDU/P048	Semi Permanent	S001	Row-housing	wooden stone	Iron Sheets	Cement	Educational	296200.71	9955495.43
	permanent	S002	Row-housing	stone	Iron Sheets	Cement	Residential	296201.49	9955497.23
	Semi Permanent	S003	Row-housing	wooden	Iron Sheets	Cement	Educational	296201.35	9955465.20
	Temporary	S004	Row-housing	wooden	Iron Sheets	Cement	Educational	296202.95	9955465.10
	permanent	S005	Row-housing	stone	Iron Sheets	Cement	Educational	296204.10	9955464.61
	permanent	S006	Row-housing	stone	Iron Sheets	Cement	Educational	296249.55	9955438.84
	permanent	S007	Row-housing	stone	Iron Sheets	Cement	Educational	296253.27	9955440.85
	Temporary	S008	Row-housing	Iron Sheets	Iron Sheets	Earth	Educational	296260.73	9955440.60
	Temporary	S009	Row-housing	wooden	Iron Sheets	Cement	Educational	296291.03	9955429.13
	permanent	S010	Row-housing	stone	Iron Sheets	Cement	Educational	296290.95	9955428.14
	permanent	S011	Row-housing	stone	Iron Sheets	Cement	Educational	296281.11	9955425.18
	permanent	S012	Row-housing	stone	Iron Sheets	Cement	Educational	296265.49	9955487.48
	Semi Permanent	S013	Row-housing	wooden	Iron Sheets	Cement	Educational	296266.36	9955488.40
KSP/NDU/P049	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296224.57	9955514.90
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296225.06	9955514.00
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Residential	296224.87	9955515.85
KSP/NDU/P050	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296225.55	9955535.04
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296223.54	9955534.58
KSP/NDU/P051	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296212.53	9955546.40
	Temporary	S002	Row-housing	Iron Sheets	Iron Sheets	Earth	LATRINE	296220.86	9955543.03
KSP/NDU/P052	-	-	Undeveloped Space	-	-	-	Agricultural	296230.63	9955586.02

Parcel No	Type	Structure ID	Structure Typology	Wall Material	Roof Material	Floor Material	Structure Use	X Coordinate	Y Coordinate
KSP/NDU/P053	Temporary	S001	Row-housing	Iron Sheets	Iron Sheets	Earth	Residential	296191.93	9955582.18
KSP/NDU/P053B	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296148.81	9955575.86
KSP/NDU/P054	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296175.82	9955562.03
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Kitchen	296148.42	9955561.70
	Temporary	S004	Row-housing	wooden	Iron Sheets	Earth	Poultry farming	296151.38	9955564.89
KSP/NDU/P055	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296128.41	9955566.63
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Latrine	296127.07	9955567.44
KSP/NDU/P056	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296150.60	9955593.54
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Kitchen	296151.54	9955587.75
	Temporary	S003	Row-housing	wooden	Iron Sheets	Wooden	Chicken shed	296151.92	9955586.43
	Temporary	S004	Row-housing	wooden	Iron Sheets	Earth	Latrine	296138.03	9955583.47
KSP/NDU/P058	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296103.76	9955569.83
KSP/NDU/P058A	-	-	Undeveloped Space	-	-	-	Agricultural	296102.17	9955579.90
KSP/NDU/P059	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296097.53	9955583.48
	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296097.63	9955593.43
	permanent	S003	Row-housing	stone	Iron Sheets	Cement	Residential	296104.87	9955587.98
	Semi Permanent	S004	Row-housing	wooden stone	Iron Sheets	Cement	Residential	296103.88	9955588.81
	Semi Permanent	S005	Row-housing	wooden stone	Iron Sheets	Cement	Residential	296104.52	9955597.40
	Semi Permanent	S006	Row-housing	wooden stone	Iron Sheets	Cement	Residential	296103.80	9955602.16
KSP/NDU/P061	permanent	S001	Row-housing	stone	Iron Sheets	Cement	Business	296078.47	9955591.81
	permanent	S002	Row-housing	stone	Iron Sheets	Cement	Business	296082.56	9955596.38
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Business	296077.43	9955591.53
	permanent	S004	Row-housing	stone	Iron Sheets	Cement	Residential	296082.99	9955593.22
KSP/NDU/P062	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296065.25	9955589.23
	Temporary	S002	Row-housing	Iron Sheets	Iron Sheets	Earth	Residential	296065.84	9955598.59
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Residential	296071.10	9955600.69

Parcel No	Type	Structure ID	Structure Typology	Wall Material	Roof Material	Floor Material	Structure Use	X Coordinate	Y Coordinate
	Temporary	S004	Row-housing	wooden	Iron Sheets	Earth	Residential	296073.42	9955603.42
KSP/NDU/P063	-	-	Undeveloped Space	-	-	-	Agriculture	296071.16	9955598.50
KSP/NDU/P064	-	-	Undeveloped Space	-	-	-	Agriculture	296038.49	9955604.31
KSP/NDU/P065	-	-	Undeveloped Space	-	-	-	Agriculture	296041.68	9955607.42
KSP/NDU/P066	-	-	Undeveloped Space	-	-	-	Agriculture	296036.55	9955605.99
KSP/NDU/P067	permanent	S001	Row-housing	stone	Iron Sheets	Cement	Business	296063.10	9955634.65
	Semi Permanent	S002	Row-housing	wooden stone	Iron Sheets	Cement	Kitchen	296071.47	9955632.75
	Semi Permanent	S003	Row-housing	stone Iron Sheets	Iron Sheets	Cement	Latrine	296062.78	9955633.16
	Semi Permanent	S004	Row-housing	stone wooden	Iron Sheets	Earth	Store	296066.64	9955631.48
KSP/NDU/P068	Semi Permanent	S001	Row-housing	stone wooden	Iron Sheets	Cement	Residential	296075.31	9955646.41
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296067.79	9955643.53
	Temporary	S003	Row-housing	Iron Sheets	Iron Sheets	Earth	Latrine	296068.23	9955655.74
KSP/NDU/P069	-	-	Undeveloped Space	-	-	-	Agricultural	296089.40	9955657.95
KSP/NDU/P070	-	-	Undeveloped Space	-	-	-	Agricultural	296109.04	9955653.13
KSP/NDU/P071	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296099.59	9955671.20
KSP/NDU/P072	Semi Permanent	S001	Row-housing	wooden	Iron Sheets	Cement	Residential	296111.91	9955669.07
KSP/NDU/P073	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296123.67	9955654.98
KSP/NDU/P074	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296129.01	9955634.54
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Kitchen	296129.29	9955633.60
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Chicken Shed	296125.30	9955631.16
	Temporary	S004	Row-housing	wooden	Iron Sheets	Earth	Goat shed	296125.51	9955632.15
KSP/NDU/P075	Temporary	S001	Row-housing	Iron Sheets	Iron Sheets	Earth	Religious	296079.18	9955610.94

