



GOVERNMENT
OF KENYA



COUNTY GOVERNMENT
OF KIAMBU

GITHUNGURI TOWN INTEGRATED STRATEGIC URBAN DEVELOPMENT PLAN 2020–2030



VISION

A PROSPEROUS SERVICE CENTRE THAT PROMOTES
VALUE ADDITION IN AGRICULTURAL PRODUCTS

Report Prepared for:



MINISTRY OF TRANSPORT,
INFRASTRUCTURE, HOUSING &
URBAN DEVELOPMENT

Nairobi Metropolitan Services Improvement Project
(NaMSIP)



County Government of Kiambu
People of Githunguri Town

APPROVAL

Certified

I certify that the plan has been prepared as per the County Governments Act, 2012 and Section 110 on Planning Standards and Guidelines.

Signature: _____

Date: _____

PLAN. GEOFFREY NJOROGI, LEAD CONSULTANT

Signature: _____

Date: _____

PLAN. MWANIKI JANE WANJIKU, COUNTY DIRECTOR, PHYSICAL & LAND USE PLANNING

Recommended

Signature: _____

Date: _____

COUNTY EXECUTIVE COMMITTEE MEMBER IN CHARGE OF PHYSICAL & LAND USE PLANNING

Approval

Hansard No: _____

Date: _____

COUNTY ASSEMBLY

Endorsed

Signature: _____

Date: _____

H.E THE GOVERNOR

FOREWORD



The Kenya Constitution 2010 assigns the function of county planning to the County Governments within its Fourth Schedule. The Githunguri town Integrated Strategic Urban Development Plan (ISUDP) is a ten years geographical information-based database system plan that will guide the spatial development of the town from 2019 to 2030.

This development blueprint is a statutory requirement, as outlined in Section 110 of the County Governments Act, 2012. The vision of this ISUDP is that Githunguri town be “A Prosperous Service Town That Promotes Value-Added Agriculture and Sustainable Development”. This Integrated Strategic Urban Development Plan (ISUDP) preparation forms part of the Nairobi Metropolitan Services Improvement Programme (NaMSIP) which is a World Bank funded project. Within the framework of the agreement between the World Bank and the Government of Kenya, this project is the result of a procurement by the then Ministry of Lands, Housing and Urban Development for “Consulting Services for Preparation of Integrated Strategic Development Plan for Murang’a and Kiambu counties within the Nairobi Metropolitan Region” issued on 24 June, 2014. This resulted in an agreement between the then Ministry of Lands, Housing and Urban Development (MoLH&UD); with Nairobi Metropolitan Development (NMED) and the service providers being ALPEX Consulting Africa Ltd (ACAL) and BC Gildenhuys and Associates CC (South Africa).

This Integrated Strategic Urban Development Plan reflects the desired spatial form of the County and the desired land use zoning within the 2019-2030 plan period. The desired patterns of land use have been synchronized with other existing regional, national and other county plans. Indeed, the plan reflects the objectives and aspirations of the County as outlined in the second County Integrated Development Plan (CIDP) for the 2018-2022 Plan period.

The ISUDP provided strategies for conservation, use and management of natural resources. In addition, the spatial structure of the population, existing infrastructure, economic activities and human settlements have been mapped. Similarly, the challenges and opportunities for tapping into these resources have been identified. I also take note that the town Plan has identified areas where priority strategic intervention and funding is required. Equally important, the Plan has considered the rights of all special groups within the County in concurrence with the constitutional requirements for participatory planning and development.

I am aware that the preparation of this Integrated Strategic Urban Development Plan was carried out through a participatory process as per the requirements of the County Governments Act 2012. The process involved representation from the general public, the County Government and the National Government through the Nairobi Metropolitan Services Improvement Project- NaMSIP.

I believe that this Plan will be an important pillar in stimulating agricultural production, infrastructural and social economic development in Kiambu County towards the desired Vision. I am confident that in the renowned true spirit and tradition of the hard working Githunguri people, this plan will become an important guide for investments in the county. I, therefore, take this opportunity to rally the people of Githunguri to support the implementation of this town Plan as part of the County Spatial Plan in line with our desired transformation agenda of our County and hereby commit myself to appropriate funding for its implementation.

Signature: _____

PLAN. JAMES MAINA MITAMBO,

County Executive Committee Member,

Lands, Housing, Physical Planning, Municipal Administration and Urban Development,

Kiambu County

ACKNOWLEDGEMENT

The preparation of the Githunguri town Integrated Strategic Urban Development Plan (ISUDP) 2019-2030 is indebted to the time and efforts of its many contributors right from its inception to completion. The County Government of Kiambu acknowledges that the preparation of the ISUDP was part of the Nairobi Municipal Services Improvement Programme (NaMSIP) conceived by the Government of Kenya and funded through World Bank. The NaMSIP Project meant to strengthen urban services and infrastructure in the Nairobi metropolitan region required the preparation of the Githunguri ISUDP to guide investments in local infrastructure. The County Government of Kiambu is indebted to NaMSIP, for taking the mandate upon itself to facilitate and support the preparation of the Githunguri ISUDP all through the different planning phases. Special thanks go to the team from NaMSIP led by Engineer Michael Njenga, Planner Ann Mugo (who was the project supervisor), as well as Planner Esther Muthoni.

I thank the County Government of Kiambu, especially, His Excellency the Governor Dr. James K. Nyoro, County Executive Committee member for Ministry of Lands, Housing, Physical Planning & Urban Development, Planner James Mitambo Maina and Chief Officer of the same Ministry, Planner James Ndung'u for supporting and guiding the preparation of the plan. Special thanks go to the planners from Kiambu County: Planner Nicholas Waweru (Deputy Director Planning), Planner Wallace Mochu, Planner Christine Kamau, Planner Charles M. Mwangi, Plan. Bryan Njeru, Plan. Onesmus Ng'ang'a, Planner Hilda Mwai, Planner Rehema Nyambuga, Planner Christine Njeru, Planner Judith Nyamongo, Planner Alex Waweru, and Planner Esther Waweru. The invaluable ideas generated during the consultation with the county executive officers and the planners helped in updating the plan and I am gratified that their generosity to share their expertise is fulfilling.

We wish to thank the Githunguri County Assembly for the oversight role they played in ensuring that Githunguri Town gets a planning tool which will guide and control developments in the town. We also thank the general public of the Githunguri Town for taking part in the plan. The views you provided during the different phases of public participation helped in envisioning the kind of a development desired for the town. Your views formed the basis of the vision and mission statements and strategies and proposals for this plan.

Lastly, the County Government of Kiambu is grateful to the team of consultants from ALPEX Consulting Africa Ltd (ACAL), BC Gildenhuys and Associates CC (South Africa), and Ecoplan Kenya Ltd who jointly with the Department of Planning of the County prepared this Town Plan. In this regard, I would like to acknowledge the technical expertise provided by the team of consulting planners, led by Planner Geoffrey Njoroge, David Mathenge, Planner Hellen Njoki, Dr. Samuel Gichere, Victoria Banchiri, and Caroline Njagi. Finally, and not the least, I wish to thank the people of Githunguri for sharing their proposals through the stakeholder forums that were held. It is for them that this Plan has been prepared.

Signature: _____

PLAN. JANE WANJIKU MWANIKI,

County Director of Physical Planning

Department of Lands, Housing and Physical Planning, Kiambu County

EXECUTIVE SUMMARY

The Fourth Schedule of the Kenya Constitution 2010 confers the role of county planning to the County Governments. Additionally, section 111(2) of the County Governments Act, 2012 (CGA) confers the authority to plan the County governments to the County Planning. Section 36 (1) of UACA further states that ISUDP shall be basis for development control; preparation of environmental management plans; preparation of valuation rolls for property taxation; provision of physical and social infrastructure and transportation; preparation of annual strategic plans for an urban area; disaster preparedness and response; and overall delivery of service including provision of water, electricity, health, telecommunications and solid waste management.

ISUDP recognized that towns and municipalities are engines of stimulating socio-economic development in all the Counties. The Government aims at a coordinated approach to planning and implementation of sectoral projects and programs towards reducing wastage of scarce resources and to avoid duplication of efforts.

The preparation process of Githunguri town Integrated Strategic Urban Development Plan relied on the Kenya Constitution 2010, Kenya Vision 2030, and relevant policies and legislations for spatial development such as the National Spatial Plan, National Land Use Policy 2018, National Land Policy 2009) and the Kiambu County Integrated Development Plan (2018-2022). The preparation process was also informed by various Acts of Parliament including the County Government Act (2012), the Physical Planning and Land Use Planning Act (2019), the Urban Areas and Cities Act of 2011 (and the Amendment, No. 3 of 2019), the Environment Management and Coordination Act (Cap 387 of 2012), the Water Act (Cap 372 of 2012), the Land Act (No. 6 of 2012), the National Land Commission Act (No.5 of 2012) and the Forest Conservation and Management Act (No. 34 of 2016), among others. Through this ISUDP, Kamwangi town aims to be “A Vibrant commercial and Service hub promoting investment opportunities and safeguarding agricultural hinterland.” This Vision will be achieved through “promoting value driven and action-oriented planning that will facilitate identification and utilization of available resources, building and nurturing of partnerships with stakeholders and development partners for overall development and wellbeing of the County population.”

Githunguri town is the administrative headquarters of Githunguri Sub-County which is centrally located in Kiambu County. The middle point of the town lies at a latitude 10 03’ south of the equator and Longitude 36047’ East of Prime meridian at an average elevation of 1980 meters above the sea level. The town is located 15 Kilometres Northwest of Kiambu town (Kiambu County headquarters) The Planning area covers approx. 9.5 km square within three county assembly wards in Githunguri sub-county. These are Gthunguri, Ngewa and Githiga Wards

The town’s strategic location provides opportunities for improving the agricultural sector through increased production, land productivity and value addition strategies including modernising farming, investment in dairy farming, high value crops, and developing infrastructure to support agro-industries, as well as other support services that can revitalise the town’s economic status. The town is also an important trading centre. The strategic location on Ruiru-Githunguri-Uplands Road makes it an important trading hub for the region, connecting two important towns with different types of produce.

The physical features, urban-rural interface, settlement structure, land use structure, and land tenure composition of the County all influenced the structure and natural features of this town Plan. For this multi-disciplinary undertaking, different types of data from primary and secondary sources were collected and collated. This data was studied in detail to identify the development issues and gaps within different urban and rural sectors. The various spatial development opportunities and challenges in the County informed the development of goals, objectives, and proposed implementation of the spatial development vision.

Two models were considered in the preparation of the Githunguri town Plan, namely; the Agro-Industrial Model and the Growth Pole Model. The model identified as the best alternative for development of Githunguri was a hybrid of the two development trajectories which maximized on the advantages of agro-industrial and growth centres models, having identified agriculture as the main activity to drive growth and development of Githunguri region, the opportunities available to strengthen agricultural production in order to create wealth and jobs included industries and external markets.

The structure plan provides a framework that sets out strategic planning policies in terms of space. A structure plan comprises three elements—namely; a physical zoning map, land management policies, and land use

standards. Overall, the spirit of any structure plan is Sustainable development. The economic regeneration will focus on protecting agricultural land, value addition of agricultural produce, upgrading of select rural link roads, improvement and expansion of commercial and retail space to spur trade. Infrastructure and Utility Provision Strategy will focus on densification of urban core, provision of water, sewerage, education and recreation facilities, as well as improvement of circulation within the town. The Environmental and Natural Resource Conservation Strategy will focus on conservation of riparian zones and areas of steep slopes by restricting development in such areas.

The ISUDP provides an economic development strategy that uses agricultural development as the basis upon which the town is to grow. The plan identifies diversification of agricultural products, increased production, agro-industries and marketing as key features to ensure the County reaps economic growth from agriculture. To this end, the plan proposes the setting up of agro-industrial zones and various processing industries for dairy and other Agricultural products including tea and coffee. The economic development strategy is fused with the environmental and natural resource conservation strategy where the plan proposes ways to ensure sustainable utilization of the numerous natural resources within the planning area and the county at large.

For the implementation of the town Plan, the plan proposes a two-tier implementation team having both the County Government team and the team from other development stakeholders. The implementation team is proposed to be holding consultative forums at least once every two years to keep track of the progress of the implantation. A capital investment plan is provided showing the cost of the major projects which total to about 3.38 Billion Shillings within the entire plan period. It is further proposed that the ISUDP will be reviewed after 5 years to harmonize the development strategies with changes that could have occurred within the five years. It is expected that the implementation of this ISUDP will promote socio-economic development through agro industrial developments and developing strategic linkages in the region resulting into enormous multiplier effects towards improved livelihoods and enormous positive multiplier effects to the Githunguri people including employment creation and poverty reduction. The implementation of the plan is therefore expected to be a significant step towards achieving the development vision of Githunguri town “A Prosperous Service Centre That Promotes Value Addition In Agricultural Products”.

This project forms part of the Nairobi Municipal Services Improvement Programme (NaMSIP) which is a World Bank funded project. Within the framework of the agreement between the World Bank and the Government of Kenya, this project is the result of a procurement by the then Ministry of Lands, Housing and Urban Development for “Consulting Services for Preparation of Integrated Strategic Development Plan for Murang’a and Kiambu Counties within the Nairobi Metropolitan Region” issued on 24 June 2014. This resulted in an agreement between the then Ministry of Lands, Housing and Urban Development (MoLH&UD) Nairobi Metropolitan Development (NMED) with the service providers being ALPEX Consulting Africa Ltd (ACAL) and BC Gildenhuys and Associates CC (South Africa).

TABLE OF CONTENTS

APPROVAL.....	ii
FOREWORD.....	iii
ACKNOWLEDGEMENT	iv
EXECUTIVE SUMMARY	v
List of Maps.....	xii
List of Plates	xiii
List of Graphs	xiv
List of Figures	xv
List of Tables	xvi
LIST OF ACRONYMS.....	xviii
GLOSSARY OF TERMS.....	1
PART I: INTRODUCTION & PLANNING CONTEXT.....	3
1 CHAPTER ONE: INTRODUCTION.....	4
1.0. BACKGROUND	4
1.1. PURPOSE OF THE PLAN.....	5
1.2. PLANNING CHALLENGES.....	6
1.3. GOALS AND OBJECTIVES.....	6
1.4. VISION STATEMENT	6
1.5. MISSION STATEMENT	6
1.6. SCOPE OF THE PLAN.....	7
1.7. DELIVERABLES OF THE PLAN	7
1.8. TERMS OF REFERENCE	7
1.9. ORGANIZATION OF THE PLAN.....	8
2 CHAPTER TWO: PLANNING CONTEXT	10
2.1. HISTORICAL BACKGROUND	10
2.2. GEOGRAPHIC LOCATION AND SIZE.....	10
2.3. NATIONAL CONTEXT	11
2.4. REGIONAL CONTEXT	12
2.5. LOCAL CONTEXT	12
2.6. PLANNING AREA.....	13
2.7. PREVIOUS PLANNING INTERVENTIONS	14
2.8. PLANNING METHODOLOGY	16
2.9. POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK	17
2.9.1 Constitutional Framework.....	18
2.9.2 Global Policy.....	18
2.9.3 National Policies.....	19
2.9.4 Legal Framework	19
2.9.5 Institutional Framework.....	21
2.9.6 LINKAGES TO OTHER PLANS & STRATEGIES	23
PART II: SITUATIONAL ANALYSIS	24
3 CHAPTER THREE: PHYSIOGRAPHIC CHARACTERISTICS	25

3.1	OVERVIEW	25
3.2	PHYSIOGRAPHIC CHARACTERISTICS	25
3.2.1	Topography	25
3.2.2	Geology and Soils	28
3.2.3	Hydrology and Drainage	29
3.2.4	Vegetation	32
3.2.5	Climate	33
2.1	EMERGING PLANNING ISSUES	36
4	CHAPTER FOUR: POPULATION AND DEMOGRAPHY	38
4.1.	Overview	38
4.2.	POPULATION STRUCTURE.....	38
4.2.1.	Population Size and Composition	38
4.2.2.	Population Distribution.....	39
4.2.3.	Population Projection	41
4.3.	DEMOGRAPHIC CHARACTERISTICS.....	42
4.4.	SOCIAL ANALYSIS.....	45
4.4.1.	Culture and Religion	45
4.5.	EMERGING PLANNING ISSUES	46
5	CHAPTER FIVE: LAND USE ANALYSIS.....	48
5.1	Introduction	48
5.2	LAND TENURE SYSTEM	48
2.2	LAND USE PATTERNS.....	49
2.3	PROJECTED LAND USE REQUIREMENT.....	53
2.4	LAND ADMINISTRATION AND MANAGEMENT	54
2.5	LAND AVAILABILITY AND SUITABILITY.....	54
2.6	EMERGING PLANNING ISSUES	55
6	CHAPTER SIX: ENVIRONMENT AND NATURAL RESOURCES	56
6.1	NATURAL RESOURCES.....	56
6.2	URBAN GREENERY AND OPEN SPACES	56
6.3	ECOLOGICAL SENSITIVE AREAS	56
2.7	CLIMATE CHANGE	57
2.8	WASTE MANAGEMENT ENVIRONMENTAL ISSUES.....	57
2.9	EMERGING PLANNING ISSUES	57
7	CHAPTER SEVEN: URBANIZATION, HOUSING AND HUMAN SETTLEMENTS.....	59
7.1.	INTRODUCTION.....	59
7.2.	PATTERNS AND TRENDS OF HUMAN SETTLEMENTS.....	59
7.1.1	Roles and functions of human settlements in Githunguri Constituency	59
7.2	SETTLEMENTS PATTERNS IN GITHUNGURI	60
7.2.1	Linear settlement.....	60
7.2.2	Nucleated settlement pattern	61
7.3	URBANIZATION TRENDS	61
7.4	URBAN CORRIDOR DEVELOPMENT	62
7.5	HIERARCHY OF SERVICE CENTRES.....	62
7.5.1	7.6.1 Levels of services per centre in Githunguri	64
7.6	HOUSING	65
7.6.1	Housing Typologies.....	65
7.6.2	Building Materials.....	66

7.7	EMERGING ISSUES ON HOUSING AND HUMAN SETTLEMENTS	67
8	CHAPTER EIGHT: PHYSICAL INFRASTRUCTURE	74
8.1	Introduction	74
8.2	TRANSPORTATION.....	74
8.2.1	Introduction.....	74
8.2.2	Inter and Intra-Urban Connectivity.....	74
7.1.1.	Road Network by Class and Surface Type.....	76
7.1.2.	Roads conditions.....	76
7.1.3.	Assessing efficiency of transport infrastructure	77
7.1.4.	Traffic Management	78
7.1.5.	Public Transport	78
7.1.6.	Non-Motorized and Intermediate Means of Transport (NMT & IMT).....	78
8.2.3	8.2.9 Transportation Challenges	79
7.2.	WATER.....	79
7.2.1.	Introduction.....	79
7.2.2.	Water Sources	79
8.2.4	Water quality.....	80
7.2.3.	Water Supply and Demand.....	81
8.2.5	8.3.4 Problems related to water supply in the planning area relevant to the new proposed water project.....	83
7.3.	WASTE MANAGEMENT AND SANITATION.....	83
7.3.1.	Introduction.....	83
7.3.2.	Liquid and Human Waste Management	84
7.3.3.	Storm water drainage.....	85
7.3.4.	Solid Waste Management	86
7.3.5.	Solid waste Disposal at household level	87
7.3.6.	Challenges associated with solid waste disposal at house hold level	88
7.4.	ENERGY	89
7.4.1.	Electricity Connection	90
7.4.2.	Electrical Capacity	92
7.4.3.	Challenges in the Energy Sector.....	92
7.4.4.	Opportunities	93
7.5.	INFORMATION, COMMUNICATION AND TECHNOLOGY	93
7.5.1.	Radio and Television.....	93
7.5.2.	ICT Facilities in Institutions.....	93
7.5.3.	Mobile Phone Connection and internet facilities	93
7.5.4.	Postal Services	93
7.6.	EMERGING PLANNING ISSUES	94
9	CHAPTER NINE: SOCIAL INFRASTRUCTURE	95
9.1	EDUCATION.....	95
9.1.1	Education Facilities.....	95
9.1.2	Land sizes of Education Institutions.....	96
9.1.3	Accessibilitlity to education facilities	98
9.2	HEALTH FACILITIES	99
9.2.1	Health Facilities.....	99
9.2.2	Health Concerns	101
9.3	Open spaces and Playgrounds	101
9.4	Administrative Facilities	102
9.5	Public Libraries.....	102
9.6	Cemeteries	102
9.7	Slaughter houses	102

9.8	Religious Facilities and Social Halls	102
9.9	EMERGING PLANNING ISSUES	104
10	CHAPTER TEN: ECONOMIC ANALYSIS	105
10.1	Introduction	105
10.2	AGRICULTURE.....	105
10.2.1	Livestock Production	105
10.2.2	Crop Cultivation	108
10.3	Manufacturing Industry	109
10.4	TRADE AND COMMERCE	110
10.5	Employment Generation by Non-Farm Sector	111
10.6	Revenue Collection in Githunguri.....	111
2.1	EMERGING PLANNING ISSUES	112
11	CHAPTER ELEVEN: GOVERNANCE AND INSTITUTIONS	114
11.1	Introduction	114
11.1.1	Existing Institutional Framework.....	114
11.2	National Government	115
11.2.1	Roles.....	115
11.2.2	Collaboration with NaMSIP	115
11.2.3	Financial Capacity	115
11.2.4	Challenges.....	115
11.3	County Government.....	115
11.3.1	Roles.....	115
11.3.2	Financial Capacity	116
11.3.3	Revenue Collection and Sources.....	117
11.4	Private Sector	117
11.4.1	Roles.....	117
11.5	Civil Societies.....	118
11.5.1	Roles.....	118
11.6	Emerging Issues and Opportunities.....	118
11.7	STAKEHOLDER PARTICIPATION.....	121
12	CHAPTER TWELVE: SYNTHESIS OF EMERGING PLANNING ISSUES	124
12.1.	OVERVIEW	124
12.2.	SWOT ANALYSIS	124
12.1	SUMMARY OF SYNTHESIS.....	127
12.1.1	Physiography.....	127
12.1.2	Population and demography.....	128
12.1.3	Land use analysis.....	128
12.1.4	Environment and natural resources	128
12.1.5	Urbanisation, Housing and Human Settlements.....	128
12.1.6	12.3.7 Physical Infrastructure	128
12.1.7	Social infrastructure.....	129
12.1.8	Economic	129
12.1.9	Governance and institutions.....	130
12.2	OPPORTUNITIES	130
12.3	CHALLENGES	131
	PART III: PLAN FORMULATION	132
13	CHAPTER THIRTEEN: TOWN DEVELOPMENT SCENARIO.....	133

13.1	INTRODUCTION.....	133
13.2	PLANNING CONSIDERATION	133
13.1.1.	The Development Vision for the Town.....	133
13.1.2.	The competitive edge of the town in the county	133
13.1.3.	Structuring Elements.....	133
13.3	Guiding Principles.....	134
13.4	SCENARIO BUILDING.....	135
13.4.1	Scenario one: Agro-Industrial model.....	135
13.4.2	Scenario Two: Growth Pole Model.....	136
13.4.3	Scenario three -Preferred Model : Integrated Model.....	137
14	14.0 CHAPTER FOURTEEN: STRATEGIES AND MEASURES	139
14.1	REVENUE, INVESTMENTS AND FINANCING STRATEGIES	139
14.1.1	Policy and Legal Provision Guiding County Revenue and Financial.....	139
14.2	ECONOMIC DEVELOPMENT STRATEGY	142
14.3	INFRASTRUCTURE AND UTILITY PROVISION STRATEGY.....	143
14.4	SUSTAINABLE URBANIZATION STRATEGY.....	143
14.5	ENVIRONMENTAL AND NATURAL RESOURCE CONSERVATION STRATEGY	143
15	CHAPTER FIFTEEN : GITHUNGURI STRATEGIC STRUCTURE PLAN	145
15.1	SPATIAL DEVELOPMENT PROPOSALS	145
15.1.1	Residential Land Use (0):.....	147
15.1.2	Industrial Land Use (1):.....	147
15.1.3	Education Land Use (2):	147
15.1.4	Recreation Land Use (3):	147
15.1.5	Other land uses Code (4_9):	147
15.2	ZONING PLAN	148
15.2.1	Githunguri Town proposed Zones.....	148
15.2.2	Zone Regulations.....	149
16	CHAPTER SIXTEEN : GITHUNGURI TOWN ACTION AREA PLAN	152
16.1	Overview	152
16.2	GITHUNGURI CBD	153
16.1.1	Land Use Activities	155
16.1.2	Major planning challenges.....	156
16.1.3	Proposed Interventions.....	156
16.2	DESIRED STATE	160
16.2.2	PROPOSED WATER AND SEWER RETICULATION SYSTEM.....	163
17	CHAPTER SEVENTEEN: PLAN IMPLEMENTATION	165
17.1.	IMPLEMENTATION MATRIX.....	165
17.2.	CAPITAL INVESTMENT PLAN.....	171
17.3.	MONITORING AND EVALUATION.....	177
18	ANNEXES	184

List of Maps

Map 1:National Context.....	11
Map 2: Githunguri Regional Context – Nairobi Metropolitan Region.....	12
Map 3:Githunguri Local Context	13
Map 5: Physical Development Plan 1976	15
Map 6: Githunguri Development Plan.....	15
Map 7:Digital Elevation Model.....	26
Map 8:Slope Analysis.....	26
Map 9:Slope as a Barrier for Development	27
Map 10: Githunguri soils	29
Map 11:Githunguri Town Hydrology	32
Map 12:Githunguri Vegetation Cover.....	33
Map 13:Githunguri Population Distribution.	39
Map 14: Land Sizes and Subdivision	49
Map 15:Existing Land Use Structure	50
Map 16:Environmentally Sensitive Areas	56
Map 17:Level of Service and Major Centres.....	65
Map 18:Githunguri Transportation.....	75
Map 19: Githunguri Sub-county Regional Linkages.....	78
Map 20:Location of Boreholes in the Planning Area.....	80
Map 21:Public Water Distribution	83
Map 22: Electricity Network	91
Map 23:Primary School Distribution	96
Map 24:Secondary Schools.....	97
Map 25:Accessibility Map of Primary Schools within 2km.....	98
Map 26:Accessibility Map of Secondary Schools within 3km	99
Map 27:Distribution of Health Facilities	100
Map 28:Githunguri Opportunity Map.....	130
Map 29:Githunguri Challenges Map	131
Map 30: Structuring Elements in Githunguri	134
Map 31:Growth Pole Strategy	137
Map 32:Githunguri Strategic Structure Plan.....	145
Map 33:Githunguri Town Zone Plan	148
Map 34:Action Area Plan.....	152
Map 35 Githunguri Action Area (Landuse Color)	152
Map 36:CBD and Major Linkages	154

List of Plates

plate 2: Commercial use (Githunguri Market)	50
plate 3 :Solid waste dumping on road reserve	57
plate 4: Cow dung dumping at a residential zone	57
plate 5:High density residential	59
plate 6:Formal and informal economic activities	60
Plate 7:Human settlement patterns.....	61
Plate 8: Housing typologies	66
Plate 9:Road conditions	76
Plate 10:Common modes of transport in Githunguri.....	77
Plate 11:Space contestation between different road users	79
Plate 12:Condition of storm water drainages	86
Plate 13:State of solid waste in the planning area.....	87
Plate 14:PCEA Githunguri Primary School.....	95
Plate 15:Health facility in Githunguri-Holy Family Catholic Mission Hospital.....	100
plate 16:Githunguri Stadium	102
Plate 17: Dairy farming and other agricultural activities.....	108
Plate 18:Factories	110
Plate 19:Business types in Githunguri Town	110
plate 20:C65 Street views	159
plate 21:Active frontage.....	160

List of Graphs

Graph 1:Vertical profiles	28
Graph 2: Rates of different rivers in Githunguri sub-county	31
Graph 3: Githunguri annual rainfall distribution	33
Graph 4:Githunguri annual temperature	34
Graph 5:Githunguri wind	35
Graph 6: Githunguri humidity.....	36
Graph 7: Githunguri population pyramind	41
Graph 8:Life expectancy	44
Graph 9:infant mortality rates	44
Graph 10:Human waste disposal in Kenya.....	85
Graph 11: Human waste disposal in Githunguri.....	85
Graph 12:Methods of waste disposal vs reasons why they are used.....	88
Graph 13: Challenges associated with solid waste disposal.....	88
Graph 14: Type of energy used for cooking.....	90

List of Figures

Figure 1:Planning methodology	16
Figure 2: Major ISUDP Institutional Actors.....	21
Figure 3: prevalent diseases in the county	43
Figure 4:Persons living with disabilities	46
Figure 5:Mode of land acquisition	48
Figure 6:Land Use Percentages.....	51
Figure 7: Development trend analysis	52
Figure 8:Housing typologies	66
Figure 9:Percentage of houses by wall material and floor material.....	67
Figure 9:Main source of water in the house holds.....	80
Figure 10:minimum water requirement in a household.....	82
Figure 11: Types of energy used for lighting.....	89
Figure 12:Livestock production in the year 2016.2017 and 2018	106
Figure 13:Livestock output in 2018	107
Figure 14:Challenges facing tea farming.....	109
Figure 15:Institutional actors.....	114
Figure 16:Githunguri revenue streams	117
Figure 17:Proposed	153
Figure 18:Githunguri CBD street structure.....	155
Figure 19:Proposed market plan	157
Figure 20:Proposed Buspark Plan	158
Figure 21:Githunguri market in future	160
Figure 22:Bus terminus.....	161
Figure 23: Githunguri street environment.....	161
Figure 24:Urban Greenery on major mtreets	162
Figure 25:Best NMT Integration in India	163

List of Tables

Table 1: Neighbouring towns	13
Table 2: Institution Responsibilities on ISUDP Framework.....	22
Table 3: Geology, soil and engineering properties	28
Table 4: Githunguri Annual Temperature Distribution	34
Table 5: Emerging issues on physiographic characteristics	37
Table 6: Population Size	38
Table 7: Kiambu County Population Structure.....	39
Table 8: Gender Population projection.....	42
Table 9: Population density projection	42
Table 10: Ward population density	42
Table 11: Employment and education levels.....	45
Table 12: Emerging issues on demographic characteristics.....	46
Table 13: Plot sizes in the planning.....	49
Table 14: Land values for specific areas in Githunguri.....	53
Table 15: Githunguri planning area Land Use Projection	53
Table 16: Emerging issues on land.....	55
Table 17: Emerging Issues on Environment.....	57
Table 18: Name of centres and their hierarchies	63
Table 19: level of service per centre.....	64
Table 20: Emerging Issues on Housing and Human Settlements.....	67
Table 21: Githunguri Major Roads	75
Table 22: Human waste disposal in urban and rural areas.....	84
Table 23: Liquid waste disposal in Githunguri.....	85
Table 24: Flood masts and High masts.....	92
Table 25: Emerging issues on physical infrastructure.....	94
Table 26: Primary schools area.....	96
Table 27: Enrolment.....	97
Table 28: Ownership and types of health facilities	101
Table 29: Summary of other social infrastructure.....	103
Table 30: Emerging issues on social infrastructure	104
Table 31: Amount of milk processed daily	107
Table 32: Total income generated from tea in Githunguri.....	109
Table 33: Employment created by non-farm actors.....	111
Table 34: Revenue Collection in Githunguri.....	111
Table 35: Emerging issues on economy.....	112
Table 36: Revenues in Githunguri Sub County	116

Table 37: Opportunities and challenges (governance)	118
Table 38: Outcomes of stakeholder meeting: Environment issues	121
Table 39: Outcomes of stakeholder meeting: Governance issues	121
Table 40: Outcomes of stakeholder meeting: Physical Infrastructure	121
Table 41: Outcomes of stakeholder meeting: Social Infrastructure	122
Table 42: Outcomes of stakeholder meeting: Land Economics	123
Table 43: Sectoral Swot Analysis:	124
Table 44: Structure Plan Table	146
Table 45: Githunguri Town Proposed Zone Regulation	149
Table 46: Implementation Matrix	165
Table 47: Capital Investment Plan	171
Table 48: Githunguri IUSDP Monitoring and Evaluation Framework	179
Table 49: Githunguri USIDP Monitoring and Evaluation Framework	185

LIST OF ACRONYMS

CBD	Central Business District
DURP	Department of Urban and Regional Planning
EMCA	Environment Management and Coordination Act
GoK	Government of Kenya
ISUP	Integrated Strategic Urban Plan
ISUDP	Integrated Strategic County Development Plan
KeNHA	Kenya National Highway Authority
KeRRA	Kenya Rural Roads Authority
KFS	Kenya Forest Service
KURA	Kenya Urban Roads Authority
KWS	Kenya Wildlife Service
MDGs	Millennium Development Goals
MTIH&UD	Ministry of Transport, Infrastructure, Housing and Urban Development
NMED	Nairobi Metropolitan Development
NaMSIP	Nairobi Metropolitan Services Improvement Project
NEMA	National Environment Management Authority
NGOs	Non-Governmental Organizations
NMR	Nairobi Metropolitan Region
NMT	Non-Motorized Transport
PDO	Project Development Objective
SEA	Strategic Environmental Assessment
SWMA	Solid Waste Management Authority
WRMA	Water Resources Management Authority
WSPs	Water Services Providers
WSS	Water and Sanitation Services

GLOSSARY OF TERMS

Corridors: A corridor is a linear strip of land or area, connecting large activity nodes, traversing urban or inter-urban areas, surrounding a major transport facility or facilities providing an appropriate regional level of mobility and accessibility to adjacent areas. It constitutes a high concentration of population and mixed land uses” and “... accommodate major linear transport routes like heavy and light rail and/or freeways, large shopping concentrations, etc., social, cultural and sporting facilities as well as a large amount of residential accommodation”.

Density: The number of units per unit of land area, e.g. dwelling units/ hectare. There are five measures of density:

Population density: people / hectare.

Gross dwelling unit density: dwelling units / total land area of a project or suburb including roads, public open space and non-residential land uses.

Net dwelling unit density: dwelling units/land occupied by residential plots only.

Building density: area of buildings/hectare.

Settlement density: (dwelling units / total land occupied by settlement) also known as average gross dwelling unit density.

Densification: Densification is the increased use of space both horizontally and vertically within existing areas/ properties and new developments, accompanied by an increased number of units and/or population threshold.

Efficiency: Development that maximises development goals such as sustainability, integration, accessibility, affordability, and quality of living, relative to financial, environmental, and social costs, including on-going and future costs.

Infill Development: Development of vacant or underutilised land within existing settlements to optimise the use of infrastructure, increase urban densities and promote integration.

Kernel density calculates the density of features in a neighbourhood around those features. The result is a smooth surface indicating the intensity of an attribute (buildings, schools, settlement, social facilities, etc.) over the study area.

Land Use Management: Establishing or implementing any measure to regulate the use or a change in the form or function of land and includes land development.

Land Use Management System: A system used to regulate land use, including a town planning or zoning scheme, or policies related to how land is used on a plot-by-plot basis.

Nodes: Nodes are focused areas where a higher intensity of land uses, and activities are supported and promoted. Typically, any given area would accommodate a hierarchy of nodes that indicates the relative intensity of development anticipated for the various nodes, their varying sizes, and their dominant nature.

Spatial Planning: Planning of the way in which different activities, land uses, and buildings are located in relation to each other, in terms of distance between them, proximity to each other and the way in which spatial considerations influence and are influenced by economic, social, political, infrastructural and environmental considerations.

Spatial Development Framework: A Spatial Development Framework (SDF) is a core instrument in spatially expressing the economic, sectoral, social, institutional, environmental vision. In other words, it is a tool for moving towards a desired spatial form for the planning area.

Sector Plans: This refers to plans for different functions such as biodiversity conservation, housing, transport, local economic development and disaster management. They may also be geographically based, for example, a sub-region, settlement within an area or a component of that settlement.

Stakeholders: Agencies, organisations, groups or individuals who have a direct or indirect interest in a development intervention or its evaluation.

Urban–rural transect (continuum): A cut or a path, a gradient or a geographical cross section of a region that can be used to reveal a sequence of environments.

Urban Edge: The urban edge is defined as an indicative boundary within the planning area with the sole purpose of containing physical development and sprawl and re-directing growth towards a more integrated, compact and efficient urban form.

Zoning Scheme: A legal instrument for regulating the use of land regarding county or national legislation (see Land Use Management System.)



GOVERNMENT
OF KENYA



COUNTY GOVERNMENT
OF KIAMBU

PART I: INTRODUCTION & PLANNING CONTEXT

1 CHAPTER ONE: INTRODUCTION

1.0. BACKGROUND

Kenya has a total population of 47.6 Million according to the 2019 Kenya Population and Housing Census, ranking at twenty seventh (27th) in the world and estimated to be growing at an annual average rate of three (3) per cent. Kenya's Constitution guarantees people freedom of movement, which has over the years spurred a high rate of rural to urban migration resulting in rapid urbanization, with the proportion of urban population to the total population estimated at twelve million representing approximately 31.8 per cent of the population. This rapid urbanization, estimated to be growing at a rate of 4.4 per cent, coupled with deterioration of institutional and physical infrastructure and poor urban planning has hindered adequate provision of critical civic services and facilities, e.g. sanitation, water supply, infrastructure and housing in Kenyan cities and urban centres. As a result, Kenyan urban centres are characterised with proliferation of slums and informal settlements; constrained mobility; inadequate water supply; illegal dumping and exposed wastewater due to poor provision of sanitation infrastructure and services among other urban challenges. Furthermore Kenya is still grappling with increasing incidences of poverty and unemployment with an estimated 14.2 million people (29.2 per cent) in Kenya living in extreme poverty (World Bank, 2018) and cannot access basic needs.

Most urban growth in Kenya has occurred during the last two decades and notably, very few urban centres, have up to date approved physical development plans to guide sustainable urban growth. Indeed, most of the existing physical development plans are out dated plans prepared in the 1960/70s and very few of them have been revised to cope with the rapid urban growth. Furthermore, the urban growth in most urban centres in Kenya has occurred mainly outside the planned areas leading to massive growth of informal settlement in most urban centres. Kenya exhibits poor plan implementation systems which has stifled proper urban planning and as a result caused inefficient provision of infrastructure and services especially in urban areas. The various strategies used by the government to manage urban development have largely failed and there is need to rethink urban planning and development strategies to arrest the inevitable crises that are likely to result from the uncontrolled urban growth and increased demand for civic infrastructural utilities and services.

The promulgation of the Constitution of Kenya, 2010 (CoK) ushered a fundamental paradigm shift in governance in Kenya and raised expectations of the Kenyan people as it specifically addresses longstanding historical, geographic, demographic and human rights violations that have hindered progressive development. It introduced devolution which saw the creation of the 47 counties and vested substantial power and authority on governance to the newly created County Governments which came into existence after the general elections held in March 2013. Through devolution the CoK established two levels of government and divided the planning function between these levels, i.e. national and county levels. It makes great demands on development planning as a means of delivering sustainable and productive management of land resources and allows the state to regulate use of any land and property (Article 66) in the interest of land use planning among others. It further places governance and public affairs management in the hands of the people at the county and local level which is best guided by the approved Integrated Urban Development Plans of respective urban centres in the counties. Every county government is constitutionally required to prepare and approve an integrated urban development plan for every settlement with a population of at least two thousand residents. The integrated Strategic Urban Development Plan (ISUDP) shall promote social and economic development and the provision of proximate, easily accessible services as well as contribute to the protection and promotion of the fundamental rights and freedoms contained in the CoK and the progressive realization of the socio-economic rights. The ISUDP is expected to nurture and promote development of informal commercial activities in an orderly and sustainable manner and provide a framework for regulated urban agriculture. In addition, the ISUDP shall bind, guide and inform all planning development and decisions in the respective urban centres and ensure comprehensive inclusion of all urban functions.

An **Integrated Strategic Urban Development Plan (ISUDP)** is an integrated development framework giving a spatial depiction of the social and economic development programme of an urban area. ISUDP is provided for in section 111(2) of the County Governments Act, 2012 (CGA) which stipulates it is an instrument for development facilitation and development control within the respective urban centre. ISUDPs are meant to guarantee optimal use of land to achieve sustainable development by addressing development challenges and exploiting opportunities in key areas that have spatial dimension and should be reviewed every five years. ISUDP

should develop strategies, proposals, programmes as well as standards and regulations to enhance efficiency and equity, inclusivity and sustainable development.

An Integrated Strategic Urban Development plans (ISUDP) identifies urban functional spaces in an integrated way, and considers how land-use, transportation planning, infrastructure and services provision must be coordinated to contribute to a competitive, economically robust, socially liveable, and sustainable urban centres, that guarantees a peoples welfare, ensures prosperity in their livelihoods and stimulates community development while safeguarding environmental and natural assets.

Urban planning is integrated and strategic in nature, the primary focus being to structurally position an urban centre for growth and competitiveness within a broader county and regional setting. It provides strategies for a land use management system and capital investment framework including an assessment of the environmental impact of the spatial development framework. Planning and development measures are intended to convey a negotiated vision or consensually agreed perspective towards an urban area's growth aspirations in spatial terms. Consequently, the plan has an inherent flexibility allowing for continual discussion and reformulation as and when realities portend.

This document presents the **Githunguri Town Integrated Strategic Urban Development Plan, 2019-2029** (G-ISUDP). The plan was prepared with the assistance of ALPEX Consulting Africa Ltd (ACAL) and BC Gildenhuys & Associates under a contract agreement issued on 24th June, 2014 with the Government of Kenya (GOK) through the then Ministry of Land, Housing and Urban Development. The consultants were supervised by the Nairobi Municipal Services Improvement Programme (NaMSIP) officers in the Nairobi Metropolitan Development (NMED) section of the then Ministry of Land, Housing and Urban Development. In undertaking the assignment, the Consultants worked very closely with the Country Government of Kiambu, relevant National Agencies and Authorities and ensured full participation of all key Githunguri town stakeholders.

1.1. PURPOSE OF THE PLAN

The Githunguri town Integrated Strategic Urban Development Plan, is a GIS-based development framework that shall guarantee public participation in the planning process, facilitate more rational decision-making by policy makers and promote information flow to the public and key stakeholders thereby promoting good governance and progressive investment in Githunguri town.

The ISUDP shall contain strategies, proposals and programmes intended to achieve the desired vision of an urban area through an integrated spatial development framework as set out in Section 36 (1) of the Urban Areas and Cities Act, (UACA). Section 36 (1) of UACA further states that ISUDP shall be basis for development control; preparation of environmental management plans; preparation of valuation rolls for property taxation; provision of physical and social infrastructure and transportation; preparation of annual strategic plans for an urban area; disaster preparedness and response; and overall delivery of service including provision of water, electricity, health, telecommunications and solid waste management.

The purpose of this Plan, therefore, is to:

- a) Provide an overall strategic and integrated spatial framework for the location and function of development and the resultant urban growth within Githunguri town;
- b) Provide a basis for coordinated programming of development projects and budgeting within Githunguri town, thereby serving as a downstream management tool guiding public and private investment on key urban infrastructural projects and programmes.
- c) Provide a framework to guide infrastructural development and service provision within Githunguri town and revitalize housing, industries, trade and commerce to spur economic development;
- d) Provide development guidance based on optimum location and nature of development within Githunguri town and enhance environmental protection and conservation and;
- e) Indicate anticipated patterns of land use and set out basic standards and guidelines for a land use management system designating desirable urban settlements, functional spaces and management of natural resources within Githunguri town.

1.2. PLANNING CHALLENGES

The lack of an Integrated Development Plan for Githunguri town has hampered harmonious and coordinated development of the town and led to some key problems manifesting in the town. The Planning challenges facing Githunguri town as at the time of preparing this Plan include, but are not limited to the following:

- a) Lack of an up to date plan integrated enough to guide overall development of the town;
- b) Unplanned and uncoordinated urban growth;
- c) Inadequate serviced land to accommodate urban growth;
- d) Inadequate housing provision and dilapidated public amenities, e.g. schools, health centers, recreational grounds, parking areas, police and justice provision;
- e) Poor infrastructure provision, especially roads, water reticulation, drainage and storm water management system;
- f) Poor solid waste management;
- g) Urban poverty and un-employment catalyzed through influx, immigration, and declining employment opportunities;
- h) Un-coordinated sub-divisions of land;
- i) Poor governance, weak public institutions and inadequate financial and technical capacity to undertake planning and development control;
- j) Narrow roads hampering effective accessibility and movement.
- k) Inadequate promotion of tourism, culture and natural resources as revenue enhancers; and
- l) Inadequate Disaster preparedness and lack of a Disaster Management Plan.

1.3. GOALS AND OBJECTIVES

The main objective of the Githunguri town Integrated Strategic Urban Development Plan (G-ISUDP) is **to provide an overall Urban Integrated Development framework for Githunguri town**. Though the Plan will have a 10-year time-horizon, it shall provide a basis for long-term sustainable development within Githunguri town.

The specific objectives of the Plan include:

- **To identify development constraints, potentials and challenges of Githunguri town** (social, economic, infrastructure and environmental profiling) and propose strategies to address them;
- **To identify environmental issues and propose strategies for effective environmental management** including, amongst others, climate change adaptation and disaster risk reduction and management measures;
- **To prepare an Integrated Strategic Urban Development Plan**, showing current and proposed land use, growth in trade and investments, infrastructure and utilities improvements (such as transport, water, sewerage disposal, solid waste management etc.), enhanced social services (such as education, health, housing, etc.), and safeguarding of cultural and environmental assets;
- **To provide a basis for development control and investment decisions** through the prepared short, medium term plans to guide compact urban development, including action area plans, advisory or zoning plans and regulations and other reference materials.

1.4. VISION STATEMENT

The Vision Statement guiding this plan is:

TO BE A LEADING SERVICE CENTRE THAT PROMOTES VALUE ADDITION IN AGRICULTURAL PRODUCTS

1.5. MISSION STATEMENT

The Mission of this plan is to:

TO TRANSFORM LIVELIHOODS OF THE PEOPLE OF GITHUNGURI THROUGH PROMOTION OF INNOVATIONS IN VALUE ADDITION PROCESSES FOR AGRICULTURAL PRODUCE AND CREATION OF ENABLING ENVIRONMENT FOR AGRIBUSINESS.

1.6. SCOPE OF THE PLAN

The Githunguri town Integrated Strategic Urban Development Plan (G-ISUDP) covers a detailed analysis of the sectoral and spatial structure of the entire planning area of Githunguri town consisting of three electoral wards, namely; Githunguri, Ngewa and Githiga wards measuring approximately 9.5 Km²

The Plan is a medium term spatial urban development framework with a planning horizon of ten (10) years from 2019-2030 and shall be subject to five (5) year reviews. It appraises the current situation in the town highlighting the sectoral and thematic constraints manifesting in the town that inhibit the economic vibrancy, environmentally sustainability and community development in the town. It also assesses the potentials and opportunities inherent in the town and covers the key planning and development challenges experienced in the town and propose robust strategies with pragmatic sectoral programmes and investments to solve the identified constraints. The plan analyses these relevant factors and generates significant development concepts and specific yet detailed sectoral programs and investment proposals for Githunguri town which shall be used to guide the future growth of the Town.

The Plan offers the Integrated Strategic Urban Development Plan (ISUDP) for Githunguri town that depicts all existing physical features, spatially illustrates development projects in the town and guides physical development activities in Githunguri town. It aims to address pertinent issues such as human settlement patterns, urban development, utilisation of natural resources, transport and infrastructural development and attracting suitable investment in Githunguri town. The Plan aims to comply with the strategies, policies and objectives of the Vision 2030, the National Spatial Plan (NSP), the Metro 2030 Strategy, the Metropolitan Spatial Plan, and complement the programmes identified in the Kiambu County Spatial Plan (underway). It shall also seek to mainstream contemporary issues of Climate Change Adaptation, Disaster Risk Reduction, utilisation of Green Renewable Energy and gender parity.

The Plan purposes to facilitate its full implementation and therefore includes a comprehensive plan implementation framework detailing realistic programmes, their respective estimated costs and time frames and appropriately matched with institutional responsibility with an applicable Monitoring and Evaluation (M&E) framework for implementing the proposed programmes and investments.

1.7. DELIVERABLES OF THE PLAN

The significant output of this assignment is the Githunguri town Integrated Strategic Urban Development Plan (G-ISUDP) that provides the structural blueprint guiding development of Githunguri town. The (G-ISUDP) was prepared in various complementing phases which generated the following outputs:

1. A situational analysis of the current socio-economic, physical, environmental and cultural characteristics of Githunguri Town;
2. A Base map
3. An appropriate and widely accepted vision stating the desired growth and development of Githunguri town;
4. Vital Githunguri town sector development strategies including Transportation Strategy, Infrastructure and Services Development Strategy, Environmental and Resource Management and Protection Strategy, Human Settlement Strategy, Economic Development Strategy and Agricultural Development Strategy;
5. A comprehensive town Spatial Development Framework depicting specific land uses—structure plan and zoning standards and regulations; and
6. A Capital Investment Plan CIP and a practical Implementation Matrix with investment strategies and financing/ revenue enhancement strategies and associated realistic costs and responsibilities for implementation of agreed sector wise prioritized programs.
7. Monitoring and evaluation plan

1.8. TERMS OF REFERENCE

The Terms of Reference (ToR) to this project give a background of the Nairobi Metropolitan Service Improvement Project (NaMSIP) as an initiative of the Kenya Government with the support of the World Bank under the Country Partnership Strategy (CPS). It notes that NaMSIP is intended to improve services in the metropolitan area which are critical for economic development, which include: solid waste management,

transport systems, storm water management, water supply and sanitation, disaster management, security/street lighting etc. In addition, the implementation of the project will give the national Directorate of Nairobi Metropolitan Development an opportunity to build its human resource and technical capacity in carrying out metropolitan wide activities.

The ToR describe the problem statement facing the Nairobi Metro region noting the main challenge in the region being rapid population growth, against a skewed rural urban development in favour of urban areas which are experiencing rapid growth and development that is unplanned, uncoordinated and uncontrolled. It highlights the purpose, objectives of preparing the Integrated Urban Strategic Development Plans (ISUDPs) to addressing the identified urban challenges and gives the scope and tasks in preparing the ISUDPs.

The ToR recommends key principles and strategies in developing relevant ISUDPs giving clear achievements and outputs expected from the planning process. It requires the presentation of a detailed work plan to be agreed by the client tasking the Consultant to submit relevant progress and planning reports within agreed timelines and while highlighting services to be provided by the client to ensure successful completion of the planning process.

1.9. ORGANIZATION OF THE PLAN

The **Githunguri town Integrated Strategic Urban Development Plan (G-ISUDP)** consists of narrative and graphical interpretations of the contextual aspects as well as the existing character and proposed spatial structure of Githunguri Town. It is hereby presented in four (4) parts that rationalise a logical flow of chapters as follows: -

Part I: INTRODUCTORY AND PLANNING CONTEXT which explains the Terms of Reference and highlights the background and Vision of the Plan; It incorporates

Chapter One: Background which is concluded under this sub-section and covers the purpose of the plan, Planning challenges in the Town, objectives and scope and the expected deliverables of the plan, and the organisational structure that presents the plan .

Chapter Two: Planning Context which describes the National, Regional and Local context of Githunguri Town, the policy and legal framework guiding the G-ISUDP process, provides linkages to other relevant plans and previous planning interventions in the town and explains the methodology and approach employed in preparing the G-ISUDP.

Part II: SITUATIONAL ANALYSIS of the existing situation in Githunguri Town highlighting the existing spatial structure and sector-based thematic constraints in the Town that inhibit the development of a vibrant and environmentally sustainable Town. In each of the chapter a summary of the emerging issues is provided. This is expounded in

Chapters Three - Physiographic characteristics including details on Topography, Geology and Soils, Hydrology and Drainage, Vegetation and climate.

Chapters Four - Population and Demography with emphasis on Population structure, demographic characteristics and social analysis

Chapters Five- Land use analysis this looks in depth the following issues land tenure, land use patterns, projected land use, land administration and management requirement, land administration and management, land administration and management, land availability and suitability

Chapters six- Environment and Natural resources, examining aspects of natural resources, urban greenery and open spaces, ecological sensitive areas, climate change and disaster management and waste management environmental issues

Chapters seven- Urbanization, Housing and Human settlements, this chapter examines patterns and trends of human settlements, delineation of urban edge and discusses the formal settlements and informality.

Chapters Eight- Physical Infrastructure the chapter discusses the following infrastructure aspects, transportation, water sources, supply and demands, waste management and sanitation, energy sources, information, communication and technology.

Chapters Nine-Social Infrastructure, the chapter discusses the following education, and health facilities other social infrastructure discussed includes recreation facilities administrative facilities, cemeteries, slaughterhouses religious facilities and social halls and libraries

Chapter Ten -Economic analysis the chapter discusses trade and commerce, agriculture and industries as the economic drivers of Githunguri town.

Chapter Eleven -Governance and Institutions, this chapter examines the administrative structure, urban management and stakeholder participation in the planning process for the Githunguri Town.

Chapter Twelve this chapter presents a synthesis of emerging issues.

Part III: PLAN FORMULATION which discusses the Githunguri Town Integrated Strategic Urban Development Plan formulation based on spatial and sectoral development strategies and measures, it includes

Chapter Thirteen: Development Models and scenarios which examine four alternative development scenarios in the context of their effects on resources and socio-economic interplay and prescribe a preferred development scenario.

Chapter Fourteen presents the proposed Githunguri Town Strategic Structure Plan based on stakeholders' concerns and vision, Zoning Plan and its explanatory Zoning Regulations table as well as relevant Area Action Plans.

Chapter Fifteen -Strategies and Measures explains strategies and measures which includes Economic development strategy, Infrastructure and utility provision strategy, Sustainable urbanization strategy, Environmental and Natural resource and conservation strategy.

PART IV: PLAN IMPLEMENTATION STRATEGY which presents the Plan implementation framework including its Monitoring and Evaluation.

Chapter sixteen provides the sectoral implementation matrix detailing proposed projects, timeline, and identifies specific responsible to implement the proposed projects as well as prescribing monitoring and evaluation tools and indicators.

Annexes: Annexes: cover, among other things,

- i. Annex 1: The Notice of intention to plan;
- ii. Annex 2 and 3 lists of stakeholders who attended the 1st stakeholders meetings in Githunguri;

2 CHAPTER TWO: PLANNING CONTEXT

2.1. HISTORICAL BACKGROUND

Githunguri area was for long time known for its potential in production of the coffee and tea in colonial times. This attracted high population in the area to work in coffee and tea farms for the then white settler's farms since 1902. According to Wafula (2009) in an article in *Kenya Standard Newspaper* dated May 29, the town came to prominence in 1930 after selection as site for the then "The Kenya African Teachers College" to cater for the higher education needs of people who missed admissions in the exclusive mission schools like Mang'u and Alliance in the struggle for independence.

In 1961, 31 daily farmers formed a cooperative for collection and marketing of milk. Since then the cooperative expanded and dominated the East Africa markets. The unique brand of "Freshar" milk has put Githunguri in the limelight of investors and consumers of milk products.

The designation of Githunguri as headquarters of the former Githunguri district in 2009 made it attain administrative status which is a growth factor up to date.

JOMO KENYATA RESIDENCE

An old roof of faded red Bangalore tiles and cracks on the floor and walls are the only signs that betray the age of this 70-year-old house that is shielded on one side by an overgrown bougainvillea hedge. The age of the simple house that blends inconspicuously among others at the new Githunguri Sub County headquarters and what treasured secrets of Kenya's Independence history it harbours are among the issues many grapple with.

The house, which has become part of the infrastructure of the new sub county headquarters, was once the residence of Kenya's first president, the late Mzee Jomo Kenyatta. It was part of the former Kenya Teachers College Githunguri where Kenyatta became an administrator in 1946 after he returned from a sojourn in London.

The college principal then was Kenyatta's right hand man, the late Mbiyu Koinange who lived in another bigger house of similar design in the same compound. It was while living in this house; in 1951 that Kenyatta met and married his fourth wife Mama Ngina Kenyatta. From this house, Kenyatta went round the country encouraging Kenyans to work hard while campaigning for the return of land given to white settlers.

The teachers' college was run by a group of independent schools, established then to cater for students who could not get a chance for further education in the colonial government schools. The teaching-cum-political colleagues used the college to host members of the KCA and later Kenya African Union into their houses for night meetings for the then fledgling liberation movement.

Indeed, it is believed that it was here that the aggressive agitation that emboldened the freedom fighters in the build-up to the peak of the struggle in 1952 was fanned by plots hatched in Kenyatta's house. Apart from hosting local leaders, they also welcomed pan-African leaders for meetings to discuss the liberation of other African countries. Evidence of visits by Pan-African leaders is rooted in giant trees that they planted on their visits.

Some of the recognisable trees include a drooping cypress planted by Julius Nyerere, a bushy Muiri planted by Kwameh Nkurumah and a rotund, rugged blue gum planted by Kabaka Mutesa. All the seedlings were planted in 1949 in different parts of the 58-acre college compound.

A visit into Kenyatta's two-bed-roomed house and the sprawling compound of the former college is like a flip back into a part of the founding president's life that is little documented. The house's sitting room features a huge, black, solid safe whose door is said never to have been opened since Kenyatta was arrested in 1952 when a state of emergency was declared at the peak of the Mau Mau struggle.

The National Museums of Kenya (NMK) has gazetted the houses as part of national heritage.

2.2. GEOGRAPHIC LOCATION AND SIZE

Githunguri town is the administrative headquarters of Githunguri Sub-County which is located at the centre of the popular Kiambu County. The middle point of the town lies at a latitude 1° 03' south of the equator and Longitude 36° 47' East of Prime meridian at an average elevation of 1980 meters above the sea level. The town is

located 15 Kilometres Northwest of Kiambu town (Kiambu County headquarters) The Planning area covers approx. 9.5 km²

2.3. NATIONAL CONTEXT

Githunguri town is located within Kiambu County in the northern part of the Nairobi metropolitan region as seen in Map 1 Kiambu County borders Nairobi and Kajiado Counties to the South, Machakos County to the East, Murang'a County to the North and North East, Nyandarua County to the North West, and Nakuru County to the West.

Githunguri town is 25 kilometres from the nation's capital (Nairobi) on a direct target. It is linked to Nairobi city through Kiambu town. Githunguri town provides a connection point to the A2 Road—Thika Super Highway—at 23km through road C63 exiting from the super highway at Ruiru. It also connects to the road a104-Nakuru highway at 16 km exiting to the Highway at Uplands.

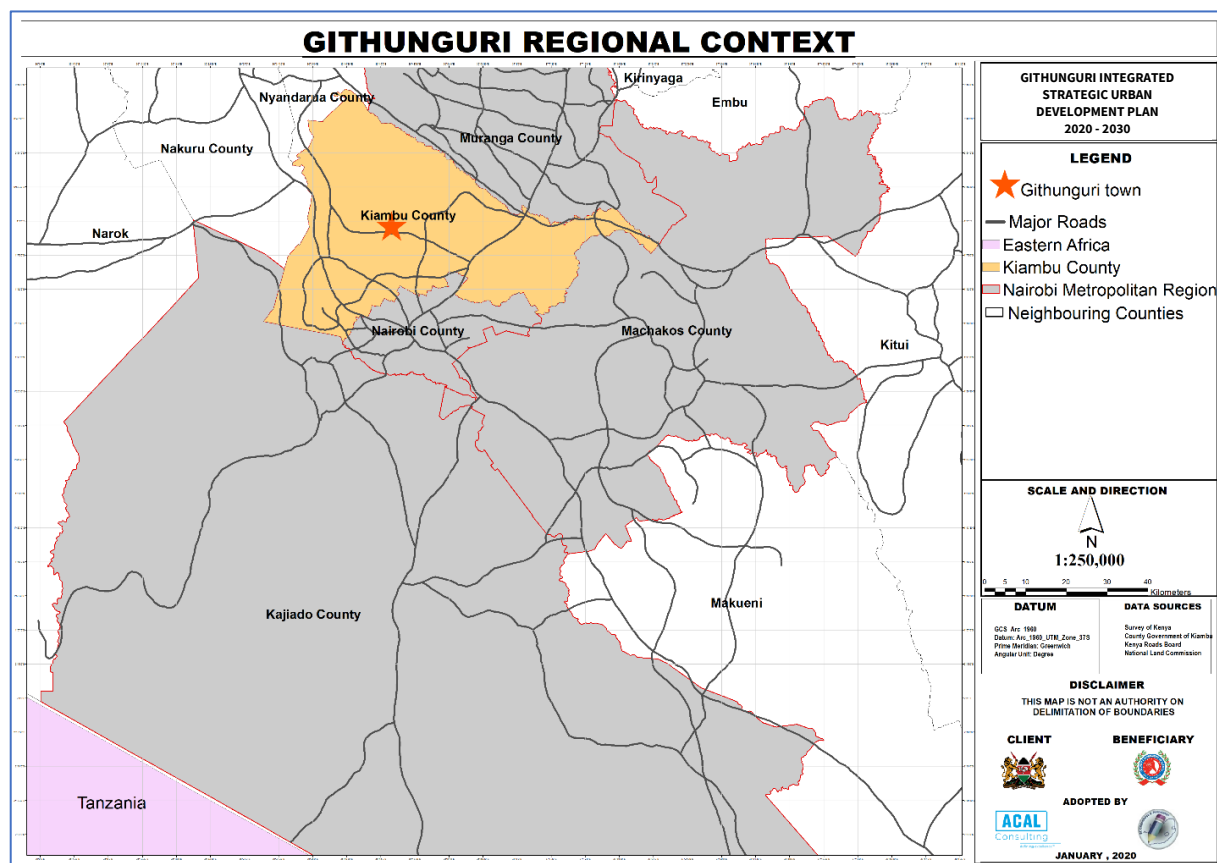


Map 1: National Context

(Acal and BC Gildenhuys & associates 2020)

2.4. REGIONAL CONTEXT

The Nairobi Metropolitan region comprises various local authorities grouped in the four categories including, The metro Core Nairobi; The Northern Metro; The Southern; and The Eastern Metro. Githunguri town is one of the major Urban Centre in the northern metro of the Nairobi metropolitan region. The northern metro is comprised of, Municipal Council of Kiambu, Municipal Council of Limuru, the Municipal Council of Limuru; the Municipal Council of Ruiru; the Municipal Council of Thika, Town Council of Karuri; Town Council of Kikuyu; and County Council of Kiambu. The town provides a connection to Limuru, Kikuyu, Kiambu Ruiru and Thika towns through the major roads outlined above. The furthest in the northern metro being Thika at a straight distance of 33km while the nearest being Limuru at a distance of 14km while in the entire region, Kajado town is the furthest at 83km .



Map 2: Githunguri Regional Context – Nairobi Metropolitan Region.

