

MAKERERE UNIVERSITY

COLLEGE OF ENGINEERING, DESIGN, ART AND TECHNOLOGY (CEDAT)

SCHOOL OF THE BUILT ENVIRONMENT

ASSESSING LAND USE COMPLIANCE ALONG THE INFRASTRUCTURE CORRIDOR AFTER COMPULSORY LAND ACQUISITION: A CASE OF KYALIWAJJALA-KASANGATI-MATUGGA ROAD PROJECT

BY

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A RESEARCH REPORT SUBMITTED TO THE COLLEGE OF ENGINEERING, DESIGN, ART AND TECHNOLOGY(CEDAT) IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF A DEGREE OF MASTER

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DECLARATION

I Bizmana Davis hereby declare that this research report is my original work and has not been submitted to this or any other institution of higher learning for any award.

Signature..... Date..19th/6/2026.....

APPROVAL

This is to certify that this research report "**Assessing land use compliance along the infrastructure corridor after compulsory land acquisition: A case of kyaliwajjala-kasangati-matugga road project**" has been done by Bizmana Davis under my supervision for examination by Makerere University in partial fulfilment of the requirements for the award of Master of Science in Land management.

Supervisor: Dr.Lilian Oryema

Signature: Moabinero Date: 19th/06/2026

DEDICATION

I dedicate this research project to My family and workmates for the support during this research project.

ACKNOWLEDGEMENT

I am sincerely thankful to my supervisor Dr. Lilian Oryema for sparing her precious time to guide me through the course of this research project.

I am also grateful to my family and course mates for the encouragement during the process of this academic work.

I wish you God's blessings all the time.

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LIST OF ABBREVIATIONS

GIS	Geographic Information Systems
GKMA	Greater Kampala Metropolitan Area
NDP IV	National Development Plan IV
PAPs	Project Affected Persons
SPSS	Statistical Package for Social Sciences

ABSTRACT

Land use compliance along the infrastructure corridors following compulsory land acquisition has become increasingly important in ensuring that land remaining after compensation is used in line with planning regulations and development objectives. This helps protect infrastructure corridors.

Across the world, however, sustaining land use compliance along the infrastructure corridors after compulsory acquisition remains a challenge due to weak enforcement, rapid urbanization, and institutional gaps.

In Uganda, despite compensation of Project Affected Persons(PAPS), cases of road reserve encroachment and misuse of remnant land continue to be reported along major infrastructure corridors. If not addressed, they may lead to increased land-use conflicts, safety risks, and disruption of planned infrastructure development

This study assessed land use compliance along the infrastructure corridor after compulsory land acquisition, using Kyaliwajjala-Kasangati-Matugga road project as a case study. Specifically, the study had guided objectives which included; determining the extent of land use compliance against approved road reserve plans along the Kyaliwajjala-Kasangati-Matugga Road Project, assessing the challenges affecting land use compliance along the infrastructure corridor of Kyaliwajjala-Kasangati-Matugga Road and proposing strategies for enhancing land use compliance along the infrastructure corridor of Kyaliwajjala-Kasangati-Matugga Road.

The study used a cross-sectional survey design while considering both quantitative and qualitative approaches. Data were collected using questionnaires from the PAPS and an interview guide from land acquisition officers, project engineers, physical planners and local area chairpersons.

The findings revealed that despite high awareness of land use regulations and road reserve boundaries, actual compliance remained low due to persistent encroachment, informal developments, and weak monitoring and enforcement systems. Additionally, land use non-compliance was primarily driven by rapid urbanization, population growth, weak institutional enforcement, land tenure disputes, economic pressures, inadequate compensation, and poor inter-agency coordination. Lastly improving land use compliance requires strengthened enforcement and monitoring, greater community participation, alternative livelihood opportunities, enhanced institutional collaboration, and effective implementation of existing regulations.

CHAPTER ONE: INTRODUCTION

1.1 Background to the study

Land use compliance following compulsory acquisition has drawn growing attention from scholars and governments alike, since it helps ensure that the residual land of Project Affected Persons (PAPs) is used in line with planning regulations and development objectives (Kahangirwe & Vanclay, 2024). Scholars argue that proper compliance with land use regulations protects infrastructure corridor, promotes orderly urban development, and prevents encroachment on land reserved for public projects (Akingbade et al., 2022). Furthermore, effective land use compliance ensures that infrastructure investments such as roads, railways, and energy projects achieve their intended development outcomes while minimizing land-use conflicts (Wilfred, 2021). Additionally, governments and planning authorities emphasize land use compliance as a key mechanism for safeguarding public infrastructure corridor and promoting sustainable spatial development (National Planning Authority, 2025).

Across the globe, however, sustaining land use compliance after compulsory land acquisition has proven difficult in many countries (Huang, 2025). In developed countries such as the United States and several European nations, strong planning institutions and regulatory frameworks have helped protect infrastructure corridor from incompatible land uses and encroachment (Alterman & Calor, 2020). However, studies from emerging economies such as China and India reveal that rapid urbanization and infrastructure expansion have sometimes led to conflicts between development projects and surrounding communities, resulting in informal land use (Yang et al., 2023). Similarly, research in parts of Asia indicates that weak enforcement of land-use planning regulations after land acquisition often contributes to land-use conflicts and misuse of land near infrastructure corridor (Rao, 2019).

In a number of African countries, moreover, land use compliance after compulsory acquisition remains constrained by weak enforcement mechanisms and the pace of urban expansion (Muchelo et al., 2024). For instance, studies in Nigeria show that ineffective enforcement of planning regulations has contributed to widespread non-compliance and encroachment on land reserved for infrastructure development (Onaiwu, 2020). Additionally, research in Ethiopia demonstrates that land acquisition and resettlement programs have sometimes resulted in changes in land use patterns and encroachment on planned development areas due to weak planning control (Ayenachew & Abebe, 2024). Similarly, studies in South Africa indicate that rapid urban growth and inadequate

land governance often lead to non-compliance with land use regulations in areas affected by infrastructure development projects (Geyer, 2023).

In East Africa, similar challenges related to land use compliance after compulsory land acquisition have also been documented (Muchelo et al., 2024). For example, studies in Tanzania reveal that infrastructure projects have experienced encroachment on road reserves due to weak enforcement of planning regulations and rapid urban expansion along transportation corridor (Sumari et al., 2020). Likewise, research in Kenya shows that population growth and informal urban development often result in encroachment on land designated for infrastructure development, thereby undermining spatial planning objectives and infrastructure sustainability (Wilfred, 2021).

This study is supported by Institutional Theory, which explains that compliance with land use regulations depends largely on the effectiveness of institutions responsible for enforcing planning policies and land governance systems (Scott, 2014). According to institutional theory, strong institutions establish rules and regulatory frameworks that guide land use behaviour and ensure compliance with planning regulations (Scott, 2014). However, where institutional enforcement mechanisms are weak, individuals and communities may fail to comply with land use regulations, leading to encroachment and informal land development (Scott, 2014).

In Uganda, compulsory land acquisition is commonly used to facilitate infrastructure development projects such as roads and urban transport corridor (Elong et al., 2019). However, studies indicate that rapid urbanization and weak enforcement of planning regulations have contributed to increasing pressure on land surrounding infrastructure corridor in the Greater Kampala Metropolitan Area (Muchelo et al., 2024). Furthermore, cases of road reserve encroachment and misuse of remnant land have been reported in several road infrastructure projects due to inadequate land-use regulation enforcement (Daily Monitor, 2021).

A similar situation has been observed along the Kyaliwajjala–Kira–Kasangati–Matugga road corridor, where compulsory land acquisition was undertaken to support road infrastructure development (New Vision, 2022). Although Project Affected Persons were compensated for land and property acquired for the project, cases of encroachment on road reserves and misuse of remnant land through construction of kiosks and informal roadside structures have been reported along the corridor (Daily Monitor, 2021). Such practices undermine land use compliance and pose

risks to road safety and sustainable infrastructure management in the rapidly urbanizing Kampala metropolitan area (Kahangirwe & Vanclay, 2024).

Although several studies have examined land acquisition, resettlement, and infrastructure development in different contexts, limited attention has been given to assessing land use compliance after compulsory land acquisition for road infrastructure development, particularly within the Kyaliwajjala–Kira–Matugga corridor (Wilfred, 2021). It was against this backdrop that the researcher was motivated to carry out a study on assessing land use compliance after compulsory land acquisition: A case of Kyaliwajjala-Kasangati-Matugga Road.

1.2 Problem statement

Land use compliance following compulsory land acquisition plays a crucial role in ensuring that the remaining land of Project Affected Persons is used in line with spatial planning regulations and development goals, which helps minimize land-use conflicts and promotes sustainable infrastructure development (Akingbade et al., 2022). However, land use compliance following land acquisition along the Kyaliwajjala-Kasangati-Matugga Road has deteriorated despite compensation of Project Affected Persons, as some residents have misused remnant land and encroached on the road reserve by constructing kiosks and informal roadside structures (Daily Monitor, 2021; New Vision, 2022). If such practices are not addressed, they may lead to increased land-use conflicts, safety risks, and disruption of planned infrastructure development. This situation contradicts the objectives of Uganda's Fourth National Development Plan (NDP IV), which emphasizes orderly urban development, proper land management, and protection of infrastructure corridor to support sustainable economic growth (National Planning Authority, 2025). It was against this that the researcher carried out a study on assessing land use compliance along the infrastructure corridor of Kyaliwajjala-Kasangati-Matugga Road after compulsory land acquisition.

1.3 Objectives

1.3.1 General Objective

To assess the land use compliance along the corridor of Kyaliwajjala-Kasangati-Matugga Road after compulsory land acquisition.

1.3.2 Specific Objectives

i. To determine the extent of land use compliance against approved road reserve along the Kyaliwajjala-Kasangati-Matugga Road Project

ii. To assess the challenges affecting land use compliance along the infrastructure corridor of Kyaliwajjala-Kasangati-Matugga Road

iii. To propose strategies for enhancing land use compliance along the infrastructure corridor of Kyaliwajjala-Kasangati-Matugga Road

1.3.3 Research Questions

i. To what extent is the land use compliant with approved road reserve along the Kyaliwajjala-Kasangati-Matugga Road Project?

ii. What challenges affect land use compliance along the Kyaliwajjala-Kasangati-Matugga Road?

iii. What strategies can be adopted to enhance land use compliance along the road infrastructure corridor of Kyaliwajjala-Kasangati-Matugga Road?

1.4 Significance of the Study

The study may serve as a guide for local authorities, urban planners, and infrastructure developers by identifying factors that contribute to land use non-compliance. Understanding these factors can enable the design of targeted interventions and compliance monitoring strategies, ensuring that both the remnant land for Project affected Persons and acquired right of way for public infrastructure, such as the Kyaliwajjala-Kasangati-Matugga Road Project, is utilized efficiently and in line with development objectives.

Additionally, the study may raise awareness among landowners, developers, and communities about the importance of adhering to post-acquisition land use regulations. By demonstrating the

implications of non-compliance, the research can encourage responsible land use practices and reduce disputes arising from inappropriate development on the land.

Lastly, this study contributes to the body of knowledge on land governance and infrastructure development in Uganda. By providing empirical data on post-acquisition land use compliance, the research may serve as a reference for future studies, promoting better planning, monitoring, and management of compulsory land acquisition projects across the country.

1.5 Justification of the study

Different scholars such as Elong et al. (2019) and Kahangirwe and Vanclay (2024) have undertaken studies on compulsory land acquisition in Uganda, primarily focusing on the challenges, delays, and grievance management mechanisms that affect road project performance, compensation processes, and stakeholder experiences during acquisition. These studies have highlighted significant legal and procedural issues, including delayed compensation, inadequate stakeholder involvement, and disputes that arise when land is taken for public infrastructure like roads, which ultimately affect project efficiency and community perceptions of acquisition processes. However, few studies have examined land use compliance after compulsory land acquisition, particularly in relation to whether land within and adjacent to road reserves is used in accordance with planning requirements once acquisition is complete, despite evidence from broader land use research showing that compliance with regulations is crucial for orderly development and effective plan implementation (Onaiwu, 2020). Furthermore, there is limited empirical information on the extent of compliance with approved road reserve and development plans, the factors driving noncompliance, and appropriate strategies for enhancing adherence to land use regulations in the context of infrastructure development in Uganda. Given these gaps and the importance of land use compliance for sustainable infrastructure outcomes, this study is justified to assess land use compliance for the remnant land after compulsory land acquisition, in order to provide evidence that can inform policy, planning, and implementation practices in similar settings.

1.6 Scope of the study

This section presents the geographical, content and time scope.

1.6.1 Geographical scope

The study was carried out along the Kyaliwajjala-Kasangati-Matugga road project, located within the Greater Kampala Metropolitan Area (GKMA) in Uganda. The project is situated in Wakiso

District and starts at Kyaliwajjala trading centre with a geographic coordinate of (0°22’ 48.5” N, 32°38’ 48.02” E), through Kira, Kasangati and ends in Matugga trading Centre at a 0°27’ 33.31” N, 32°31’ 44.62”E. It was selected because it has experienced compulsory land acquisition for road infrastructure development, rapid urbanization, and increasing development pressure, which have raised concerns regarding land use compliance, road reserve encroachment, and the management of remnant land after compensation of Project Affected Persons. The research will be restricted to the sections of Kira-Kyaliwajjala and Kira-Kasangati where compensation has majorly been done. The remaining section will be excluded from the study because the compensation packages have not been paid much as they have been disclosed to the affected persons.