Parcel No	Type	Structure ID	Structure Typology	Wall Material	Roof Material	Floor Material	Structure Use	X Coordinate	Y Coordinate
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Latrine	296083.35	9955608.99
KSP/NDU/P075B	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296088.52	9955615.23
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Rearing chickens	296092.41	9955613.46
	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296089.07	9955611.48
	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296089.25	9955611.75
KSP/NDU/P075A	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296092.54	9955615.14
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Residential	296086.14	9955613.83
	Temporary	S004	Row-housing	wooden	Iron Sheets	Earth	Residential	296086.01	9955611.07
	Temporary	S004	Row-housing	wooden	Iron Sheets	Earth	Residential	296086.01	9955611.07
KSP/NDU/P076A	-	-	Undeveloped Space	-	-	-	Agriculture	296114.21	9955621.05
KSP/NDU/P076B	-	-	Undeveloped Space	-	-	-	Agriculture	296122.18	9955613.52
KSP/NDU/P077	-	-	Undeveloped Space	-	-	-	Agriculture	296138.66	9955621.24
KSP/NDU/P078	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296161.89	9955608.39
KSP/NDU/P079	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	PIT LATRINE	296157.71	9955617.86
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Religious	296171.72	9955596.85
	Temporary	S003	Row-housing	Iron Sheets	Iron Sheets	Earth	Latrine	296174.38	9955590.93
KSP/NDU/P080	-	-	Undeveloped Space	-	-	-	Agriculture	296182.47	9955625.00
KSP/NDU/P080B	-	-	Undeveloped Space	-	-	-	Agriculture	296174.76	9955621.73
KSP/NDU/P081	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296183.36	9955594.44
KSP/NDU/P082	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296189.67	9955621.67
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Kitchen	296191.18	9955619.63
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Chicken shed	296191.34	9955618.93
KSP/NDU/P083	-	-	Undeveloped Space	-	-	-	Agricultural	296195.14	9955612.22
KSP/NDU/P084	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296212.48	9955632.95
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Kitchen	296212.78	9955631.60
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Residential	296211.67	9955624.78

Parcel No	Type	Structure ID	Structure Typology	Wall Material	Roof Material	Floor Material	Structure Use	X Coordinate	Y Coordinate
	Temporary	S004	Row-housing	wooden	Polythene	Earth	Latrine	296209.70	9955624.70
KSP/NDU/P085	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296204.11	9955662.71
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296203.20	9955652.20
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Rearing chicken	296202.94	9955655.42
	Temporary	S004	Row-housing	wooden	Iron Sheets	Earth	Residential	296202.94	9955655.42
KSP/NDU/P086	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296175.32	9955641.83
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296167.88	9955641.97
KSP/NDU/P087	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296196.08	9955658.52
KSP/NDU/P088	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296173.59	9955661.64
KSP/NDU/P089	Semi Permanent	S001	Row-housing	stone wooden	Iron Sheets	Earth	Religious	296147.32	9955659.72
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Latrine	296140.76	9955658.30
KSP/NDU/P090	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296147.77	9955676.32
KSP/NDU/P091	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296146.56	9955692.27
	Semi Permanent	S002	Row-housing	wooden	Iron Sheets	Cement	Residential	296146.60	9955692.75
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Chicken shed	296146.62	9955685.97
	Temporary	S004	Shanty	wooden	Iron Sheets	Earth	Cow shed	296143.90	9955684.60
	Temporary	S005	Row-housing	wooden	Iron Sheets	Earth	Residential	296132.21	9955688.75
	Semi Permanent	S006	Row-housing	stone wooden	Iron Sheets	Cement	Residential	296132.42	9955688.71
KSP/NDU/P092	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296113.50	9955675.58
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296113.25	9955684.78
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Residential	296123.85	9955679.01
	Temporary	S004	Row-housing	wooden	Iron Sheets	Earth	Residential	296113.56	9955678.96
KSP/NDU/P093	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296179.10	9955675.62
KSP/NDU/P094	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296183.95	9955686.54
KSP/NDU/P095	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296207.97	9955695.07
KSP/NDU/P096	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296181.87	9955701.83
KSP/NDU/P097	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296237.79	9955709.89
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296237.25	9955708.84