(Source: Acal and BC Gildenhuys & associates 2020)

2.5. LOCAL CONTEXT

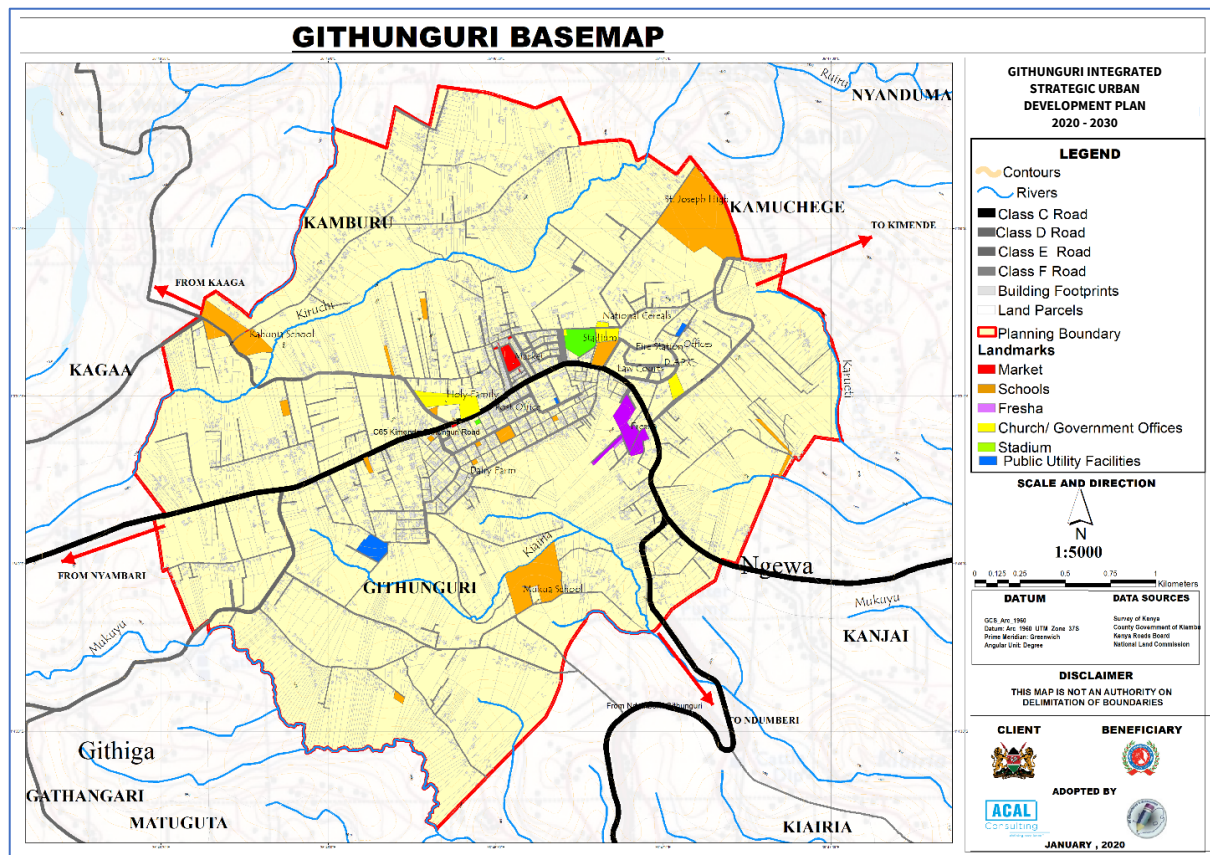
Githunguri town is within three county assembly wards in Githunguri sub-county. These are Githunguri, Ngewa and Githiga Wards. Administratively, Githunguri Sub-county borders Gatundu South, Lari, Limuru, Kiambaa, Ruiru and Juja sub-counties. This indicates that it is centrally located in the county. Githunguri town is surrounded by four main rural centres at a close proximate distance on all four main directions. These mostly depend on Githunguri for major commercial services. The table 1 shows the key rural centres, distances and direction from Githunguri town.

Town/Settlement	Distance	Direction
Uplands	9 km	West
Gatwamba	10 km	North-West
Kiratina	6 km	East
Karia	6 km	South-East

[illegible]

(Source: Acal and BC Gildenhuys & associates 2020)

The planning area is located along the Ruiru-Kimende, C65 road. The planning area covers the core of the Githunguri town and spans a radius of approximately 1.5 km from the junction of Gathiga Githunguri road and the C65 road. Along the East West direction the planning boundary is 650 m from the junction of The total planning area is and Kimende-Githunguri Road and Gathiga Githunguri road and 375 m from the junction of Kiambu-Githunguri and Ruiru-Githunguri Road. L Major land marks in the planning area includes the CBD, St. Joseph high School, AIPCEA Ngochi Church, Kahunira primary and secondary schools, Mary immaculate catholic church, Mukua secondary school and Wanjo academy. Additionally, as part of natural landmark, the area is also traversed by River Kiruchi and source of River Kiaria.



Map 4: Base map

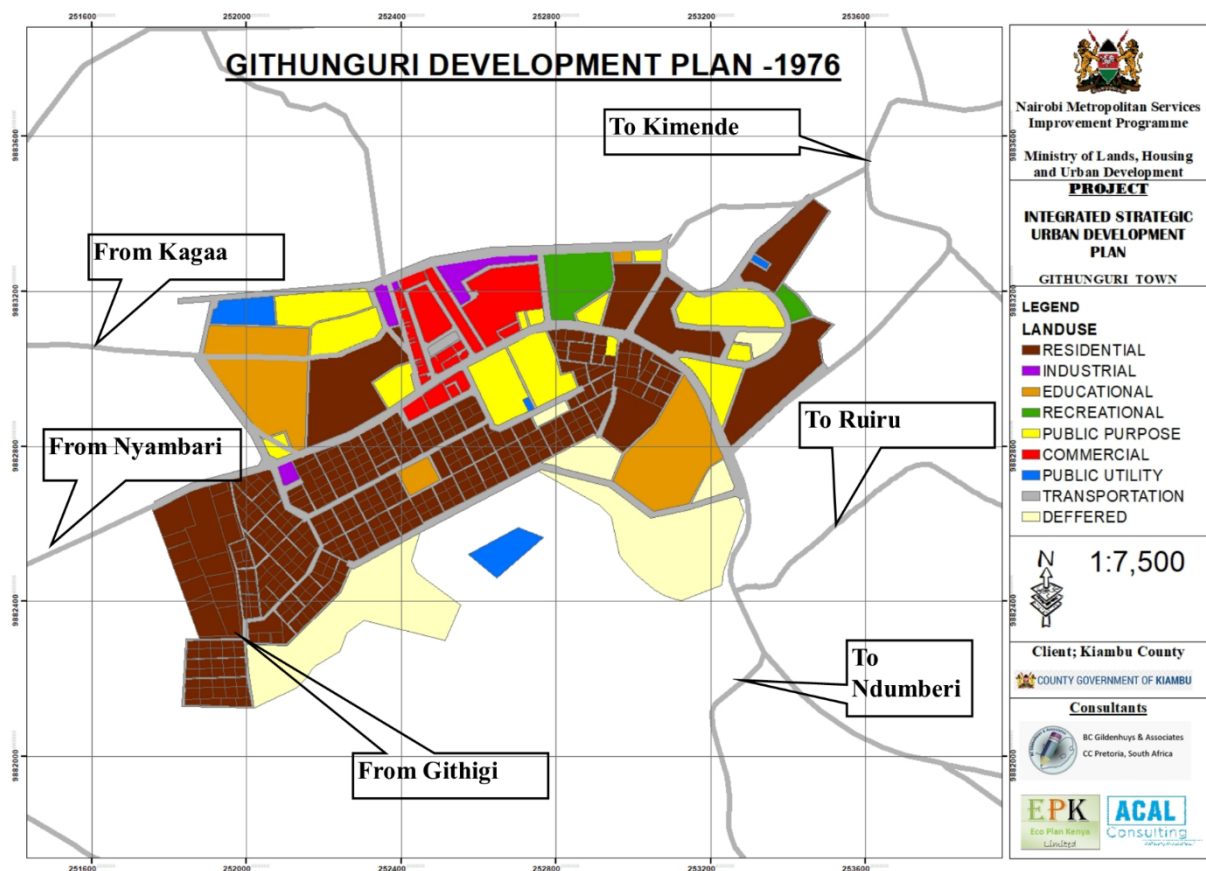
(Source: Acal and BC Gildenhuys & associates 2020)

2.7. PREVIOUS PLANNING INTERVENTIONS

Despite the fact that Githunguri town has existed for long since colonial times, there is only one attempt to prepare plan that guides development. The first and the only approved plan in the history of the town was prepared in 1976. The plan was obtained from national directorate of physical planning and it covered an area of approximately 3km². The plan made adequate provision for the various conventional land uses including residential, commercial and public purposes among others for the population. At the time it formed a sound development framework which provided the basis of planning till to date. The plan also set aside land for future development to take care of future populations. Being a short term plan the implementation of the plan was paramount within the life of the plan, despite the plan being approved the implementation of the same was hampered which has resulted in conversion of some of the intended land use to others especially on the proposed public purposes. Since then it has never been revised. The plan covered covered the area that is nearly 40% of the current planning area. 42 years later the plan has not been updated, challenges of urbanisation have not spared Githunguri, evolution of the urban area into a service centre and dairy farming activities in Githunguri has greatly affected the spatial planning orientation of Githunguri town. Planning for Agro industries, increasing population, demand for services indicate a dire need for planning of the Githunguri town. The map 4 shows the 1976 local Physical Development Plan.



Map 4: Physical Development Plan 1976



Map 5: Githunguri Development Plan

Source: Department of physical planning Kiambu County

2.8. PLANNING METHODOLOGY

In undertaking this assignment, the team adopted an integrated and inclusive approach that would yield a relevant, effective and implementable integrated urban strategic Development plan. A mixed method approach allowing active participation of the mapped stakeholders was utilized as part of the process considering guidelines provided in various statutes including the Constitution of Kenya 2010, Physical and Land Use Planning Act, 2019, the County Governments Act, 2012 and the Urban Areas and Cities Act, 2011. This was necessary in order to ensure that, among other reasons, the processes and the final products are legally compliant.

The planning methodology is summarized in figure 1;

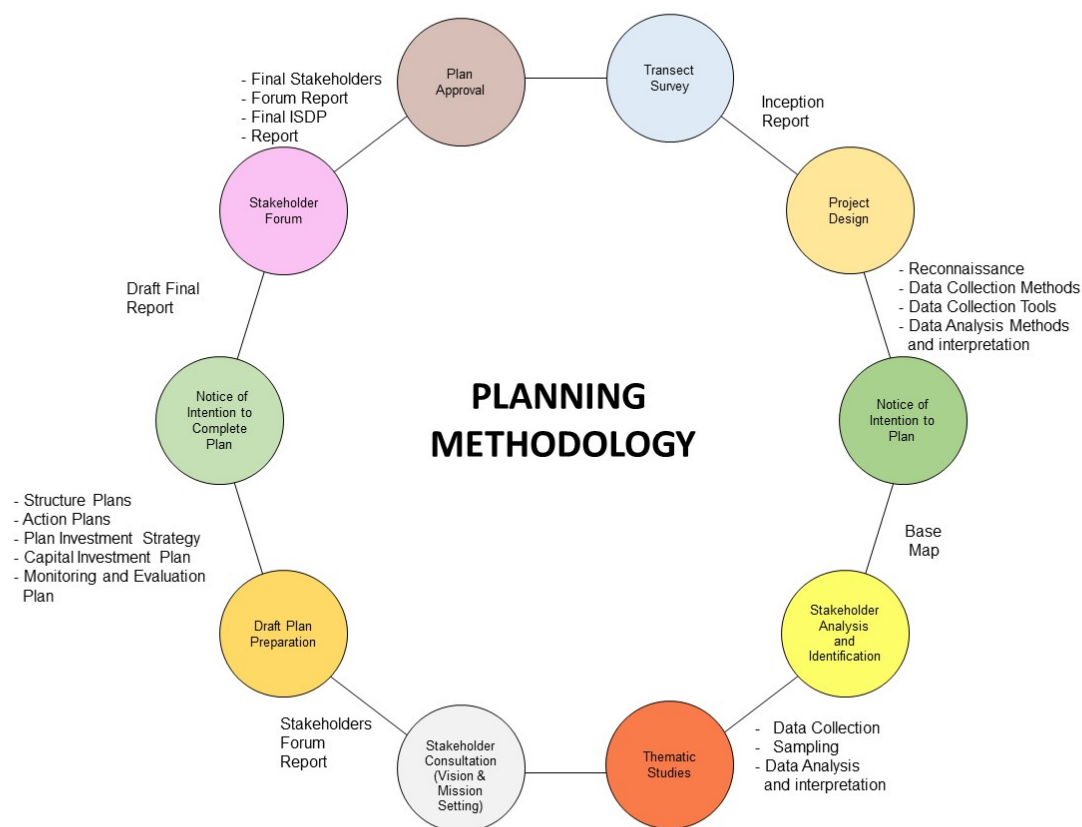


Figure 1: Planning Methodology

Source: Acal and BC Gildenhuys & associates 2020

The process had five major phases namely inception phase, awareness and mobilization, data collection and situational analysis, preparation of draft plans and the final plan preparation. All the Phases were followed in a participatory manner and were validated through technical working groups and stakeholder workshops.

1. Inception Phase

This phase basically involved project commissioning. Preliminary discussions were held between the Client, project beneficiary and project consultants on 2nd June, 2015. The main aim was to build consensus on the planning area, defining the methodology and work plan. The Terms of Reference were also defined to regulate the project and its outputs.

On 19th June 2015 a kick-off meeting was called by the project beneficiary for purposes of notifying key players and stakeholders of the intention to prepare the ISUDP and confirmation of the planning boundaries. Thereafter, a County Introductory Meeting was convened to introduce the planning team to the county officers. Reconnaissance surveys were conducted for the consultants to familiarize with the project area.

2. Awareness and Mobilization Phase

Pursuant to the Constitution of Kenya and Urban Areas and Cities Act, 2012, public participation was a key component of this project. In this regard, stakeholders to be engaged in this project were identified through consultation among various actors including project managers at the Ministry of Lands, Housing and Urban Development, County Government of Kiambu, and Consultants. Also entailed in this phase was the formation of a technical working group at the county Level. The general public was also informed of the intention to plan through a public notice dated 30th July, 2015. Public meetings were held to discuss the plan where the general public contributed to the issue

3. Data Collection Phase

The data collection process for the project began in August 2016, soon after which the situational analysis began. The data used for the preparation of this ISUDP was obtained from both primary and secondary sources. Primary data was obtained through field surveys and visits. Methods involved; Land use surveys, where each plot within the planning area was identified in the satellite imagery and its land use mapped. Other attributes of the individual parcels were collected and filled in a mapping sheet. The consultants also held Focus Group Discussions and conducted key informant interviews for purposes of acquiring first-hand information.

Secondary data collection was achieved through desktop survey. Secondary sources reviewed included various policy and legal documents, previous plans and maps for various towns among other credible and authoritative sources. Following data collection, an assessment of physical and social infrastructure was undertaken alongside the population demand. This was to determine the needs of the population. Also, an environmental and natural resource evaluation was undertaken. This was aided through various computer programs such as ArcGIS for spatial analysis.

The findings of the situational analysis were validated during a workshop's forums held between 2nd and 6th April 2018.

4. Draft Plan Preparation

The existing situation was a key consideration in this phase. Preparation of the draft plan involved formulation of structure plan models, detailed plans; local area plans and sector plans. The draft plan proposals report was prepared and submitted to the client for review before being subjected to stakeholders for validation.

5. Final Plan Preparation

The process will commence soon after the draft proposals are reviewed by the client and validated by the stakeholders.

6. Public Participation

Various methods were used to enhance public participation as follows;

- **Public Notices-** To sensitize and attract the involvement of the greater public, notices were published in daily newspapers. This was in the Standard and Daily Nation dated 30th July, 2015. The notices were also simultaneously placed at strategic notice boards within the local area.
- **Stakeholders-** Actors from different agencies were involved as shown in the table below. As evident, actors were drawn from the National Government, the County Government, opinion leaders, Civil society including NGOs, Churches, professional groups, businessmen, farmers, landowners, resident associations and the general public. The actors were identified in collaboration between the County Government, the ministry of Lands and Urban Development and the Consultants.
- **Workshops-** The design of the project envisaged two workshops for the project. One for visioning and validation of situational analysis and a last one for validation of plan proposals. The visioning and situational analysis validation workshops were held in all the planning areas between 2nd and 6th May 2018.

2.9. POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

The policy, legal and institutional framework form the anchor to which the ISUDP lies on. The legal, policy and institutional framework also guide the implementation of the plan, hence making it important to the planning preparation process.

2.9.1 Constitutional Framework

The Constitution of Kenya, 2010 gives every Kenyan a right to clean and healthy environment. Other provisions of the Constitution that will guide formulation of the Githunguri ISUDP include:

- a) Article 10 which stipulates that the principle of sustainable development is to be adopted in all decision making.
- b) Article 60 (1) - provides that land in Kenya shall be held, used and managed in a manner that is equitable, efficient, productive and sustainable and in accordance to principles such as equity in access to land, security of land rights, sustainable and productive management of land resources, transparent and cost-effective management of land, sound conservation and protection of ecologically sensitive areas.
- c) Article 61 (1) (2) - describes land classification in Kenya
- d) Article 63 - guarantees the rights of communities to their lands and territories. It states that community land consists of land lawfully held, managed or used by specific communities as community forests, grazing areas or shrines and that it includes ancestral lands
- e) Article 66 (1) - states that the state may regulate the use of any land or right over land in the interest of public safety, order, health or land use planning. This section empowers the County government of Kiambu to undertake land use planning and is the anchor article for this planning exercise.
- f) Article 69 - envisions the achievement and maintenance of a tree cover of at least ten per cent of the land area of Kenya.
- g) Article 174 - outlines principles of promoting socio-economic development and provision of proximate and easily accessible services which equally depend on proper planning, development and management of utilization of resources.
- h) Schedule 4 of the Constitution provides the division of roles between the National and County Governments. The schedule designates planning as a shared role of the two levels of government with the National Government handling national policy formulation and the preparation of the National land use plan while the county governments are empowered to conduct planning of the whole county including urban areas in their jurisdiction. Further, the county governments are empowered to carry out development approvals and development control to ensure the approved plans are implemented.

These provisions from the constitution give a backing for the preparation of this ISUDP for Githunguri. Section 66 and Schedule 4 provide the basis upon which the county government of Kiambu has commissioned the preparation of the ISUDP. Further the fourth schedule provides that the National and County Governments may come together in the undertaking their shared responsibilities, it is on this spirit that the National Government through NaMSIP has partnered with the County Government of Kiambu to undertake the planning for the Githunguri Town ISUDP.

2.9.2 Global Policy

2.9.2.1 Sustainable Development Goals (Goal 11)

The Sustainable Development Goals (SDGs) define global sustainable development priorities and aspirations for 2030 and seek to mobilize global efforts around a common set of seventeen goals and targets. SDG 11 aims to make cities and human settlements inclusive, safe, resilient and sustainable. This plan aims at ensuring that the principles of sustainable development are achieved through proper land use and guided urbanisation.

2.9.2.2 New Urban Agenda

The New Urban Agenda provides a roadmap for building cities that can serve as engines of prosperity, inclusion and centres of cultural and social well-being while protecting the environment. The Agenda also provides guidance for achieving the SDGs and provides the underpinning for actions to address climate change. Additionally, the Agenda provides a framework for urban policies, urban planning and design and urban governance, rules and regulations to enhance municipal finance. Principles of urban management, urban design and management of urbanisation from this Agenda have been adopted for the ISUDP.

2.9.3 National Policies

2.9.3.1 National Land Use Policy (Sessional Paper No. 1 of 2017)

- a) Provide legal, administrative, institutional and technological framework for optimal utilization and productivity of land related resources in a sustainable and desirable manner at national, county and community levels.
- b) Categorization of land uses in the country.
- c) Advocates for the development of land use plans for the country with full participation of all stakeholders and strict adherence to them enforced.
- d) Promoting environmental conservation and preservation

2.9.3.2 National Land Policy (Sessional paper No. 3 of 2009)

The National Land Policy guides the country towards a sustainable and equitable use of land. It aims at providing a framework for undertaking land use planning and development control in all administrative levels i.e. national, county and town level. It also calls for immediate actions to addressing environmental problems that affect land such as degradation, soil erosion and pollution. The preparation of this ISUDP is in an effort to realize the provisions of the policy by providing a framework from which land use management for Githunguri town can be undertaken.

2.9.4 Legal Framework

2.9.4.1 Physical and Land Use Planning Act, 2019

The Physical and Land Use Planning Act (PLUPA) which came to effect in August 2019 repealing the Physical Planning Act (Cap 286) is the framework law guiding the preparation of plans and development control in the country. Section 36 of the Act provides for the preparation of County Physical and Land Use Plans which are 10-year plans to be prepared in every County.

Section 45 gives the basis for preparation of urban area plans for Cities, Municipalities, Towns or unclassified urban areas. It provides that a County shall prepare local physical and land development plans for these urban areas which could be long-term or short-term development plans. the prepared urban plans are required to be in consistency with the integrated city or urban development plans as contemplated by the Urban Areas and Cities Act, 2011.

Section 46 provides for the purposes for which the urban plans shall be prepared including; Zoning, redevelopment, regulating land use and developments, providing sectoral coordination framework and guiding the infrastructure provision. Sections 47 and 48 give provisions for the initiation and preparation of the plans.

Section 54 provides that the plans made under the Urban Areas and Cites Act, 2011 shall with necessary modifications be prepared and approved in accordance with this Act. This section as read together with section 45 gives a legal grounding for the preparation of Integrated Strategic Urban Development Plans.

The Act advocates that planning is undertaken to ensure orderly development through land use planning and development control procedures as well as detailing the contents of local physical development plans. The Act also provides guidelines on how the public should be notified upon commencement of the planning process and upon completion of preparation of any physical development plan. This Act provides grounding for the preparation of this ISUDP.

2.9.4.2 County Government Act, 2012

The Act gives mandate to the County Governments, with the role of county planning according to the Constitution of Kenya. No public funds will be appropriated to counties without preparation of spatial plans. The Act requires the County Governor to promote and facilitate citizen participation in the development of policies and plans, and delivery of services in the county. In addition, the Act provides that all plans prepared for a county be approved by the respective county assembly.

Other sections of the Act relevant to the formulation of the Githunguri ISUDP include:

Sec 102 (c) and Sec 103 (f) - protect and integrate rights and interest of minorities and marginalized groups and communities and integrating under-developed and marginalized areas to bring them to the level generally enjoyed by the rest of the Country.

Sec 103 (i) - achievement and maintenance of a tree cover of at least ten per cent of the land area of Kenya as provided in Article 69 of the Constitution.

This is the main Act that has been relied on in the preparation of this plan; it has guided the methodology and scope of the ISUDP. The plan once completed will also be approved as provided for in the Act.

2.9.4.3 Urban Areas and Cities Act, 2011

The Act establishes a legislative framework for classification of areas as urban areas or cities, governance and management of urban areas and cities and participation by the residents in the governance of urban areas and cities.

Urban Management Boards are established by the Act with the function to oversee the affairs of urban areas. This Act was amended through the **Urban Areas and Cities Amendment Act** reclassifying urban areas as follows:

- a) A city should have a resident population of 250,000 residents
- b) A municipality should have a resident population of at least 50,000 residents,
- c) Every headquarters of a county government shall be conferred the status of a municipality, whether it meets the criteria for a classification as a municipality.
- d) A town should have a resident population of 10,000 residents
- e) A market center should have a resident population of 2,000 residents and have an integrated urban area development plan.

This Act has provided an anchor for this ISUDP; it has provided the population threshold for the classification of the urban area and provided for the necessary amenities and services that the plan aims to provide. The plan will also propose an urban management framework as guided by the Act.

2.9.4.4 The National Land Commission Act, 2012

States the functions, powers of the NLC such as: to monitor and oversee responsibilities over land use planning throughout the country. In addition, this Act provides for the management and administration of public, private and community land in accordance with land policy principles. It provides a linkage between the commission, county government and other institutions dealing with land. The preparation of this ISUDP has had consultations with the NLC in order to get their comments on the plan.

2.9.4.5 Land Act, No. 6 Of 2012

The land act is expected to give effect article 66 of the constitution and consequently to revise, consolidate, and rationalize land laws in Kenya. It also provides for the sustainable administration and management of land and land-based resources. Based on the provisions of this Act, the ISUDP for Githunguri aims at ensuring rational and sustainable use of land in the town and has thus provided for a land management framework to this effect.

2.9.4.6 Environmental Management Coordination Act, 2012 (Amended 2015)

EMCA provides for establishment of an appropriate legal and institutional framework and procedures for management of the environment. It provides regulations for the conservation and sustainable use of resources on wetlands, river banks and land for the benefit of the people and communities living in the area. This Act also offers preliminary provisions for the regulation of solid waste, industrial waste, hazardous wastes, pesticides and toxic substances, biomedical wastes and radioactive substances. From the realization of the need for sustainable environment, the plan has adopted various principles for the management of the environment and incorporated them to the plan. The plan has also adopted an integrated approach to land use and environmental management as envisioned in the Act, this has been done through multi-disciplinary consultations from all related sectors.

2.9.4.7 Water Act, 2016

The Act provides for the sustainable management, conservation, use and control of water resources and for the acquisition and regulation of rights to use water. It further provides for the regulation and management of water supply and sewerage services.

2.9.4.8 Agriculture Fisheries and Food Authority Act, 2013

This Act provides for the establishment of an Agriculture Fisheries and Food Authority. It also provides for the development of policy guidelines by the authority on preservation, utilization and development of agricultural land and related matters.

2.9.4.9 Energy Act, 2019

The Act consolidates the laws relating to energy and provides for National and County Government functions in relation to energy. Additionally, it provides for the establishment, powers and functions of the energy sector entities. It promotes the exploration and commercial utilization recovery of geothermal energy as well as the use of renewable energy and energy efficient technologies. The plan has advocated for the adoption of green energy within the planning area.

2.9.5 Institutional Framework

Institutions are agents of plan implementation; a sound institutional framework can make or break a plan's implementation. An analysis of the governance capacity to implement the Githunguri ISUDP becomes important to the planning preparation process.

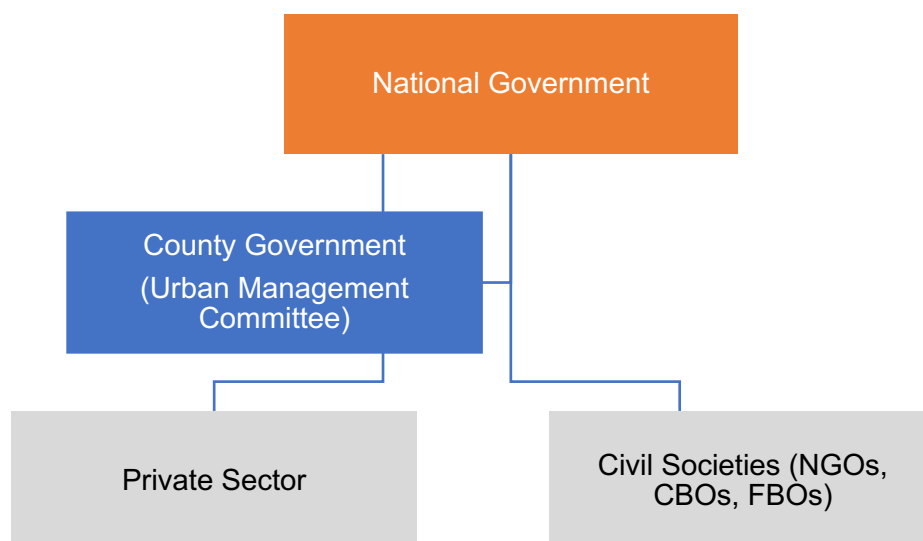


Figure 2: Major ISUDP Institutional Actors

Source: Acal and BC Gildenhuys & associates 2020

National Government

The National government provides the funds for projects in the County; making is a major institutional player in the success of the Githunguri ISUDP. The National Government is also mandated with the construction of international roads that may pass by the town, ECDs and tertiary institutions within the town.

County Government (Urban Management Committee)

The effective implementation of the Githunguri ISUDP requires the appointment of a competent town/urban management committee. The function of the urban management committee is to oversee the affairs of the town, formulate and implement integrated development plans, and control land use, land sub-division, land development, and zoning. Such a committee also promotes and undertakes infrastructural development, implements applicable national and county legislations, collects rates, taxes, levies, duties, fees, and surcharges on fees, and promotes a safe and healthy environment.

Private Sector

The private sector plays a major role in the town. The private sector within the planning area includes financial institutions, service providers, small and medium-size enterprises (SMEs), educational institutions, transport and communication companies, credit and savings societies, and manufacturing companies.

The private sector is important in formulation and implementation of the Githunguri ISUDP through formation of Private-Public Partnerships that are a source of funds for projects proposed in the Githunguri ISUDP.

Civil Societies

The civil society groups include NGOs and CBOs and FBOs. In relation to urban planning and management, civil society organizations fulfil the following functions:

- They create awareness about rights and privileges of the public/citizens.
- They provide technical support and training on food security and modern agricultural farming methods.
- They provide affordable education institutions for pre-primary and primary education

Summary of Relevant Institutions/Agencies

Table 2: Institution Responsibilities on ISUDP Framework

Institution	Linkage	Implication and Strategy
Ministry of Transport ,Infrastructure ,Housing Urban development and Public works State department for Housing and urban development	Overall supervision of the project	Represents the Government of Kenya component in the project.
County Government	Overall coordination of development Establish a PPP framework.	Mobilization of financial and technical resources. Undertake capacity building of personnel in order to enhance their skills, knowledge, and technical capacity to undertake joint institutional planning and management. Involve the local communities by equipping them with resources and information packages-skills to foster their participation in decision making. Enforcement
1.a County Assembly of Kiambu	Legislate and oversight of county government processes	Approve of plans, allocate finances for implementation.
1.b County Executive Committee	Coordination of implementation processes	In charge of monitoring the plan preparation and also monitor and oversee its implementation
1.c Department of Lands and Physical Planning, Kiambu	Oversees county planning matters	Will be responsible for submitting the plan to the County Assembly for approval.
Community	Participates in development process within the local area	Work directly with planning team throughout the planning process to ensure their concerns and needs are consistently understood and considered Equipped to actively contribute to the achievement of the outcomes.

2.9.6 LINKAGES TO OTHER PLANS & STRATEGIES

2.9.6.1 Vision 2030

Vision 2030 is the blueprint for Kenya's long-term national development. It is anchored on three main pillars: Economic, Social and Political. The Githunguri ISUDP should be linked to the Vision 2030 so as to be part of Kenya's transformation into *"a newly industrializing, middle income Country providing a high quality of life to all its citizens in a clean and secure environment"* through improvement of key thematic sectors such as Infrastructure; Energy; Security; Tourism; Agriculture; Wholesale/Retail Trade; Manufacturing; Financial Services; and Business Process Outsourcing.

2.9.6.2 The National Spatial Plan

The NSP defines the general trend and direction of spatial development for the country by providing a framework for better national organization and linkages between different activities within the national space hence informing the future use and distribution of activities.

The national spatial plan seeks to provide a framework for functional human settlements, enhanced agricultural productivity, planning and managing natural resources and the environment, providing a framework for infrastructure provision, promoting industrial and commercial development and the enhancement of good governance.

2.9.6.3 Big Four Agenda

From December 2017, the national government announced the Big 4 Agenda that would be prioritized in resource allocation. The four sectoral areas mentioned included:

- Affordable Housing.
- Food Security
- Manufacturing, and
- Universal Healthcare for accelerated social-economic transformation, increased job creation and improved quality of life for all Kenyans

This agenda colligates with Physical planning attempts towards realizing a sustainable development. It enables planning paradigm to further integrated settlement planning and conservation of rich agriculturally productive lands or zones. Spatial Plans will therefore flag practical approaches and solutions to help deliver this agenda and will be monitoring and tracking their success over the next five years.

2.9.6.4 Nairobi Metropolitan Strategies

In 2008, the National Government prepared the Nairobi Metro 2030 Strategy aimed at making the Nairobi metropolitan region 'A World Class African Metropolis' which is safe secure and prosperous. The Strategy forms part of larger national plans such as the Kenya Vision 2030 document. Due to the dominance of the Nairobi Metro, the overall Strategy has national and regional development implications specifically for surrounding counties such as Kiambu, Thika, Kajiado, Machakos and Githunguri. Sustainable development that focuses on social (liveability), economic (competitiveness) and environmental sustainability underpin the Strategy.

2.9.6.5 Kiambu County Integrated Development Plan (CIDP)

The CIDP provides the County's vision for the next five years while detailing various projects and programme per sectors with their location for implementation. The CIDP outlines proposals for budgetary allocations to various sectoral programmes such as establishment of industrial parks, upgrading of road networks, among others.

2.9.6.6 Kiambu County Spatial Plan

The Kiambu County Spatial Plan sets out a spatial development strategy for Kiambu County. The plan also sets the stage for more detailed planning (i.e. ISUDPs) of the existing urban areas and the parameters for the emerging suburban areas, and it identifies strategic land uses and transportation corridors and networks that are best placed to promote residential, commercial, industrial and agricultural development.



GOVERNMENT
OF KENYA



COUNTY GOVERNMENT
OF KIAMBU

PART II: SITUATIONAL ANALYSIS

3 CHAPTER THREE: PHYSIOGRAPHIC CHARACTERISTICS

3.1 OVERVIEW

Kiambu County is divided into four broad topographical zones viz, Upper Highland, Lower Highland, Upper Midland and Lower Midland Zone. Githunguri is located in the lower highland zone the area is characterised by hills, plateaus, and high-elevation plains. The area lies between 1,500-1,800 metres above sea level and is generally a tea and dairy zone though some activities like maize, horticultural crops and sheep farming are also practised. However agricultural land in steep slope present a beautiful scenic view from the highest points of the planning area.

3.2 PHYSIOGRAPHIC CHARACTERISTICS

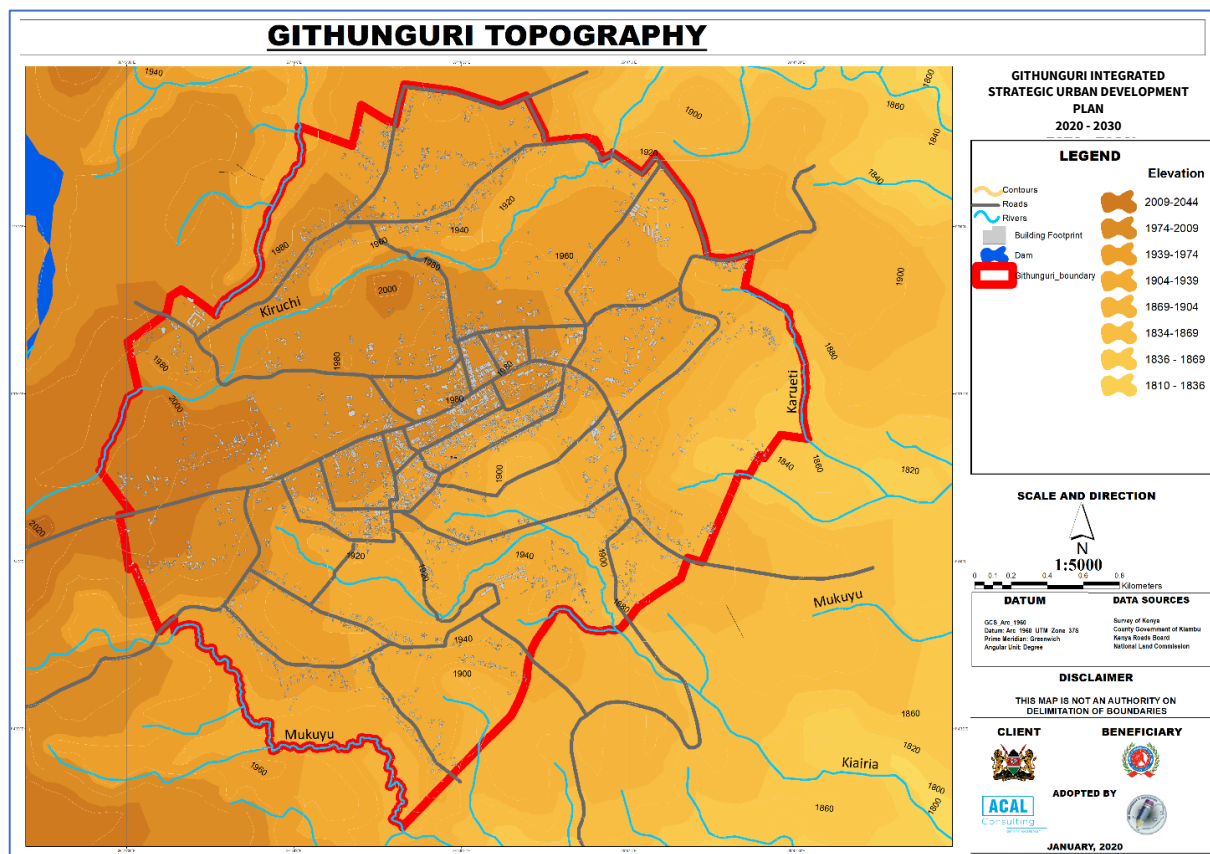
3.2.1 Topography

SLOPE / TERRAIN

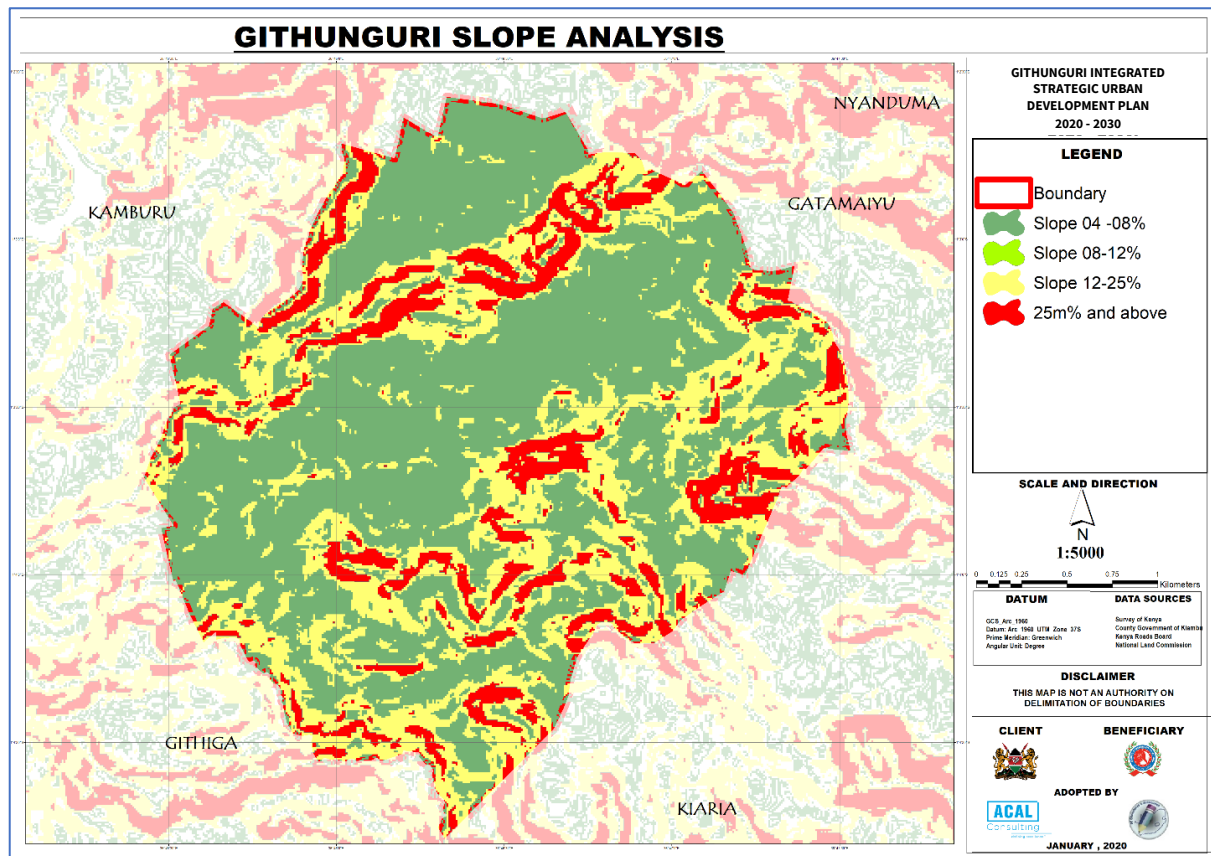
Topography and slope are major factors in the determining of settlement patterns in Githunguri and the region. The planning area is characterised by an undulating topography made up of a series of ridges and valleys. The planning area is further divided into a higher northern and lower southern area by deep valleys that run to the south of Road C65.

The northern part of the planning area is characterised by a broad band of relative even slopes roughly parallel to Road C65, followed by a steep valley directly north thereof and another even area to the north thereof. The southern part of the planning area is in turn characterised by irregular and curving patterns of ridges and valleys, resulting in a fairly irregular movement network.

The majority of the steeper slopes have gradients between 9% and 21%, which are still developable but become more expensive from an infrastructure and construction perspective. Only a few areas have steep slopes of more than 21%. Development mostly occurs along the crests of the ridges, with the steep valley sections remaining free of development or at the very least used for small-scale agriculture.



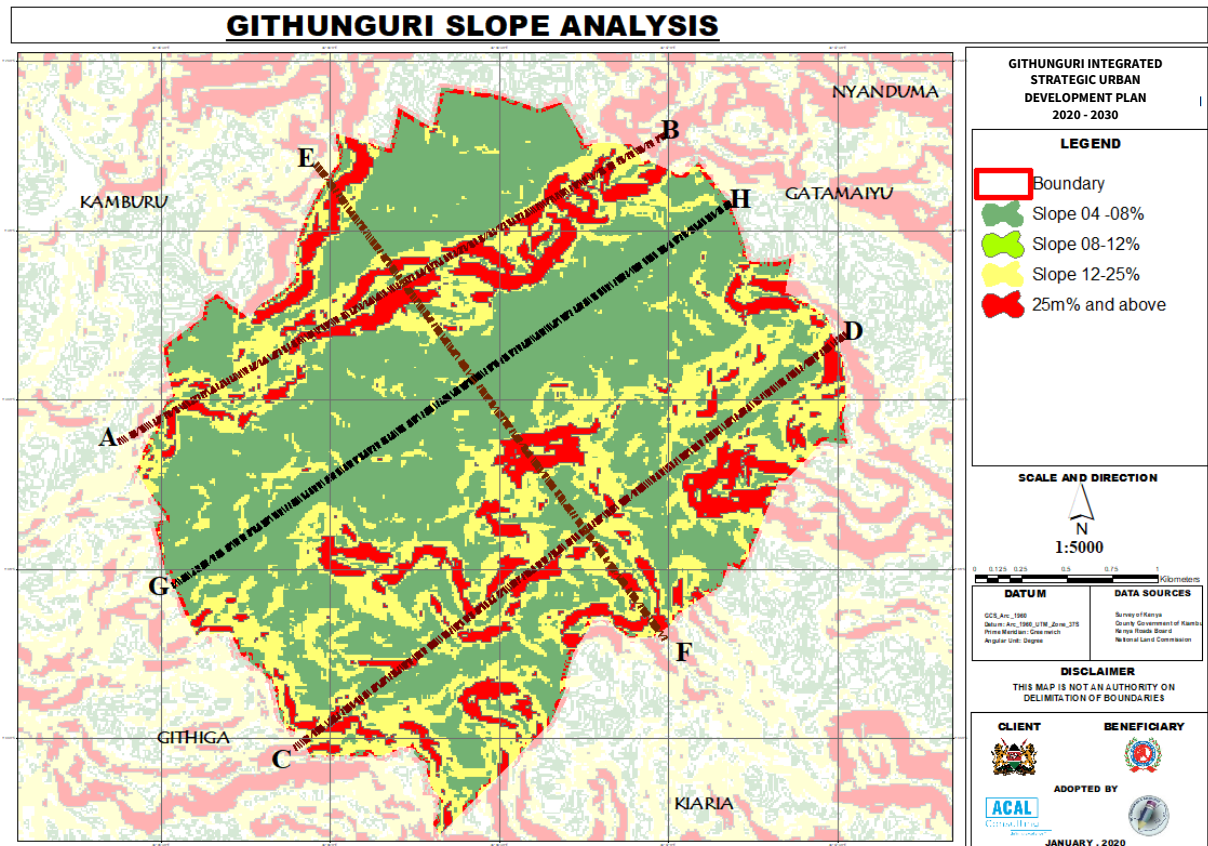
Map 6: Digital Elevation Model



Map 7: Slope Analysis

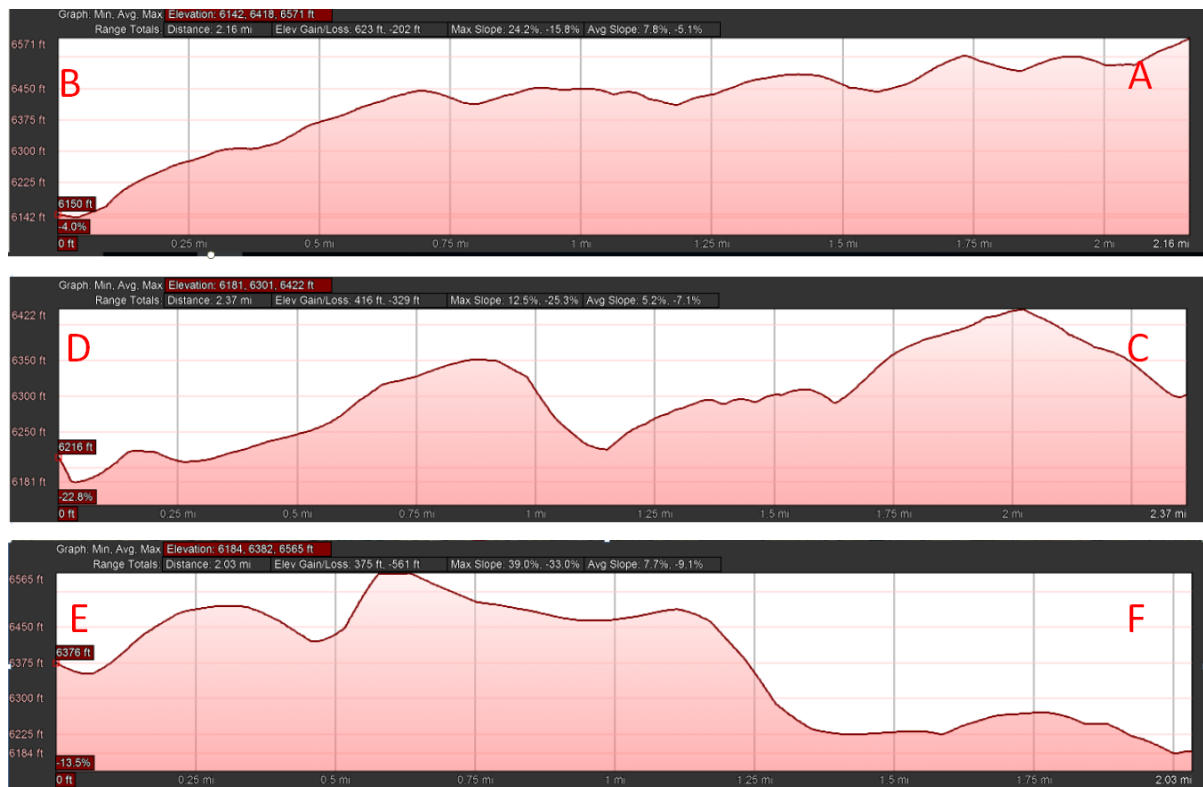
Source: Acal and BC Gildenhuys & associates 2020

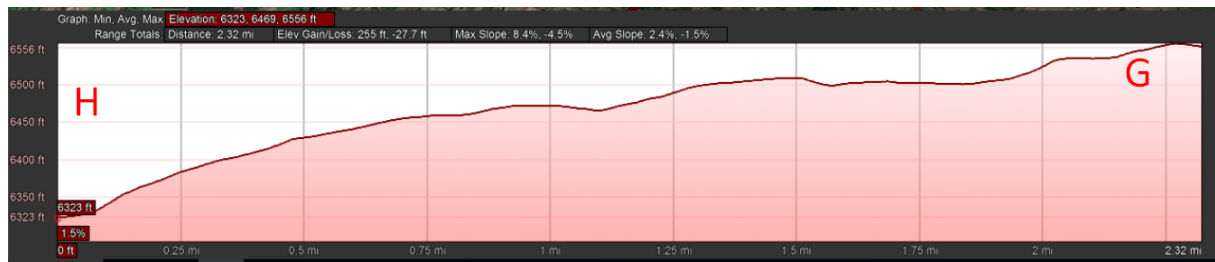
From the slope analysis it was found that Of the, 8.7 Km² representing 89.7 % of the planning area is developable, and 10.3% of the area is not suitable for any development. However, about 11% of the developable area provides challenges with vehicle access attributed to land terrain. Although a large number of the local population walk to work places, it is important to recognise that these slopes restrict access for transportation emergency service. Only 42% of the total area is without any significant slope constraints.



Map 8: Slope as a Barrier for Development

According to the map above depicting the distribution of buildings footprint in Githunguri in relation to the local topography, the highest concentration of buildings is found in the northern part of the planning area along the C65, where the slope is also generally less constraining. In the remaining section of the planning area, buildings are situated along the roads, which generally follow the higher-lying and flatter parts.





Graph 1: Vertical profiles

Source: Acal and BC Gildenhuys & associates 2020

3.2.2 Geology and Soils

a) Rock characteristics

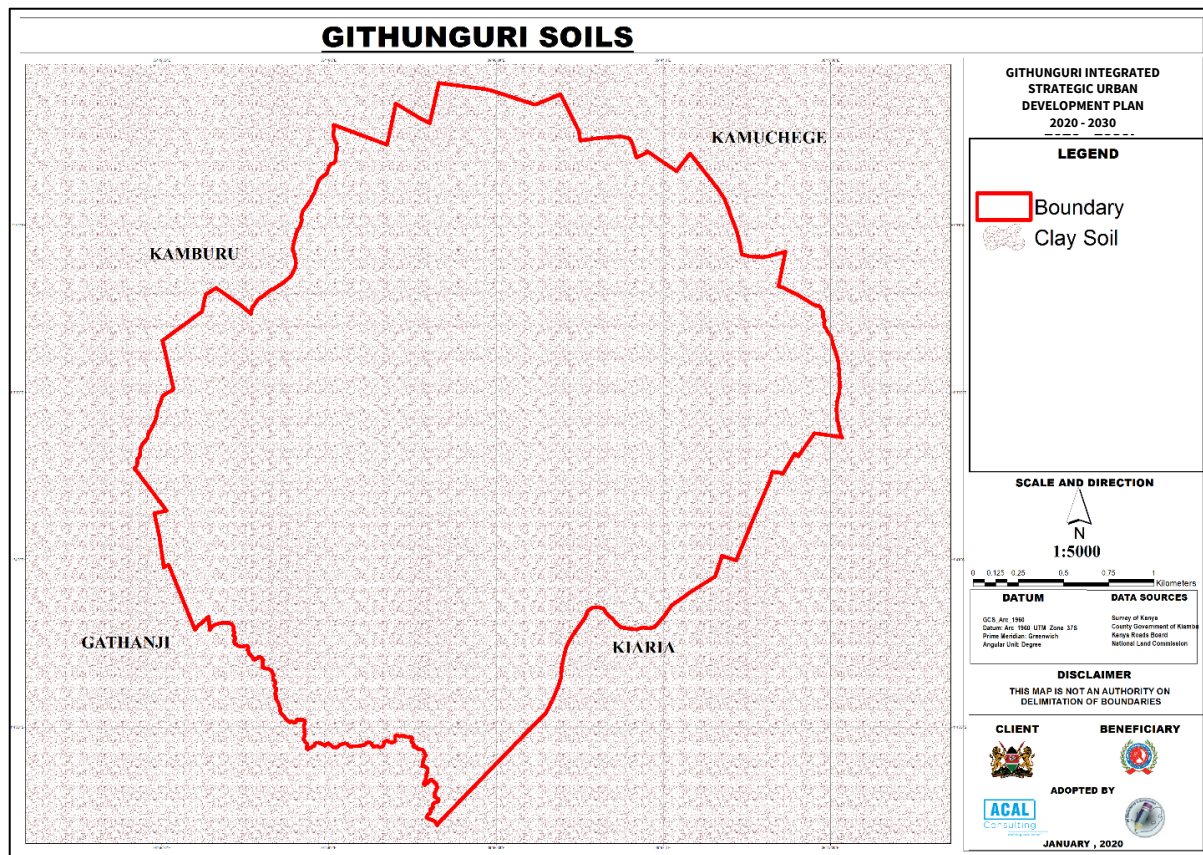
The planning area has an uncomplicated geological structure and consists mainly of basalts. The northern section of the planning area is made up of pyroclastic unconsolidated rock. The resulting soil profiles and engineering properties of the rocks are described in the table below.

Table 3: Geology, soil and engineering properties

Rocks Type	Soil Profile	Engineering Qualities
Basalt	<p>Weathered basalt forms a clayey silt or silty clay soil depending on the rainfall and topography.</p> <p>In the mountains, the erosion rates are very high with virtually no soil cover except in the river valleys.</p>	<ul style="list-style-type: none"> Soil erosion immunity: The soils have a moderate to high potential expansiveness and are relatively resistant to erosion. It is suitable for single stand crops. Change of clay volumes: this is due to constant weathering. Buildings founded on these soils are prone to extensive damage due to the volume changes in the clay (that has a cracking character). Unweather rock: forms a good foundation and construction material when crushed. It may sometimes weather rapidly in roads, rock fill dams or embankments. The weathered product may be used for road building and is also a suitable impervious fill material for embankment dams.
Pyroclastic unconsolidated rock	Volcanic deposits can develop into some of the richest agricultural lands on earth	<ul style="list-style-type: none"> Tuff's primary economic value is as a building material. Tuff's relative softness makes it suitable for construction upon its availability.

b) Soil characteristics

Githunguri is covered by three broad categories of soils which are: high level upland soils, plateau soils and volcanic footbridges soils. The most predominant type of soil coverage in the area is soil from volcanic footbridges. Soils emanating from the volcanic activity are generally fertile and important for agriculture. The slopes in the rich volcanic soils on the higher altitudes are particularly suitable for tea and coffee growing. These are well drained with moderate fertility. They are red to dark brown friable clays, which are suited for cash crops like coffee, tea and pyrethrum. Generally, Githunguri area is characterised by underlying rocks of tuff and trachyte and well drained soils. Humid Nitisol is the general classification of soils in Githunguri.



Map 9: Githunguri Soils

3.2.3 Hydrology and Drainage

The drainage and hydrology of the planning area is influenced by the Athi Catchment Basin to which River Kiruchi, River Mukuyu, River Kiaria, River Karueti and River Ruiru belong. Ruiru River is major tributary of Athi River. The surface drainage is also influenced by the steep slopes of the Aberdares on the west, though towards the east and south easterly direction, the surface slope gets mild with influence from the low lying Kapiti Plains on the east and south of the planning area. Other streams arise from springs at the valley bottoms creating a network of tributaries for the main rivers as well as water sources for the local communities.

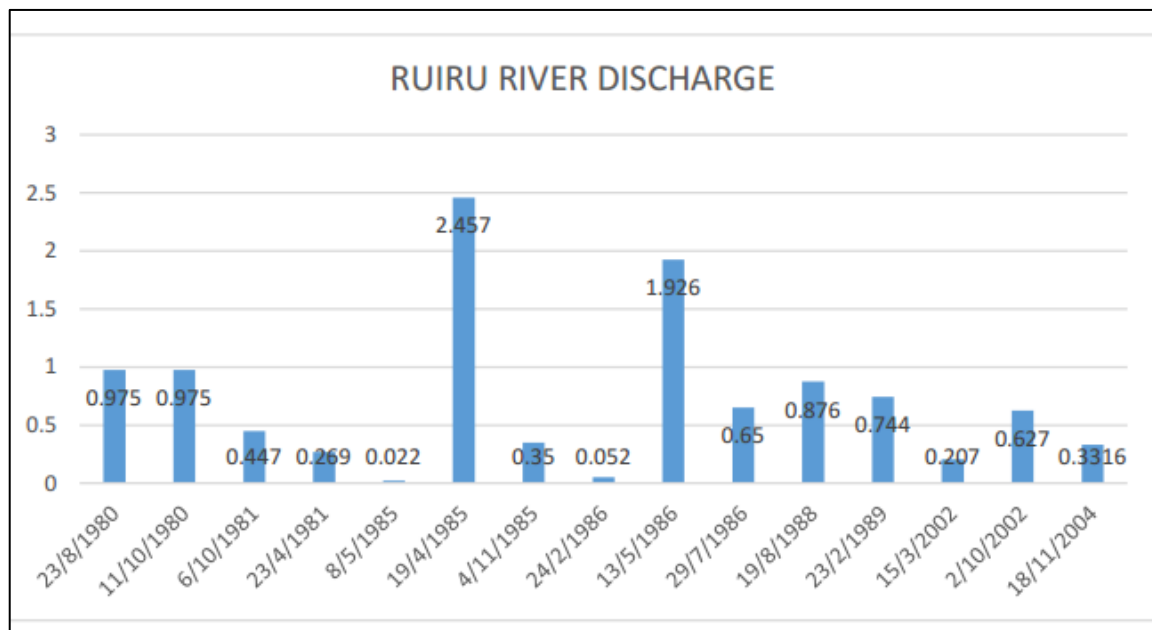
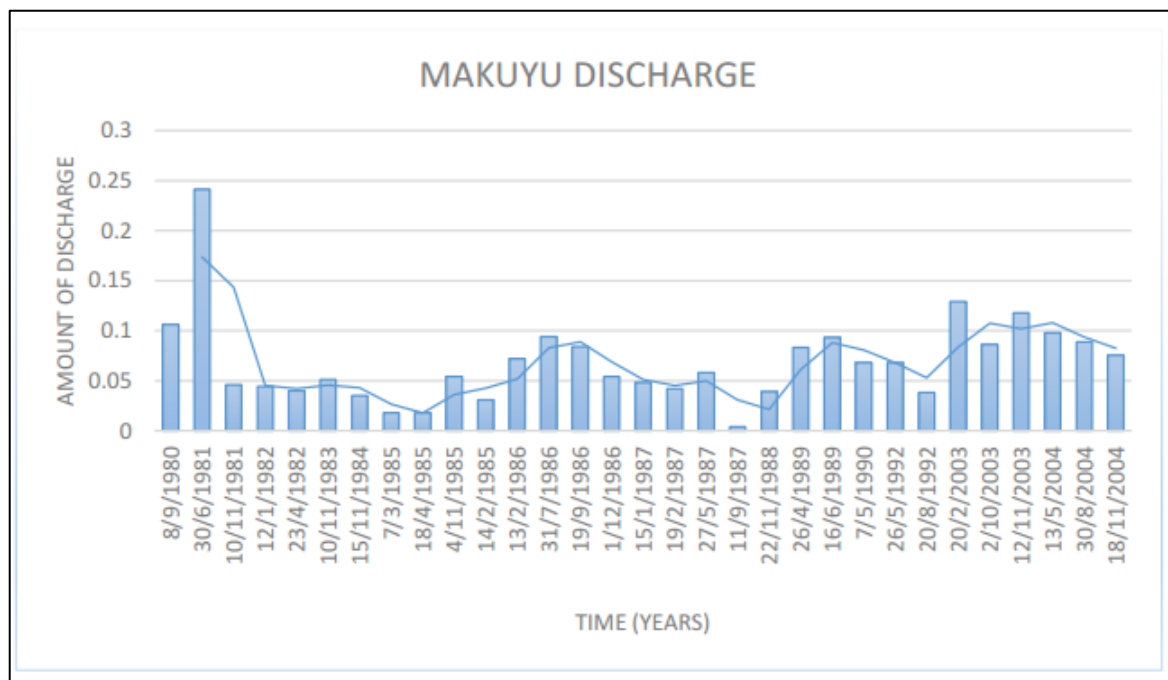
3.2.3.1 Githunguri sub county water catchment area.

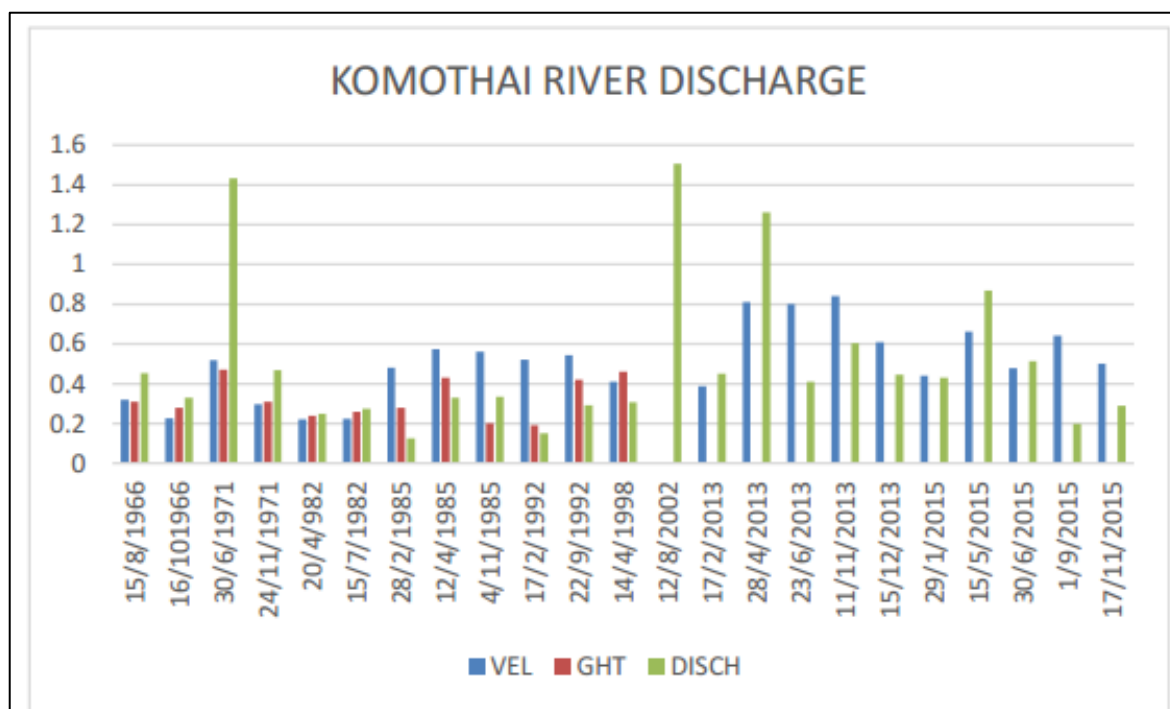
The Aberdare ranges stretches across the lower highlands of Githunguri sub-county (County Government of Kiambu, 2013). Most of the rivers originate from the western side draining towards the Eastern zones of the sub-county. During the rainy season, the eastern side of the sub-county may be affected by flooding due to the topographic characteristics.

3.2.3.2 River discharge in Githunguri Sub-County

Over the years, in 1981 Githunguri sub-county received the highest river discharge. This is in relation to the rainfall patterns. Githunguri received the highest rainfall in 1981. The rivers discharge levels in the sub-county have been declining over time. The deviance in the discharge pattern is as a result of rainfall received in the sub-county in terms of the short and long rainfall pattern received in the region. During the long rains; the discharge is relatively higher as opposed to the periods of long rains.

