



UNIVERSITY OF NAIROBI
FACULTY OF BUILT ENVIRONMENT AND DESIGN
DEPARTMENT OF ARCHITECTURE

**CONTRIBUTION OF LAND TENURE TO PROVISION OF URBAN SERVICE
FACILITIES: A CASE OF NYERI TOWN RESIDENTIAL NEIGHBOURHOODS**

BY

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W50/12760/2018

**RESEARCH PROJECT PRESENTED IN PARTIAL FULFILMENT OF THE AWARD
OF MASTER OF URBAN MANAGEMENT DEGREE.**

JULY 2024

DECLARATION

I hereby declare that this research project is my own original work and that all the sources that I have used or quoted herein have been acknowledged by way of complete references and that this work has not been submitted before for an award of degree in any other university.

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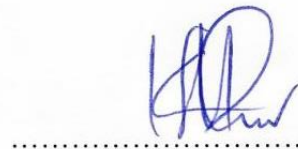
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DEDICATION

This project is dedicated to my wife Phylis, my daughter Serene and my son Levi whose words of encouragement and the much-needed support went all the way in motivating me to complete the work.

ACKNOWLEDGMENT

I thank the Almighty God for granting me abundant life and good health to successfully complete my research project and bring this publication into being. The support of many people has achieved this study. I feel indebted to a few people who helped me in various ways: First, I wish to record my sincere gratitude to my supervisors, Dr. Ralwala Anthony and Dr. Kassim Omar for the invaluable supervision, which helped me stay on course through the entire period of study. I thank you for your guidance, critique and encouragement when it was needed which made this project to be improved and completed on time. I sincerely thank you Dr. Ralwala, the program coordinator for your overwhelming support and offering me an open door for constant consultation. Secondly, I am equally grateful to my family for their encouragement and prayers throughout my academic life.

Thirdly, I also appreciate colleagues at County Government of Nyeri-Department of Lands, Housing, Physical Planning and Urban Development for their suggestions and inputs to this research. More special thanks to my professional mentor Plan. David Gichuki for the encouragement and support without which, this project would not have been successful. To my respondents, thank you for taking your time to give feedback in the oral interviews and questionnaires.

Finally, I appreciate the University of Nairobi for according to me the chance to pursue this course and my colleagues at the university who stood with me throughout the study period.

ABSTRACT

The world is urbanizing. Although urbanization is perceived to bring opportunity and a better, more prosperous life, today, this is no longer true for many urban dwellers in the global south. This situation is explicated by the uneven distribution and accessibility of urban service facilities. Urban studies in this region indicate majority of urban dwellers have limited or no access to public service facilities that provides core services such as health, education, recreation, water, sanitation and transport causing them to rely on alternative arrangements to meet their service needs. Fair and equitable access and distribution of these service facilities is often restricted by all kinds of invisible barriers, but the outcome is so visible. This study identifies land tenure forms as a possible invisible barrier to equitable provision of urban service facilities. This study therefore set out to investigate nexus between land tenure and provision of urban service facilities with emphasis on how land tenure related urban management practices contribute to the variation in nature and level of urban service facilities in residential neighborhoods. Using Egalitarianism theory, supported by Institutional Framework for Spatial Justice and the System Theory, the research questions focused on how provision of urban service facilities vary in residential neighborhoods under different land tenure forms, how land tenure related urban management practices contribute to the variations and the possible measures that can be undertaken to improve provision of urban service facilities in residential neighborhoods. Data for this quantitative and qualitative study accrued through interviews, questionnaires, observations and documentary analysis, with a focus on three case residential neighborhoods in Nyeri town: Kangemi, Kingongo and Transformer was analyzed through descriptive analysis. The results indicated variations in availability, accessibility and service facilities providers across the neighborhoods. The study established formulation of public urban service facilities provision policy and formulation of development legislation and regulations are land tenure related management practices that contribute to provision of urban service facilities in residential neighborhoods. Finally, the study compiled Land Re-adjustment, Land expropriation, Land Banking, Pre-emption, Land surrender and Establishment of Growth Areas Authority as measures to improve provision of urban service facilities in residential neighborhoods under different forms of land tenure.

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ABBREVIATIONS AND ACRONYMS

BO	Build Occupy
BSM	Block System Model
ECDE	Early Child Development Education Centre
GoK	Government of Kenya
Km	Kilometer
KNBS	Kenya National Bureau of Statistics
NMISUDP	Nyeri Municipality Integrated Strategic Urban Development Plan
NYEWASCO	Nyeri Water and Sewerage Company
PLUPA	Physical and Land Use Planning Act
PSBO	Plan Service Build and Occupy
SDGs	Sustainable Development Goals
SPSS	Statistical Package of Social Services
UACA	Urban Areas and Cities Act
UN-HABITAT	United Nations Human Settlements Programme
USFs	Urban Service Facilities
USFPP	Urban Service Facility Provision Policy

1 INTRODUCTION

1.1 Background

The world is urbanizing at a rate and scale never seen in human history. Between 1950 and 2018, the number of people living in urban areas worldwide increased from 751 million to 4.2 billion, with projections indicating that this number would reach 6 billion by 2050 (Gideon, 2020). The global urban population has not been distributed equally, even though no region can claim a decline in urbanization. Despite being the least urbanized region, research indicates that the global south is urbanizing at the quickest rate. Nearly ninety percent of urban expansion will occur in Africa and Asia between 2018 and 2050. According to Ngayu (2011) and Onjala and K'Akumu (2016), three causal factors explain the phenomenon in these regions: migration from rural areas to other urban areas, natural population growth among urban residents, and spatial expansion of urban settlements through the annexation and reclassification of previously rural areas. Although urbanization is thought to provide opportunities and a better, more wealthy living, this is no longer the case for many urban people. For example, Mahendra (2021) observes in his paper *Towards a More Equal City* that most urban dwellers in global south cities and urban regions have limited or no access to municipal infrastructure that delivers fundamental services such as water, sanitation, transportation, and electricity. According to the research, more than 1.2 billion people live in urban slums. They are underserved, accounting for roughly one-third of urban inhabitants globally and two-thirds of low-income nations. According to the World Bank's 2016 Kenya Urbanization Review Report, in Kenya's two biggest cities, Nairobi and Mombasa, only around 18% of the entire urban population has access to a sewage system, with the remaining 70% relying on septic tanks and pit toilets. The others do not have access to any sanitation services. In a research conducted in Kenya's capital, Nairobi, Nyamai et al. (2022) investigated home piped water distribution patterns from 1985 to 2018. According to the study, newly developed urban residential neighborhoods are underserved compared to older ones.

According to Smith (2000), public service facilities are one of the amenities every human deserves to satisfy his or her basic requirements and rights to life. Public service facilities include educational services like schools, security services like police and fire stations, public transit, clean water supply, garbage collection and treatment, and recreational services like libraries and parks. It is crucial to highlight that these services have a spatial component; they are delivered in facilities physically scattered throughout space. Therefore, as observed by Setianto and Gamal (2021), the equal distribution and accessibility of public service facilities may be used to measure the fulfillment of universal needs and the right to life. However, Tibaijuka (2010) points out that despite the apparent results, various imperceptible impediments frequently impede fair and equal access to and distribution of these service facilities. Several studies (Olima & Obala, 1998; Omwama, 2016; Selod, 2007; Home, 2012), for example, contend that there is a pattern between land tenure and the availability of infrastructural amenities in urban regions when describing the infrastructure provision in Kenyan urban areas. For instance, Omwama (2016) observes that the construction of public infrastructure, such as highways, has been slowed down in regions under freehold interest and inside metropolitan borders. Selod (2007) contends that old, run-down, poorly maintained homes, a lack of water tap locations, and poor road conditions are characteristics of informal land tenure regions inside metropolitan centers. Home (2012), writing on Kisumu City, contends that the freehold districts outside the old town limit are primarily unplanned and unregulated, with mixed land uses and inadequate infrastructure and utilities. In contrast, the old town under leasehold tenure remains carefully regulated and well-served. Concluding previous research, this study finds that land tenure may be a crucial but unseen obstacle to the fair distribution of urban service infrastructures. With a focus on the residential neighborhoods of Nyeri town, this study aims to explore the various types of land tenure in urban areas and their role in facilitating the Provision of urban service amenities. The study is motivated by the observation that certain urban residential districts receive better service than others and by the hypothesis that changes in land tenure may play a significant role in explaining the differences in the kind and quality of urban service facilities.

1.2 Problem Statement

Previous research indicates that the unequal distribution and accessibility of urban service amenities have influenced the geographical organization of cities. Most urban residents rely on alternative arrangements to satisfy their service demands. They need more access to public facilities that offer essential services, including water, sanitation, transportation, health, education, and recreation. This makes it imperative to change the way services are provided so that they are tools for promoting inclusivity and prosperity rather than something that contributes to urban inequality. Most studies use economic disparities as a proxy for unequal access to and distribution of urban service facilities, although this is only one aspect of the issue. Access to services—such as clean, inexpensive housing, hygienic water, proper sanitation, dependable transportation, and means of obtaining work, medical care, education, and other necessities—influences how people see metropolitan areas. Unequal access to essential services can impact more lives, livelihoods, and prospects than income disparities (Mahendra, 2021). Improving the policy Provision of urban service facilities will require a new strategy that prioritizes fair access to services while putting important considerations other than income levels front and center.

This study focuses on disparities in the provision of urban services facilities across residential neighborhoods in relation to their form of land tenure. Land tenure, which refers to the rights and responsibilities that come with owning or occupying land, is a crucial factor in the provision of urban services. This approach is premised on past studies that have shown: to ensure ideal and equitable provision of urban service facilities urban areas are to be established on state/public owned land. This ensures the provision of urban service facilities through the official process of urban development, which includes planning, servicing, and the formulation of development guidelines (Ayonga J. 2017; Government of Kenya 2012). However, in Kenya, growing urbanization has nearly exhausted urban state-owned property, prompting the establishment of townships and municipalities, leading to the incorporation of various kinds of land ownership. In addition, as noted by Henley (2016) urban authorities in developing countries like Kenya lack resources to

compensate landholders for their loss of rights in the process of transferring land from them to government for effective planning and provision of urban service facilities. Therefore, urban areas in Kenya are established on multiple forms of land tenure.

In Nyeri town, three main forms of land tenure are evident in residential neighborhoods; Leasehold, freehold and informal (County Government of Nyeri, 2015). Leasehold land tenure in the town is found in residential neighborhoods that were subjected to a formal urban development process, which involves the systematic planning and allocation of land for specific uses. Freehold land tenure in the town is found in residential neighborhoods that emerged as a result of agricultural land transformation to urban land use through spatial expansion of previously planned areas through annexation, whereas informal land tenure is found in residential neighborhoods that emerged from groups of people occupying public land as squatters. With this context, this study seeks out the nexus between land tenure and provision of urban service facilities with emphasis on how land tenure related urban management practices contribute to the variation in nature and level of urban service facilities in residential neighborhoods. Three Nyeri town residential neighborhoods; each representing one of the main land tenure forms (Leasehold, Freehold and Informal) were selected to form the focus of this study as detailed cases.

1.3 Research questions

1. How does provision of urban service facilities vary in Nyeri town residential neighborhoods under different land tenure forms?
2. How does land tenure related urban management practices contribute to the variation in provision of urban service facilities in Nyeri town residential neighborhoods?
3. What are the possible measures that can be undertaken to improve provision of urban service facilities in residential neighborhoods under different forms of land tenure in Nyeri Town?

1.4 Research objectives

1. To examine the variations in provision of urban service facilities in Nyeri town residential neighborhoods under different land tenure forms.
2. To analyze the land tenure related urban management practices that contribute to the variations in provision of urban service facilities in residential neighborhoods under different forms of land tenure in Nyeri Town.
3. To compile the possible measures to improve provision of urban service facilities in residential neighborhoods under different forms of land tenure in Nyeri Town.

1.5 Research Assumptions

This study was premised on the following assumptions:

1. From available statistics urbanization is inevitable, hence exerting greater demand for urban land and provision of urban service facilities.
2. Urban areas in Kenya are established on multiple forms of land tenure.
3. The state lacks adequate resources to compensate private landholders for their loss of rights in already established residential neighborhoods in the process of transferring land from them to the state.
4. For economic equity, the public sector is best positioned to provide urban service facilities since the value of the service facilities is often greater than the individual consumer could afford.

1.6 Justification for the Study

Variations in service facilities provision in urban areas occasioned by urbanization in Kenya and the developing world have been cited in various studies. However, past studies have yet to examine the nexus between forms of land tenure and the provision of urban service facilities, focusing on challenges and opportunities presented by land tenure-related urban management practices in providing urban service facilities. This literature gap needs to be improved, and an elaborate framework for tackling deficiencies in urban service facilities provision needs to be developed. The study results should close the literature gap and strengthen the foundation for the provision of urban service facilities.

1.7 Significance of the study

Intra-urban service facilities provision variations that perpetuate urban inequality are an inherent urbanization challenge. This study aimed to contribute to actions geared towards addressing the challenge by identifying and analyzing land tenure-related urban management practices that contribute to the variation in nature and level of urban service facilities in residential neighborhoods. The report's recommendations will provide measurements that can serve as broad guidelines for policy creation in Kenya regarding the provision of urban service facilities. The research findings will be beneficial in educating county governments and urban management bodies, such as the Nyeri Municipal Board, on how to restructure the process of providing urban services to make them more responsive and effective. The study added to the urban management literature by analyzing land tenure-related urban management practices that impact the provision of urban public service facilities.

1.8 Scope of the study

1.8.1 Theoretical scope

The theoretical framework underpinning this study is limited to Egalitarianism, Institutional Framework for Spatial Justice and the System Theory. This study is based on Egalitarianism and supported by Institutional Framework for Spatial Justice and the System Theory.

1.8.2 Geographical scope

The study was carried out within the Nyeri Town boundaries. Nyeri town is a middle-sized urban area. Like many county headquarters, Nyeri town is experiencing rapid urbanization and therefore continuously expanding spatially. It formed a perfect case of analysis due to its heterogeneity in residential neighborhoods.