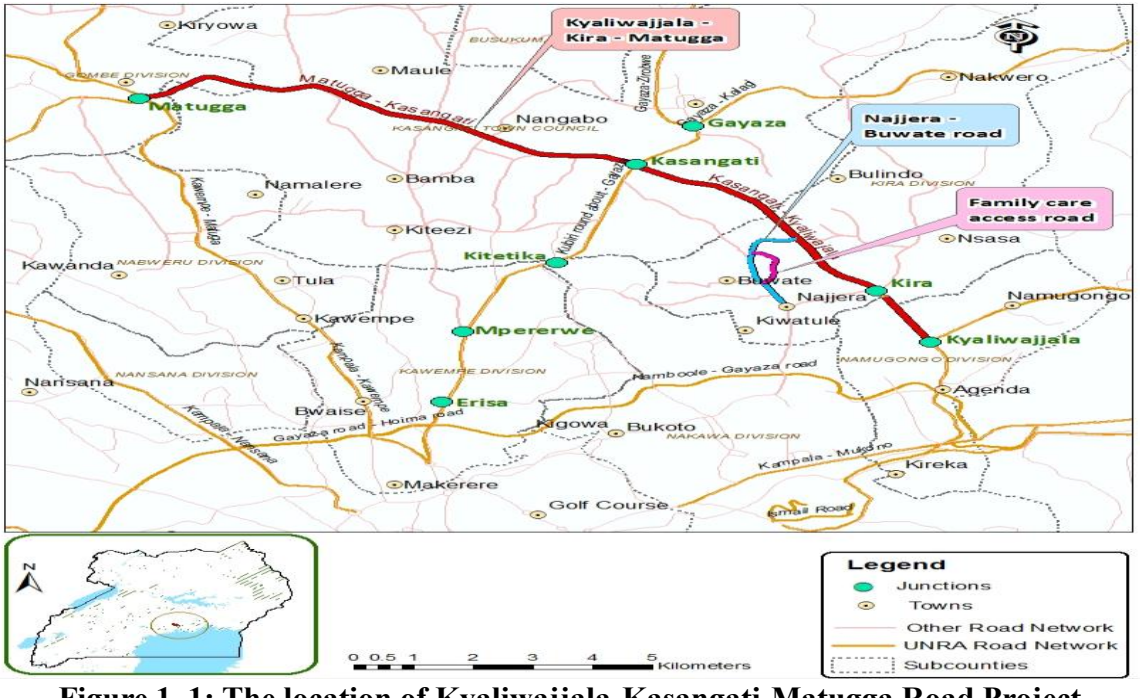


Figure 1. 1: The location of Kyaliwajjala-Kasangati-Matugga Road Project

1.6.2 Content Scope

The study focused on assessing land use compliance along the infrastructural corridor after compulsory land acquisition. Specifically, the study examines the current land use compliance situation, determines and assesses the challenges affecting compliance, and proposes strategies for enhancing land use compliance along the Kyaliwajjala-Kasangati-Matugga Road. The study also considers issues related to remnant land use by Project Affected Persons (PAPs), encroachment on road reserves, and adherence to spatial planning regulations following compulsory land acquisition.

1.6.3 Time Scope

The study was conducted over a period of four (4) months from February 2026 to June 2026, during which data collection, analysis, and reporting were undertaken. In addition, the study reviewed recent literature from the last five years (2021–2025) to ensure that the analysis reflects current scholarly debates and policy discussions related to land acquisition, land use compliance, and infrastructure development.

CHAPTER TWO: LITERATURE REVIEW

2.1 Theoretical Framework

The study was guided by the institutional theory. The institutional theory is widely used to explain how rules, norms, and organizational structures influence behavior and compliance within societies and institutions. The theory was prominently developed by Scott (2013), who argues that institutions provide the regulatory, normative, and cultural frameworks that guide how individuals and organizations behave within a given system. According to Scott (2013), compliance with policies and regulations is largely determined by the strength and effectiveness of institutions responsible for enforcing those rules.

The theory is based on three key principles or pillars: the regulative pillar, the normative pillar, and the cultural–cognitive pillar (Scott, 2013). The regulative pillar focuses on formal rules, laws, and enforcement mechanisms that compel individuals and organizations to comply with regulations through sanctions or penalties (Amenta, & Ramsey, 2010). The normative pillar emphasizes social norms, professional standards, and expectations that influence behaviour and encourage adherence to established practices (Scott, 2013). The cultural–cognitive pillar relates to shared beliefs, values, and perceptions that shape how individuals understand and respond to institutional rules and regulations (Amenta, & Ramsey, 2010).

In the context of land governance and spatial planning, Institutional Theory explains how the effectiveness of planning institutions, land administration agencies, and regulatory frameworks influences compliance with land use regulations (German, Schoneveld, & Mwangi, 2013). Strong institutions with clear regulations, effective monitoring systems, and enforcement mechanisms are more likely to ensure that land use activities comply with approved spatial development plans (Omollo, 2021). However, when institutions lack capacity, coordination, or enforcement authority, individuals and communities may fail to comply with planning regulations, leading to encroachment, informal land development, and misuse of land around infrastructure corridor (Muchelo et al., 2024).

In this study, Institutional Theory is applied to explain how the effectiveness of planning institutions and land governance systems influences land use compliance after compulsory land acquisition for road infrastructure development. The theory helps to analyze how regulatory

enforcement, institutional coordination, and governance capacity affect the use of remnant land by Project Affected Persons along the Kyaliwajjala-Kasangati-Matugga Road.

2.2 Empirical studies

2.2.1 The extent of land use compliance against approved road reserve along the Kyaliwajjala-Kasangati-Matugga Road

Assessing the current land use compliance for land along the road infrastructure development has increasingly attracted attention in empirical research because it helps determine whether land remaining after acquisition is utilized in accordance with spatial planning regulations and development objectives established by planning authorities (Omollo, 2021). Scholars further emphasize that compliance assessment enables planners and infrastructure agencies to evaluate whether infrastructure corridor such as roads and railways remain protected from encroachment and incompatible land uses that may threaten safety and long-term infrastructure functionality (Akingbade et al., 2022). Similarly, empirical studies note that evaluating the compliance allows planning authorities to identify unauthorized land use activities and enforce zoning regulations around infrastructure projects, although many studies largely focus on policy outcomes without adequately examining compliance conditions at specific project corridor (Onaiwu, 2020).

Empirical studies conducted in developed countries report relatively higher levels of land use compliance after compulsory land acquisition due to strong institutional and regulatory frameworks (Alterman & Calor, 2020). Research in several European countries indicates that effective zoning systems and monitoring mechanisms allow governments to ensure that land surrounding infrastructure corridor complies with approved development plans and spatial regulations (Lee, 2020). Similarly, studies in the United States demonstrate that strict development control systems help local governments regulate land use activities around major transport corridor and protect road reserves from encroachment, although such studies tend to focus more on regulatory effectiveness at national or regional levels rather than examining compliance conditions at specific infrastructure project sites (Alterman & Calor, 2020).

However, empirical evidence from rapidly urbanizing countries shows that maintaining land use compliance after compulsory land acquisition can be more challenging due to urban growth pressures and increasing demand for land (Huang, 2025). Research conducted in China found that

large-scale infrastructure expansion has significantly influenced land use patterns around transport corridor, with some remnant land being converted into commercial or residential uses that do not fully comply with official land use plans (Yang et al., 2023).

Empirical studies conducted in other parts of Asia further demonstrate the importance of assessing land use compliance after compulsory land acquisition to understand how infrastructure projects influence surrounding land use patterns (Rao, 2019). For example, a study conducted in Nepal examining land acquisition processes for infrastructure development found that new economic activities and settlement patterns often emerge around infrastructure corridor after project implementation (Rimal et al., 2020). The study further observed that without effective monitoring and enforcement, these developments may lead to informal land use practices that do not comply with spatial planning regulations, although limited attention was given to assessing the extent of compliance within specific infrastructure project corridor (Huang, 2025).

In Africa, empirical studies indicate that the current land use is often affected by weak institutional capacity and rapid urban expansion (Sumari et al., 2020). Research conducted in Nigeria found that poor enforcement of planning regulations has contributed to encroachment on land reserved for infrastructure and environmental protection zones (Akingbade et al., 2022). Similarly, studies in Ethiopia indicate that land acquisition for infrastructure development has sometimes resulted in changes in land use patterns around project corridor as some landowners convert remnant land into commercial or residential uses that do not comply with approved development plans, although these studies largely focus on land governance challenges rather than examining compliance conditions around specific road infrastructure corridor (Ayenachew & Abebe, 2024).

Other empirical studies in Africa suggest that infrastructure development can stimulate economic activities and urban growth that influence land use patterns around project areas (Sumari et al., 2020). For instance, research conducted in South Africa indicates that road infrastructure projects often attract commercial development and settlement growth along transport corridor (Geyer, 2023). Although such developments may contribute to economic opportunities, scholars observe that inadequate monitoring and weak planning enforcement systems may lead to encroachment on infrastructure reserves and non-compliance with land use regulations, while limited empirical attention has been given to evaluating compliance levels within specific infrastructure acquisition zones (Omollo, 2021).

Similarly, empirical studies conducted in East Africa highlight that assessing land use compliance is important for understanding how infrastructure development influences land use changes around road corridor (Sumari et al., 2020). Research conducted in Kenya found that population growth and urban expansion have contributed to encroachment on road reserves and misuse of remnant land near infrastructure corridor (Omollo, 2021). The study further indicates that evaluating the compliance situation can help planning authorities identify gaps in development control systems, although many studies focus on legal disputes and governance issues rather than assessing the actual compliance situation along specific infrastructure corridor (Geyer, 2023).

In Uganda, empirical studies also show that the current land use compliance around infrastructure corridor has been influenced by rapid urbanization and increasing development pressure in the Greater Kampala Metropolitan Area (Muchelo et al., 2024). Research indicates that urban expansion around major transport corridor has resulted in land use changes and encroachment on land reserved for infrastructure development (Kahangirwe & Vanclay, 2024). Similarly, studies on land governance in Uganda reveal that weak enforcement of spatial planning regulations and limited monitoring capacity have contributed to non-compliance with land use regulations around infrastructure projects, although limited empirical attention has been given to assessing compliance levels after compulsory land acquisition within specific road corridor (Elong et al., 2019).

Empirical studies demonstrate that the current land use compliance situation after compulsory land acquisition varies across countries depending on institutional capacity, planning enforcement mechanisms, and urban development pressures (Geyer, 2023). Studies from developed countries often report relatively higher compliance levels due to strong regulatory frameworks and effective monitoring systems (Alterman & Calor, 2020). However, studies from developing countries frequently report varying levels of compliance due to weak enforcement mechanisms, rapid urbanization, and increasing development pressures around infrastructure corridor, suggesting the need for more context-specific assessments of land use compliance at the project level in rapidly growing urban environments (Rao, 2019).

2.2.2 The challenges affecting land use compliance

Identifying the challenges affecting land use compliance after compulsory land acquisition for road infrastructure development has attracted increasing scholarly attention because several

institutional, socio-economic, and governance factors influence whether land surrounding infrastructure corridor is used according to approved spatial planning regulations (Onaiwu, 2020). Scholars argue that weak institutional enforcement mechanisms remain one of the most significant challenges affecting land use compliance after compulsory land acquisition, as planning authorities in many countries often lack sufficient capacity to monitor land use activities around infrastructure corridor (Echendu, 2023). Similarly, empirical studies show that inadequate coordination between land administration institutions, planning authorities, and infrastructure agencies limits the ability of governments to effectively enforce land use regulations after land acquisition processes have been completed (Jain et al., 2021).

Rapid urbanization and increasing demand for land around infrastructure corridor also represent significant challenges affecting land use compliance after compulsory land acquisition (Huang, 2025). Empirical research shows that road infrastructure projects frequently attract commercial activities and settlement development along transport corridor, thereby increasing pressure on surrounding land resources (Sumari et al., 2020). In many rapidly growing urban areas, this development pressure often leads to informal settlements, encroachment on road reserves, and unauthorized land use activities that undermine compliance with spatial planning regulations (Ayenachew & Abebe, 2024).

Weak enforcement of planning regulations has also been widely identified as a major challenge affecting land use compliance after compulsory land acquisition (Omollo, 2021). Studies conducted in several developing countries reveal that local planning authorities often face financial limitations, technical capacity constraints, and inadequate monitoring tools needed to enforce development control regulations effectively (Echendu, 2023). As a result, unauthorized land development activities frequently emerge along the infrastructure corridor without approval from planning authorities (Akingbade et al., 2022). Scholars further argue that when development control systems are weak, land use regulations may exist in legal frameworks but remain poorly implemented in practice (Alterman & Calor, 2020).

Land tenure complexities and disputes also constitute significant challenges affecting land use compliance after compulsory land acquisition (German, Schoneveld, & Mwangi, 2013). In many developing countries, land tenure systems involve multiple ownership arrangements including customary and statutory land rights, which complicates the implementation of land acquisition and spatial planning policies (Geyer, 2023).

Limited public awareness and insufficient understanding of land use regulations among local communities also contribute to land use compliance challenges after compulsory land acquisition (Echendu, 2023). Studies indicate that some landowners and Project Affected Persons may not fully understand the restrictions associated with road reserves or planning regulations governing land use after compensation has been paid (Kahangirwe & Vanclay, 2024). Consequently, some individuals continue to use remnant land in ways that conflict with spatial planning regulations, including constructing temporary structures or establishing informal commercial activities near infrastructure corridor (Akingbade et al., 2022). Scholars emphasize that insufficient stakeholder engagement and limited community awareness during infrastructure development processes may further exacerbate such compliance challenges (Onaiwu, 2020).

Economic pressures experienced by local communities also influence land use behavior after compulsory land acquisition (Rao, 2019). Empirical studies suggest that individuals who lose part of their land through compulsory acquisition often attempt to maximize the economic value of their remaining land by developing commercial structures or rental properties near road corridor (Huang, 2025). Although such activities may support household livelihoods and economic survival, they may also conflict with approved spatial planning regulations and contribute to encroachment on infrastructure reserves (Muchelo et al., 2024). Scholars therefore note that livelihood pressures and economic survival strategies frequently influence compliance behavior among affected communities (Kahangirwe & Vanclay, 2024).