The following graphs show the discharge rates of different rivers in Githunguri sub-county

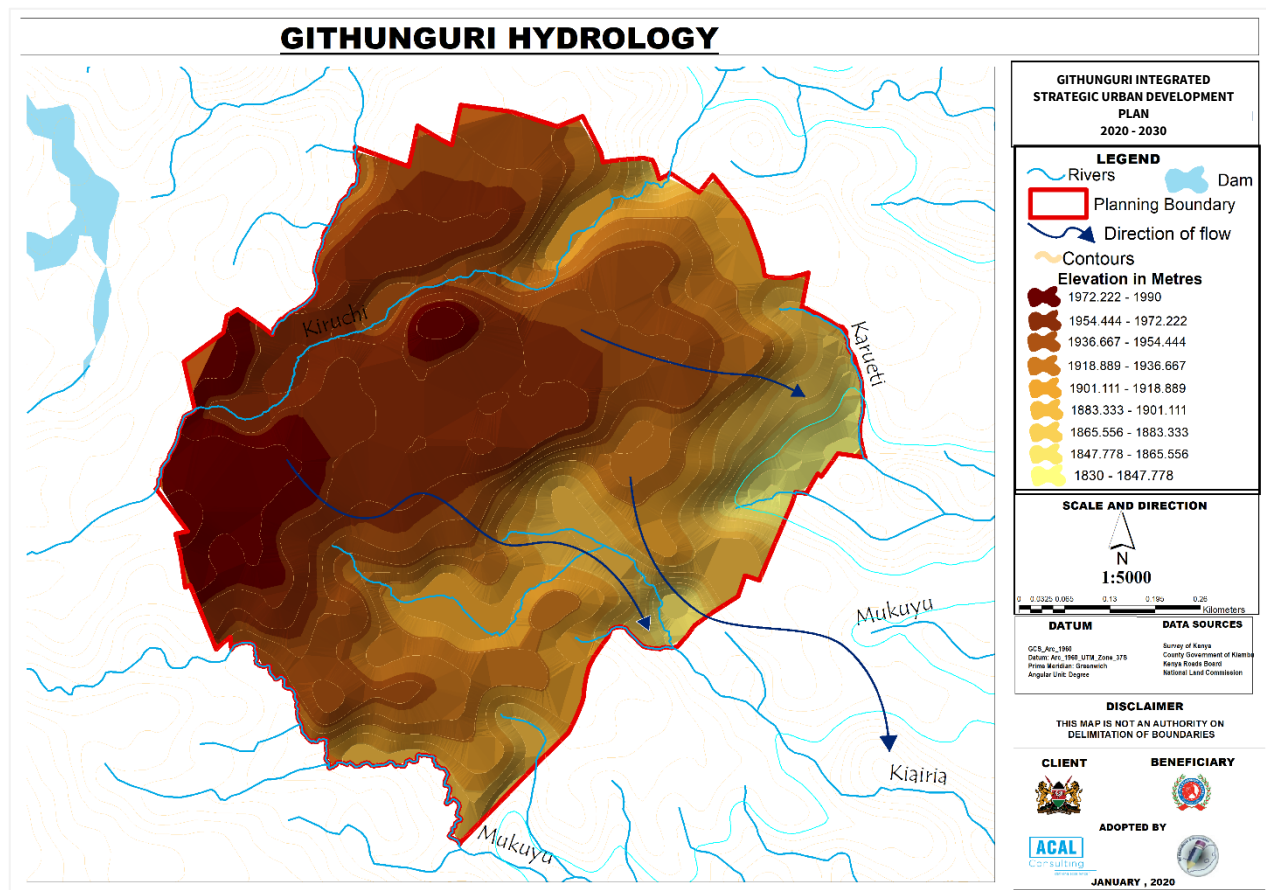




Graph 2: Rates of different rivers in Githunguri sub-county

The factors that have affected discharge levels in rivers within Githunguri overtime include:-

- Rock and soil type; mining along the river basin has taken roots in the sub-county; sand mining is key mining activity in the zone. Sand is characterized with high drainage levels. Continuous mining leads to its exposure in the river basin leading to elevated drainage. This results to reduced discharge levels.
- Land use changes are a key elements that affect the discharge rates of rivers. The land use pattern in Githunguri sub-county has changed overtime. This is characterized by the land sub-division rates; reduction of the greeneries; forests and rapid urbanization rates.
- Rainfall; during the long the discharge rates elevate and decline during the short rains. Dry periods are characterized with the lowest discharge. The seasonal rivers dry up during this period.
- Relief refers to the highest or lowest elevation points in an area. Rivers tend to originate from the relatively high points. The discharge is relatively high at highly elevated zones as opposed to the low lands. In Githunguri sub-county discharge is highest on the western side as compared to the eastern side where Kibichoi lies.

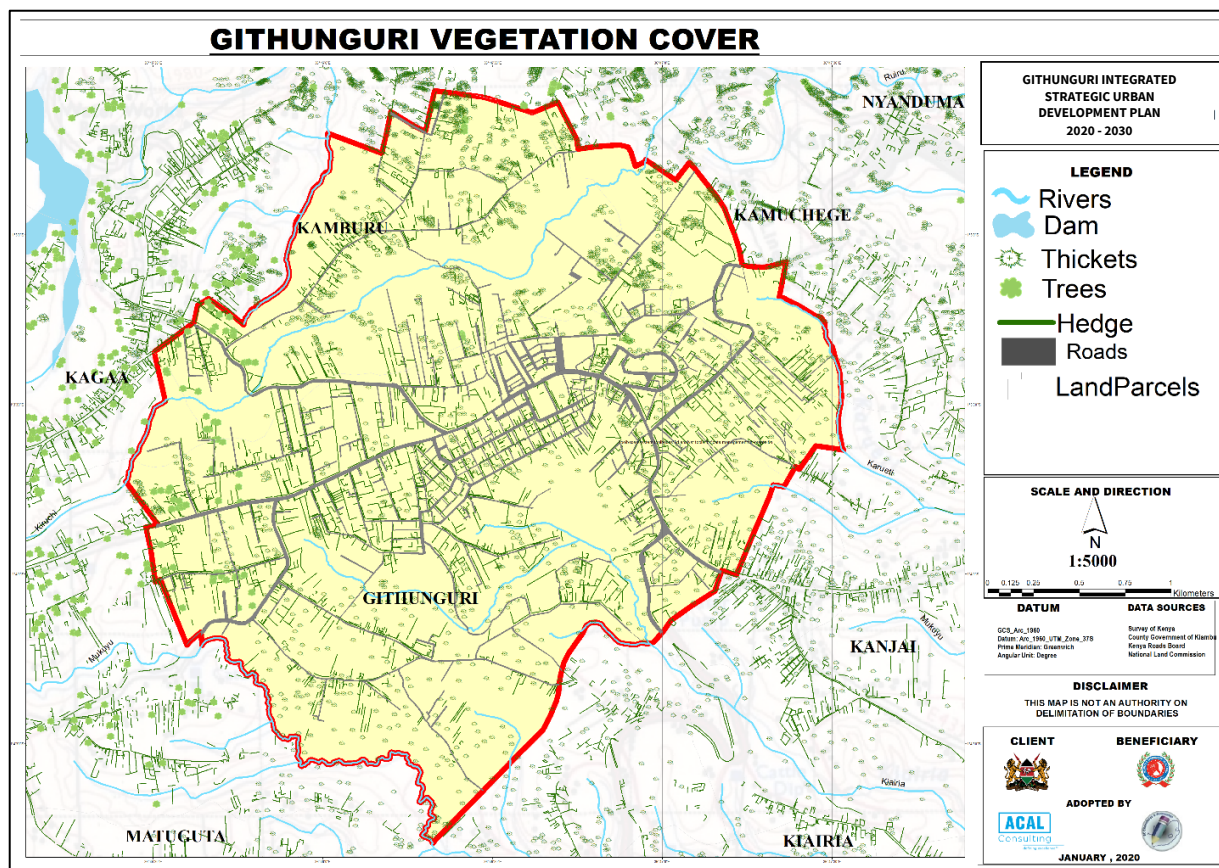


Map 10: Githunguri town Hydrology

Source: Acal and BC Gildenhuys & associates 2020

3.2.4 Vegetation

The planning area is characterised with high vegetation cover comprising of agricultural crops (tea, coffee, horticultural crops, maize and Napier grass), as well as agroforestry (mainly blue gum, wattle and gravellier species being the most common). In addition, a variety of shrubs with this level of vegetation cover, soil erosion (and indeed risk of landslides) is not significant. However as a result of human intervention and activities in Githunguri town, there are limited number of perennial trees and natural vegetation. This is an indicator environmental degradation through loss of biodiversity. There is high need for conservation of indigenous tree species and use of agroforestry strategies to reclaim the natural environment.



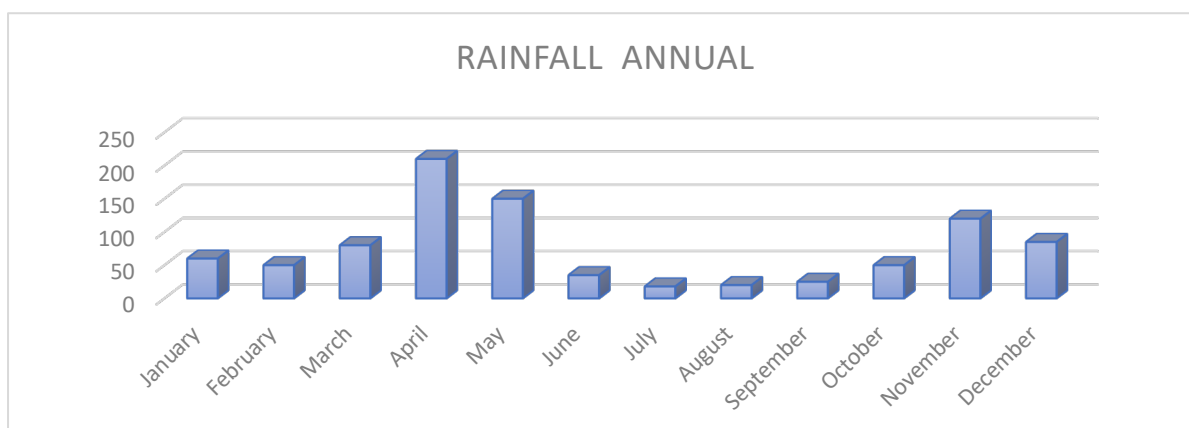
Map 11: Githunguri Vegetation Cover

Source: Acal and BC Gildenhuys & associates 2020

3.2.5 Climate

3.2.5.1 Rainfall

Graph 3: Githunguri Annual Rainfall Distribution



Githunguri town receives a significant amount of rainfall throughout the year with an annual total rainfall of 903.4mm. Long rain season is in March-May while short rain season occurs in October-December. The driest month is July which is the suitable month for harvesting. This has been the basis for determination of the type of seasonal crop to plant in different part of the year. The variation in milk production has been an effect of the annual rainfall distribution.

Over time there has been decline in rainfall and unpredicted rainfall pattern due to climate change. This has been attributed to loss of natural environment that has resulted to diminishing wet lands. Githunguri is the immediate recipient of neighbouring Ruiru Dam precipitation. This Micro-climate accounts for long survival of crops during dry months.

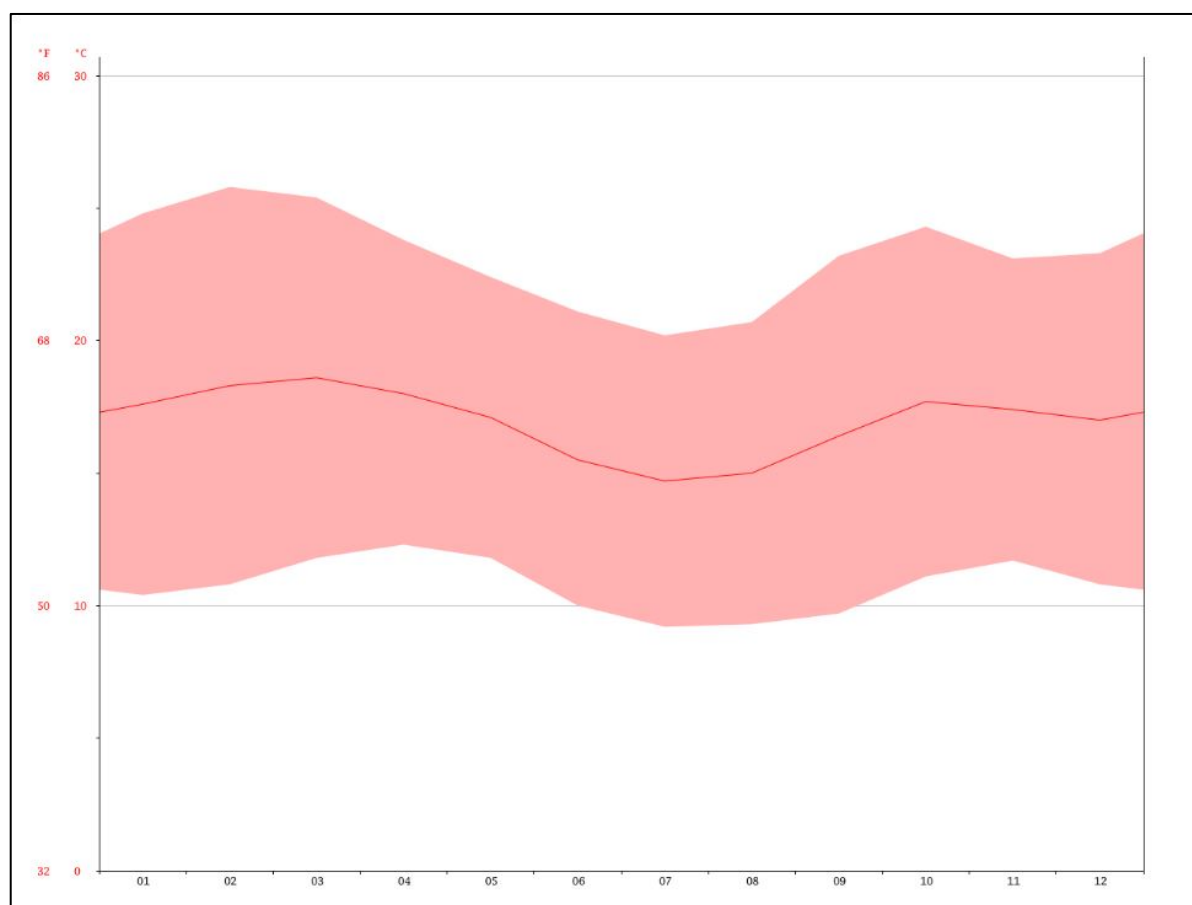
Source: <http://www.weatherbase.com/weather/>

3.2.5.2 Temperature

The area has a generally warm and temperate climate. The highest temperatures are recorded in March (19.2 °C) while the lowest are experienced in July (15.4°C). The monthly temperatures are relatively low compared to other areas such as Nairobi and Thika hence favourable for perennial cash crops production. The table 4 illustrates the annual distribution of temperature in the region.

Table 4: Githunguri Annual Temperature Distribution

Githunguri Annual Average Temperatures table												
MONTHS	January	February	March	April	May	June	July	August	September	October	November	December
CELSIUS	18.3	18.8	19.2	18.8	17.6	16.2	15.4	15.7	17	18.3	17.9	17.9

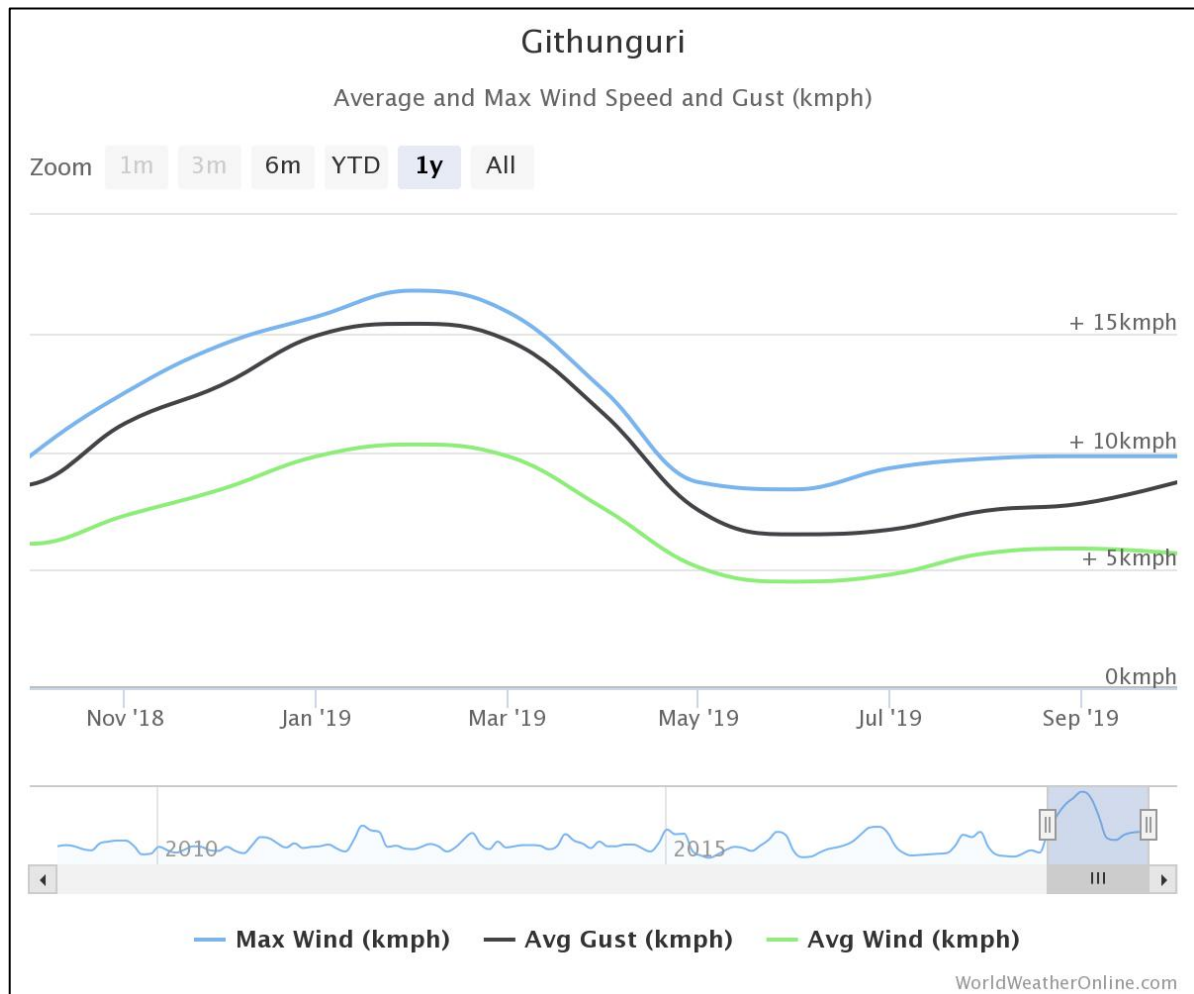


Graph 4: Githunguri Annual Temperature

Source: (<https://en.climate-data.org>). 2019

3.2.5.3 Wind

Graph 5: Githunguri Wind

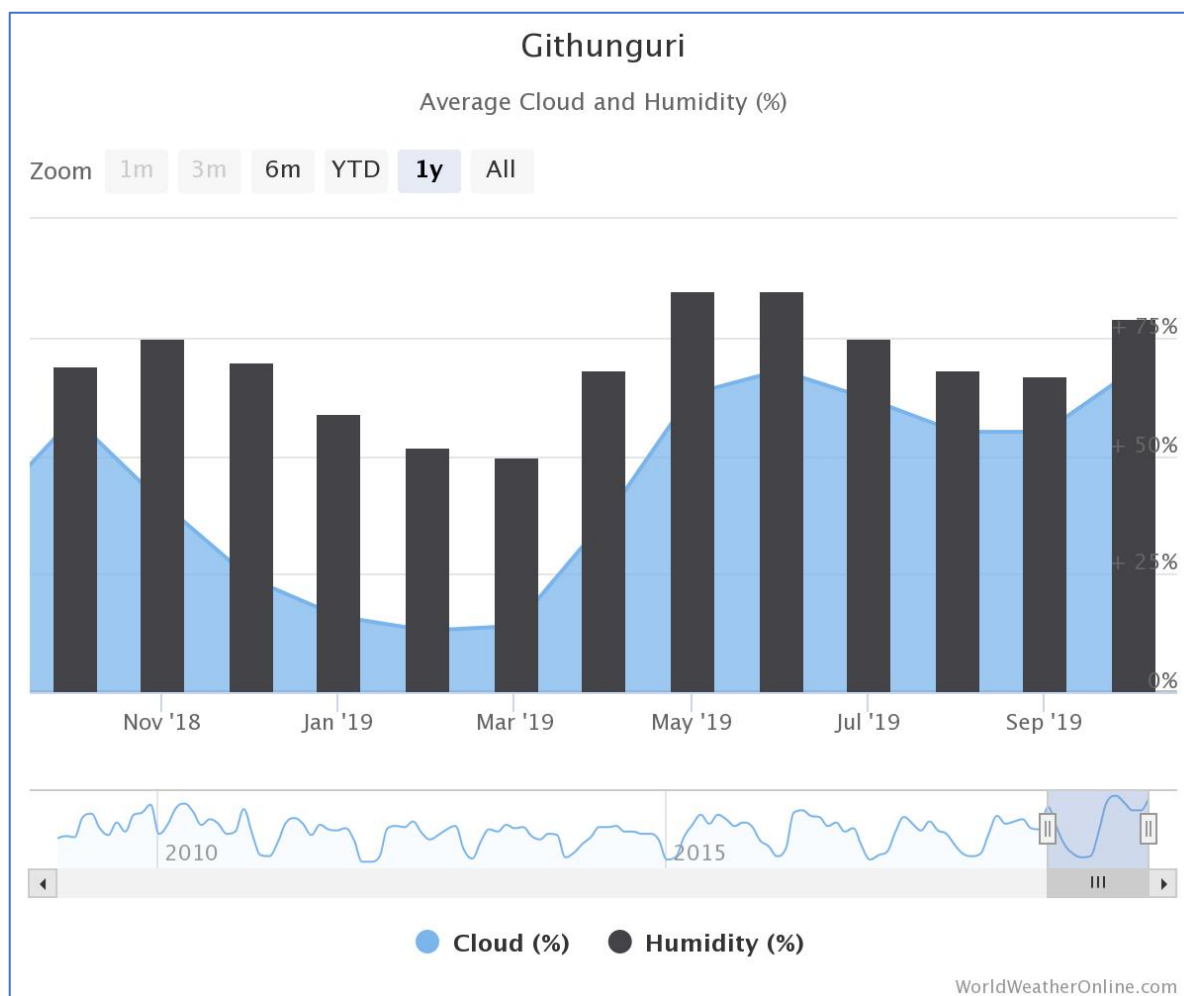


The direction of surface winds is predominantly easterly throughout the entire year. It is shifted to the northeast between October and April, and again shifted to the southeast between May and September. The strongest winds occur right before the “Long Rains” season reaching speeds of 15 to 20 km per hour. During the rest of the year, winds are usually at average speeds of 6 to 12 km per hour.

([https:// world weatheronline .com](https://worldweatheronline.com) 2019)

3.2.5.4 Humidity

Because of Githunguri’s location south of the equator and in combination with humid air pumped in from the Indian Ocean, the humidity values for each day are generally on the higher end. The Average Humidity Values are given in the graph below. There is a generally relationship between humidity and cloud cover with low percentage of cloud cover corresponding to low averages of humidity. The most humid months being May-June and October -November



Graph 6: Githunguri Humidity

3.2.5.5 Altitude

The Githunguri planning area lies between 1800m and 1900m above sea level which puts it in the transition zone between the Upper Highland Zone (1,800-2,550 metres above sea level) and the Lower Highlands Zone (1,500-1,800 metres above sea level).

The Upper Highlands Zone is dominated by highly dissected ranges and it is very wet, steep and important as a water catchment area. The Lower Highland Zone is characterised by hills, plateaus, and high-elevation plains, and is generally a tea and dairy zone though some activities like growing of maize, horticultural crops and sheep farming are also practised.

The northern and north-western parts of the study area (roughly defined by the C65) are considerably higher than the southern and south-eastern parts of the study area, with an approximately 100m drop in elevation.

2.1 EMERGING PLANNING ISSUES

The physiographic nature of Githunguri Town presents various opportunities and challenges to development.

Table 5:Emerging issues on physiographic characteristics

Sector	Potential Opportunities	Constraints
Topography and Altitude	<ul style="list-style-type: none"> ▪ Existence of springs at the lower levels of valleys ▪ Provide catchment for water and support gravity reticulation 	<ul style="list-style-type: none"> ▪ Areas with Steep slopes of gradients more than 21% are unfavorable for developments ▪ Irregular and curving patterns of steep slopes the southern part of the planning area results in a fairly irregular movement network and present challenges of vehicular access
Geology and soils	<ul style="list-style-type: none"> ▪ Generally provide good aquifers with high precipitations ensuring sufficient recharge of ground water ▪ The soils are well drained and very fertile to support agriculture ▪ The un-weathered basaltic rock are foundation for construction material when crushed ▪ The weathered basaltic rock products are suitable impervious fill material for embankment of dams. 	<ul style="list-style-type: none"> ▪ Prevalent soil erosion especially on steep slopes mostly due to cultivation activities. ▪ Threat to environment with uncontrolled quarrying activities
Hydrology and drainage	<ul style="list-style-type: none"> ▪ The several rivers in the planning area namely: River Kiruchi, Mukuyu, Kiiria, Karueti and Ruiru. The riparian can be a recreation and conservation area. ▪ Source of water for domestic use 	<ul style="list-style-type: none"> ▪ Erosion along the river beds due to cultivation up to the edges of the rivers and streams ▪ River pollution downstream from agro chemical residuals from agriculture activities
Vegetation	<ul style="list-style-type: none"> ▪ Agroforestry- Plantation of trees on farms. ▪ Perennial crops like coffee and tea 	<ul style="list-style-type: none"> ▪ Loss of Biodiversity due to agriculture and Human settlement
Climate	<ul style="list-style-type: none"> ▪ Favorable climate that favors agriculture including Dairy farming and crop production 	<ul style="list-style-type: none"> ▪ Threat of climate change leading to erratic rainfall patterns.
Altitude	<ul style="list-style-type: none"> ▪ Favorable for water catchment area 	<ul style="list-style-type: none"> ▪ Poor farming methods on the sloppy areas leading to d ▪ Land degradation via erosion

4 CHAPTER FOUR: POPULATION AND DEMOGRAPHY

4.1. Overview

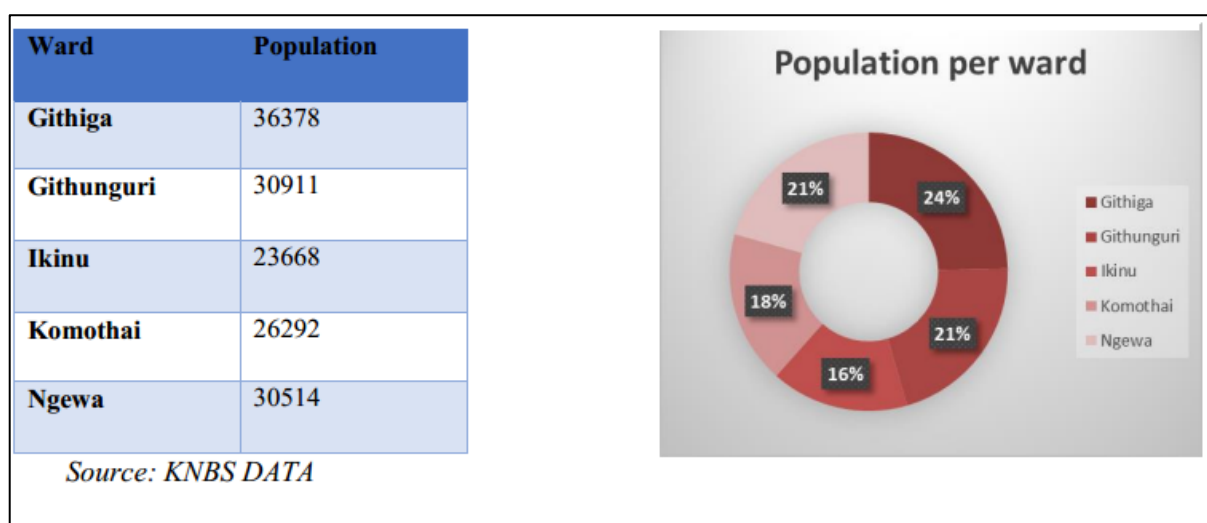
Population refers to the number of people living in a particular area from a village to the whole world as a whole. Demography is the size, structure, and distribution of these populations, and spatial and/or temporal changes in them in response to birth, migration, aging, and death.

4.2. POPULATION STRUCTURE

4.2.1. Population Size and Composition

Githunguri Sub County had a population of 147, 763 in 2009 with 72,845 males and 74,918 being women. The males made up 51% of the population while women made 49% of the population. Githunguri is made up of five wards namely; Githiga, Githunguri, Ikinu, Komothai, Ngewa.

Table 6: Population Size

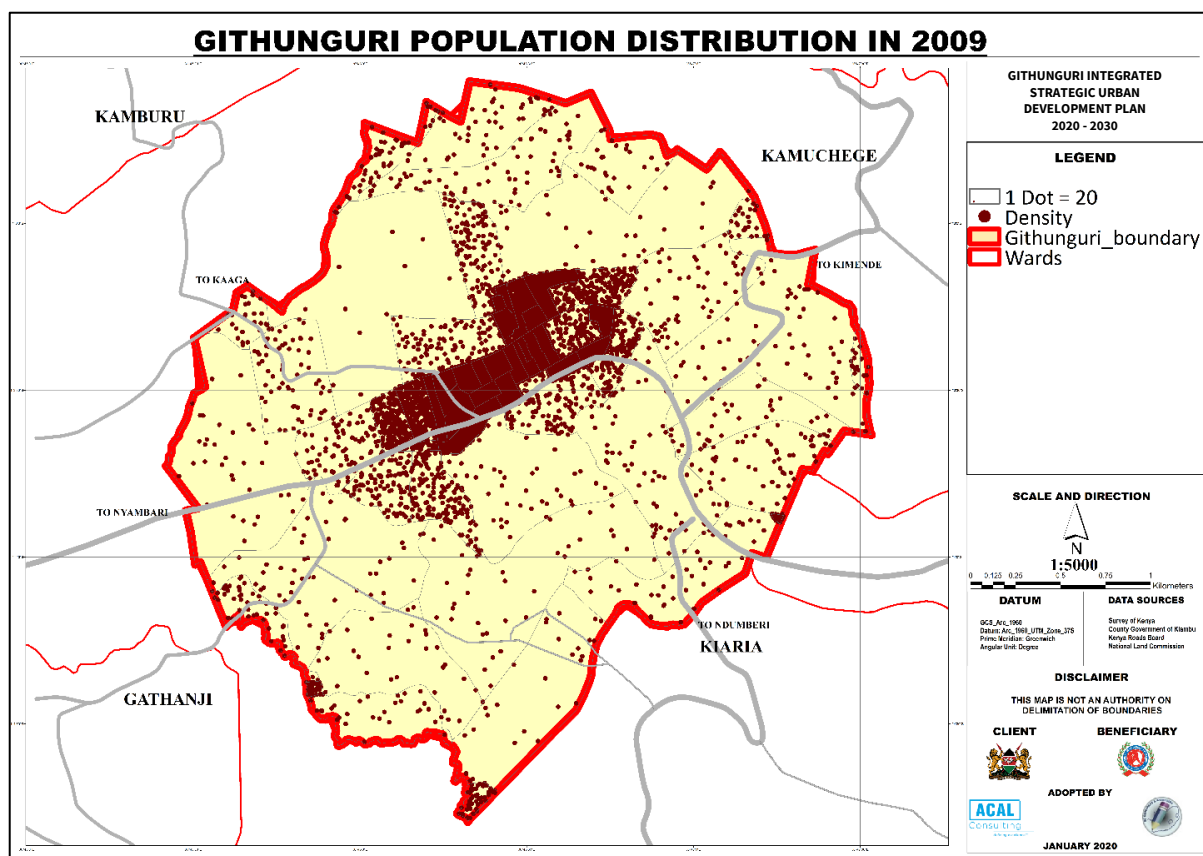


Githunguri Sub County which forms the administrative boundary of the planning area has a population density of 1020 persons/Km² in reference to 2018 projected population density with the 2009 Population and Housing Census as the base (*Kiambu CIDP*). This was assumed to be the density of the planning area. The density is projected to reach 1118 people per square kilometre.

Most of the people have settled along the C65 road that and the trend indicate that there is increasing settlement in the hinterland. By the year 2030, there is possibility of high settlements densities and consequently conversion of chunk of land to residential. As indicated in the map 11 population density in the core urban area ranges from 300-700 persons per hectare and distributed along the C65 road. The other parts have a varying density ranging from 11-300 people per hectare.

There is a section at the far south of planning area that has the lowest density of below 6 persons per hectare. This trend present a potential increase in this density.

The map 11 show population distribution



Map 12: Githunguri Population Distribution.

Source: Acal and BC Gildenhuys & associates 2020

4.2.2. Population Distribution

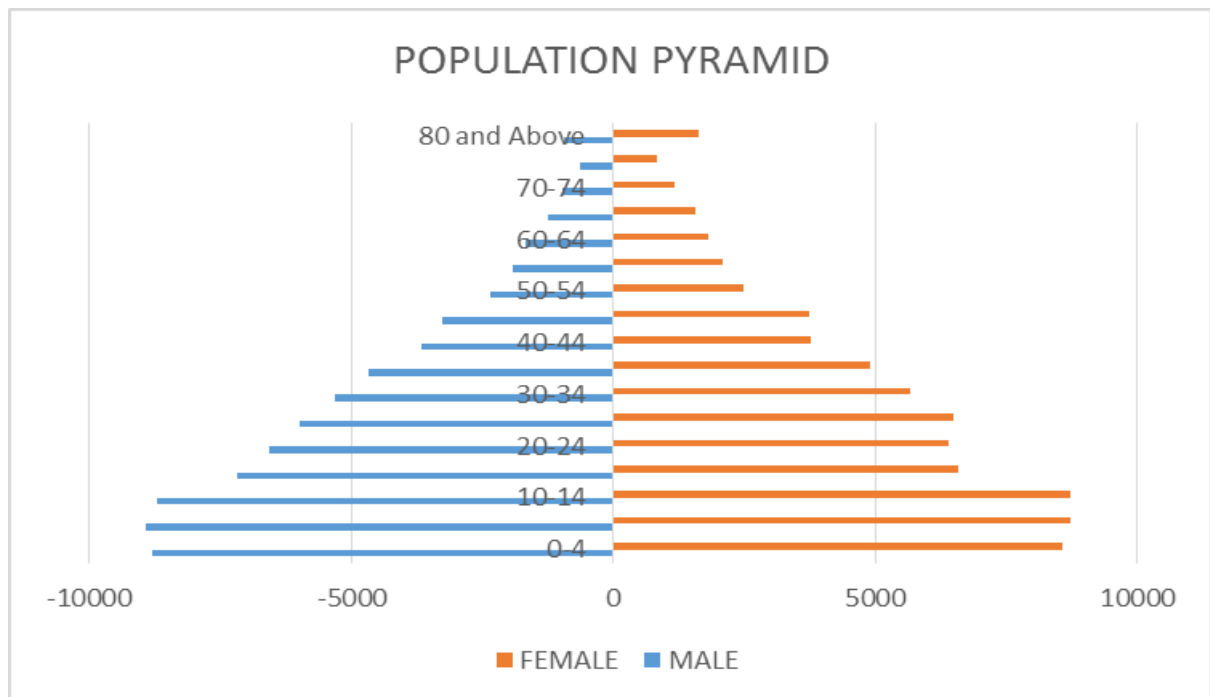
It worth noting that distribution according to age and gender presented an empirical and constant relationship to that of Kiambu County. This trend has been a common phenomenon in the whole county. The study area population is 0.81 % of the Kiambu county population (KNBS 2009). This proportion is applicable in accessing age and sex distribution of population from the table 7

Table 7: Kiambu County Population Structure

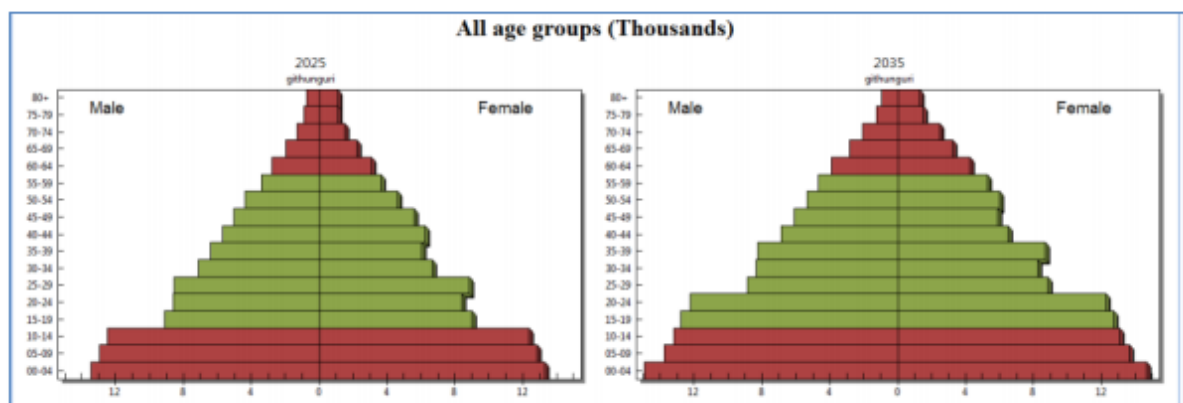
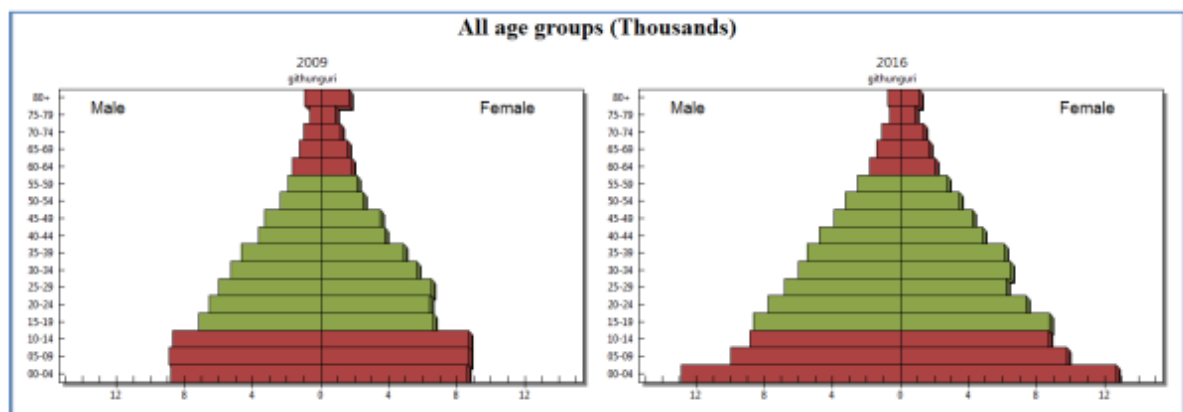
Age bracket	Population	Projections		
		2018	2020	2022
Under 1 year	44,175	55,402	58,442	62,076
Under 5 years	203,835	263,026	275,965	289,328
Pre-Primary School age(3-5years)	81,265	106,124	113,092	119,687
Primary School age (6-13 years)	250,058	321,717	342,354	362,360
Secondary School Age(14-17years)	119,301	149,662	156,514	162,862
Youthful Age group (15-29years)	472,745	629,447	663,314	697,317
Labour Force(15-54 years)	961,261	1,28,227	1,280,341	1,137,825
Aged Population (65 and above)	59,057	78,445	80,082	88,892

Source: Kiambu CIDP, 2018

It is evident that 59.2 % of the total population of Kiambu County falls within the prime working age bracket of 15-64 years with 29.1 % being youths. This productive population (15-64 years) is projected to rise from the current projected total labour force of 961,261 persons in 2018 to 1,137,825 in 2022 necessitating creation of new jobs to absorb the expected bulge of potential workers. This has a direct implication on Githunguri town as one of the centres of concentration of human activity.



Implication of population trends (age cohorts) on production of Githunguri



Graph 7: Githunguri population pyramid

Under 1 year

The population of this age group was expected to increase from 8565 in 2010 to 10,391 in 2016. The numbers are projected to increase further to 10,844 in 2025 and 12,185 in 2035 as indicated in the pyramid. The gradual growth is as a result of improved nutrition which enhances better health care for infants, and the result is reduced infant mortality. The projected growth of children in this segment of the population implies that more Early Childhood Development (ECD) centres and programmes should be developed to meet the increasing population.

Primary school age (3-13 years)

There is a projected increase in the number of children of the primary school going age from 39,149 in 2009 to 45,657 in 2017 to 56,302 in 2025 and to 59,994 in 2035. This increase is likely to create pressure on the available education facilities in the county. The implication is that more primary schools would have to be constructed and more teachers employed to cater for the increasing number of children in this age-group.

Female reproductive age Group (15-49 years)

The pyramid shows an increase in the numbers of the females in the reproductive age group from 73,967 in 2009 to 87,385 in 2016 to 101,318 in 2025 and further to 126,684. This increase means there is need to increase family planning practices awareness campaigns which will in turn address the high population growth rates. Strategies to counter rapid population growth problems such as inadequate food supply should be put in place, and should include smart and mechanized agriculture to improve food security.

Youth Age Group (15-29 years)

There is a gradual increase in the number of youth population from 39,251 in 2009 to 45,587 in 2015 to 52,499 and 67,733 in 2025 and 2035 respectively as shown in the pyramid. This implies increase in the number of labour active population, and also an increased population in the child bearing age. More investments therefore should be made to vocational training centres, tertiary institutions and youth empowerment centres. These will equip the youth with necessary skills for active production.

Secondary School Age (14–17 years)

The population of the secondary school going age is expected to increase all over the years from 11,699 in 2009 to 13,904 in 2016 to 16,242 and 20,651 in 2025 and 2035 respectively. This will in turn increase demand for more secondary schools, and also increase the literacy levels of Githunguri population if the transition levels from primary to secondary schools will be high.

Working population (18-64 years)

The labour force in the constituency (18-64 years) rises as shown in the pyramid from 77,735 in 2009 to 92,631 in 2016 and is projected to reach 111,918 in 2025 and 140,684 in 2035. This means more available labour for active production over time. More employment avenues will then be needed to merge this population, coupled by equipment of skills in tertiary institutions to nurture self-employment. Specific emphasis on employment creation by the informal sector should be put under consideration.

Aged population (65 and above)

There is an increase in population aged 65 years and above from 8,984 in 2009 to 8,876 in 2016 and further to 10,830 and 15,573 in 2025 and 2035. This is mainly due to improved lifestyles, improved health care and good nutrition, and therefore reduced mortality among the elderly. This increase calls upon enhancement of the social security programmes such as Cash Transfer Programme for the elderly to ensure their welfare is well taken care of.

4.2.3. Population Projection

Population was projected for Githunguri sub-county up to as follows the year 2035. The sex ratio of male to female is approximately 1:1.02. The annual growth rate is relatively lower growth rate of Githunguri is at 2.53% compared to Kiambu County which is at 2.81% due to:

- a) It is relatively rural compared to other towns in Kiambu such as Ruiru, Kahawa Wendani and Thika town

b) Other more developed towns are at a closer proximity to Nairobi compared to Githunguri. Such towns include: Thika, Juja, and Ruiru among others.

The tables below show various population projections

Table 8: Gender Population projection

	2009	2012	2016	2020	2025	2030	2035
YEAR							
MALE	72845	79160	88440	98807	113492	130359	149734
FEMALE	74918	81413	90956	101619	116722	134069	153995
TOTAL	147,763	160,573	179,396	200,426	230,214	264,429	303,728

Source: 2009, Census report

Table 9: Population density projection

	2009	2012	2016	2020	2025	2030	2035
DENSITY (KM ²)	852	926	1034	1156	1327	1525	1751
GITHUNGURI	147,763	160,760	179,605	200,660	230,482	264,737	304,082

Source: Kiambu County CIDP

Table 10:Ward population density

WARD	2009	2012	2016	2020	2025	2030	2035
GITHIGA	36378	39532	44166	49343	56678	65100	74775
GITHUNGURI	30911	33591	37528	41928	48159	55317	63538
IKINU	23668	25720	28735	32103	36875	42355	48650
KOMOTHAH	26292	28571	31921	35663	40963	47051	54043
NGEWA	30514	33159	37046	41389	47541	54606	62722

Source: 2009, Census report

The population of the planning area is projected at a Kenya National Urban growth rate average of 4.4% to rise from the current 13,174 persons to 23,576 in the year 2030. The five year interval is critical for planning as it forms the basis of designation of land for various urban land uses. The population projection trends with the highest, medium and lowest expected population that is determined by demographic characteristic.

4.3. DEMOGRAPHIC CHARACTERISTICS

The Human Development Index for Kiambu County is 0.56 which is above the national HDI (KNBS, 2013). This implies that the area is well up in terms of provision of social infrastructure facility and has a potential to produce surplus for improvement of other areas livelihood. The strong agricultural basis is the pillar of the quality life of the people in Githunguri.

The total dependency ratio of the county stands at 63% in 2009 according to the NCPD, Central region and is projected to decrease to 46.7 by 2022, and 42 % by 2050. This however is the effect of the adoption of measure to control birth rate that may contribute to drastic reduction in the birth rate in the country at large let alone Kiambu County. The county has an acute level of unemployment of 60% with majority considered to have no skills (CIDP, 2018). Investment frameworks and skill-based opportunity is a need in the county major activity nodes like the planning area.

Has an average fertility rate of 3.4% as at 2009 and is projected to decrease to 2.2% in 2022, and 2.1% in 2050 due to reproductive health education and technologies. The adoption of family planning programs and reproductive health measure has reduced risk of child mortality led to manageable family sizes.

Literacy levels in the entire Kiambu county stand at 95 per cent of people who can read and write. It is slightly high in the planning area since it is urbanizing. This shows that the population in the area can easily adopt new technologies and integrate with other communities. The proficiency of national languages (Kiswahili and English) is a key indicator of the levels of understanding and dissemination of information.

Morbidity -The most prevalent diseases in the county are flu which accounts for 35.3 per cent of the total hospital visits, malaria accounts for 18.6 per cent of the total hospital visits, Respiratory Tract Infections (RTI) at 9.7 per cent, and Ear Nose and Throat (ENT) infections account for 3.1 per cent of hospital visits. This is represented in Figure 3 below.

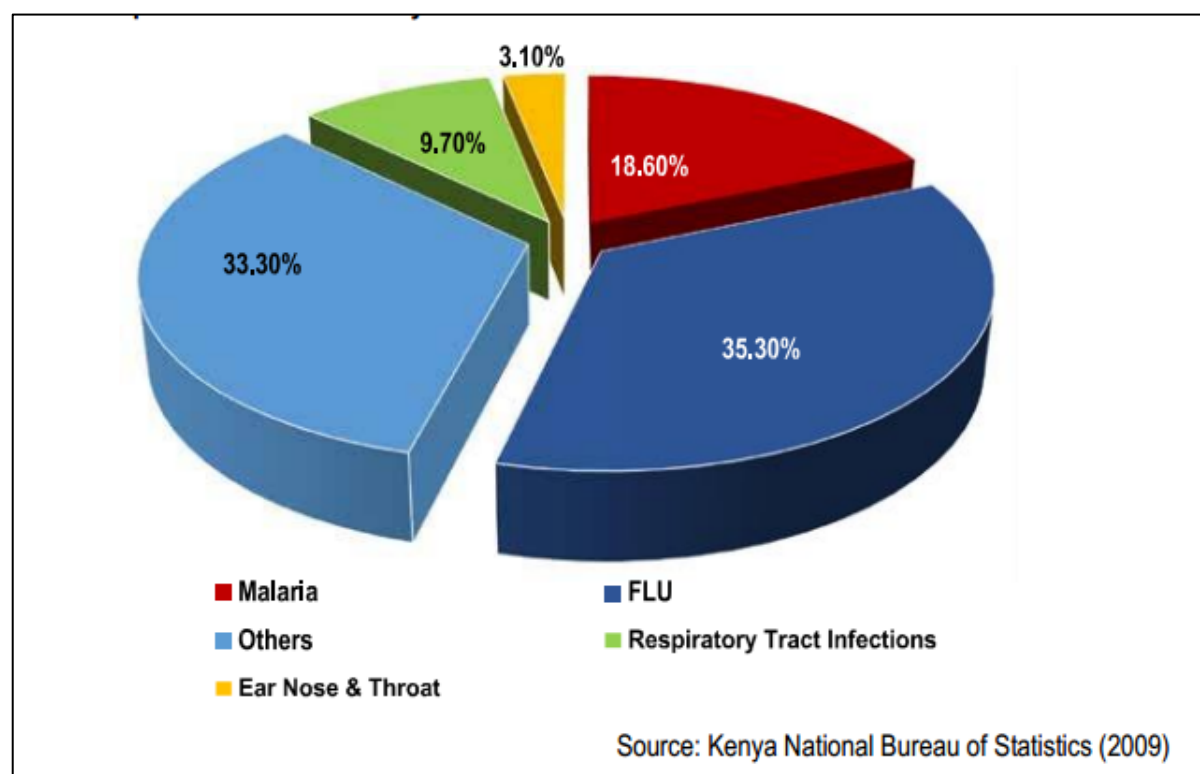


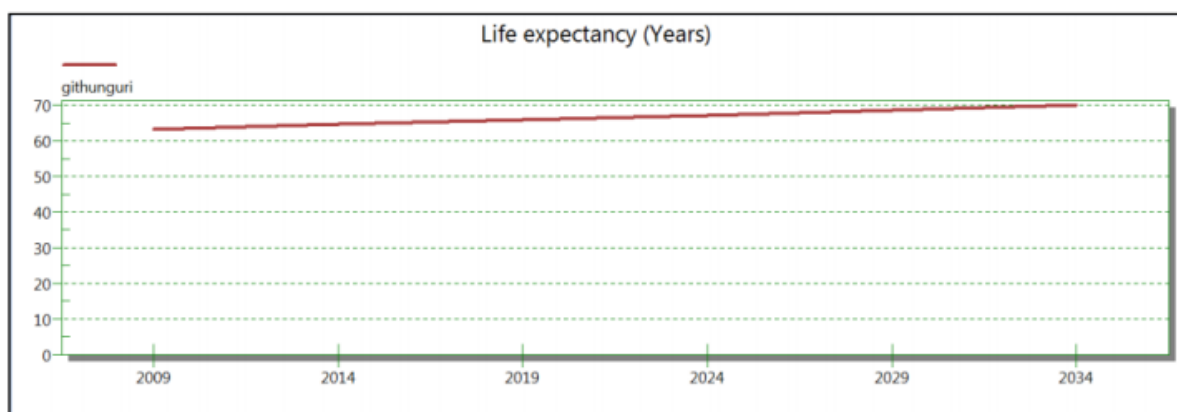
Figure 3: prevalent diseases in the county

Life expectancy

Life expectancy refers to the average number of years a new-born can expect to live based on the mortality conditions at the time.

The average life expectancy in Githunguri is expected to increase from 63.6 in 2010 to 65.2 in 2016 and further to 67.5 and 70.5 in 2025 and 2035 respectively. For the males it increases from 61.4 in 2010 to 65.0 in 2016 and further to 67.8 in 2035 and from 65.7 in 2010 to 67.5 in 2016 to 72.7 in 2035 for the females. This is an indicator of increased food supply and nutrition, improved health facilities and improved hygiene. Most people will be able to live a healthy life with less vulnerability to diseases. Females tend to have a higher life expectancy than male due to: vigorous household chores among female, ability to express one feelings and problems and increased caution to proper health and lifestyle compared to the male.

The graph below shows projected increase in life expectancy in Githunguri from 2009 to 2034



Source: KNBS, 2016

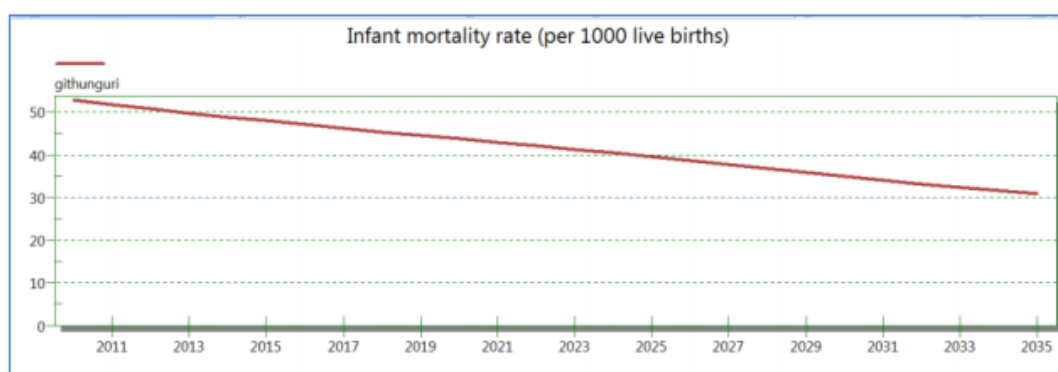
Graph 8: Life expectancy

Infant mortality rate (IMR)

The infant mortality rate is the number of deaths of infants under 1-year-old per 1000 live births.

The infant mortality rate in Githunguri reduced from 52.8 in 2010 to 47.0 in 2016. It is further expected to reduce to 39.5 in 2025 and 30.8 in 2035. This is attributed to increased maternal health care services and facilities in the grassroots with projects such as beyond zero campaigns, insurance services such as NHIF for delivery services and free prenatal care.

The graph below shows reducing infant mortality rates in Githunguri as projected from 2009 to 2035



Source: KNBS, 2016

Graph 9: infant mortality rates

Employment and education levels in Githunguri constituency

Education level.

Table 11: Employment and education levels

Education level	Work for pay	Family b/s	Agric holding	Interns	Retired	Student	Incapacitated	No work	Total pop.
Total	30.7	13.3	30.5	0.7	6.5	12.6	0.4	5.2	86,044
None	28.9	10.7	40.8	2.9	7.3	1.2	4.0	4.3	2,724
Primary	33.2	13.4	35.0	0.5	6.9	5.6	0.5	4.9	37,495
Sec	28.8	13.4	26.3	0.8	6.2	18.9	0.2	5.6	45,825

Source: KNBS, 2016

From the above table, 74.5% of the total population in the constituency are involved in activities

that bring them income. I.e. they work for pay, practice agriculture or are involved in family businesses. The other 25.5% of the population do not earn any income; this shows that dependency rates are high in the constituency. This thereby increases the poverty levels in Githunguri.

4.4. SOCIAL ANALYSIS

4.4.1. Culture and Religion

As the most dominant community in the County, the Kikuyu social and cultural practices are pre-dominant. In particular traditions and culture of land inheritance has an effect on land resources use and management. Social and cultural traditions in the society are also affecting politics, religion, education which in the Kikuyu traditional governance through “ciama” allowed for consultations and participation in decision making. The ciama were responsible for setting up independent schools and inculcated social responsibility through informal education and religion. Learning and the acquisition of knowledge and skills for making implements were also emphasized. However the practice of land inheritance has led to continuous sub-division of land to uneconomical sizes due to lack of other options. Moreover the extractive nature in their livelihood has led to environmental degradation. There is a general perception that nature’s wealth is infinite and these wealth resources are in turn influencing existing economics and environmental conditions in the county. The culture has both positive and negative influence on development. Positive influence on development is attested by their attachment to land and work ethics. The Kikuyus till their land and create wealth for their domestic consumption and cash crops traded to neighbouring less productive and urban areas. Farmers explaining the reasons they occupied central provinces and lower eastern.

Minorities; Persons living with disabilities:

The population of Persons with Disabilities comprises: the visual 0.4 per cent, hearing 0.23 per cent, speech 0.42 per cent, physical/self-care 0.79 per cent, mental 0.32 per cent and others 0.15 per cent. The total percentage is 2.38 per cent of the total population. These groups of people are vulnerable and experience low capital base, inappropriate entrepreneurial and vocational skills and unemployment. This leads to increase in dependency ratio (100:71). The groups should be incorporated in development planning so that their needs are implemented. Currently, these groups live in various parts of the county and implement their activities individually. The cash transfer programme for the persons with disabilities should be enhanced to ensure members are empowered economically to make them independent

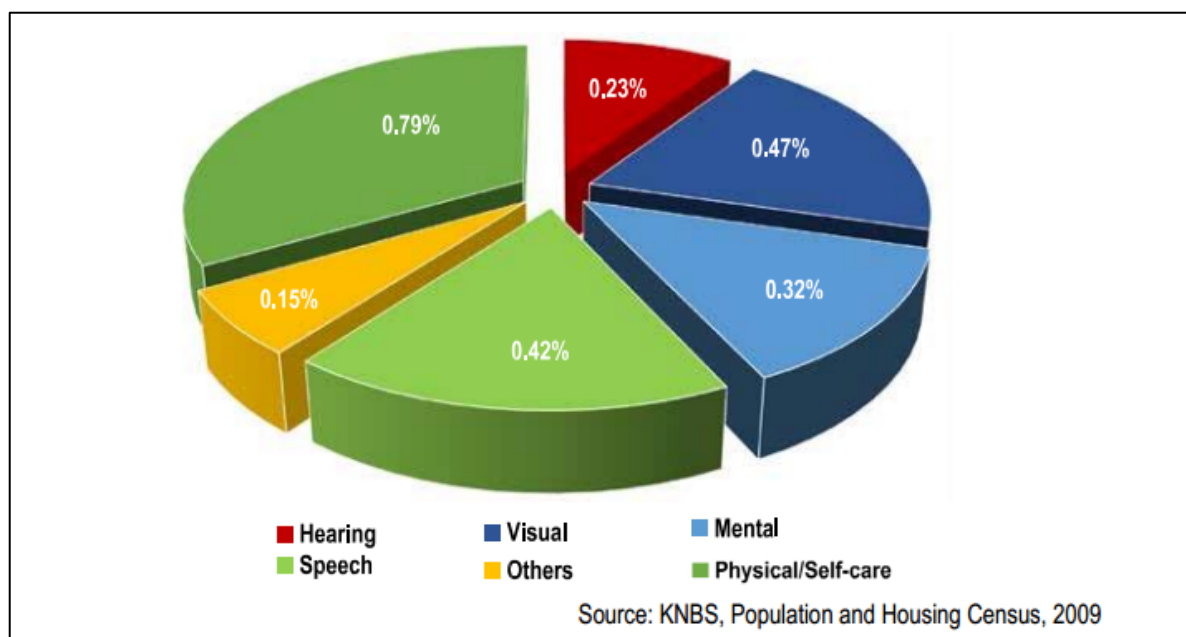


Figure 4: Persons living with disabilities

4.5. EMERGING PLANNING ISSUES

The demographic nature of Githunguri Town presents various opportunities and challenges to development.

Table 12: Emerging issues on demographic characteristics

Sector:	Opportunity:	Constraints:
Population structure	<p>Population size and Distribution</p> <p>Large percentage of Youthful population provides an opportunity for innovation and technology and ensures that there is an available workforce</p> <p>Population projections</p> <p>Good for planning as it forms the basis of designation of land for various urban land uses for increasing population</p> <p>Population Density</p> <p>Concentration of population in urban centres supports growth of the nodes</p>	<p>Expected bulge of Potential workers (productive age) in absence of creation of new jobs will lead to acute unemployment levels in the region</p> <p>Lack of services to cater for increased population</p> <p>Lack of commensurate supporting physical and social infrastructure</p>
Demographic Characteristics	<p>Human Development Index for Kiambu County is 0.56 which is above the national HDI (KNBS, 2013). Implies that the area is well up in terms of provision of social infrastructure facility and have a potential to produce surplus for improvement of other areas livelihood</p> <p>Increasing projected life expectancy, an indicator of increased food supply and nutrition, improved health facilities and improved hygiene</p>	<p>High levels of unemployment</p> <p>Emigration of skilled work force to other areas of the county.</p>

	Reduced infant mortality rate	
Social analysis	<p>Minority People living with disabilities</p> <ul style="list-style-type: none"> • Availability cash transfer programme for the persons with disabilities • Inclusion in development planning to reduce dependency ratio <p>Culture and religion</p> <ul style="list-style-type: none"> • Existence of governance structure to aid in public participation and decision making 	<ul style="list-style-type: none"> • Increased dependency Ration • Land inheritance culture leading to land fragmentation

5 CHAPTER FIVE: LAND USE ANALYSIS

5.1 Introduction

Land is a major resource and fundamental in development. It is limited in supply and therefore should be well planned to attain maximum use of land. Most of Githunguri land is developable with a few exemptions of undevelopable land that is that covered by forests, buffer zones and dam. The developable land is classified into different uses.

5.2 LAND TENURE SYSTEM

The most predominant type of land tenure system planning area is freehold with most of the residents having acquired their land through inheritance. Out of the 83.8% who own the land on a freehold tenure system, 67.5% acquired their land through inheritance.