1.8.3 Variable scope

Due to the time limit and inadequate financial resources this study was limited to land tenure related urban management practices as the independent variable and provision of Early Child Development Education Centre (ECDE centre), Primary School, Health facilities, Green Park/Playground, Water Supply facilities/network,

Liquid waste disposal facilities/network, Solid waste disposal facilities, Community Centre/Social Hall as dependent variables. The study also only focused on freehold, leasehold and informal forms of land tenure.

1.8.4 Methodological scope

This study aimed to collect and examine data on variations in the provision of urban service facilities, the land tenure-related urban management practices that contribute to these variations, and possible measures to improve the provision of urban service facilities in residential neighborhoods under different forms of land tenure in Nyeri town. To accomplish these goals, a mixed research methodology was used in the study, complementing the quantitative and qualitative components.

The study focused on secondary data sources, such as previous studies on related subjects for compiling the types of land tenure in urban areas; literature on land administration procedures and processes related to the provision of urban service facilities, which could be found in books, journal articles, and research works. Moreover, fieldwork employing data-gathering tools yielded primary data, which was essential for this investigation. The data collection instruments included administration of household questionnaires, key informant interview schedules, review of records, and field observations conducted within Kingongo, Kangemi, and Transformer residential neighborhoods in Nyeri town.

1.9 Limitation of the study

The main limitations in carrying out this study included inadequate time and limited financial resources. Due to these limitations the study, investigation was only conducted within Kingongo, Kangemi and Transformer residential neighborhoods instead of the entire Nyeri town. The study area was relatively large with diverse neighborhoods and physical characteristics which may affect the generalizability of the results from the three case study areas.

1.10 Delimitation and exclusions

This study will be based in Nyeri; hence, it will not include any other towns in Kenya. Furthermore, the study only aims to look into three types of land tenure: freehold, leasehold (public leasehold), and informal land tenure, leaving out any other types of land tenure, such as customary land tenure. The study also excludes all other types of urban service facilities, focusing solely on Early Child Development Education Centers (ECDE centers), Primary Schools, Dispensaries/Health Centers, Green Parks/Playgrounds, Water Supply Facilities/Networks, Liquid Waste Disposal Facilities/Networks, Solid Waste Disposal Facilities, and Community Centers/Social Halls. Through the literature review, the study identified four key management practices: formulation of urban service facilities provision policy, formulation of legislation and regulations, establishment of urban management institutions, and devising fiscal and financial measures. However, this study will concentrate on two identified management practices: the design of urban service facilities providing policy and the creation of legislation and regulations, eliminating the others from examination and analysis.

1.11 Operational Definition of Terms

- **Land tenure** - refers to the regulations that govern the ownership and use of land by people, communities, or groups.

- **Urban area**- a continually developed area with a population of at least 2,000 people and a higher density of structures constructed by humans than the surrounding surroundings. Urban areas are defined under this definition as towns, cities, and municipalities.

- **Urban management practices**- encompass a range of instruments, including institutional structures, policies, laws, and regulations, as well as fiscal and financial measures, all aimed at achieving fair and efficient urban growth.

- **Urban Service facility** – component of built environment whose primary use is to distribute services to more than one household- Early Child Development

Education Centres (ECDE centre), Primary Schools, Health facilities, Green Park/Playgrounds, Water Supply Facilities/network, Liquid waste disposal facilities/network, Solid waste disposal facilities/network, Community Centre/Social Halls are suitable examples

1.12 Organization of the study

The study is organized into six chapters.

The first chapter discusses the study's background, problem statement, research questions, research objectives, research assumptions, study justification, significant impact, study limitations, study delimitation and exclusion, and term definitions.

The second chapter focuses on the review of literature on the following themes and subtopics: introduction; theoretical framework that underpins this study; the concept of land tenure: existing forms of land tenure in Kenya urban areas; provision of urban service facilities; land tenure related policy and legal framework on provision of urban service facilities; land tenure related urban management practices in provision of urban service facilities; indicators of variation in provision of urban service facilities in residential neighborhoods; summary of literature reviewed and literature gap identified and culminates to a conceptual framework.

Chapter three presents the background of the study area, highlighting its locational context, demographic and socio-economic characteristics, climatic and physiographic features, and provision of urban service facilities.

Chapter four discusses the research methodology used to conduct the study and comprises the research design, target population, sampling size, sampling procedures, data collection methods, data analysis methods, data presentation plan, and ethical considerations.

Chapter five explains how the data was processed, interpreted, and presented in accordance with the study's objectives and the challenges encountered in the field investigation.

Chapter six, as the final chapter, contains a summary of the study findings, a discussion of the findings, practical implications, conclusions, recommendations, and suggested areas of further research, all of which are designed to make the research findings applicable and relevant to real-world urban development and land tenure issues in Kenya.

2 LITERATURE REVIEW

2.1. Introduction

This section analyzes the literature on the role of land tenure in the provision of urban service facilities. It examines, analyzes, and critiques literature on land tenure-related urban management practices that contribute to the provision of urban service facilities - with the aim of laying a foundation and gaining a comprehensive understanding as well as conceptualizing the influence of land tenure towards the equitable provision of urban service facilities within residential neighborhoods. This chapter includes the theoretical framework that guides the research, the concept of land tenure, the various forms of land tenure that exist in Kenyan urban areas, the policies and legal framework related to land tenure that promote equitable access to urban services; the land tenure-related urban management practices that support equitable access to urban services, indicators of variation in the provision of urban services in residential neighborhoods, a summary of the reviewed literature, the identification of literature gaps, and a conceptual framework.

2.2. Theoretical Framework

This segment presents the theories that underpinned the study.

2.2.1 Institutional Framework for Spatial Justice

The Institutional Framework for Spatial Justice, as developed by Achmani et al. (2020), has the potential to significantly impact the field of urban development. This framework, a key outcome of their research on land management interventions, provides a comprehensive approach to measuring spatial inequalities in (re)development processes. It is based on the Institutional Analysis and Development (IAD) framework, which they distilled into a three-dimensional model (rule, process, and results) with a matrix of indicators for each level, as depicted in Figure 2-1.

As professionals in the field, you play a crucial role in applying the guidelines set forth by the Institutional Framework for Spatial Justice. These guidelines are the cornerstone for evaluating spatial justice and land tenure. They underscore the importance of institutionalizing laws that ensure equitable access to and use of

geographical resources, thereby securing property rights. Your expertise is vital in interpreting and implementing these guidelines in the context of formal policies, regulations, constitutions, and government directives, as well as informal social norms, codes of behavior, conventions, and political choices that influence urban area management.

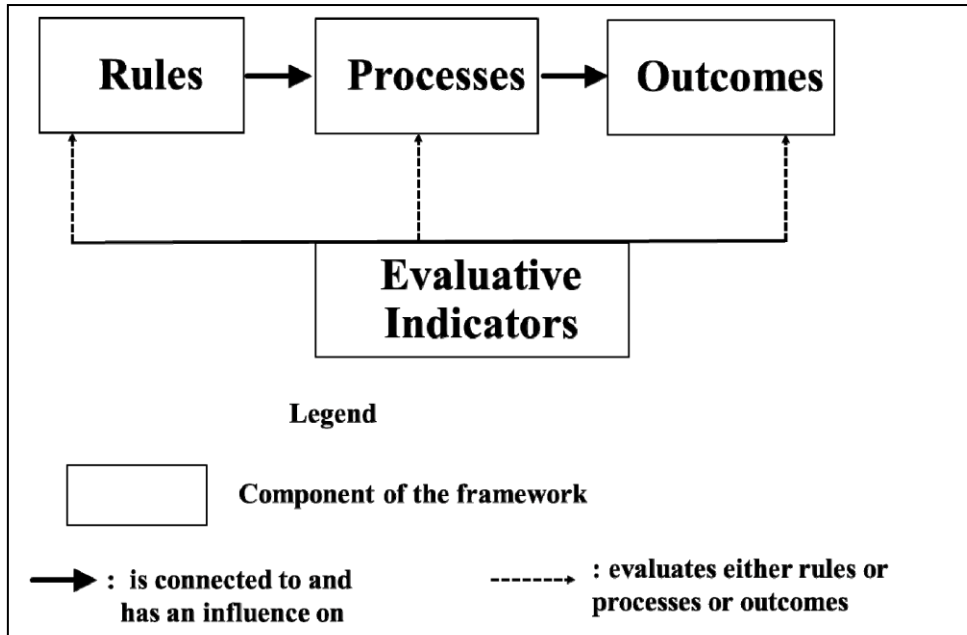


Figure 2-1: Institutional Framework for Spatial Justice

Source; (Achmani, 2020)

Processes are defined by the aspects and variables listed below. They entail developing and implementing space management plans and actions with active participation and cooperation from spatial resource users, decision-makers, and planners. Finally, the outcomes are assessed by analyzing the consequences of the dialectical processes of space formation and rearrangement. The findings address many facets of people's relationships to space. They include access to spatial resources, ownership, usage, and space habitation. The arrows reflect the link between the three dimensions, stating that rules guide the procedures that produce the results. According to the spatial justice theoretical framework, just laws result in just processes and outcomes. This paradigm was the foundation for evaluating land

tenure-related urban management strategies and how they led to differences in urban service facilities offered (outcomes).

2.2.2 System Theory

According to Lai and Lin (2017), systems theory, with its rich historical context, originated in biology. It was created in the 1950s in response to the need for a collection of systematical theoretical constructs to describe the empirical world. Chikere and Nwoka (2015) contend that two prescriptive ways exist to make sense of the world. The first is reductionism, whereas the second is a systems approach. According to reductionism, the best method to comprehend a novel phenomenon is to investigate the functioning or qualities of its constituent elements. For instance, disassembling the human body into its constituent parts—organs, muscles, tissues, bones, and cells—and learning about their characteristics would be the most excellent approach to comprehending how the body functions.

Systems theory, in contrast, is a powerful tool that highlights the relationships between components. It emphasizes the organization of the parts, the connections between them, and how they function as a whole, rather than breaking down an object, such as the human body, into its individual elements. This approach provides a valuable and relevant way to understand the complexities of the real world.

The structure and patterns of the relationships resulting from component interactions define a system. These system parts are interconnected and organized, not separate, autonomous entities. One component cannot function without the assistance of other components due to the strength of this dependency. Thus, systems theory aims to explain how the components are combined and work together. This theory played a crucial role in investigating the laws and procedures about land tenure, which were examined as a system that affected the kind and quality of urban service amenities offered.

2.2.3 Egalitarianism

An economic model known as egalitarianism promotes equality (Dietzenbacher, 2017). The contractarian idea of justice, the just city, and the right to the city exemplify egalitarianism. The just city idea will be the foundation for this study's egalitarianism. Suzan Fainstein outlines a series of guidelines in her theory that should serve as the cornerstone of equitable urban development. She lists democracy, variety, and equality; nonetheless, the items on her list are solely relevant to local planning (Fainstein, 2010). In the pursuit of equality, as noted by Khosroshahi (2015), Fainstein clearly distinguishes between two terms, "Equity" and "Equality," by explaining that equity refers to a distribution of both material and nonmaterial benefits resulting from public policy that does not favor those who are already better off at the start.

Furthermore, it is not required that each person be treated uniformly; rather, therapy must be suitable. Fainstein likes the term 'equity' when presenting decision-making criteria for two reasons. First, 'equality' needs to be simplified, complex, and impractical to be a goal in a capitalist metropolis, and the impacts of more equitable policies will never be sufficient to modify uneven income distribution significantly. Second, the term 'equity' is regularly employed in policy research; it suggests fairness, which is a more widely recognized goal than equality and can potentially attract political support (Zabel, 2019).

The equity principle, a crucial foundation for the applicability of Fainstein's theory of just cities in the context of this study, holds immense significance in urban development. The three chosen case studies' urban service facilities were evaluated using this equitable concept as the foundation, underscoring its importance in shaping just cities.

2.3. The Concept of Land Tenure

The terms "land tenure" and "land use" are not simple concepts; instead, they relate to the institutional frameworks and terms of land ownership, use, and transfer (Cromwell, 2002). It also specifies the processes by which people or organizations

obtain, possess, assign, or otherwise communicate their property rights (Ngugi, 2001). According to Lamba (2005), land tenure refers to the rights and limitations that individuals have over their land. According to Selod and Alain (2007), land tenure is understood as a social relationship involving a complicated system of laws that control how land is used and who owns it. According to Payne (2012), it is "the manner in which land is held or owned by individuals and groups or the set of relationships among people that are legally or customarily defined with respect to land." According to this analysis, land tenure represents two things: a relationship between people and the land and a system of regulations (rights and limitations) governing that relationship. As a result, the operational definition of land tenure used in this study refers to the laws (rights and limitations) that govern how people, organizations, or communities own and use land.

According to Mona Doshi et al. (2014), a land tenure system's common distinct types of rights that specify who may do what on the property are the Right to ownership: the ability to use, control, and dispose of property; Right to use: this can be divided into two categories: Usufructuary Right, which is the Right of an individual to use and enjoy another's real property as long as its substance is not altered or impaired (e.g., rights to use water from a stream for household use); and Right to access: an easement grants the Right to use another's real property for a specific purpose. The ability to utilize someone else's land and its products (such as a logging concession) is known as the Right to exploit; The Right to transfer, or the ability to buy, sell, inherit, or divide property rights, and the Right to control, or the ability to decide how land should be utilized. Some users may be restricted by obligations and responsibilities related to their land tenure, while others may have access to the whole "bundle of rights" with full use and transfer rights (Muinde, 2013). Among them are limitations on how the land is used since this needs to follow development and construction norms and standards, planning regulations, and the kind of development specified in the agreement or contract between the landowner and the user. Furthermore, the duration of the rights agreement and whether or not they are transferable and renewed may further limit the extent of rights. Last, depending on the local legal and regulatory framework, rights agreements or lease contracts can

range from informal, unwritten agreements (without official government recognition) to formal (official government recognition) contracts between land owners and users. This formality can have an impact on the level of rights.