Parcel No	Type	Structure ID	Structure Typology	Wall Material	Roof Material	Floor Material	Structure Use	X Coordinate	Y Coordinate
	Temporary	S003	Row-housing	wooden	Polyethene Paper	Earth	Kitchen	296233.88	9955709.83
KSP/NDU/P097B	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296222.53	9955698.82
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296222.95	9955699.01
KSP/NDU/P098B	-	-	Undeveloped Space	-	-	-	Agriculture	296246.27	9955723.43
KSP/NDU/P099	Temporary	S001	Row-housing	wooden	Iron Sheets	Earth	Residential	296211.18	9955725.44
	Temporary	S002	Row-housing	wooden	Iron Sheets	Earth	Residential	296238.40	9955738.28
KSP/NDU/P101	permanent	S001	Row-housing	stone	Iron Sheets	Cement	Religious	296168.99	9955729.58
	Temporary	S002	Row-housing	wooden	Iron Sheets	Cement	Religious	296194.63	9955755.49
	Temporary	S003	Row-housing	wooden	Iron Sheets	Earth	Religious	296189.75	9955743.30
	Semi Permanent	S004	Row-housing	stone Iron Sheets	Iron Sheets	Cement	Latrine	296191.85	9955755.77
	Semi Permanent	S005	Row-housing	stone Iron Sheets	Iron Sheets	Cement	Latrine	296194.43	9955764.80
	permanent	S006	Gate	stone	-	Cement	Gate	296164.75	9955740.36

Appendix 6: Minutes of the Technical Meeting on the Presentation of Socio-Economic Survey

MINUTES FOR THE TECHNICAL MEETING ON THE PRESENTATION OF THE SOCIO-ECONOMIC SURVEY FINDINGS AND UNDERTAKING OF VISIONING & PARTICIPATORY PLANNING, HELD AT THE NYERI COUNTY OFFICES GIS LABORATORY BOARDROOM ON APRIL 24, 2025.

List of Attendance - as attached

Agenda

- i. Introduction
- ii. Opening Remarks
- iii. Presentation by the Consultant
- iv. Plenary Session
- v. Way forward
- vi. Adjournment

Min 01: Introduction

The County assistant director of physical planning called the meeting to order at 12.30pm. A prayer was said by one of the host members in attendance. The County assistant director of physical planning welcomed members present and asked them to introduce themselves. After the introductions, he invited the consultant's team to carry out the presentation.

Min 02: Presentation by the Consultant

The Consultant lead planner thanked the county officials for turning up for the meeting. she noted that the objective of the technical team engagement for the day was to present socio-economic survey findings for Gitunduti and Ndumanu informal settlements in Nyeri County. She gave a brief description of the project since its inception and key activities undertaken throughout the process to the current status. Key project milestones undertaken so far included preparation of the basemap and situational analysis report, environmental and social screening, sensitization workshops, the socio-economic survey data collection, picking up of plots, enumeration of structures and structure owners/beneficiaries. She explained the methodology followed in undertaking the socio-economic survey and explained the next immediate action as updating the list of beneficiaries and presentation of the socio-economic survey findings to the communities in the two informal settlements. She noted that the project was under KISIP 2 and outlined the objectives of the project in line with KISIP component 2 which is specifically to ensure residents attain tenure security for their parcels. She highlighted the objectives of engaging the technical team as constituting the:

- Presentation of socio-economic survey findings for each informal settlement.
- Visioning
- Participatory Planning exercise

Summary of the key findings

The lead planner described the main objective of the socio-economic survey was to obtain in-depth understanding of various characteristics of residents in the planning areas. Key themes of the survey comprised of gathering primary data from all households in the two villages on livelihood and economic status, social and physical infrastructure and services, population and demographic features, land, and housing and structure characteristics. The consultant lead planner indicated that the findings were essential in guiding the next phase of plan proposals formulation. She noted that 100% of households participated in the survey hence 100% responses from both informal settlements. She then proceeded to make presentations of findings from the six planning areas.

➤ *Population and Demography*

Based on the socio-economic survey findings, she noted that the sum total population from all settlements was estimated at 335 people: Gitunduti (95), and Ndumanu (240). The average household size for the two settlements is 2.2 persons per household: Gitunduti 2.1, and Ndumanu 2.3 persons per household. The lead

consultant then provided a brief description of the structure of the population in the planning areas as summarized below.

Planning Area	Total	Young (<18)	Labour Force (18-65)	Elderly (>65)	Dependent (<18+>65)
Gitunduti	95	28%	64%	7%	36%
Ndumanu	240	39%	53%	8%	47%

➤ ***Vulnerable groups***

The consultant lead planner described vulnerable groups as individuals that are at a higher risk of poverty, exclusion, or discrimination due to their social, economic, or geographic circumstances according to world bank publications. She identified the vulnerable groups that were found in the settlements as the chronically ill, orphans, widows, the socially and economically marginalized, and the elderly people aged over 65 years.

➤ ***Number of claimed plots and Beneficiaries***

The lead planner highlighted a summary of preliminary claimed plots across the two informal settlements. These included Gitunduti 48, and Ndumanu 101 claimed plots. As per the preliminary claimed plots, she observed that the project will have a total of 149 beneficiaries.

➤ ***Social Infrastructure***

The lead planner reported the absence of social amenities such as ECDE centres, schools, social halls, health facilities, playgrounds etc as per the socio-economic survey findings. However, she observed that residents in all planning areas had access to nearby social infrastructure facilities that were within the recommended distance according to the Physical Planning Handbook (2007). She also noted that most of the planning areas did not meet the required population threshold for various types of social infrastructure facilities.

➤ ***Physical Infrastructure***

On matters transportation, the lead planner pointed out that all informal settlements had inaccessible plots with occupants of such locked plots having to sneak to their structures via their neighbours' parcels/compounds. The situation was dire in some of the informal settlements. She noted that most of the access roads were very narrow footpaths and in poor surface conditions that could not permit vehicular use. She added that the roads in most of the settlements are earth roads, unpaved and ungraded. She attached the challenges to unplanned and uncoordinated development due to the lack of a Local Physical and Land Use Development Plan.