Institutional corruption and weak governance systems have also been identified as factors affecting land use compliance after compulsory land acquisition (German et al., 2013). Studies show that illegal land transactions, informal approvals, and weak regulatory oversight can facilitate unauthorized land development around infrastructure corridor (Onaiwu, 2020). When land administration systems lack transparency and accountability, enforcement of planning regulations becomes difficult, allowing encroachment and non-compliant land use practices to continue (Alterman & Calor, 2020). Consequently, weak governance structures may significantly undermine the effectiveness of spatial planning systems in managing land use around infrastructure corridor (Geyer, 2023).

In the African context, several empirical studies indicate that land use compliance after compulsory land acquisition is significantly affected by rapid urban expansion and institutional limitations (Sumari et al., 2020). Research conducted in Nigeria shows that weak enforcement of

planning regulations has contributed to the emergence of informal settlements and commercial activities within land designated for infrastructure development and environmental protection (Akingbade et al., 2022). Similarly, studies conducted in Ethiopia indicate that land acquisition for infrastructure development has resulted in changes in land use patterns around project corridor as some landowners convert remnant land into commercial or residential uses that do not comply with approved development plans (Ayenachew & Abebe, 2024). These findings highlight the need for stronger planning enforcement and monitoring systems to ensure effective land use compliance in rapidly urbanizing environments (Muchelo et al., 2024).

In East Africa, similar challenges affecting land use compliance after compulsory land acquisition have been observed in relation to road infrastructure development projects (Muchelo et al., 2024). Research conducted in Kenya indicates that increasing population growth and urban expansion have contributed to encroachment on road reserves and misuse of remnant land near transport corridor (Omollo, 2021). Scholars emphasize that inadequate development control systems and limited monitoring capacity often weaken compliance with spatial planning regulations surrounding infrastructure corridor (Onaiwu, 2020). Addressing these challenges therefore requires stronger institutional coordination and improved enforcement of land use planning regulations (Jain et al., 2021).

In Uganda, empirical studies also reveal that land use compliance around infrastructure corridor has been affected by rapid urbanization and weak planning enforcement mechanisms (Muchelo et al., 2024). Research conducted in the Greater Kampala Metropolitan Area indicates that increasing development pressure has contributed to encroachment on road reserves and changes in land use patterns along major transport corridor (Kahangirwe & Vanclay, 2024). Similarly, studies on land governance in Uganda show that limited institutional capacity, weak monitoring systems, and inadequate enforcement of spatial planning regulations have contributed to non-compliance with land use regulations around infrastructure development projects (Elong et al., 2019). These findings highlight the importance of strengthening planning institutions and monitoring mechanisms to improve land use compliance following compulsory land acquisition for road infrastructure development (National Planning Authority, 2025).

2.2.3 To propose strategies for enhancing land use compliance along the infrastructure corridor after compulsory land acquisition

Scholars have proposed several strategies for improving land use compliance after compulsory land acquisition for road infrastructure development, particularly emphasizing the need to strengthen planning enforcement mechanisms and institutional governance systems. Recent studies indicate that strengthening development control and regulatory enforcement remains one of the most effective strategies for improving compliance with land use regulations around infrastructure corridor (Alterman & Calor, 2020). Researchers argue that when planning authorities actively enforce zoning regulations and impose penalties for illegal land development, cases of road reserve encroachment and unauthorized land use can be significantly reduced (Onaiwu, 2020).

Another widely recommended strategy involves integrating land use planning with transportation and infrastructure planning processes. Studies show that aligning spatial planning with infrastructure development helps ensure that land surrounding road corridor is used according to approved development frameworks (Lee, 2020). Researchers argue that integrated planning enables governments to coordinate land allocation, zoning regulations, and infrastructure protection measures more effectively (Jain et al., 2021). Nevertheless, some scholars caution that integrated planning approaches can be difficult to implement in rapidly urbanizing cities where institutional fragmentation and competing land use interests exist (Lee, 2020).

Technological approaches have also been increasingly recommended as strategies for strengthening land use compliance monitoring. Recent empirical studies demonstrate that the use of geospatial technologies such as Geographic Information Systems (GIS), satellite imagery, and remote sensing tools allows planning authorities to detect encroachment and land use changes around infrastructure corridor more effectively (Akingbade et al., 2022). Scholars argue that digital land information systems improve transparency in land governance and enable authorities to monitor compliance with planning regulations in real time (Muchelo et al., 2024). However, some researchers note that technological monitoring tools must be supported by strong institutional enforcement systems in order to translate monitoring results into effective regulatory action (Omollo, 2021).

Community participation and stakeholder engagement have also been identified as important strategies for improving land use compliance after compulsory land acquisition. Scholars argue

that involving local communities and Project Affected Persons in spatial planning processes increases awareness of land use restrictions and encourages voluntary compliance with development regulations (Echendu, 2023). However, other scholars argue that community participation may have limited impact if economic incentives encourage residents to use land in ways that conflict with planning regulations (Geyer, 2023).

Legal and policy reforms have also been proposed as important strategies for improving land use compliance. Scholars emphasize that clear land governance policies and effective legal frameworks governing land acquisition and spatial planning are necessary to ensure that infrastructure corridor are protected from incompatible land uses (German et al., 2013). Recent studies examining road infrastructure disputes show that stronger legal enforcement mechanisms can help resolve land use conflicts and reduce encroachment on road reserves (Omollo, 2021). However, some researchers argue that legal reforms must be supported by strong administrative institutions and adequate monitoring capacity in order to produce meaningful improvements in compliance (Jain et al., 2021).

Another strategy highlighted in recent literature involves strengthening urban land management systems to address rapid urban expansion near infrastructure corridor. Scholars note that uncontrolled urban growth is one of the main drivers of land use non-compliance around road infrastructure projects (Sumari et al., 2020). Effective urban growth management policies, including zoning enforcement and planned urban development, have therefore been recommended as strategies for protecting infrastructure corridor from encroachment (Muchelo et al., 2024).

2.3 Research Gap

Although several studies have examined land governance, and infrastructure development in different countries, most have focused on policy frameworks, institutional enforcement, and general urban development rather than assessing the actual land use compliance along specific infrastructure corridor (Alterman & Calor, 2020; Jain et al., 2021). In Uganda, existing studies largely examine urban expansion and land governance within the Greater Kampala Metropolitan Area without specifically assessing land use compliance along infrastructural corridor after compulsory land acquisition for particular road projects (Kahangirwe & Vanclay, 2024; Muchelo et al., 2024). Therefore, limited empirical data led to assessing land use compliance along infrastructure corridor.

CHAPTER THREE: METHODOLOGY

3.1 Research design

This study adopted a cross-sectional research design using both quantitative and qualitative approaches. A cross-sectional design allowed the researcher to collect data from respondents at a single point in time in order to examine the existing land use compliance for the remnant land along the infrastructure corridor after compulsory land acquisition (Creswell & Creswell, 2018). The quantitative approach was used to generate numerical data regarding the level of land use compliance along the Kyaliwajjala-Kasangati-Matugga Road. Quantitative methods enabled the researcher to measure patterns, frequencies, and relationships among variables within the study population (Bryman, 2016). In addition, the qualitative approach was used to obtain deeper insights into the challenges affecting land use compliance and the strategies that may improve compliance after compulsory land acquisition. Qualitative methods allowed the researcher to capture perceptions, experiences, and institutional issues influencing land use behaviour among Project Affected Persons and planning authorities (Denzin & Lincoln, 2018). The use of both approaches therefore enhanced the reliability and comprehensiveness of the research findings through methodological triangulation (Saunders et al., 2019).

3.2 Study population

The study population consisted of 601 respondents drawn from Project Affected Persons (PAPs) and key stakeholders involved in the construction and spatial planning along the Kyaliwajjala–Kira–Kasangati–Matugga road corridor (Ministry of Works and Transport, 2023). A study population refers to the entire group of individuals or elements that the researcher intends to investigate and from which the study sample is drawn (Kumar, 2019).

The key stakeholders involved in the construction process include surveyors, valuers, sociologists and project engineers from the Ministry of Works and Transport, physical planners from Kira Municipality and Kasangati Town Council, and local area chairpersons from villages located along the project right of way. These stakeholders were relevant because they play an important role in the road upgrading and construction processes, spatial planning enforcement, and monitoring land use compliance after infrastructure development projects.

Table 3. 1: Study population

Category	Population
Project Affected Persons (PAPs) along Kyaliwajjala–Kira–Matugga Corridor	574
Land acquisition officers (surveyors, valuers, sociologists)	10
Project engineers (Ministry of Works and Transport)	5
Physical planners (Kira Municipality & Kasangati Town Council)	4
Local area chairpersons (8 villages)	8
Total	**601**

3.3 Sample size determination

The sample size for the study was determined using the Krejcie and Morgan (1970) sample size determination table, which provides a scientific method for identifying an appropriate sample size from a given population. According to the Krejcie and Morgan (1970) sample size table, a population of 574 corresponds to a sample size of approximately 226 respondents. Using this approach ensured that the selected sample adequately represents the study population and allows the findings of the study to be generalized to the entire population (Memon et al., 2020).

Table 3. 2: Sample size

Category	Population	Sample Size
Project Affected Persons (PAPs)	574	226
Land acquisition officers	10	10
Project engineers	5	5
Physical planners	4	4
Local area chairpersons	8	8
Total	**601**	**253**

3.4 Sampling techniques

The study employed Random sampling and purposive sampling techniques to select respondents. Purposive sampling was used to select key informants such as physical planners, land acquisition officers, and local government officials who possess specialized knowledge about land acquisition and land use compliance issues. Purposive sampling enabled the researcher to obtain relevant information from individuals with expertise related to the study topic (Etikan, Musa, & Alkassim, 2016).

Table 3. 3: Summary of sampling techniques, categories of respondents, research tools and targeted institution

No.	Sampling Strategy	Category of Respondents	Research Tool	Institution	Frequency
1	Random sampling	Project Affected Persons (PAPs)	Questionnaire	Households along Kyaliwajjala-Kira-Kasangati-Matugga corridor	226
2	Purposive Sampling	Land Acquisition Officers (Surveyors, Valuers, Sociologists)	Interview Guide	Ministry of Works and Transport	10
3	Purposive Sampling	Project Engineers	Interview Guide	Ministry of Works and Transport	5
4	Purposive Sampling	Physical Planners	Interview Guide	Kira Municipality & Kasangati Town Council	4
5	Purposive Sampling	Local Area Chairpersons	Interview Guide	Local Government (Villages along corridor)	8
		Total Sample			**253**

3.5 Sources of data

The study used both primary and secondary sources of data. Primary Data were collected directly from respondents through questionnaires and interviews. Primary data provided firsthand information regarding the land use practices and compliance behaviour of Project Affected Persons within the study area (Kumar, 2019).

Secondary data was obtained from policy documents, legal frameworks, government reports, and academic publications related to land acquisition and spatial planning. Secondary data helped the researcher understand the legal and institutional frameworks governing land use management in Uganda (Saunders et al., 2019).

3.6 Data collection instruments

The study used interviews, questionnaires and document review as the main data collection instruments.

3.6.1 Interviews

Key informant interviews were conducted with physical planning officials, land acquisition officers, project engineers and local government authorities including local council chairpersons.

Interviews allowed the researcher to collect detailed qualitative information regarding the institutional and governance challenges affecting land use compliance along the road corridor (Kvale & Brinkmann, 2015).

3.6.2 Questionnaire

Structured questionnaires were administered to Persons affected the upgrading of the Kyaliwajjala-Kasangati-Matugga Road. Questionnaires enabled the researcher to collect standardized quantitative data from a large number of respondents within a relatively short period of time (Bryman, 2016). The questionnaire included both closed-ended and Likert-scale questions designed to capture respondents' views regarding the current land use compliance, challenges affecting land use compliance, and possible strategies for improving land use compliance.

3.6.3 Satellite images showing land use along the infrastructure corridor of Kyaliwajjala-Kasangati-Matugga Corridor

Satellite imagery of the study area for the current date was downloaded. Ancillary data comprising right of way drawings were gathered. Ancillary data helped provide knowledge of the area of interest. For this research study, satellite images were used to visualize the land use in relation to the infrastructure corridor of the Kyaliwajjala-Kasangati-Matugga Road.

3.6.4 Document review

Document review enabled the researcher to obtain institutional and policy information relevant to land use compliance after compulsory land acquisition (Bowen, 2009). They included the relevant planning regulations, the physical panning acts and survey and valuation reports to guide the researcher with information such as the names of the project affected persons along the road corridor.

3.7 Data collection procedure

Once the research proposal and data collection instruments had been approved by the supervisor, the researcher obtained an introductory letter from Makerere University to facilitate fieldwork. This letter was presented to the relevant authorities in the Ministry of Works and Transport, as well as Kira Municipality and Kasangati Town Council, to request permission to carry out the study along the Kyaliwajjala–Kasangati–Matugga Road Project. Upon obtaining the necessary approvals, the researcher proceeded with the data collection process.

3.8 Data quality control

3.8.1 Validity

Validity refers to the degree to which a data collection instrument accurately measures the intended variable or construct and produces meaningful results (Amin, 2005; Saunders et al., 2019). To ensure validity, both face and content validity was evaluated. The research instruments were reviewed by the supervisor, who assessed the relevance and clarity of each item or question. Any items found to be inappropriate or unclear were revised or eliminated accordingly.

3.8.2 Reliability

Reliability refers to the consistency of research instruments in producing similar results under consistent conditions (Creswell & Creswell, 2018). Reliability of the questionnaire was tested using Cronbach's Alpha coefficient. Cronbach's Alpha values above 0.70 are considered acceptable (Field, 2018). This reliability test ensured that the questionnaire items consistently measure the intended study variables.