2.3.1 Land tenure systems

All categories or forms of land tenure exist within several primary tenure systems that govern the administration of land rights and restrictions (Lamba, 2005), which, according to Payne (2012), correspond to major social and political systems such as customary/traditional, socialist/communist, religious, or market economies. However, as described by Ngugi (2001) and Cromwell (2002), land tenure systems are broadly divided into two groups: those introduced and regulated through state laws, commonly referred to as statutory tenure systems, and those with local origins regulated at local levels and by traditional practices, commonly referred to as customary tenure systems.

Statutory tenure systems, as classified into two types: private and public tenure systems, have a rich historical context. The private tenure system, under which individuals, businesses, and non-governmental organizations own property, is a concept that was primarily introduced to suit the needs of colonial settlers in emerging nations. This imported notion found its concentration in metropolitan areas, but as urban areas expanded geographically, it was forced to coexist with other indigenous tenure systems, such as customary tenure systems. The private tenure system allows practically unfettered use and trade of land and is meant to ensure its most intensive and efficient usage.

In contrast to the private system, the public tenure system allots land ownership in state or municipal governments and allows it to be based on publicly set goals. This system is essentially a response to the perceived constraints of private ownership, as it aims to enable all segments of society to get access to property in an era of increased competition. Despite usually achieving better levels of equity than private systems, the public tenure system has seldom reached high levels of efficiency due to bureaucratic inefficiencies or patronage and clientelism systems. This

understanding of the system's implications will make the audience more aware of its potential impact on society.

The customary land tenure system, which controls customary land tenure, is a system that the audience should approach with respect for cultural traditions. Customary land tenure is the collective holding of rights to use, transfer, develop, and inherit land by a group with the same cultural identity. In this system, customary authorities and social structures, such as chiefs, play a crucial role, often acting on behalf of the group. However, choices are made consensually and must adhere to the cultural traditions of the group concerned. The extent of the rights to utilize the property is determined by the agreement reached between the customary community and the individual acquiring the rights. In certain customary systems, land is considered holy, and man's responsibility is guardianship, protecting future generations' interests.

2.3.2 Forms of Land Tenure in Kenya Urban Areas

Understanding the various types of land tenure in Kenyan urban areas becomes more apparent from a historical perspective. According to Nyaila (2021), urbanization in Kenya, like in many other African nations, is a foreign development. As a result, throughout the colonial period, Kenya experienced urbanization. During the pre-colonial time, Kenyans lived in modest communities where people could safely defend themselves from wild animals and disasters while practicing farming, hunting, and collecting. Land was owned communally.

Colonialism in Kenya began in the late second half of the nineteenth century, and it brought about a variety of changes in terms of property ownership, land rights, land acquisition methods, and community governance. Europeans introduced the concepts of land entitlements based on ownership rather than usage, and individual rather than communal rights. Formal governmental laws governing land ownership and delivery were implemented beginning in 1891, including the notions of leasehold and freehold. The colonial authority played a significant role in the establishment of urban zones and registered towns. They delineated these areas' limits and jurisdictions, typically state-owned territories under government leasehold authority. The colonists also created regulations known as Township Ordinances to

help with the construction and administration of cities. The Township Ordinances defined the urban areas' limits and created the urban development process. Urban development involves land planning and surveying. Following the survey, the property that was not required for government use was subdivided into portions and typically auctioned for residential or business use by people and businesses (both British and Indian, but not African) on a leasehold basis. This trend, as noticed by Ayonga (2019), strongly divided metropolitan regions from African rural areas, resulting in sharp distinctions between planned and unplanned places. As a result, all urban land was owned on a leasehold basis.

In the post-colonial period, communal African rural reserves were adjudicated to permit the issuing of individual freehold title titles, hence promoting the security of tenure and capital investment in property (Ayonga, 2019). As stated throughout the colonial period, the colonial authority limited Africans' entry into urban areas, which had a significant impact on urbanization. This restriction led to a slower pace of urbanization and a concentration of African populations in rural areas. When the embargo on African movement to cities was repealed following independence, the demand for land for urbanization increased rapidly. The urban areas have subsequently outgrown the intended borders established during the colonial period, and the boundaries have been expanded to incorporate trust lands and newly given freeholds to former leasehold regions. According to the historical background and evolving tendencies, the three types of land tenure in Kenyan urban areas are leasehold, freehold, and communal.

Though the above-mentioned kinds of land tenure have been regularly acknowledged in historical literature, a new type of land tenure is emerging in urban areas: informal tenure. According to Lamba (2005), *de facto* tenure (real possession and use of property without a legal foundation) occurs when groups of people occupy public or private land without the permission of the landowner. This form of tenure, commonly referred to as squatting, has significant implications for urban development. It often occurs on government and undeveloped private land near major job areas for the urban poor, leading to the creation of informal settlements and unplanned urban areas.

2.3.3 Unbundling the land tenure forms

Freehold Land Tenure

The highest interest in property is granted under this tenure, which is known as the absolute right of ownership or possession of land for all eternity. It is the maximum amount of land that an individual is typically allowed to own by the government, with no limitations on usage or occupation (Olima and Obala, 1998). Legislation and planning rules, however, limit it to a certain amount in practice.

Leasehold Tenure

According to Omwama (2021), a lease is a contract between a landlord (lessor) and a tenant (lessee) that grants exclusive ownership of a property for a set length of time and is subject to specific terms and circumstances. Leasehold tenure has two characteristics: a definite amount of time and specified requirements. This tenure provides an interest in land for a definite amount of time that must always be guaranteed. This is distinct from freehold land, a free tenure with all the rights permitted by the tenure system for an indeterminate period. Leasehold tenure is also subject to specific criteria that must be met. The circumstances emerge due to a physical or land use development plan intended to be implemented. Omwama (2021) defines leasehold interests as 'the most restrictive and least protected rights in a property.' He contends that the viability of leasehold interests is contingent on strict adherence to the terms and conditions imposed by the lessor or the person granting the lease. Such circumstances include development and use limitations. For example, the lessee may only develop and use the property for the purpose for which it was designated, and any plan to modify that use must be submitted to the government for examination and approval, highlighting the importance of responsibility and adherence to leasehold tenure.

Leasehold interest can stem from private property held by people (private leases), which are leases granted by private individuals or entities, or public land controlled by the government (public leases), which are leases granted by the government. Most land ownership in Kenya's urban areas is through public leases.

This research will be confined to public leases. In Kenya, public leaseholds are given for either 99 or 33 years, depending on the property's intended use. Leases for agricultural or ranching purposes are given for thirty-three years or fewer, but leases for urban development are awarded for ninety-nine years. However, if a public lease ends, the land reverts to the state, or the leaseholder may ask for a renewal or extension.

It's important to note that the lessee does not have absolute ownership of the leased land. The government retains substantive interests and rights to regulate development on the leased land. Lease administration systems guarantee that the lessor receives financial advantages as indicated in the lease agreement and that the lessee complies with development requirements supporting the desired urban development goal. Development requirements also require the lessee to develop their land by authorized physical development plans, underscoring the regulatory role of the government in leasehold tenure.

Informal land tenure

As previously noted in this study, informal land tenure occurs when groups of people or individuals occupy public or private land without the landowner's permission. Nduku (2017) argues that the privatization of land tenure has caused those who cannot afford access to property rights to take it upon themselves to obtain them through various illicit means. The two sorts of unauthorized access to property rights are invasion and illegal land purchase.

2.4. Provision of Urban Public Service Facilities

Urban public facilities are integral to shaping the urban environment and spatial layout, and they play a key role in ensuring the smooth operation of urban systems (Wu, 2022). Badescu (2016) highlights that a key feature of these facilities is their ability to provide essential services that enable residents to lead fulfilling lives. This view aligns with Bhagat's (2011) assertion that access to fundamental services such as electricity, clean water, sanitation, healthcare, and waste management is vital for urban quality of life and represents a core element of urbanization quality.

Additionally, public service facilities are crucial in invigorating urban areas by attracting people and generating activities, which is essential for a dynamic urban environment and high-quality living. They are fundamental to the progress and sustainability of urban communities (Parry A. et al., 2012). Moreover, these facilities are seen as necessary amenities that fulfill individuals' needs and rights (Setianto and Gamal, 2021) and should be universally accessible. Such amenities include educational services (e.g., schools), security services (e.g., police and fire stations), public transportation, clean water supply, waste management, and recreational facilities (e.g., libraries and parks).

Werna (1996) defines provision as the act of assuring the availability of a thing or service, which includes decisions on quantity and quality, production arrangements, funding, regulation, and producer enablement. Governments primarily provide urban service facilities, either directly or indirectly, for the public benefit. However, public service facilities are not spread evenly within an urban region (Badescu, 2016). This disparity in distribution is a critical concern that requires attention. While achieving perfect urban distribution may not be feasible, it is essential that the placement of public service facilities reflects fairness to ensure that services are accessible and available to everyone.

2.5. Policy and Legal framework that promote equity in provision of urban service facilities.

2.5.1 Policy framework

Sustainable Development Goals (SDGs)

In 2015, leaders from 193 countries came together with the shared goal of "Transforming our World." This landmark event resulted in the creation of seventeen objectives, among them the eleventh Sustainable Development Goal (SDG), which seeks to make cities and human settlements more inclusive, safe, resilient, and sustainable. The United Nations Habitat has set an objective to provide everyone access to suitable, safe, affordable housing and essential services by 2030. Our research focuses on these services designed to improve social welfare and uphold public rights. The success of this objective depends on the equitable delivery of these essential services. Our research aims to identify land tenure-related urban management strategies that promote fairness in the provision of urban service facilities, thereby contributing to the urgent achievement of this aim by 2030.

Africa Agenda 2063

The purpose of the continent's 50-year strategy framework, Africa Agenda 2063: The Africa we desire, is to achieve inclusive and sustainable socio-economic growth (African Union, 2019). Africa will advance significantly towards achieving its 2063 vision if the seven aspirations outlined in the agenda, each with its own set of goals, are successfully met. Aspiration 1 focuses on creating a prosperous Africa through inclusive growth and sustainable development, aiming to ensure a high standard of living, quality of life, and well-being for everyone. These goals are to be attained through eradicating poverty, income and opportunity disparities, creating jobs, addressing the issues of rapid population growth and urbanization, improving habitats, and granting access to necessities of life like electricity, water, and sanitation, as well as by offering social security and protection. Variations in the availability of intra-urban service facilities exacerbate urban inequality by making it more difficult for all urban inhabitants to receive essential services. The

recommendations of this study may establish measures that will contribute to the achievement of the aspiration in the Africa Agenda 2063 in Kenya. This study will assist in taking action directed towards addressing the challenge through the identification and analysis of land tenure-related urban management practices that contribute to the variation in nature and level of urban service facilities provided in residential neighborhoods.

Kenya Vision 2030

Kenya Vision 2030 is the nation's long-term development strategy. The goal is driven by a shared desire to see a significantly improved society by 2030, a goal that each of us plays a crucial role in achieving. The vision aims to make Kenya a prosperous and globally competitive nation where all Kenyans live in a clean and safe environment with a high standard of living (Government of Kenya, 2007). Three main pillars support the vision: political, social, and economic governance. The social pillar of this research is creating a cohesive, just society that values equal social growth and takes place in a safe, clean environment. The vision acknowledges that Kenya inherited a severely unequal society on several fronts at independence in 1963. There were wide differences in incomes, access to land, health care, education, and other necessities, including clean water, decent housing, and sanitary facilities, as well as unequal rights to political, civil, and human rights (Government of Kenya, 2007). The differences between these locations may also be seen in Kenya's metropolitan districts, where some are well-planned and served, while others have subpar infrastructure and severely low living conditions. This pillar serves as the foundation for the investigations conducted in this study in an effort to attain equity in the delivery of important social amenities, or service facilities, in metropolitan regions under various social sectors.

National Urban Development Policy, 2015

The National Urban Development Policy of 2015 offers a framework for sustainable urban development. The specific goals are to "ensure adequate housing for all urban income groups; facilitate accessibility to the full range of social services that improve health, education, skills development, and recreational needs of citizens in urban

areas; promote integrated environmental planning and management; and foster timely and adequate delivery/management of land for urban development." Also included in the list of goals is "good mainstreaming of governance." The synthesis of this study's findings about the regulations and procedures about land tenure that must be implemented to create safe, secure, livable, and sustainable urban settlements is greatly influenced by the National Urban Development Policy, 2015. The policy also guides the study in examining how land tenure-related urban management practices affect the urban service facilities offered to urbanites.

National Land Policy, 2009

Securing land rights and promoting sustainable growth, investment, and poverty reduction in accordance with the government's overall development objectives constitute the 2009 National Land Policy's primary goals (Government of Kenya, 2009). The efficient use and distribution of land in metropolitan areas for economic, social, and environmental reasons make this policy relevant. In order to promote inclusiveness and sustainability in urban expansion, this study on the role that land tenure plays in providing urban service amenities aims to provide equal access to facilities within the metropolitan region.

2.5.2 Legal framework

The Kenya Constitution, 2010

The Republic of Kenya's ultimate law is this one. In Chapter Four on the Bill of Rights, Article 43 of the Kenyan Constitution guarantees every citizen's economic and social rights. It states that: 'Every person has the right; (a) to the highest attainable standard of health, (b) to accessible and adequate housing, and to reasonable standards of sanitation; (c) to be free from hunger, and to have adequate food of acceptable quality; (d) to clean and safe water in adequate quantities; (e) to social security; and (f) to education (Government of Kenya, 2010). This study contributes to the implementation article 43 of the constitution by making recommendations on measures that will improve provision of urban service facilities in residential neighborhoods in Kenya.

Physical and Land Use Planning Act, 2019

This law provides for the principles, procedures and standards for the preparation and implementation of physical and land use development plans at the national, county, urban, rural and cities level. The Physical and Land Use Planning Act, under section 5 requires all person engaged in physical and land use planning and regulation to promote sustainable use of land and livable communities which integrates human needs in any locality (Government of Kenya , 2019). This law, under section 45 also requires the county government to prepare a local physical and land use development plan for all urban areas. This local physical and land use development plans provide a basis for infrastructure and services delivery in urban areas.