The figure below shows mode of land acquisition

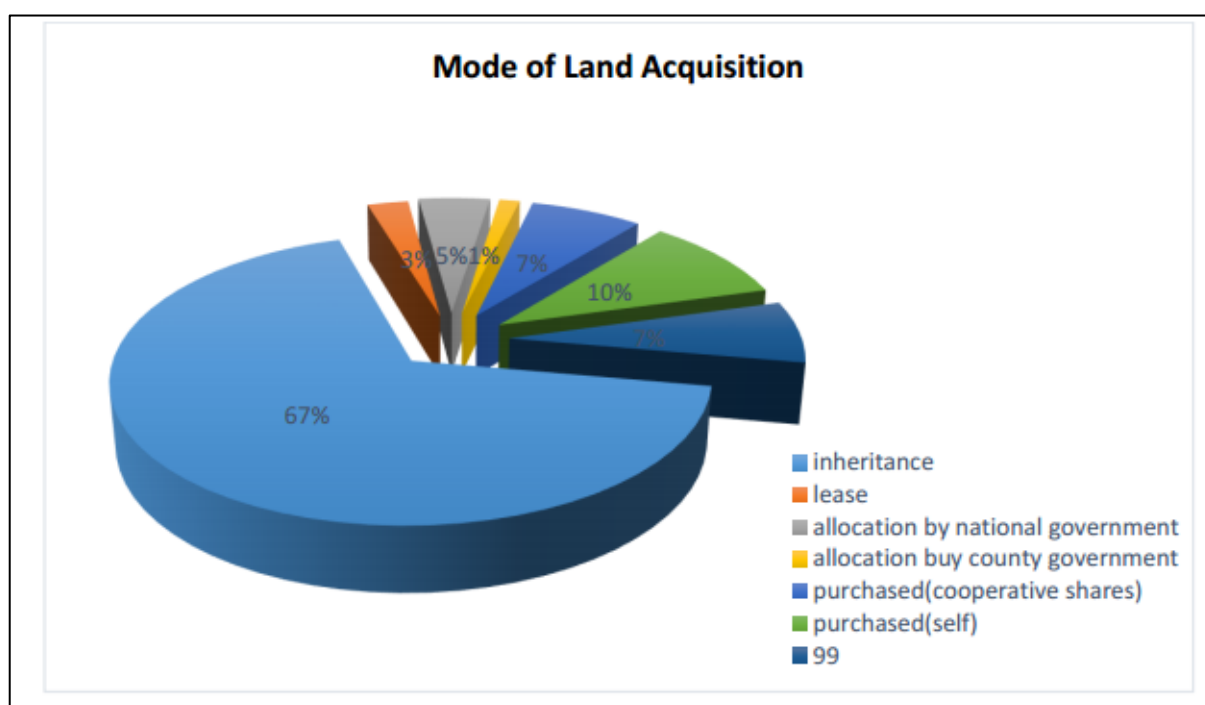


Figure 5: Mode of land acquisition

Source: Acal and BC Gildenhuys & associates 2020

Approximately 2.65% of the population acquired their land through leasing while 4.5% and 3.5% obtained the same through allocation by the national government and county government respectively

Land holding in Githunguri

The average land holding in Kiambu County is 0.36Ha on small scale and 69.5Ha on large scale (Kiambu CIDP). However, Githunguri Sub County is not listed as those that have most of the small-scale holdings in the county neither as those that have large scale holdings. This means that the sub county has average land holding. From the land use survey most of the residential

Land fragmentation and subdivision

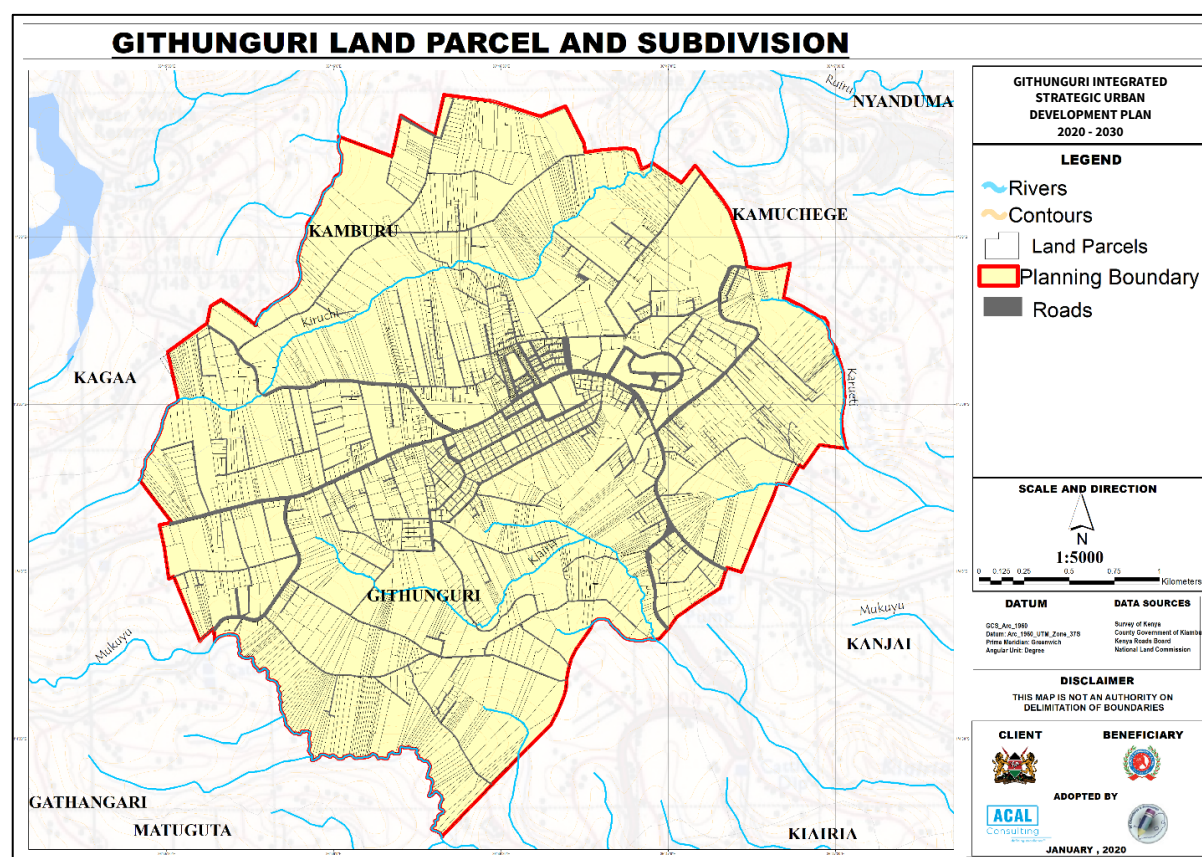
Land fragmentation and sub-division has been on the rise in Githunguri sub-county in all wards except Komothai ward which was noted as the least subdivided among the wards due to large coffee plantations. Komothai ward has average land acreage of 3 to 5 acres compared to the rest of the wards that have average land acreage of 1 to 2 acres. From the land use survey 53% of the parcels had an area less than 0.2 ha. The table below shows plot sizes in the planning area,

Table 13: Plot sizes in the planning

Size of Land Parcel	No of Land Parcels	%
Smaller than 250m ²	116	3.12
Between 250m ² and 999m ²	1165	31.05
Between 1,000m ² and 1,999m ²	615.00	16.52
Between 2,000m ² and 4,999m ²	944.00	25.36
Between 5,000m ² and 9,999m ²	471.00	12.65
Between 10,000m ² and 19,999m ²	277.00	7.44
More than 20,000m ² 2	144.00	3.87
	3723	100.00

Source: EcoPlan Ltd, 2019

Further map 12 shows plot sizes in the planning area



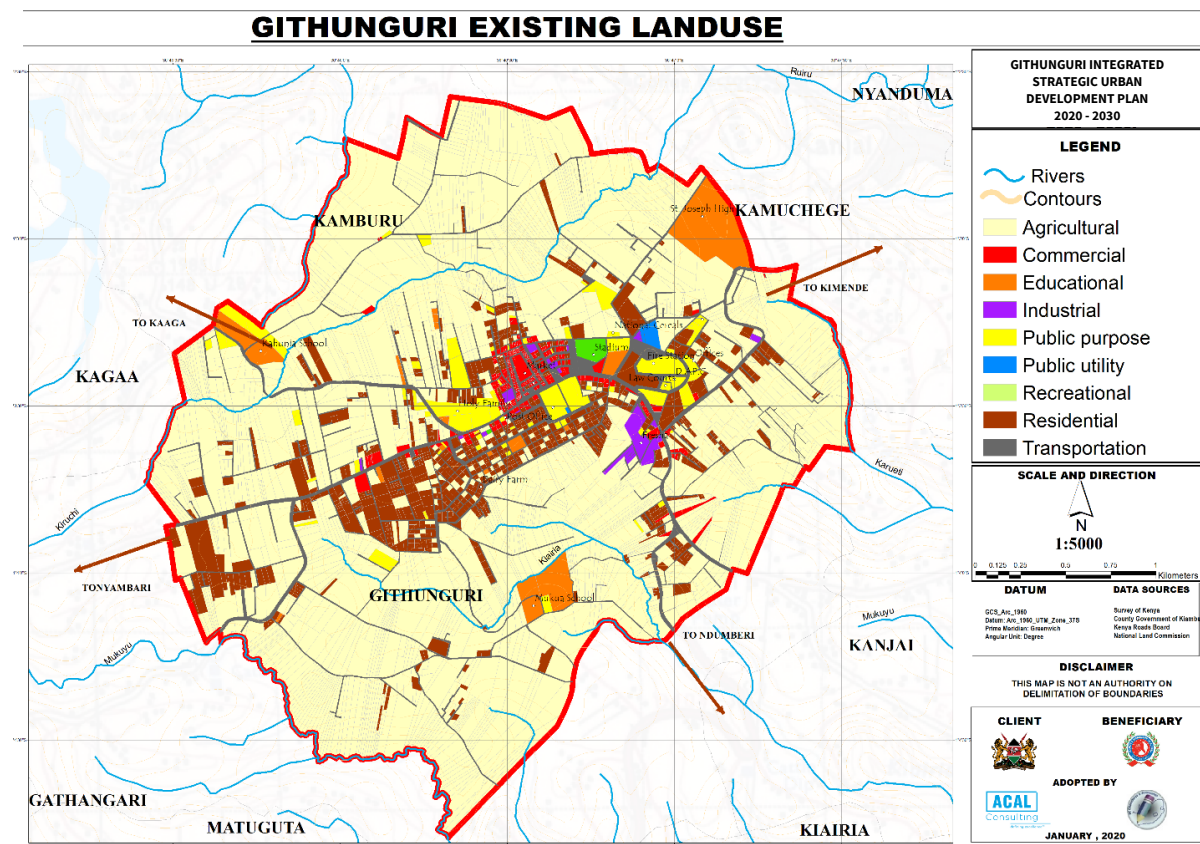
Map 13: Land Sizes and Subdivision

Source: Acal and BC Gildenhuys & associates 2020

2.2 LAND USE PATTERNS

Land in Githunguri town is put under diverse uses. More than 46% of the total number of parcels in planning area is under agricultural use. This is translated into over 72 % of the total area in the planning area confirming

the rural nature of the town and its surroundings. Residential uses occupy 30.1% of the total parcels (9.7% of the area) with an average is of 1 169,2m². Commercial sites represent the third highest number of parcels (272) while the average size of commercial parcels is modest at 462 m². The structure of the existing land uses is demonstrated spatially by the map 13



Map 14:Existing Land Use Structure

Source: Acal and BC Gildenhuys & associates 2020



plate 1: Commercial Use (Githunguri Market)

A breakdown of sizes of different land uses is described in the figure

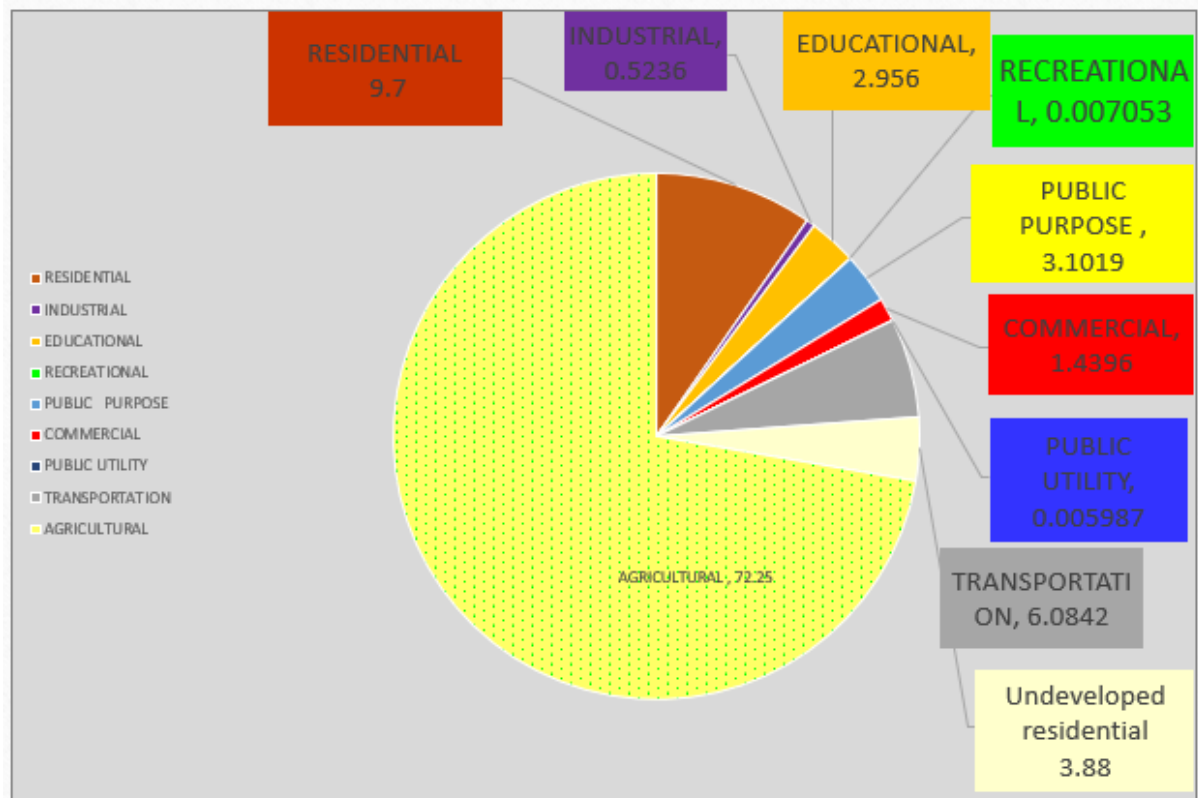


Figure 6:Land Use Percentages

Source: Acal and BC Gildenhuys & associates 2020

Land use trend analysis:

The landuse trend as examined from google image at intervals of 10 years from the year 2000, shows that the built area has significantly increased with of 0.46 km² between 2000 and 2009. There was a significant expansion of 1.29 km² in the last 9 years. The trend indicates that the expansion has been along the major spine C65 having stretche an approximate distance of 1.2km since the year 2000. The direction of growth of the town is towards the south eastern side of the planning area as indicated in the figure below

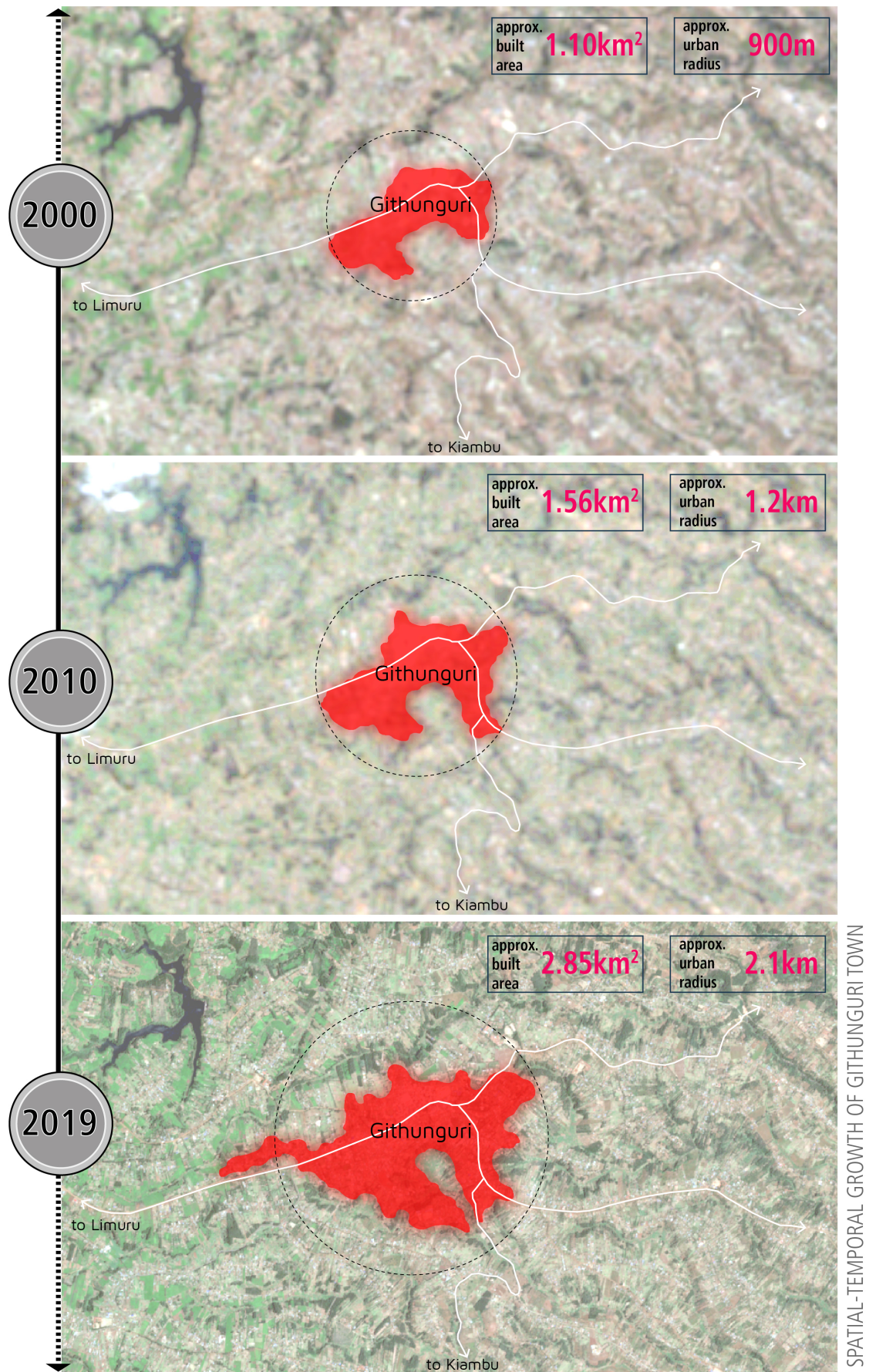


Figure 7: Development Trend Analysis

Land values

The average land value for Githunguri per acre is 5 Million for prime land. However, Githunguri having the highest rate of urbanization in the sub-county its land prices are higher up-to 16 Million per acre.

Table 14: Land values for specific areas in Githunguri

LOCATION	2010 Price per acre	2016 prices per acre
Githunguri	5 Million	16M
Githiga	1-2 Million	3-5 Million
Kwa maiko	2 Million	4.5 Million
Ikinu	2 Million	6 Million
Komothai	500,000	1.8-2.2 Million
Kiambururu	1-2 Million	6 Million

2.3 PROJECTED LAND USE REQUIREMENT

The land budget was prepared to respond to the need of the projected population. In a nutshell the population growth for urban areas in Kenya is 4.4% per annum as mentioned earlier in Chapter 4. That said, the land use provision standards were obtained from the Draft Physical Planning Handbook. It is worth noting that in the current millennium dispensation, the increased population eat up natural environment replacing it with built environment. This calls for smart concepts of vertical development for proper and compact land uses. Residential land demand tops in the list with different densities outlined in the planning handbook the following assumptions were made

- Land budget based on developable land within the planning area
- By 2030 core urban will have 65% of the total urban land while peri-urban takes 35%. This is informed by the policy Vision 2030 which presupposes over 60% of Kenya will be Urbanized.
- High density will take 20%, medium 35% and low 45% of land allocated for residential land use. This is informed by planning Handbook 2008.

The table 15 shows land use demand for 2030.

Table 15: Githunguri planning area Land Use Projection

Code	Land use	Existing Land Use		Land Demand (2030)	Proposed Area (Ha)	
		Area (Ha)	(%)		Area (Ha)	(%)
	High Density Residential	92.70	9.7	27.41	27.41	2.81
	Medium Density Residential			118.442	118.44	12.13
	Low Density Residential			137.59	137.59	14.09
	Industrial	4.98	0.52	4.98	4.98	0.51
	Educational	28.13	2.95	28.13	28.13	2.88
	Recreational	0.067	0.007	0.067	0.07	0.01
	Public purpose	29.5179	3.10	29.52	29.52	3.02

	Commercial	13.70	1.44	106.51	106.51	10.91
	Public utilities	0.057	0.0059	0.057	0.06	0.01
	Transportation	57.8958	6.08	57.89	57.89	5.93
	Undeveloped	36.99	3.89	-	-	-
	Agricultural	712.55	72.25	-	465.65	47.70
		976.25Ha	100%	973.89Ha	976.25	100.00

Source: Acal and BC Gildenhuys & associates 2020

2.4 LAND ADMINISTRATION AND MANAGEMENT

The management and administration of land within the planning area is mainly the responsibility of Kiambu County Government. The County Government is responsible for the allocation, servicing, land use control and land rating. There is however no policy on land sub-division specifically for Githunguri town targeting the on-going land fragmentation.

2.5 LAND AVAILABILITY AND SUITABILITY

There are an estimated 3723 land parcels in the planning area with an average size of 4,811m². The land parcels in the part of the town centre to the south of Road C65 comprises a regular grid-layout with regularly sized and shaped plots. The part of the town centre to the north of Road C65 however generally comprises larger, more consolidated land parcels.

The remaining, and mostly peri-urban part of the planning area comprises larger land parcels of different sizes. A defining feature of many of these is the long narrow pieces of land used for residential and peri-urban agricultural purposes, with the dwelling situated close to the roads.

The land parcels in the planning area outside of the main urban subdivisions are generally small. 50.68% of land parcels in the planning area are smaller than 2,000m², with another 25.36% ranging between 2,000m² and 5,000m². Many of the agricultural activities in the planning area generally therefore take place on land parcels of less than half-a-hectare.

The small size of land parcels not only has implications for commercially viable agriculture, but also for future settlement development in the planning area. The limited number of large land parcels means that there are only a few opportunities to do integrated settlement planning on larger pieces of land. Instead, new residential developments will in all likelihood just take the form of subdivisions of individual parcels of land, which have implications for the overall functioning and long-term sustainability of the town.

2.6 EMERGING PLANNING ISSUES

Table 16:Emerging issues on land

	Opportunity:	Constraints:
Land Tenure	Defined land tenure system mostly in freehold for agricultural purposes where most residents have title deeds to their parcels	Invasion of agricultural land for other uses Increased levels of subdivision facilitated by tenure system
Land use patterns	<ul style="list-style-type: none"> Existence of an approved Development Plan Creates an opportunity to open up the periphery for various activities Opportunities for high density around the existing nodes 	<ul style="list-style-type: none"> Outdated Development Plan Widespread subdivision of land. Increase in extent and intensity of human settlements leading to loss of biodiversity Unplanned and uncoordinated urban growth. Limited serviced land for human settlement.
Projected Land use requirements	<ul style="list-style-type: none"> Pan will Provide basis for land banking for various uses for the projected population 	<ul style="list-style-type: none"> No public land is available for future development ,hence County has to acquire land from the private land owners
Land administration and management	<ul style="list-style-type: none"> The ongoing planning process will provide a basis for land administration and management. 	<ul style="list-style-type: none"> The lack of a proper and up-to-date urban land use plan and development control guidelines. Disconnect between National and County government offices dealing with land
Land availability and suitability	<ul style="list-style-type: none"> Availability of big parcels of land in the periphery of the town for agriculture Suitable lands for agriculture 	<ul style="list-style-type: none"> Effects of subdivision on the available agricultural land Land degradation

6 CHAPTER SIX: ENVIRONMENT AND NATURAL RESOURCES

6.1 NATURAL RESOURCES

The planning area is characterized by the following resources: Land, water, geology and Soils and quarries. Land mostly in the planning area is put under various uses including residential use and farming for both crop and livestock. There are several rivers in planning area these are River Kiruchi, River Mukuyu, River Kiaria, River Karueti and River Ruiru. Just outside the planning area is the Ruiru Dam which is a very significant feature in Githunguri as it affects the microclimate as well.

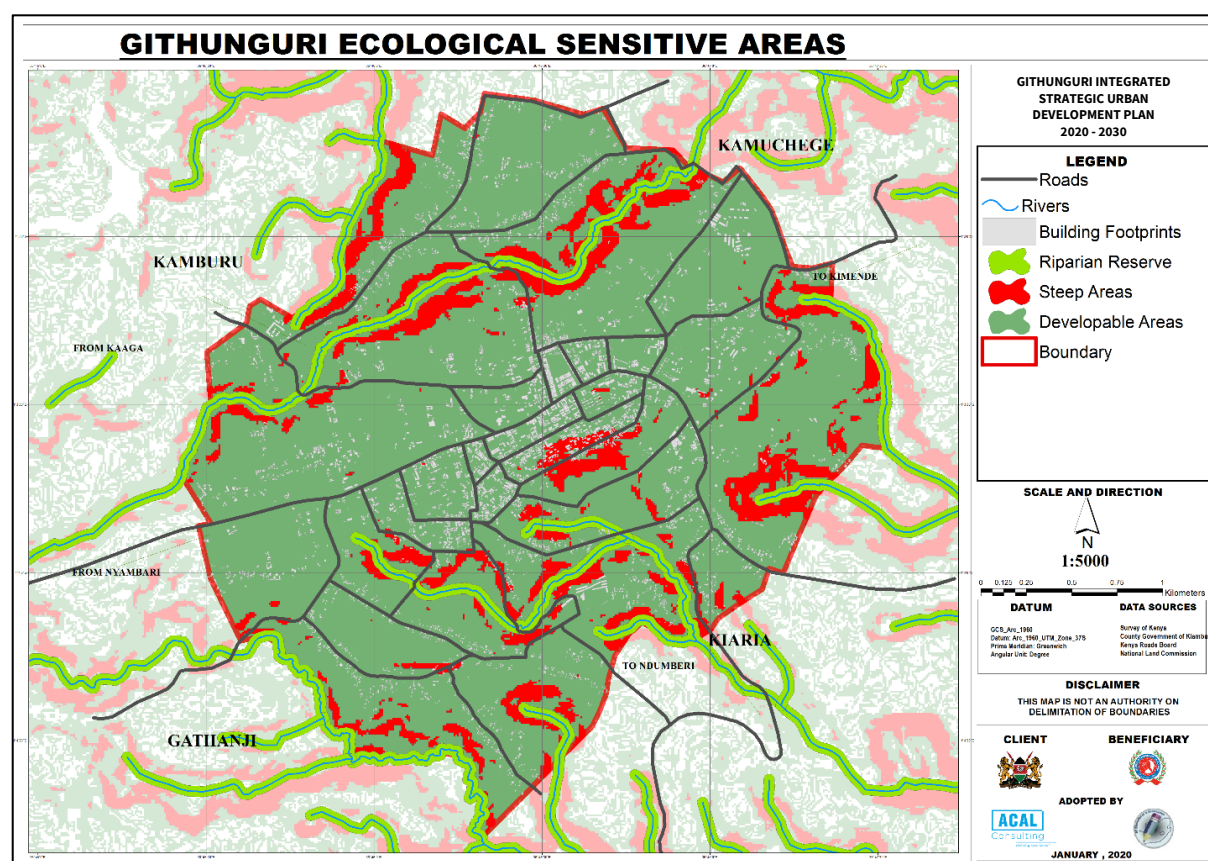
6.2 URBAN GREENERY AND OPEN SPACES

In the planning area, the form of urban greenery found is planted trees within the agricultural lands. However, with increase in extent of human settlements, the greenery will depreciate considerably. There are no hard or soft public open spaces in town. The green open spaces exist are mostly connected to schools (sports fields).

6.3 ECOLOGICAL SENSITIVE AREAS

Sensitive areas within the planning area facing different threats include:

- **The rivers, streams and riparian reserves:** The planting of eucalyptus trees along the riparian reserve greatly contributes to diminishing water volumes. Poor agricultural practices within this area have also contributed to increased siltation into the rivers as well as pollution from herbicides and pesticides.
- **Areas with slopes of above 25%:** The physical planning handbook categorizes areas above 25% of slope as undevelopable and unsafe for human settlement. Areas above 15% of slope require conservation as well as they are potential points of soil erosion and landslides if poorly managed.



Map 15: Environmentally sensitive areas

Source: Acal and BC Gildenhuys & associates 2020

2.7 CLIMATE CHANGE

The effects of climate change in the county are mainly being felt due to unpredictability of timing and amount of rainfall received. In Githunguri, there is particular concern over tea which is of great economic importance to the residents due to changing weather patterns. Already, tea producers are facing reduced and erratic rainfalls, higher rate of hail and frost episodes as well as increasing temperatures that have adversely affected their yields and productivity levels. This has increased uncertainty of future livelihoods especially for the smallholder farmers.

Impact of the climate changes

Changes in climatic conditions have resulted to decrease in crop production, unpredictable weather changes, inadequate water, late planting of crops and decline in business.

2.8 WASTE MANAGEMENT ENVIRONMENTAL ISSUES

The main environmental pollutants in the agricultural areas are majorly agrochemicals from agricultural activities, while in the urban areas, vehicles exhausts and emission of greenhouse gases into the atmosphere through natural causes and human induced activities and solid wastes from markets and the households. Solid wastes that include plastics, polythene papers, animal waste and organic plant matter are dumped in undesignated sites and along roads within the planning area, resulting in an anaesthetic and unhygienic environment.



plate 2 :Solid waste dumping on road Reserve



plate 3: Cow dung dumping at a residential zone

Source: Acal and BC Gildenhuys & associates 2020

Pollution

Dust from quarry sites is a major source of air pollution, although the severity will depend on factors like the local microclimate conditions within the region of Githunguri. The air pollution is not only a nuisance (in terms of deposition on surfaces) and possible effects on health, in particular or those with respiratory problems but dust can also have physical effects on the surrounding plants, such as blocking and damaging their internal structures and abrasion of leaves and cuticles, as well as chemical effects which may affect long-term survival. Water pollution of existing rivers and streams is mainly due to cultivation up to the edges of the rivers and streams which consequently results to soil erosion

2.9 EMERGING PLANNING ISSUES

Table 17: Emerging Issues on Environment

	Opportunity:	Constraints:
Natural resources	Planning for the available natural resources that support development including rivers, land, rocks etc.	Negative effects of human settlements on natural resources

Urban greenery and open spaces	<ul style="list-style-type: none"> • Agroforestry- Plantation of trees on farms • Planning for functional open spaces for recreation 	<ul style="list-style-type: none"> • Environmental degradation due expansion of human settlements.
Ecologically sensitive areas	<ul style="list-style-type: none"> • These areas provide ecological services such as water provision and scenic views 	<ul style="list-style-type: none"> • Encroachment of riparian reserve • Soil erosion • Presence Sloping gradients of above 25% in some areas inhibiting development
Climate change	<ul style="list-style-type: none"> • Diversification of agriculture suitable for changing weather patterns • Introduction of irrigation farming to reduce dependence on rain fed agriculture 	<ul style="list-style-type: none"> • Unpredictable weather patterns
Waste Management	<ul style="list-style-type: none"> • Availability of legal framework prohibiting use of plastics amajor contributor of solid waste. 	<ul style="list-style-type: none"> • Lack of enforcement • Lack of convectional sewer system to take care of liquid waste
Pollution	<ul style="list-style-type: none"> • Availability of natural resources, rocks and rivers 	<ul style="list-style-type: none"> • Negative effects on general health of the population • Bad farming practices along rivers and steep slopes

Source: Acal and BC Gildenhuys & associates 2020

7 CHAPTER SEVEN: URBANIZATION, HOUSING AND HUMAN SETTLEMENTS

7.1. INTRODUCTION

Human settlements are defined as concentration of activities and people whether they are the smallest village or the largest metropolis (C.A. Doxiadis). The Human settlements can therefore be considered as focal points of commercial, industrial, administrative, health, residential, education and recreational activities required by the population

7.2. PATTERNS AND TRENDS OF HUMAN SETTLEMENTS

7.1.1 Roles and functions of human settlements in Githunguri Constituency

Human settlements in Githunguri serve the following purposes:

a. Residential function

The human settlement within the constituency serves the purpose of residential function by accommodating the people through housing both in the rural and urban areas. The settlements which spread across various regions of the constituency act as focal points where commercial, agricultural and educational activities are undertaken, among others.



Plate 4: High density Residential

b. Economic function

Human settlement development in Githunguri has fostered livelihoods of the inhabitants by creating employment opportunities. The residents have been employed both in the formal and informal sector. Some of the employment sectors within the constituency include the educational, transportation, agricultural, *jua kali* sector among others.



Plate 5: Formal and informal Economic Activities

c. Service function

Human settlements facilitate provision of various services and facilities such as the community facilities and public utility services. The higher the rank of the human settlements, the more the services offered. The services offered within the human settlements within Githunguri constituency include;

- Educational
- Health
- Security
- Commercial
- Transportation
- Administrative
- Water and electricity
- Sanitation facilities
- Financial services

7.2 SETTLEMENTS PATTERNS IN GITHUNGURI

Githunguri constituency has several different settlement patterns. The major settlement pattern in the urban areas is the linear and clustered settlement pattern.

7.2.1 Linear settlement

This is whereby the settlements are located along the roads. This pattern has several advantages and disadvantages.

Advantages

- Easy access to facilities and services
- The households are near one another hence it is easier for the government to provide adequate and efficient services. E.g. healthcare, education, electricity, etc. this would be different in the case whereby the pattern is dispersed.
- The area is secure since many residents inhabit the area.
- The area is well connected with other areas such as Gatundu, Limuru and Kiambu. This facilitates businesses and relations with the other towns

Disadvantages

- Settlements encroach on the agricultural land in a short period of time.

7.2.2 Nucleated Settlement Pattern

In the outskirts and rural areas of the planning area, the major pattern is nucleated human settlement patterns. This is due to the fact that the areas are agricultural and are inhabited by few people. The nucleated rural settlements patterns have several advantages and disadvantages including:

Advantages

- It allows more interaction between the farmers
- It is much safer as there are more people
- It is easy to share ideas on how to solve a problem
- Farmers can share tools and materials

Disadvantages

- It does not allow for much privacy
- Arguments can ensue while sharing ideas

Examples of human settlement patterns in the planning area

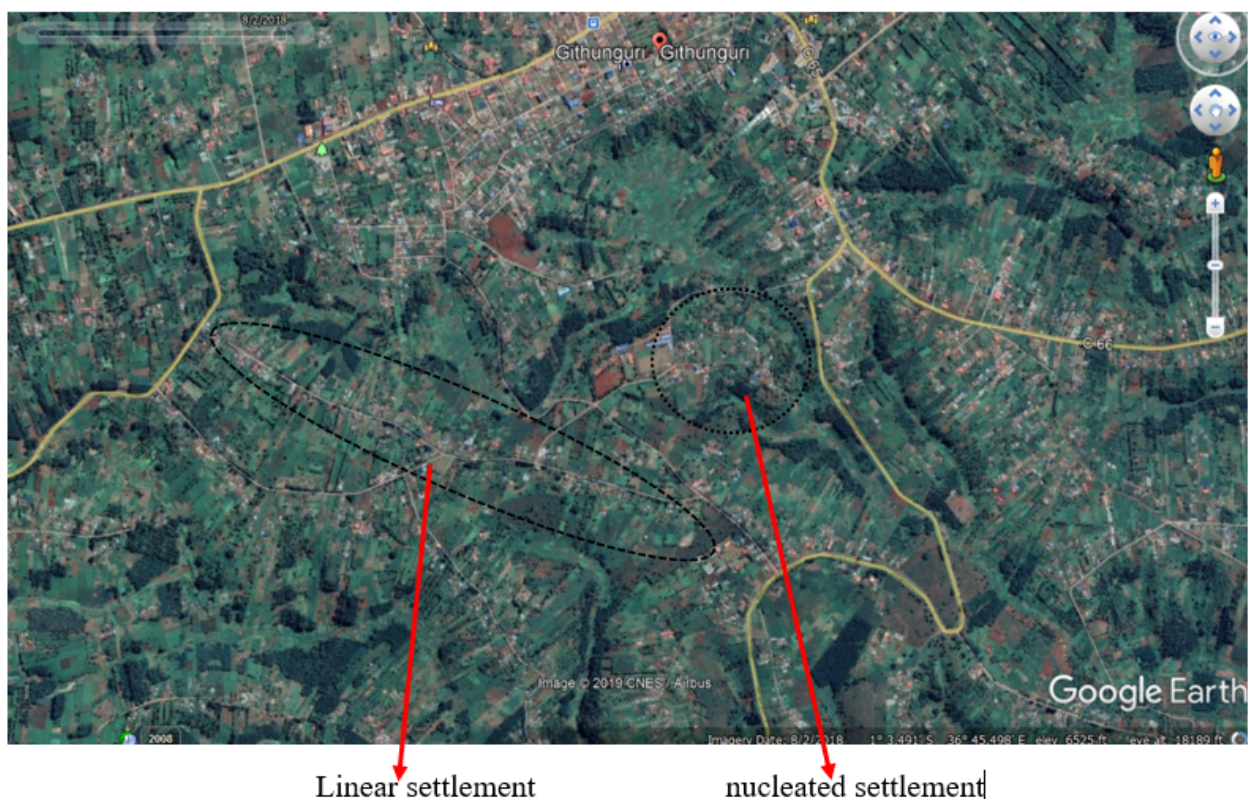


Plate 6: Human settlement patterns

7.3 URBINAZATION TRENDS

Kiambu County is home to many urban centres. It is the third most urbanized county after Nairobi and Mombasa at an average rate of 3.4 per cent compared to the 4 per cent national urban growth rate. Kikuyu, Limuru and Lari sub-counties define its western edge while Ruiru, Juja, Gatundu and Thika sub-counties define the eastern edge. Karuri, Kiambu and Githunguri sub-counties are spread out from the centre.

Additionally, Githunguri town have been rapidly expanding due to residential and commercial investment. Unfortunately, this poses a threat to the rich agricultural hinterland given the higher economic returns derived from the conversion of such agricultural land. These conversions spell higher economic returns. There is need for the County government to do some cost-benefit analysis to determine the net effect of these conversions to food security.

7.4 URBAN CORRIDOR DEVELOPMENT

Corridor or linear development is a special feature in urban development which results from a series of development along road networks. The net effect is conurbation—the connection of one settlement to another. Rarely, are corridor-type developments deliberately planned; the result therefore is haphazard development on properties which are subdivided without proper spatial planning inputs and registration of ownership documents leading to loss of property revenue—particularly land rates—to the authorities. Additionally, linear urban development gives urban areas a poor façade not to mention the functionality conflicts it presents. The planning area falls within the Kiambu North and North West Development Zone in Githunguri and Lari sub-counties which are largely an agri-business zone. It requires protection to safeguard its natural integrity and build value for specialized and sustainable agricultural production opportunities. This in turn will provide the basis for land-based economy and reinforce confidence in a rural future.

7.5 HIERARCHY OF SERVICE CENTRES

The physical planning handbook categorizes human settlements as follows:

Local centres

A local centre should serve a catchment population of 5000 people. The local centre should contain:

- Full primary school,
- Several shops,
- A dispensary,
- A public water supply system
- An open air market.

Market centres

A market centre should be planned to serve a catchment population of 15,000 to support a primary, a secondary school and a health centre. The market centre should the following facilities: A public water supply, Post office, Telephone facilities, A police post, A local bus service and other social commercial and local administrative services.

Market centres should be served by a minor road as a minimum and should have a resident population of at least 2000.

Rural centres

A rural centre should serve a catchment population of 40,000 and accommodate a residential population of 2,000 to 10,000. Such centres represent the lower end of the urban hierarchy. 72% of the planning area approximately 72 % of the planning area is rural in nature. A defining feature of many of these is the long narrow pieces of land used for residential and peri-urban agricultural purposes, with the dwelling situated close to the roads. There is a continued subdivision of individual parcels of land in the rural periphery, which is deemed to have implications for the overall functioning and long-term sustainability of the town.

The following facilities should be provided:

- A secondary school of at least four streams
- A health center with a maternity facility
- Development of better shopping facilities
- Markets and Banking facilities
- A piped water supply and sewerage disposals systems
- Electricity and telephone services Posta

Rural centres should be planned to have secondary roads

Urban Centres

An urban Centre is designated to have resident population of over 5000 and a catchments population of 100,000-150,000. An urban Centre should have the following facilities:

- A hospital
- A secondary school
- Commercial, industrial, administrative and recreational services

Table 18: Name of centres and their hierarchies

Name of centre	Population	Hierarchy
Gathangari	8,983	Local centre
Githiga	19,705	Market centre
Ikinu	8,753	Local centre
Riuki	8,474	Local centre
Giathieko	6,019	Local centre
kiaibabu	9,403	Local centre
Kiaria	13,428	Local centre
Kimathi	10,176	Local centre
Gitiha	8,802	Local centre
Matuguta	4,394	Local centre
Kiratina	11,807	Local centre
Ngemwa	5,437	Market centre
Kanjai	11,850	Local centre
Nyaga	14,147	Local centre
Thuita	3,015	Local centre
Kiambururu	5,283	Local centre
Kanjai	11,850	Local centre
Githunguri	179,605	Urban centre

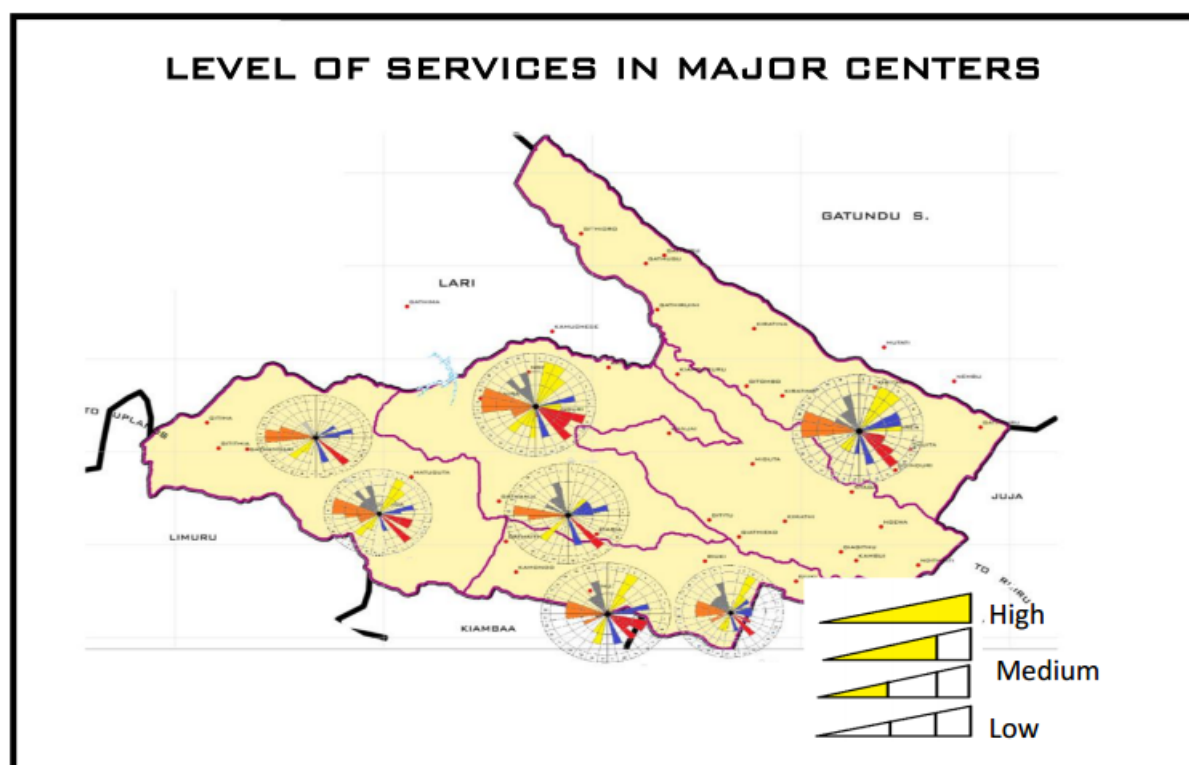
Urbanisation Trend

7.5.1 7.6.1 Levels of Services per Centre in Githunguri

Table 19: Level of service per centre

	Services	Centers						
		Githunguri	Githiga	Ngewa	Ikinu	Kambaa	Gathanji	Gitiha
1	County HQs	0	0	0	0	0	0	0
2	Sub County HQs	1	0	0	0	0	0	0
3	Ward Offices	1	1	1	1	0	0	0
4	Chief's Camp	1	1	1	1	0	0	0
5	Piped Water	1	1	1	1	1	1	0
6	Sewer Line	0	0	0	0	0	1	0
7	Electricity	1	1	1	1	1	1	1
8	Police Post	0	1	1	1	1	1	1
9	Police Station	1	0	1	1	0	0	0
10	Banks	1	1	0	1	0	0	0
11	Saccos	1	1	1	1	0	0	0
12	Cooperatives	1	0	0	1	0	0	0
13	M-banking	1	1	1	1	1	1	1
14	Post Office	0	0	0	0	0	0	0
15	Boosters	1	1	1	1	1	1	1
16	Referral Hospital	0	0	0	0	0	0	0
17	Hospital	1	0	0	0	0	0	0
18	Health Centre	2	1	0	0	0	0	0
19	Dispensary	2	1	2	0	1	0	1
20	Clinics	1	1	0	1	1	1	1
21	University	0	0	0	0	0	0	0
22	Polytechnic	0	0	1	1	0	0	1
23	Colleges	1	1	0	0	0	0	0
24	Sec School	8	6	5	2	10	1	1
25	Primary School	20	23	15	13	30	1	1

26	ECDs	11	15	13	8	18	1	1
27	Bus Terminus	2	1	1	0	1	1	0
28	Served by National Road	No	Yes	Yes	No	No	No	Yes
29	Served by Primary Road	Yes	Yes	Yes	Yes	No	Yes	Yes
30	Served by Secondary Road	Yes	Yes	Yes	Yes	Yes	Yes	Yes
31	Served by Minor Road	Yes	Yes	Yes	Yes	No	Yes	Yes



Map 16: Level of service and major centres

7.6 HOUSING

Well-planned housing of acceptable standards and affordable costs when combined with essential services commands dignity, security, and privacy to the individuals, family and the community. The Constitution of Kenya grants all citizens the right to accessible and adequate housing. Thus, in planning for housing, there is need to ensure that the available housing stock is adequate to accommodate the residents at affordable cost.

7.6.1 Housing Typologies

The current housing typology in Githunguri is different from the earlier traditional mud and grass houses. There are still houses that are built with mud walls and earth floors. However, their roofs are made of iron sheets. The change in materials used to build the houses has been brought about by the influences of other cultures and education. The availability of the materials to build the new types of houses has also propagated this change. During the housing survey, an observation of housing types was done as follows:

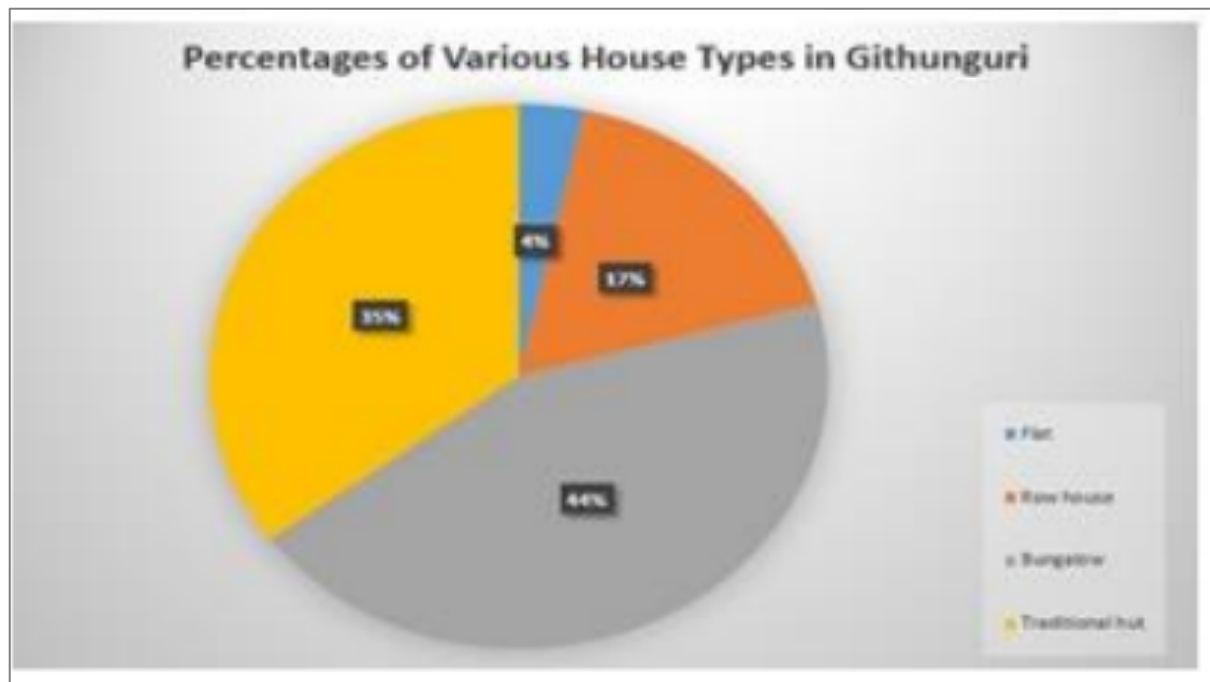


Figure 8: Housing Typologies

Housing typologies in Githunguri



Plate 7: Housing Typologies

Source: Acal and BC Gildenhuys & associates 2020

7.6.2 Building Materials

The buildings materials for walls in Githunguri include stones, timber, iron sheets, brick, mud and block; the roofs are made of iron sheets mostly and roofing tiles in a few houses. On the other hand, the floors are made of cement, earth and tiles as shown in the figure below

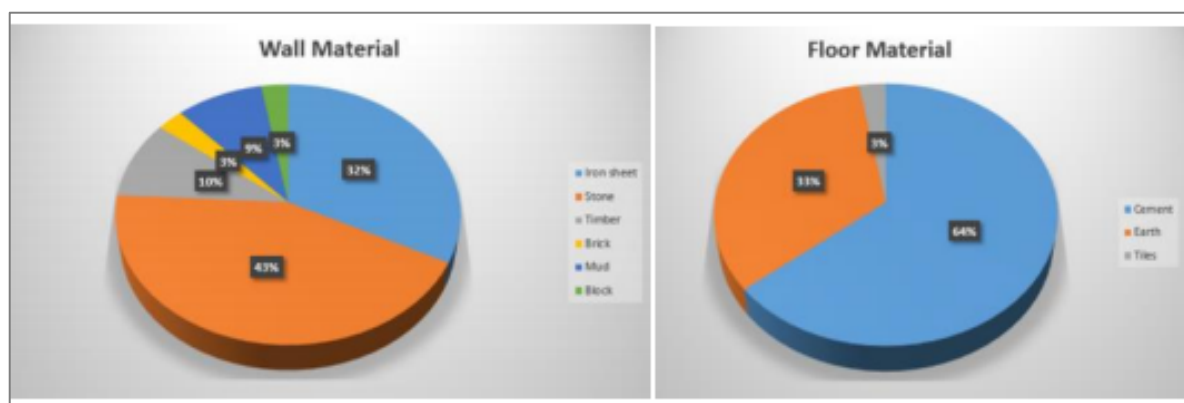


Figure 9:Percentage of houses by wall material and floor material

7.7 EMERGING ISSUES ON HOUSING AND HUMAN SETTLEMENTS

Table 20: Emerging Issues on Housing and Human Settlements

	Opportunity:	Constraints:
Patterns and trends of human settlement	<ul style="list-style-type: none"> Creation of more nodes to spur development in the planning area Nucleated and linear settlement pattern indicates opportunities for setting up infrastructure and services at common points and transport routes 	<ul style="list-style-type: none"> Settlement distribution is affected by topography and geology of Githunguri thus Unfavorable terrain in some sections Destruction of the environment and natural ecosystems for residential development and energy (firewood & charcoal)
Levels of service in planning area	<ul style="list-style-type: none"> Relative sizes of towns and Residential neighborhoods indicating more ease in realization of new schemes and planning proposals Agricultural areas provide opportunity for a food secure urban area. 	<ul style="list-style-type: none"> Lack of adequate infrastructure to support services in various centers.
Housing	<ul style="list-style-type: none"> Availability of building materials The high demand for housing is an opportunity to invest in the housing sector 	<ul style="list-style-type: none"> Environmental challenges associated with quarrying Visual disorder due to undefined building typologies

Source:AcalandBCGildenhuys&associates2020

8 CHAPTER EIGHT: PHYSICAL INFRASTRUCTURE

8.1 Introduction

In the development of a region, Alfred Weber gives the view that, in the process of evolution of regional development, an important transport trade is developed and a specialization within the stratum develops. A new development then takes place in relation to the basic stratum that is already developed. Infrastructure/Transportation network is, therefore, the spine around which development is woven. Further, in the context of the location theory, the strengths of critical mass is always linked to the provision of infrastructural development within which regions which are the development corridors and nodes (Glasson, 1978).

Facilitative Role of Infrastructure in the Development of Githunguri

- i. Growing the economy through attracting investors: Ease in accessing infrastructural facilities will attract investors to Githunguri since the production costs, transportation costs, and other costs will be minimized.
- ii. Improving accessibility and efficiency in movement and service delivery: Infrastructure enables easy flow of goods, services and information to various parts of the region. It is through these services that trade in farm and non-farm outputs is made easy.
- iii. Improve road safety and confidence in the transport system: Transportation is the spine along which development takes place. Good transport networks open up all the areas in the region so that it is easy to access resources and spread development to areas which are lagging behind.
- iv. Promote forward and backward linkages: The agricultural base of Githunguri makes it important to strengthen linkages between areas of production and consumption. This ensures that after high production, the produce needs to be processed and distributed to their various areas of consumption.
- v. Input in the production of goods and services: Infrastructural services such as water and sanitation and energy are necessary for especially in industries and should therefore be in adequate supply.
- vi. Promotes Urban-rural balance: Urban areas and their hinterland depend on each other for development. activities are organized around urban spaces. Through infrastructure, linking these two areas will enable both areas to develop, not at the expense of each other.

8.2 TRANSPORTATION

8.2.1 Introduction

Transportation involves movement of people and goods from one location to another location for a specific purpose. It is a circulation system within human settlement which maximizes accessibility through essential movement between linked activities, while giving consideration to safety, amenity and comfort. Road transport is the most widely used within the entire planning area. Most of the roads are in a poor condition.

8.2.2 Inter and Intra-Urban Connectivity

The town is traversed by C560 road as the highest class of roads according to Kenya Roads Board 2018 classification. The interior of Githunguri Town is served by class E and F roads. The major roads connecting to different urban centres are in the neighbourhood are: C558, D1433, E2086 and E2016. Majority of the access roads are paved and in fairly good condition. It should be noted that there are ongoing road rehabilitation projects in the town. The roads network is adequate to serve the planning area. The major challenge is encroachment and wearing out of the paved roads.

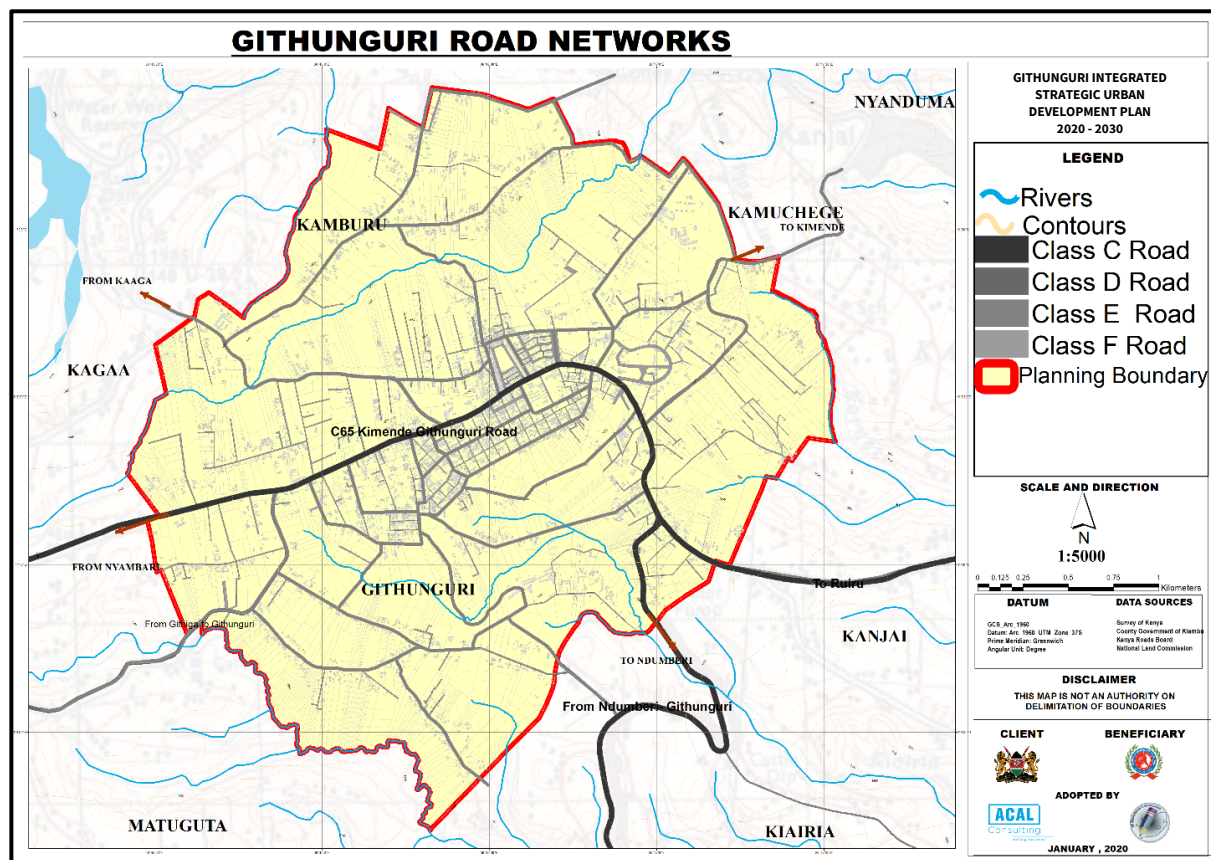
Table 21 shows the major roads linking the neighborhood, length and surface condition. The town is well linked up to the neighboring urban centres.

Table 21: Githunguri town's Major Roads

Road	Class	Carriage Way (M)	Road Reserve (m)	Length (km)	Surface	Condition
Nyambari-uplands-Gitithia-Kambaa-Githunguri-Kanjai-Ngewa-Ruiru Roads	C560	7	40	5.7	paved	Fair
Githunguri –Ndumberi Road	C558	7	40	0.6KM	Paved	Fair
Githirioni-Matimbei-Kamburu-Githunguri	D1433	6	13	1.7KM	Gravelled	Fair.
Githiga-Gituamba	E2086	9	9	1.1KM	Paved	Excellent
Githunguri-CBD Roads,				3km	Paved	Excellent
Kagaa-Githunguri	E2016	3.8	11.8	0.48Km	Gravel	Fair

Source: Kenya Road Board 2018

Map 17 shows the major road network of the town. The interior roads are mostly weather roads and single carriage ways that navigate through to human settlement areas and activity concentration point.



Map 17:Githunguri Transportation

Source: Acal and BC Gildenhuys & associates 2020

7.1.1. Road Network by Class and Surface Type

The planning area has a relatively good road network. The total length of all roads in Githunguri Sub-County is at 547.5 km, where 40.8 km of these constitute tarmacked or under bitumen surface, 130.7 km under gravel, while 246.3 km form the earth roads. The road network is composed of Class “C,” as the major road to Class “E”, which total to 417.8 km alongside the Special Purpose Roads which constitute Rural Access Roads (RAR), Government roads and Tea roads. Unclassified roads in the planning area constitute 129.7 km. The bulk of the road networking the Sub-county is unclassified covering several kilometres. Due to the unclassified nature most of the roads, the roads lack the standards that they should be improved. The untarmacked roads are very difficult to use during rainy season and very dust on dry periods.

7.1.2. Roads conditions

The bulk of the road network in the Sub-county is in a poor condition and unclassified covering several kilometres. Due to the unclassified nature most of the roads, the roads lack the standards that they should be improved. The unpaved roads are very difficult to use during rainy season and very dust on dry periods. Whereas most roads measure from 6-9 meters, circulation streets within the town have road widths of less than 3m inhibiting easy vehicular movements.



Narrow roads serving Residential areas

Plate 8: Road Conditions

Source: Acal and BC Gildenhuys & associates 2020

Modal Split and Means of Transport

The main modes of transport within the town are non-motorized such as walking and hand cart. Other common and fastest is use of boda bodas. However, there are no designated pedestrian walkways along the roads within the town. There are also public transport vehicles in the area. The road user conflict in Githunguri is common between the boda boda, matatu and other non-motorized users.



Plate 9: Common Modes of Transport in Githunguri

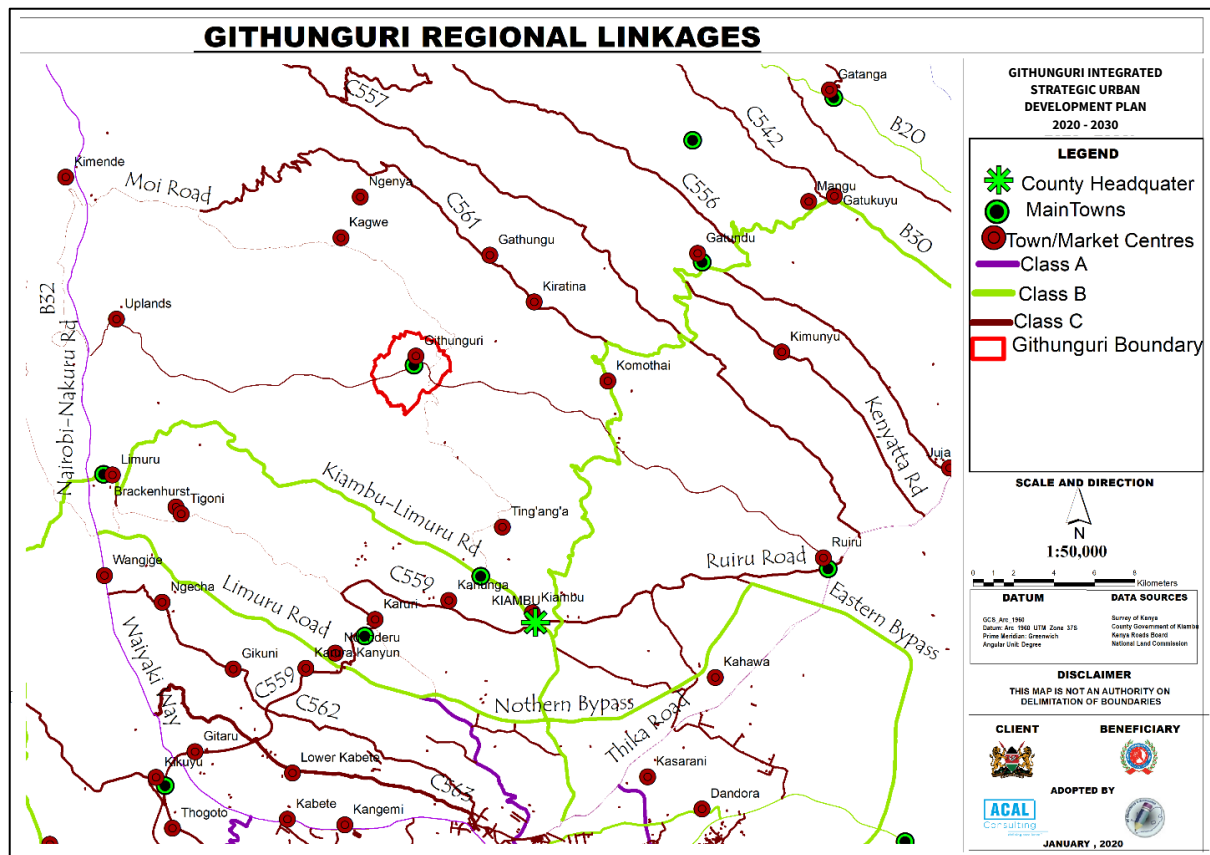
Source: Acal and BC Gildenhuys & associates 2020

7.1.3. Assessing efficiency of transport infrastructure

The variables are used to check on the transport services in a region and help in determining their adequacy or inadequacy include; connectivity accessibility indices

Connectivity Index

A Connectivity Index evaluates how well a roadway network connects destinations. This is the degree to which the network of transport system is developed. Connectivity relates to the density of intersections and how direct paths are between places. Increased connectivity reduces the amount of circuitous travel required and often encourages shorter vehicle trips and the use of alternative modes such as biking and walking. The indices used are nodal links (vertex/points and lines/edges). In this case the sizes of centres connected are not factored. The higher the intersections, the higher the connectivity: Githunguri Sub-county in itself has a higher connectivity index, as the national classified roads in Githunguri sub-county, provide linkages with Kiambu road and other arterial roads, administrative headquarters, and also to important towns like Kiambu, Ruiru and Limuru. They carry the traffic along major centres within the constituency



Map 18: Githunguri Sub-county Regional Linkages

Source: Acal and BC Gildenhuys & associates 2020

7.1.4. Traffic Management

The encroachment of road reserves and commercial extensions beside the road hinders smooth traffic flow within the CBD and at junctions. There is need to enforce speed limit regulations to ensure pedestrian safety. In addition, the roads are narrow, poorly maintained and missing pedestrian walkways. There is need for designation of street vendor's space in road section that transverses the CBD. However, in the future development of the town, outer ring roads is missing to reduce traffic at the CBD.