➤ ***Waste Management***

Concerning sanitation issues, the lead planner reported the findings that all informal settlements faced significant challenges of managing both solid and liquid waste. She pointed that majority of residents burn solid waste, a few compost it and others indiscriminately dispose of their solid waste in the settlement becoming an eyesore, an environmental pollutant, and a source of unpleasant odour. She indicated that the findings showed that majority of households with access to a toilet use pit latrines which infiltrates to contaminate underground water. The situation was aggravated by the finding that underground water was commonly used by a number of households across the informal settlements, accessed from nearby rivers/streams and wells. This exposes the residents to waterborne diseases such as cholera, dysentery among others.

➤ ***Water***

Regarding water supply, the lead planner presented the findings that a notable population of households in the informal settlements accessed water from nearby rivers/streams (48% in Ndumanu and 16% in Gitunduti) with piped water to the community tap at 48% in Ndumanu and 38% in Gitunduti being the other major source of water for households in the two villages. Piped water was supplied by West Magut Water Project in Gitunduti and by Kihore Water Project in Ndumanu informal settlement.

➤ ***Housing***

The consultant provided a brief overview of the settlements' structures composition, comprising permanent, semi-permanent and temporary housing types. These diverse typologies were acknowledged and valued for their contribution to the settlement's fabric.

Key Challenges within the settlement

The consultant highlighted the general challenges facing the settlements as land tenure insecurity, poor road accessibility/road conditions (unavailable or very narrow roads), inadequate supply of water, encroachment on road reserves, informality, inadequate basic social infrastructure, absence of storm water drainage channels, improper waste management system, urban decay, insecurity and the absence of floodlights, and poor quality of housing.

Min 04: Plenary Session

The consultant invited the members to give their comments on any issue that needed more clarification. The issues raised and the responses are summarized in the table below:

Issues Raised/ Comments	Response by the consultant
The technical team members appreciated the consultant for the good work. They indicated that the findings presented were a true mirror/reflection of the realities on the ground.	-
Technical team members sought clarification on the issue of population as raised by KISIP	The consultant team clarified that the interpretation of the question in the data collection tool was the only challenges. The consultant considered that the total population was the sum total of the household members the respondent lives with plus the respondent whereas KISIP position was that the total number of people one lives with make up the settlement population.
Members sought clarification on the teacher-pupil ratio in the two informal settlements.	The lead planner observed that the data was unavailable at the moment but would be provided at a later date as it was available and had already been gathered.
Members sought clarification the presence and status of ECDE parcel in Ndumanu informal settlement.	The consultant lead planner responded that the ECDE parcel was picked and it was vacant. She observed that it can be secured for development of an ECDE facility.
Members sought clarification on why the infant population was so low.	The consultant team clarified that factors such as family planning, emigration and low birth rates contributed to the situation in Ndumanu informal settlement. Incentives for increased birth rates would help reverse the growing trend.
The technical team sought clarification as to which rivers/streams residents sourced water from and whether the piped water was by water projects or by MAWASCO.	The consultant team explained that there were nearby streams in each of the two planning areas. These streams were nearby and not necessarily within the informal settlement and were a major source of water for a significant number of households in the respective informal settlements. The piped water was from water projects.
The members sought clarification on drought as a highly ranking disaster from the findings in Ndumanu informal settlement. They requested	The consultant team indicated lack of control on the responses, terming them primary data from the residents, which cannot be altered. Only

Issues Raised/ Comments	Response by the consultant
the consultant team to follow up and verify since the settlement is in a highland where drought is not known for over a long time.	residents can clarify which drought and when it occurred as the tool did not seek for more clarification on disaster occurrences.
The technical team members raised requested the consultant to obtain pupil-teacher ratio for schools and ECDE centres surrounding the informal settlements, to identify the specific names of streams that residents source water for their consumption, verify why residents settled in mountain slopes reported drought as a common disaster occurrence, treat tea collection centres and milk cooling centres as industrial land uses rather than public purpose facilities, identify and allocate land for social hall and other social amenities where possible, and share the beneficiaries list for Ndumanu shopping centre. They further noted that in emigrants were returning to the informal settlement on learning of the planning and tenure attainment process was underway. They observed that the SEC chairman and chief in Ndumanu were allocating vacant parcels to individuals in the informal settlement. They asked the consultant to explain to the SEC chair and the chief the consequences of such actions. They contested on the income levels reported by residents terming them as too low and incorrect owing to the fact that even casuals earn at least 200/- a day which translates to at least 6000/- per month. They further urged the consultant to consider standardizing roads and making allocation for social amenities in Gitunduti which is experiencing urban sprawl they attributed to the presence of Karatina University Main Campus. They proposed a need to standardise plot sizes in Gitunduti to provide adequate accessibility, order, and planning to aid in disaster and emergence response. The proposed road sizes should be at least motorable in terms of width that is at least 6m wide and so need to abandon 2M and 3M wide roads in the planning process.	
Technical team members sought clarification on how the consultant would handle the case of contested plots.	The consultant lead planner indicated that the GRC and the SEC committees were responsible for addressing plot contestations and grievances among the community members. She observed that the consultant is unable to intervene on community affairs and thus only the community project leaders can resolve such grievances and identify the right beneficiaries for each parcel in the planning areas. However, one contested case had received verbal approval from KISIP which was deemed insufficient for further action and would only be addressed when official communication was provided.

Min 05: Way forward

The technical team members unanimously validated the socio-economic survey findings report. It was also agreed that:

- The consultant should proceed to the next phase.
- The members should fully co-operate and assist the consultant whenever the need arises.
- The consultant to use the adoptive approach.
- The members agreed to help the consultant to sell the idea of incremental road proposal to the beneficiaries.
- They committed to join the consultant in the subsequent stakeholder engagement for the presentation of socio-economic survey findings across the six informal settlements.