Land Act, No. 6 of 2012

This law requires that public land be allocated only after being planned, surveyed and serviced as stipulated in Section 12(7) Act (Government of Kenya,2012). Further, Section 12 (9) of the Act directs that when land allocated is not developed as per the allocation conditions, and the land shall automatically revert to the County or the National Government. Planning in this context involves preparing development plans that allocate adequate land for provision of urban service facilities. However, this law establishes equity in provision of urban service facilities only on public allocated land (Public leasehold areas). This act provides an opportunity for this study to make recommendations in dealing with urban development on freehold and informal land tenure areas.

Urban Areas and Cities Act, No. 13 of 2011

The Urban areas and cities act provide for the, classification, governance and management of urban areas and cities; to provide for the criteria of establishing urban areas, to provide for the principle of governance and participation of residents and for connected purposes (Government of Kenya, 2019). Under the second schedule, this law provides all residents in the urban areas have the right to use and enjoy

public facilities and access all services which the urban area provides. Among the service facilities a town should have as stipulated in the first schedule of the act are: water and sanitation, health facilities, libraries, solid waste management, pre-primary and primary education, community centers, recreational parks and sports facilities, cemeteries and crematoria amongst others (Government of Kenya, 2019). This law also establishes a management body to ensure these services are provided. For instance, this act establishes Nyeri urban area as a municipality and therefore its managed by a municipal board.

County Government Act, No. 17 of 2012

Under section 116 of the County Government Act, it is stipulated that the county government and its agencies shall have an obligation to deliver services within its designated area of jurisdiction. This law requires that when delivering the services, principles of equity, efficiency, accessibility, non-discrimination, transparency and accountability must be observed.

2.6. Pathway to fairness in provision of urban service facilities

It is safe to say that every act has an intrinsic logic, determined by a series of contextual, regulatory and procedural factors. The first step towards understanding the provision of urban service facilities is the understanding the key procedures that contribute to equitable provision of the service facilities in urban areas. Past studies shows that provision of public urban service facilities is inherent to urban development. Ayonga (2019) notes two urban development pathways emerge from historical and theoretical review on various civilization: Formal/ideal and Informal/organic pathways. The pathways are made distinct by the procedures followed in the urban development process.

From the historical viewpoint, Ayonga (2019) notes in the western countries, which constitute the North, the formal development process in the era of renaissance, occurred on a plain surface, followed by provision of social and physical infrastructure before such land was allotted to prospective developers. Developers were required to obtain development permits before they could undertake actual

development and such developers were also required to obtain occupation certificates at the end of the construction process. Tracking literature on urban development in the renaissance period, there is consistency in the key steps and procedures followed to establish human settlements:

- An authority had to identify area (land) to which an urban area is to be established.
- Pre-determined population to be accommodated within the urban area.
- Preparation of a layout allocating land for public physical and social infrastructure such as road network and service facilities.
- Parcellation of land into plots for residential and commercial use for the land not allocated for physical and social infrastructure.
- Formulation of development guidelines for the residential and commercial land to be allocated for regulations of physical developments.
- Allocation of the residential and commercial plots to the public by the urban authority.
- The plots were developed based on the development guidelines

This process was inspired by theorists who were viewed as utopians, in America, for example, Hall (1999) notes planners mimicked the works of the utopians such as Ebenezer Howard, Lewis Mumford, Henry wright, and Clarence stein among others. For example, Ebenezer Howard in his theory of the Garden City, held the view that urban areas would be created with a population threshold in mind upon which new ones would be created when the threshold is reached (Howard, 1898). In his theoretical concept, Howard creates a framework for establishing urban areas with adequate urban service facilities by suggesting:

- There should be “a bold plan comprehensively prepared on a virgin land’ to avoid huge land compensation. The town's design needed to incorporate a central park, boulevards, a railway system, open spaces, and various districts for residential, agricultural, and industrial use. Additionally, it should feature schools, churches, a library, a museum, a hospital, a public market, swimming pools, and a comprehensive water and sewer system.
- A predetermined population threshold (32,000) to be domiciled in each town.

- A trustee is appointed to oversee the growth and operation of the town. The government has given loans to fund the construction of Garden City through the trustee.
- Through the definition of property rights as solely leasehold tenure and the collecting of land rent, Howard further secures the efficacy of the regulating authority (board of management). The way the rent is used determines the city's capacity to continue serving its citizens and paying off the debt incurred during the acquisition of the land on which the garden city was constructed.

Ayonga, (2019) underscores the significance of the PSBO model, a process that is both theoretically demonstrated by Howard (1898) and practically implemented in western countries. This model, which Ayonga (2019) summarizes, is a crucial framework for urban development.

This concept was meticulously implemented in Kenya during the colonial era. Kenya, first a protectorate and then a colony of Great Britain, viewed urban areas as places where people could live comfortably. This necessitated careful development and equipping with urban services that met approved criteria. Nairobi implemented the pre-planned development strategy in 1898. After Sir George Whitehouse identified Nairobi, Arthur Church was tasked in 1898 with creating the city's first railway deportation plan (Deisser & Njuguna, 2016). This example demonstrated the colonial government's meticulous approach to urban development, following a set of plans and enacting laws to carry out this precedent.

The Township Ordinance of 1903 was the first piece of urban land legislation enacted. According to Section 2 of the East Africa Township Ordinance, the Commissioner had the authority to designate areas within a town's protectorate and define their boundaries (East Africa Protectorate, 1903). Section 3 granted the Commissioner the power to establish rules governing the daily administration of township development activities. The process involved identifying the land, defining its boundaries by the Governor in Council, surveying it with the Governor's approval through the Commissioner, planning it with the help of a town planning advisor, and allocating it for infrastructure. The remaining land was then designated for

residential, commercial, and industrial use. Additionally, when the Commissioner of Lands alienated property for lease or licensing, specific development requirements had to be included in the lease agreement, serving as a covenant between the lessor and the lessee. Development had to comply with these lease conditions to ensure adequate access to the infrastructure planned. To support the East Africa Township Ordinance, 1903, the Crown Land Ordinance of 1915 was enacted. This ordinance empowered the Land Officer to subdivide any portion of the township not required for public use into plots for commercial or residential buildings, set covenants and building requirements for leases, and prohibit the subdivision of land within town plots.

In 1919, the Town Planning Ordinance 1919 was passed, a significant legislative framework that established the creation of Town Plans (also known as town planning plans). Section 2 of the Town Planning Ordinance 1919 outlined that the main objective of the town planning scheme was to promote the social welfare of urban residents by ensuring the availability of adequate social amenities and conveniences (East Africa Protectorate, 1920). The foregoing restrictions demonstrated that the colonial authority recognized that equal infrastructure provision could only be achieved by land planning before allocating land for residential and commercial development. It was also obvious that the local government had the ability to manage growth and restrict development densities in relation to the existing infrastructure supplied by town planning plans.

In post-independence Kenya, legal frameworks support the formal development model to ensure equitable access to urban services, including the Urban Areas and Cities Act (UACA) of 2011 and the Amendment Act of 2019. These laws require authorities to make advisory decisions on granting City, Municipality, Town, or Market status, as detailed in Sections 5, 7, 9, and 10 of the UACA. Section 4A of the Amendment Act of 2019 defines urban borders as establishing jurisdiction over urban areas. Additionally, Section 36 (1) of Part III mandates that different types of urban areas operate within an integrated planning framework, which, according to subsection (d), underpins social and physical infrastructure provision. In contrast, subsection (g) establishes the basis for development control. Furthermore, Section

12(7) of the Land Act (2012) stipulates that public land must only be allocated after it has been planned, surveyed, and serviced (Government of Kenya, 2012).

In contrast, the informal urban development model, described as "build-occupy" (BO) (Ayonga, 2019), involves spontaneous construction with no prior infrastructure planning. This approach does not ensure equitable access to urban services, a crucial aspect that differs significantly from the formal development model, which is structured by legal frameworks to promote fair access to urban facilities. Nyaila (2020) notes that the informal model often arises from the challenges of population growth in formally developed areas in Europe and America and the lack of proactive planning. In Kenya and other African countries, informality is frequently linked to the conversion of agricultural land under freehold ownership into urban use through subdivisions.

Key management practices from the pathway to equitable provision of urban service facilities

The analysis of the above literature reveals key management practices in the provision of urban service facilities;

I. Formulation of Urban Service Facilities Provision Policy (USFPP).

Wellman (2012) notes that policy in urban management can take many different forms. Policy is both an instrument and a framework. In this research, urban planning is defined as a policy design for providing urban services. Urban planning is a framework that assists urban authorities in transforming a goal into a well-organized reality. Matende (2016) describes urban planning as a series of actions designed to enhance the physical, social, and economic well-being of an area and its residents. It involves organizing land uses to maximize efficiency in resource utilization, optimize the functionality of the place, and improve its aesthetic value. As a result, planning comes before development to distribute land for varied purposes that serve the public interest and promote equitable social welfare. Urban planners employ urban planning to improve the lives of present and future urban people by building a healthy, egalitarian, efficient, convenient, and beautiful environment (UN-Habitat,

2014). The purpose of urban planning is to improve livability, prosperity, and equity via the provision of suitable urban service facilities.

II. Formulation of Legislation and Regulations

According to the historical and contemporary literature in this research, planning and development management is a legislative system in many jurisdictions, including Kenya. This legal restriction of development necessitates government approval of developments, including residential projects. This system frequently includes the ability to apply sanctions when individuals act in ways that are not authorized by law. However, it's important to note that this system is not just about rules and regulations, but also about the community. It's based on the premise that public interests are recognized and valued more than private ones, and it's the community that benefits from this recognition. In other words, development rules and regulations govern what people are authorized to do with their land and buildings, with the community's benefit at the forefront. As a result, this approach safeguards property set aside for the provision of public urban service facilities from private developers while also limiting urban expansion to what current urban service facilities can effectively and efficiently handle.

III. Establishment of Urban Management Institutions

The proposed legislation and regulations require institutions to implement them and ensure the delivery of urban services and amenities. In Kenya, the Urban Areas and Cities Act stipulates the establishment of urban management agencies according to the classification of the urban area. For instance, a city should be managed by a City Management Board, a municipality by a Municipal Board, and a town by a Town Committee.

IV. Fiscal and Financial Strategies

Fiscal measurements pertain to a government's revenue-raising operations, whereas financial measures refer to how that income is spent. According to the historical and theoretical literature, the institutions founded were anticipated to generate money

through the payment of land rent and development permission fees. The income collected was then utilized to provide urban dwellers with the services they required.

2.7. Variation in provision of urban service facilities

Urban areas often symbolize injustice and inequality, showcasing a stark divide between the wealthy and the impoverished. This disparity extends beyond financial differences to encompass variations in environmental quality and the accessibility and standard of public services. The fairness of urban service provision is frequently assessed using the accessibility index, which measures the distance and cost required for individuals to reach these services (Setianto & Gamal, 2021). When planning public service facilities in a city, it is crucial to select appropriate locations and ensure that these facilities are distributed to meet the needs of a widely spread population. The effects of inequities in urban service provision on community welfare are significant, as access to essential services significantly impacts overall well-being.

Consequently, accessibility serves as a foundational concept for planning the distribution of public service facilities. Accessibility measures the relative proximity between origin and destination (Ashik et al., 2019). It can also predict potential user numbers at various locations, assess demand, and evaluate satisfaction levels. In this study, accessibility is the primary indicator used to examine variations in urban service facility provision.

In his book "Conceptual Approaches to Service Provision in Cities Throughout History," Smith notes that the nature and quality of urban services vary depending on their providers (Smith, 2016). He emphasizes Werna's (1996) finding that service provision is structured through a complex network of actors catering to different demographic groups. This network includes the private sector (through franchising, contracting, leasing, joint ventures, independent production, or the informal sector), non-governmental organizations (NGOs) or community-based organizations, and the public sector (local, regional, or central authorities). Each of these actors plays a crucial role in the urban service landscape. Smith's case study in Chittagong, Bangladesh's second-largest city, revealed significant variations in service quality

and availability based on the provider. This underscores the importance of service providers as a critical factor in evaluating equity in urban service provision.

2.8. Strategies to improve provision of urban service facilities in the informal pathway

This study investigates both retrospective and prospective techniques and measurements for improving the provision of urban service facilities in residential communities.

2.8.1 Land value capture

Value capture aims to generate public revenue (via taxes, fees, or in-kind services) from a portion of the increase in land value caused by public investments in urban infrastructure or the exercise of public decision-making power, such as approving a land use change (Ingram & Hong, 2012; El-Nagdy, M., et al. 2018). Land value capture refers to ways and approaches to funding urban development, especially the provision of public urban service facilities, by the recovery of profit created by rising property values as a result of public investments. This concept is based on academic consensus that the financial benefits generated by public expenditures should pay at least a portion of their expenses.

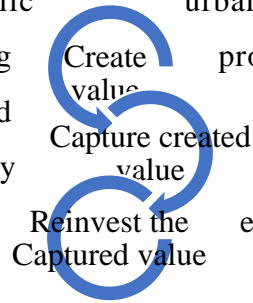


Figure 2-2: Land Value Capture Process

Source: Authors Construct

This research explores land re-adjustment as a potential approach to improve urban service facilities provision.

Land Re-adjustment

Land readjustment, also referred to as land pooling or land consolidation, is a process where a public authority assembles multiple small parcels of undeveloped land without compensating the owners financially. The authority then subdivides and services the land with infrastructure to make it suitable for human settlement. Most of the newly created parcels are returned to the original landowners based on the value of their contributions, while the remaining plots are sold to cover the public costs incurred (Basnet, 2012). Essentially, this process involves combining scattered and irregular plots, re-dividing the consolidated area, and providing essential amenities and services such as roads, parks, social infrastructure, and utilities (Figure 2-2).