3.9 Data analysis and presentation

3.9.1 Quantitative data

After collecting the data, the researcher organized the data and entered it in SPSS (Statistical package for social science) software for quantitative data analysis to generate descriptive statistics. Descriptive statistics encompassed percentages, frequencies to present the study findings. The findings were visually represented through tables, bar graphs, and pie charts.

3.9.2 Qualitative data

For qualitative data analysis, content analysis was employed. The gathered data was structured around thematic categories. The researcher categorized statements and responses to derive meaningful conclusions and interpretations regarding the research objectives (Braun & Clarke, 2006). Noteworthy viewpoints were selected and presented to represent the perspectives of the participants.

3.10 Ethical considerations

Ethical considerations were observed throughout the research process. Participation in the study was voluntary, and respondents were informed about the purpose of the research before data

collection begins. Informed consent was obtained from all participants prior to their participation in the study.

Additionally, respondents' identities and responses were treated with confidentiality and were only used for academic purposes. According to Resnik (2018), ensuring voluntary participation, confidentiality, and informed consent are essential ethical principles in social science research.

3.11 Study limitations

Some respondents were initially reluctant to freely share information, questioning the purpose and confidentiality of the study. However, the researcher addressed their concerns by clearly explaining to them that the study's objectives, emphasizing its academic nature, and assuring them of utmost confidentiality. Additionally, the researcher provided a letter from the university confirming the academic nature of the study.

Some respondents to be interviewed had no time to attend to the researcher. In such instances, the researcher was flexible and scheduled interviews sessions at times convenient for them.

Lastly, some respondents requested money before taking part in study. However, the researcher told them that the study was purely academic in nature. Those who were unable to provide information without being paid were dropped.

CHAPTER FOUR: PRESENTATION OF RESULTS /FINDINGS

4.1 Response Rate

Table 4.1 below presents the number of respondents who participated in the study and those who did not participate.

Table 4. 1 Showing the Response Rate

Category	Targeted Sample size	Response Rate	Percentage
Project Affected Persons (PAPs)	226	192	85%
Land acquisition officers	10	06	60%
Project engineers	05	04	80%
Physical planners	04	03	75%
Local area chairpersons	08	07	87.5%
Total	**253**	**212**	**83.8%**

Source: Field data, 2026

As shown in Table 4.1, of the 253 participants targeted for the study, 212 (83.8%) successfully responded, while 41 (16.2%) did not participate. The achieved response rate of 83.8% is higher than the 70% benchmark recommended by Fincham (2008), suggesting that the response rate was adequate and sufficient to support the reliability of the study findings.

4.2 Background information of respondents

The researcher collected background information from the project-affected persons along the Kyaliwajjala–Kasangati–Matugga Road corridor. The information gathered included respondents' gender, age group, marital status, highest level of education attained, duration of residence in the affected area, and occupation. The findings are presented using frequencies and percentages to provide a clear description of the respondents' demographic characteristics.

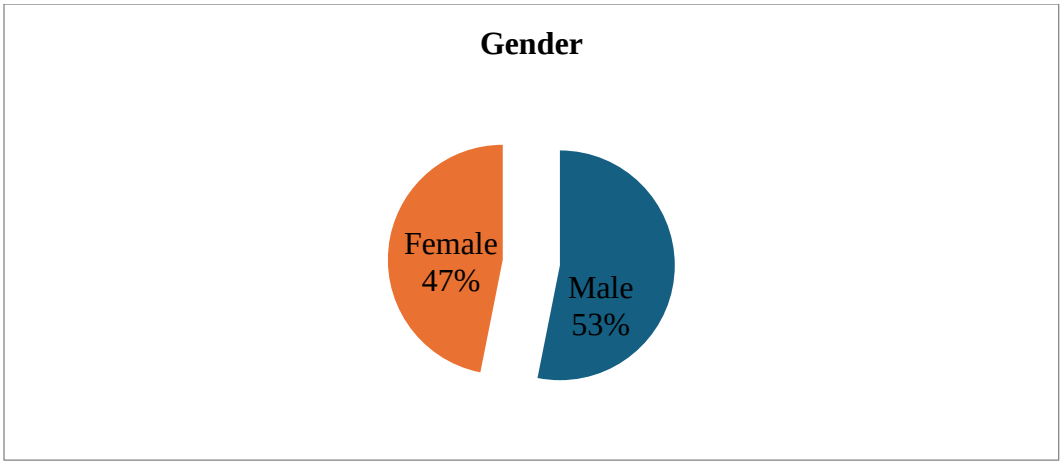


Figure 4. 1: Gender of respondents

Source: Field Data, 2026

Figure 4.1 shows that 53% of the respondents were male, while 47% were female. This indicates that males constituted a slightly higher proportion of the study participants than females.

Table 4. 2: Age bracket of respondents

Age bracket	Frequency	Percent
18-25	07	3.6
26-35	24	12.5
36-45	90	46.9
46-55	51	26.6
56+	20	10.4
Total	**192**	**100.0**

Source: Field Data, 2026

The results in Table 4.2 revealed that the majority of the respondents 46.9% were aged between 36–45 years, followed by those aged 46–55 years at 26.6%. Respondents aged 26–35 years accounted for 12.5%, while those aged 56 years and above represented 10.4% of the respondents. The least represented age group was 18–25 years, accounting for only 3.6% of the respondents. These findings indicate that middle-aged individuals constituted the largest proportion of the study participants.

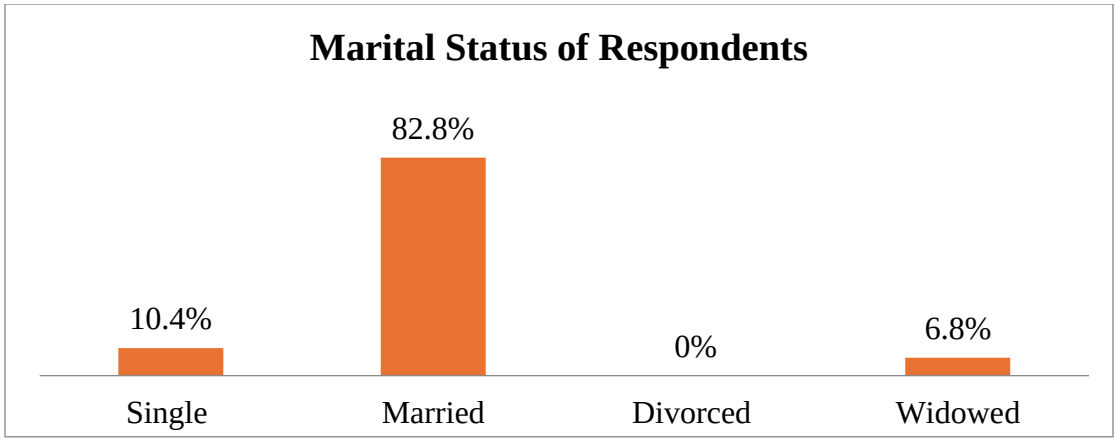


Figure 4. 2: Marital Status of Respondents

Source: Field data, 2026

Figure 4.2 shows that the majority of the respondents (82.8%) were married, followed by single respondents who constituted 10.4% of the study participants. Widowed respondents accounted for 6.8% of the total respondents. These findings indicate that married individuals formed the largest proportion of the affected persons included in the study along the Kyaliwajjala–Kasangati–Matugga Road corridor.

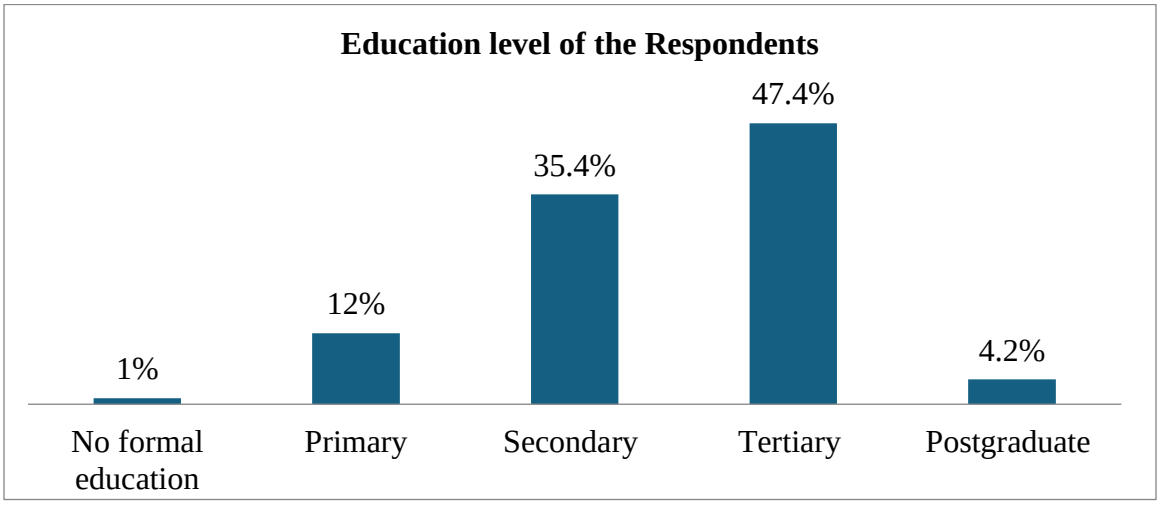


Figure 4. 3: Education level of the respondents

Source: Field Data, 2026

The results in Figure 4.3 revealed that the largest proportion of respondents (47.4%) had attained tertiary education, followed by those with secondary education who accounted for 35.4%.

Respondents with primary education constituted 12.0% of the total respondents, while 4.2% had attained postgraduate education. The smallest proportion of respondents (1.0%) had no formal education. These findings indicate that the majority of the affected persons along the Kyaliwajjala–Kasangati–Matugga Road corridor had attained at least secondary or tertiary education.

Table 4. 3: Duration of stay on the affected area

Time	Frequency	Percent
Less than 1 year	02	1.0
1-5 year	16	8.3
6-10 years	78	40.6
Over 10 years	96	50.0
Total	**192**	**100.0**

Source: Field Data, 2026

The results in Table 4.3 revealed that the majority of the respondents 50.0% had stayed in the affected area for over 10 years, followed by those who had lived there for 6–10 years, accounting for 40.6% of the respondents. Respondents who had stayed in the area for 1–5 years represented 8.3%, while the least proportion 1.0% had resided in the area for less than 1 year. These findings indicate that most of the affected persons along the Kyaliwajjala–Kasangati–Matugga Road corridor were long-term residents of the area.

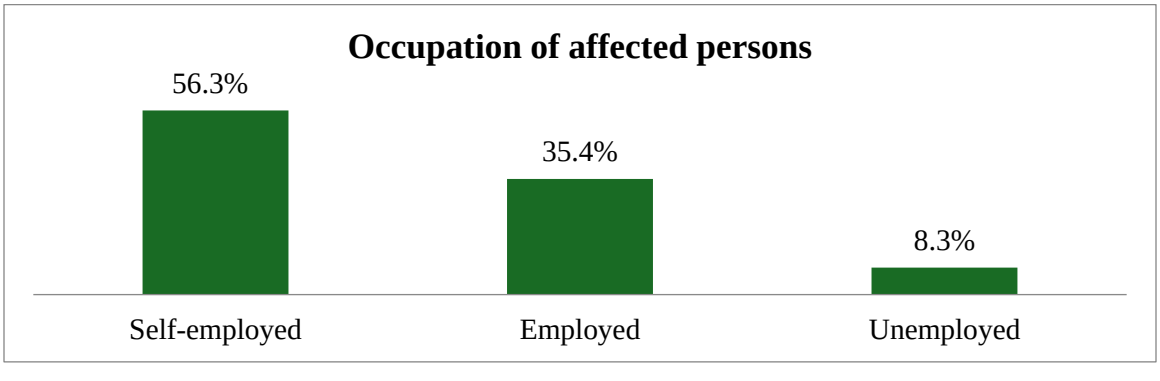


Figure 4. 4: Occupation of the Projected Affected Persons

Source: Field Data, 2026

The results in Figure 4.4 revealed that the majority of the respondents 56.3% were self-employed, followed by those in formal employment at 35.4%. Respondents who were unemployed constituted 8.3% of the total respondents. These findings indicate that self-employment was the most prevalent source of livelihood among the affected persons along the Kyaliwajjala–Kasangati–Matugga Road corridor.

4.3 Determining the extent of land use compliance against approved road reserve along the Kyaliwajjala-Kasangati-Matugga Road Project

Table 4.4 below presents the findings on the extent of land use compliance along the road corridor. The results cover respondents' awareness of road reserve boundaries and zoning regulations, perceptions of compliance with approved road reserve boundaries, the prevalence of encroachment, and the types of land use activities practiced in the area. The table also highlights community views on post-compensation land use, regulatory enforcement, monitoring by authorities, and the common forms of non-compliance observed along the corridor.