7.1.5. Public Transport

Public transport is the most common means of transport within the planning area. Matatus are the most common means to transport people to various destinations. The challenges experienced from the transportation sector were indicated to include: High costs, attributed to poor condition of the roads, which prolongs travel times and overloading of passengers, which is a result of weak policy enforcement, along these transport routes. Another challenge was lack of designated on-and-off bus-stops along transport routes, which impedes effective movement along carriageways as matatus, make abrupt stops along the routes depending with stationing of customers.

7.1.6. Non-Motorized and Intermediate Means of Transport (NMT & IMT)

Intermediate means of transport (IMTs) broadly refers to low-cost transport innovations that increase the load carrying capacity beyond head, shoulder or back loading and/or increase travel speeds beyond walking. These include motorcycles, commonly referred to as boda boda and motor tricycles. The most common intermediate mode in Githunguri is boda-boda transport. Their efficiency is that they are available to go to routes unviable for motorized public transport such as farmlands or agricultural areas where passenger numbers for matatus is low and/or the terrain is poor. However, Boda boda support facilities are notably underused in, as they motorcyclists opt to find customers at activity nodes, other than waiting at boda boda shed facilities.

Non-motorized Means of Transport (NMT) in Githunguri comprise of bicycles, pedestrians and hand drawn carts. Walking, cycling, and a number of hand carts, animal's carts are the distributed modes in the planning area, especially the centres. They face stiff competition from other road users due to dominant mixed use of roads. As the planning area lacks an elaborate integrated transport network with NMT infrastructure, the urban and rural transport scene is still characterized by walking and head or back loading, both along roads, paths and tracks. Further, within the centres it is observed pedestrians, boda boda and vehicles compete to use the available motorized carriageway or streets, posing a great safety risk for the pedestrian and also causing snarl-ups within the centres for instance Githunguri. The plates represented by the plates and map illustration in the map below explain the situation:

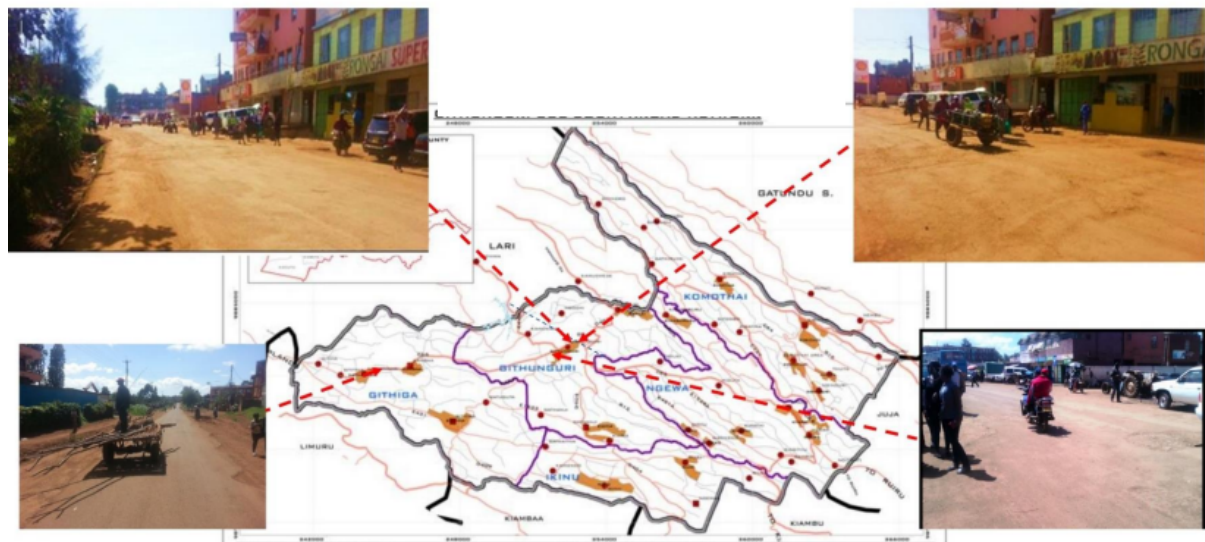


Plate 10: Space contestation between different road users

Source: Acal and BC Gildenhuys & associates 2020

8.2.3 8.2.9 Transportation Challenges

- The deterioration of unpaved road network due to inadequate maintenance and low investment leading to low levels of service and continuity in the entire sub-county. This is further manifested by poor road conditions due to overloading and effects of the humic nitroisols especially in the rural areas.
- Prioritization of road maintenance based on current classification does not adequately take into account functions, construction materials and level of usage of each link.
- There is lack of specialized training in procurement, analysis and design of complex road systems, and contract management
- Inadequate funding for infrastructure development and maintenance
- The other challenges such as expensive and or high costs and are tagged to the deplorable state of the roads which forces the operators to hike charges for transport services. Also
- lack of road signage and marking were experienced.

7.2. WATER

7.2.1. Introduction

The constitution of Kenya under the Bill of right in article 43(1) (d) gives Kenyans the promise in form of a right to clean and safe water in adequate quantities (Government of Kenya, 2010). As the supreme law of Kenya, the government through its leadership has the obligation to deliver this promise as they swore to protect the constitution. Adequacy, quality, distribution and availability of water become very important factors in the reflection on the extent to which the citizen are able to enjoy the promise in bill of rights.

7.2.2. Water Sources

The water sources in Githunguri are both underground and surface water. The water sources in the region are further classified as either improved or unimproved sources. Improved sources include: protected spring,

protected well, borehole, piped into dwelling, piped and rain water collection while unimproved sources include pond, dam, stream/river, unprotected springs, unprotected well, water vendors and others (KNBS, 2013). The main source of water in Githunguri Urban Centre is GIWASCO at 34% followed by Own borehole and Private borehole at 24 % and 18% respectively. This is shown in the following figure

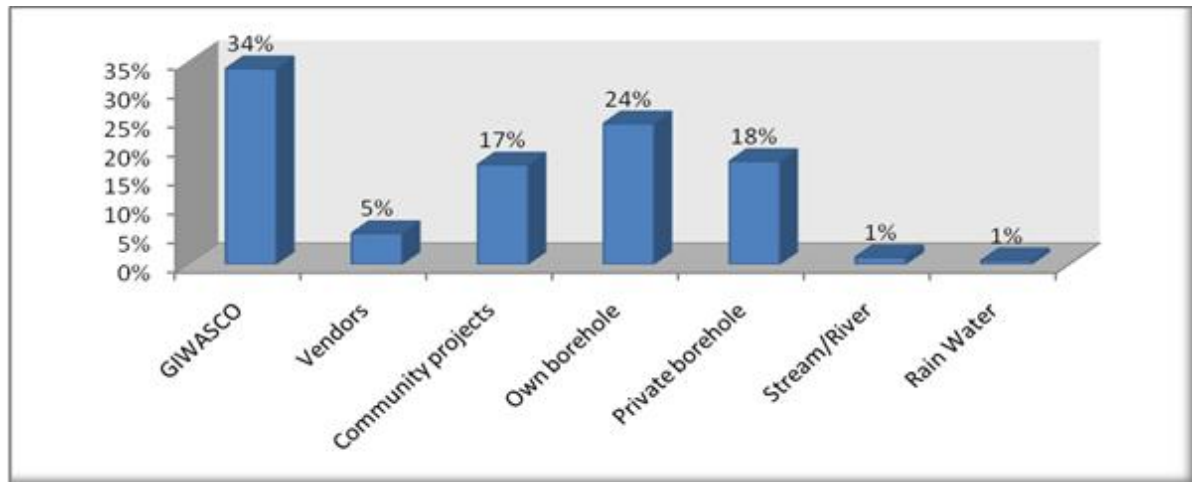
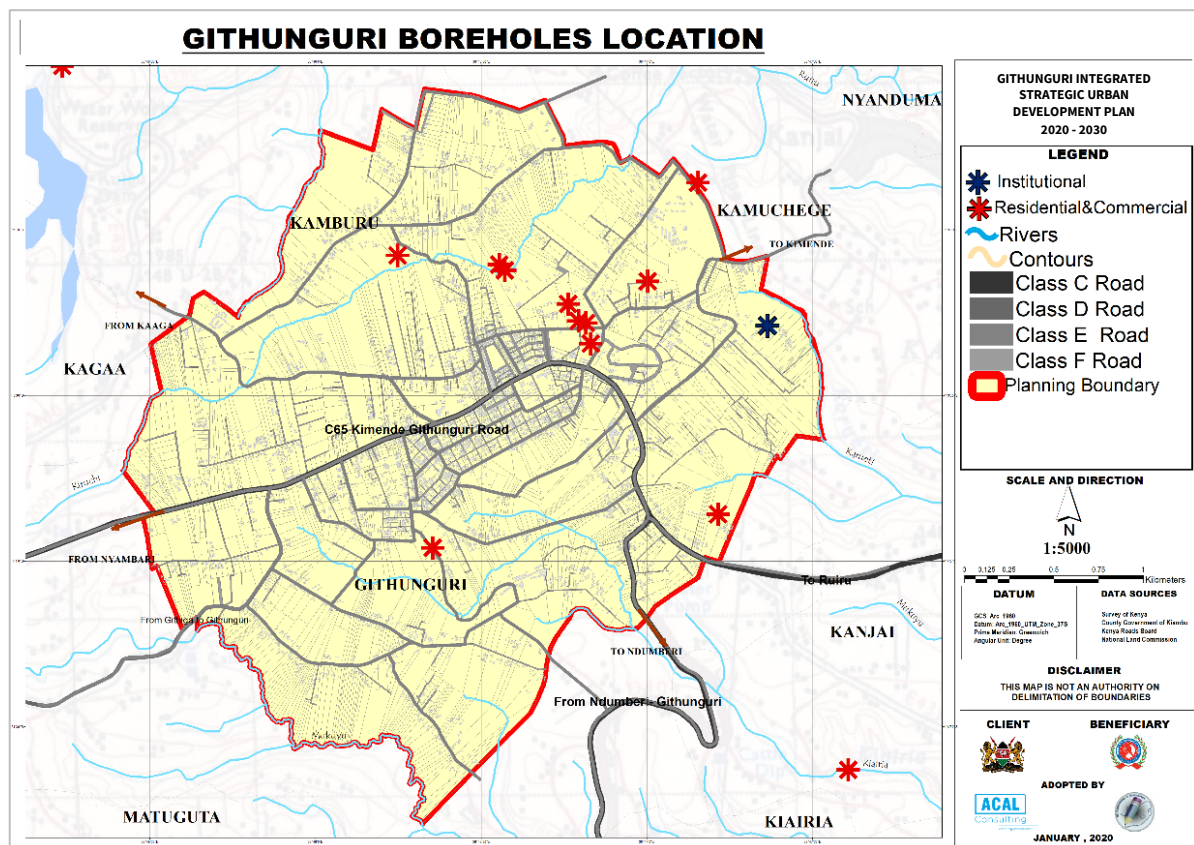


Figure 10: Main source of water in the house holds



Map 19: location of boreholes in the planning area

Source: Acal and BC Gildenhuys & associates 2020

8.2.4 Water quality

More than half of the households (63%) in Githunguri Urban centre rated their main water source as good, 34% fair and 3% poor. This is shown in the following figure.

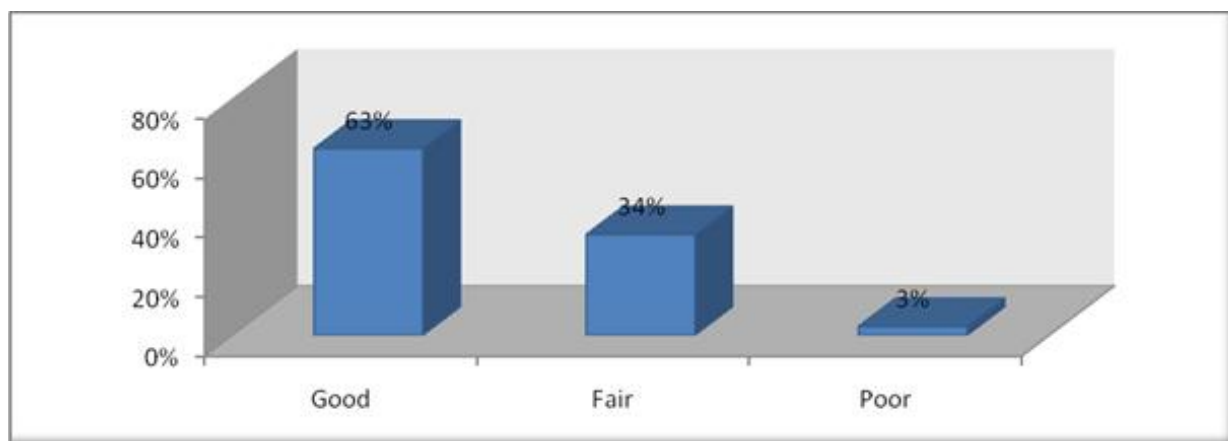


Figure 10: : Water quality of the main source

The respondents also highlighted the key problems they face with their main source of water as follow

- High bills
- Frequent shortages due to rationing
- Poor water quality/dirty water especially during the rainy season

Githunguri s Potential for Water Supply

- Rivers and Water Supply Schemes
- The Sub-County is endowed with rivers which are great resource for water supply. The major river whose potential has been capitalized on is River Komothai River, Makuyu, Ngewa, Mugutha and
- Ikuria. The planning area has piped water supplied by Githunguri Water and Sewerage company

Underground Water Potential

The region has underground water potential of 7m³/hour which pumps out at an average depth of 200-300m deep. The ground water is the major clean water source to the population in the region.

This therefore explains the availability of numerous boreholes in the region. The dams in the region include: Ruiru dam, Makuyu dam in Githunguri. Others include: Miguta, Kiameru and Githiga which are ongoing projects to increase water supply through piping systems in Githunguri, Ngewa, Komothai and Githida areas respectively.

7.2.3. Water Supply and Demand

Water Supply

Water supply is an essential requirement for all people. Determining the quantity needed is the first step in water supply. According to World Health Organization the minimum water requirement for domestic use is as follow:

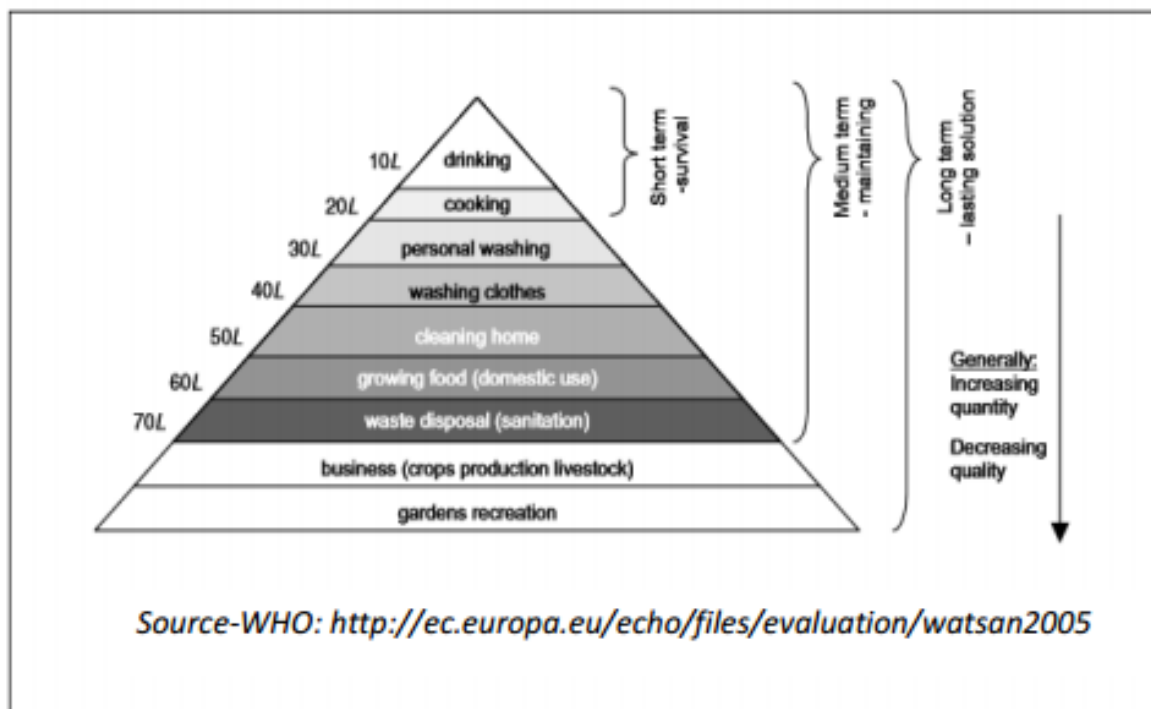


Figure 11: minimum water requirement in a household

The piped water in the region is from main water treatment plant in the Sub-County which is the Githunguri Water and Sanitation Company Ltd (GIWASCO), company that is contracted by Athi

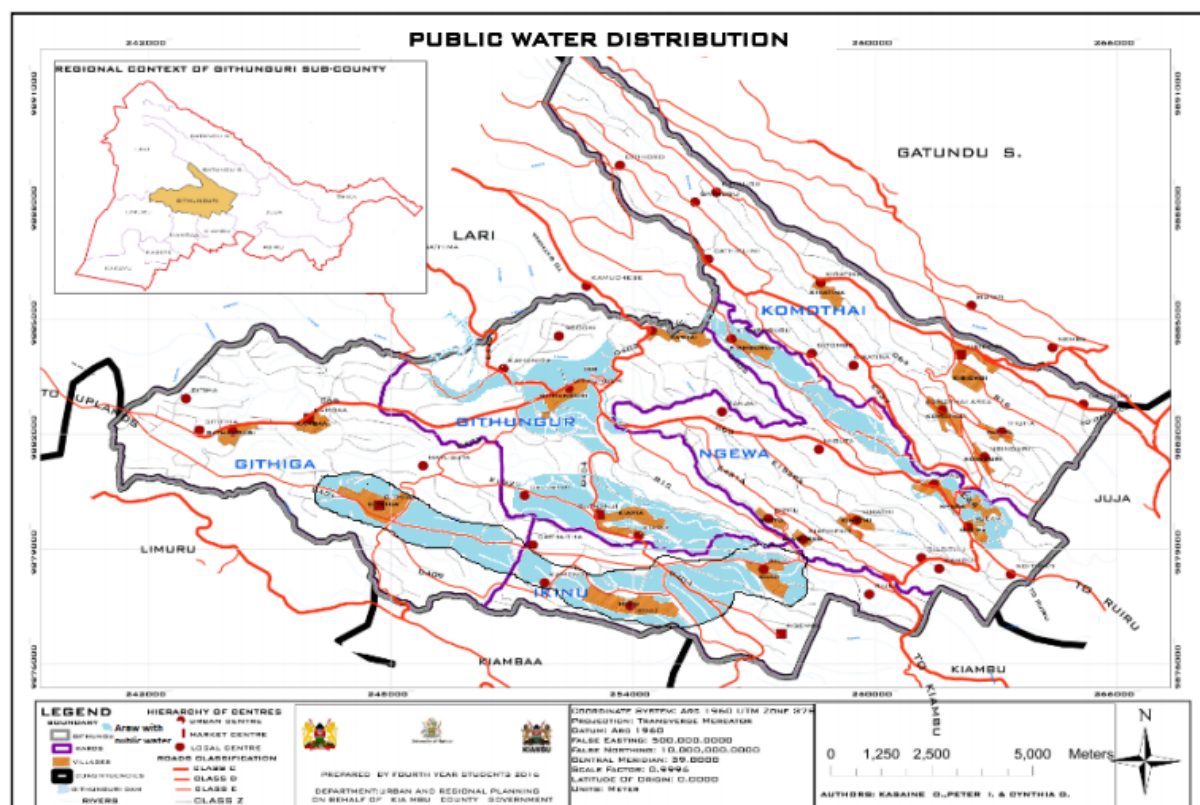
Water Services Board to offer water supply service for Githunguuri and Lari Constituencies.

Water Demand

The quantity supplied by this institution according to the key informant in the sub-county's Department of Water and Sanitation, is 88,000m³ /month. The implication of this quantity is that approximately 2,933.33 m³ per day is supplied by this institution creating a deficit of 11,435.07m³ per day according to the projected population up to the year 2016 with the base year being 2009.

Further projection with null intervention shows that the deficit will be 21,393.23 m³ per day in the year 2035. Despite the huge deficit identified above, the alternative sources as listed above have been utilized by the people of Githunguri to bridge the gap. There has been improvement in the supply of water in the area though piping system from bore holes and gravity water sourced from

dams as well as boreholes which is a relatively cheaper means of water distribution. The residents also rely on the rain water to substitute the various sources and to help bridge the gap. The map below the public water distribution in Githunguri constituency.



Map 20:Public Water Distribution

Durp 2016

8.2.5 8.3.4 Problems related to water supply in the planning area relevant to the new proposed water project

- ✓ Additional water supply required due to increased population over the Plan period
- ✓ Increased abstraction from sources
- ✓ Development of new intake
- ✓ Provision of new bulk supply main
- ✓ Identify route and land requirements/compensation for bulk main
- ✓ Provision of new WTP
- ✓ Identification and extent of land requirements/compensation for new WTP
- ✓ Replacement of existing bulk supply lines from existing boreholes to storage reservoirs where necessary
- ✓ Replacement and rehabilitation of existing distribution pipelines and valves where necessary
- ✓ Extend existing distribution network to serve unserved areas
- ✓ Increase the emergency storage capacity to meet Kenya guidelines
- ✓ Introduce innovative technologies, where applicable and practical, for increased efficiency, energy saving, reduction of non-revenue water
- ✓ Identify total staff requirement, including education and experience requirements, to meet future demands

7.3. WASTE MANAGEMENT AND SANITATION

7.3.1. Introduction

Waste management involves a divide of solid waste and liquid waste. It is also focused on the various forms of waste generated i.e. industrial waste, domestic waste, bio waste and electronic waste. Waste management focuses on how these wastes are generated, disposed, re-used and recycled. Sanitation refers to the principles and practices relating to the collection, removal or disposal of human, household waste, water and refuse as they impact upon people and the environment. Decent sanitation includes appropriate hygiene awareness and

behaviour as well as acceptable, affordable and sustainable sanitation services which is crucial for the health and wellbeing of people. Lack of access to safe human waste disposal facilities leads to pollution of rivers, ground water. There is also higher incidence of air and water borne diseases. Other costs include reduced incomes as a result of disease and lower educational outcomes. Nationally, 61 per cent of the population has access to improved methods of waste disposal. A sizeable population i.e. 39 per cent of the population is disadvantaged. Investments made in the provision of safe water supplies need to be commensurate with investments in safe waste disposal and hygiene promotion to have significant impact.

A total of 80% of Kiambu` County residents use improved sanitation, while the rest are below bar. Use of improved sanitation is almost equal in male headed households at 80% and female headed households at 79%.

7.3.2. Liquid and Human Waste Management

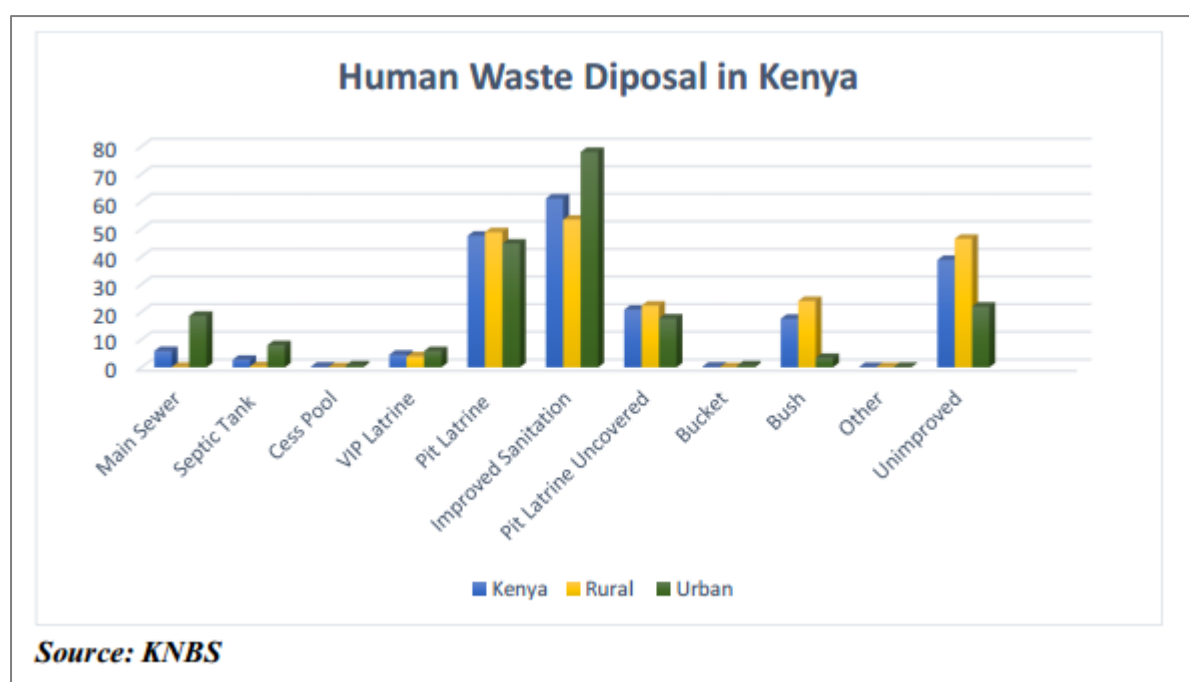
Githunguri town lacks a convectional sewer system and hence residents rely on pit latrines for liquid waste disposal. Only a, few use septic tanks which are inadequate for all the residents and expensive to construct.

This is a great challenge especially to the rapidly growing ward centres within Githunguri. In most of the urban areas residents dispose foul water in open drains which lead to bodies of water and generally pollute the environment. Githunguri Water and Sewerage Company is responsible for water supply and waste water management including sewage and open drainage in the town centre and the interior rural settlement. The residents use individual methods of sewage disposal such as septic tanks and pit latrines. It was however established that some of the sewage was released into open drains especially during the rainy season which poses a lot of health risks. The following tables shows how households handle human waste in Kenya and more specifically in the planning area

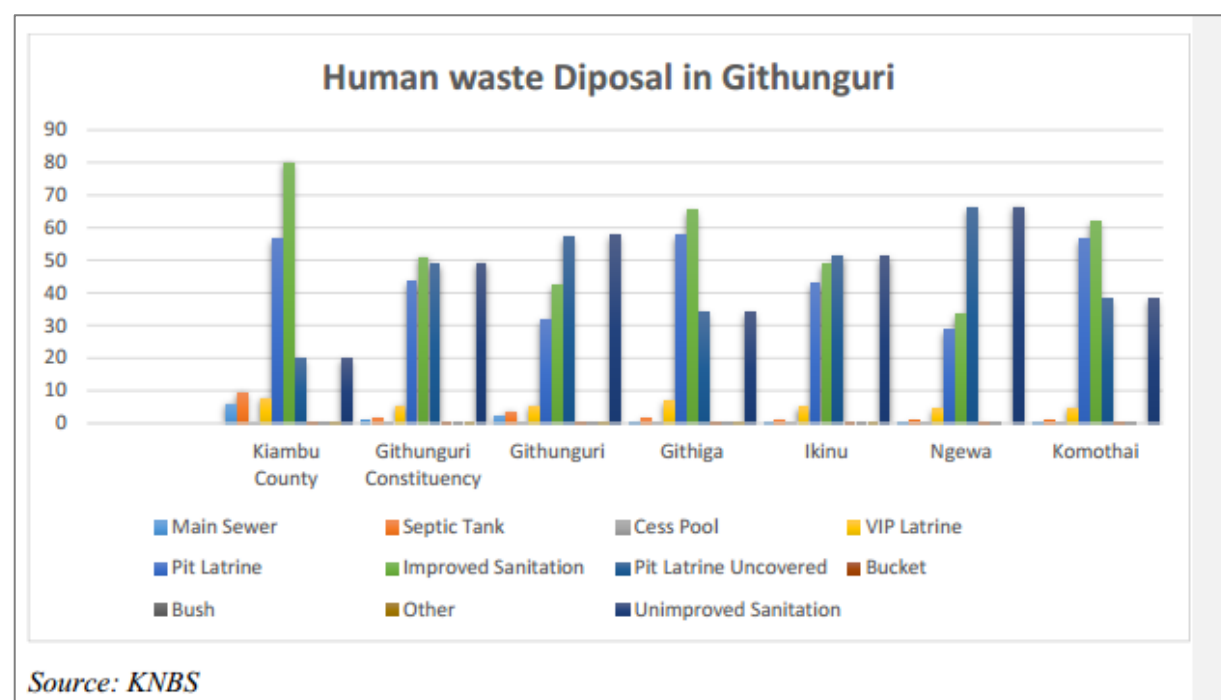
Human Waste Disposal in Kenyan Urban and Rural Areas

Table 22: Human waste disposal in urban and rural areas

Country	Main Sewer	Septic Tank	Cess Pool	VIP Latrine	Pit Latrine	Improved Sanitation	Pit Latrine Uncovered	Bucket	Bush	Other	Unimproved Sanitation	Number of HH Members
Kenya	5.91	2.76	0.27	4.57	47.62	61.14	20.87	0.27	17.58	0.14	38.86	37919647
Rural	0.14	0.37	0.08	3.97	48.91	53.47	22.32	0.07	24.01	0.13	46.53	26075195
Urban	18.61	8.01	0.70	5.90	44.80	78.02	17.67	0.71	3.42	0.18	21.98	11844452



Graph 10: Human waste disposal in Kenya



Graph 11: Human waste disposal in Githunguri

Table 23: Liquid waste disposal in Githunguri

Constit uency/ ward	Ma in Se wer	Sep tic Ta nk	C es s Po ol	VIP Lat rine	Pit Lat rine	Impr oved Sanit ation	Pit Latrine Uncov ered	Buc ket	Bu sh	Ot her	Unimp roved Sanitat ion	Num ber of HH Mem bers
Kiambu County	5.77	9.72	0.41	7.88	56.52	80.30	19.36	0.10	0.18	0.05	19.70	1,200,557
Githun guri Constit uency	0.65	1.51	0.06	5.39	43.59	51.19	48.54	0.17	0.05	0.04	48.81	108353
Githun guri	2.20	3.23	0.05	5.71	32.01	43.21	56.43	0.24	0.09	0.03	56.79	27053
Githiga	0.13	1.47	0.08	6.73	57.60	66.0	33.70	0.06	0.06	0.17	33.99	22875
Ikinu	0.15	0.82	0.05	5.04	42.87	48.93	50.87	0.15	0.05	0.00	51.07	17223

Source: KNBS, 2009

7.3.3. Storm water drainage

In the planning area, there exists an informal drainage system comprising of unpaved drainage trenches that have been recently been cleared by the National Youth service. The condition of this informal drainage is poor as they are open and release bad odour to the environment. These open drains especially in Githunguri town

have also been filled with solid waste which leads to clogging of waste water from commercial use and other uses around the major centre. This has led to a lot of stagnation and poses a great health hazard to the residents of Githunguri Sub County. Water borne diseases could easily break out especially during rainy season due to such waste disposal mechanisms.

Several recommendations have been made in the CIDP and by other stakeholders on how to conduct liquid waste. The policy recommends the need for enhanced re-use/recycle of residues including waste water, use of low non-waste technologies, increased public awareness and appreciation of clean environment. It also encourages participation of stakeholders in the management of wastes within their localities



Plate 11: Condition of Storm water drainages

7.3.4. Solid Waste Management

Githunguri Sub County does not have an established public garbage disposal system. Most residents have adopted private garbage collectors as the main means of garbage collection. The County government through the ministry of Water, Environment and Natural resources has established garbage collection points in the form

of temporary Collection Bins. These however, as illustrated in the plate below have been misused rendering these location points to be open disposal points that are neglected and that destroy natural scenery.



Source: Acal and BC Gildenhuys & associates 2020

Plate 12: State of solid waste in the planning area

Garbage disposal systems around the urban centres within the county of Kiambu cover a small percentage of waste/garbage collection as only 2.6 per cent of the total population has facilities for waste disposal, about 0.7 per cent of the total population uses private firms, 29.1 per cent use garbage pits, 29.6 per cent use farm gardens, 12.1 use public garbage heap and 25.9 per cent opt to burn the waste/ garbage. This has a negative effect on the environment and hence proper mechanisms for waste disposal need to be put in place to ensure the county remains clean. Over the years, the public garbage collection systems of the Githunguri sub-county have depreciated; old urban functions and new developments have opted to hire the services of private garbage collectors. In the public offices located in Githunguri town however, the Kiambu County government garbage collection truck was responsible for collecting the solid waste. Such public offices include; the Sub-county offices, the A.P camp, Police Station, health offices and the GIWASCO offices. There is a proposal to construct a county landfill which will handle all solid waste from sub counties which should be accompanied by modern incinerators to burn hazardous waste as well as waste that cannot be decomposed. With this kind of idea, the County can use solid waste to generate revenue through generation of electricity, biogas, compost manure etc. The County will formulate policies to increase efficient of collection of solid waste to incorporate stakeholder participation and private players. (CIDP, 2017) Currently the people of Githunguri Sub-county have sought their own means of solid waste disposal with some of them disposing the waste in open garbage dumps especially in the major centres. Businesses located within Githunguri town have been known to dump their solid waste in the open drainage trenches along the roads. This leads to blockage and provides a breeding ground for mosquitos especially during the rainy season

7.3.5. Solid waste Disposal at household level

The most common methods of solid waste disposal identified in the planning area included burying, burning and compost pits. Burning the solid waste was the most common mode of getting rid of such waste followed closely by burying. Other households used compost pits. The reasons for selecting the said methods were cross tabulated as illustrated below;

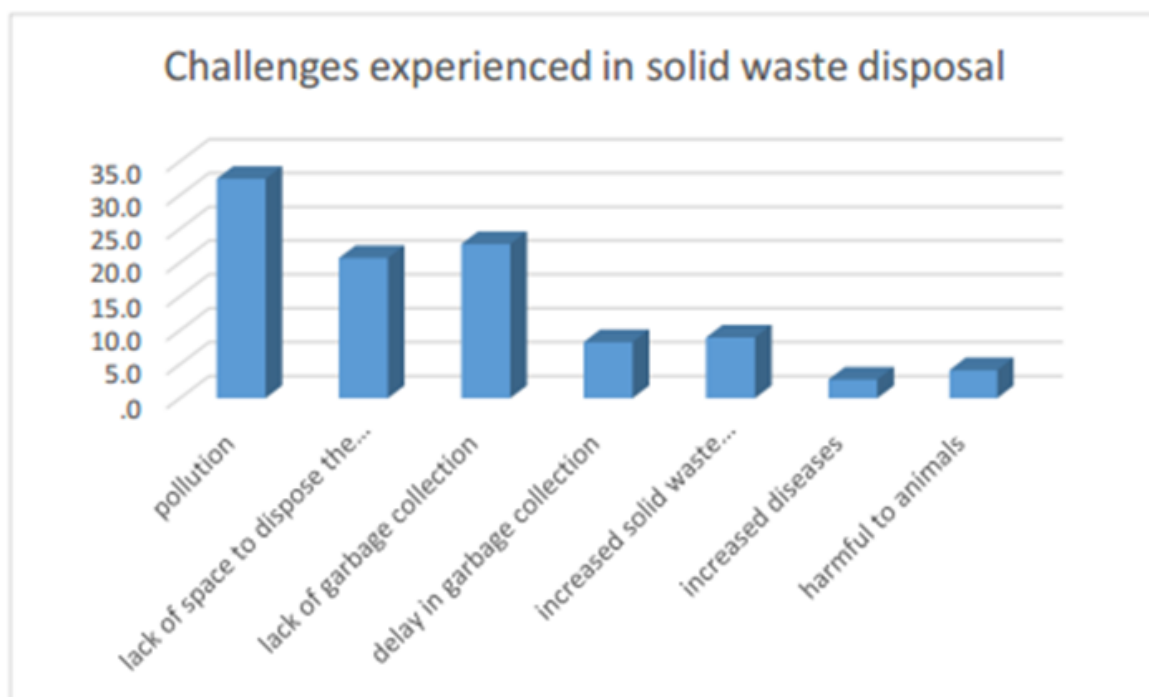


Graph 12: Methods of waste disposal vs reasons why they are used

Source: Durp, 2016

7.3.6. Challenges associated with solid waste disposal at house hold level

Several challenges were identified in solid waste disposal. The most rampant was pollution in terms of scenery deterioration, bad odour and pollution of water sources especially rivers. These challenges are summarised in the graph below,



Graph 13: Challenges associated with solid waste disposal

Source: Durp 2016

7.4. ENERGY

Energy is the power derived from the utilization of physical or chemical resources, especially to provide light and heat or to work machines. This sector will focus on the energy sources available in the planning area, their spatial distribution, capacities, management and ownership, challenges faced in the sector and the potential or opportunities Githunguri Sub-county has at its disposal.

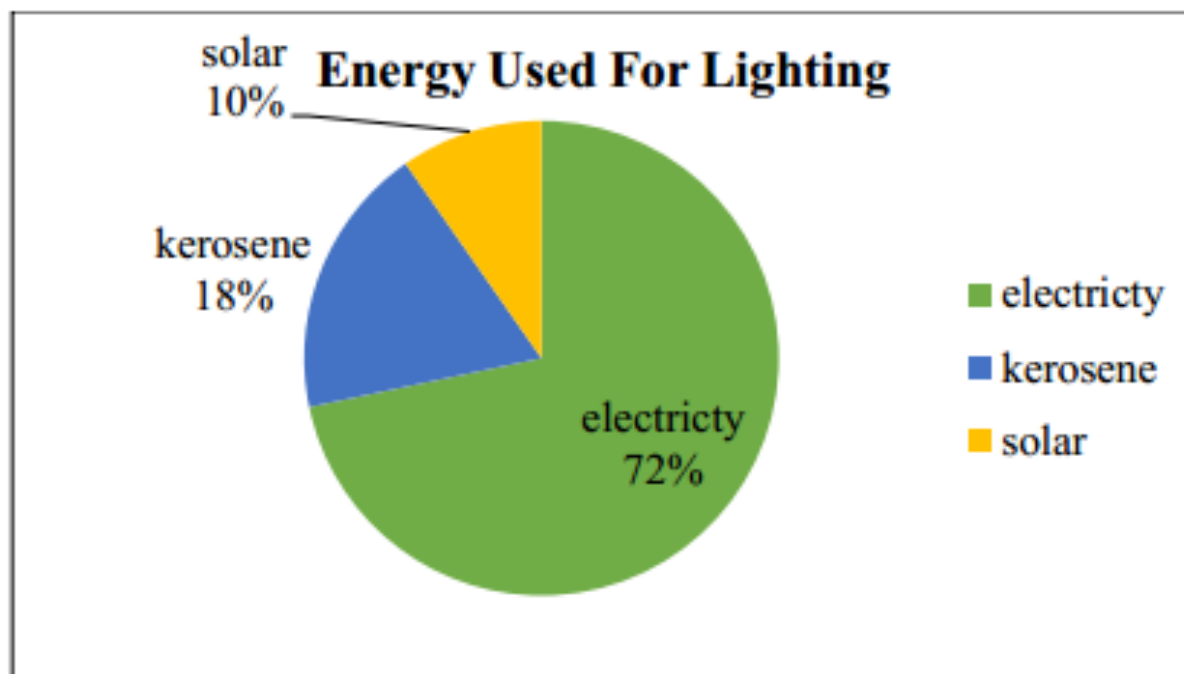
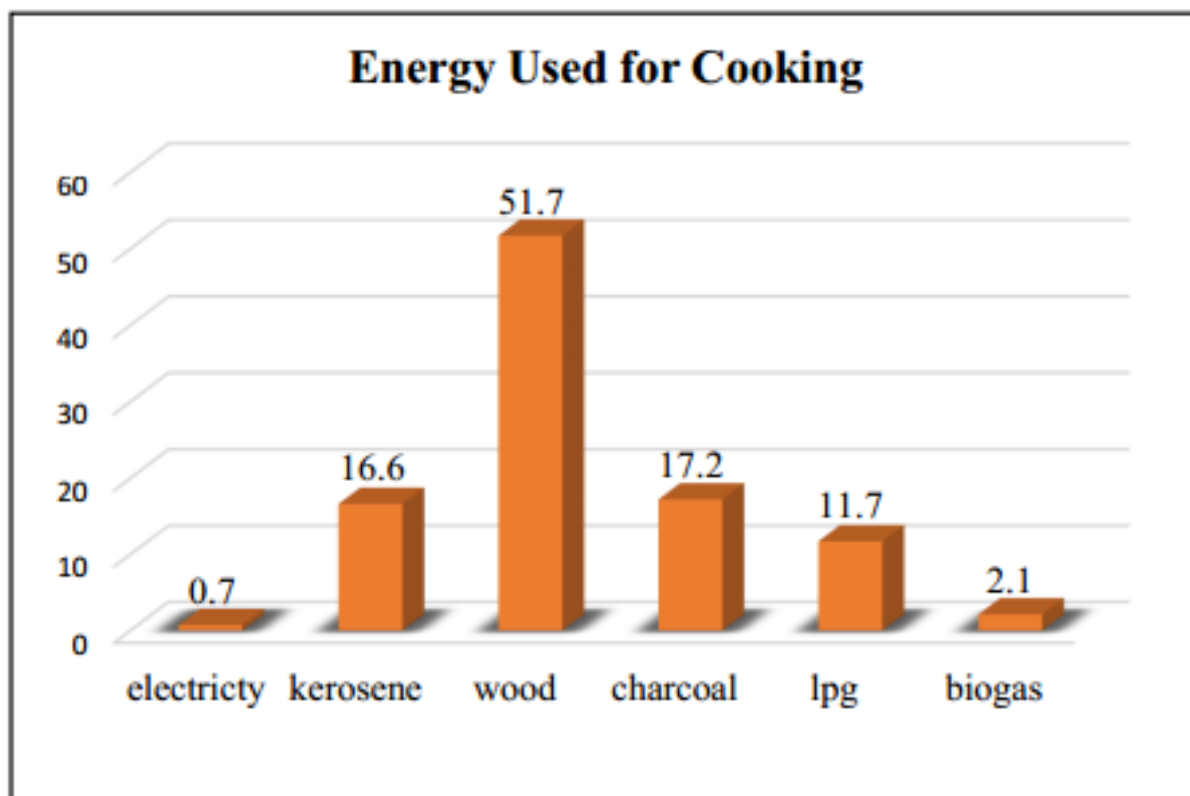


Figure 12: Types of energy used for lighting

Source: Durp, 2016

Lack of access to clean sources of energy is a major impediment to development through health-related complications such as increased respiratory infections and air pollution. The type of cooking fuel or lighting fuel used by households is related to the socio-economic status of households. High level energy sources are cleaner but cost more and are used by households with higher levels of income compared with primitive sources of fuel like firewood which are mainly used by households with a lower socio-economic profile. Globally about 2.5 billion people rely on biomass such as fuel-wood, charcoal, agricultural waste and animal dung to meet their energy needs for cooking (CIDP, 2013)

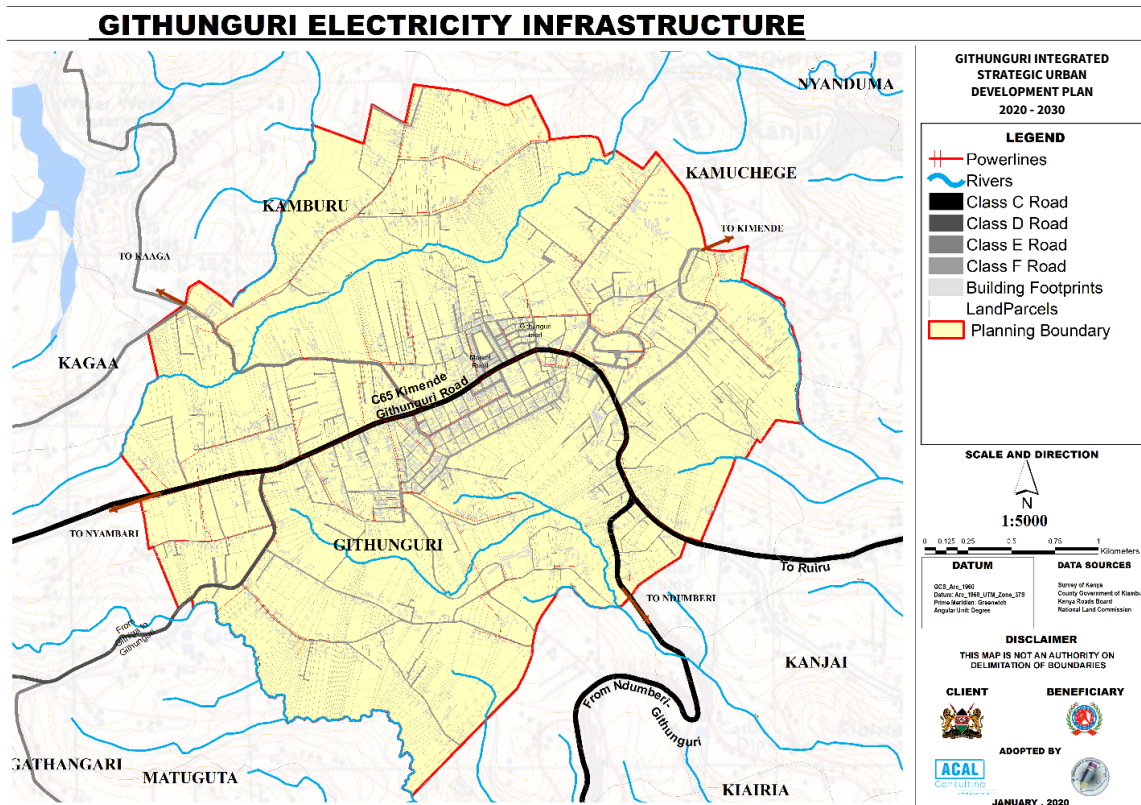
The main source of cooking energy in the study area is firewood which accounts for 51.7 %, while electricity is the major source of energy used for lighting. This poses a great challenge to the realization of 10 % forest cover within the county.



Graph 14: Type of energy used for cooking

7.4.1. Electricity Connection

Connection to the national grid is good with 98 % of all trading centres connected and only 4% of public institutions currently not connected (CIDP, 2013). Electrical connection to individual households is high, with 29% of the households not connected. Delays caused by the power company setting up electrical connections are the major challenge facing household members in Githunguri Sub-County. With 71% of households with access to power supply being connected to the service lines, this is a promising status of the power supply coverage in Githunguri Sub-county. The rural electrification programme is therefore a progressive success. The map below also shows that there is a high concentration of human settlement along distribution lines in the study area



Map 21: Electricity network

Source: Acal and BC Gildenhuys & associates 2020

Flood masts and High masts

The following table showing the completed lighting projects in the Githunguri Sub County:

Table 24: Flood masts and High masts

SUB - COUNTY	WARD	FLOOD MAST LOCATION	COMPLETED
Githunguri Sub County	Githunguri Ward	Gathanje Shopping Centre	1
		Kagaa Market	1
		Kanjuku Shopping Centre	1
	Githiga Ward	Kambaa Market	1
	Ikinu Ward	Karia Market	1
		Ha Ngangira	
		Kiaibabu	
		Waratho	
		Kamondo	1
	Ngewa Ward	Kiambururu Market	1
		Gakoe Trading Centre	1
		Mitahato S/C	1
	Komothai Ward	Gathiruini Shopping Centre	1
		Gati Iguru	1
		Kigumo 30M NaMSIP	1
		Thuita S/C	1
		Ha Kario	1

7.4.2. Electrical Capacity

The new electrical substation that was commissioned in Githunguri Sub-county around November, 2016 is located in Githunguri District which was formally within the large Kiambu District. The proposed site is located on a 0.405-hectare parcel of land along Githunguri-Upland Road. Githunguri district is approximately 40 km from Nairobi City Centre. The power lines entering and leaving are of different heights depending on the voltage they are carrying (Kenya Power, 2013)

7.4.3. Challenges in the Energy Sector

The major challenge in accessing energy is the cost of setting up connections to the service power lines. The high costs have caused delays in many circumstances where community members need to tap energy from the existing power sources. Insufficient energy due to insufficient generation and distribution is one of the challenges affecting the planning area given the low count of renewable energy utilization illustrated by energy

used for lighting in Githunguri Sub-county. The study area's potential to tap green energy is an opportunity for growth and economic development in Githunguri Sub-county. This is shown in the maps showing the study area's potential to tap green energy.

7.4.4. Opportunities

The planning area has an opportunity for exploring alternative energy sources, in this case biogas, as an area of huge potential given that it can be put to various uses including in cooking, lighting and heating. Biogas appears to be a potential source of sustainable energy for the sub-county given it can be used for all purposes mentioned. This would reduce the dependence on electrical connection, challenges in accessing energy and promote reliability.

7.5. INFORMATION, COMMUNICATION AND TECHNOLOGY

Due to many areas having access to electricity, there is wide use of telecommunication services in most parts of Githunguri. Githunguri BGAN Satellite Internet Providers provide internet for most institutions and households.

7.5.1. Radio and Television

Due to the presence of a good electricity network, many households already have access to the basic telecommunication mediums like radio and television. There is also access to radio and television frequencies in the region. Most of the residents, 98.6% (Durp,2016), have access to radio and it is mostly used for entertainment purposes.

7.5.2. ICT Facilities in Institutions

In some schools there has been a digital learning programme integrated that helps students

acquire knowledge through the use of computers and the internet. This usually also encourages children who are not in school to want join. Some hospitals in the Githunguri use computer databases to store information on patients, facilities and equipment and this data is easily accessible. There have been efforts to implement an electrification project for primary and secondary schools to initiate the Laptop Programme. Kiawairia primary school was one of the first to partake in the project. Some schools in the area have access to computers and internet for example St. Joseph high school, Githunguri has computers that are used for computer studies. Integration of ICT in public secondary schools has been of key importance in the area. The dairy farmer's cooperatives in the area also use ICT technologies to carry out certain duties such as giving out information on the internet about them for purposes of employment. However, most of the residents, 79.3 % (DURP, 2016) have not received any ICT training. The good electrical connection in the area however presents an opportunity to improve the number of people with ICT skills. Hospitals and clinics in the area also benefit from the new telecommunication systems and technologies for health facilities thus help curb high mortality rate. The computer databases in the county offices are also important when it comes to storing information about Githunguri such as land and land use, industry and resources. This data can be used during the planning process.

7.5.3. Mobile Phone Connection and internet facilities

Most people 98.8%(DURP,2016) have access to mobile phones and some use them as a way to access internet services while those without mobile phones go to the cybercafé. A majority of the residents, 57.9%, (DURP, 2016) do not have access to internet and the ones who do access it

through cyber cafes and their phones.

7.5.4. Postal Services

A majority of the people, 61.5%, have access to postal services. There is however only one post office located in Githunguri Town

7.6. EMERGING PLANNING ISSUES

Table 25: Emerging issues on physical infrastructure

Sector:	Potential/ Opportunities:	Constraints:
Transport	<ul style="list-style-type: none"> • Presence of inter and intra urban connectivity thus higher connectivity index • Opportunity to plan for elaborate integrated transport system with NMT infrastructure • Planning for designated on and off Bus stop along transport routes • Need for outer ring roads to reduce traffic in the CBD 	<ul style="list-style-type: none"> • Poor road conditions due to overloading, poor maintenance and effects of humid nit sols soils especially in the rural areas. • Poor road connectivity between resource or production areas and market destinations. • Inadequate funds for infrastructure • Narrow Roads • Lack of provision for NMT • Road Reserve Encroachment • Road user conflict (pedestrian, Vehicular and Boda Boda)
Water	<p>Water sources</p> <ul style="list-style-type: none"> • Availability of water resources in the planning area <p>Water demand</p> <ul style="list-style-type: none"> • Expansion of water reticulation networks • Use of alternative water sources eg harvesting of rain water 	<ul style="list-style-type: none"> • Pollution of water sources • Climate change • Environmental degradation • uncompleted water connections • high water bills • water rationing
Waste management and sanitation	<p>Solid waste.</p> <ul style="list-style-type: none"> • Construction of modern public sanitation facility in town <p>Human liquid waste</p> <ul style="list-style-type: none"> • Provision of convectional sewerage system in the planning area <p>Storm water drainage</p> <ul style="list-style-type: none"> • Implementation of waste management policy 	<ul style="list-style-type: none"> • Dumping of solid waste on undesignated locations • Over-reliance to pit latrines posing a challenge to ground water. • Lack of conventional sewerage infrastructure • Clogged open drain channels
Energy	<ul style="list-style-type: none"> • Adoption of alternative energy sources e.g. Biogas, Solar energy and wind energy. 	<ul style="list-style-type: none"> • Overreliance on non-renewable energy sources
Information Communication and technology	<ul style="list-style-type: none"> • Electronic development management system for development control • Access to electricity in the planning area facilitated by the good connection network • Internet connectivity • Telecommunication networks 	<ul style="list-style-type: none"> • Lack of ICT skills among section of population

Source: Acal and BC Gildenhuys & associates 2020

9 CHAPTER NINE: SOCIAL INFRASTRUCTURE

9.1 EDUCATION

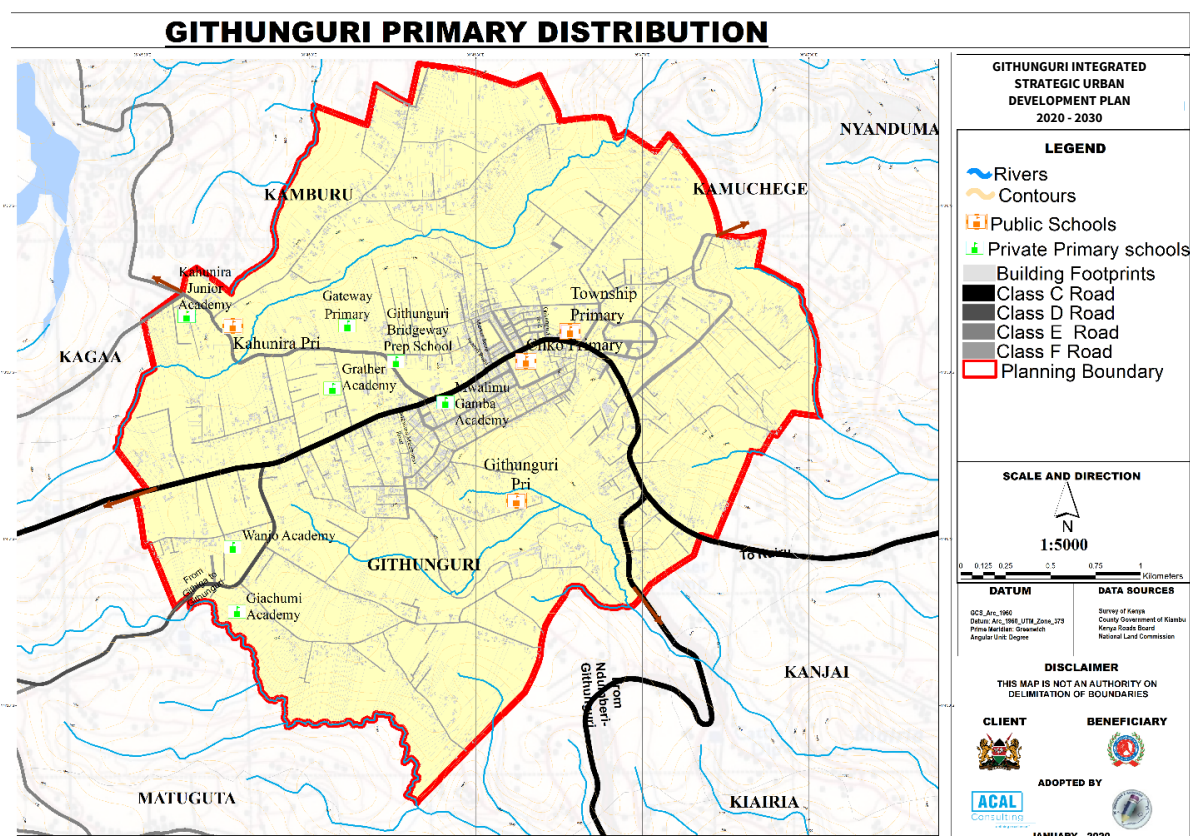
9.1.1 Education Facilities

There are 9 primary schools and 3 secondary schools in the planning area with majority of schools located in the central part of the planning area. The public primary and ECD centre schools include: Kahunira primary school and Ciiko primary school, PCEA Githunguri Primary school. The private primary schools include Holy family Primary school, Gateway Primary, Shade primary School, Githunguri Bridgeway Preparatory School, Wanjo Academy, Mwalimu Gamba Junior Academy, Restoration Nursery School, Kahunira Junior Academy, Grather Academy and Thiririka Nursery school.



Plate 13: PCEA Githunguri Primary School

The public secondary school include the following St Joseph High School, Mukua High School and Kahunira High School. There is only one private high school by the name Pittsburg High School. Githunguri Primary school is the oldest of all in the planning area.



Map 22: Primary School Distribution

9.1.2 Land sizes of Education Institutions

Land sizes for education facilities have been a challenge in the country. Majority of the schools operate on the land that is below minimum requirement as per the standards in the Draft Physical planning handbook. The minimum land requirement of primary and secondary school is 3.5Ha and 6.9 Ha respectively. The table 27 and map 21 Shows that only Githunguri Primary and St. Joseph high school

a) Primary Schools

Table 26: Primary schools area

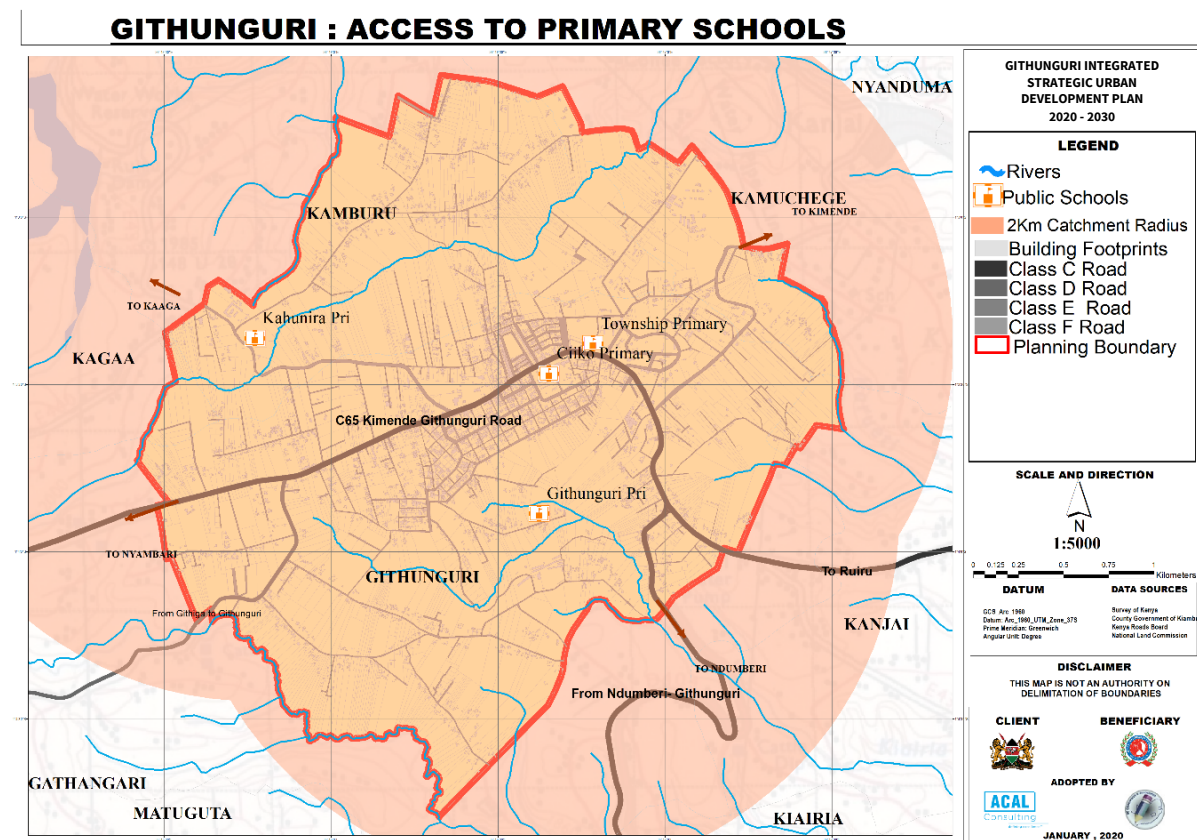
School	Area (Ha)
Holy Family Primary	0.1347
Gateway Primary School	0.3041
Kahunira Primary School	1.9049
Pcea Githunguri Primary	4.243
Githunguri Bridgeway Preparatory School	0.09699
Wanjo Academy	0.08861
Mwalimu Gamba Junior Academy	0.06445
Ciiko Primary School	0.5973

C) Special schools Special Schools

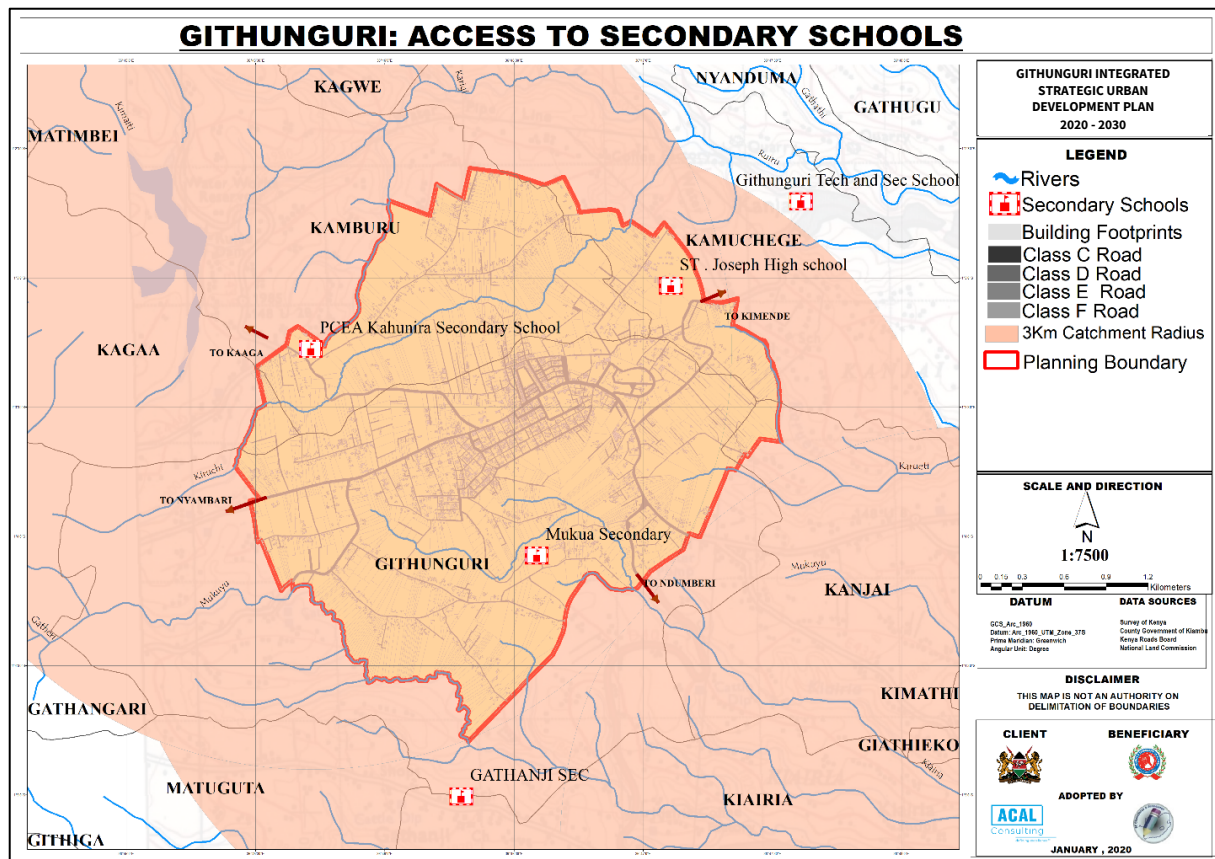
There is one primary level school for the physically challenged and one primary school for the deaf. There is also a secondary school for the physically challenged in the wider Githunguri Constituency

9.1.3 Accessibility to education facilities

The Physical Planning Handbook provides a basis for distributing education facilities based on various parameters. The standards provided by the handbook were used to carry out a comparative analysis of the situation in Githunguri. The Planning Handbook focuses on the provision of learning facilities and their land allocation for different catchment populations, mainly depending on the age of the pupils/students and the number of the pupils/students. In terms of accessibility, the recommended maximum distance is 2km for primary schools and 3km for secondary schools. It is observed that the distribution of both primary and secondary schools is fairly good, with almost all the areas in the sub-county being able to access schools as shown in maps below. The good coverage of schools however includes private schools which do not guarantee that all schools are accessible to every child due to affordability.