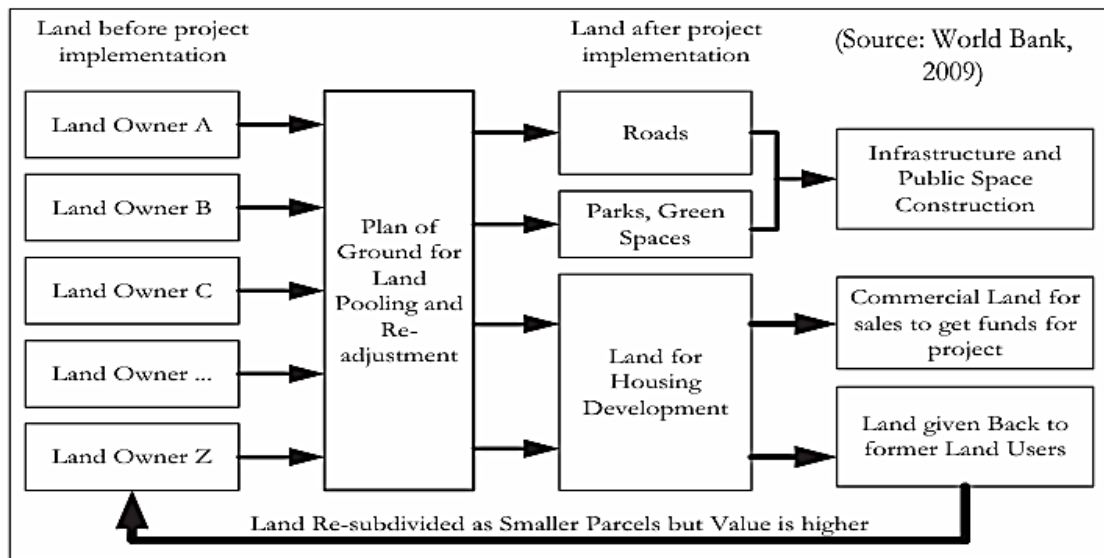


Figure 2-3: Land Re-adjustment Mechanism
 Source: Adopted from Basnet, (2012).

Land readjustment typically has four components: project commencement, community support development, land subdivision and service, and land reallocation (Ngetich, 2015). Landowners in the area are required to relinquish part of their land holdings to make space for roads, parks, and other public areas. Additionally, they must set aside property that will be sold after the project to help cover the costs of

planning, administration, and construction. This approach benefits landowners as it can greatly enhance the value of their remaining land, despite the loss of some of it. For planning authorities, this method is advantageous because it allows for the effective management and provision of land for public services, optimizes property division patterns, and facilitates the development of essential urban infrastructure.

As observed by Basnet (2012), it lessens financial pressure on the government to provide public amenities and promotes the equitable distribution of project benefits and expenses, ensuring a fair and just process for all involved, as shown in Japan, Indonesia, South Korea, and Taiwan. In Kenya, Land Readjustment can address informal residential communities characterized by inadequate road connection, uneven land orientation and layout, and a lack of public service amenities like parks.

2.8.2 Compulsory purchase or land expropriation

Land expropriation, a necessary tool for the state's forceful nationalization of land in the collective control of landowners for the public good (ADB, 2006), is carried out via the power of eminent domain. Eminent domain is the right of a government or its agent to expropriate private property for public use, with compensation to the owner. The legal aspects of expropriation are:

(I) Land expropriation is an act of compulsorily expropriating collective land ownership, which means the state has the authority to take land from its private owners for public use, with compensation. This is an extreme example of property rights changes. The state, as an institution, takes property ownership from the hands of landowners collectively by administrative decrees, leaving the landowners with no alternative but to submit.

(II) It is subject to severe regulatory regulations. It must closely adhere to legal processes, be solely focused on the advancement of public interests, and be free of any commercial objective. The state ensures fair and appropriate remuneration, thereby protecting the property rights of landowners (ADB, 2006). This focus on public interests should make the audience feel the societal benefits of land

expropriation. Land expropriation may be considered in residential districts lacking fundamental service amenities, such as ECDE centers.

2.8.3 Land Banking

Davis (1976) describes land banking as the process of collecting undeveloped property in anticipation of real requirements and distributing it to the private sector for a variety of development objectives through sale, lease, or rent. According to Harrison (2007), land banking consists of three key phases or actions: Land acquisition is the process of accumulating land. Government bodies can swap, buy inexpensive land, and acquire abandoned or underutilized land. Land management is the process of managing an acquired parcel of land over time until it is used for a certain purpose. This necessitates upkeep, administrative and legal procedures, and security concerns, particularly when the property in banks is in desirable locations. Management is vital because the land is held in a bank for productive reuse. It's important to note that this management is carried out with the utmost care and responsibility, ensuring the best use of the land. The careful management of land in the land banking process provides reassurance about the responsible handling of resources. Land Development: The primary role of land banks is to manage and rebuild parcels of land in a usable way. Redevelopment can be ensured based on the needs or requests of the community, private, and public bodies. The land can be leased or sold to interested parties. This method can be used to buy huge tracts of agricultural property near an officially built metropolitan region. In the process of urbanization, the urban government might make land available to private developers through the official development process. This method can also be implemented in urban residential districts with abandoned structures that require urban redevelopment.

2.8.4 Pre-Emption

Pre-emption, a right that landowners provide to the state or local government, ensures a fair process of property acquisition at market value, rather than to other parties (Basnet, 2012). This inherent right is present on a property but remains inactive until the current owner (or right holder) chooses to sell. The right holder cannot compel

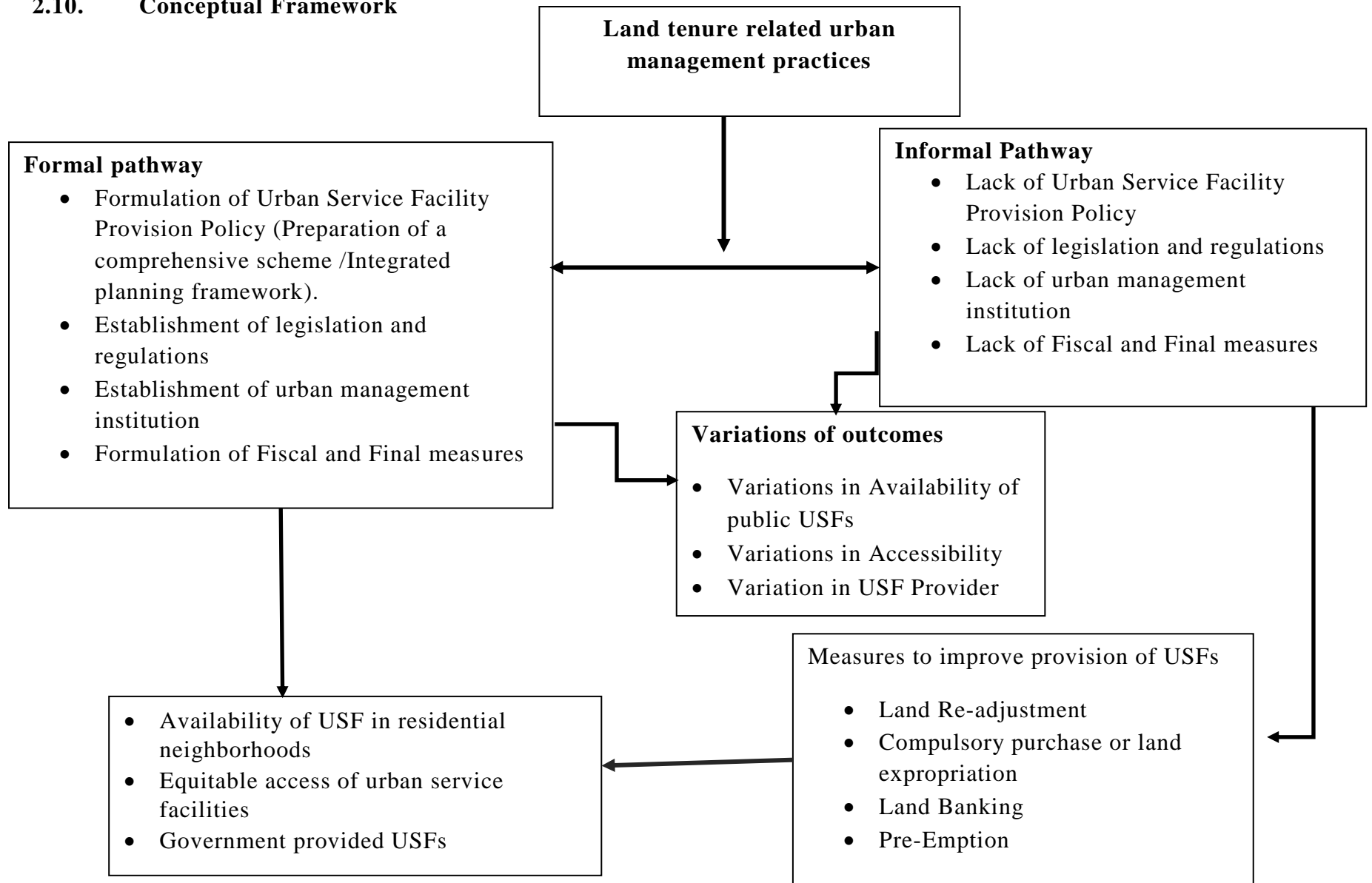
the current landowner to sell. If the public authorities refuse to acquire the land, it might be sold to a third party. This process, while seemingly giving the government authority over a third party, is a fair and just method to ensure the public interest in a certain region is safeguarded. It can be particularly useful on unplanned freehold property in urban areas, empowering urban authorities with control over the kind of developments that will be built on the site.

2.9. Study gaps

Research on land tenure-related aspects concerning urban service provision is highly multidisciplinary, incorporating social-economic, political, and geographical considerations. Studies have been conducted to study the relationship between land-related characteristics and urban service facilities. In their investigations, Olima and Obala (1998), Omwama (2016), Selod (2007), and Home (2012) discovered a link between land tenure patterns and the quality of urban infrastructure. However, none of these researchers focused on the role of land tenure types in the variety of infrastructure services available. There has been much research on socio-demographic aspects and the provision of urban service amenities. For example, Sun et al. (2017) and Neutens et al. (2010) investigated the relationships between economic disparities and uneven access to urban public amenities across different districts in Chinese cities. Setianto and Gamal (2021) assessed geographical fairness in the distribution of public services, whereas Parry et al. (2012) examined spatial analysis of the provision of urban amenities and their deficiencies in Indian cities.

As the data above shows, significant efforts have been undertaken to analyze and understand how discrepancies in the provision of urban service facilities occur. However, more extensive studies are needed on how land tenure-related urban management practices influence the process of providing urban service amenities, contributing to differences in the kind and degree of facilities supplied in residential areas. To address the void, this study aims to provide a comprehensive analysis of the role of land tenure in the provision of urban service amenities, potentially influencing future urban development and land management strategies.

2.10. Conceptual Framework



2.11. Chapter Summary

Urban public service facilities offer residents of urban residential communities with the services they need to live a satisfactory existence. They are also seen as one of the amenities that each human deserves in order to satisfy his or her requirements and rights to life, and hence should be available to everyone, everywhere. The fulfillment of needs and the right to life may thus be judged in terms of the distribution of public services facilities and their equity. Though both worldwide and Kenyan national policies and legal frameworks promote the belief in fair and equal access and provision of urban service facilities, this viewpoint is frequently challenged by several unseen hurdles. The availability of the amenities in certain residential areas, their accessibility in terms of travel time and cost, and the many facility suppliers are all indications of variations in the provision of the facilities within the neighborhoods. Finding the underlying reasons for these differences will be crucial to resolving the issues related to the unjust distribution of these services. The land tenure-related urban management methods involved in the construction and development of the residential neighborhood are highlighted as one of the fundamental reasons of differences in the degree and character of urban service amenities supplied. Addressing the issues connected with land tenure-related urban management practices through appropriate measures and methods can go a long way toward ensuring a good living for all urban inhabitants in all residential districts.

3 BACKGROUND OF STUDY AREA

3.1 Introduction

This chapter provides background information on the research area, Nyeri Town. It details the historical evolution, locational context, demographic and socioeconomic characteristics, climatic and physiographic aspects, and the provision of urban services in the studied region.

3.2 Historical Background of Nyeri town.

Nyeri town's history extends back to the twentieth century, a journey of growth and transformation. At the turn of the century, the current built-up region of the Municipality of Nyeri was primarily forest, with some agricultural activity to the west (Tetu), northwest (Kihuyo and Ihururu), and south. It originated as a military post in 1902, a significant milestone in the town's evolution, when the military relocated to the current site of the provincial offices to construct a fort. This was deemed a better position for defense since it was encircled by a deep defensive ditch ("Mukaro" in Kikuyu dialect), leading to the current name of the center region of Nyeri town (County Government of Nyeri, 2019). Asian businessmen established enterprises in the region of safety around the fort, and missionaries arrived at the request of military officials. The town soon expanded into a trade center for white settler farmers, mostly British and European, who raised cattle, farmed wheat, and produced coffee. Nyeri was upgraded to a Municipal Council in 1971 (see Gazette Notice No. 61, 1971), marking a new chapter in its history. It encompassed an area of approximately 72 square kilometers. Previously, it was an Urban Council that included just 8 square kilometers, including regions around the town center (the current Central Business District (C.B.D) area). Currently, Nyeri Town has an area of 170.2 square kilometers, a testament to its continued growth and development.