- The county government to undertake planning of the informal settlements in the near future

Min 06: Adjournment

There being no other business, the meeting ended at 2:54 pm with a word of prayer from one of the participants.

Minutes Confirmed By:**Settlement Representative**

Name: Position:

Signature: Date:

Local Administration Representative

Name: Position:

Signature: Date:

County Representative

Name: Position:

Signature: Date:

Principal Consultant, Geosurv Systems Ltd

Name: Position:

Signature: Date:

Photo Log



Attendance List



CONSULTANCY SERVICES TO UNDERTAKE PHYSICAL PLANNING, CADASTRAL SURVEY AND
DETAILED TOPOGRAPHICAL SURVEY OF 12 SELECTED INFORMAL SETTLEMENTS IN NYERI,
KIRINYAGA AND MARSABIT COUNTIES, LOT VII- CLUSTER 1



GEOSURV SYSTEMS LTD

Presentation of Socio-Economic Survey Findings, Verification of the Preliminary List of
Beneficiaries, Visioning and Participatory Planning to Technical Team

Name of settlement: Ndumanu / Runduhi Venue: Nyeri county GIS room Date: board room

LIST OF ATTENDANCE

S.No	Name	Designation	Gender (M/F)	Phone. No	Signature
1.	JOSEPH B. Njomo	DEP. DIR. PHYSICAL PLANNING (MEMBER - CPCT)	M	0710282748	
2.	NELSON N. MURITHI	LAND SURVEYOR	M	0727955502	
3.	HARRY NJUMIA	KISIP M&E (Housing Officer)	M	0700843621	
4.	HENRY KIMUTHY	CARTO ASST	M	0725442396	
5.	EFFY AWUOR	Physical planner - Makina East	F	0702417309	
6.	MIRIAM MUNYEI	Records Officer	F	0726276128	
7.	MARCOUS MUNU	Physical Planner - CGN	M	0705809716	
8.	VICTOR WAMBUA	physical planner - Geosurv system	M	0707837298	
9.	HARRISON KIOKO	Physical Planner - Geosurv system	M	0722740283	
10.	FAITH WANJIKU	ENVIRONMENTAL OFFICER INTERN	F	0748711903	
11.	DAGRA LENGASHA	PHOTO INTERN	F	0758349833	
12.	CATHERINE K. KATUMA	Geosurv systems - Physical Planner	F	0722728395	
13.					

Appendix 7: Minutes of the Stakeholders Workshop on the Presentation of Socio-Economic Survey, Visioning and Participatory Planning

STAKEHOLDERS WORKSHOP MINUTES FOR PRESENTATION OF THE SOCIO-ECONOMIC SURVEY FINDINGS, VISIONING AND PARTICIPATORY PLANNING HELD ON 25TH APRIL, 2025 AT NDUMANU TEA COLLECTION CENTRE IN NDUMANU SETTLEMENT.

Attendance List Attached

Agenda

1. Introduction and opening remarks
2. Presentation by the consultant
3. Visioning and Participatory Planning
4. Declaration of the Cut-Off Date
5. Verification of the preliminary beneficiaries list
6. Plenary session
7. Way forward
8. Adjournment

Item 1: Introduction and Opening Remarks

The meeting was called to order at 1445 hours by Settlement Executive Committee (SEC) chairman. He welcomed participants to the workshop and expressed his gratitude for their attendance. A participant said the opening prayers. After the prayers, the chairperson welcomed all participants once again, and invited the chief to make his remarks. The chief thanked the participants for their commitment to ensuring order and calmness throughout the planning process. He expressed his happiness with the progress of the work and applauded the KISIP team for the project.

The assistant county commissioner (ACC) in attendance highlighted the importance of the day's workshop and called for attention of all participants.

The county government project coordination team appreciated the community for hosting the consultant and supporting the planning project, highlighting its key contribution to socio-economic development of the informal settlement. They expressed the progress so far achieved by the consultant to process the socio-economic survey data and present the findings. They gave a highlight of the workshop as to verify the list of beneficiaries and establish if the findings were accurately captured and a true representation of the informal settlement.

Item 2: Presentation by the Consultant

a. Overview

The consultant lead planner began by acknowledging the participants involvement and contribution to the project since its inception. She specifically thanked them for their active participation and support for the socio-economic survey, especially by providing the required data that is the source of the day's presentation. She then elaborated on the purpose of the workshop, setting the agenda of the day which comprised of: -

- ✚ Presentation and validation of socio-economic survey findings
- ✚ Undertake visioning for Ndumanu informal settlement
- ✚ Carry out participatory planning
- ✚ Verification of the list of beneficiaries following the picking process, and
- ✚ Set the cut-off date.

i. Socio-Economic Survey Findings

The consultant lead planner described the key objectives of the socio-economic survey was to gather a detailed understanding of the informal settlement's demographic features, socio-economic status, land ownership features and housing conditions in line with KISIP objectives. The consultant explained that the

findings were crucial in informing and guiding the formulation of plan proposals for the sustainable development of the informal settlement.

ii. Population

The consultant lead planner presented that Ndumanu informal settlement covers an estimated 9.17 Ha of land. The population size of the informal settlement was approximated to be 240 people, projected to be 355 people by 2035. The consultant briefly described the demographic composition of the settlement. The labour force population (18 – 65 years) accounts for 53% of the settlement population. The young population (below 18 years) are at 39% while the elderly population (above 65 years) are the least at 8% of the settlement population. An estimated 47% of Ndumanu informal settlement residents are dependent population. This refers to the sum total of young and elderly population within the informal settlement.

iii. Vulnerable groups

The consultant described vulnerable groups as individuals exposed to a high risk of poverty, exclusion, or discrimination due to their socio-economic or geographical conditions as defined by world bank. Vulnerable groups within the informal settlement constituted of the orphaned, socially and economically marginalized people, the chronically ill and people living with disabilities. The survey findings showed that 3% of households within Ndumanu informal settlement had members living with disability.