Map 24: Accessibility map of primary schools within 2km

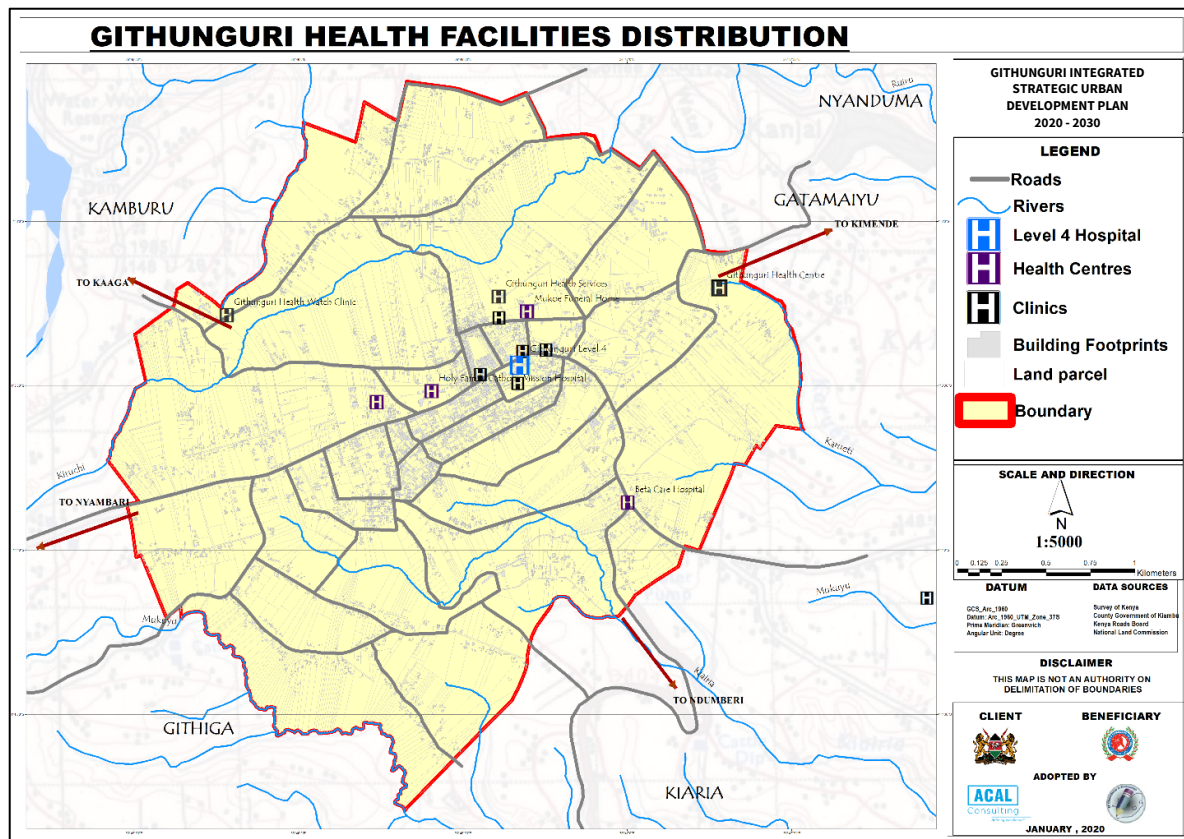


Map 25: Accessibility map of secondary schools within 3km

9.2 HEALTH FACILITIES

9.2.1 Health Facilities

There are four (4) health facilities in the planning area, all situated in the area to the north of Road C65. The southern part of the planning area is therefore underserved in provision of health facilities. These health facilities are: Githunguri Sub county Hospital, Beta Care and Funeral Home, Holy Family Mission Hospital and Holy Rosary Dispensary. The doctor/population ratio in the County is 1:17,000 and the nurse/population ratio stands at 1:1 300. The average distance to a health facility is 7km, and the facilities are accessible since the road network is good.



Map 26: Distribution of health facilities

Source: Acal and BC Gildenhuys & associates 2020



Plate 14: Health Facility in Githunguri-Holy Family Catholic Mission Hospital

Table 28: Ownership and types of health facilities

Health Facility	Ownership	Type	Status
Kigumo Level 4 Hospital (Outside Planning Boundary).	Public	Out-Patient and Inpatient	Operational
Githunguri Sub-county Hospital	Public	Out-patient & Maternity	Operational
Betacare Hospital and funeral home	Private	Outpatient and inpatient	Operational
Holy family Mission hospital	Private	Out-patient	Operational
Holy Rosary Dispensary	Private	Outpatient	Operational

Source: Acal and BC Gildenhuys & associates 2020

9.2.2 Health Concerns

There is only one government health facility in the Planning area that is inadequately equipped. The sub county hospital has 4 doctors, and 10 Clinical Officers and 10 Lab Technicians. Thus, specialized treatment can only be got away from Githunguri town. The nearest hospitals are; Kigumo Hospital 18.5Km away Via C65; Kiambu level 4 Hospital 18.9Km via Kiambu road OTHER SOCIAL INFRASTRUCTURE

9.3 Open spaces and Playgrounds

Open spaces and playgrounds play a very important role in the development of a community.

These are the facilities which give the public a chance to recreate, interact with one another as well as interaction with the nature. Public playgrounds and open spaces then need to be provided and be protected by the governing bodies of the region in question. The planning area hosts Githunguri stadium which is used by residents for sporting activities leisure and holding of public meetings. Most public *barazas* are held in the stadium. The stadium is located along the Githunguri road in Githunguri town centre. The stadium is owned by the county government of Kiambu and it's the only public playground in the whole constituency, the stadium has a capacity of around 20000 people and is in a poor state, It important to note that the surface condition of the stadium is muddy and dusty during the rainy and dry season respectively. It doesn't have a proper fencing and lacks shades to prevent people from rains or hostile climate during events. Other playgrounds are attached with the learning institutions such as primary and secondary schools in the sub county.

There is also an open space in Githunguri town which is located opposite the Githunguri law courts. This is the only open space designated in the whole sub county. Lack of vegetation cover makes it prone to soil erosion.



plate 15:Githunguri Stadium

9.4 Administrative Facilities

The planning area hosts various Government facilities on land owned by both the national government and the county government. These facilities include 1 police station and a post office. Githunguri is the administrative headquarter of Githunguri Sub-County. The sub-county headquarter function makes Githunguri relatively secure for residential compared to the immediate rural centre at the local location context.

9.5 Public Libraries

Public libraries are those libraries that are accessible by the general public and are generally funded from public sources, such as taxes. It is operated by librarians and library paraprofessionals, who are also civil servants. In Githunguri constituency, there is only one public library located in Githunguri town at the Youth Empowerment centre in Githunguri stadium. It is well equipped with books and can accommodate up to 50 people.

9.6 Cemeteries

There exists one cemetery. The cemetery is not commonly used by residents. Githunguri residents prefer burying their dead on the ancestral land. This is a culture that has been in existence among the Eastern Bantu community.

9.7 Slaughter houses

There exists one slaughter house in the planning area. The slaughter house serves the town effectively since there exist numerous meat outlets in the whole town.

9.8 Religious Facilities and Social Halls

The planning area hosts numerous churches, predominant of which are parishes of the Presbyterian Church of East Africa (PCEA), the Anglican Church of Kenya (ACK) and the African Inland Church (AIC). There are also many

evangelical churches that occupy small parcels of land all around the planning area. The area is served by one community hall.

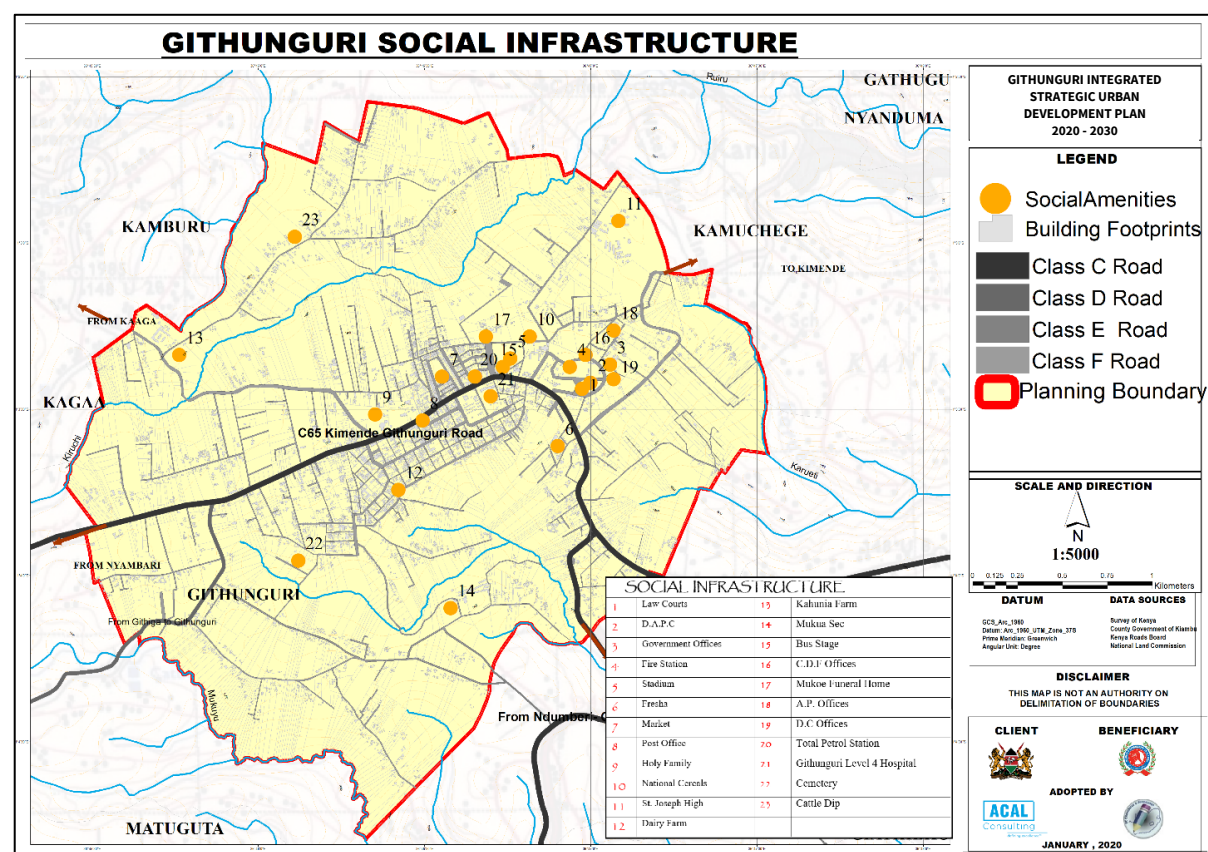


Table 29: Summary of other social infrastructure

Facility	Name/Location
Bus Parks	1 (Rehabilitation Completed)
Sports Facilities	1 Githunguri stadium
Social Hall	1 Community Hall
Public Library	1 stadium
Post Office	1 Post Office
Fire Station	Ongoing construction
Police Stations	1 Police Station
Religious Institutions	Several
Slaughterhouses	1 Slaughter House
Cattle dip	1 Cattle dip
Cemeteries	1 Cemetery

Source: Acal and BC Gildenhuys & associates 2020

9.9 EMERGING PLANNING ISSUES

Table 30: Emerging issues on social infrastructure

Sector:	Potential/ Opportunities:	Constraints:
Education	<ul style="list-style-type: none"> Partnerships with development agencies to improve the education sector Good accessibility of Primary schools within buffers of 2km Good accessibility of Secondary schools within 3 km 	<ul style="list-style-type: none"> Absence of a tertiary institution and a specialized school Some schools have plot sizes too small way below the minimum requirements Some schools have inadequate Facilities e.g. Toilets, Classrooms and Water supply. Some private schools are not registered
Health	<ul style="list-style-type: none"> Setting up of more community health units 	<ul style="list-style-type: none"> Inadequate number of health care personnel in the town Long distances travelled to receive specialized treatment
Other Social Infrastructure	<ul style="list-style-type: none"> Improvement and rehabilitation of the Githunguri stadium Potential to invest in community facilities Creation of community facility clusters in and around the existing nodes 	<ul style="list-style-type: none"> Cattle dips are defunct hence land unutilized. The Cemetery is not secured by a distinct boundary and it is poorly maintained. The fire station construction has stalled. The condition of Githunguri stadium is poor Absence of facilities such as Recreational park. Parks, Public Library and Firestation

Source: Acal and BC Gildenhuys & associates 2020

10 CHAPTER TEN: ECONOMIC ANALYSIS

10.1 Introduction

The goal of the economic sector is to make Githunguri a nationally and globally competitive, prosperous constituency and transform it into an industrialized county by the year 2030. The sub county generates its revenue from local sources, County government and the national government. The local sources include agricultural practices, chess, income from markets and business permits among other sources. Sustainable natural resources management is as much a question of sustainable economic development as it is of environmental protection. Managing natural resources sustainably in the case of renewable resources and as sources of revenue for investment in future growth in the case of non-renewable resource allows resource rich countries to establish the foundation for long-term development and poverty alleviation. Economic resources are important in that they:

- contribute towards fiscal revenue, the levy that is charged for goods exported from the
- create more revenue for the county and the national government.
- increase income at household level. This helps to cater for basic needs of the households.
- reduce poverty.
- create employment. The savings accumulated on household income result into investments hence creation of employment.

Githunguri economic pillar is moving the economy up the value chain for the people of Githunguri. It is necessary to concentrate on economic growth because, as the country grows richer, this economic wealth would trickle down to benefit the poorest sections of society. Inequality therefore has a very low profile in political, policy and scholarly discourses. In recent years though, social dimensions such as levels of access to education, clean water and sanitation are important in assessing people's quality of life. Being deprived of these essential services deepens poverty and reduces people's well-being

Agriculture is identified as one of the key sectors in the Economic Pillar expected to drive the economy of Kenya to a 10% growth rate by 2030 in the Kenya Vision 2030. Githunguri as an agricultural region has a part to play towards achieving this vision. It is therefore imperative that the agricultural potential of Githunguri is fully tapped in order to realize economic growth which would trickle down to all the sectors in the region..

10.2 AGRICULTURE

Agriculture is the dominant practice in Githunguri thus, it is deemed as the main economic driver in the area. It is a source of livelihood to about 80% of the total population. Agriculture as an economic resource in Githunguri includes livestock production, tea, coffee and horticultural farming as its key drivers. The region has organized cooperatives that run cash crops and milk production (GOK, 2010). Off farm employment is critical to income levels. Most of the food produced is spent within the household although many households depend on food purchases where about 51 per cent of the food is bought. Markets in the sub county are developed and integrated

10.2.1 Livestock Production

Livestock production plays a major role in the life of farmers in developing countries. It provides food, income, employment and many other contributions to regional development. With the economy of the county growing at annual rates greater than 5-6% and a market potential of 179,605 (based on 2009 census projection) people within the sub county, the livestock and poultry industry growing faster than ever. Within the agriculture sector, livestock sub sector plays a vital role in economic development. Despite the increasing contribution of the livestock sector, it has not yet realized the expected returns. Dairy farming is the main activity in the sub-county supported by favorable climatic conditions which has made it easy to be done at small scale

Economic Analysis of Livestock Production

a) County Level Analysis

Livestock farming especially dairy farming is one of the main economic activities the people of Kiambu County and Githunguri sub-county engage in. According to 2009 Population and Housing Census, the numbers of

livestock in the county were as follows: 230,294 cattle, 120,056 Sheep, and 89,817 goats. In addition, there were 2,600,837 poultry, 46,493 pigs, 13,662 donkeys and 127 camels.

b) Sub-county Level Analysis

According to the agricultural officer the sub-county has 41,357 dairy cows. This high number of farmers is attributed to the increasing number of cows over the last three years. The population of cows has been increasing by a rate of 10 % annually. This increase is due to the numerous opportunities for livestock (dairy farming) in the constituency

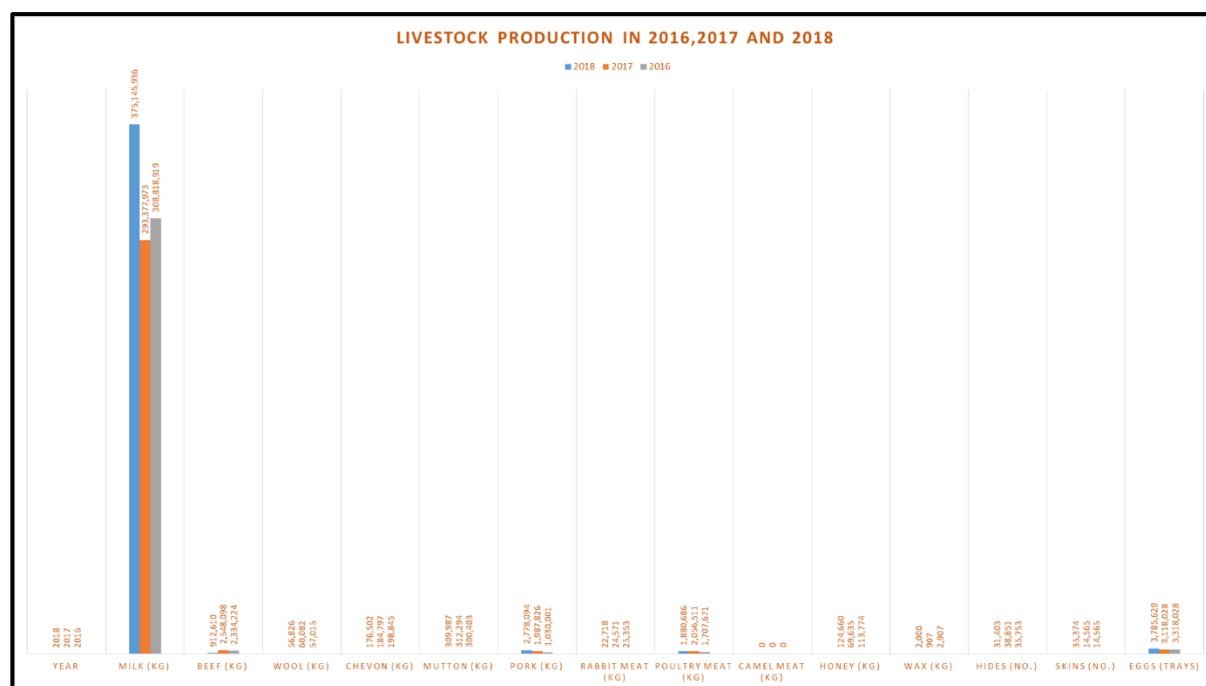


Figure 13: Livestock production in the year 2016, 2017 and 2018

i) Livestock Output

The county produced 267.5 million Kg of milk valued at Ksh 5.0 billion; and 36.2 million Kgs of beef valued at Kshs. 6.5 billion. Production of mutton was at 106,686 Kg valued at Ksh. 42.7 million. Further, the county recorded production of 266.9 million Kgs of eggs, valued at Kshs. 699.2 million; poultry meat produced was 76.2 million Kg, valued at Kshs. 142.9 million, honey produced was 134,332 Kg valued at Ksh. 67.2 million and 1.8 million kilograms of pork valued at Ksh. 631.1 million.

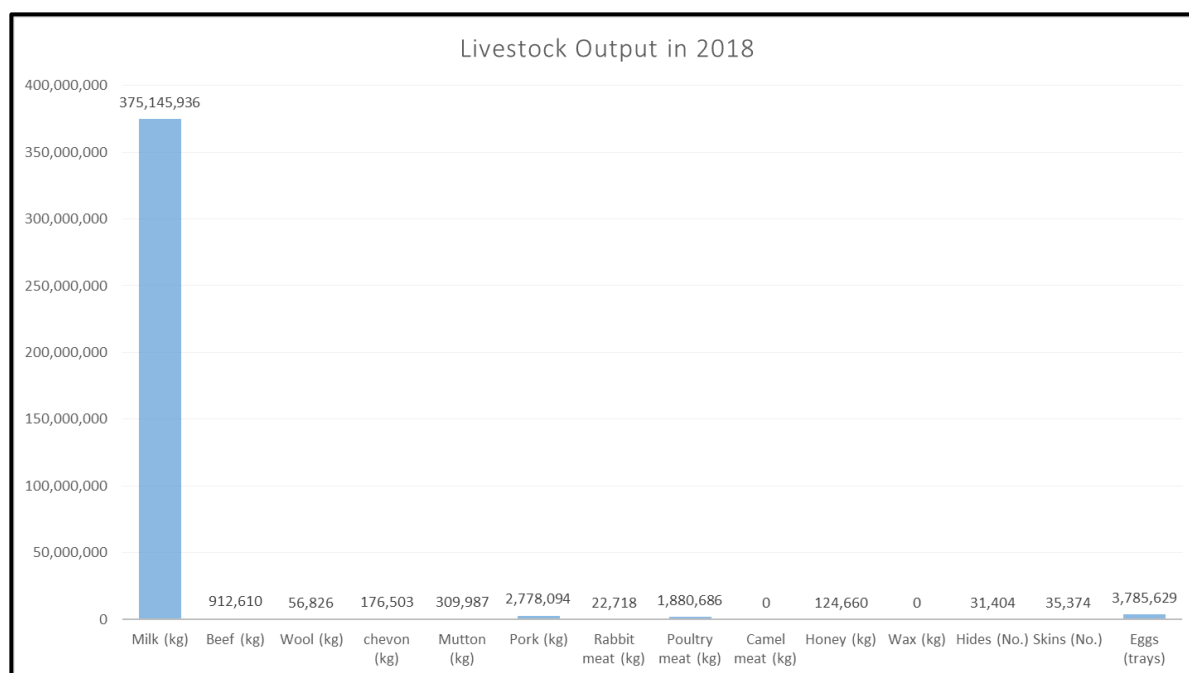


Figure 14: Livestock Output in 2018

Key Factors Encouraging Such Performance

Growth in this sub-sector has been encouraged by ready urban markets in Thika, Ruiru, Kiambu and Nairobi and the availability of local food processing factories such as Farmers' Choice Ltd, Kenchic Co. Ltd, Brookside Dairies, Githunguri Dairies, Ndumberi Dairies, Limuru Milk and Palmside Dairies, among others. There are no ranches within the county.

Value Addition of Milk and its Contribution to the Economy

Dairy farming is the paramount driver of the economy in the sub county since it records annual return of 8 billion. This activity is the main economic activity most people in the sub county engage in. The main market for the dairy products is Githunguri Dairy Cooperative. The cooperative has 24,352 registered members who supply milk on a daily basis. Cumulatively, the cooperative receives approximately 220,000 litters of milk per day. On the other hand, the other cooperative involved in milk processing within the constituency is palm house cooperative which also provides a market for the dairy farmers.

Referring to the market prices, according to the Githunguri dairy cooperative, local milk prices are 38 shillings per litre in the cooperative. When milk is sold at household level the milk prices are 50 shillings per litre. Once milk is supplied to the dairy, the whole amount approximating to 220,000 is processed and converted to various products. The processed dairy products are then sold at the small milk shops, while a proportion is packaged in plastic containers and sold through supermarkets and shops in Githunguri town and three other major peri-urban centres within the district. Additionally, a large quantity of the processed dairy products is exported and sold outside the sub county with major consumer towns including Nairobi and Kiambu town. Some of the processed products and prices according to the Githunguri Dairy cooperative include:

Table 31: Amount of milk processed daily

Processed product	Amount of milk processed daily	Selling price
Fresha milk	65%=143000 litres	KSH 80 per litre
UHT	30%=66,000 litres	Ksh 80 per litre
Yoghurt	5%=11,000	KSH 80 per 500 ml

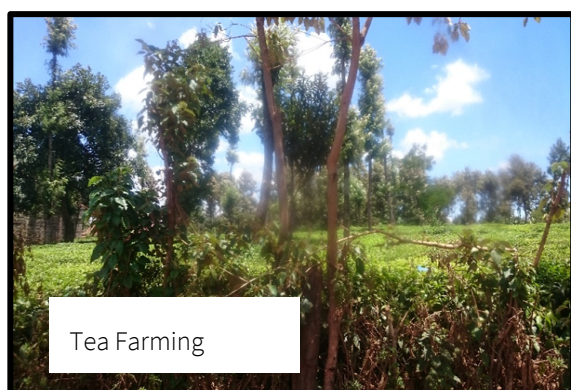


Plate 16: Dairy Farming and other agricultural activities

Source: Acal and BC Gildenhuys & associates 2020

The agricultural sector is however facing a variety of challenges:

- ✓ High cost of feeds, that is, Kshs. 250 per bale of hay.
- ✓ Labour intensive.
- ✓ Land fragmentation posing a threat to food security
- ✓ High cost of inputs (such as feeds, fertilizer, etc).
- ✓ Diseases i.e. Anthrax Rumpy Skin & foot and mouth for t
- ✓ he livestock, aphids for crops

10.2.2 Crop Cultivation

a) Tea farming

Tea farming is situated on the upper zones of Githunguri sub county called Tea/dairy zone. The current number of active tea farmers within the sub county is 5,473. This is a reduction from the previous 60,000 farmers registered. The main factories consuming tea from the sub county are Kagwe and Kambaa. Kambaa is located within the sub county in Githiga ward while Kagwe is located at Lari Sub County but still it consumes tea from Githunguri Sub County especially from Kiratina and Githunguri wards. Tea farming in Githunguri Sub County,

unlike other sub counties in Kiambu County, is small scale farmers based. The average sizes of tea farms in Githunguri sub county are 0.36ha=0.882acres=3569.45m

Tea production in Githunguri

The table below shows total income generated from tea in Githunguri.

Table 32: Total income generated from tea in Githunguri.

Ward	Tea production (%)	Income (Ksh)
Githiga	60.0	1,027,268,447.964
Githunguri	20.4	349,271,272.30776
Kiratina	16.4	280,786,709.11016
Totals	96.8	1,712,114,079.94 cts

Source: Githunguri Agricultural department (2016)

Challenges facing tea farming

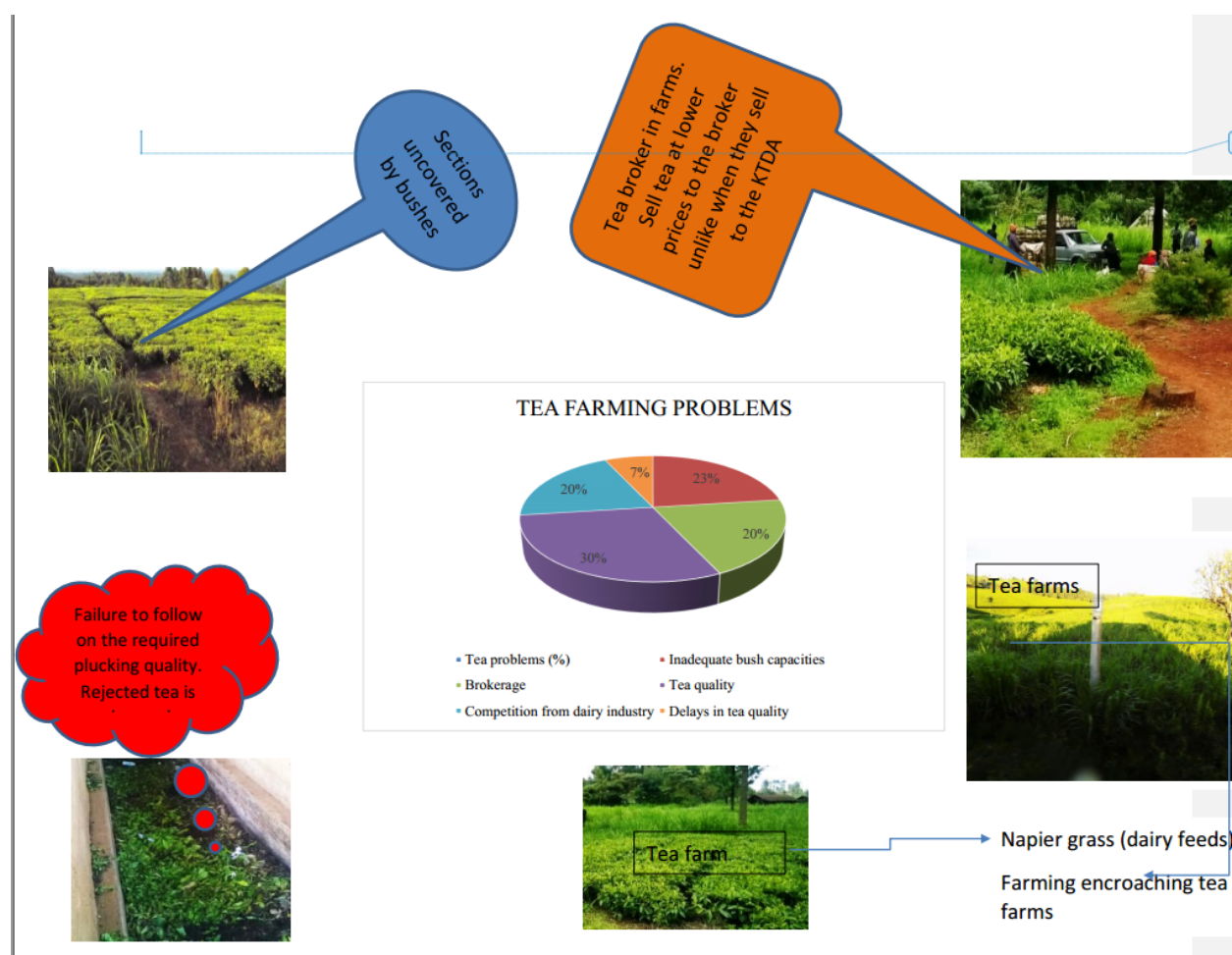


Figure 15: Challenges facing tea farming

10.3 Manufacturing Industry

Manufacturing industry refers to those industries which involve in the manufacturing and processing of items and indulge in either creation of new commodities or in value addition. The manufacturing industry accounts for a significant share of the industrial sector in Githunguri. Industrial development in Githunguri consists mainly of small factories and service industries serving the local market. The only major industries existing in Githunguri

are Fresha dairies and palm house dairies. Other light industries in existence are motorcycle repair, motor vehicle garage, carpentry, Jua Kali industry and furniture industry.



Carpentry Industry



Juakali Industry

Plate 17:Factories

Source: Acal and BC Gildenhuys & associates 2020

10.4 TRADE AND COMMERCE

Trade refers to the retail which involves the process of selling consumer goods or services to customers through multiple channels of distribution to earn a profit. Demand is identified and then satisfied through a supply chain. Attempts are made to increase demand through advertising. Retailing as a sector includes subordinated services, such as delivery. Trade

industry is practiced at a higher level in Githunguri ward compared to other wards while it is lowest in Ngewa. The planning area is dominated by wholesale and retail activities and informal commercial activities. The main types of formal businesses present in the town include: Financial institutions, Hotels and eateries, Wholesale and retail, Beauty and fashion boutiques, Agro vet stores, Mobile banking service agents, petrol stations and carwash and Markets. Informal business is characterized by: Street vending, Hawking and Groceries stores.



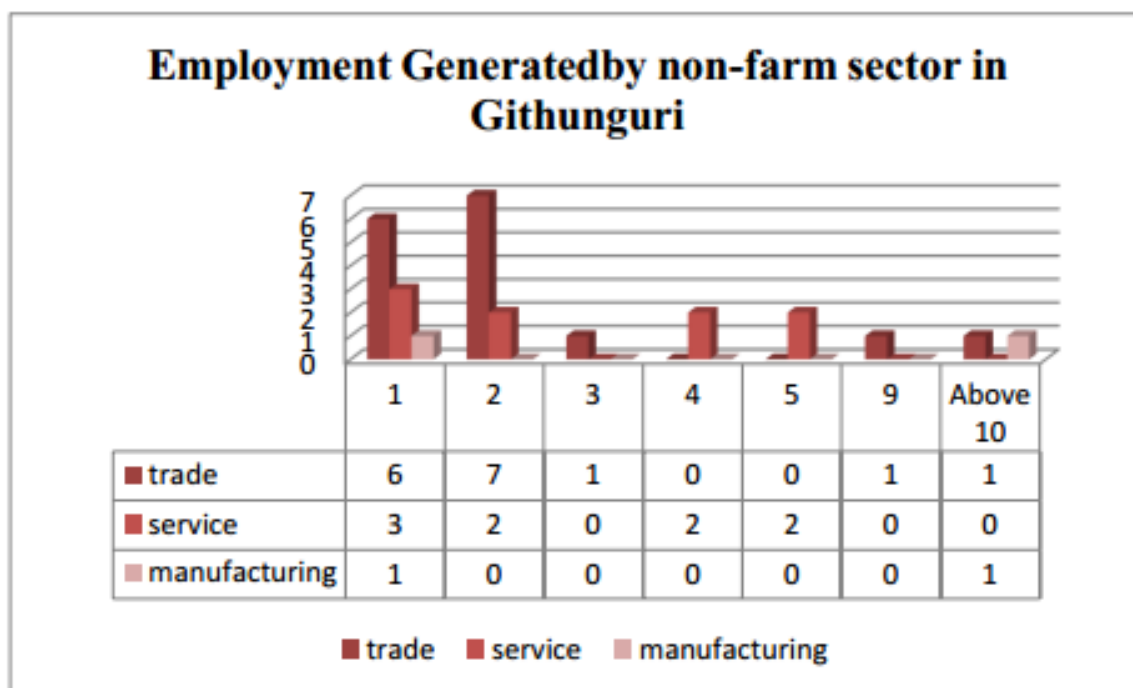
Plate 18:Business types in Githunguri Town

Source: Acal and BC Gildenhuys & associates 2020

10.5 Employment Generation by Non-Farm Sector

Trade industry offers the highest employment provision followed by service industry then manufacturing industry offers the highest employment provision followed by service industry then manufacturing industry

Table 33: Employment created by non-farm actors



10.6 Revenue Collection in Githunguri

According to the revenue officer, Kiambu County, there are various sources of revenue that the sub-county relies on for development purposes. The following is a breakdown of the major revenue sources in the planning area

Table 34: Revenue Collection in Githunguri

Wards	Main activity description	No. of businesses	Revenue potential (ksh)
Githunguri	Hyper supermarket	4	280,000
	Medium supermarket	3	72,960
	Large trader, service and retail store	102	1,094,590
	Medium trader, service and retail store	99	518,968
	General retail shop	749	3,240,311
	Small trader shop and retail	19	61,137
	Kiosk light or temporary construction	3	6,840
	Other retail traders, stores, shops and services	2	5,040
	Transport, storage and communication	17	181,940
	Agricultural, forestry, natural resource	5	69,813
	Catering and accommodation	134	893,075
	Manufacturer/workshop/factory/contractor	34	178,527
TOTAL			6,603,201

2.1 EMERGING PLANNING ISSUES

Table 35: Emerging issues on economy

	Opportunity:	Constraints:
Agriculture	<ul style="list-style-type: none"> ▪ Availability of Agricultural land ▪ Potential for value addition Agricultural ▪ Fertile soils for crop farming eg tea and coffee ▪ Cooperative societies for marketing agricultural products eg dairy ▪ Favorable climate 	<ul style="list-style-type: none"> ▪ Human settlements push on Agricultural land ▪ Land fragmentation ▪ Declining agricultural productivity (Subsistence and commercial) ▪ Slow Adaptation to new technologies e.g. use of greenhouses ▪ Use of recycled seeds lowering volume and quality of production ▪ climate change
Industry	<ul style="list-style-type: none"> ▪ Availability of supporting infrasture eg electricity connection network and major roads ▪ Close proximity agricultural 	<ul style="list-style-type: none"> ▪ low levels of permeability and connectivity from the farms to the market ▪ Roads are in a bad condition

	produce markets <ul style="list-style-type: none"> ▪ Potential for agro-processing industries 	<ul style="list-style-type: none"> ▪ Pollution from industrial waste
Trade and commercial services	<ul style="list-style-type: none"> ▪ Construction of a modern market facility ▪ Livelihood improvement through job creation ▪ Enhanced revenue generation and collection for service provision by county Government 	<ul style="list-style-type: none"> ▪ Commercial extensions on the roads ▪ Drainage system inside the market is poor. ▪ The market space is inadequate hence some sellers operate from outside ▪ The construction of the market has stalled ▪ Sellers occupying even the waste collection point.

Source: Acal and BC Gildenhuys & associates 2020

11 CHAPTER ELEVEN: GOVERNANCE AND INSTITUTIONS

11.1 Introduction

The ISUDP is being prepared within the framework of the recently devolved system of government as provided in CoK, 2010. A key provision of the new constitution is the creation of county governments whose functions include county planning and development (Fourth Schedule), amongst others.

The County Governments Act 2012 was then enacted to give effect to the devolution provisions of COK 2010. The said Act further defined the functions and powers of county governments which include the preparation of the following plans:

- a. County integrated development plan;
- b. County sectoral plans;
- c. County spatial plan; and
- d. Cities and urban areas plan as provided for under the Urban Areas and Cities Act (No. 13 of 2011).

The County Governments Act 2012 also provided that the above plans shall be prepared using a framework that integrates “economic, physical, social, environmental and spatial planning.” It underscores the importance of development planning by further providing that the mandated plans “shall be the basis for all budgeting and spending in a county.” The executive branch of the County Government has the responsibility for preparing these plans. In turn, their approval resides with the County Assembly.

Citizen participation in ISUDP preparation and implementation is also enshrined in the County Governments Act 2012. The Act provides that the County Government shall provide citizens with “reasonable access to the process of formulating and implementing policies, laws and regulations, including the approval of development proposals, projects and budgets, the granting of permits and the establishment of specific performance standards.” Citizen participation shall be ensured through several modalities including the “establishment of citizen fora.”

11.1. Existing Institutional Framework

Institutions are agents of plan implementation; a sound institutional framework can make or break a plan’s implementation. An analysis of the governance capacity to implement the Githunguri IUSDP becomes important to the planning preparation process. Figure 13 illustrates the main institutional actors in the governance of Kiambu County.

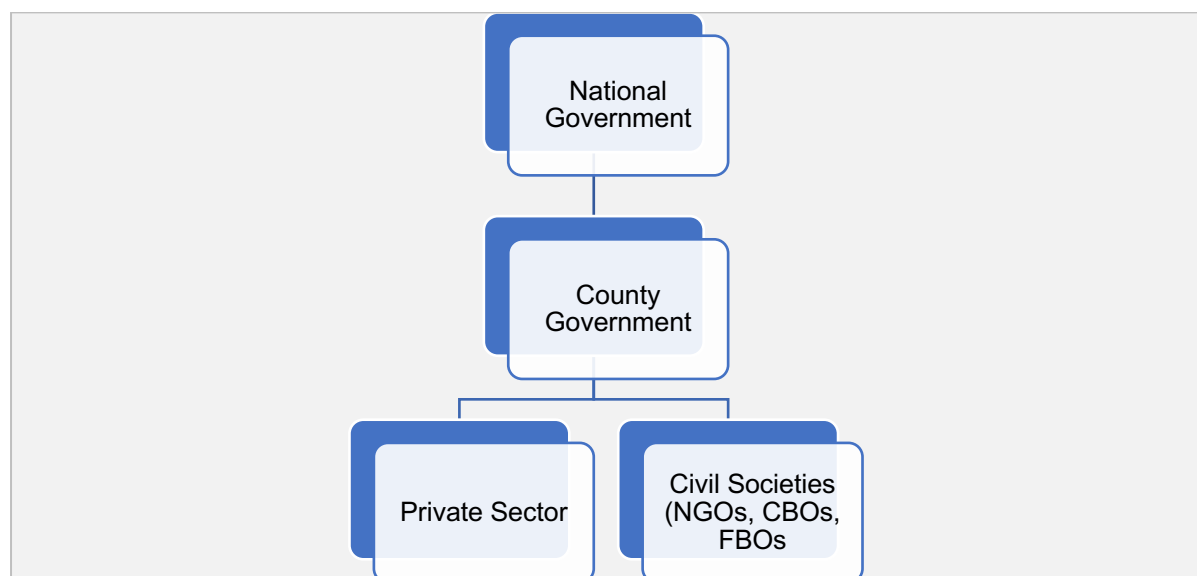


Figure 16: Institutional actors

Source: Acal and BC Gildenhuys & associates 2020

The National Government and the County Government play a major role in the governance of the County and guides the roles of other actors like the private sectors and civil societies.

11.2 National Government

11.2.1 Roles

The National government provides the funds for projects in the County, making it a major institutional player in the success of the IUSDP. The National Government is also mandated with the construction of international roads that may pass by the town, educational facilities except ECD's and village polytechnics within the County. The role of the National Government is also to ensure budgetary allocation in the County and facilitate national statistics and data on population, the economy and society in general.

11.2.2 Collaboration with NaMSIP

The national government through Nairobi Metropolitan Services Improvement Programme (NaMSIP) has the role of strengthening urban services and infrastructure. According to the World Bank, this will be achieved by investing in local infrastructure (roads, markets, street lighting, bicycle and pedestrian pathways, drainage, and the like). Equally important is supporting improvements in integrated solid waste management and sewerage collection and disposal. Through the collaboration with NaMSIP the National Government will ensure improvement in service delivery by strengthening the current and future entities responsible for service delivery, including the central ministry, current local authorities and Kiambu County Government, utilities and other service providers, and possible future metropolitan authorities responsible for planning, transport, and other services.

The population will benefit from better planning and a reduction in the chaotic, unplanned development that has plagued the greater metropolitan region. In particular, they will benefit from the project's support for planning and public infrastructure in the areas surrounding the commuter rail stations. They will also benefit from increased access to urban infrastructure and services under the project, such as access roads, street and security lighting, sanitation services, and solid waste collection and disposal.

11.2.3 Financial Capacity

It is constitutionally required that the revenue raised nationally is shared equitably among the National and County Governments. Among the National Government revenue, 43% is transferred to the County Governments. Additional allocations from the national government's share of the revenue, either conditionally or unconditionally can be added to the County Governments (CRA, 2014).

The County government of Kiambu financial projections for the year 2019/2020 is ksh 15.63B constituting Ksh 2.96B own source revenues and 12.6B allocations from National government. All projects involving NaMSIP will be funded by the World Bank and non-bank sources. The resources required are outlined in every project to ensure implementation.

11.2.4 Challenges

- Inadequate funding,
- Lack of comprehensive budgets from the County governments and
- Controversies between the distinct functions of the County government and National government.

11.3 County Government

11.3.1 Roles

The Constitution confers powers on the County Assemblies to receive and approve plans and policies. These plans and policies affect the management and exploitation of the County's resources. They also affect the development and management of County infrastructure and institutions.

Leadership and governance of towns is at the County level and guided by the Acts of parliament: County Government Acts and the Urban Areas and Cities Act. The multi sectors such as infrastructure and public works, health and other social facilities are guided by the various departments existing within the County level.

Therefore, the County government has the role of construction of necessary infrastructure and facilities like transport facilities, storm water drainages, pre-primary education facilities, and polytechnics.

The County government has a role of ensuring environmental protection is observed in the County. It is also the duty of the County government to ensure maximum public participation in the development projects within the County.

The effective implementation of the Githunguri IUSDP requires the appointment of a competent town/urban management committees for the urban areas. The function of the urban management committee is to oversee the affairs of the town, formulate and implement integrated development plans, and control land use, land sub-division, land development, and zoning. Such a committee also promotes and undertakes infrastructural development, implements applicable national and County legislations, collects rates, taxes, levies, duties, fees, and surcharges on fees, and promotes a safe and healthy environment.

11.3.2 Financial Capacity

The main sources of revenue for Githunguri Sub County where the planning area lies can be summarised in table

Table 36:Revenues in Githunguri Sub County

REVENUE BUDGET GITHUNGURI SUB COUNTY					
					GITHUNGURI
Management Unit Description					Amount
Agriculture Livestock & Fisheries Management Unit					33,871,640.36
Physical Planning Management Unit					7,498,032.00
Business Permit Management Unit					19,066,835.20
Cess Management Unit					90,755.60
Education Culture ICT & Social Services Unit					-
Health Services Management Unit					6,495,261.36
Housing Management Unit					18,054.40
Land Rates Management Unit					2,510,233.68
Market Management Unit					4,787,401.92
Others					627,241.60
Roads Transport Public Works Management Unit					3,565,099.20
Slaughter House Management Unit					1,617,828.00
Trade Tourism Industry & Cooperatives Unit					457,361.60
Vehicle Parking Management Unit					16,699,179.20
Water Environment & Natural Resources Mgt Unit					1,400,723.84

Liquor Licences Management Unit	8,920,560.00
Direct Transfers	
Total:	107,626,207.96

Source: Kiambu County Financial Statements, 2017

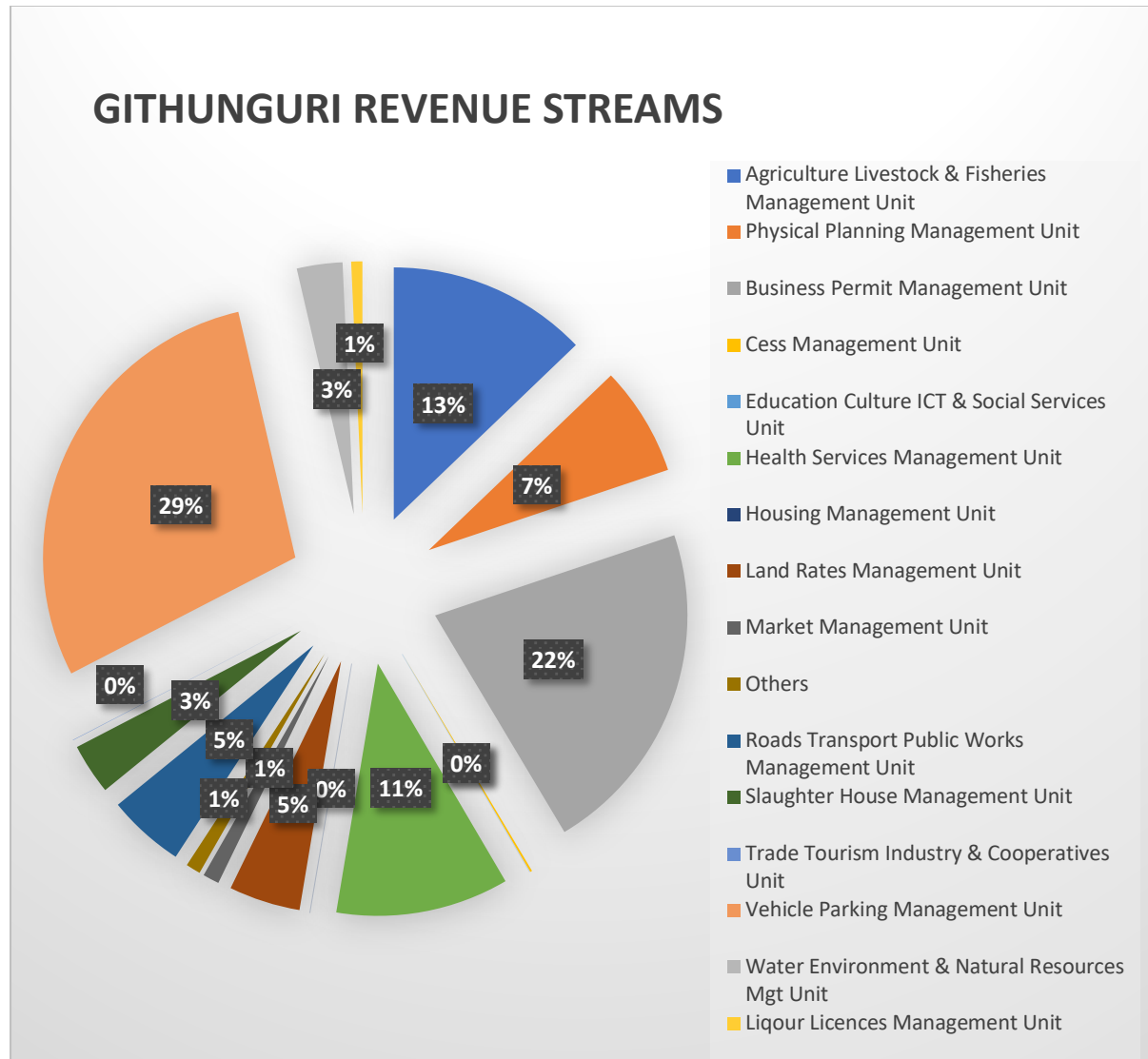


Figure 17:Githunguri Revenue Streams

11.3.3 Revenue Collection and Sources

The main source of revenue includes Agriculture Livestock & Fisheries Management Unit at 33.8m, business permits at 19m. Other sources include, Vehicle Parking Management Unit plot and land rates, market fees and building materials and another cess. The others include license penalties and land rates penalties.

11.4 Private Sector

11.4.1 Roles

The private sector plays a major role in the County development. The private sector within the planning area includes financial institutions, service providers, small and medium-size enterprises (SMEs), educational institutions, transport and communication companies, credit and savings societies, and manufacturing companies.

The private sector is important in formulation and implementation of the Githunguri IUSDP through formation of Private-Public Partnerships that are a source of funds for projects proposed in the CSP. The private sector also plays a role in the training and employment of the residents in the County thus reducing unemployment. They are also expected to carry out various projects not limited to provision of services including health, education, ICT and industries. This sector is therefore fundamental in achieving material growth in Githunguri Town.

11.5 Civil Societies

11.5.1 Roles

Civil work is considered one of the most important means of the County's progress. This has become more important with the widening gap between the resources and population's necessities, which is why civil organizations should be considered the County's partner in sustainable development, and in providing the necessary needs. Civil society is direct supervisory power of the people on the rulers and authority's performance. Through civil societies, the people in Githunguri are catered for in terms of welfare and societal well-being. Through them, the people participate in the development of their residences and the County at large.

With serious and vital consideration of civil societies in development, Kiambu County will increase its rate of development and reduce corruption levels in governance, and this guarantees one of the most basic foundations of development.

11.6 Emerging Issues and Opportunities

The major planning challenges and opportunities presented by the governance sector have been summarized in Table 37

Table 37: Opportunities and challenges (governance)

Challenges	Opportunities
<ul style="list-style-type: none"> ▪ Lack of coordination between the two governments and the partners. ▪ Inadequate financial resources for development. ▪ Insufficient working facilities. ▪ Disregard of work plans in funds allocation. ▪ Inadequate skilled personnel ▪ Weak information systems ▪ Poor infrastructural development ▪ Poor marketing systems for cooperatives. 	<ul style="list-style-type: none"> ▪ Devolved funds from the national government that steer development. ▪ Well specified institutions. ▪ Strong planning department at each sub County

Source: Acal and BC Gildenhuys & associates 2020

11.7 STAKEHOLDER PARTICIPATION

A stakeholder workshop covering Githunguri town was held on 24 May 2018 at the Country Pride Hotel in Githunguri. The outcomes of the meeting were assessed in term so the relevance of the issues for the planning process. Some issues fall outside the scope of the project while other issues can only be partially addressed. Issues that cannot be addressed as part of this project will be forwarded to the County and Ministry for future action.

The following issues were raised during the meeting.

Table 38: Outcomes of stakeholder meeting: Environment issues

Component	Issues raised	Comments
waste recycling plant	Establish a waste recycling plant to mitigate environment pollution whilst creates job employments	Noted
Conservation	Zone areas for Indigenous trees conservation	Part of planning proposals
Parks	Allocate space for recreational parks, picnics etc.	Part of planning proposals
Urban Aesthetics	Initiate town beautification to improve its urban aesthetics	Part of planning proposals
Culture	Set aside land for establishment of arboretum and cultural centre in the forest.	Part of planning proposals
Karueti river pollution	it was noted that the river is so polluted that arrow roots and other crop relying on its water are inedible. Reason being Raw sewage is directly channelled here	Noted.

Table 39: Outcomes of stakeholder meeting: Governance issues

Component	Issues raised	Comments
Policies	Policies to have all developments as disability friendly	Noted
Regulatory	Introduce policies that regulate <i>boda boda</i> industry	Noted
Regulatory	Enforcement that ensures all developers provide for ample parking space for the population they are targeting in their development	Noted

Table 40: Outcomes of stakeholder meeting: Physical Infrastructure

Component	Issues raised	Comments
Road Restoration	Restore the road reserve encroachments along major roads and feeder access roads so facilitate rescue operations in town.	Part of planning proposals
Water Infrastructure	Piped Water shortage: Ruiru dam located in Githunguri to supply water to Githunguri residents as all its water is supplied to Nairobi. Access road to the Dam need expansion	Part of planning proposals
Water Infrastructure	Relaying of the existing water pipes as they are on the road.	Noted.
Water	Water Resources Users Association to be brought on board to look into water resources in Githunguri.	Noted.

Transport	Propose a designated space for Motorcycle (Boda Boda) operators at close proximity to the Matatu Terminus.	Part of planning proposals
Street names	Establish street addressing for all roads within the town.	Part of planning proposals
Sewer Infrastructure	Provide a sewerage system for the town. In the meantime, bio digesters can be introduced by developers instead of septic tanks	Noted.
Solid Waste	Allocate efficient space for solid wastes collection e.g. construction of waste collection points	Part of planning proposals
Renewable energy	Establish other sources of energy e.g. wind energy to supplement the existing source (Kenya Power Company)	Noted.
Building accessibility	Ensure all building are disabled friendly and that new ones comply to these standards through enforcement	Supplement to land use proposals.
Roads	Expansion of roads that are too small: e.g. access road headed to the proposed dam at Ngochi dam and access road to Ruiru dam.	Part of planning proposals

Table 41: Outcomes of stakeholder meeting: Social Infrastructure

Component	Issues raised	Comments
Land acquisition	Allocate space for social facilities i.e. social hall, talent development centre, cultural centre and other associated amenities	Dealt with as part of planning proposals
Disaster preparedness	Fire Fighting machines and it's designated water Collection point. Setting up of a disaster unit in Githunguri	Noted.
Education	Tertiary/ University: Previously proposed St. Joseph secondary to be upgraded to a university and Revive Githunguri Teachers College	Noted.
Education	Establish a special school of the physically impaired, children's home and street kids' rehabilitation centre and a vocation training centre Plans to establish a KMTC at the govt. housing land are underway. Githunguri teacher's college needs to be revived as well.	Noted.
Stadium	Fencing to avoid encroachment, Initiate other recreational facilities e.g. A swimming pool and an Amphitheatre. Generally, improve the condition of the stadium.	Noted.
Public toilets	Public toilets: Construction of Modern disabled friendly toilets in town especially in the market and the bus stage	Noted.
Cemetery	Cemetery management needs through improvement. Roads leading to the cemetery are poor and need improvement	Part of planning proposals
Health	Equipping of the Githunguri health centre to the status of a level 4 to be prioritised. Additional ambulances preferably 4 to be bought for the facility	Noted.
Public Library	Establishment of modern public library as there exists none	Noted
Children Homes	Funds to be allocated to such institutions.	Noted.
Deficient cattle dips	This land to be allocated to other land uses. e.g. a social hall can be constructed there.	Part of planning

land		proposals
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Table 42: Outcomes of stakeholder meeting: Land Economics

Component	Issues raised	Comments
Agriculture	Agricultural extension personnel to be increased so as to reach all farmers.	Noted
Land Use	Capacity building for both farmers and extension officers to be planned for.	Noted
Land Size	Uneconomical subdivisions regulation: through setting minimum plot sizes beyond which subdivision is not allowed so as to protect agricultural land	Part of planning proposals
Industry	All industries in the area to engage in corporate social responsibilities with regards to maintenance of the roads they use e.g. Fresha milk company, coffee and tea companies in Githunguri	Noted
Markets	Allocation of market stalls spaces to all traders to avoid Commercial road side selling and those selling at the market disposal point since they risk contracting illnesses from the same	Noted

12 CHAPTER TWELVE: SYNTHESIS OF EMERGING PLANNING ISSUES

12.1. OVERVIEW

This section presents a synthesis of the data and its significance to the planning and development in Githunguri town. Further, the section discusses the opportunities and challenges to development in the town. The consideration of these factors is important so as to anchor the proposals to real challenges and opportunities in Githunguri thus ensuring that the proposals respond to real development issues. It is on the basis of these that the synthesis and SWOT analysis has been developed.

12.2. SWOT ANALYSIS

The following tables represent SWOT analysis of Githunguri town.

Table 43: Sectoral Swot Analysis:

Physiography	Strengths	Weaknesses
-Topography	Presence of several water courses that form aquifers	Steep topography in parts of the study area.
-Geology and Soils	Basaltic rocks are highly resistant to erosion Pyroclastic unconsolidated rock deposits can develop into some of the richest agricultural lands on earth.	
-Hydrology and Drainage	Opportunities	
-Vegetation	Most of the planning area is developable	<ul style="list-style-type: none"> • Pollution of water courses from agricultural activities and human activities. • degradation e.g. leaving exhausted quarries open • Lack of proper removal and treatment processes for solid and liquid waste becoming an environmental and health problem. • Climate change • Bad farming habits especially on steep slopes • Soil erosion
-Climate	Favourable climate that favours Dairy farming and crop production.	
-Altitude	Development of sewer reticulation in the town	
	Implementation of the environment policy	
Population and Demography	Strengths	Weaknesses
	Concentration of population in urban centres supports growth of the nodes Human Development Index for Kiambu County is 0.56 which is above the national HDI (KNBS, 2013).	Lack of adequate infrastructure services to support the growing population
-Population Structure	Opportunities	Threats
	<ul style="list-style-type: none"> • Large percentage of Youthful 	

-Demographic characteristics	population provides an opportunity for innovation and technology and ensures that there is an available workforce	<ul style="list-style-type: none"> Increased dependency Ratio Land inheritance culture leading to land fragmentation
-Social analysis	<ul style="list-style-type: none"> Availability cash transfer programme for the persons with disabilities Existence of governance structure to aid in public participation and decision making 	<ul style="list-style-type: none"> High unemployment levels
Land use Analysis	Strengths	Weaknesses
-Land tenure	Defined land tenure system mostly in freehold.	Poor access to supporting infrastructure and services
-land use patterns		Increase in extent and intensity of human settlements leading to loss of biodiversity
-projected land use requirements		Unplanned and uncoordinated urban growth.
-Land administration	Opportunities	Threats
-Land availability	<p>Opportunities for densification around the existing nodes</p> <p>Suitable land for Agriculture</p> <p>Implementation of the IUSD</p>	<ul style="list-style-type: none"> Invasion of agricultural land for other uses Increased levels of subdivision facilitated by tenure system
Environment and Natural Resources	Strengths	Weaknesses
-Natural Resources	<ul style="list-style-type: none"> Planning for the available natural resources that support development including rivers, land ,rocks etc 	<ul style="list-style-type: none"> Lack of convectional sewer system to take care of liquid waste Negative effects of human settlements on natural resources
-urban greenery and open spaces	Opportunities	Threats
-Ecologically sensitive areas	<ul style="list-style-type: none"> Diversification of agriculture suitable for changing weather patterns Introduction of irrigation farming to reduce dependence on rainfed agriculture 	<ul style="list-style-type: none"> Unpredictable weather patterns Air and water Pollution
-Climate change		
-Pollution		
Urbanisation, Housing and Human Settlements	Strengths	Weaknesses
-patterns and trends of human	<ul style="list-style-type: none"> There exists adequate human labour to support new modern quality housing. Availability of building materials 	<ul style="list-style-type: none"> Lack of adequate infrastructure to support services in various centres Poor structural quality of housing Inadequate access to safe water Poor access to sanitation and infrastructure

settlement -level of service -Housing	Opportunities	Threats
	<ul style="list-style-type: none"> • Availability of building materials • The high demand for housing is an opportunity to invest in the housing sector • Nucleated and linear settlement pattern indicates opportunities for setting up infrastructure and services at common points and transport routes 	<ul style="list-style-type: none"> • Inadequate access to sanitation and infrastructure • Settlement distribution is affected by topography and geology of Githunguri thus Unfavorable terrain in some sections •
Physical Infrastructure -Transport -water -waste management -energy -ICT	Strengths	Weaknesses
	<ul style="list-style-type: none"> • Presence of inter and intra urban connectivity thus higher connectivity index • Availability of water resources in the planning area • Electronic development management system for development control • Access to electricity in the planning area facilitated by the good connection network • Telecommunication networks 	<ul style="list-style-type: none"> • Poor road conditions • Poor road connectivity between resource or production areas and market destinations. • Lack adequate matatu terminus • Narrow Roads • Road Reserve Encroachment • Lack of adequate parking lots • Lack of provision for NMT • Dumping of solid waste on undesignated locations • uncompleted water connections
	Opportunities	Threats
	<ul style="list-style-type: none"> • Use of alternative water sources eg harvesting of rain water • Internet connectivity • Adoption of alternative energy sources e.g. Biogas, Solar energy and wind energy. 	<ul style="list-style-type: none"> • The topography increases the cost of road construction • Inadequate funds for infrastructure • Road Reserve Encroachment • Lack of ICT skills among section of population • Over-reliance to pit latrines posing a challenge to ground water.
Social Infrastructure -Education -Health -Other Social infrastructure	Strengths	Weaknesses
	<ul style="list-style-type: none"> • Good accessibility of Primary and secondary schools within allowable distances • Public realm is accessible to general public • Presence of Githunguri stadium in area 	<ul style="list-style-type: none"> • absence of a Tertiary institution and a specialized school • Some schools have plot sizes too small way below the minimum requirements • Inadequate number of health care personnel in the town
	Opportunities	Threats
	<ul style="list-style-type: none"> • Improvement and rehabilitation of the Githunguri stadium • Potential to invest in community facilities. • Unutilized cattle dips lands can be reallocated to other public 	<ul style="list-style-type: none"> • Lack of financial support for the development of community facilities. • Unutilised community land prone to grabbing. • Rapid population increase without additional facilities

	purpose uses <ul style="list-style-type: none"> • The creation of community facility clusters in and around the existing nodes 	
Economy	Strengths	Weaknesses
-agriculture and -trade commerce -Industry	<ul style="list-style-type: none"> • Availability of Agricultural land • Potential for value addition Agricultural • Fertile soils for crop farming eg tea and coffee • Cooperative societies for marketing agricultural products eg dairy • Good climate supporting Agriculture • Availability of supporting infrastructure e.g electricity connection network and major roads 	<ul style="list-style-type: none"> • Slow Adaptation to new technologies e.g. use of greenhouses • Unemployment and decreased employment opportunities • low levels of permeability and connectivity from the farms to the market • Commercial extensions on the roads • Lack of supporting infrastructure in trade and commerce areas
	Opportunities	Threats
	<ul style="list-style-type: none"> • Close proximity agricultural produce markets • Potential for agro-processing industries • Construction of a modern market facility • Livelihood improvement through job creation • Enhanced revenue generation and collection for service provision by county Government 	<ul style="list-style-type: none"> • Human settlements push on Agricultural land • Use of recycled seeds lowering • Land fragmentation • Declining agricultural productivity (Subsistence and commercial) • Climate change • Pollution from industrial waste

12.1 SUMMARY OF SYNTHESIS

12.1.1 Physiography

The Physiographic elements discussed above presents inherent opportunities and challenges within the planning area in equal measures. The presence Pyroclastic unconsolidated rock deposits forms a very rich type of soil that support crop production. As such there is great need to preserve the agricultural lands for crop production which has a direct impact on food security, economics and livelihood of the people of Githunguri. The Presence of several rivers on sloping valley bottoms provide necessary sources of water for both domestic consumption and have potential for irrigation. The undulating slopes and valleys provide a planning opportunity for laying of gravity supported infrastructure such as water and sewerage systems, while still necessitating conservation of the river riparian and steep slopes. While planning for agriculture

in Githunguri, there exists threats such as climate change and soil erosion occasioned by type soil and the topography of the area which need to be addressed or mitigated.