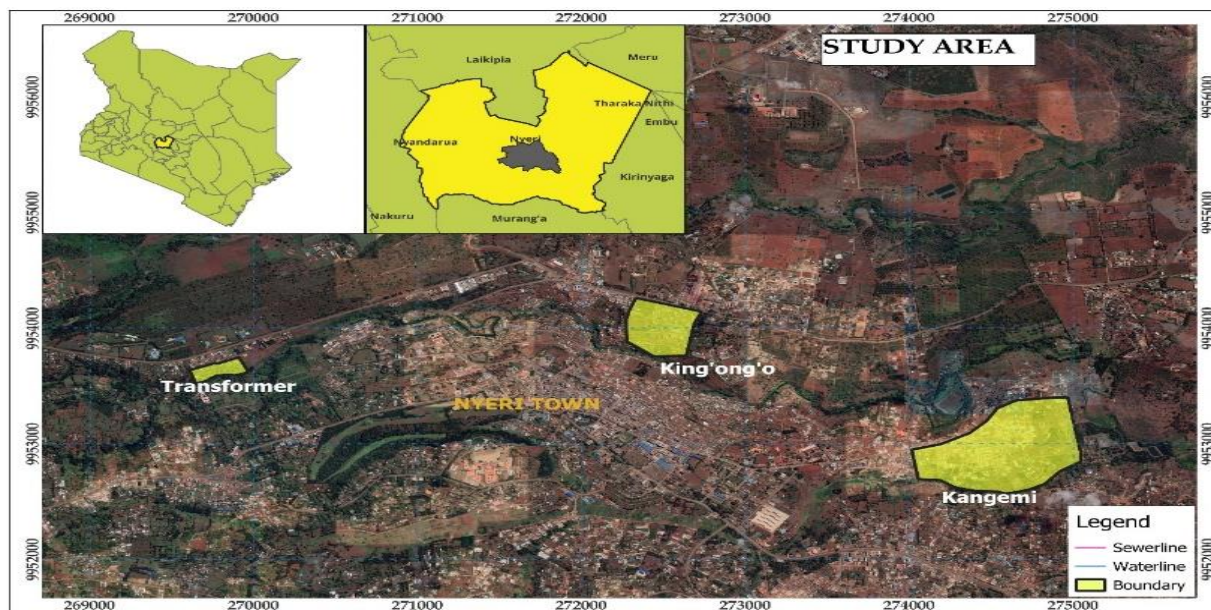
The town, currently low-density, is facing urgent urbanization challenges. Informal communities, originally developed by the colonial authority and now known as 'colonial villages,' are expanding rapidly. These informal settlements, where housing is often built on land that is either not owned or unlawfully occupied, are in dire need

of essential necessities such as water, sewage, and power. For instance, many of these settlements lack access to clean water, proper sanitation facilities, and reliable electricity. The primary causes of the town's spatial expansion are urban sprawl and informal urban development. The key urban development issues in Nyeri town are fast urbanization that is inconsistent with the provision of urban service amenities; dense land subdivisions and the severe impact of inadequate land-use planning; and the complexity of managing the space demands of informal settlements.

3.3 Location and Size

Nyeri town is located in Kenya's Central highlands, approximately 160 kilometers north of Nairobi. It is situated between the eastern base of the Aberdare Ranges and the western slopes of Mount Kenya. It is located between 00°17.36'S and 0°28.21'S, 36°50.62'E and 37°05.7'E, at an elevation of 1600 to 1900 meters above sea level. The highest point is Nyeri Hill, while the lowest position is Marua Trading Center. It has a total size of 170.2 square kilometers and consists mostly of five wards: Kiganjo/Mathari, Kamakwa/Mukaro, Rware, Ruring'u, and Gatitu/Muruguru. The town's high residential areas include Kangemi, Kingongo, and Transformer.

Map 3-1: Locational context of the Study Area



Source: Authors Construct, 2024

3.4 Administrative Structure

The town is divided into three administrative wards: Kiganjo/Mathari, Kamakwa/Mukaro, Rware/Ruring'u, and Gatitu/Muruguru (Nyeri County Government, 2019). According to the Kenya National Bureau of Statistics (2019), Kangemi is located in Thunguma, Kingongo in Majengo, and Transformer in Mathari.

3.5 Physiographic Characteristics

The town has an equatorial climate, which significantly impacts its infrastructure. For instance, the low temperatures, ranging from a mean annual minimum of 120 C to a maximum of 270 C, can affect the durability of certain materials used in construction. The driest season, January-February, and the rainy seasons can influence the design and maintenance of roads and drainage systems. The town's terrain, consisting of high slopes and valleys, with various rivers and streams crossing the area, also presents unique challenges for infrastructure development.

Topography and climate are not just influential, they are pivotal in urbanization and infrastructure development. The transition from agricultural to urban land use is accelerated in areas with high agricultural potential, a transition driven by the unique features of rainfall and temperature. Equally important, topography dictates the delivery of infrastructure and utility services, presenting complex challenges in urban planning. These are the key aspects that our research will explore as we select three residential communities for detailed case studies.

3.6 Population and demographics

Among Nyeri County's urban areas, Nyeri Town has the largest population. The Kenya National Bureau of Statistics (2019) reported that 49,945 households and 140,338 people lived in Nyeri Town. There are 4,553 households in the Kangemi residential neighborhood in Thunguma, 9,392 families in Kingongo residential neighborhood in Majengo, and 3,007 homes in Transformer residential neighborhood

in Mathari. The urban population, with its significant size, is urgently demanding that urban service amenities be provided to meet its needs.

3.7 Nyeri Town Residential Neighborhoods

Situated on the periphery of the CBD, residential districts occupy 17% of the overall land usage. Three categories of residential neighborhoods may be distinguished: informal settlements, low-, medium-, and high-density zones.

3.7.1 Low Density Residential Neighborhoods

Garden Estate, Outspan, Mumbi Estate, and Ring Road Estate are all low-density regions. These places are located on great properties, and some have vibrant neighborhood groups, fostering a strong sense of community. The minimum plot size permitted in these locations is $\frac{1}{4}$ acres. Other property uses in these locations include recreational (golf club) and public use (hospital), among others, supplied by piped water, electricity, and sewer systems.

3.7.2 Medium Density Residential Neighborhoods

Nyeri town's medium density residential districts include Asian Quarters, Kabiruini, Kamakwa, Jutmer Estate Blue Valley, and Ruring'u. These neighborhoods house middle-class workers from the CBD and surrounding areas. The major land use is residential, including flats, apartments, and a few bungalows. Other land uses include commercial, light industry, and educational purposes. The regions have water and energy power connections.

3.7.3 High density residential

Nyeri town's high-density residential districts include Kagumo, Kiganjo, Kamatongu, Thung'ari Estate, Skuta, Kimathi Estate, and King'ong'o. The high-density residential neighborhoods are located on the fringes of the CBD and are distinguished by high-rise residential structures.

3.7.4 Informal residential neighborhoods

Informal residential districts of Nyeri town are mostly found around the River Chania and are distinguished by shanties and an imprecise road network. This study will use the residential communities of Kangemi, Kingongo, and Transformer as case examples. This is impacted by their homogeneous density and variability in land tenure form.

3.8 Urban service facilities

3.8.1 Water and Sanitation supply

The municipality's main water service provider is Nyeri Water and Sanitation Company (NYEWASCO). The firm provides 100% coverage for water in the municipality and its surroundings. It covers an area of 365 square kilometers, has a total pipe length of 784 kilometers, a total water connection of 39,626, an active water connection of 31,598, a total sewer connection of 13,250, an active sewer connection of 11,567, a design capacity of water TW of 27,00m³/day, and a design capacity of wastewater TW of 8,000m³/day. The firm has 15% non-revenue water (NRW). The supply method is 85% gravity, 15% pumping. The municipality's water and irrigation department also oversees additional community-based and individual water projects. The company's sewer coverage is 25%, which covers Nyeri Town, sections of Kamakwa, Ruringu, King'ong'o, and Ngangarithi. The sewage treatment facilities are located at Kangemi sewage Treatment Works, which is equipped with [specific equipment or technology], and has a designed capacity of 8,000 m³/day but only operates at 3,000 m³/day (County Government of Nyeri, 2019).

3.8.2 Health facilities

Health services in the Municipality of Nyeri are structured into five (5) tiers of service delivery, which include the active participation of various private health centers. This comprehensive system comprises 31 public health facilities, 1 beyond zero mobile clinic, and 1 hospice care center for the terminally sick. They are arranged as follows: one county referral hospital (level V); one county hospital (level IV); four health centers (level III); ten dispensaries (level II); and twenty-two

community units (level I). The municipality also hosts various private health centers that offer a wide range of health services, playing a significant role in the healthcare landscape. (The Nyeri County Government, 2019).

3.8.3 Basic education facilities

Nyeri municipality has 41 public Early Childhood Development Education (ECDE) centers, which are currently served by 66 ECDE teachers.

3.8.4 Recreational facilities

Recreational facilities include stadiums (both institutional and public), open spaces, community playgrounds, and urban parks. The municipality has two primary stadiums: Ruringu and Dedan Kimathi fields. Playgrounds may be found in a variety of residential settings.

3.8.5 Community facilities and libraries

The Kenya National Library Service has one public library in the municipality, located in the CBD. In addition, the ancient Municipal Hall has a library managed by the Department of Gender, Youth, and Social Services.

3.8.6 Solid waste management facilities

The town has a total of 46 solid waste management facilities distributed amongst residential neighborhoods and trading centers.



Figure 3-1: Skip in Nyeri Town

4 RESEARCH METHODOLOGY

4.1. Introduction

This chapter describes the research methodology and strategies utilized to perform the study. It discusses the research design, study population, sample size, sampling processes, data collecting methods and tools, as well as their validity and reliability, data analysis methods, study findings presentation tactics, and ethical concerns.

4.2. Research Design

This study aimed to gather and analyze data on how different land tenure practices impact the provision of urban services and to identify potential improvements for these services in residential neighborhoods within Nyeri town. To achieve these objectives, a unique Case Study research design was employed, examining real-life cases to understand variations in urban management practices. The study focused on three residential neighborhoods—Kingongo, Kangemi, and Transformer—each with different land tenure systems. A mixed research approach was used, combining both quantitative and qualitative methods for comprehensive data collection and analysis.

Quantitative research, as outlined by Kothari & Gaurav (2014), focuses on quantifying data to describe and interpret specific situations by analyzing variable frequencies. In this study, quantitative methods involved distributing structured questionnaires to households to explore differences in urban service facilities across various land tenure forms. Conversely, qualitative research, as explained by Creswell (2013) and Syagga (2019), is used to explore issues with immeasurable variables and analyze data in descriptive terms. This study utilized qualitative methods to gain deeper insights into urban management practices related to land tenure and to identify ways to enhance urban service provision. The comprehensive nature of our research methods ensures the reliability and validity of our findings.

4.3. Study Population

Rukwaro (2016) defines a population as, among other things, a precisely defined set of people, events, and objects (Rukwaro, 2016). All of the households in Nyeri town's Kingongo, Kangemi, and Transformer residential areas made up the population under

examination for this study, which looked into variations in the provision of urban service amenities in residential neighborhoods. This group of people supplied data on the types of differences seen in urban service facilities, emphasizing accessibility, availability, and provider. The 2019 Kenya Population and Housing Census shows that there are 3,007 households in Mathari, 9,392 in Majengo, 4,553 in Kangemi, and 3,007 in Transformer, all in Thunguma. Thus, 16,752 households comprise the target population (KNBS, 2020).

In conclusion, the following people are the subjects of this study, which aims to determine how land tenure-related urban management practices affect the differences in the provision of urban service facilities in residential neighborhoods: the municipal manager of Nyeri town and the county director of physical planning and urban development in Nyeri County. Their roles are integral to the outcomes of this study. Expert and scholarly input was equally solicited to compile potential actions to enhance the delivery of urban service amenities. Due to the research limitations, the researchers only managed to interview two experts and two academics from the general public. The researcher feels that because these people are specialists and academics, working with them was equally capable of producing well-informed, less prejudiced, yet accurate opinions.

4.4. Sampling plan

According to Mouton (2006), sampling involves selecting units from a population of interest to make generalizations based on the results from the chosen sample. This study employed various sampling methods due to the diverse target populations involved. Purposive sampling was used to collect information from key informants, including the Nyeri County government agencies responsible for urban service facilities, the County Director of Physical Planning and Urban Development, the Municipal Manager of Nyeri Municipality, and two experts and two academics specializing in land tenure and urban development. Additionally, specific areas within Nyeri town were selected purposively based on their different land tenure forms, ensuring a comprehensive sampling process.

Proportionate stratified random sampling method was applied in the selected case study areas. The selected areas' density character was determined proportion of the sample size to be applied in each case study area. The sample size was determined using a sample calculation formula recommended by Nachmias & Nachmias (1992) due to its proven accuracy and applicability in similar research contexts. which is expressed as

$$n = \frac{(z^2)(p)(q) N}{e^2(N-1) + (z^2)(p)(q)}$$

where;

n= sample size

z= standard deviation at 95% confidence level (in this case 1.96 worked from tables showing

areas under normal curve)

p= % of target population assumed to have similar characteristics (taken as 95% for this study)

q= 1-p

N= population size

e= margin of error at 95% confidence level (1-0.95=0.05)

Therefore, the household sample size for this study will be;

$$n = \frac{(1.96^2)(0.95)(0.05) (16,752)}{(0.05^2)(16,752) + (1.96^2)(0.95)(0.05)} = \frac{3056.84}{42.06} = 73 \text{ households}$$

Furthermore, as Israel (2012) proposed, the computed sample size is often increased by 30% to account for non-response during data collection. Therefore, after adjusting for non-response, the sample size is 130% * n = 1.3 * 73 = 95 households.

Based on the population ratio of each stratified section to the total population of Nyeri town, the samples were taken from the study regions' stratified sections. Table 4-1 displays the precise distribution of home samples. Consequently, 101 responders made up the whole sample size for this study.

Table 4-1: Distribution of household sample size

Residential Neighborhood	Land Tenure type	Proportion of Households	Sample drawn
Kangemi	Freehold	27%	25
Kingongo	Leasehold	56%	53
Transformer	Informal	17%	17
		100%	95

Source: Author's Construct, 2024

4.5. Data Collection Instruments and Methods

As emphasized by Rukwaro (2016), the use of research tools is not just a necessity, but a crucial aspect in the collection and measurement of specific phenomena. In the realm of social sciences, four primary research instruments hold significant importance: interviews, questionnaires, observations, and documentary analysis (Rukwaro 2016). This study, recognizing the pivotal role of these tools, focused on gathering both primary and secondary data through all four. Primary data was collected via interviews with key figures such as the County Director of Physical Planning and Urban Development in Nyeri County, the Municipal Manager of Nyeri Municipality, and experts in the field. Additionally, primary data was obtained through electronically administered questionnaires using the Kobo Collect program, distributed to households in three designated residential districts. These questionnaires included both structured and unstructured questions, all of which were carefully crafted to align with the study's objectives.