Number of claimed plots and Beneficiaries

The consultant lead planner pointed out that according to the base map, Ndumanu Informal settlement planning area has a total of 101 claimed plots.

iv. Social Infrastructure

The consultant's lead planner reported the presence of Muthea secondary school, tea collection center, and assistant chief's office in Ndumanu informal settlement. There are no ECDE center, primary or secondary schools within the informal settlement. Residents have access to nearby ECDE center, primary and secondary schools located outside the informal settlement but within the recommended distance as outlined in the Physical Planning Handbook. She indicated that the population within the planning area does not meet a threshold for some facilities and residents will continue to access services from the nearby facilities outside the planning area.

v. Physical Infrastructure

In regards to physical infrastructure, the consultant's lead planner reported lack of access roads to some of the plots who use footpaths or access their plots by sneaking through their neighbor's plots. Most of available internal roads were very narrow for vehicular access. Further, the findings showed that the interconnectivity is well laid out providing access to land parcels and activity spaces within the informal settlement. There are however a few missing links within the planning area.

vi. Waste Management

In reference to hygiene and sanitation, the consultant's lead planner highlighted the lack of conventional/proper solid and liquid waste management within the planning area. Solid waste is improperly managed through burning at 52%, composting at 42%, and burning/composting at 6%. In terms of liquid waste disposal, 99% of households with access to toilet use pit latrine while the other 1% use flush toilets to dispose of their liquid waste. This however was reported to have significant health effects due to its contamination of underground water which is accessed from nearby streams by 48% of the households for domestic use.

vii. Water

In respect to water supply, the findings showed that piped water at community tap and river/stream water were the main water sources for residents each at 48%, rainwater was harvested by 3% of households in Ndumanu informal settlement and only 1% access water piped into their living compound. The piped water is supplied to the settlement mainly by Kihore Water Project. Households pay an average KES 37 for water per day. Majority of households have an average water consumption rate of between 31 and 40 liters at 30% while 19% of households have an average daily water consumption rate of over 50 liters.

viii. Land and Housing

The consultant's lead planner provided a detailed discussion of the land uses present at the informal settlement. She indicated that of the 9.17 Ha that make up Ndumanu informal settlement, the dominant land use is residential use at 45.47%, as well as transport, educational and public purpose land uses at 16.79, 14.18, and 13.63 percent respectively. Other land uses present in Ndumanu informal settlement include agricultural, and business cum residential land uses. The lead planner also gave a brief overview of the settlement's structures in terms of permanent, semi-permanent, and temporary types according to the socio-economic survey. She reported that 173 structures were picked in the informal settlement. The structures were categorised as 13.3% permanent, 39.9% semi-permanent, and 46.8% temporary structures.

Key Challenges within the project area

The consultant explained the general challenges facing Ndumanu informal settlement comprised of insecurity of land tenure, poor accessibility/road condition, inadequate supply of portable water, unsustainable development, encroachment on road reserves, informality, inadequate basic social infrastructure, poor housing quality, lack of storm water drainage channels, improper waste management system, and urban decay.

Item 3: Visioning and Participatory Planning

The consultant's lead planner explained that participatory planning involves engaging stakeholders in the formulation of plan proposals. She described planning as basically coordinated organization of land use and participatory planning involves analysis and alignment of existing land uses and proposing future land uses for sustainable development of the informal settlement. The lead planner guided the participants in understanding the existing land uses within inadequate water supply informal settlement. The discussions centred on the provision of standard hierarchical roads with minimum road sizes required to be 9m. However, following a detailed analysis of the Base Map, there was consensus that it was not possible to achieve the minimum standard road sizes on all the roads within the informal settlement. This was due to absence of sufficient space for required width of roads which if they were to be implemented would have significant impacts on existing developments, especially residential structures.

Alternative planning approach was proposed, that is adoptive planning method. The consultant engaged and guided the participants through adoptive planning approach that contributes to the provision of hierarchical standard road sizes within the informal settlement. However, these could not achieve the desired road sizes in some instances where there was no sufficient land for standard road widths, especially the minimum requirement of 9m. nonetheless, the flexibility afforded by adoptive planning method resulted to road proposals of varying sizes in relation to the available space. Participants were in consensus that this approach was desirable as it minimized impacts on existing developments.

Further, participants were in agreement that wider roads were needed and this would be achieved incrementally during approval of any proposed developments on the parcels progressively. Beneficiaries abutting roads which do not meet the standard road sizes will be required to surrender equal portions of land sufficient to meet the required road widths. Additionally, stakeholders agreed that the planning process should ensure each plot has access road.

Visioning

The consultant's lead planner explained the visioning process, in a simple and explicit manner. She elaborated visioning as the process of envisaging a dream inadequate water supply informal settlement. She explained that visioning refers to an aspiration of the residents for the kind of inadequate water supply Informal Settlement they desire to have for the present and future generations. It involves the desire for better living standards, conditions and environment. She described it as a strategic process involving the identification of both challenges and opportunities, and devising ways to address these challenges in order to achieve the desired future outcome.

Visioning During the Participatory Planning Exercise

The detailed discussion on visioning witnessed stakeholders frame inadequate water supply Informal Settlement Vision Statement to guide them towards realizing their desired future state, being cognizant of prevailing challenges and opportunities within the settlement.