Table 4. 4: The extent of land use compliance against approved road reserve plans along the Kyaliwajjala-Kasangati-Matugga Road Project

Item	Category	Frequency	Percent
Are you aware of the road reserve boundaries along the corridor?	Yes	181	94.3
	No	11	5.7
	Total	**192**	**100.0**
Are you aware of land use zoning regulations for this area?	Yes	189	98.4
	No	03	1.6
	Total	**192**	**100.0**
Land use activities in this area comply with approved road reserve boundaries.	Strongly agree	19	9.9
	Agree	33	17.2
	Neutral	35	18.2
	Disagree	62	32.3
	Strongly disagree	40	20.8
	Total	**192**	**100.0**
	Strongly agree	49	25.5

There is encroachment on the road reserve along this corridor.	Agree	62	32.3
	Neutral	28	14.6
	Disagree	30	15.6
	Strongly disagree	23	12.0
	Total	**192**	**100.0**
After compensation, land is used according to approved land use plans.	Yes	94	49.0
	No	98	51.0
	Total	**192**	**100.0**
What type of land use activities are currently practiced near the road corridor?	Residential	36	18.8
	Commercial	50	26.0
	Agriculture	28	14.6
	Mixed use	78	40.6
	Total	**192**	**100.0**
Some land uses near the road corridor do not comply with regulations.	Strongly agree	62	32.3
	Agree	72	37.5
	Neutral	15	7.8
	Disagree	35	18.2
	Strongly disagree	08	4.2
	Total	**192**	**100.0**
Authorities regularly monitor land use activities in this area.	Yes	62	32.3
	No	34	17.7
	Not sure	96	50.0
	Total	**192**	**100.0**
Enforcement of land use regulations is ineffective.	Strongly agree	90	46.9
	Agree	83	43.2
	Neutral	10	5.2
	Disagree	06	3.1
	Strongly disagree	03	1.6
	Total	**192**	**100.0**
If there is non-compliance, what forms does it take?	Encroachment	105	54.7
	Informal structures	58	30.2

	Unauthorized businesses	29	15.1
	Total	**192**	**100.0**

Source: Field Data, 2026

The results show a very high level of awareness among respondents regarding regulatory frameworks guiding land use along the corridor. A majority of respondents (94.3%) indicated that they were aware of the road reserve boundaries, while only 5.7% were not aware. Similarly, an overwhelming proportion (98.4%) reported awareness of road reserve boundaries and land use zoning regulations in the area, with only 1.6% indicating lack of awareness. These findings suggest that, in principle, the community along the corridor is well informed about land use regulations and spatial planning requirements.

Despite this high level of awareness, the findings reveal limited compliance with approved road reserve boundaries. Only 27.1% (9.9% strongly agree and 17.2% agree) of respondents agreed that land use activities comply with approved plans, while a substantial proportion (53.1%) disagreed (32.3% disagree and 20.8% strongly disagree). A further 18.2% remained neutral. This indicates that although regulations are known, adherence to them remains weak along the corridor.

The results further indicate that encroachment on the road reserve is a significant challenge. More than half of the respondents (57.8%) agreed that there is encroachment (25.5% strongly agree and 32.3% agree), while only 27.6% disagreed. This suggests that road reserve encroachment is a persistent issue despite regulatory frameworks being in place.

In terms of post-compensation land use practices, the findings show a near-even distribution, with 49.0% indicating that land is used according to approved plans after compensation, while 51.0% reported non-compliance. This implies that compensation does not necessarily guarantee orderly or regulated land use behavior among affected persons

Regarding the nature of land use activities along the corridor, the results show that mixed-use development is the most dominant (40.6%), followed by commercial activities (26.0%), residential use (18.8%), and agriculture (14.6%). This pattern reflects a rapidly urbanizing corridor where economic activities are increasingly diversifying, often exerting pressure on planned land use systems.

The findings also reveal strong perceptions of non-compliance with land use regulations. A majority of respondents (69.8%) agreed that some land uses near the corridor do not comply with regulations, while only 22.4% disagreed. This further reinforces the earlier observation that regulatory awareness does not necessarily translate into compliance.

On regulatory oversight, the results indicate weak and uncertain monitoring systems. Only 32.3% of respondents confirmed that authorities regularly monitor land use activities, while 17.7% said no and 50.0% were not sure. This points to limited visibility of enforcement agencies in day-to-day land use monitoring, which may contribute to continued non-compliance.

A majority of respondents (90.1%) agreed that enforcement of land use regulations is ineffective (46.9% strongly agree and 43.2% agree). This suggests that weak enforcement remains a major contributing factor to continued non-compliance along the corridor.

Regarding the forms of non-compliance, the results show that encroachment is the most common (54.7%), followed by informal structures (30.2%) and unauthorized businesses (15.1%). This highlights that physical invasion of road reserves and unplanned developments remain key challenges along the corridor.

Interviews were conducted with key stakeholders including land acquisition officers, project engineers, physical planners, and local area chairpersons to complement the quantitative findings and the responses provide deeper insight into the institutional, economic, and governance dynamics influencing land use compliance along the study corridor.

A land acquisition officer from the Ministry Works and Transport stated that:

> *"…although most people are aware of the road reserve boundaries, enforcement remains a challenge. After compensation, some PAPs quickly reoccupy or resell land, leading to renewed encroachment along protected areas…"* (Land Acquisition Officer - 01).

This response highlights a recurring post-compensation challenge where compliance is not sustained over time. It suggests that compensation alone does not guarantee long-term protection of road reserves, as beneficiaries often revert to prior land use behaviors driven by immediate livelihood needs or speculative land markets.

Another land acquisition officer noted that:

> *"…there is a gap between awareness and compliance. People understand land use zoning rules but economic pressures and land demand in peri-urban areas push them to violate regulations, especially along commercial hotspots…"* (Land Acquisition Officer - 03).

This reflects the tension between regulatory knowledge and practical economic realities. Despite adequate sensitization on land use zoning regulations, high land values and commercial demand in peri-urban settings incentivize non-compliance, particularly in strategically located roadside zones where business opportunities are concentrated.

A second officer further explained that:

> *"…monitoring is not consistent due to limited staffing and resources, so some illegal developments go unnoticed until they become permanent structures…"* (Land Acquisition Officer - 06).

This emphasizes institutional capacity constraints within enforcement agencies. The lack of adequate human and financial resources limits routine surveillance, allowing encroachments to progress from temporary to permanent developments before corrective action can be taken.

A project engineer involved in the road corridor development observed that:

> *"…encroachment has directly affected road expansion plans. In some sections, structures were built very close to the road reserve despite prior compensation and relocation notices…"* (Project Engineer -01).

This indicates that encroachment has tangible implications for infrastructure planning and implementation. Even after formal processes such as compensation and relocation notices, continues within restricted zones, thereby constraining future road expansion and design flexibility.

Another engineer added that:

> *"…mixed land use along the corridor is making it difficult to maintain a clear buffer zone. Commercial developments especially tend to extend into protected areas…"* (Project Engineer -02).

This suggests that the lack of strict separation between land uses complicates enforcement of road reserve boundaries. Commercial activities, in particular, tend to gradually expand into protected spaces due to profitability and high foot traffic along transport corridor.

A third engineer highlighted that:

> *"…enforcement is reactive rather than preventive, meaning authorities often respond after violations have already occurred instead of preventing them…"* (Project Engineer -04).

This underscores a systemic weakness in land management practices, where enforcement mechanisms are largely corrective rather than anticipatory. As a result, interventions tend to be costlier and less effective in reversing established encroachments.

Physical planners also emphasized planning challenges. One planner stated that:

> *"…while zoning plans exist and are well communicated, implementation is weak. Local demand for land often overrides formal planning guidelines…"* (Physical Planner -01).

This highlights a disconnect between formal planning frameworks and actual land use behavior. Although spatial plans are in place and disseminated, enforcement is undermined by strong market-driven demand for land, particularly in rapidly urbanizing corridor.

Another planner noted that:

> *"…post-compensation land use control is limited, and without continuous monitoring, compliance deteriorates over time…"* (Physical Planner -02).

This suggests that land use governance is not sustained beyond the compensation phase. In the absence of continuous oversight mechanisms, initial compliance tends to weaken, resulting in gradual reoccupation and informal development.

A third physical planner explained that:

> *"…. the corridor is experiencing rapid informal urbanization, making it difficult to maintain planned land use structures…"* (Physical Planner -03).

This reflects broader urbanization pressures where unplanned growth outpaces formal planning capacity. The emergence of informal settlements and commercial activities complicates efforts to maintain orderly land use structures along the corridor.

Local area chairpersons further confirmed community-level realities. One chairperson stated that:

> *"…people are aware of the road reserve, but many ignore it because they need space for businesses and housing…"* (Local Chairperson 03).

This highlights a behavioral dimension where awareness does not translate into compliance due to pressing livelihood needs, particularly for housing and small-scale enterprises.

Another chairperson observed that:

> *"…encroachment is common, especially by small businesses that set up temporary structures along the roadside…"* (Local Chairperson -04).

This indicates that informal economic activities play a significant role in encroachment patterns. Temporary roadside structures are often seen as low-cost entry points for income generation, despite violating planning regulations.

A third chairperson added that:

> *"…local enforcement structures exist, but political and economic pressures often limit their effectiveness…"* (Local Chairperson -06).

This point to governance challenges at the community level, where enforcement is weakened by external influences, including political interests and economic considerations, thereby reducing the effectiveness of local regulatory mechanisms.

Generally, the findings indicate that although awareness of land use regulations and road reserve boundaries is very high along the corridor, actual compliance remains low. Encroachment, informal developments, and unauthorized land uses are widespread, driven by economic pressures, rapid urbanization, and weak enforcement mechanisms. While enforcement is perceived as effective in some cases, monitoring is inconsistent and largely reactive. The interview findings reinforce the quantitative results by highlighting institutional capacity gaps, limited continuous

monitoring, and socio-economic drivers of non-compliance. These factors collectively undermine effective land use management and contribute to persistent encroachment along the road corridor.

4.4 Assessing the challenges affecting land use compliance along the infrastructure corridor of Kyaliwajjala-Kasangati-Matugga Road

Table 4.5 below presents the findings on the challenges affecting land use compliance along the Kyaliwajjala–Kasangati–Matugga Road corridor.

Table 4. 5: Challenges affecting land use compliance

Statement	***Strongly Disagree***		***Disagree***		***Neutral***		***Agree***		***Strongly Agree***	
	F	%	F	%	F	%	F	%	F	%
Rapid population growth and urbanization contribute to non-compliance.	-	-	12	6.2	20	10.4	109	56.8	51	26.6
Weak enforcement of planning regulations affects compliance.	04	2.1	41	21.4	30	15.6	72	37.5	45	23.4
Lack of awareness about land use regulations contributes to non-compliance.	36	18.8	55	28.6	29	15.1	39	20.3	33	17.2
Land tenure disputes affect compliance with land use regulations.	09	4.7	10	5.2	19	9.9	83	43.2	71	37.0
Economic pressures (need for income) influence how land is used.	12	6.3	25	13.0	30	15.6	72	37.5	53	27.6
There is poor coordination among government institutions.	30	15.6	51	26.6	77	40.1	20	10.4	14	7.3

Corruption or informal approvals contribute to non-compliance.	-	-	19	9.9	21	10.9	84	43.8	68	35.4
Lack of monitoring and supervision affects compliance.	20	10.4	22	11.5	38	19.8	68	35.4	44	22.9
Inadequate compensation influences land use behaviour after acquisition.	-	-	-		28	14.6	92	47.9	72	37.5

Source: Field Data, 2026

The results in Table 4.5 revealed that rapid population growth and urbanization are major drivers of non-compliance. The majority of respondents (56.8%) agreed and 26.6% strongly agreed that increasing population pressure and urban expansion contribute to non-compliant land use, while only 7.8% disagreed. This suggests that intensified demand for land in peri-urban areas is significantly reshaping land use patterns along the corridor, often beyond the capacity of planning authorities to regulate effectively.

Similarly, weak enforcement of planning regulations was identified as a significant challenge. A combined 60.9% of respondents (37.5% agree and 23.4% strongly agree) indicated that weak enforcement affects compliance, while 23.5% disagreed or strongly disagreed. This indicates that although regulations exist, enforcement mechanisms are insufficiently strong or consistent to ensure full compliance.

On awareness levels, the findings showed mixed perceptions. While 37.5% agreed that lack of awareness contributes to non-compliance, a larger proportion (47.4%) disagreed or strongly disagreed. This suggests that awareness is not the primary driver of non-compliance in this context, as many land users are likely aware of regulations but still choose or are compelled to violate them.

The study further revealed that land tenure disputes significantly affect compliance with land use regulations. A majority of respondents (80.2%) agreed or strongly agreed that such disputes contribute to non-compliance, while only 9.9% disagreed. This indicates that unclear ownership, boundary conflicts, and contested land rights are major constraints to effective land use control along the corridor.

Economic pressures were also found to strongly influence land use behavior. The majority of respondents (65.1%) agreed or strongly agreed that the need for income affects how land is used, while 19.3% disagreed or strongly disagreed. This implies that livelihood needs, particularly in low-income and peri-urban communities, drive land users toward informal and often unregulated land uses such as roadside businesses and informal settlements.

Regarding institutional coordination, the findings indicated weak collaboration among government agencies. A combined 36.7% agreed or strongly agreed that poor coordination contributes to non-compliance, while a larger proportion (42.2%) were neutral or disagreed. This suggests that although coordination challenges exist, their perceived impact varies among respondents, possibly reflecting uneven institutional experiences at different levels of implementation.

Corruption and informal approvals were also identified as major contributors to non-compliance. The majority of respondents (79.2%) agreed or strongly agreed that corruption or informal approvals influence land use violations, while only 9.9% disagreed. This highlights governance weaknesses where unauthorized approvals or informal agreements undermine formal planning systems and encourage illegal developments.

Lack of monitoring and supervision was similarly identified as a significant challenge. A combined 58.3% of respondents agreed or strongly agreed that weak monitoring affects compliance, while 21.9% disagreed or strongly disagreed. This indicates that inadequate oversight allows illegal developments and encroachment to progress unchecked.

Lastly, inadequate compensation was strongly linked to non-compliant land use behavior after acquisition. A combined 85.4% of respondents agreed or strongly agreed that insufficient compensation influences land use decisions, while none disagreed. This suggests that dissatisfaction with compensation may push affected persons to reoccupy land, sell informally, or use land in ways that disregard planning regulations.

Interviews were conducted with key stakeholders including land acquisition officers, project engineers, physical planners, and local area chairpersons to deepen understanding of the challenges affecting land use compliance.