Research assistants, specifically urban planning interns from Nyeri County Government's Department of Lands, Housing, Physical Planning, and Urban Development, were enlisted to help with the surveys. Their involvement was not just crucial, but their thorough training was also a key factor in ensuring the reliability of the data collection process within the limited study timeframe. They were extensively trained in using the Kobo Collect application, understanding the questionnaire, engaging with respondents, and adhering to the preferred survey

times, between 9:00 a.m. and 12:00 p.m., when respondents are typically more alert and focused.

The study's objectives were not just integral, but they were the driving force behind shaping the research methodology, including the choice of instruments. Data on urban service facilities within residential areas was collected through detailed observations using a checklist. Secondary data was gathered from existing publications and research projects related to the study's topics. The selection of research tools was not arbitrary, but a carefully considered process influenced by the nature of the data needed, time constraints, and the study's goals, ensuring a coherent alignment with its objectives.

4.6. Validity and Reliability of Research Instruments

The accuracy of the data collected is influenced by the devices used for gathering it. Ensuring data accuracy requires validating and establishing the reliability of the data collection tools. According to Sproull (1995), validity measures how well a tool performs the function it was designed for. In this study, the validity of the instruments was confirmed and communicated to supervisors for approval, integrating them into the research process. Reliability, as noted by Dudovskiy (2024), pertains to the consistency of results when the same measurement is repeated with the same instrument. Research dependability reflects the consistency and stability of the research outcomes. To assess dependability, a test-retest method was employed. Tools were administered to the same household head at one-week intervals, and the results were analyzed using SPSS, yielding a validity coefficient of 0.81. This close correlation supported the validity of the research tools, achieved through inclusive and collaborative efforts.

Additionally, a pilot test was conducted to further validate and ensure the reliability of the instruments. Three home questionnaires were given to randomly selected respondents from each residential neighborhood being studied. This pilot test meticulously evaluated the clarity of the questions and their alignment with the study's objectives, allowing for thorough adjustments before the full data collection. The pilot revealed that some questions were unclear and challenging for respondents.

These issues were addressed and refined before the final administration, showcasing the thoroughness of the research process and ensuring high-quality data collection.

4.6.1 Data Needs Matrix

The data needed and their sources are as presented in Table 4-2.

Table 4-2: Data Needs Matrix

Objective	Data Needs	Questions	Data Source	Data Collection method	Data collection tool	Data Analysis framework
1. To examine the variations in provision of urban service facilities in Nyeri town residential neighborhoods under different land tenure forms.	<ul style="list-style-type: none"> Indicators of variation in provision of urban service facilities. 	<ul style="list-style-type: none"> Are there urban service facilities within the residential neighborhoods? Who provides the urban service facilities in the residential neighborhoods? How far are the urban service facilities from the residents' access from their homes? How much does it cost to access the urban service facility provided? What is the quality/nature of the urban service facility provided? 	<ul style="list-style-type: none"> Field survey 	<ul style="list-style-type: none"> Household questionnaires administration Filling observation checklist 	<ul style="list-style-type: none"> Household questionnaire Observation checklist 	<ul style="list-style-type: none"> Descriptive analysis
2. To find out the land tenure related urban	<ul style="list-style-type: none"> Ideal land related urban management 	<ul style="list-style-type: none"> Which land related urban management practices 	<ul style="list-style-type: none"> Existing literature Key informants 	<ul style="list-style-type: none"> Literature review 	<ul style="list-style-type: none"> Interview schedule 	Descriptive analysis

Objective	Data Needs	Questions	Data Source	Data Collection method	Data collection tool	Data Analysis framework
management practices that contribute to the variations in provision of urban service facilities in residential neighborhoods under different forms of land tenure in Nyeri Town.	<p>practices in provision of urban service facilities.</p> <ul style="list-style-type: none"> • Land tenure related urban management practices that contribute to provision of urban service facilities. 	<p>are ideal for provision of urban service facilities?</p> <ul style="list-style-type: none"> • How does leasehold, freehold and informal land tenure related urban management practices deviate from the ideal management practices? • How does leasehold, freehold and informal land tenure related urban management practices contribute to the variations in provision of urban service facilities? 	<p>t interviews</p>	<ul style="list-style-type: none"> • Conducting Key informant Interviews. 		
3. To compile the possible land tenure, relate measures to improve provision of urban service facilities in residential neighborhoods	<ul style="list-style-type: none"> • Land related best practices in provision of urban service facilities in residential neighborhoods. 	<ul style="list-style-type: none"> • Which measures can be undertaken to improve provision of urban service facilities in Nyeri town residential neighborhoods? • Which measures have been undertaken to ensure provision of urban service facilities in Nyeri town 	<ul style="list-style-type: none"> • Existing literature • Key informant interviews 	<ul style="list-style-type: none"> • Literature review • Conducting Key informant Interviews. 	<ul style="list-style-type: none"> • Key informant interview schedule. 	Descriptive analysis

Objective	Data Needs	Questions	Data Source	Data Collection method	Data collection tool	Data Analysis framework
under different forms of land tenure in Nyeri Town.	<ul style="list-style-type: none"> Local land tenure related urban measures that have been adopted in provision of urban service facilities in residential neighborhoods in Nyeri town. 	residential neighborhoods?				

Source: Authors construct, 2023

4.7. Data Analysis and Presentation Methods

This section outlines the procedures for preparing and converting collected data into a usable format, which involves data cleaning, editing, coding, and processing to produce results. The study employed descriptive analysis for quantitative data, utilizing Statistical Package for Social Sciences (SPSS) and Microsoft Excel to generate descriptive statistics. SPSS was selected for its structured analytical capabilities and its proficiency in handling a broad array of standard statistical and graphical analyses, such as percentages, means, medians, and frequencies. Microsoft Excel was used as a supplementary tool due to its ease of use. Results were presented using tables, pie charts, and bar charts, which are known for their clarity and ease of interpretation, making the results more accessible to the audience.

Additionally, responses to open-ended questions from household questionnaires were analyzed by reviewing the data. This involved reading through the responses, identifying common themes or topics, and categorizing similar responses under these themes. Each category was then assigned a distinct code for streamlined analysis. Results were expressed as percentages and illustrated with bar charts. Data from interviews were also analyzed and summarized in a discussion format.

4.8. Ethical considerations

Mugenda and Mugenda (2003) emphasize the importance of ethical considerations in research, such as maintaining confidentiality, ensuring anonymity, and securing voluntary participation from the sample population. In the introductory sections of the questionnaires and interview schedules, participants were assured that their data would be used solely for academic purposes and handled with strict confidentiality, accessible only to the researcher and their supervisors. The researcher, as a custodian of this commitment, upheld the confidentiality of the data. Respondents were also requested to avoid providing specific identifying information, such as their names, to maintain anonymity. Interviews were arranged at convenient times after coordinating with the respondents and scheduling appointments. Questions were sent to academics/experts at least three days prior to the interviews, allowing them ample time to prepare. The interviews were kept brief and focused on the research objectives, accommodating the respondents' busy schedules. They

were conducted either in person or via Zoom, depending on the respondents' preferences. Participants were given the option to withdraw from the study at any time. An introductory letter from the university was provided to reassure respondents of the study's legitimacy and authorization by appropriate authorities.

5 DATA ANALYSIS, FINDINGS AND DISCUSSION

5.1 Introduction

This chapter presents the findings from the study, which aimed to explore the role of land tenure in the provision of urban service facilities. The study specifically examined the variations in urban service facility provision across residential neighborhoods with different land tenure forms. It analyzed the land tenure-related urban management practices that contribute to these variations. Additionally, the study compiled potential measures to enhance the provision of urban service facilities in all residential neighborhoods. The findings are based on data collected through instrument administration, observation checklists, and key informant interviews. Household questionnaire data were analyzed using SPSS version 16, with results presented as percentages, frequencies, and distribution maps and displayed in tables, maps, and bar charts. These presentations were followed by brief interpretations and discussions guided by the study's three objectives and research questions. The findings include the variation in urban service facility provision in Nyeri town's residential neighborhoods under different land tenures, the impact of land tenure-related urban management practices on these variations, and the possible measures to improve urban service facilities in residential neighborhoods.

5.2 Response rate

A total of 95 questionnaires were distributed to the selected respondents using the Kobo Collect application. Of these, 88 were returned fully completed, yielding a response rate of 92.6%. Additionally, interviews were conducted with the Nyeri County Physical Planner and the Nyeri Municipal Manager. The researcher also distributed four interview schedules to experts and academics, with one expert and one academic responding. Consequently, the overall response rate from the target population was 92.1%, as detailed in Table 5-1 below. According to Mugenda and Mugenda (2003), a response rate of 70% or higher is considered an excellent representation of the study sample. Therefore, the response rate in this study was considered excellent and sufficient for further analysis.

Table 5-1: Response Rate

Research Instrument	Expected responses	Actual responses	Response rate
Household questionnaire	95	88	92.6%
Key informant interview schedule	6	4	66.7%
Total	101	93	92.1%

Source: Field Study, 2024

5.3 Respondents' Demographic information

As an initial step, the study aimed to determine the demographic distribution of respondents based on age and gender. Among all the participants interviewed, ages ranged from 18 to 65 years. This outcome suggests that the research findings are reliable, as the respondents were all adults.

5.4 Variation in provision of urban service facilities in Nyeri residential Neighborhoods

5.4.1 Variation in Availability of public urban service facility within residential neighborhoods.

The study established variations in the availability of public service facilities within the residential neighborhoods. As indicated in Table 5-2 below, out of the eight urban service facilities analyzed, Kingongo residential neighborhood scored 5 points out of 8 representing 62.5% while Kangemi residential neighborhood scored 4 points representing 50%. Transformer residential neighborhood scored 1 point representing 12.5%. These statistics indicate unfair provision of public urban service facilities across the residential neighborhoods. For instance, of the three residential neighborhoods investigated, only Kingongo had a public ECDE Centre and a public primary school. Kangemi residential neighborhood is served by several private ECDE center and a private primary school while Transformer residential neighborhood has neither a public nor a private ECDE centre and primary school. The study also found out that none of the residential neighborhood has a public health facility and a public playground/green park.

Table 5-2: Availability of Public Service Facilities within the Neighborhood

Neighborhood	Kingongo (Leasehold)		Kangemi (Freehold)		Transformer (Informal)	
	Availability	Score	Availability	Score	Availability	Score
ECDE Centre	✓	1	×	0	×	0
Primary School	✓	1	×	0	×	0
Health Facility	×	0	×	0	×	0
Green Park/Playground	×	0	×	0	×	0
Water Supply System	✓	1	✓	1	✓	1
Liquid waste disposal System	✓	1	✓	1	×	0
Solid waste disposal facility.	✓	1	✓	1	×	0
Community Centre/Social Hall	×	0	✓	1	×	0
Total		5		4		1
Percentage	62.5%		50%		12.5%	
Key (✓) Available (×) Not available						

Source: Field Survey, 2024

Kangemi and Kingongo Residential neighborhoods are served by the public water and sewer supply system of Nyeri town. Transformer residential neighborhood is not connected to public water reticulation and sewer system. Residents of Transformer depend on one *water kiosk* as shown in Figure 5-1 for their water supply and private pit latrines in their homesteads as their liquid waste disposal facilities.



Figure 5-1: Transformer Water Supply Point

Source: Field Survey, 2024

Kangemi and Kingongo residential neighborhoods are provided with public solid waste disposal facilities commonly known as Skips. The skips in Kingongo residential neighborhood are strategically placed along 12 metre roads through a Block System Model (hereafter BSM). The BSM clusters residential blocks within a half kilometer radius and places one skip to serve the residential units within the radius. Kangemi residential neighborhood is also served by skips but are only found on the areas accessible by a 12 metres road. The study established there are no public skips provided within the Transformer Residential Neighborhood. The study also established only Kangemi residential neighborhood has a community centre/social hall. The centre is provided on land that was reserved for a public ECDE centre as result of land surrendered for public use during the subdivision process of private freehold land.

5.4.2 Variation in Accessibility of urban service facility within residential neighborhoods.

Variation in accessibility was analyzed by distance to the nearest public facility and the cost spent by the respondents to reach the facility location. The study findings indicate that the average cost per trip spent by the respondents to access the nearest urban service facility was commensurate with the distance covered. Therefore, the analysis on distance were deemed sufficient for analysis of variation of accessibility in different residential neighborhoods.

Variation in accessibility of ECDE Centres

The study findings indicate that Kangemi residential neighborhood walk respondents walk an average of 3.5 km to access a public ECDE Center, while respondents in Kingongo residential neighborhood walk an average of 0.5 Km. Respondents in Transformer residential neighborhood walk for an average distance of 3.9 Km to access a public ECDE center as shown in Table 5-3. These findings indicate that only in Kingongo residential neighborhood accessibility of ECDE centre meets the recommended distance of 0.5 Km.

Table 5-3: Average distance to the nearest ECDE Centre

Residential Neighbourhood	Average Distance to the nearest public ECDE Centre (Km)
Kangemi	3.5
Kingongo	0.5
Transformer	3.9

Source: Field Survey, 2024

Variation in accessibility of Primary Schools

According to the responses gathered in this study, Kingongo residential neighborhood residents travel for an average of 0.5Km to access a public primary school while residents of Kangemi travel an average of 3.8Km. The residents in Transformer residential neighborhood travel an average of 5Km to access a public primary school. This illustrates variation in provision of public primary school by accessibility.

Variation in accessibility of Health facilities

Variation in accessibility of public health facilities is as illustrated in Table 5-4 below. The results illustrated in Table 5-4 show that residents of Kangemi residential neighborhood travel an average of 2.7 Km to access a public health facility. Residents of the Kingongo residential neighborhood travel an average of 3.6 km while those in Transformer travel an average of 4.4 Km.