The stakeholders envisioned a Ndumanu informal settlement characterised by:

- Secure land tenure
- Commercial centre
- Good accessibility – good paved and graded roads
- Electricity connection
- Proper basic social infrastructure – social hall, market, etc
- Conventional waste management system (sewer and solid waste dumping sites)
- Storm water drainage channels
- Clean water supply and reticulation
- Cemetery
- Playground for children
- Provision of all basic infrastructure facilities

The stakeholders harmonized all their visions and came up with one common vision for the settlement: **"To be a model planned commercially oriented urban informal settlement with security of tenure and ultra-modern infrastructure facilities."**

Item 4: Declaration of the cut-off date

The consultant's lead planner elaborated the concept of the cut-off date within the scope of the assignment. This was described as the agreed upon deadline where all developments, ongoing or proposed construction, are halted until the completion of the planning process, that is until the last beacon is installed within the informal settlement. The justification for the cut-off date was to facilitate the consultant's ability to propose and implement interventions, such as the provision of access roads and other amenities, based on the current conditions without interference from new constructions. The stakeholders unanimously agreed to cease any development/construction on their parcels immediate and set the Cut Off Date to be the date for the Visioning and Participatory Planning Stakeholders Workshop date, (25th April 2025).

Item 5: Verification of the preliminary beneficiaries list

The consultant urged the project beneficiaries to confirm their information in the preliminary beneficiaries list. This included their full names, ID numbers, KRA PINs, mobile phone numbers, and their photos. Additionally, she reminded them to cross-check if the plot numbers listed in the beneficiaries list matched those indicated on the base map. The beneficiaries were also asked to confirm if the listed ownership structure was accurate and true.

Item 6: Key Issues Raised by the Stakeholders during Plenary Session for Clarification
Summary of the Issues Raised and the Responses

Issues Raised	Responses Given
Participants sought clarification on whether they were accommodated in the beneficiaries list	The lead planner clarified that all beneficiaries who had been enumerated were included in the list which they were to verify. If anyone was missing on the beneficiaries list, they would be updated at a specified future date to ensure every land proprietor is included and correctly captured.
A participant raised concern over commercial plots within the settlement, seeking clarification if they were	The lead planner clarified that all plots within the planning area were enumerated as guided by the SEC and local community leadership where the owners of the parcels were identified at their specific plots. The claimant was advised to verify if the plot in question was

Issues Raised	Responses Given
considered commercial and who had been allocated as their proprietors. He argued that there was back and forth between him, the chief and the SEC in addressing the issue.	enumerated under him as the beneficiary and if not to seek help from the GRC. This was echoed by the KISIP representative who acknowledged that a solution was only possible to be found if the claimant addressed the matter through the GRC and SEC committees.
Participants sought clarification on whether they would be included in the beneficiaries list after missing the enumeration process	The lead planner advised that all missing names on the list of beneficiaries, and any errors on the biodata details would be updated at a specified future date. During the updating of the list of beneficiaries, all those who missed the first enumeration would be captured and they were requested to avail themselves on the specific date (1/5/2025) for providing their details as required.
Participants sought clarity on what would happen to those plots whose owners are nowhere to be found (absentee landlords).	The KISIP representative explained that the owners could have been absent (absentee landlords) at the time of picking and enumerating the beneficiaries. They could be outside the informal settlement even outside the country. He clarified that those plots whose owners are yet to be listed would automatically revert to the county government who is the custodian of all the land in the informal settlement. should the owners turn up at a later date and verified as the true owners, they shall visit the land registrar at the county offices to follow due procedure for the reassignment of the plot and processing of ownership documents.

Item 7: Way forward

Workshop Resolutions

The stakeholders unanimously validated the socio-economic survey findings. Additionally, they agreed on the following issues on participatory planning:

- ✓ Use of adoptive (flexible) planning approach to minimize the level of impacts on existing developments.
- ✓ Declaration of 25th April, 2025 as the Cut-off date.
- ✓ Adoption of tenancy in common registration in cases of very small plots or inaccessibility to individual plots.

Further, the consultant reminded the participants who have not yet submitted the required documents to do so as soon as possible. They were reminded to avail themselves for the updating of the list of beneficiaries as scheduled.

Item 8: Adjournment

There being no other business the workshop ended at 1733 hours.

**Minutes Confirmed By:
Settlement Representative**

Name: Position:

Signature: Date:

Local Administration Representative

Name: Position:

Signature: Date:

County Representative

Name: Position:

Signature: Date:

Principal Consultant, Geosurv Systems Ltd

Name: Position:

Signature: Date:

Photo Log



Attendance List



CONSULTANCY SERVICES TO UNDERTAKE PHYSICAL PLANNING, CADASTRAL SURVEY AND
DETAILED TOPOGRAPHICAL SURVEY OF 12 SELECTED INFORMAL SETTLEMENTS IN NYERI,
KIRINYAGA AND MARSABIT COUNTIES, LOT VII- CLUSTER 1



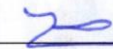
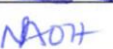
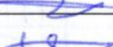
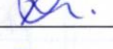
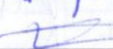
GEOSURV SYSTEMS LTD

Presentation of Socio-Economic Survey Findings, Verification of the Preliminary List of
Beneficiaries, Visioning and Participatory Planning to Stakeholders

Name of settlement: Ndumanu Venue: Ndumanu Tea Buying Centre Date: 25/04/2025

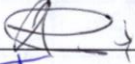
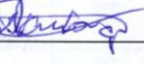
LIST OF ATTENDANCE