A land acquisition officer from the Ministry of Works and Transport stated that:

> *"…rapid urbanization is the biggest driver of non-compliance. Even when people are aware of regulations, the demand for land along the corridor is extremely high, so people tend to subdivide and develop land informally…"* (Land Acquisition Officer -02).

It implies that increasing demand for land along the corridor is pushing people to subdivide and develop land informally, even when they are aware of planning regulations. This reflects pressure from urban expansion overwhelming formal land use control systems.

Another officer explained that:

> *"…land disputes are very common. Many cases involve unclear boundaries or competing claims, which makes enforcement difficult because authorities cannot act decisively when ownership is contested…"* (Land Acquisition Officer -05).

The existence of boundary disputes and competing ownership claims weakens enforcement because authorities are unable to take decisive action. It suggests that unresolved land ownership issues directly contribute to continued non-compliant developments.

A third officer added that:

> *"…corruption and informal approvals sometimes undermine official planning decisions. In some cases, developments are allowed to proceed without proper authorization due to influence or informal arrangements…"* (Land Acquisition Officer -06).

The response points to governance challenges, particularly corruption and informal approvals. It indicates that some developments proceed without proper authorization due to influence or unofficial arrangements, undermining formal planning systems and encouraging illegal land use practices.

A project engineer observed that:

> *"…encroachment is worsened by weak enforcement and rapid construction of informal structures. Once structures are erected, it becomes very difficult and costly to remove them…"* (Project Engineer -02).

Once informal structures are established, removal becomes difficult and costly, which indicates that weak early enforcement leads to long-term physical constraints on infrastructure development.

Another engineer noted that:

> *"…economic pressures are very visible along the corridor. People prioritize business opportunities along the road, which leads to uncontrolled expansion into road reserves…"* (Project Engineer -03).

This view shows that economic motivations are a key driver of non-compliance. People prioritize roadside business opportunities, resulting in expansion into protected areas. It reflects how livelihood needs override planning regulations along high-value corridor.

A third engineer explained that:

> *"…lack of coordination between planning authorities and implementation teams delays responses to illegal developments, allowing violations to become permanent features…"* (Project Engineer -04).

Delays in communication and response between responsible authorities allow illegal developments to progress unchecked until they become permanent, making enforcement more difficult.

A physical planner stated that:

> *"…population growth has outpaced planning enforcement capacity. Even where plans exist, implementation is overwhelmed by demand for land…"* (Physical Planner -01).

The planner emphasizes that population growth has exceeded planning enforcement capacity. This suggests that even with existing plans, rapid land demand overwhelms regulatory systems, leading to widespread non-compliance.

Another planner noted that:

> *"…monitoring is weak and mostly reactive. By the time violations are addressed, significant development has already taken place…"* (Physical Planner -02).

This statement highlights weak monitoring systems. The reactive nature of enforcement means violations are addressed only after development has occurred, reducing the effectiveness of planning controls.

A third planner added that:

> *"…inadequate compensation also affects compliance, because people feel dissatisfied and return to occupy or misuse land after acquisition…"* (Physical Planner -03).

The response links compensation dissatisfaction to non-compliance. It suggests that inadequate compensation may lead affected persons to return to or misuse land, undermining planned land use outcomes after acquisition.

A local chairperson explained that:

> *"…people know the rules, but survival needs come first. Many residents prioritize building shops or rental units along the road to earn income…"* (Local Chairperson -03).

This reflects socio-economic priorities at community level. Residents prioritize income-generating activities such as shops and rentals, indicating that survival and livelihood needs drive non-compliant land use along the corridor.

Another chairperson observed that:

> *"…informal approvals and political influence sometimes allow people to build even when it is not permitted…"* (Local Chairperson -04).

The statement points to informal governance and political influence. Unauthorized developments sometimes occur due to informal approvals or influence, weakening formal enforcement structures.

Another chairperson stated that:

> *"…lack of regular monitoring makes it easy for people to develop land without being stopped early. By the time authorities come in, the structures are already permanent…"* (Local Chairperson -07).

This response highlights weak monitoring at the local level. Lack of regular supervision allows developments to proceed unchecked until they become permanent, making enforcement more difficult and less effective.

These findings indicate that land use non-compliance along the corridor is driven by a complex mix of rapid urbanization, weak enforcement systems, land tenure conflicts, corruption, economic pressures, and inadequate compensation practices. While awareness of regulations exists, it is not sufficient to ensure compliance. Institutional weaknesses particularly poor coordination, weak monitoring, and enforcement gaps combined with socio-economic pressures, significantly undermine land use control. The interview findings strongly reinforce the quantitative results by showing that non-compliance is not simply a matter of ignorance, but rather a structural and governance challenge shaped by competing land demands and limited regulatory capacity.

4.5 Strategies for enhancing land use compliance along the infrastructure corridor of Kyaliwajjala-Kasangati-Matugga Road

Table 4.6 below presents the findings on strategies for enhancing land use compliance along the road corridor.

Table 4. 6: Strategies for enhancing land use compliance

Statement	***Strongly Disagree***		***Disagree***		***Neutral***		***Agree***		***Strongly Agree***	
	F	%	F	%	F	%	F	%	F	%
Strengthening enforcement of land use regulations can improve compliance.	-	-	15	7.8	25	13.0	92	47.9	60	31.3
Increased monitoring (e.g., inspections, GIS technologies) can enhance compliance.	-	-	-	-	29	15.1	93	48.4	70	36.5
Community awareness and sensitization can improve compliance.	-	-	-	-	06	3.1	93	48.4	93	48.4

Involving local communities in planning improves compliance.	-	-	12	6.3	27	14.1	94	49.0	59	30.7
Providing alternative livelihood support reduces non-compliant land use.	10	5.2	19	9.9	24	12.5	93	48.4	46	24.0
Stronger land policies and legal reforms can improve compliance.	39	20.3	48	25.0	40	20.8	47	24.5	18	9.4
Better coordination among government institutions can enhance compliance.	16	8.3	37	19.3	30	15.6	70	36.5	39	20.3
Urban planning and infrastructure planning should be integrated.	-	-	-		59	30.7	78	40.6	55	28.6

Source: Field Data, 2026

The results in Table 4.6 revealed strong support for strengthening enforcement of land use regulations as a key strategy for improving compliance. A majority of respondents (47.9%) agreed and 31.3% strongly agreed that improved enforcement would enhance compliance, while only 7.8% disagreed. This suggests that respondents perceive enforcement as a fundamental mechanism for controlling illegal developments and ensuring adherence to approved land use plans.

Similarly, increased monitoring through inspections and GIS-based technologies was highly supported. A combined 84.9% of respondents (48.4% agree and 36.5% strongly agree) indicated that enhanced monitoring would improve compliance, while none disagreed. This implies that continuous surveillance and the use of modern technologies are seen as essential tools for early detection and prevention of land use violations.

Community awareness and sensitization emerged as one of the most strongly supported strategies. The findings show near-universal agreement, with 48.4% agreeing and 48.4% strongly agreeing that awareness creation would improve compliance. This indicates that improving public understanding of planning regulations is considered critical in promoting voluntary compliance and reducing unintentional violations along the corridor.

Involving local communities in planning processes was also strongly endorsed. A combined 79.7% of respondents agreed or strongly agreed that community participation enhances compliance, while 6.3% disagreed. This suggests that inclusive planning approaches strengthen ownership of development decisions and encourage adherence to agreed land use frameworks at the local level.

Providing alternative livelihood support was another widely supported strategy. The majority of respondents (48.4% agree and 24.0% strongly agree) indicated that livelihood support could reduce non-compliant land use, while 15.1% disagreed or strongly disagreed. This reflects the influence of economic pressures on land use behavior and suggests that addressing livelihood needs may reduce informal and unauthorized developments.

However, opinions on stronger land policies and legal reforms were comparatively mixed. Only 33.9% (24.5% agree and 9.4% strongly agree) supported policy reforms, while a larger proportion (45.3%) disagreed or strongly disagreed. This suggests that respondents may perceive existing policies as adequate but weak in implementation rather than requiring major revision.

Better coordination among government institutions was also identified as an important strategy for enhancing compliance. A combined 56.8% of respondents (36.5% agree and 20.3% strongly agree) supported improved coordination, while 27.6% disagreed or strongly disagreed. This indicates that strengthening inter-agency collaboration between planning authorities, land offices, and local governments is considered necessary for more effective enforcement.

Finally, integration of urban planning and infrastructure planning received strong support. A combined 69.2% of respondents (40.6% agree and 28.6% strongly agree) agreed that integrated planning would enhance compliance, while 30.7% were neutral and none disagreed. This suggests that harmonizing infrastructure development with spatial planning frameworks is viewed as essential for achieving sustainable and orderly land use along the corridor.

Interviews were conducted with key stakeholders including land acquisition officers, project engineers, physical planners, and local area chairpersons to further explain the strategies for improving land use compliance.

A land acquisition officer from the Ministry of Works and Transport stated that:

> *"…strong enforcement is critical because awareness alone is not enough. People must see consistent action taken against violations to deter illegal developments…"* (Land Acquisition Officer -01).

This implies that awareness alone is insufficient without consistent punitive or corrective action, highlighting the importance of visible enforcement to ensure compliance.

Another officer explained that:

> *"…improved monitoring using GIS and regular inspections would help detect encroachments early before they become permanent structures…"* (Land Acquisition Officer -04).

This highlights the importance of modern monitoring systems such as GIS and routine inspections. It suggests that early detection of encroachment is essential to prevent illegal developments from becoming permanent and costly to remove.

A third officer added that:

> *"…coordination between agencies is key. When land offices, planners, and local governments work separately, enforcement becomes weak and inconsistent…"* (Land Acquisition Officer -05).

This implies that fragmented efforts among agencies weaken enforcement, and joint action is necessary for consistent and effective land use control.

A project engineer observed that:

> *"…without strict enforcement, encroachment continues to increase and affects infrastructure design and expansion. Enforcement must be immediate and consistent…"* (Project Engineer -01).

This stresses that weak enforcement directly contributes to escalating encroachment, which negatively affects infrastructure development. It implies that timely and strict enforcement is necessary to protect road infrastructure plans.

Another engineer noted that:

> *"…community sensitization is important because many people develop land without fully understanding road reserve boundaries and risks involved…"* (Project Engineer -02).

This suggests that many violations occur due to limited understanding of regulations and risks, indicating that awareness creation can reduce unintentional non-compliance.

A third engineer explained that:

> *"…integrating infrastructure planning with land use planning would reduce conflicts and ensure that developments do not interfere with road expansion plans…"* (Project Engineer -03).

This emphasizes the need for integrated planning systems. It implies that aligning infrastructure planning with land use planning can reduce conflicts and ensure that developments do not interfere with planned road expansions.

A physical planner stated that:

> *"…monitoring systems should be strengthened, especially using modern tools like GIS, to track land use changes in real time…"* (Physical Planner -01).

This suggests that real-time tracking of land use changes is necessary for effective planning and timely intervention against violations.

Another planner noted that:

> *"…community participation improves compliance because people are more likely to follow plans they were involved in developing…"* (Physical Planner -02).

This highlights the importance of community participation. It implies that involving communities in planning processes increases ownership and encourages voluntary compliance with land use regulations.

A third planner added that:

> *"…alternative livelihood programs are important because economic pressure is a major reason people violate planning regulations…"* (Physical Planner -03).

This point to economic factors as a major driver of non-compliance. It suggests that providing alternative livelihood opportunities can reduce the economic pressure that leads to illegal land use.

A local chairperson explained that:

> *"…when communities are sensitized regularly, they are more likely to respect road reserves and avoid illegal construction…" (Local Chairperson -03).*

This emphasizes the role of continuous sensitization. It implies that regular awareness campaigns help communities understand and respect road reserve boundaries, improving compliance behavior.

Another chairperson observed that:

> *"…people are more willing to comply when they are involved in decision-making processes rather than being told after decisions are made…"* (Local Chairperson -06).

This highlights participatory decision-making. It suggests that people are more likely to comply with land use regulations when they are involved in planning processes rather than being imposed on.

A third chairperson stated that:

> *"…poor coordination among government agencies leads to confusion in enforcement, so joint action would improve compliance at the community level…"* (Local Chairperson -07).

This point to poor institutional coordination as a barrier to effective enforcement. It implies that joint and coordinated action among agencies would improve clarity, consistency, and compliance at the community level.

Therefore, the findings indicate that improving land use compliance along the corridor requires a combination of strong enforcement, enhanced monitoring systems, public awareness, community participation, and better institutional coordination. While policy reforms are considered less

urgent, practical implementation measures such as GIS-based monitoring, sensitization campaigns, and integrated planning are viewed as the most effective strategies. The interview findings strongly reinforce the quantitative results by showing that sustainable compliance depends not only on regulations, but also on effective enforcement capacity, community engagement, and coordinated institutional action.