12.1.2 Population and demography

59.2 % of the total population of Kiambu County falls within the prime working age bracket of 15-64 years with 29.1 % being youths. This productive population (15-64 years) is projected to raise necessitating creation of new jobs to absorb the expected bulge of potential workers. This has a direct implication on Githunguri town as one of growth pole the centres of concentration of human activity. The Human Development Index for Kiambu County is 0.56 which is above the national human development Index. This implies that the area is well up in terms of provision of social infrastructure facility and has a potential to produce surplus for improvement of other areas livelihood. The strong agricultural basis is the pillar of the quality life of the people in Githunguri.

Traditions and culture of land inheritance has an effect on land resources use and management. However the practice of land inheritance has led to continuous sub-division of land to uneconomical sizes. Moreover the extractive nature in their livelihood has led to environmental degradation.

12.1.3 Land use analysis

The dominant land tenure is freehold and most of the lands are under agricultural use. The absolute nature of this tenure system compromised by lack of effective development control has led to invasion and conversion of this agricultural land to other uses .Increased levels of subdivision have also been facilitated by tenure system. This then calls for development of regulations that would guide on the conversion of land uses.

Land use patterns in the planning area depicts and increase in extent and intensity of human settlements leading to loss of biodiversity resulting to Unplanned and uncoordinated urban growth with limited serviced land for human settlement.

Projected Land use requirements indicates that there need to acquire more lands in private hands to supplement the minimal available government lands for public purpose .There is also a dire need to prepare proper and up-to-date urban land use plan and development control guidelines to manage development.

12.1.4 Environment and natural resources

Within the planning area, there are quite a number of natural resources including Rivers, Rocks Land etc. that would support development , There is however a need to consciously plan for these resources to protect them from the negative effects of human settlements. The environmentally fragile areas need to conserved and be protected from polluting elements. There is need for introduction of irrigation farming to reduce dependence on rain fed agriculture taking advantage of the availability of rivers within the planning area.

12.1.5 Urbanization, Housing and Human Settlements

Challenges associated with Urbanisation within the planning area include the exertion of pressure on the minimum social and physical infrastructure services available including Housing. The demand for housing is an opportunity to invest in the housing sector.

Despite Settlement distribution is affected by topography and geology of Githunguri, the Nucleated and linear settlement pattern within the planning area indicates opportunities for setting up infrastructure and services at common points and along transport routes.

12.1.6 12.3.7 Physical Infrastructure

The town is traversed by C560 road as the highest class of roads according to Kenya Roads Board 2018 classification. The interior of Githunguri Town is served by class E and F roads. The major roads connecting to different urban centres are in the neighbourhood are: C558, D1433, E2086 and E2016. Most of the road are in poor condition and are unclassified ,due to the unclassified nature of most of the roads, the roads lack the standards that they should be improved. The unpaved roads are very difficult to use during rainy season and very dust on dry periods. Whereas most roads measure from 6-9 meters, circulation streets within the town have road widths of less than 3m inhibiting easy vehicular movements

The encroachment of road reserves and commercial extensions beside the road hinders smooth traffic flow within the CBD and at junctions. There is need to clear road reserves and enforce speed limit regulations to ensure pedestrian safety. In addition, the roads do not have pedestrian walkways. There is need for designation

of street vendor's space in road section that transverses the CBD. However, for the future development of the town, outer ring roads are missing and need to be provided to reduce traffic at the CBD.

Public transport is the most common means of transport within the planning area. The challenges experienced from the transportation sector include: High costs, attributed to poor condition of the roads, which prolongs travel times and lack of adequate designated terminus which impedes effective movement along carriageways as matatus, make abrupt stops along the routes

Water and Sanitation: The Planning areas main sources of water include both underground and ground water sources, the area has underground water potential of 7m³/hour which pumps out at an average depth of 200-300m deep. This means that high altitude area affected by the topography of the area and thus cannot be served by gravity can exploit the water resource by drilling boreholes. The ground water is the major clean water source to the population in the region access to piped water is at slightly less than 50%. Majority of households rely on protected wells, and on rivers and streams for water. Onsite sanitation facilities dominated by pit latrines are common. The water reticulation system by Githunguri Water and Sanitation Company has low coverage. As the population grows, and with lack of conventional sewerage system in the planning area, the onsite sanitation facilities will become a threat to the environment due to risk of pollution. There is therefore need to invest in proper water supply and sewerage system. Opportunities also exist in household rain water harvesting.

The Main source of Energy in the planning area is electricity. Due to the dairy farming activities in the planning area opportunities exist on venturing into green energy, that is, solar and biogas for lighting and cooking.

12.1.7 Social infrastructure

There is good accessibility of public primary and secondary schools within the minimum distances of 2 and 3 km respectively. Challenges identified in the private schools included lack of sufficient land to accommodate accompanying learning facilities, some schools occupied areas of less than 0.1 Ha. The planning area lacked a tertiary institution and a specialized school to support the growing population and the special needs.

There are four (4) health facilities in the planning area, all situated in the area to the north of Road C65. The southern part of the planning area is therefore underserved in provision of health facilities. These health facilities are: Githunguri Sub county Hospital, Beta Care and Funeral Home, Holy Family Mission Hospital and Holy Rosary Dispensary. There is only one government health facility in the Planning area. Thus, specialized treatment can only be got away from Githunguri Town. The nearest hospitals are; Kigumo Hospital 18.5Km away Via C65; Kiambu level 4 Hospital 18.9Km via Kiambu road. Other social infrastructure facilities include Cattle dips which are defunct whose land unutilized and can be allocated other public uses. The Cemetery is not secured by a distinct boundary and it is poorly maintained. The fire station construction has stalled and this needs to be revived for disaster management. Despite the stadium being secured by a perimeter wall, the condition of Githunguri stadium is poor, the stadium needs to be upgraded to include other facilities eg swimming pool and amphitheatre. Other necessary missing facilities that require planning for include a recreational park, a community centre and a public library.

12.1.8 Economic

Agriculture is the main economic activity in the planning area the opportunities that support agriculture include, availability of Agricultural land, Fertile soils for crop farming eg tea and coffee, favorable climate, Potential for value addition Agricultural and Cooperative societies for marketing agricultural products eg dairy. However there are inherent challenges and threats that needs to be addressed including slow adaptation to new technologies e.g. use of greenhouse, low levels of permeability and connectivity from the farms to the market, land fragmentation occasioned by the human settlements push on Agricultural land and the climate change.

The major industry in the planning area is Fresha Dairy, It's a farmers' cooperative where farmers take their milk for processing and marketing. Availability of supporting infrastructure such as electricity connection network and major roads and close proximity to agricultural produce markets makes Githunguri to be a town with huge Potential for agro-processing industries.

With the huge youthful population coupled with high rate of unemployment there is dire need to allocate designated places for light industries like the jua kali within the planning area.

Trade and commerce: Githunguri market is the key defining feature for retail trade. Both formal and informal traders dominate the retail sector the town also serves as a commercial hub for the hinterland areas, due to its important service function. The town has several banks and financial institutions serving the people. Challenges associated with trade and commerce that the plan has addressed includes, Commercial extensions on the road reserves, incomplete market and waste management measures for waste generated in the market.

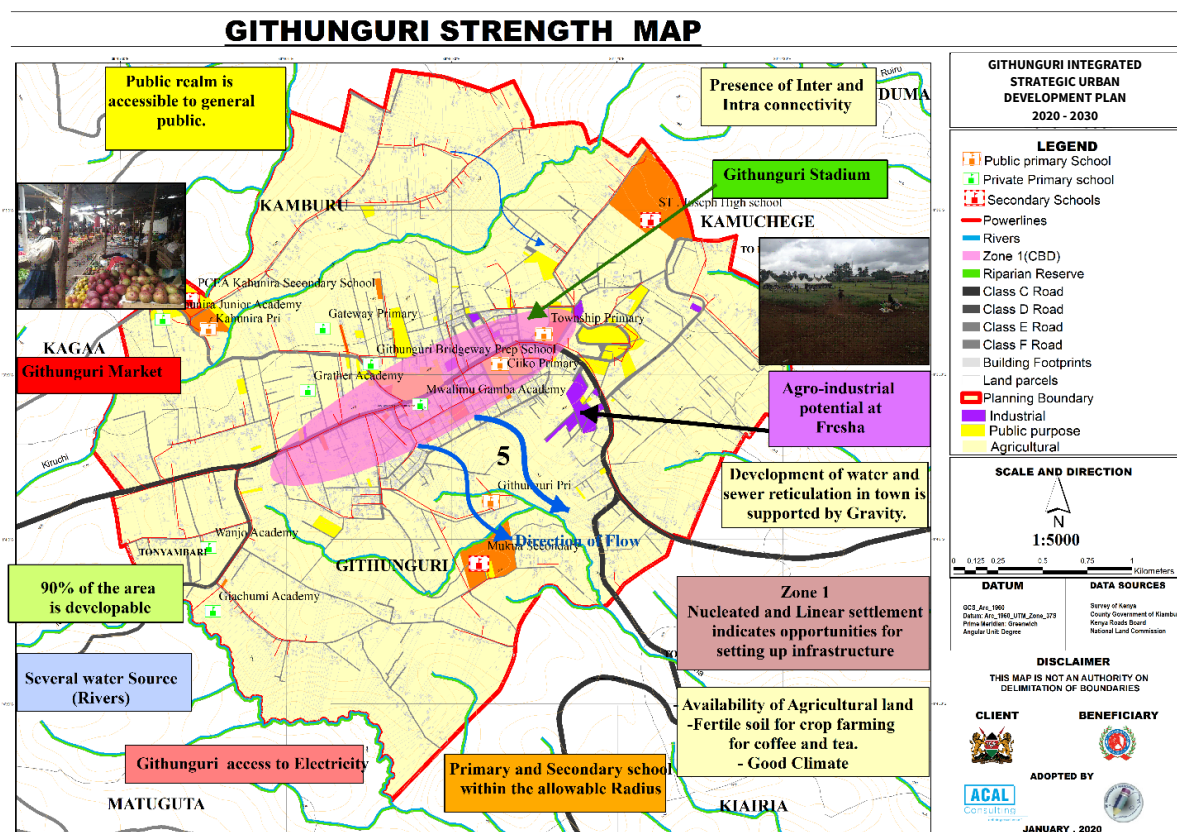
12.1.9 Governance and institutions

The county has a well-developed planning infrastructure supported by the executive in charge of land and physical planning. Each sub county has a sub county planner employed by the county government.

Opportunities exist within the urban areas and cities act that provides for formation of town management committees for a town of Githunguri's status. The county can therefore go ahead to form and gazette the town management committee that will play a key role in implementation of the plan.

12.2 OPPORTUNITIES

Githunguri town has a strong Agricultural hinterland that is a great opportunity for it development as agro-city in the metropolitan region. There several opportunity as discussed in the situation analysis section. The map 26 shows spatial distribution of opportunity area within the planning area.



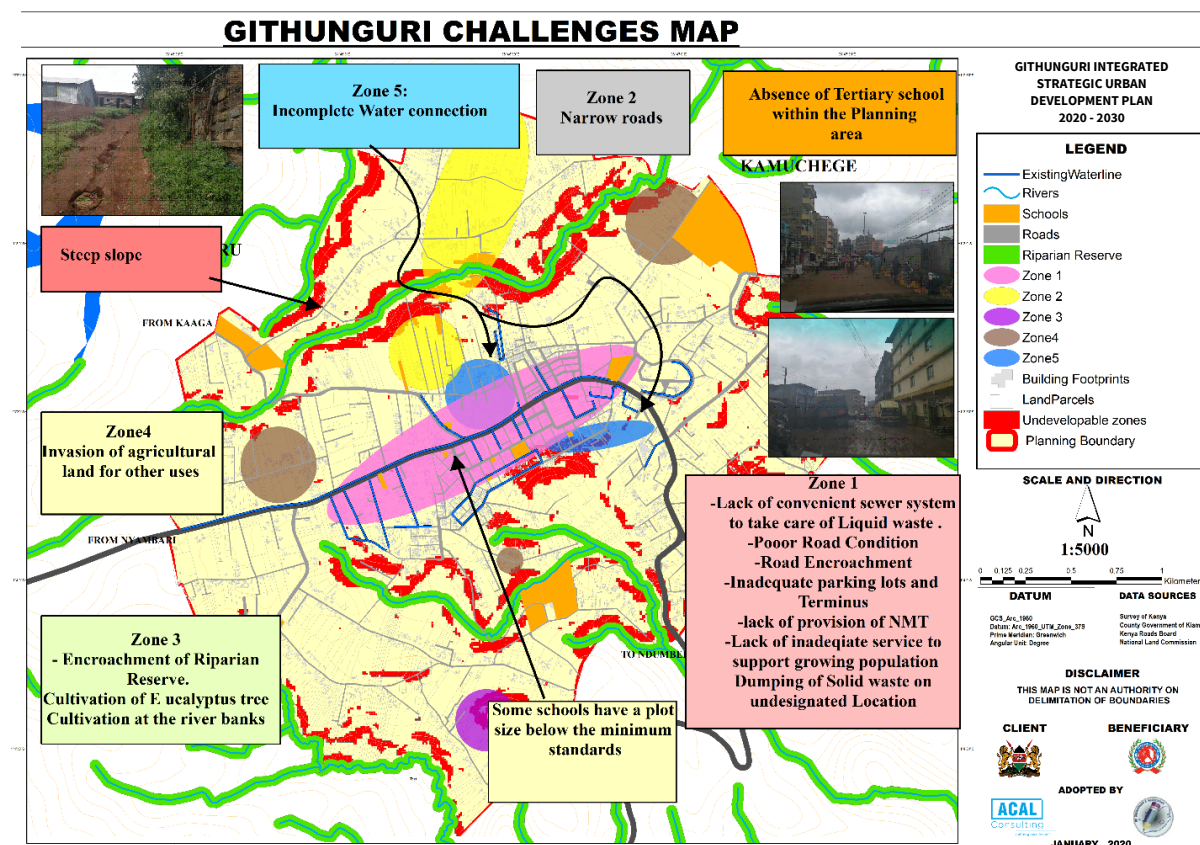
Map 27: Githunguri Opportunity Map

Source: Acaland BCGildenhuys & associates 2020

12.3 CHALLENGES

The major challenges facing Githunguri town can be attributed to the environment and human settlement sectors and their effective integration due to lack of land use control guidelines and updated physical development plan. Constraints discussed after every chapter on Section II, falls as part of challenges facing the planning area. The map 27 shows locational synthesis of major challenges.

Map 28:Githunguri Challenges Map



Source: Acal and BC Gildenhuys & associates 2020



GOVERNMENT
OF KENYA



COUNTY GOVERNMENT
OF KIAMBU

PART III: PLAN FORMULATION

13 CHAPTER THIRTEEN: TOWN DEVELOPMENT SCENARIO

13.1 INTRODUCTION

This section presents the various development paths that the growth of Githunguri town can be anchored. It presents three possible development paths and an analysis of the best that could be adopted to make Githunguri town develop as envisaged in the planning vision

13.2 PLANNING CONSIDERATION

In coming up with the various development scenarios that Githunguri town can adopt, the following planning considerations have been taken into account;

13.1.1. The Development Vision for the Town

The development vision is an important guide in evaluation of scenarios and development of the plan. The consideration of the vision ensures that the proposals made respond to the identified vision for the town. The vision for the town is also weighed in tandem with the development vision for the whole county to ensure that the proposed developments do not just respond to local challenges but help achieve the overall development vision for Githunguri town. Further the proposals for the town will be harmonised with the proposals in the county spatial plan.

The identified vision for Githunguri town is to be: “A PROSPEROUS SERVICE CENTRE THAT PROMOTES VALUE ADDITION IN AGRICULTURAL PRODUCTS”

13.1.2. The competitive edge of the town in the county

The proposals will pay heed to the competitive edge of Githunguri town within the county. The consideration of agro industrial developments which is a strong point for Githunguri will be emphasised. As such the plan will seek to strengthen the agro industrial base of the town by provision of industrial zones and development of appropriate infrastructure.

13.1.3. Structuring Elements

The structuring elements are physical elements that influence the nature and direction developments in a town can take. They are an important consideration because they influence the extent, intensity, nature and direction that development can take. The major structuring elements in Githunguri town are summarised in Map 28.

The terrain

The planning area is characterised by an undulating topography made up of a series of ridges and valleys. The planning area is further divided into a higher northern and lower southern area by deep valleys that run to the south of Road C65.

The northern part of the planning area is characterised by a broad band of relative even slopes roughly parallel to Road C65, followed by a steep valley directly north thereof and another even area to the north thereof. The southern part of the planning area is in turn characterised by irregular and curving patterns of ridges and valleys, resulting in a fairly irregular movement network.

Roads

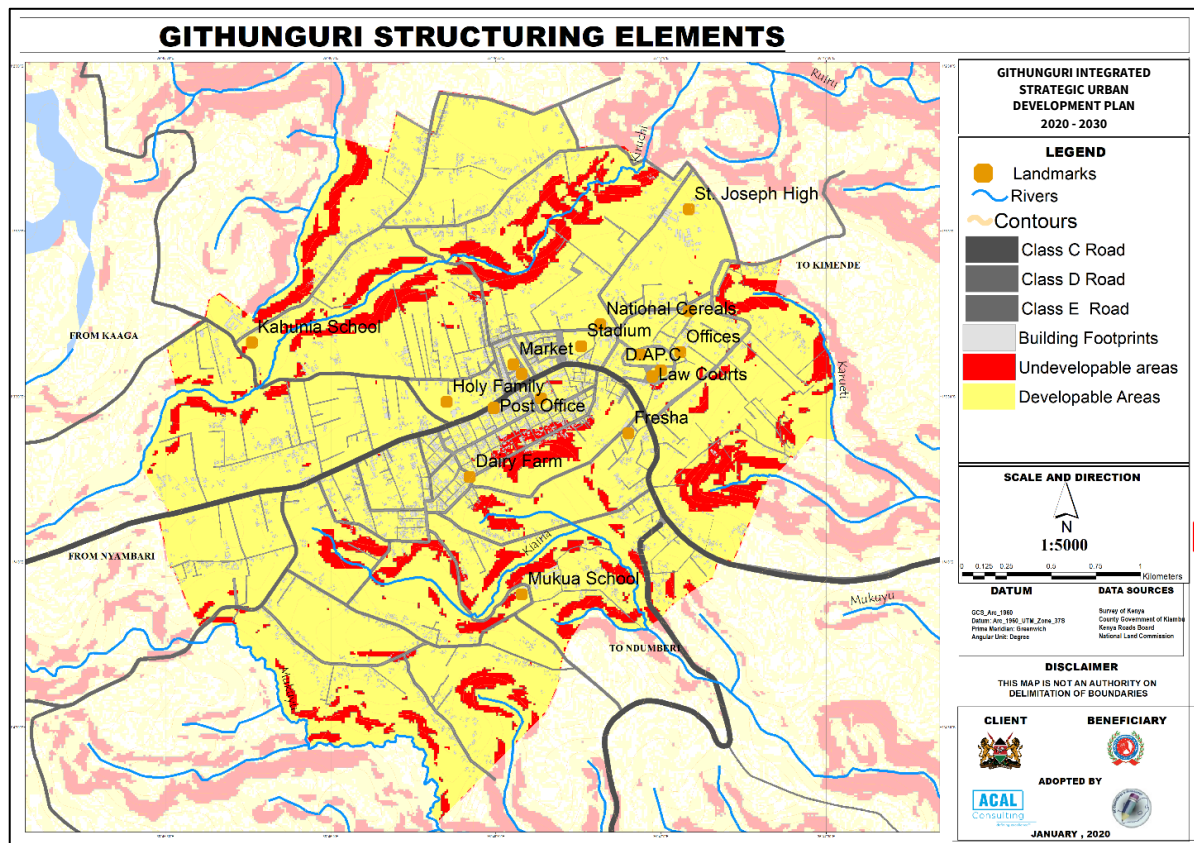
The town is traversed by C65 road as the highest class of roads according to Kenya Roads Board 2018 classification. The interior of Githunguri town is served by class E and F roads. The major roads connecting to different urban centres are in the neighbourhood are: D403, and D402.

Rivers

The planning areas are traversed by various rivers including River Kiruchi, River Mukuyu, River Kiairia, River Karueta and River Ruiru. Ruiru River is a major tributary of Athi River. The rivers are mostly located at the bottoms of valleys that form the separation elements between the undulating valleys.

Land mark features

These features include the Githunguri market, educational facilities such as St Joseph's high School, Kahunira Sec. School, Mukua School, Fresha Milk processing and the administrative centre.



Map 29: Structuring Elements in Githunguri

13.3 Guiding Principles

Development principles are important in informing the development of a plan. The principles are the fundamental norms, rules, or values that represent what is desirable and positive for the development of the planning area, and act as yardsticks for determining what is to be done and what is to be avoided. The principles that have been considered in the preparation of this plan include:

Sustainability

Sustainability refers to the balancing between environmental resource uses and promoting economic and social development. A sustainable town reduces the impact of anthropocentric activities on the environment through proper management of resources and the production of waste while improving the liveability of the settlement. The plan will aim at utilizing the natural resources in a manner that supports economic growth but also is mindful of the limitations of the environment and the need to protect it.

Equity

A town that is equitable is one where all residents enjoy (i) fair access to livelihood, education, and resources, (ii) full participation in the political and cultural life of the community, and (iii) self-determination in meeting fundamental needs. The plan will provide a basis for the residents of Githunguri to access the necessary services and infrastructure within acceptable distances and air their views in on the developments they desire.

Integration

Integration, whether spatial, sectoral or socio-economic, is fundamental to sustainable development. Spatial integration refers to the proximities and functional relationships between different functions and elements within a particular area, with the aim of creating the greatest degree of synergy.

Socio-economic integration refers to the proximity of different socio-economic groups so as to create a socially cohesive community. Sectoral integration refers to the vertical and horizontal integration among the various levels of government and agencies involved in spatial governance.

Development proposals need to ensure integration of all development issues including transport, planning, economic development etc. This plan takes an integrated approach to sectoral and spatial spheres so as to achieve synergy.

Accessibility

Accessibility can be defined as the ease with which a building, place, facility or service can be reached by people. An accessible town is one where there is equitable physical and functional access to services, facilities, employment, training and recreation, including a choice of safe and efficient transport modes (e.g. public transport, private vehicle, bicycle, walking and wheelchair). Accessibility also comprises of convenient and dignified access to private and public spaces. The plan will aim at ensuring that services are accessible to the residents within the required distances.

13.4 SCENARIO BUILDING

This part of the report provides a detailed analysis of the strategic structure plan of Githunguri Town. It also makes attempts to building scenarios that befit Githunguri Town's development. It majors on the projections for required land for development, analysis of development models and finally the preferred development model adopted by the plan

13.4.1 Scenario one: Agro-Industrial Model

This model capitalizes on economical exploration of agricultural potential of Githunguri town. This will organize development along cluster settlements and release the land for agriculture. It involves both policy and design interventions to change the human settlement pattern for economical servicing of the land. Owing to the fact that Githunguri is the leading producer of milk and milk products, there is opportunity for development of other agro industrial plant to increase investment opportunity. They are also coffee and tea plantations. The agricultural market economy remains one of the potential and pillars of agro-cities. In line with the metropolis crop suitability, Githunguri stands to be the food basket of the metropolitan region.

This model relates to both productions of and/or relating to of power of industry and agricultural production with the industries taking advantage of the existing agricultural strength of the hinterlands.

The model also focuses on the ecological sustainability of an area while at the same time utilizing the resources optimally. It is based on traditional indigenous farming knowledge and selected modern farming technologies in order to manage diversity, incorporate biological principles and resources into farming systems while increasing agricultural production.

The model further require the exploration of agricultural production strategies giving of incentives and training of farmers, crops diversification according to the metropolitan needs, use of modern technologies to improve farm output and zoning of agricultural areas. This will enable strict regulation of land use. In human resource provision, the intervention requires capacity building and agriculture related research and development institutions in the town. This will help in keeping the information and agricultural findings in records for the benefit of the metropolis and nation at large

This model is a basis for:

- A practical way to restore agricultural lands that have been degraded due to intense agronomic practices
- A sustainable agricultural production, healthy environments and viable food and farming communities, by linking ecology, culture, economics and society

Provision for an environmentally sound and affordable way for smallholders to intensify production in marginal areas

The demand for food and agricultural products is changing in unprecedented ways. Increases in per capita incomes, higher urbanization and the growing numbers of women in the workforce engender greater demand

for high-value commodities, processed products and ready-prepared foods. (Da Silva, Baker, Shepherd, Jenane, & Da Cruz, 2009)

This model poses a good potential for the people of Githunguri, making sure the agricultural resources available to be used in improving the livelihoods of the people. The industries would improve wealth generated from the agricultural products.

Why Agro Industrial Model:

It capitalizes on industrial and agricultural production. A combination of these two ensures a strong thriving economy.

Wealth creation and optimal maximization: This involves the principles of value addition; value addition is achieved through the following dimensions;

- Revenue generated is used to drive the economy and facilitate development
- Creation of employment for both skilled and unskilled labour
- Upgrading the value of goods and services provided

It capitalizes on the region's comparative and competitive advantage: this is whereby a region maximizes on producing the goods and services they are best suited to produce; in the context of the planning area and wider Githunguri Sub-County the potential for dairy farming is very high. The dairy industry can therefore be maximized to steer the economy. Coffee and tea are other sectors that the area can use is comparative advantage to boost development and achieve a thriving economy that competes with other sub-counties in Kiambu and other Regions in Kenya and across borders.

Advantages of the model:

It offers sustainable agricultural practices through mechanization and introduction of more environmentally friendly and sustainable.

- Recycling nutrients and ensuring that the soil is enriched for better agricultural production
- Food security in Githunguri will be enhanced through increased food production to cover the need and produce a surplus.
- Protection of ecological hotspots and special planning areas such as swamps rivers etc.
- Conservation and regeneration of resources: can restore agricultural land that has been degraded due to intense agro economic practices
- It provides an environmentally sound and affordable way for smallholders to intensify production in marginal areas
- Has the potential to reverse the agro-peasant bias of strategies that emphasize purchased inputs as opposed to assets that small farmers already possess such as their low opportunity costs of labour. The model is favorable since it capitalizes on the weaknesses of agro- ecological model.

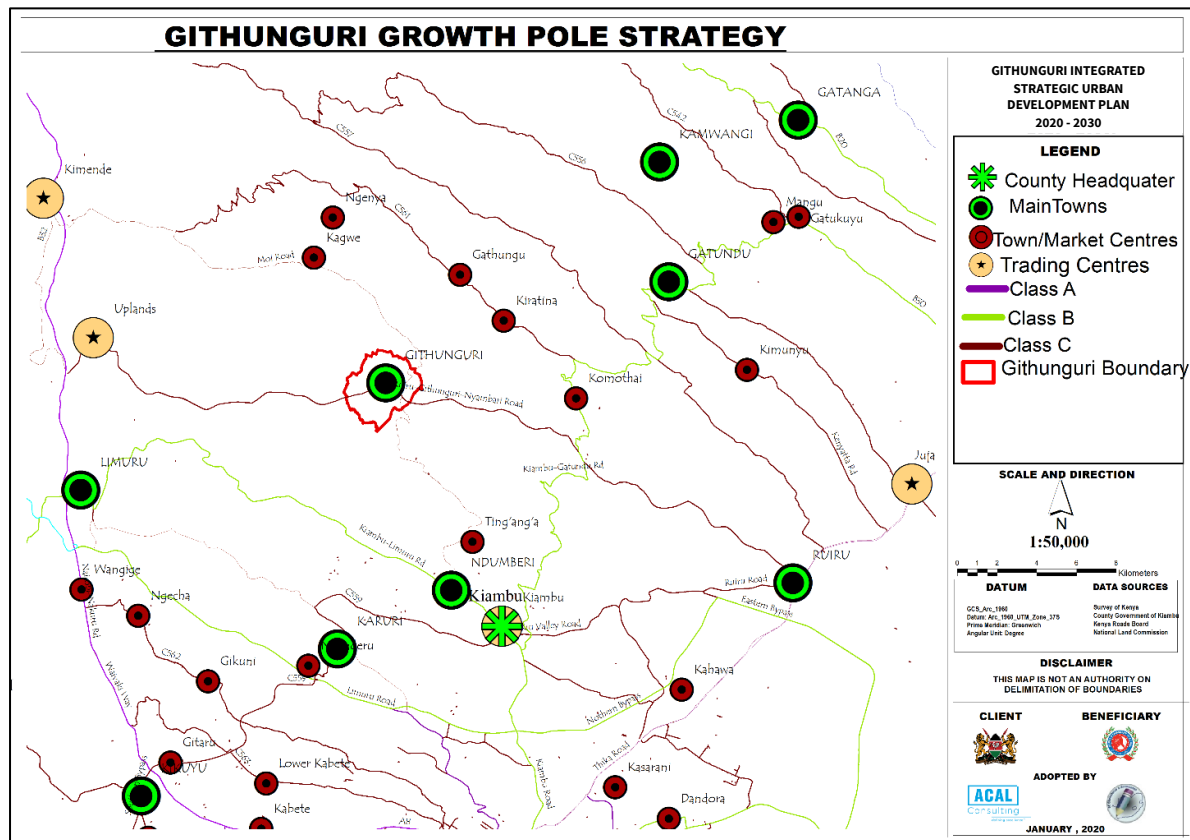
Disadvantages of the Model

- The model doesn't provide for environmental conservation and management. It focuses mainly of agricultural and industrial production. This however is a shortcoming since the industrial production might be at the cost of the environment.
- The model is also disadvantageous to the study area since it requires a high capital investment. A lot of resources in terms of land, labour, time and space as well as financial resources which are not readily available. It is a capital-intensive model.
- The model is limited to agriculture and industry. It however does not put into consideration other factors of the economy including sectors such as tourism, non-farm sector and the informal sector among others which have a great impact in the integrated development of the planning area

13.4.2 Scenario Two: Growth Pole Model

Geographically, Githunguri is centrally placed in Kiambu County. This can be a central place to access administrative services among others from every corner of the larger Kiambu County. The scenario also considers the current sub county headquarters as strength and entry point in making Githunguri a major service centre .This model recognizes Perroux's theory of Growth Pole. It recognizes the fact that growth does not take

place everywhere or at once but occurs in poles, nodes and centres with variable intensity. The analysis identified centers with growth potential in Githunguri which will act as the growth centres for the region. These centers include; Githunguri, Githiga, Ikinu, Komothai and Ngewa. They are therefore expected to spur development for Githunguri. A major boost to this model at the county level is the connectivity to various sub county headquarters and major towns in the county namely, Limuru, Kiambu, Thika and Kimende.



Map 30:Growthpole strategy

Advantages of the Model

- Reduces cost of infrastructural provision which then will ensure that all areas are well served and have access to basic physical and social infrastructure
- Poor utilization of the land resources will be eliminated as recommended land zoning and acreages will be implemented
- Enhanced urban character will be achieved through elimination of imbalanced and uncontrolled growth
- Economic prosperity: Vision 2030 will be achieved through pooling together of resources
- Good governance and policy implementation problems will also be addressed by the model through proper structuring of institutions and extension of services to the community.

Disadvantages of the model

- Congestion is one of the main disadvantages as people will settle in one area. Social problems as the population continues to grow will cause space constraints.
- Urban heat island with completely paved streets and tall buildings will reduce air circulation creating a heated atmosphere with a negative impact on the environment due to anthropogenic activities.

13.4.3 Scenario Three—Preferred Model: Integrated Model

This model integrates the above two development models. As the preferred model it maximizes on the advantages of agro-industrial and growth centres models and addresses their limitations. The model

incorporates the positive elements of the models to make a comprehensive integrated development scenario that would steer development in the best suitable direction. The development resulting from this option will show aspects of linear model, grid model and compact model since it is multi-sector approach.

Having identified agriculture as the main activity to drive growth and development of Githunguri region, the opportunities available to strengthen agricultural production in order to create wealth and jobs include industries and external markets. The model therefore is identified as the best alternative for development of Githunguri.

The concepts under this model include:

- Raising productivity and increasing the value chain for wealth and employment creation through agriculture and industrial linkages.
- Reclaiming rich agricultural land that has been taken up by human settlements.
- Smart settlement approach to regional growth.

Advantages

- Recognizes importance of urban growth
- Helps limit urban expansions by compacting developments
- Reduces overreliance and congestion on the core - CBD
- Encourages densification and urban renewal
- Encourages energy efficiency
- Lowers cost of infrastructure development
- Encourages protection of public land/forest and other environmentally fragile areas through conservation.

14.0 CHAPTER FOURTEEN: STRATEGIES AND MEASURES

13.5 REVENUE, INVESTMENTS AND FINANCING STRATEGIES

13.5.1 Policy and Legal Provision Guiding County Revenue and Financial

Kenya Constitution 2010

The Kenya Constitution (2010) under article 209 (5), provides for the County Governments to exercise their taxation power to generate own revenue so as to supplement the allocation from the National Government.

According to the constitution the main sources to fund the devolved form of government include;

- ✓ Equitable share of at least 15 percent of most-recently audited revenue raised nationally (Article 202(1) and 203(2))
- ✓ Additional conditional and unconditional grants from the National Government's share of revenue (Article 202(2))
- ✓ Equalization Fund based on half of one percent of revenue raised nationally (Article 204)
- ✓ Local revenues in form of taxes, charges and fees collected by the Counties
- ✓ Loans and grants to the counties: However, this has to be approved by the National Treasury

Draft National Revenue policy

According to the Draft National Policy to Support Enhancement of County Governments' Own Source of Revenue, it was noted that many County Governments are experiencing financial challenges in meeting their devolved functions as envisaged in the constitution hence the need to explore new ways to generate more revenue.

County government Act (2012)

This act under section 107(2) outlines that the County plans shall be the basis for all budgeting and spending in a county. This act also stipulates under section 108(4) that A resource mobilization and management framework shall be reflected in a county's integrated development plan and shall at least:

- i. include the budget projection required under the law governing county government financial management;
- ii. indicate the financial resources that are available for capital project developments and operational expenditure; and
- iii. include a financial strategy that defines sound financial management and expenditure control:

as well as ways and means of increasing revenues and external funding for the county and its development priorities and objectives, which strategy may address the following:

- Revenue raising strategies
- Asset management strategies
- Financial management strategies
- Capital financing strategies operational financing strategies
- Strategies that would enhance cost effectiveness.

The Act also provides for timely citizen participation and reasonable access to information in regards to the process of formulating and implementing policy, policies, laws, and regulations, including the approval of development proposals, projects and budgets, the granting of permits and the establishment of specific performance standards and implementation;

PPPs Act

This is an Act of Parliament that provides for the participation and regulation of the private sector in the financing, construction, development, operation, or maintenance of infrastructure or development projects of the Government through concession or other contractual arrangements.

The Act recognizes leasing, concession, Build-Own-Operate-Transfer, Build-Own Operate, Build-Operate-and-Transfer as examples of PPPs.

14.1.2 Strategic measures to enhance revenue generation

Previous studies carried out by UN Habitat and PKF Taxation Services Limited identified various challenges Kiambu County in terms of revenue collection and came up with various proposals through which the County can remedy this and enhance revenue collection. The proposals are summarized below;

Automation:

This means making it possible for the public to honour their financial obligations to the County via electronic means and online platforms. Examples include mobile applications, web-based applications and Unstructured Supplementary Service Data (USSD).

Currently, Kiambu County has rolled out USSD code *419# for parking, quarrying, markets, livestock and CESS. The county has also made it possible to pay for building development application through the bank or their respective agents.

The physical planning department have also embraced automation through introduction of electronic development application through Kiambu -E DAM. This has resulted to an increase in the number of development application done within the county.

However, there is need to expand this to other departments for example health. This will increase efficiency and minimize losses.

Incentives

Incentives are measures that governments can undertake to encourage members of the public to do in order to stimulate greater output. One area that Kiambu County has not fully exploited is the payment of land and property rates. The County can offer incentives to the public to encourage them to comply. Some of the incentives the county can adopt include:

- ✓ Introduce waiver on penalties imposed on land rate defaulters to encourage them to pay up.
- ✓ Offer discounts to those who comply before a specified period of time.

Enforcement

The county can enhance revenue collection by ensuring compliance. According to Kiambu County Budget Review and Outlook Paper, 2018 lack of compliance in building plan approval and land rate payments was identified as a major reason for underperformance in revenue generation.

To remedy this, the county can do the following

- ✓ Conducting regular and random checks.
- ✓ Impose penalties on defaulters
- ✓ Increase the human and capital capacity for enforcement
- ✓ The county can also outsource to private sector to undertake the enforcement.

Create Awareness to public

A good number of the members of public are not properly sensitized on matters revenue within the County. Some are not aware of their financial obligations to the counties. There is need to create awareness on the need to honor their financial obligations regularly and in time to the counties. Some of the ways the Counties can achieve this is by:

- ✓ The county should come up with an electronic system e.g. SMS to notify people on impending charges.
- ✓ It should also advertise on media, public forums and Churches on the existing revenue streams and financial obligations.
- ✓ Holding regular public forums/barazas to notify people of their fiscal obligations.

Better fiscal management

This calls for prudent measures to manage the funds that have been collected. These measures can be rolled out at the point of collection, accounting, auditing and allocation to various expenditures. Some of these measures include

- ✓ Analyze budgets and expenditure to check on affordability

- ✓ Ensure value for money for goods and services rendered.
- ✓ Monitor spending habits by only spending allocated funds for intended and priority purposes.
- ✓ Ensuring transparency and tight spending controls.
- ✓ Avoiding unnecessary wastage on expenditure.
- ✓ Regular and consistent auditing of financial records.
- ✓ Reduce handling of money by officers by encouraging online payment.
- ✓ Encourage compliance by those living or working in the counties to fulfill their financial obligations regularly and in time.

Introduction of Development levy

These are fees which can be imposed on those intending to put up developments. The charges may vary depending on the size, location and type of development. The funds collected can then be channelled to servicing upcoming developments and upgrading of the existing physical infrastructure including roads, sewer trunks, drainage channels and extension of water services.

Other sources

Other sources include introducing charges on use of public cemeteries, county parks, and tourist sites. The funds collected can then be channelled to maintaining these facilities.

16.1.3 Strategic Measures on enhancing Finance Management

The Kenya Constitution 2010 and the Public Finance and Management Act empowers the County Governments to use other measures to supplement the national allocation and their own sources of revenue to fund devolved functions. The counties can borrow money under the authorization of the National Treasury and approval by the county assemblies. The counties can also enter into joint agreement with other counties or state corporations to enhance their financial capacity.

As per PKF Taxation Services Limited study carried out in Kiambu County, the following financial strategies were proposed.

Public Private Partnerships (PPPs)

Public Private Partnerships (PPPs) are joint ventures between Government agencies and private sectors which come together to offer services while at the same time share the risk involved. In Kenya PPPs are governed by the Public Private Partnership Act of 2013 and the Public Procurement and Disposal Regulations of 2009.

- ✓ Conducting regular and random checks.
- ✓ Impose penalties on defaulters
- ✓ Increase the human and capital capacity for enforcement
- ✓ The county can also outsource to private sector to undertake the enforcement.

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Other sources

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13.6 ECONOMIC DEVELOPMENT STRATEGY

Githunguri town has a strong economy based on agriculture as the primary good. Agricultural produce are source food for the people, trade good for local and regional trade and commerce, and raw materials for agro-processing industries. The strategy focuses on efficient interlink of the three pathway to achieve maximum economic output. It a great potential since dairy produce, coffee, tea and subsistence crops are readily available in the agricultural hinterland. There also exist a market in the town and metropolitan region that requires the product in both micro and macro-scales.

Main Objectives:

The following are the objectives for the development of an economic and social network:

- To channel development into a system of nodes and activity streets supporting the development concept;
- To consolidate and strengthen mixed-use economic nodes;
- To consolidate and strengthen neighbourhood nodes;
- To protect and regenerate the (CBD) as the primary business development area;
- To optimise the location of social and community facilities by clustering them together in neighbourhood nodes;
- To create and/or improve opportunities for the informal sector within the designated activity network; and
- To consolidate and strengthen industrial areas.

The main activities for effective functioning of the strategy are;

- ✓ incentivizing and training of farmers;
- ✓ provision of adequate agricultural extension services
- ✓ adoption of new farming technologies to maximize production.

On agro processing, there is need to expend or set out complementary and supplementary industrial plant within the existing Fresha milk processing plant, designation of raw material and processed goods storage and transportation points and marketing of industrial product in other areas.

The trade and commercial section need modernization of the Githunguri market, automation of revenue collection, and promotion of street vending for fresh farm produce to strengthen local economy. Finally is a unique branding of Githunguri products in metropolitan and international markets

This above will create job opportunities and widen space for creativity and innovation by the existing skilled population. The implementation of zone regulations will protect the agricultural hinterland.

13.7 INFRASTRUCTURE AND UTILITY PROVISION STRATEGY

These strategies focused on transportation, physical and social infrastructure for linkages and servicing of human settlement areas and their work places. They are basic necessities in day to day living of human population

Transportation entails actions to streamline transport network, traffic congestion, road safety, road surface condition, bus terminal, parking and non-motorized facilities. The specific immediate action is the widening of C560 road sections that traverses the town to make accommodate NMT, on street parking, commercial activity, undisrupted carriage ways and utility road reserve. The strategy also proposes expansion of the existing bus station to integrate *Boda Boda* terminus for easy modal split to work and residential areas.

On physical infrastructure the strategies encourages quick completion of the existing and proposed (by town management board) water reticulation project to connect all the key area with piped water. Additionally is the provision of sewer line in the residential areas and designation of waste collection/transfer station in town for effective solid waste management.

Finally, on social infrastructure the provision is well distributed and adequate to serve the current and future population. However, there is need to standardize on land provision of education facilities to ensure proper equipping of learning institutions. This calls for vertical development of schools to release land for other education support infrastructure like playgrounds. The other specific action is integration of Vocational Training Institute on St Joseph High school to meet the 100% transition from Primary to Secondary school since the school has an overprovision of land. This will teach technical skills needed in the development of the area like artisan courses. As part of social infrastructure, the strategy proposes the community library in the existing community centre, upgrade the stadium and secure the cemetery land to avoid encroachment.

13.8 SUSTAINABLE URBANIZATION STRATEGY

This is basically employment of measure to coordinate human settlement and activities to use the available natural resource without propagating the future generation user-challenge. The key resource is on land and water as a resource. The concept of compact city which has widely been applied to achieve the principle of sustainability comes into play. The human settlement sector takes it all in the success of sustainable Githunguri town.

The strategy encourages cluster settlement on the proposed residential zones and minimize establishment of built environment on the agricultural land. To improve the housing development in the township there is need for designation of appropriate building lines and setbacks, minimize urban informality and effective implementation of zonal regulations. The additional keen consideration in housing and related service provision is distribution of social facilities and provision for user-friendly spaces for physically challenged. Safety and disaster responsive design of housing highly encouraged due to the cluster nature of settlement. In a nutshell, the actions to undertake are:

- Implementation of zonal regulation for the achievement of compact town
- Discourage land sub-division and conversion of agricultural land to other uses
- Servicing of residential land to encourage cluster settlements for various density as proposed in the structure plan.

13.9 ENVIRONMENTAL AND NATURAL RESOURCE CONSERVATION STRATEGY

Natural resources are the baseline determinant of human lifestyles. Areas with rich natural resources attract human settlement. Most of the town in the global arena have developed as centres of extraction of natural resources. Majority of towns along the old Kenya Railway corridor developed as a result of fertile soils for agriculture. The main natural resource is soils and minerals, water and vegetation. Githunguri has fertile soils, water and traces of natural vegetation.

The strategy focuses on the conservation of these resources to meet the needs of the future generation. The issues of focus in developing the environmental protection strategies included; storm water drainage, soil erosion, riparian reserves, ecosystems, water sources, proposed road buffers and forests. The town has a

substantial agricultural hinterland that has fertile soils. There are also rivers in the planning area that need protection and buffering for recreation and conservation.

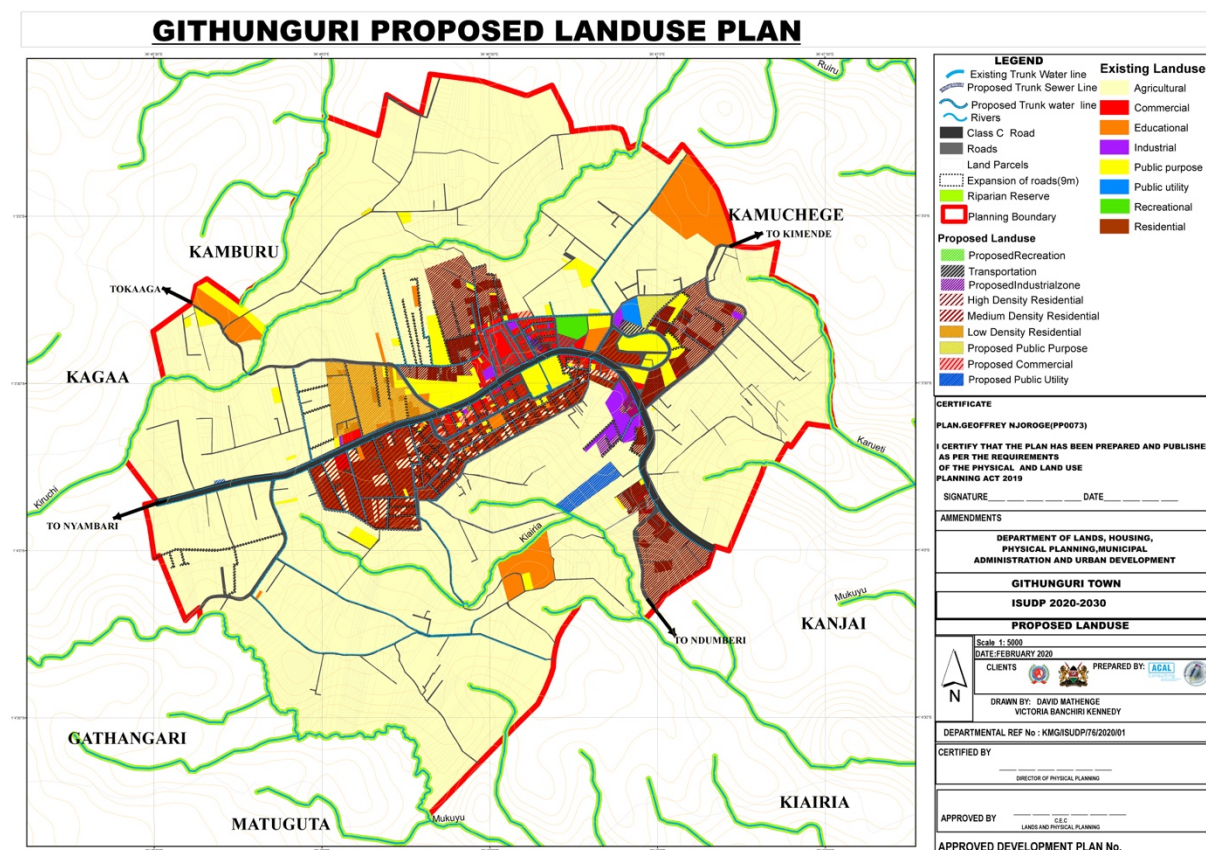
The main action is creation of 15m buffering of River Kiruchi, Karwet and Kiaria for conservation and recreation sites. This shall be site for nature trail and shall be an avenue of biodiversity conservation. The choice of river-line vegetation should discourage heavy water consumer plant species like eucalyptus. The other general actions for the environmental protection are:

- Construction of storm water drainage channels along all access roads
- Encouraging rainwater harvesting through installation of gutters
- Encourage 10% tree cover in the farms
- Clear demarcation & fencing of the riparian reserves
- Planting of appropriate trees and grass along the rivers and steep slopes to hold loose soil.
- Discourage refuse water and solid waste disposal into the rivers
- Provision of appropriate designated waste collection centres/ points

14 CHAPTER FIFTEEN: GITHUNGURI STRATEGIC STRUCTURE PLAN

14.1 SPATIAL DEVELOPMENT PROPOSALS

The structure plan was developed with keen consideration of land demand for various principle uses and the prospective need in 2030. This was analysed in relation to the existing land use. The proposed land use is checked in the structure plan to depict the need for change of use to attain urban compatibility of land use. Importantly, it should be noted that plan respect the boundary of individual plots but not the use of the land



Map 31:Githunguri Strategic Structure Plan

Source: Acal and BC Gildenhuys & associates 2020

The table 44 below shows land projections for 2030 and proposed provision of various land use. The main principle is vertical development to avoid use of more land. The intention of the plan is to safeguarded agricultural hinterland among others. The average plot sizes are not to the standards provided in the physical planning standards. This calls for radical measure for effective land subdivision for various uses including the existing and proposed.

CODE	ZONE	Area (Ha)
0	RESIDENTIAL	272.519
0 ₁₋₁₋₀₁₋₉	High Density Residential	114.125
0 ₂₋₁₋₀₂₋₄	Medium Density Residential	142.007
0 ₃₋₁₋₀₃₋₂	Low Density Residential	16.387
1	INDUSTRIAL	10.220
1 ₁₋₁₋₁₁₋₃	Fresha (Medium Industrial)	6.263
1 ₁₋₄₋₁₁₋₉	Proposed Expanded Fresha	1.63
1 ₂₋₁₋₁₂₋₂	Existing Juacali	2.042
1 ₂₋₃₋₁₂₋₄	Proposed Juacali	0.2852
2	EDUCATIONAL	26.74
2 ₁₋₁₋₂₁₋₁₃	Existing Primary	9.64
2 ₂₋₁₋₂₂₋₄	Existing secondary	17.1
2 ₃	Proposed Tertiary school	-
3	RECREATION	2.7255
3 ₁	Stadium	2.54
3 ₂	Proposed Park	0.1855
4	PUBLIC PURPOSE	23.801
4 ₁₋₄₁₄	Existing Public purpose	20.51
4 ₁₅	Proposed Public Administrative	3.3201
4 ₁₆	Proposed Dispensary	0.152
5	COMMERCIAL	21.7187
5 ₁	Existing market	0.912
5 ₂₋₅₁₆	Existing commercial zones	13.771
5 ₁₇₋₅₁₈	Proposed Commercial zone	7.0357
6	PUBLIC UTILITY	34.4016
6 ₁₋₆₂	Existing Public Utility	1.78
6 ₃	Proposed Sewer Plant	3.2206
6 ₄	Proposed water storage	0.0156
7	TRANSPORTATION	1.4
7 ₁₋₇₂	Proposed Bus park	0.86
7 ₃	Proposed Parking	0.54
9	AGRICULTURAL	556.8282
9 ₁₋₉₈	Agricultural land	556.8282

Table 44: Structure Plan Table

Source: Ecoplan Ltd, 2019

14.1.1 Residential Land Use (0):

The residents are conceptualized to live in clusters that have a well service storey building for maximum utilization of vertical space. The 16.3 Ha proposed is basically to house the projected low density members of the society who prefers adequate space for housing and support services. It is recommendable to encourage the residential densities to consider living in cluster to release space to other land uses.

14.1.2 Industrial Land Use (1):

The existence of the fresha industrial land is 3.1 hectares in the planning area. The iconic milk processing plant that has dominated the east Africa market needs an expansion. The plan proposes additional land of 6.1 hectares for expansion and satisfaction of industrial land demand by the year 2030. This is not only limited to expansion of Fresha milk plants but can also incorporate complementary industrial plants like animal feed processing and a designated light industry zone for jua kali artisans. It is subject to discussion by the town management committee as stated in the Urban Areas and Cities Act.

14.1.3 Education Land Use (2):

The plan established that the existing education land was adequate to satisfy the demand by 2030. This is 9.64Ha and 17.1 Ha for primary and secondary respectively. It should be noted that there is need for Technical and Vocational Training school (TVTs) to attain 100% primary to secondary transition. The plan therefore proposes vertical development of existing school to give room for construction of (TVTs) preferably St. Joseph's Secondary school which exceeds its land requirement. Importantly also, the distribution schools is fit to serve the population.

14.1.4 Recreation Land Use (3):

The population of the town needs urban park and community centre for recreation needs. This however indicates that there provision for the stadium with adequate land allocation. The community centre needs land for expansion by 2030. There is a proposal of expansion of the community centre to cover additional 0.19 Ha. This will enable adequate space for agricultural shows and exhibitions. Additionally the river riparian land can use for recreation for the agro-society living in the hinterlands.

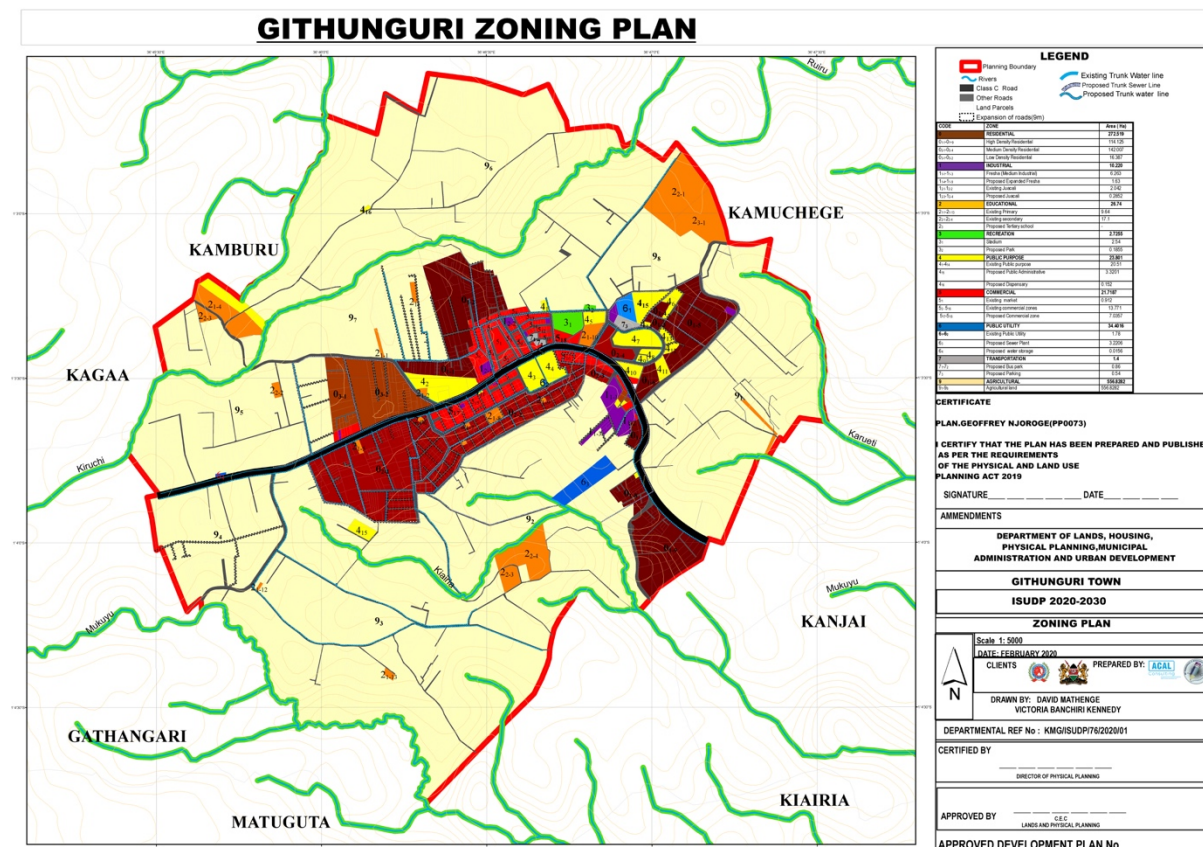
14.1.5 Other land uses Code (4_9):

The planning process has always found it fit when these land uses fit within the principle land uses discussed above. For Githunguri, there is adequate provision for these land uses and the plan proposes them to remain intact with few changes to upgrade them to the standards provided in the zoning regulations. However, parking space has been a challenge and plan proposes 0.54 Ha for the parking spaces in the CBD.

14.2 ZONING PLAN

14.2.1 Githunguri Town proposed Zones

For effective implementation and monitoring of the plan, the structure plan was sub-divided into 20 broad zones based on the character of the area and principle land uses. The zones are basically for formulation of suitable development control and zonal regulation guidelines. Towns have been having zonal regulation to guide its development.



Map 32: Githunguri Town Zone Plan

Source: Acal and BC Gildenhuys & associates 2020

14.2.2 Zone Regulations

The above zone map will be guided by the regulations that have been obtained from the provision in the physical planning handbook and Kiambu County Spatial plan. The character of the each zone was deeply considered and integrated in the proposal of regulations. These zoning policies and regulations safeguard the agricultural hinterland and manage urbanization of the planning area.

Table 45: Githunguri Town Proposed Zone Regulation

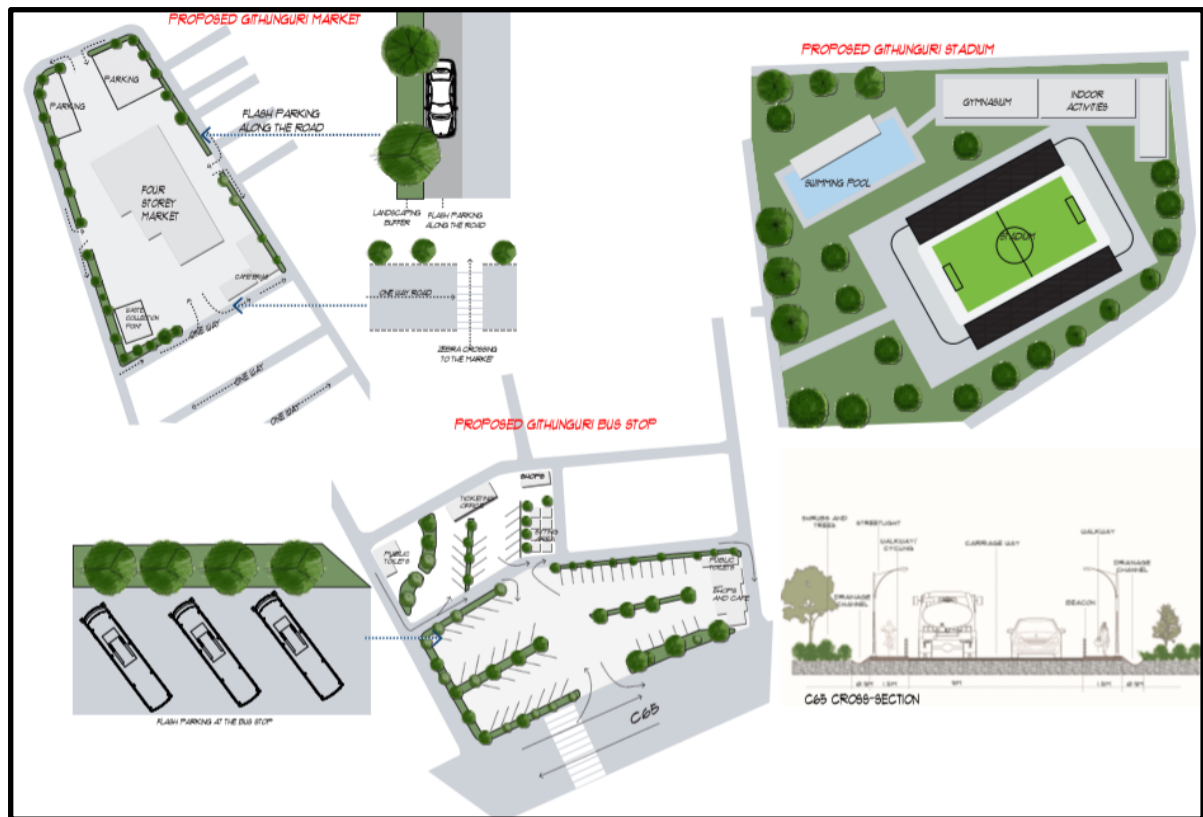
Zone	Location	Permitted use	Plot size (Ha)	Max G.C (%)	MAX P.R	Building line(m)	Number of floors	Setbacks (m)	Parking Needs	Minimum Rd width (m)	Min Subdivision level (Ha)	Special Conditions
5 ₂ -5 ₁₆	Core CBD	Commercial	0.045 and below	60	3	0	5	2.4/1.2	None	12m frontage 9 m Back lane	No subdivision	Provide Loading and offloading zones for all commercial All plots of 0.03Ha are only for market plots) Adopt existing road reserve where widening is inhibited by 100% GV of abutting plots
			0.045-0.1	70	5.5	0	8	2.4/1.2	1 per 100m ²	12m	0.045	
5 ₁₇ -5 ₁₈	Extended CBD	Commercial	0.045 and below	60	3	0	8	2.4/1.2	none	12m	No subdivision	Business cum residential ratio is 60:40 Provide Loading and offloading zones for all commercial uses . Adopt existing road reserve where widening is inhibited by 100% GV of abutting plots
			0.045-0.1	70	5.5	4.5	5	2.4/1.2	1 per 100m ²	12	0.045	
			Over 0.1	70	6.6	6	11	1.2/2.4	1 per 100m ²	12	0.045	
0 ₁ -0 ₂	Githunguri	High Density	Below 0.1	50	4.0	7	3.0	2.4/1.2	1 parking for 3 bed sitters,0.5 parking for 1 bd,1prking for 2bd	9	0.045	Light industrial Allowed Adopt existing road reserve

		Residential										where widening is inhibited by 100% GV of abutting plots
			0.1 and above	55	6	10	6	2.4/1.2	1 Parking for 3 bed sitters, 0.5 parking for 1 bd, 1 parking for 2bd 1.5 parking for 3Bd	9	0.045	Light industrial allowed
0 ₁₀ -0 ₁₃	Githunguri	Medium Density Residential	0.01 and below	30	1	6	2	2.4/1.2	Atleast 2 parkings	9	0.045	Light industrial allowed
			Over 0.1	25	1	6	2	2.4/1.2	Atleast 2 parkings	9	0.045	
0 ₁₄ -0 ₁₅	Githunguri	Low Density	0.045-0.1 ha	35	1	4.5	2	2.4/1.2	For atleast 2 cars	9	0.1	
Other land uses												
3 ₁ 3 ₂	Existing Stadium Proposed park	Recreational areas	0.4	25	0.5	9	-	2.4/1.2	1 per 100m2	15m	-	
1 ₅ -1 ₇ 1 ₈	Existing light industry Proposed light industry	Light Industry (carwash, garages, warehouses, cottages, cottage industries)	0.045	60	1.2	6	-	3	1 per 100m2	12m		
1 ₁ -1 ₄	Fresha	Agro Industries	0.2	30	1.0	6	-	3	1 per 100m2	12m		

1 ₉ -11 ₁	Proposed											
		Utilities -BTS	0.1	-	-	-	-	3	-	12m		
		Petro Filling stations	0.1	30	1.0	-	6	3	-	15m		
		Petro Service Stations	0.2	30	1.0	-	9	3	-	15m		
		Nursery /kindergarten	0.1	35	1.0	-	6	1.2/2.4	1 per 100m2	9m		
2 ₅ -2 ₁₈	Existing primary	Primary School	1.2	35	1.0	-	9	3	1 per 100m2	12m		
2 ₁ -2 ₄	Existing Secondary	Secondary School	2.0	35	1.0	-	9	3	1 per 100m2			
2 ₁	St. Joseph	Tertiary	12.0	35	1.0	-	9	3	1 per 100m2	12		
		Churches	0.1	35	1.5	-	6	1.2/2.4	1 per 100m2	9m		
4 ₆	Proposed	Health Centres and dispensary	0.2	35	1.5	-	6	3	1 per 100m2	12m		
4 ₄	Level 4	Hospital	2	40	1	-	9	3	1 per 100m2	12		

Agricultural Zone		Small scale agriculture: Minimum land subdivision level _____ - 0.2 hectares
		Large scale agriculture (commercial): Minimum land subdivision level -2.0 Ha
		Urban agriculture (Permitted for crops less than 0.5m and Dairy farming): Minimum land subdivision level - 0.045 Ha

Source: Acal and BC Gildenhuys & associates 2020



15.2 GITHUNGURI CBD

The area that needs immediate action is 32.6 Ha comprised of the CBD and immediate residential. Githunguri CBD is structured along the main C560 road (Nyambari-Githunguri-Ruiru road). With the recent developments of various commercial malls in the town new patterns are likely to come up especially with the tied-up potential for new residential developments to occur in close proximity to these new centres. The direction of expansion of the town is towards the west along the Githunguri-Upland-Limuru road (C560). The key driver is favourable topography and existence of street commercial activities throughout the year. Growth of the town toward the north and south is highly limited as a result of the steep ridges and valleys on both side of the CBD.