S.No	Name	Designation	Gender (M/F)	Phone. No	Signature
1.	JOSEPH G. Njemo	CPCT-Physical Planner	M	0710282748	
2.	Miriam Mungere	Land & Survey	F	0720270128	
3.	Effy Aduor	Subcounty planner Matara east	F	0702417309	
4.	Limosop Kizen	Advocacy Officer	M	0720271330	
5.	Mueni Molsal	Land Surveyor	M	0729955502	
6.	Henry Kimutty	Land & Survey	M	0725442396	
7.	Paul KIMARU NJERU	SMR ASST / CHIEF	M	0724211783	
8.	Marcos Munira	Physical Planner	M	0705809716	
9.	Stephen Mwangi maina	Grievances secretary	M	0745235631	
10.	Runguma Peter Kamani	Villager	M	0724536760	
11.	Nicholas Mwangi Wambugu	Villager	M	0748122503	
12.	Raphaela mulhoni	Villager	F	072484926	
13.	Cesar Karuki Wanyonyi	Committee	M	0718171476	

S.No	Name	Designation	Gender (M/F)	Phone. No	Signature
14.	Karume Muchiri	Committee	M	0706018384	
15.	Alice Wanjiru Kamunyi	Committee	F	0700939725	
16.	Mary Wambui Njogu	Villager	F	0726676132	
17.	Grace Wainuku Njogu	Villager	F	0-	
18.	Charity Wambui	Villager	F	0711495505	
19.	NAOMI WANDUGU	committee	F	0701762670	NAOMI
20.	Siron Maana Kirigua	committee	M	0729639832	
21.	Loise Wanjiru Wachira	Villager	F	0790423909	
22.	Antony G. Muboti	Plot owner	M	0722775688	
23.	Florence G. Mwangi	Plot owner	F	0724356514	
24.	Lydia Wanjiru	Plot owner	F	0713158757	
25.	Daniel Mugo	Villager	M	0711256096	
26.	Simon Kabethi	Plot owner	M	0722306113	
27.	Joseph Kibuchi	LAND SURVEYOR	M	0791205351	
28.	Paul Mwangi	Land Surveyor	M	0714666297	
29.	John Memei Njogu	Villager	M	0769357353	
30.	John Kirigandu Mugo	Villager	M	0725374236	
31.	Kenneth Ngatia	CPC-Comms	M	0716594061	
32.	Charles Gathiri	Villager	M	0722687384	
33.	LAWRENCE NGATIA Matheri	Villager	M	0725080618	
34.	James Muhamu Muhindi	Church S.D.A REP	M	0718290338	

S.No	Name	Designation	Gender (M/F)	Phone. No	Signature
35.	BERNARD ASOGY NYAMU	MEMBER	M	0724515893	
36.	FELISTA MUTHONI	member	F	0712317104	
37.	TERESIA WARUGURU	member	F		
38.	VIRGINIA MICERE MATHENGE	member	F	0715679913	
39.	ESTHER WAKABARI	member	F	0711195962	
40.	PHILIS WANJIKU	member	F	0720061458	
41.	CATHERINE WAWIRA POLINE	"	F	0725384457	
42.	ERIC CHOMBA MUTHONI	"	M	0726008426	
43.	JULIUS MURUKU KINYUA	member	M	0702737305	
44.	Ndambiti NYAGA	MEMBER	M	- - -	NYAGA
45.	PAUL NYAGARA	member	M	0729262757	
46.	Grace Muthoni	member	F	0748126682	
47.	Rhoda Wanjiku Magondu	member	F	0713736694	
48.	AURELIUS NYAGARA	member	M	0701418	
49.	ANDREW NJERU MIANO	member	M	072276523	
50.	CATHERINE WAWIRA MUGANE	member cheque	F	0701935404	
51.	TERESIA KIANJIRA KAPANI	member	F		
52.	GRACE KARIUKO NGARI	member	F		
53.	FAITH KIANJIRA MBUI	member	F	0723145436	
54.	ALICE KARIUKU GURU				
55.	CATHERINE WANJIKU KINYUA	member	F	071796216	

S.No	Name	Designation	Gender (M/F)	Phone. No	Signature
56.	Charles Kangringi	Villager	M	0757362161	
57.	Michael Njogu Kingua	Villager	M	0702453344	
58.	Utor Sule	KISIP NPCT	M	—	
59.	Stephen Wachira Moina	plot owner	M	0712078060	
60.	Jacinta Muthoni Mubuthia	Plot owner	F	0712789356	
61.	Cheuki Benjamin Gachachi	Plot owner	M	0725066135	
62.	David machira Ksirimi	Plot owner	M	0717610142	
63.	Job Charles Watula	KISIP NPCT	M	0112017041	
64.	Joseph K. Moina	Mutha Soc. Teacher	M	0715238795	
65.	Kenneth murimi Ngathii	Chairman Soc	M	0723737768	
66.	Mary Wangari Wachira	Plot owner	F	0729014463	
67.	Henry Mwai Weri	Plot owner	M	0722794399	
68.	Abdulla KARUR, KARIO	Plot owner	M	0724799413	
69.	KARIO JOSEPH KARUN	Plot owner	M	0722647805	
70.	JANE WAMATHA KARUR	Plot owner	F	0721587485	
71.	SIMON NDIRITU KAMAU	Plot owner	M	0720166021	
72.	Pauline Mwangi Wachira	Plot owner	F	0740094060	
73.	Rose Karimu Mugo	Mama Soc Committee	F	079551925	
74.	Lucy Nyaki Mugo	Plot owner	F	0718724074	
75.	Elizabeth Wacheke Njogu	Plot owner	F	0728124143	
76.					

S.No	Name	Designation	Gender (M/F)	Phone. No	Signature
56.	CATHERINE KIANGARI MUCHIRA	Member	F	0720459140	
57.	Anthony Muriini Gacori	member	male	0708921261	
58.	JULIUS WACHIRA WAMBURU	SEK	M	0723925147	
59.					
60.					
61.					
62.					
63.					
64.					
65.					
66.					
67.					
68.					
69.					
70.					
71.					
72.					
73.					
74.					
75.					
76.					