4.6 Satellite images showing land use along Kyaliwajjala-Kasangati-Matugga Road.



Figure 4. 5: Satellite images showing Kasangati Junction in 2025

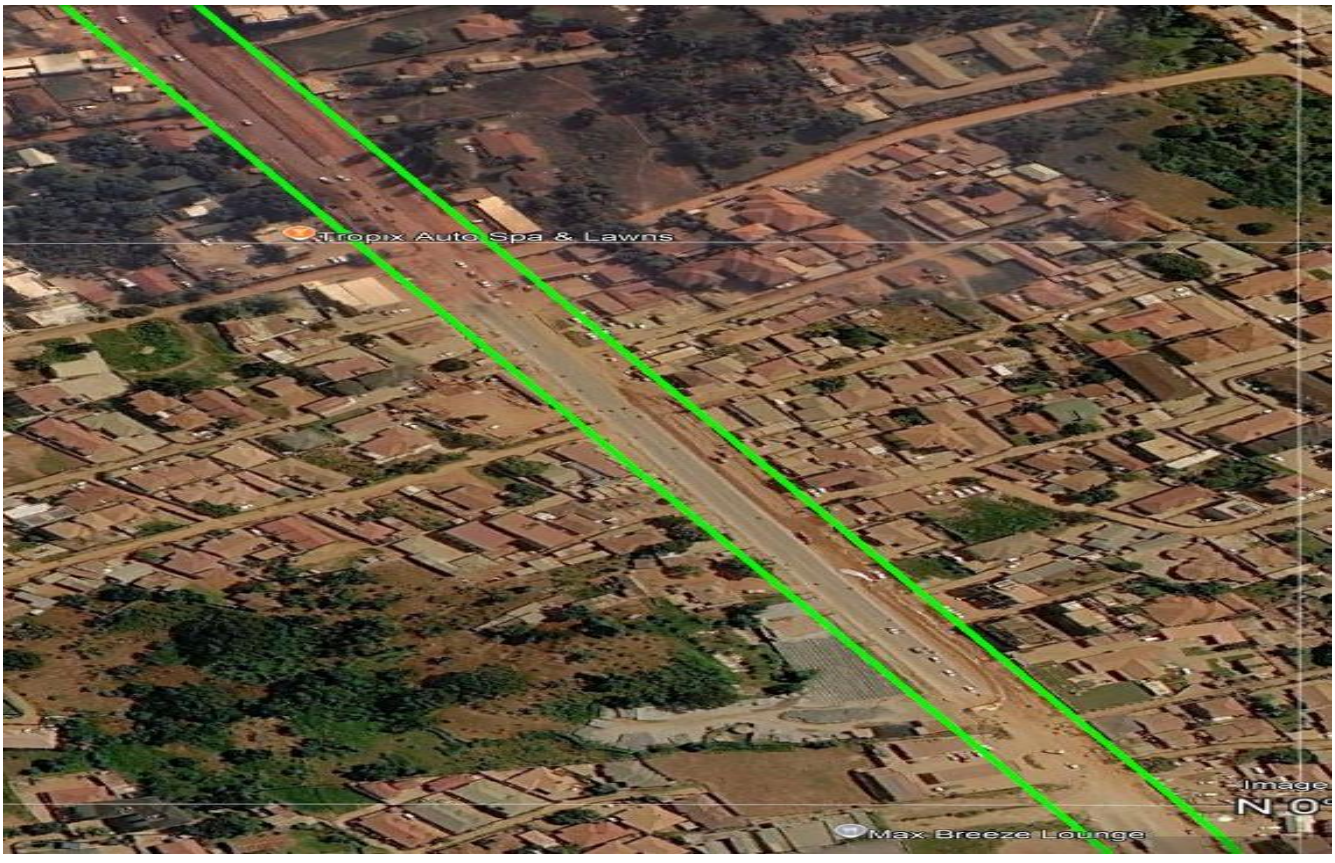


Figure 4. 6: Satellite images showing Kyaliwajjala section in 2025

as dramatically transformed land use to a high-intensity linear commercial zone. By 2025, the road expansion has triggered rapid ribbon development, with former subsistence plots and setback areas replaced by fuel stations, shopping arcades, roadside markets, and signage-clad small enterprises, effectively converting rural-urban fringe land into a bustling transit-oriented strip. However, non-compliance with planned land use is evident: some structures encroach on the newly designated road reserves and drainage channels, temporary kiosks and storage containers occupy spaces meant for green buffers or pedestrian walkways, and mixed-use developments ignore floor area ratio or parking requirements, leading to unregulated roadside parking and bottleneck congestion. This pattern shows that while infrastructure spurred economic densification, weak enforcement has allowed haphazard conversions that undermine both safety and the intended orderly corridor vision.

CHAPTER FIVE: DISCUSSION OF STUDY FINDINGS/RESULTS

5.1 Determining the Extent of Land Use Compliance Against Approved Road Reserve Plans Along the Kyaliwajjala-Kasangati-Matugga Road Project

The findings reveal a pronounced disconnect between awareness of land use regulations and actual compliance along the corridor. Although the vast majority of respondents demonstrated familiarity with road reserve boundaries and land use zoning regulations, only 27.1% agreed that land use activities conformed to approved plans, while 53.1% disagreed. This gap between knowledge and practice resonates strongly with patterns documented in rapidly urbanising settings. Huang (2025) observed, in a comparative study of land development approaches in India and China, that the existence of formal planning and compulsory acquisition frameworks does not automatically translate into on-the-ground adherence, particularly where commercial pressures and speculative land transactions create competing incentives that formal systems are poorly calibrated to contain. Muchelo et al. (2024) similarly found that urban expansion in Ugandan cities is characterised by sprawl dynamics that persistently outpace the capacity of planning authorities to enforce zoning compliance, with transport corridors functioning as magnets for unregulated settlement and commercial activity. Taken together, these findings support the argument that regulatory awareness, in the absence of sustained enforcement and credible economic disincentives, remains insufficient to govern land use along high-pressure infrastructure corridors.

The finding that encroachment constituted the most prevalent form of non-compliance - acknowledged by 57.8% of respondents and accounting for 54.7% of recorded violations - aligns with evidence from Sub-Saharan Africa and beyond. Alterman and Calor (2020) argued that in many Global South contexts, weak enforcement of planning regulations creates permissive conditions for encroachment on infrastructure reserves, noting that the boundary between informal and illegal development is frequently blurred in practice. Omollo (2021) reached a closely related conclusion in Kenya, documenting persistent non-compliance with road reserve planning standards despite established development control legislation, with encroachment accelerating most rapidly in peri-urban zones experiencing population-driven growth. Kahangirwe and Vanclay (2024) further observed that road infrastructure projects in Sub-Saharan Africa routinely generate land use pressures in adjacent areas that implementing agencies and local authorities are structurally ill-equipped to manage. The dominance of mixed-use development (40.6%) and commercial activities (26.0%) in the current study corroborates findings by Sumari et al. (2020),

who documented in Morogoro, Tanzania, how rapid urbanisation transforms the land use character of infrastructure corridors through incremental commercial encroachment and residential densification that cumulatively undermine approved development plans.

Weak monitoring systems emerged as a parallel structural deficiency: only 32.3% of respondents confirmed that regular monitoring took place along the corridor, while 50.0% remained uncertain. Onaiwu (2020) documented in Auchi, Nigeria, that limited monitoring capacity on the part of planning agencies is a persistent driver of poor compliance with development control regulations, finding that enforcement actions were reactive rather than preventive in character. Akingbade et al. (2022) reached analogous conclusions in Ile-Ife, Nigeria, demonstrating through remotely sensed data that building compliance along road setbacks deteriorated substantially in areas where on-ground enforcement visits were infrequent and irregularly spaced. That said, a noteworthy counterpoint emerged: 90.1% of respondents perceived enforcement actions as effective once violations were identified. Rather than implying systemic incapacity, this finding suggests that enforcement agencies possess sufficient technical and legal authority to act decisively when violations come to their attention, but that the primary structural failure lies in the frequency and continuity of monitoring itself. The policy implication is significant: the challenge is not necessarily to redesign enforcement mechanisms but to make their deployment far more proactive, systematic, and geographically comprehensive.

5.2 Assessing the Challenges Affecting Land Use Compliance Along the Infrastructure Corridor of Kyaliwajjala-Kasangati-Matugga Road After Compulsory Land Acquisition

The study identifies a constellation of interacting factors that together undermine land use compliance along the corridor. Rapid urbanisation and population pressure were rated most prominently, with 56.8% of respondents agreeing and a further 26.6% strongly agreeing that population growth is a primary driver of non-compliance. Ayenachew and Abebe (2024) demonstrated in Addis Ababa that rapid urban growth creates land expropriation and conversion dynamics that consistently outrun the regulatory capacity of municipal planning authorities, generating informal land uses along transport corridors as a structural outcome. Rimal et al. (2020) similarly found in Nepal that peri-urban areas adjacent to transport infrastructure experience accelerated land use transformation driven by in-migration and commercial activity, routinely resulting in uses incompatible with approved development plans. Sumari et al. (2020) further documented how spatial planning in rapidly growing African cities struggles to accommodate

urbanisation trajectories that compress into a few decades what took generations in other global contexts. The Kyaliwajjala-Kasangati-Matugga corridor, situated at the northern edge of the Greater Kampala Metropolitan Area, presents precisely this compressed urbanisation dynamic, where planning frameworks designed for more stable growth conditions are confronted by demand intensities they were not calibrated to absorb.

Institutional weaknesses constituted the second major cluster of challenges. The finding that 60.9% of respondents identified weak enforcement as a key obstacle invites comparison with Alterman and Calor (2020), who argued that enforcement deficits in planning systems across the Global South are rarely accidental, reflecting instead structural underfunding, political interference, and the absence of professional incentive systems that might sustain consistent regulatory action. Echendu (2023) made a related observation in Nigeria, finding that urban planning agencies frequently lack the staffing, technical tools, and inter-institutional coordination needed to convert regulatory intentions into compliance outcomes on the ground. The finding that respondents also highlighted poor inter-agency coordination resonates with Lee (2020), who argued that sustainable urbanisation along infrastructure corridors requires active integration of transport planning, land use management, and local governance systems - an integration that remains aspirational rather than operational in many rapidly urbanising countries. Elong et al. (2019) documented institutional coordination failures specifically within Uganda's compulsory land acquisition processes, finding that delays and jurisdictional ambiguity between agencies directly contribute to land use conflicts and post-acquisition violations along road corridors. These institutional factors do not operate in isolation: each reinforces the others, producing an enforcement environment in which non-compliance becomes, from the perspective of affected communities, a rational response to the perceived improbability of detection and sanction.

Land tenure disputes emerged as an additional structural challenge, with 80.2% of respondents agreeing they undermine compliance. This finding aligns with German et al. (2013), whose analysis of large-scale land acquisition in Sub-Saharan Africa identified the coexistence of overlapping customary and statutory tenure systems as a persistent source of contestation that undermines both the legitimacy of compulsory acquisition processes and subsequent adherence to approved land uses. Geyer (2023) extended this insight to informal settlements, demonstrating that where customary land governance remains active and meaningful to communities, formal planning regulations are frequently perceived as external impositions of limited local authority. The finding

that 79.2% of respondents linked corruption and informal approvals to non-compliance connects to Alterman and Calor (2020), who observed that discretionary informal decision-making by planning officials erodes the rule-based character of planning systems and signals to communities that compliance with formal plans is negotiable. Economic pressures reinforced these dynamics: Huang (2025) noted that livelihood imperatives and rising land values around infrastructure investments create powerful incentives for informal development, irrespective of regulatory frameworks. Crucially, the finding that 85.4% of respondents associated inadequate compensation with non-compliance adds a dimension the literature has increasingly addressed. Rao (2019) argued from Indian evidence that compulsory acquisition processes that fail to restore the substantive livelihoods and freedoms of affected persons routinely trigger reoccupation and non-compliant land use as forms of economic self-recovery. Elong et al. (2019) documented analogous patterns in Uganda, where dissatisfaction with compensation outcomes consistently produced post-acquisition land use violations along road corridors, a finding that directly corroborates the current study.

5.3 Strategies for Enhancing Land Use Compliance Along the Infrastructure Corridor of Kyaliwajjala-Kasangati-Matugga Road

The findings indicate strong consensus that improving land use compliance along the corridor requires simultaneous action across enforcement, monitoring, community engagement, livelihood support, and institutional coordination. Strengthened enforcement received strong support (79.2%), as did enhanced monitoring through inspections and geospatial technologies (84.9%). These preferences are firmly grounded in the scholarly literature. Akingbade et al. (2022) demonstrated using remotely sensed data that active enforcement of road setback regulations produces measurable improvements in compliance outcomes in Nigerian urban contexts. Rotem-Mindali et al. (2024) similarly argued that consistent regulatory enforcement, combined with active surveillance of infrastructure corridors, significantly reduces the incidence of illegal development. The particular emphasis respondents placed on GIS-based monitoring aligns with Jain et al. (2021), who articulated a conceptual framework for integrating spatial development monitoring with infrastructure provision along transport corridors, identifying geospatial data systems as foundational tools for real-time compliance tracking. The 90.1% of respondents who perceived detected violations as handled effectively further supports a strategy orientation that prioritises making monitoring more continuous and comprehensive, rather than redesigning enforcement mechanisms that appear functionally adequate when activated.

Community sensitisation and participation emerged as the most widely endorsed strategies, with sensitisation supported by 96.8% of respondents and participatory planning by 79.7%. The depth of this consensus reflects patterns well documented in the literature. Echendu (2023) found from Nigerian planning experience that public participation processes, when substantive rather than ceremonial, enhance community understanding of planning rationales and increase voluntary compliance with land use regulations. Kahangirwe and Vanclay (2024) argued that social impact management in Sub-Saharan African road infrastructure projects is most effective when affected communities are engaged as active partners in planning and monitoring rather than passive recipients of decisions made elsewhere. The moderate disagreement (15.1%) regarding participation-based strategies introduces a useful qualification: community engagement is necessary but not sufficient. Onaiwu (2020) cautioned that in settings where economic pressures are intense, awareness and participatory processes alone are unlikely to deter encroachment unless accompanied by livelihood alternatives and credible enforcement. This qualification motivates the strong support respondents expressed for alternative livelihood programmes - recognising that economically driven non-compliance requires economic as well as regulatory responses.