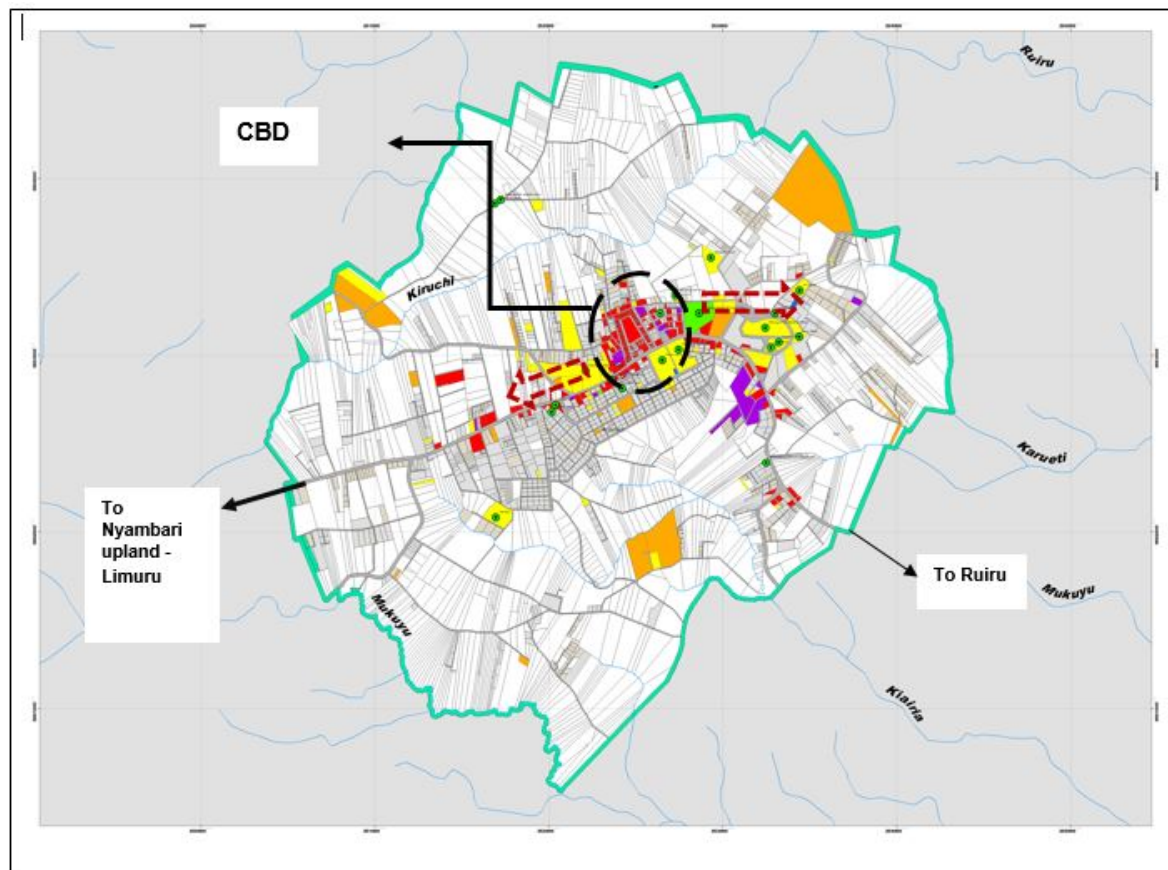
That said, further opportunity exists for the expansion of CBD to the east which can be its breathing space in the following ways:

- Alleviate pressure on the existing CBD.
- Alleviate congestion.
- Absorb and Accommodate immigrating populations.
- Provide new market, transport and public space opportunities.

Existing CBD Street Character

The figure 15 is a combination of photographic plates describing the character and scale of the predominant CBD built form. It indicates the current mobility system and nature of road surface.

Map 35: CBD and major Linkages



Source: Acal and BC Gildenhuys & associates 2020

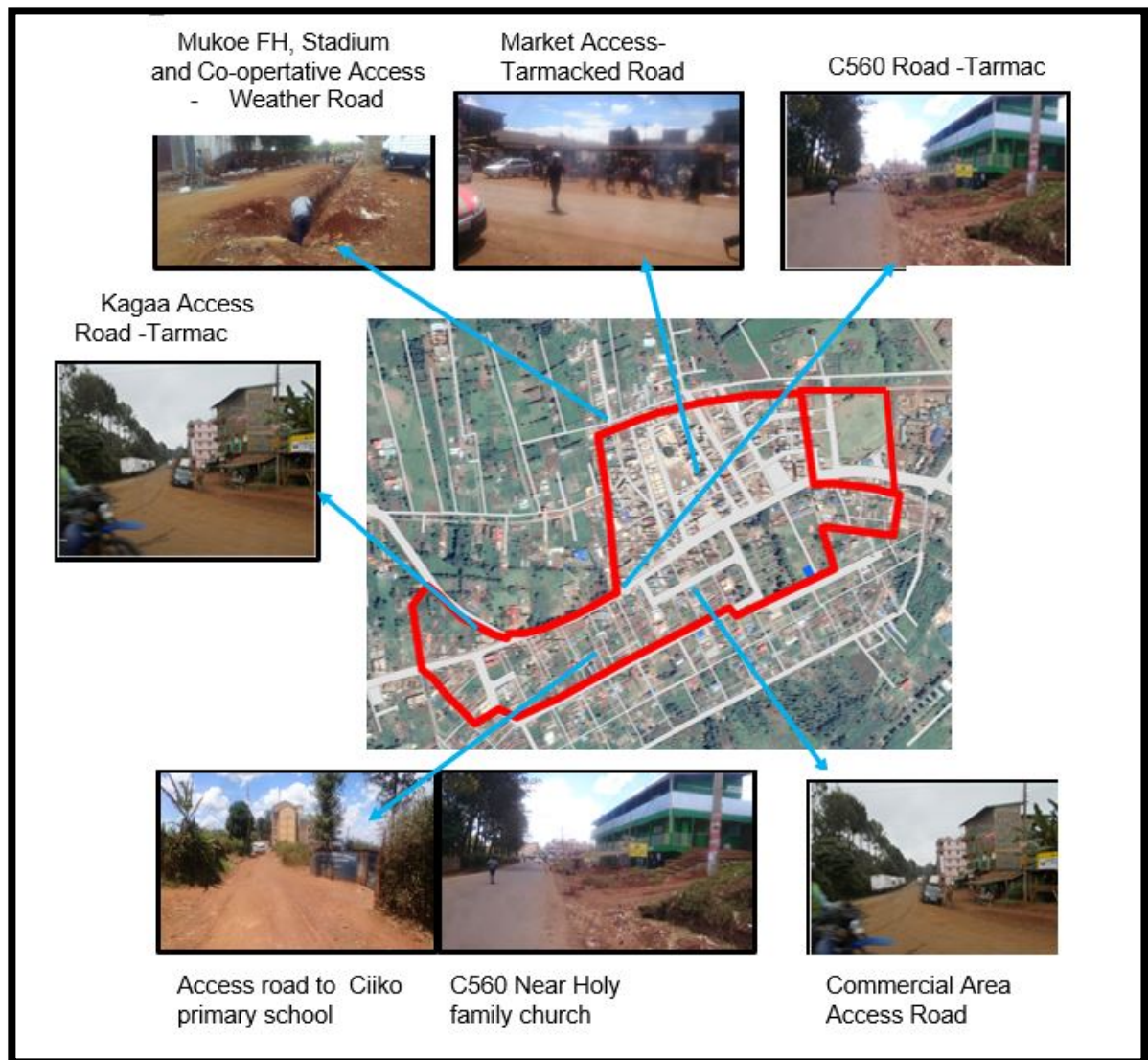


Figure 19: Githunguri CBD Street Structure

Source: Acal and BC Gildenhuys & associates 2020

16.1.1 Land Use Activities

The connective system created in Githunguri town allows the formation of four distinct areas each having its own anchor and character. These precincts will be subject to further detailed study and design. The notable existing precincts include existing transportation, networks and associated facilities, the new market, several public purposes facilities like the Githunguri health centre, police station, Giwasco offices, commercial malls and Faith based institutions (Holy Family School, health centre and church. The main precincts are categorised and characterised as:

Market precinct

- Anchored by the New market development
- Characterized by formal economic activity.

Stadium/ Transport precinct

- Anchored by the Githunguri stadium and youth Centre facility
- Characterized by mobility and public based activity and interaction.

Government hospital/police station precinct

- Anchored by the modern level four hospital
- Complimented by police station.
- Characterized by government function

Mission institution precinct

- Anchored by the existing holy family school, church and health facility
- Characterized by mix of uses and service provision.

16.1.2 Major planning challenges

The Githunguri CBD is facing both design and policy challenges that need keen interventions to promote its effective functionality. These challenges are not limited to:

- Existence of small land for public transport terminus. Most of time the terminus is full of vehicles.
- Limited space for expansion of market which is expanding at an alarming rate.
- Lack of boda boda shades forcing then operators to park on road reserve. They are affected by adverse weather conditions like rain season.
- Existence of narrow access roads. The roads have been encroached on by commercial activities.
- Lack of designation for NMT which exist in the town.

16.1.3 Proposed Interventions

15.2.1.1 Markets/ Transport Terminus

The transport terminal requires detailed design interventions to integrate boda boda for easy modal interchange. More also upgrade of road to accommodate street vendors. The market needs to be upgraded to accommodate the anticipated growth of traders.

The principles that need critical consideration for the facility improvements are:

- Access
 - Provide a seamless connection between the public transport facilities and spaces for trading
 - Provide legible and well managed pedestrian routes connecting all public facilities
 - Accommodate main vehicular movement access points from the access road and not from the mobility spine
 - Differentiate pedestrian and vehicular access points
 - Encourage the management of circulation of vehicles and pedestrians
 - Provide well located parking facilities
 - Manage on street parking
 - Promote the development of multi-storey parking facilities with ground floor retail to reduce the land dedicated to parking.
- Land use
 - Maximize the opportunities for commercial and retail uses framing the transport facilities
 - Accommodate public spaces connecting the different sub-zones within the precinct.
 - Encourage the introduction of a range of robust public spaces accommodating other uses and activities such as small events and local entertainment when markets are not in operation.
 - Incorporate public facilities such as clinics, libraries, day-care centers and others that can support the daily requirements of commuters.
- Edge condition
 - Encourage buildings with active on ground floor to frame transport and market spaces
 - Provide well landscaped edges facing the mobility spine with strategically located vehicular and pedestrian access points.
- Massing
 - Promote the use of perimeter buildings rather than pavilion buildings to define the public realm.

The strategies considered here include;

- Improve access to public transport facilities- consider relocation location of bodaboda shed together with the main bus terminal.

- Guide development within the CBD through clear controls and incentives.
- Promote the development of a compact urban form.
- Improve permeability and connectivity within the core.
- Dualling of the main c560 Road.
- Provision of NMT Infrastructure.
- Reconstruction of existing Githunguri Market into a modern multi-storey market.



Figure 20: Proposed Market plan



Figure 21: Proposed Bus Park Plan

Activity Streets & Quality Public Environment

The Design Framework for the CBD provides a functional hierarchy of streets. Among these there are shared/complete streets and mixed-use activity spines. The intended amenities and character for these movement routes and streets comprise of the following elements that need keen actions:

1. Accessibility and Movement
 - Street networks should be permeable to minimize travel distances, provide a choice of routes, maximize access to available facilities and services and assist people to find their way conveniently.
 - The design of the street should consider multiple modes of movement (motorized and non-motorized)
 - Separate cycle paths should be indicated with street markings or by clearly displayed and well-designed signage
 - Pedestrian and bicycle routes should be direct, continuous and well lit
2. Intersections
 - Control vehicle speeds by extending verges to narrow the carriageway at the intersection (creating 'pinch-points') reducing sight lines with closely spaced trees using appropriate street markings and signage
 - Use differently textured materials to mark crossings and traffic calming
3. Activity Distribution

Integrate retail, office, entertainment, Workshops, commercial, Industrial, community facilities and residential development in the CBD.

4. Topography views and vistas
 - Design the street in response to topographical features
 - The movement must engage with views and vistas unique to Githunguri natural setting and in relation to significant heritage structures. (i.e Landmark Features)
5. Edge Condition and Building Frontage
 - Activate building edges with retail and public oriented uses
 - Building corners facing pedestrian paths to be accentuated
 - Urban Perimeter block typologies preserved
 - Reduction of pavilion Architectural Typologies
 - Dense built form with Building heights between 4-5 storeys



plate 19:C65 Street views

6. Street and Public Realm Functionality
 - Create manageable and functional public space
 - Allowing a balance between hard and soft surface treatment
 - Provide clear definition between public and private domains
 - Extend network of public space along street.
 - Unique, yet functional street furniture and lighting design.
 - Provide places for socialisation and pause..
 - Public Realm to serve community needs.
 - Define clear guidelines related to building setbacks and build to line principles along specific streets.



Plate 20: Active Frontage

16.2 DESIRED STATE

1. Markets/ Transport Terminus

The desired Githunguri market and Transport terminus with element of natural environment liked with built environment.

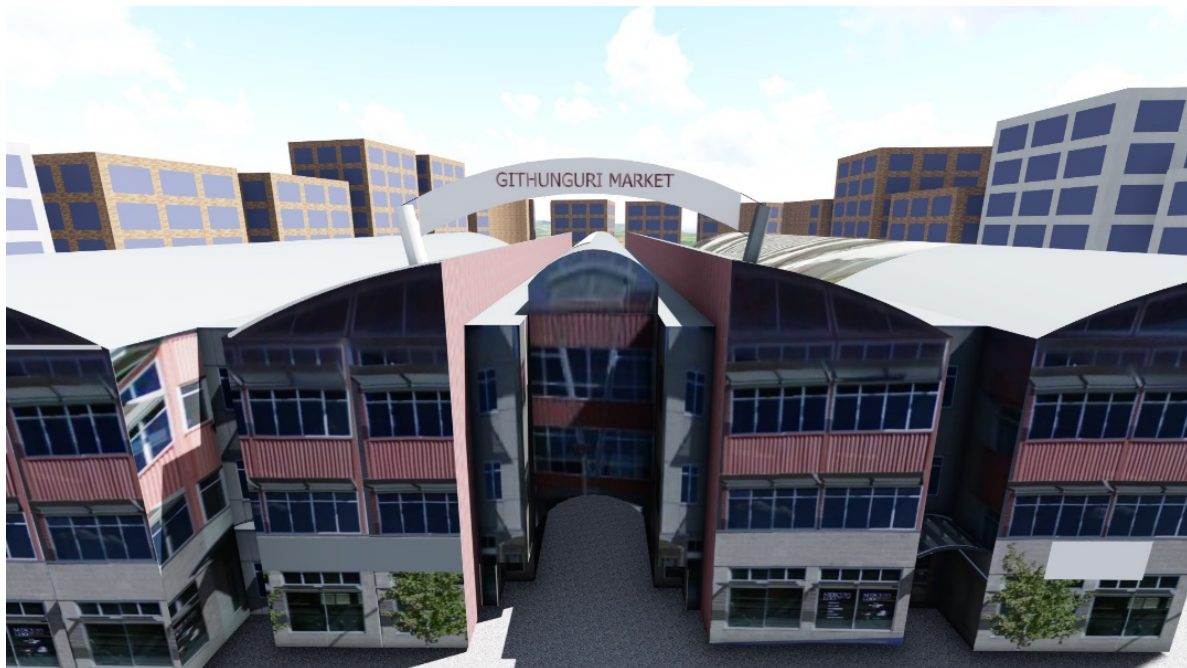


Figure 22:Githunguri Market in Future



Figure 23:Bus terminus

Source: Acal and BC Gildenhuys & associates 2020

2. Street Orientation

The figure below depicts medium scale transport facilities designed to integrate small retail and trading spaces. It is basically an urban Commercial Street that is recommendable in the CBD.

Source: Acal and BC Gildenhuys & associates 2020



Figure 24: Githunguri Street Environment

Public Environment

A series of complementary greenways proposed as a means of completing the public space system and its overall accessibility.

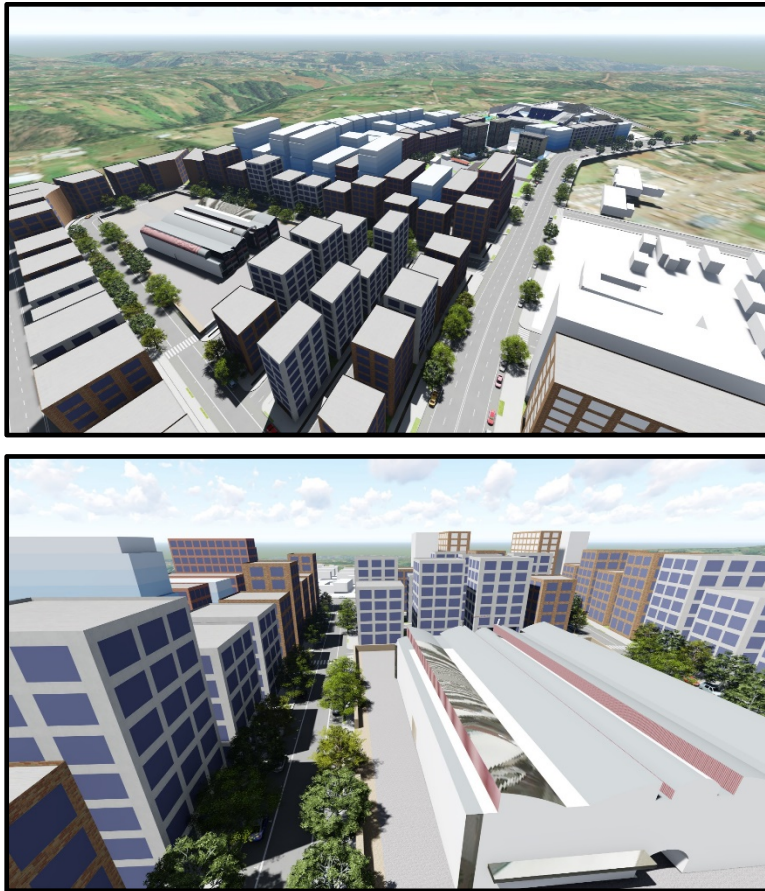


Figure 25: Urban Greenery on Major Streets

Source: Author

16.2.1 Best Practice: NMT Network Promotion

International provision of NMT has been a revitalization strategy in urban areas. The NMT network will complement and overlap with other movement networks and common space features. The intention is to promote cycling as a primary means of local transportation which links all transport facilities, economic/market facilities and public spaces.

The creation of the NMT network will release the socio-economic potential of the area in the following ways:

- Job Creation
- Links to Shopping Centres
- Affordability for commuters
- Reduction of carbon emissions

Figure 26: Best NMT Integration in India



Activation of the Public environment

15.2.2 PROPOSED WATER AND SEWER RETICULATION SYSTEM

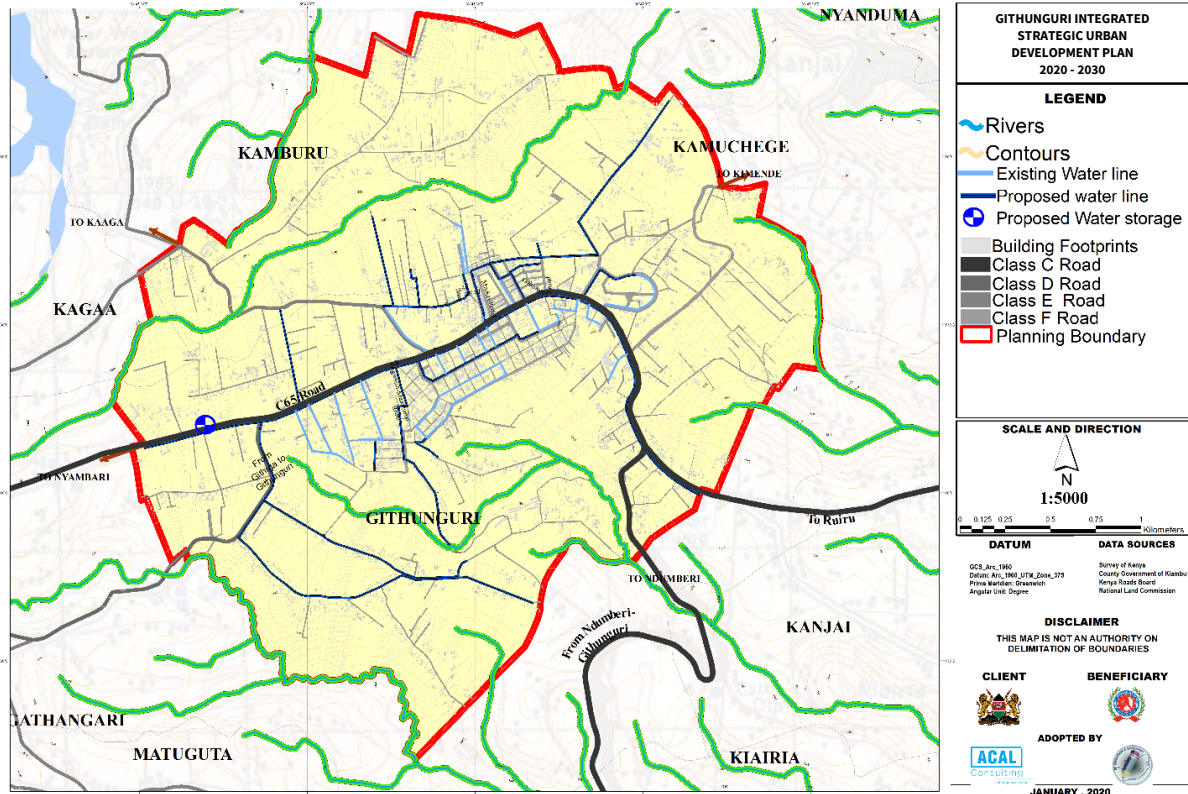
Githunguri town has no conventional sewer system. As was evidenced in the stakeholders forum the residents outlined their infrastructure priority and on top of the list was Sewer system. The plan has made an attempt to depict possible route for trunk sewer which should as well be used for water reticulation. The topography of the planning area is that the town can only be drained on the two sides on the northern and southern direction. The flow from two directions would converge at the proposed waste water treatment plant in the land touching the river just below the fresh dairy factory.

The water supply is envisioned to be tapped from the River Mukuyu which is currently under construction. The water would flow to a storage facility at Thakwa through gravity before being reticulated to the planning area.

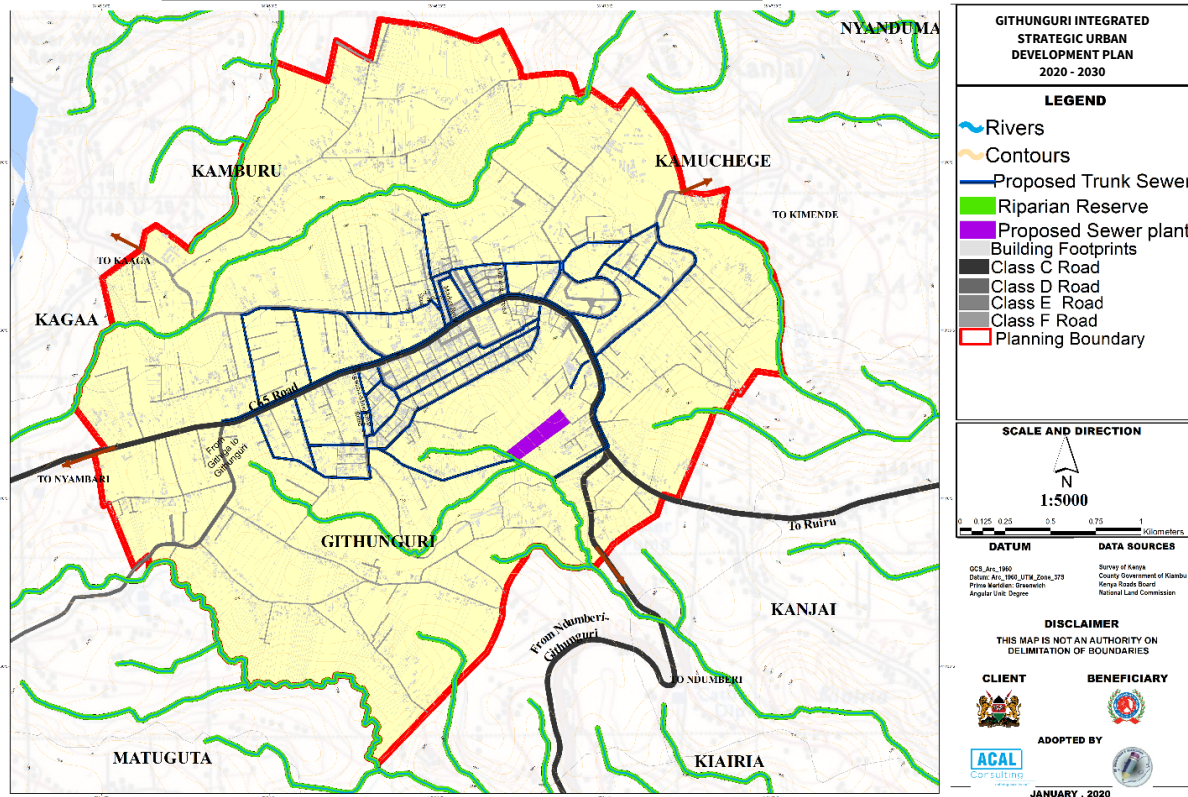
The water and sewerage project is at an advanced stage of conception with development partners from the Danish Government.

The following map shows the proposed reticulation system for water and the sewer trunk system.

GITHUNGURI : WATER RETICULATION



GITHUNGURI : SEWER RETICULATION



16 CHAPTER SEVENTEEN: PLAN IMPLEMENTATION

17.1. IMPLEMENTATION MATRIX

Table 46:Implementation Matrix

Project Name	Objectives	Location	Implementing Agency(ies)	Roles of Implementing Agency(ies)	Resource Requirements	Implementation period
CAPACITY BUILDING						
Strengthening the Kiambu County Planning Department and training of all relevant personnel.	To build capacity for proper implementation of the ISUDP and subsequent plans	County Gov't Lands and Planning offices	County Gov't	<ul style="list-style-type: none"> ▪ Equipping the department as necessary ▪ Mobilizing the staff to be trained ▪ Financing the process 	<ul style="list-style-type: none"> ▪ Finances ▪ Human resource ▪ Training space& equipment 	Short term
Procurement of GIS Equipment and Training	To promote GIS Based planning in the Subcounty.	County Gov't Lands and Planning offices	County Gov't	<ul style="list-style-type: none"> ▪ Financing the project ▪ Contracting the GIS equipment suppliers ▪ Maintenance of the equipment. ▪ Mobilizing the staff to be trained 	<ul style="list-style-type: none"> ▪ Finances 	Short term
Enforcement of Traffic Regulations	To regulate traffic rule violation and improve traffic movement and road safety	Entire planning area	Traffic police Road users	<ul style="list-style-type: none"> ▪ Formulating adequate and effective traffic rules ▪ Enforcing the rules ▪ Observation of the traffic regulations 	<ul style="list-style-type: none"> ▪ Human resource 	Continuous
1 No Road Construction	To improve road		Planners and Engineers	<ul style="list-style-type: none"> ▪ Planning and design of roads and surrounding land uses 	<ul style="list-style-type: none"> ▪ Land ▪ Finances 	Medium term

projects.	transport system To enhance movement of people and goods		KeNHA/ KURA/County government Contractors and surveyors Residents/NGOs/CBOs	<ul style="list-style-type: none"> Financing the projects Identification and acquisition/ purchase of land Contracting experts Maintenance of the roads Actual construction works Contribution of resources e.g. money, labour, ideas etc. 	<ul style="list-style-type: none"> Human resource 	
4No. Road expansion and upgrading projects	To improve road transport system To enhance movement of people and goods	Entire planning area	Planners and Engineers KURA/County government Contractors and surveyors Residents/NGOs/CBOs	<ul style="list-style-type: none"> Planning and design of roads and surrounding land uses Financing the projects Identification and acquisition/ purchase of land Contracting experts Maintenance of the roads Actual construction works Contribution of resources e.g. money, labour, ideas etc. 	<ul style="list-style-type: none"> Land Finances Human resource 	Short, medium and long terms
Construction of terminal facilities	To promote easy picking and dropping of passengers and goods and related activities	CBD	Planners, Architects and Engineers KURA/County government Contractors	<ul style="list-style-type: none"> Planning and design of the facilities Financing the projects Contracting experts Identification and acquisition/ purchase of land Maintenance of the facilities Actual construction works 	<ul style="list-style-type: none"> Land Finances Human resource 	Quick wins, short and medium terms
HOUSING SECTOR						
Refurbishment of G.o.K Houses	To improve conditions of the	Githunguri govt housing.	Kenya National Housing Corporation/ County	<ul style="list-style-type: none"> Financing the project Contracting experts 	<ul style="list-style-type: none"> Finances Human resource 	Quick wins

	G.o.K houses		government Contractors Residents/NGOs/CBOs	<ul style="list-style-type: none"> ▪ Maintenance of the houses ▪ Construction works ▪ Contribution of resources e.g. money, labour, ideas etc. 		
New County Housing Estates	To improve housing stock in the planning area	Githunguri ward	County government Planners and Architects Contractors Residents/NGOs/CBOs	<ul style="list-style-type: none"> ▪ Financing the project ▪ Contracting experts ▪ Maintenance of the houses ▪ Planning and design works ▪ Construction ▪ Contribution of resources e.g. money, labour ideas etc. 	<ul style="list-style-type: none"> ▪ Land ▪ Finances ▪ Human resource 	Short and medium terms
WATER AND SANITATION SECTOR						
Project Name	Objectives	Location	Implementing Agency(ies)	Roles of Implementing Agency(ies)	Resource Requirements	Implementation period
Rehabilitation of the town water piping system	To improve access to piped water supply by planning area residents	Githunguri town	Githunguri Water and Sewerage Company/ County Gov't Kenya Water Trust Fund/ WARUAs Planners and Engineers Contractors Residents/NGOs/CBOs	<ul style="list-style-type: none"> ▪ Financing the project ▪ Identifying and acquisition of land ▪ Contracting experts ▪ Help in financing the project ▪ Planning and design works ▪ Construction ▪ Contribution of resources e.g. money, labour ideas etc. 	<ul style="list-style-type: none"> ▪ Land ▪ Finances ▪ Human resource 	Short and medium terms
Construction of sewerage Network of the town.	To improve sanitation and sewerage services in the planning area.	The CBD & the immediate medium-density residential area.	Githunguri Water and Sewerage Company/ County Gov't Planners and Engineers	<ul style="list-style-type: none"> ▪ Financing the project ▪ Identifying and acquisition of land ▪ Contracting experts ▪ Planning and design works ▪ Construction 	<ul style="list-style-type: none"> ▪ Land ▪ Finances ▪ Human resource 	Continuous

			Contractors Residents/NGOs/CBOs	<ul style="list-style-type: none"> ▪ Contribution of resources e.g. money, labour ideas etc. 		
Construction of Solid Waste Management facilities	To improve solid waste management in the planning area	CBD.Residential areas zone	County Gov't Contractors Residents/NGOs/CBOs Private solid waste management firms, Residents and CBOs/ Neighborhood Youth Groups	<ul style="list-style-type: none"> ▪ Financing the project ▪ Identifying and acquisition of land ▪ Contracting experts ▪ Construction ▪ Contribution of resources e.g. money, labour ideas etc. ▪ Proper collection and disposing of solid waste 	<ul style="list-style-type: none"> ▪ Land ▪ Finances ▪ Human resource 	Short term
COMMERCE, INDUSTRY AND TOURISM SECTOR						
Establishment of 3No. Food & feeds processing plants/factories	<p>To enhance value addition to agricultural products</p> <p>To enhance agricultural productivity in the planning area</p>	Entire planning area	Ministry of Industrialization & Enterprise Development/ County government Planners/ Architects Private investors/ Business groups Kenya Manufacturers Association	<ul style="list-style-type: none"> ▪ Identification of ideal spaces/land and acquisition of the same ▪ Financing construction of some of the plants and/or offering subsidies to private investors ▪ Planning and design works ▪ Financing the construction and equipping them ▪ Conducting the actual business ▪ Financing the projects ▪ Mobilizing members to invest in the ventures 	<ul style="list-style-type: none"> ▪ Land ▪ Finances ▪ Human resource 	Short to medium term
ENERGY SECTOR						
2No. Rural electrification projects	To improve access to electricity in the	Rural Githunguri and Ngewa wards	Kenya Rural Electrification Authority County government	<ul style="list-style-type: none"> ▪ Financing the project ▪ Help to identify land (way leave) and acquire the same 	<ul style="list-style-type: none"> ▪ Land ▪ Finances ▪ Human 	Short term

	planning area		Kenya Power Residents and business people	<ul style="list-style-type: none"> ▪ Help KREA in organizing and monitoring the process ▪ Establishment of electricity networks and supply of electricity ▪ Electrical installation works in the homesteads & business premises 	resource	
ICT SECTOR						
Construction of County ICT and Resource Centre	To improve access to information by residents, business people and various institutions	Githunguri town	County Gov't	<ul style="list-style-type: none"> ▪ Financing ▪ Identification and acquisition of land ▪ Equipping the centre ▪ Maintenance of the centre 	<ul style="list-style-type: none"> ▪ Land ▪ Finances ▪ Human resource 	Short term
ENVIRONMENT SECTOR						
Beautification and Greening Githunguri town	To improve the aesthetic value of Githunguri town	Githunguri town	County Gov't Landscape Architects/ contractors Private institutions	<ul style="list-style-type: none"> ▪ Financing the project ▪ Supervision of works ▪ Design and landscaping works ▪ Sponsorship of landscaping sections of the town 	<ul style="list-style-type: none"> ▪ Finances ▪ Human resource 	Short to medium term
HEALTH SECTOR						
Upgrading and equipping Githunguri Subcounty Hospital	To enhance healthcare	Githunguri Subcounty Hospital	County government	<ul style="list-style-type: none"> ▪ Financing the project ▪ Contracting experts ▪ Supervising construction work 	<ul style="list-style-type: none"> ▪ Finances ▪ Human resource 	Quick win
EDUCATION SECTOR						
Improving capacity	To meet future	Entire planning	Ministry of Education,	<ul style="list-style-type: none"> ▪ Funding the projects 	<ul style="list-style-type: none"> ▪ Land ▪ Finances 	Short to medium

of schools	demand for education	area	Science Technology/ County Gov't Constituency Development Fund Private institutions/religious institutions/ private individuals Planners/ Architects/ Contractor	<ul style="list-style-type: none"> Contracting experts and supervising works Helping in funding the projects Construction and running some of the schools Planning, design and construction works 	<ul style="list-style-type: none"> Human resource 	to long term
COMMUNITY FACILITIES						
Upgrade and renovate the Githunguri stadium	To increase capacity and improve condition of the stadium	Githunguri Town	County Gov't Constituency Development Fund Private institutions/religious institutions/ private individuals Planners/ Architects/ Contractor	<ul style="list-style-type: none"> Funding the projects Contracting experts and supervising works Helping in funding the projects Construction and running some of the schools Planning, design and construction works 	<ul style="list-style-type: none"> Finances Human resource 	Quick win
Upgrading the existing fire station at the Town to have more equipment and personnel	To improve firefighting services in Githunguri.	Githunguri town				Quick win
Construction of 1 Library	To improve access to information by residents, business people and various institutions	1 library per in the town				Short to medium term

17.2. CAPITAL INVESTMENT PLAN

A Capital Investment Plan (CIP) provides a detailed understanding of anticipated investments into tangible capital assets. These assets include basic facilities, services and installations needed for the functioning of the community.

This CIP outlines the projects, both on going and proposed, that are envisioned to support development of Githunguri town, within the context of the proposed Integrated Strategic Urban Development Plan (2019 -2030). The projects are detailed out per sector. Also included are the areas covered, budgetary allocations, land requirements, the implementing and financing agencies and implementation time lines.

Notably, the transportation sector takes the highest portion of the budget. This is because the projects are the most capital intensive. The next highest proportion of the budget is taken up by the water and sanitation sector. The housing sector takes the least amount of capital since the projects are not only few but are also not as expensive as such. Most housing projects in towns are driven by the private sector

Table 47:Capital Investment Plan

No.	Project Title	Current Status	Timeframe	Financing Agency	Implementing Agency	Cost Estimate Kshs. Millions	Remarks
A	TRANSPORTATION						
1.	Road widening of C65	Proposed	Continuous	KeNHA/CG	KURA/KeNHA	90M	Un planned Roads
2.	Upgrading 5.1 Km long Nyambari-Uplands Gitithia- Kambaa -Githunguri-Kanjai- Ngewa Ruiru Road. 1.6KM Githunguri-Kanjai-Ngewa- Ruiru	Proposed	Medium Term	KeNHA	KeNHA/Contractor	201M	
4.	Providing cycling paths /walkways on all roads Intergration of NMT facilities on major roads	Proposed on: - C560 – 6.7KM C558 – 0.6Km	Short, medium and long term	KURA/County Government	KURA/Contractor	30M	

		C225 - 5km D1433- 1.7 Km E2086-1.1KM					
5.	Construction of adequate Storm Water drainage Channels along all 9m and above roads in the CBD	Proposed	Short, medium and Long term	KURA/ KERRA/County Government	KeNHA/Contractor	40M	
	ROAD EXPANSION PROPOSALS						
	Primary Roads						
1.	Expand & Tarmacking of village road from 4Metres to 9Meters Road	Earth, 5km long	Short to medium term	KURA/County government	KURA/ Contractor	150M	
2.	Expand Githirioni-Matimbei - Kamburu-Githunguri From 6M-15Metre Road.	Gravel, 1.6km long	Short to medium term	KURA/County government	KURA/ Contractor	60M	
	TERMINAL FACILITIES						
	QUICK WINS						
1.	Acquiring land for Bus park and Boda-boda shed 0.86 ha	Proposed	Quick win	KURA/County government	KURA/contractor	31.8M	Purchase of Land necessary.
2	Construction of the modern bus park and boda boda sheds	Proposed	Quickwin	KURA/County Govt	KURA /	50M	
3.	Construct shelter shades at the Bus stage and landscape & provide waste bins	Occupies 0.35KM	Quick win	County government	County government/ Contractor	3M	

	MAJOR PROJECTS						
1	Acquisition of land for car parking. 0.54 ha	Proposed	Short-term	County government	County government	15M	
2.	Construction of the car parking silo for the county	Proposed	Short term	County government	County government/ Contractor	20M	
C.	HOUSING						
	QUICK WINS						
1.	Densification of GoK Houses	Proposed	Quick win	County Government	County Government	15M	
D.	WATER AND SANITATION						
1.	Rehabilitation of the town piping system	Inefficient Network	Short –Medium term	County government/	County gov't/	200M	
2.	Extend water connection to unserved areas and Drilling of 4 No.Boreholes	Proposed	Medium term	County government	County government	600M	
6.	Construction of sewerage system for Githunguri Town	Proposed	Short/ Medium/ Long Term	County Govt,National Govt and Development partners	County Administration	1.2B	
8.	Construction of Solid Waste Management facilities for Githunguri town	Proposed	Short term	County Government	County Government	10M	
E.	COMMERCE AND INDUSTRY						
	MAJOR PROJECTS						

1.	Construction & equipping Animal Feed Factory	Proposed in Githunguri Town	Short term	County Government & Private sector (PPP)	County Government & Private sector (PPP)	8M	
2.	Construction of a multi storey Githunguri Market	Proposed	Short/ Medium Term	Support Construction, Equipping and Staffing Through PPP	County Administration	50M	
3.	Construction of a light industry park	Proposed in Githunguri Town	Short term	County Government & Private sector (PPP)	County Government & Private sector (PPP)	15M	
F.	ENVIRONMENT						
1.	Purchase of Land for waste transfer station	Proposed	Short/ Medium Term	County Administration	County Administration	15M	
2.	Beautification and Greening Githunguri town and environs	Proposed	Short/ Medium Term	County Administration	County Administration	10M	
G.	HEALTH						
	QUICK WINS						
1.	Establishment of the proposed Dispensary /health centre	Proposed	Quick win	National and county government	National and county government	10M	
	MAJOR PROJECTS						
1.	Upgrading and equipping Githunguri level 4 Health Centre	Ongoing	Short term	County government	County Administration	-	
H.	EDUCATION						
	MAJOR PROJECTS						

1.	Improvement capacity of existing primary and secondary schools	Proposed	Short to Long Term	County Government/CDF	Ministry of Education	10M	
2.	Integrate vocational training institute in St Joseph secondary school.	Proposed	Short to Long Term	County Government/CDF	Ministry of Education	50M	
I.	COMMUNITY FACILITIES						
	QUICK WINS						
1.	Upgrade and renovate the Githunguri stadium with supporting infrastructure	Proposed	Quick win	County Admin	County Admin	100M	
2.	Construction of fire station at the Town to have more equipment and personnel.	On-going	Quick win	County Admin	County Admin	5M	
	MAJOR PROJECTS						
1.	Construction of 1 Library	Proposed	Short to medium term	County Admin	County Admin	10M	
2	Establishment of a recreational park in Githunguri	Proposed	Short to medium term	County Admin	County Admin	10M	
3	Establishment of the museum at the Kenyatta house in the administrative zone	Proposed	Short to medium term	County Admin	County Admin	15M	Proposed

Source: Acal and BC Gildenhuys & associates 2020

Summary of Costs

Component	Total Cost
Transportation	571,000,000.00
Terminal Facilities	119,080,000
Housing	15,000,000
Water & Sanitation	2,010,000,000
Commerce And Industry	73,000,000
Environment	25,000,0000
Health	10,000,000.00
Education	60,000,000.00
Community Facilities	140,000,000.00
Allow For Admin Cost (10m/Year)	100,000,000.00
Total Cost	3,348,080,000.00

17.3. MONITORING AND EVALUATION

Monitoring and evaluation framework serves the purpose of oversight and timely check-up of the progress of the activities proposed in the plan. For effective functioning of the Githunguri ISUDP, there is a need of a proposal of a defined monitoring and evaluation framework.

Monitoring and Evaluation are integral part of any development project. Monitoring is continuous examination of planned activities and provides midway contributions, facilitates changes, and provides feedback to project management to keep the program on schedule. Evaluation conversely, is basically a summing up, at the end of the project assessment to verify if those activities have actually achieved the intended desired state. Thus monitoring and evaluation are critical in order to measure the project performance and fulfilment of project objectives. Therefore, M & E framework within the proposed action plan and programmes will involve the systematic gathering and analysis of information regarding the project advancement, assessment of performance, user satisfaction, staff assessment and implementation quality assessment.

The first category of monitoring refers to baseline monitoring, which is regarded as the measurement of economic, social and environmental variables during a representative pre-project period to determine existing conditions, ranges of variation, and process of change. The second category of monitoring is regarded as impact monitoring, encompassing the quantification of social and environmental variables during project development and operation, to determine changes that may have been caused by the project, while the last category of monitoring, is regarded as compliance monitoring and takes the form of periodic sampling and/or continuous measurement of levels different economic or social parameters.

Evaluation is a set of activities aimed to determine as systematically and objectively as possible, the relevance, effectiveness, efficiency and impact (both intentional and unintentional) of a project in the context of its stated objectives. Just as monitoring, the evaluation process can be divided into three types of evaluation: ex-ante evaluation; mid-term evaluation and ex-post evaluation. Each of these types shows that evaluation is a continuous process, as well as monitoring.

Therefore, monitoring and evaluation are part of the planning process, which is being conducted through all the stages in the project life cycle and covers all the thematic areas of the ISUDP.

The aim of Monitoring and evaluation is to clarify on:

- What is to be monitored and evaluated
- The activities needed to monitor and evaluate
- Who is responsible for monitoring and evaluation activities
- When monitoring and evaluation activities are planned (timing)
- How monitoring and evaluation are carried out (methods)
- What resources are required and where they are committed

In addition, relevant risks and assumptions in carrying out planned monitoring and evaluation activities should be seriously considered, anticipated and included in the M&E framework.

The pillars of successful monitoring and evaluation are:

- Planning and programme and project definition—Projects and programmes have a greater chance of success when the objectives and scope of the programmes or projects are properly defined and clarified. This reduces the likelihood of experiencing major challenges in implementation.
- Stakeholder involvement—High levels of engagement of users, clients and stakeholders in programmes and projects are critical to success. This will ensure that effective citizenship is promoted through project ownership and implementation support. Stakeholder involvement must be transparent and not merely a rubber-stamping exercise. It should be clear to all what the results from stakeholder involvement will be used for.
- Coordination - A coordination committee during the monitoring and evaluation of the Gatundu ISUDP will maximize the use of available resources, avoid duplication, ensure accountability, reduce monitoring and evaluation delays, conflict and improve the capacity of the members.
- Communication - good communication results in strong stakeholder buy-in and mobilization. Additionally, communication improves clarity on expectations, roles and responsibilities, as well as information on progress and performance. This clarity helps to ensure optimum use of resources.

Monitoring and evaluation of the progress made in implementation of this plan will be the task of the coordination unit. The coordination unit is made up of the following:

- The Chief Officer (Lands and Urban/ Physical Planning), or any relevant person appointed by the Chief Officer, to manage the implementation process. He will oversee all functions of the coordination committee including the implementing heads of departments;
- Members of the town management committee
- Senior member from the Ministry of Trade, Lands, Urban/ Physical Planning, Energy and Industrialization;
- Thematic Department Heads (Agriculture, Education, Water, Energy, Health, Infrastructure, Environment, Roads, Housing and Sanitation, Gender, Youth, Sports, Tourism etc).
- One representative of disabled persons, marginalized communities and the youth.

NB: Committee members must not be more than two-thirds from one gender.

An illustration of a monitoring and evaluation framework is as shown in the table below.

Table 48:Githunguri IUSDP Monitoring and Evaluation Framework

Project	Monitoring Institutions	Expected output(s)	Expected outcome(s)	Indicators of success
TRANSPORTATION SECTOR				
IMPROVEMENT OF C65	KURA/KeNHA & County Government	Road network of adequate capacity and good condition	<ul style="list-style-type: none">Improved road transport systemEnhanced movement of people and goods	<div>-Adequacy of road network<ul style="list-style-type: none">Ease of traffic circulationLevel of road safetyQuality of transport servicesElimination of haphazard parking in the town</div>
Road expansion and upgrading projects				
Construction of terminal facilities and boda boda sheds	KURA/ & County Government	Adequate and properly located terminal facilities	<ul style="list-style-type: none">Enhanced ease of picking and dropping of passengers and goods	
Integration of NMT facilities on Major Roads	KURA/ & County Government	Cycling paths ,walking paths integrated in the roads	Reduced conflict or road space contestation between motorised and non-motorized road users	
Construction of adequate storm water drainage channels on the upgraded roads	KURA/ & County Government	Storm water drainages Constructed on the roads	Enhanced management of waste water	
Construction of a car parking Silo	County Government	A multi storey parking silo	<ul style="list-style-type: none">Provide more parking spaces in GithunguriImproved government revenue	
			-	
HOUSING SECTOR				

Refurbishment and densification G.o.K Houses	Kenya National Housing Corporation/ County Gov't	Good G.o.K houses	<ul style="list-style-type: none">▪ Better condition of the G.o.K houses▪ Increased housing stock in the planning area	<ul style="list-style-type: none">- Sufficiency of housing- Quality of living environment	
Rehabilitation and the town water piping system	Githunguri Water and Sewerage Company/ County Gov't/development partners	Properly functioning town-wide water reticulation system	<ul style="list-style-type: none">▪ Improved access to piped water supply by planning area residents	<ul style="list-style-type: none">▪ Level of access to water and sewerage services▪ Level of sanitation	
Extension of water connection to unserved areas and Drilling of 4 No.Boreholes		Adequate water for the planning area	<ul style="list-style-type: none">▪ Better sanitation in the planning area		
Construction of sewerage system for Githunguri town		cOunty Gvt/National Govt/Development partners			Adequate sewerage system
Construction of Solid Waste Management facilities		County Gov't			Adequate solid Waste Management facilities
COMMERCE, INDUSTRY AND TOURISM SECTOR					
Establishment /Construction & equipping Animal Feed Factory	Ministry of Industrialization & Enterprise Development/ County government	Adequate food & feeds processing plants	<ul style="list-style-type: none">▪ Enhanced value addition to agricultural products▪ Increased employment opportunities▪ Improved household income▪ Improved government revenue	<ul style="list-style-type: none">▪ No of plants established▪ Production levels in the industries▪ Employment levels in the industries▪ Income levels of workers	
Construction of a multi storey Githunguri Market	County Government	Adequate space for market traders	<ul style="list-style-type: none">▪ Improved market conditions▪ Increased trading spaces▪ Enhanced services within the market	Improved market conditions -No.of trading spaces services within the market	

Construction of a light industry park	County Government	Adequate space for jua cali artisans	<ul style="list-style-type: none"> -Increased employment opportunities -Improved household income -Improved government revenue 	<ul style="list-style-type: none"> -Employment levels in the industries -Income levels of workers
ENVIRONMENT SECTOR				
Beautification and Greening Githunguri town	County Government	Landscaped town	<ul style="list-style-type: none"> Improve the aesthetic value of Githunguri town 	<ul style="list-style-type: none"> Extent of green areas in the town
Establishment /construction of a dispensary/health centre in the planning area	County Government	Sufficient health facilities	<ul style="list-style-type: none"> Enhanced healthcare 	<ul style="list-style-type: none"> Sufficiency of health facilities Quality of healthcare
EDUCATION SECTOR				
Improving capacity of schools	School administrations	Sufficient education facilities	<ul style="list-style-type: none"> Efficient access to education 	<ul style="list-style-type: none"> Sufficiency of education facilities Quality of education
Establishment of a TVET At St Joseph's School	Ministry of Education School Administration	Established TVET institution	<ul style="list-style-type: none"> a Access to TVET education 	<ul style="list-style-type: none"> Admission Numbers
COMMUNITY FACILITIES				
Upgrade and renovate the Githunguri stadium			<ul style="list-style-type: none"> Improved access to social services Increased of social integration in 	<ul style="list-style-type: none"> Sufficiency of community facilities

Upgrading the existing fire station at the Town to have more equipment and personnel	County government	Enough community facilities	<div>the community</div> <ul style="list-style-type: none"> Better skill development Reduced level of idling by the youth 	<ul style="list-style-type: none"> Quality of social services Level of skill development Level of social cohesion Heritage conservation
Establishment /Construction of a recreational park	National Museum Corporation County Government	established recreational park	Adequate space for recreation	
Construction of Libraries and a museum			<ul style="list-style-type: none"> Improved access to information Conservation of historical site 	

Summary of monitoring impacts

Impacts	Expected outcome	Indicators
Spatial impacts	Planned spatial framework	<ul style="list-style-type: none"> • Preserved agricultural land and natural resources • Orderly built environment.
	Controlled urban development	<ul style="list-style-type: none"> • Planned urban compactness. • Functional and livable towns and neighborhoods
	Preserved Agricultural hinterlands	<ul style="list-style-type: none"> • Increased Agricultural productivity
Economic impacts	Improved County revenue base	<ul style="list-style-type: none"> • Increased county revenue collection
		<ul style="list-style-type: none"> • Better County government service delivery to the County residents and stakeholders
	Increased investment opportunities	<ul style="list-style-type: none"> • Increased employment opportunities • Increased number of investors in the County • Diversified economic activities • Re-established industries
	Improved infrastructure capacity	<ul style="list-style-type: none"> • Improved conditions of roads • Efficient public transport
Social Impacts	Improved standard of living for Githunguri residents	<ul style="list-style-type: none"> • Increased food security • Increased establishment of agrobased industries • Increased trade in fresh agricultural produce and cash
		<ul style="list-style-type: none"> • Increased number of households with access to portable water • Increased number of households with access to affordable health services • Increased number of households with access to sanitation facilities and sewer system

17 ANNEXES

References

Acts

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4. GoK (2013): Kenya National Bureau of Statistics, 2013, Government Printers.
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6. Kenya Agricultural Sector Development Strategy 2009-2020
7. Kenya Industrial Master Plan
8. Kenya National Climate Change Response Strategy, 2010
9. Kenya National Land Policy (NLP)
10. Draft National Waste Management Policy, 2019
11. MoLHUD (2007) Draft Physical Planning Handbook, 2012
12. The Kenya ICT Policy
13. The Kenya National Housing Policy 2004
14. The Kenya National Spatial Plan (NSP)
15. The Kenya Vision 2030

List of Participants in Stakeholders meeting

Table 49:Githunguri USIDP Monitoring and Evaluation Framework

S.NO	NAME	ORGANISATION	POSITION	CONTACT	WARD
1.	Alice N. Munene	Maendeleo Ya Wanawake	V. Chairlady	0722474815	
2.	James Kimani	Private	Hawker	0720456571	
3.	Patrick Kinyanjui	Gathangari Health Centre	Chairman	0733727051	
4..	John Thairu Njuguna	Kambaa Darts Club	Secretary	0707809330	
5.	Joseph Maingi Kimani	Wakatho Darts Club	Chairman	0722744197	
6.	George Njuguna Kaburi	Village Elders	Chairman	0713842288	Githunguri
7.	Johnson W. Waweru	Kambaa	??	0727725280	Kambaa
8.	Benard Chege	Kisatina	Chairman	0727 312741	??
9.	Victor Kimani	Kiambururu Development Committee	Member	0725279562	Ngewa
10.	Elizabeth Mutitu	Kambaa Youth Developemnt	Secretary	0720948765	Githiga
11..	Robert Karanja	Disaster Team, Githunguri	Secretary	0707025187	Cgok
12.	Joseph Kimata	Marunguta	????	0722951201	Githiga
13.	Francis O. Okanga	CGoK	Fire Officer	0714377968	Githunguri
14.	Felista Kamau	CGoK	C.D.O	0722641357	Githunguri
15.	Veronica N Wanjema	God' Mercy Disabled Group	Chairperson	0723 144146	Ikinu
16.	Lucy Njeri Kimotho	Komothai Women Leaders	Chairperson	0727 811804	Komothai
17.	George Kimani Kihanda	Gena Disabled Group	Chairperson	0727180346	Ngewa
18.	Issac K. Nganga	Kamondo Darts	Captain	0725 861527	Ikinu
19.	Samuel Maina	CGoK	Planner	072238885	Cgok
20.	Peter S. Mwenga	CGoK	Planner	0721958921	Githunguri

21.	Alex Waweru	CGoK	Planner	0700339804	Githunguri
22.	Dorcas Mukoma	Githinga Health Unit	Secretary	0721 475302	Githiga
23.	Beth Mercy Wambui	Mercy Hope/Children Home	Director	0721999206	Githunguri
24.	Rahab Njoki Kamau	CGoK	Auditor	0720501894	Githunguri
25.	Paul N. Kariuki	God's Mercy Cwp	Secretary	0726051137	Ikinu
26.	Peter Thiga	Disaster Githunguri	Youth Rep.	0723024618	Githunguri
27.	Daniel M. Kahoi	Thuita Modern Farmers	Chairman	0727628383	Komothai
28.	Zachary N. Kagwe	Chamber Of Commerce	Cahairman	0727854900	Githunguri
28.	Elizabeth W. Mutitu	Githiga Youth	Leader	0720948765	Githiga
29.	Moses Gicharu	YAS	Sports Officer	0728132878	Githunguri
30.	Robert Kariuki	ACAL	Ass. Engineer	0722429707	Consultant
31.	Simon Njau M.	CGoK	C.D.O	0729932229	??
32.	Sebastian Maitha	KAJAICH	Secretary	0728707886	Githunguri
33.	Martha W. Kioge	Joy Mothers	Secretary	0721905395	Githunguri
34.	Mary K. Mwaniki	Disaster Team	Chairperson	0728707886	Githunguri
35.	Joseph K. Njoroge	Chamber Of Commerce	Secretary	0720808296	Githunguri
36.	Eng. Gedion Gatimi	ACAL	Pro. Engineer	0722 741181	
37.	Eunice W. Kamau	Snr Teacher	Head Teacher	0722461775	Githunguri
38.	Simon Kuria	Marige Water	Chairman	0710257873	Githunguri
39.	Henry M. Njoki	Githunguri Motorbikes	Secretary	0721 778898	Githunguri
40.	Hannna R. Kariuki	Youth Leader	Chairlady	0720 423318	Ngewa
41.	Sis Esther Kihara	Hope Children Hope	Director	0710322946	Ikinu
42.	Rev. Beatruice W.N	Hossana Childtren Home	Director	0721987024	Githunguri

43.	Cvelina Muriithi	CGoK	Administrator	0721208586	Githunguri
44.	Margret Nyokabi	??	??	0707791748	Komothai
45.	Pauline Gakobo	MATHANJA BLESSED	Secretary	0722657121	Githiga
46.	Gitau G.W	??	??	0722279178	Ikinu
47.	N. M. Mburu	??	??	0722657554	Ngewa
48.	Caroline Njagi	ACAL	Planner	0702270209	Consultant
49.	Robert Onyando	ACAL	Planner	0725729883	Consultant
50.	George Wahome	ACAL	Planner	0710635203	Consultant
51.	Elizabeth Kamunyu	MINJA W.P	Treasurer	0720719144	Githunguri
52.	David Kuria W	The Disabled	Member	0727290915	Githunguri
53.	Susan Wambui	Private	Business	0720020037	Githunguri
54.	Grace Kagiri	CGoK PEACE COMMITTEE	Treasurer	0721716915	Githunguri
55.	Peter Mwichigi	Central Investment Cbo	Chairman	0723592732	Githiga
56.	Geoffrey Njoroge	ACAL	Team Leader	0720645197	Consultant
57.	Veronica Kinyanjui	Joy Mother Women Group	Secretary	0724552749	Githunguri
58.	Beth Nyambura Mburu	Joy Mothers Women Group	Treasurer	0719402422	Githunguri
59.	Kariuki Gerald	CGoK	Agri. Officer	0725529287	Githunguri
60.	Kinyanjui Mwangi	Hossana Children Home	Secretary	0701441002	Githunguri
61.	Joseph Kagiri	Private	Business	0700231449	Ngewa
62.	Margret Gichuru	Kwirutira Women Group	Chairperson	0720316402	Githunguri
63.	Patricia Kangara	Gathaithi O.V.C Centre	Manager	0710405394	Ikinu
64.	James Muroki	Ikinu Farmers S.H.G	Secretary	0717503145	Ikinu
65.	Samuel Njoroge	Githunguri Market	Chairman	0718852249	Githunguri

66	Peter Njumbi Makumi	Mca Office Komothai	Mca-P/A	0712429561	Komothai
67.	Boniface Njugi	Divine Mercy Children Home	Secretary	0721792955	Ikinu
68.	Simon Wainaina	Songa Mbele	Secretary	0720364383	Githunguri
69.	Gitonga C.N	KESSHA	Chairman	0722347976	Githiga
70.	Elija K. Kabiro	New Winners	Chairman	0722125014	Ngewa
71.	Samuel N. Gitau	Independent Church	Pastor	0720745092	Githunguri
72.	Joash Korombori	ACAL	Planner	0714724969	Consultant
73.	Wachira David	ACAL	Planner	0721753374	Consultant
74.	David Mathenge	ACAL	Surveyor	0722575279	Consultant
75.	Joseph Irungu	Narugi Sacco	Stage Attendant	0715011082	Ngewa
76.	Margret Wanjiku	Private	Business	0724208218	Komothai
77.	Regina Macharia	Kessha-Githunguri	Traesurer	0722838397	Ikinu
78.	Willie Mwaura	Private	Business	0722763080	Githunguri
79.	James K Kamau	Karweti	Secretary	0727242927	Githiga
80.	Samuel Kariuki	Karweti	Secretary	0718965208	Githiga
81.	Naomi Mwaniki	Gathangaini S.H.G	Traesurer	0724038926	Githiga
82.	Florence Kaberi	Genesis Women Group	Chairlady	0724038926	Ngewa
83.	Gathu Allan	Ministry Bof Education	Sports Chairman	0722654087	Githunguri
84.	Margret Wanjiru	JUAKALI	Treasurer	0713960545	Githunguri
85.	Margret Kungu	WOMEN S.H.G	Chair Lady	0710992619	Ikinu
86.	Teresia Kiarie	Ikinu Maendeleo	Secretary	0740947431	Ikinu
87.	Munyaka Gitau	Nyaga Youth Polytechnic	Deputy Principal	0712038837	Ngewa

88.	George Kamau	CGoK	Ict Officer	0710689877	Githunguri
89.	Alice Waithaka	Glory Orphaned Children	Treasurer	0720271410	Githunguri
90.	Oliva W. Gathogo	Private	Business	0721817193	Komothai