On integrated planning, institutional coordination, and legal reform, the findings present both alignment with and partial divergence from the existing literature. Strong support for integrated land-infrastructure planning (69.2%) is consistent with Lee (2020), who demonstrated that integrating spatial planning with transport infrastructure development is a foundational condition for sustainable urbanisation outcomes. Jain et al. (2021) made a closely related argument in the Indian context, showing that infrastructure corridors planned without embedded land use governance frameworks inevitably attract unregulated development pressures that undermine both transport efficiency and planning objectives. The finding that respondents expressed mixed views on formal legal and policy reforms - 33.9% in support and 45.3% in disagreement - suggests a community perception that existing laws are broadly adequate but that their implementation remains weak. This perception is analytically significant: it shifts the strategic emphasis from legislative redesign toward institutional capacity and enforcement culture. Elong et al. (2019) reached a similar conclusion regarding Uganda's land acquisition legislation, arguing that procedural and institutional gaps in implementation - rather than statutory inadequacy - are the primary sources of compliance failure. Sumari et al. (2020) echoed this in the Tanzanian context, noting that the critical variable in compliance outcomes is not the sophistication of planning law but the consistency and credibility of the institutions responsible for giving it effect.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1 Conclusions

The study concluded that although awareness of land use regulations, zoning requirements, and road reserve boundaries along the Kyaliwajjala–Kasangati–Matugga Road corridor was very high among affected persons and local communities, actual compliance with approved land use and road reserve plans remained relatively low. The majority of respondents were aware of road reserve boundaries, yet substantial levels of encroachment, informal developments, and unauthorized land uses persisted along the corridor. The study established that awareness alone was insufficient to guarantee compliance, as many individuals continued to undertake developments that violated planning regulations. Encroachment on road reserves emerged as the most common form of non-compliance, followed by informal structures and unauthorized business activities. Although enforcement actions were generally perceived as effective when undertaken, monitoring systems were found to be inconsistent and largely reactive rather than preventive. The study therefore concluded that the gap between awareness and compliance remains a major challenge in management of land use compliance along the corridor.

The study further concluded that land use non-compliance is driven by a combination of socio-economic, institutional, and governance-related factors. Rapid population growth and urbanization were identified as major contributors to non-compliance by increasing demand for land and accelerating informal developments beyond the capacity of planning authorities to effectively regulate. Land tenure disputes, weak enforcement mechanisms, corruption, informal approvals, inadequate monitoring, and economic pressures were also found to significantly undermine compliance with land use regulations. While lack of awareness was not identified as a major cause of non-compliance, livelihood needs and income-generation pressures encouraged many individuals to undertake developments that violated planning standards. Institutional weaknesses, particularly poor coordination among responsible agencies, further reduced the enforcement efforts.

The study also concluded that sustainable improvement in land use compliance requires a multifaceted approach that combines enforcement, monitoring, community engagement, and institutional collaboration. Respondents strongly supported strengthening enforcement of land use regulations, increasing monitoring through regular inspections and modern technologies such as GIS, and enhancing community awareness and sensitization programs. The findings established

that involving local communities in planning processes promotes ownership of development decisions and increases willingness to comply with regulations. Furthermore, the study concluded that providing alternative livelihood opportunities can reduce economic pressures that often drive non-compliant land use practices. Better coordination among government institutions and integration of urban planning with infrastructure planning were also identified as critical measures for improving compliance and ensuring orderly development along the corridor. While respondents expressed mixed views regarding the need for stronger land policies and legal reforms, the study found that effective implementation and enforcement of existing regulations are more critical than introducing new policies.

6.2 Recommendations

The following recommendations were made based on the study findings:

Given the finding that awareness of road reserve boundaries and land use zoning regulations is very high but actual compliance remains low, it is recommended that government agencies responsible for land management strengthen enforcement mechanisms to ensure that knowledge of regulations is translated into actual compliance. Enforcement actions should be consistent, timely, and visible to deter encroachment, unauthorized developments, and other forms of non-compliance along the road corridor.

In view of the widespread encroachment on road reserves and the prevalence of informal structures, it is recommended that planning authorities establish proactive monitoring systems supported by modern technologies such as Geographic Information Systems (GIS), satellite imagery, and routine field inspections. Continuous monitoring would facilitate early detection of violations and enable corrective measures before illegal developments become permanent and costly to remove.

In response to the finding that economic pressures significantly influence land use behavior, it is recommended that government and development partners implement livelihood support programs for communities living along the corridor. Such interventions may include support for small enterprises, access to affordable business spaces, and income-generating initiatives aimed at reducing dependence on informal and unauthorized land use activities.

Given the significant influence of land tenure disputes on land use non-compliance, it is recommended that government strengthen land administration and dispute resolution mechanisms.

Timely adjudication of ownership disputes, and improved land registration systems should be prioritized to reduce conflicts that hinder enforcement of land use regulations.

To address concerns regarding corruption and informal approvals, it is recommended that planning and land management institutions strengthen accountability and transparency mechanisms. This should include stricter supervision of approval processes, regular audits of planning decisions, establishment of accessible complaint and grievance systems, and enforcement of sanctions against officials involved in unauthorized approvals or corrupt practices.

Considering the finding that monitoring and supervision remain weak and largely reactive, it is recommended that planning authorities increase investment in institutional capacity through recruitment of additional planning personnel, provision of adequate logistical support, and continuous professional training. Strengthened institutional capacity would improve routine surveillance, enforcement responsiveness, and overall effectiveness of land use management.

In response to the finding that community participation enhances compliance, it is recommended that local governments adopt more participatory planning approaches that actively involve communities in land use planning, implementation, and monitoring processes. Meaningful stakeholder engagement would foster ownership of planning decisions and improve voluntary compliance with land use regulations.

Given the importance of coordination among government institutions, it is recommended that stronger inter-agency collaboration mechanisms be established between planning authorities, land offices, road agencies, and local governments. Regular coordination meetings, information-sharing platforms, and joint enforcement operations should be institutionalized to ensure consistent and effective land use control.

Lastly, considering the strong support for integrating urban planning and infrastructure planning, it is recommended that policymakers adopt an integrated corridor management approach that harmonizes road infrastructure development with land use planning. This would ensure that future infrastructure expansion is protected from encroachment, minimize conflicts between development activities and road reserves, and promote sustainable and orderly land use along the Kyaliwajjala–Kasangati–Matugga Road corridor.

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APPENDICES

Appendix I: Questionnaire

Dear Respondent,

You are kindly requested to participate in this study titled *"**Assessing land use compliance along the infrastructure corridor after compulsory land acquisition.: A case of kyaliwajjala-kasangati-matugga road project**"* This study is being conducted as part of the requirements for the award of a Master of Science in Land Management at Makerere University.

The purpose of this research is to examine the level of land use compliance following compulsory land acquisition, identify the challenges affecting compliance, and propose strategies to improve adherence to land use regulations.

Your participation is entirely voluntary, and you are free to withdraw at any time without any consequences. The information you provide will be treated with the utmost confidentiality and will be used strictly for academic purposes. You are not required to write your name on this questionnaire.

Your honest and accurate responses will greatly contribute to the success of this study.

Thank you for your time and cooperation.

Yours faithfully,
Bizmana Davis
(MSc Land Management Student)
Makerere University

Section A: Bio-data

No.	Question	Response Options
1	Gender	Male ☐ Female ☐

2	Age	18–25 ☐ 26–35 ☐ 36–45 ☐ 46–55 ☐ 56+ ☐
3	Marital Status	Single ☐ Married ☐ Divorced ☐ Widowed ☐
4	Highest Level of Education	No formal education ☐ Primary ☐ Secondary ☐ Tertiary ☐ Postgraduate ☐
5	Duration of stay in the affected area	Less than 1 year ☐ 1–5 years ☐ 6–10 years ☐ Over 10 years ☐
6	Occupation	Self-employed ☐ Employed ☐ Unemployed ☐ Others: _____

Section B: Determining the extent of land use compliance against approved road reserve plans along the Kyaliwajjala-Kasangati-Matugga Road Project

No.	Question	Response Options
1	Are you aware of the road reserve boundaries along the corridor?	Yes ☐ No ☐
2	Are you aware of road reserve boundaries/zoning regulations for this area?	Yes ☐ No ☐
3	Land use activities in this area comply with approved road reserve boundaries.	Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐
4	There is encroachment on the road reserve along this corridor.	Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐

5	After compensation, land is used according to approved land use plans.	Yes ☐ No ☐
6	What type of land use activities are currently practiced near the road corridor?	Residential ☐ Commercial ☐ Agriculture ☐ Mixed-use ☐
7	Some land uses near the road corridor do not comply with regulations.	Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐
8	Authorities regularly monitor land use activities in this area.	Yes ☐ No ☐
9	Enforcement of land use regulations is effective.	Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐
10	If there is non-compliance, what forms does it take?	Encroachment ☐ Informal structures ☐ Unauthorized businesses ☐ Others _____

Section C: The challenges affecting land use compliance along the infrastructure corridor of Kyaliwajjala-Kasangati-Matugga Road

No.	Question	Response Options
1	Rapid population growth and urbanization contribute to non-compliance.	Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐
2	Weak enforcement of planning regulations affects compliance.	Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐

3	Lack of awareness about land use regulations contributes to non-compliance.	Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐
4	Land tenure disputes affect compliance with land use regulations.	Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐
5	Economic pressures (need for income) influence how land is used.	Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐
6	There is poor coordination among government institutions.	Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐
7	Corruption or informal approvals contribute to non-compliance.	Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐
8	Lack of monitoring and supervision affects compliance.	Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐
9	What other challenges affect -land use compliance?	_____

Section D: Strategies for enhancing land use compliance along the infrastructure corridor of Kyaliwajjala-Kasangati-Matugga Road

No.	Question	Response Options
1	Strengthening enforcement of land use regulations can improve compliance.	Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐
2	Increased monitoring (e.g., inspections, GIS technologies) can enhance compliance.	Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐
3	Community awareness and sensitization can improve compliance.	Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐
4	Involving local communities in planning improves compliance.	Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐
5	Providing alternative livelihood support reduces non-compliant land use.	Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐
6	Stronger land policies and legal reforms can improve compliance.	Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐
7	Better coordination among government institutions can enhance compliance.	Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐

8	Urban planning and infrastructure planning should be integrated.	Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐

END: THANK YOU

Appendix II: Interview Guide for Key Informants

Section A: Bio-Data

1. Position/Role
2. Duration of work experience in current role
3. Education background
4. Previous roles or experience related to land acquisition, infrastructure development, or physical planning

Section B: Determining the extent of land use compliance against approved road reserve plans along the Kyaliwajjala-Kasangati-Matugga Road Project

For Land Surveyors, Valuers and Sociologists.

1. How would you describe the current level of land use compliance along the Kyaliwajjala–Kasangati–Matugga Road corridor?
2. To what extent are persons affected by the construction of the road adhering to the defined road reserve boundaries after compensation?
3. Are there cases of encroachment or unauthorized land use within the road reserve?

4. What mechanisms are used to monitor compliance of the land use in relation to road reserve boundaries

For Project Engineers

1. From your observations, how compliant is land use along the road corridor with approved engineering designs and road reserve requirements?

2. Have you encountered encroachment or activities that interfere with road infrastructure functionality?

3. What coordination exists between engineers, surveyors, valuers, sociologists and planners in ensuring compliance?

4. How frequent is monitoring conducted along the road corridor?

For Physical Planners

1. How would you assess the level of land use compliance with road reserve boundaries along the project corridor?

2. Are current land uses consistent with land use regulations and development plans?

3. What forms of land use non-compliance are most common in this area?

4. How effective are existing development control mechanisms in enforcing compliance?

For Local Area Chairpersons

1. How would you describe land use practices along the road corridor?

2. Are community members complying with road reserve boundaries and planning regulations?

3. What types of non-compliant land uses are common in your area?

4. What role do local leaders play in promoting compliance?

Section C: The challenges affecting land use compliance along the infrastructure corridor of Kyaliwajjala-Kasangati-Matugga Road

For surveyors, valuers, and sociologists

1. What challenges affect compliance with land use regulations along the road corridor

2. Do land ownership disputes or boundary conflicts affect compliance of land use?

3. Are there institutional challenges affecting enforcement?

4. How does coordination among agencies affect compliance?

For Project Engineers

1. What challenges do you face in maintaining road reserve integrity after project completion?

2. How does rapid urbanization affect land use compliance along the corridor?

3. Are there technical or operational challenges in monitoring encroachment?

4. How do informal developments impact road infrastructure?

5. What institutional limitations affect enforcement?

For Physical Planners

1. What are the major challenges affecting land use compliance in this corridor?

2. How does weak enforcement of planning regulations affect compliance?

3. Do you observe challenges related to lack of awareness owners of the land along the road corridor.?

4. How do economic pressures influence land use decisions?

5. Are there governance or corruption-related challenges affecting compliance?

For Local Area Chairpersons

1. What challenges do community members face in complying with land use regulations for the land?

2. Do residents fully understand land use restrictions for the lands along the road corridor?

3. What challenges do local leaders face in enforcing land use compliance?

Section D: Strategies for enhancing land use compliance along the infrastructure corridor of Kyaliwajjala-Kasangati-Matugga Road

For Surveyors, Valuers and Sociologists

1. What strategies can improve land use compliance with land use regulations along the road corridor

2. How can awareness and sensitization of land owners be improved?

3. How can institutional coordination be strengthened?

4. What policy reforms are needed to improve land compliance, if any?

For Project Engineers

1. What measures can be taken to protect road reserves from encroachment?

2. How can monitoring and enforcement systems be strengthened?

3. How can collaboration with planners and local leaders be improved?

4. What strategies would enhance long-term sustainability of the road corridor?

For Physical Planners

1. What planning strategies can improve land use compliance along the corridor?

2. How can enforcement of development control regulations be strengthened?

3. What role can integrate planning (land use and transport) play?

4. How can community participation improve compliance?

5. What policy or legal reforms are necessary to enhance compliance, if any?

For Local Area Chairpersons

1. What strategies can help improve land use compliance with land use regulations in your area?

2. What role should local leaders play in monitoring and enforcement?

3. How can conflicts related to land use be minimized?

4. What support do local leaders need to improve compliance?

END: THANK YOU