Table 5-4: Average distance to the nearest Public Health Facility

Residential Neighbourhood	Average Distance to the nearest public Health Facility (Km)
Kangemi	2.7
Kingongo	3.6
Transformer	4.4

Source: Field Survey, 2024

Variation in accessibility of Green Park/playground

The study established variation in accessibility of public green park/playground amongst the three residential neighborhoods as illustrated in Table 5-5. Respondents in Kangemi residential neighborhood reported they travel an average of 2.9 Km from their homes to the nearest public playground while the respondents in Kingongo reported they travel an average of 2 Km and those of Transformer reported an average distance of 3.9Km.

Table 5-5: Average distance to the nearest public green park/playground

Residential Neighbourhood	Average Distance to the nearest playground (Km)
Kangemi	2.9
Kingongo	2.0
Transformer	3.9

Source: Field Survey, 2024

Variation in accessibility of water supply

As noted earlier in this study on the analysis of availability, Kangemi and Kingongo Residential neighborhoods are served by the public water and sewer supply system of Nyeri town. All the respondents (100%) in Kingongo and Kangemi residential neighborhood have piped water connected in their house. However, Majority of the respondents, 99% of the respondents in Transformer residential neighborhood are not connected to public water supply system. The study established majority of the Transformer residential neighborhood depend on one *water kiosk* for their water supply and they walk an average of 1.5 Km to access the water supply point.

Variation in accessibility of liquid waste disposal facilities

The study findings indicated that all the respondents, 100% in Kingongo residential neighborhood have their houses connected to the public sewer system. Majority of Kangemi residential neighborhood, 78% are also connected to the public sewer system. Majority of the respondents, 99% of the respondents in Transformer residential neighborhood use private homestead pit latrines to dispose their liquid waste as shown in Figure 5-3 below. Only about 1% of the respondents were connected to the public sewer system.



Figure 5-2: Pit Latrine in Transformer Residential Neighborhood

Source: Field Survey, 2024

Variation in accessibility of solid waste disposal facilities

The study investigated variation in accessibility of solid waste disposal facilities. The results are as shown in Figure 5-4 below. The results show 24% of the respondents in Kangemi residential neighborhood, 72% of the respondents in Kingongo residential neighborhood and 12% of respondents in Transformer residential neighborhood travel less than 0.5 Km to access a public waste disposal facility. Majority, 56% and 53% of respondents in Kangemi and Transformers residential neighborhoods respectively, travel between 1-2 Km to access the nearest public solid waste disposal facility.

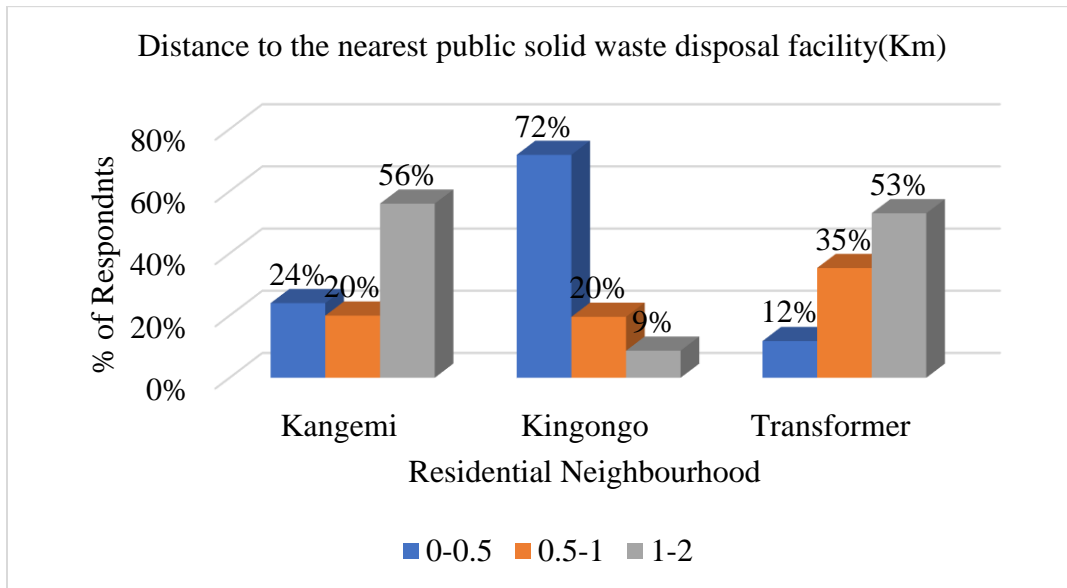


Figure 5-3: Distance to nearest Public Solid Waste Disposal Facility

Source: Field Survey, 2024

A further analysis to this finding revealed that residents of Kingongo residential neighborhood travel the shortest average distance of 0.4 Km to access a public solid waste disposal facility. Residents of Kangemi and Transformer residential neighborhoods travel an average of 1Km to access the nearest skip.

Variation in accessibility of community centre/social hall

variations in accessibility to public community centre/social hall were also revealed by the analysis of the average distance to the nearest public facility. The analysis indicated respondents in Kangemi residential neighborhood travel an average of 1.2 Km to access a public community center while those in Kingongo and Transformer travel an average of 1.9 Km and 3Km respectively.

5.4.3 Variation in provider of urban service facilities accessed

This study identified urban service facilities providers as one of the evaluative indicators of variations in provision of urban service facilities. The study investigated the providers of the facilities that were accessed by to the respondents. This section provides the results.

Variation in ECDE Facilities providers

The field survey conducted in this study revealed that the majority, 80% of residents of Kangemi residential neighborhood access private ECDE facilities. Contrary to Kangemi residential neighborhood, majority, 89.1% of residents of Kingongo residential neighborhood depend on public ECDE facilities. Majority, 52.9% of residents of Transformer residential neighborhood access private ECDE facilities while 47.1% access public ECDE facilities. The results of the survey are illustrated in Figure 5-5 below.

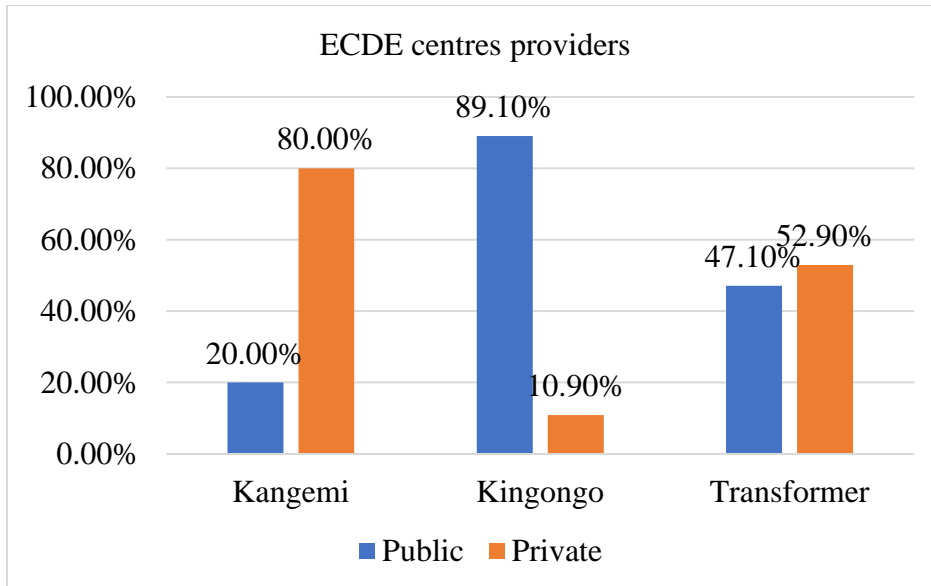


Figure 5-4: ECDE Centre Providers

Source: Field Survey, 2024

Variation in Primary School Facilities providers

This study established variations in primary schools in terms of providers of the facilities accessed by respondents as illustrated in Figure 5-6 below. As shown in Figure 5-6, majority 68% of the respondents in Kangemi residential neighborhood indicated they access public primary schools. Similarly, majority 89% of the respondents in Kingongo residential neighborhood also access public primary schools. However, majority, 59% in Transformer residential neighborhood access private primary schools.

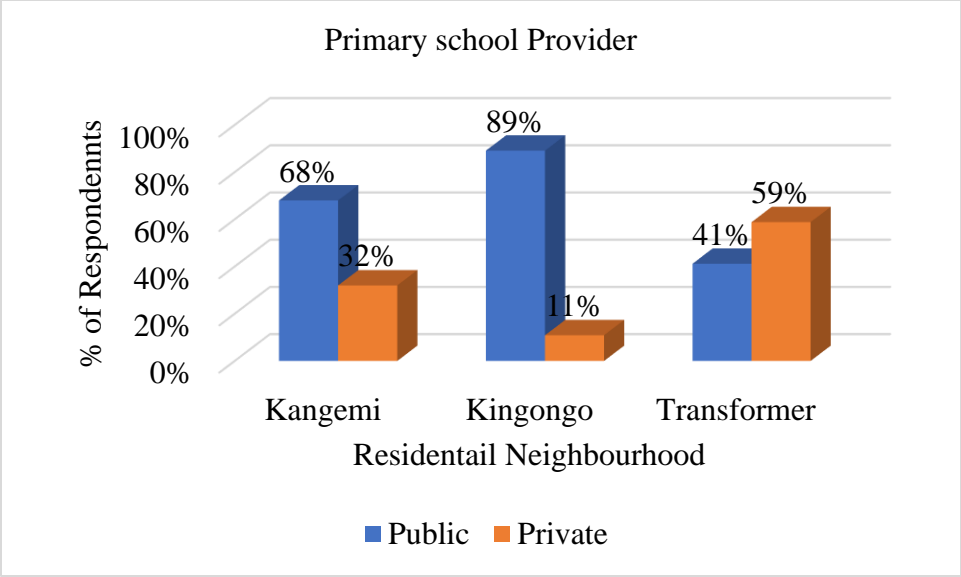


Figure 5-5: Primary School Provider

Source: Field Survey, 2024

Variation in Health Facilities providers

The study findings indicated that 80% of the respondents in Kangemi residential neighborhood access public health facilities. The findings also show 54% of the respondents in Kangemi residential neighborhood access public health facilities while 71% of the respondents in Transformer residential neighborhood access private health facilities. The findings are as illustrated in Figure 5-7 below.

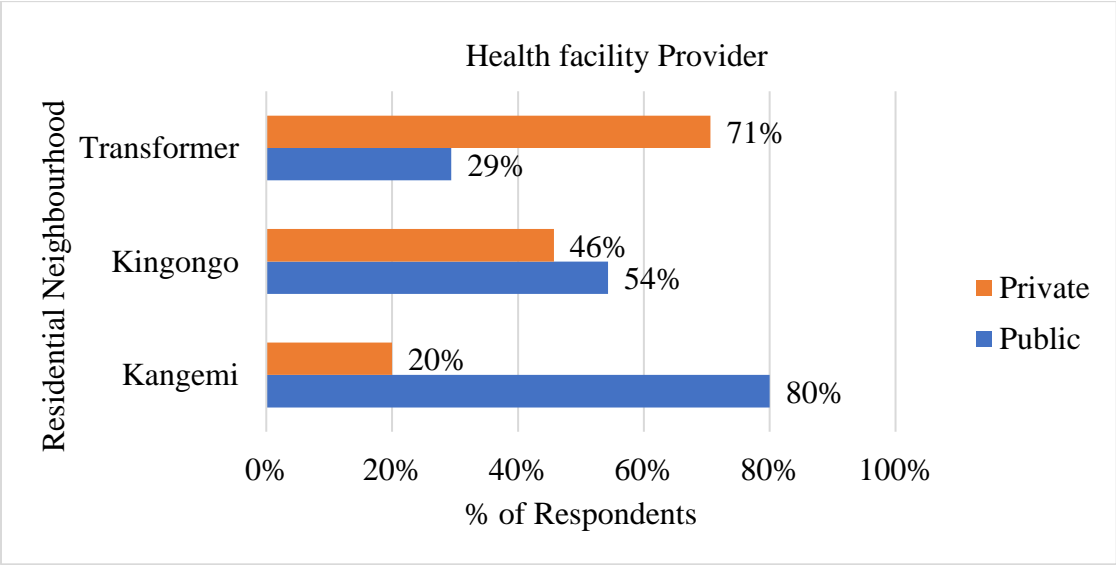


Figure 5-6: Health Facilities Providers

Source: Field Survey, 2024

Variation in Green Park/playground Facilities providers

The study found out there was no variations in the providers of accessed green park/playground facilities. All, respondents in Kangemi, Kingongo and Transformer accessed public green spaces provided by the County government of Nyeri.

Variation in Water supply Facilities providers

As noted earlier in this study on the analysis of availability, Kangemi and Kingongo Residential neighborhoods are served by the public water supply system of Nyeri town. All the respondents (100%) in Kingongo and Kangemi residential neighborhood have public piped water connected in their house. However, majority of the respondents, 99% of the respondents in Transformer residential neighborhood access water from one public *water kiosk*. Though 99% of the respondents in transformer access water from the water kiosk, Majority, 65% depend on private water suppliers who purchase water from the water kiosks and deliver to their houses at a fee.

Variation in Liquid waste Disposal Facilities providers

The study established, all the respondents (100%) in Kingongo residential neighborhood have their houses connected to the public sewer system. Majority, 78% of Kangemi residential neighborhood respondents are connected to the public sewer system while 22% of the respondents depend on private pit latrines. Majority, 99% of the respondents in Transformer residential neighborhood access private pit latrines as their liquid waste disposal facilities.

Variation in Solid waste Disposal Facilities providers

Table5-7 illustrate variation in Solid Waste Facilities providers. Table 5-7 indicate 68% of respondents in Kangemi residential neighborhood depend on public solid waste facilities while 32% depend on facilities provided by private solid waste collectors. All, 100% respondents in Kingongo residential neighborhood access public waste disposal facilities. In Transformer residential neighborhood, the study established 70.6% of the respondents access public solid waste disposal facilities while 29.4 % access facilities provided by privately.

Table 5-6: Solid Waste Facilities Provider

Residential Neighbourhood	Solid Waste Facility Provider		
	Public	Private	Total
Kangemi	68.00%	32.00%	100.00%
Kingongo	100.00%		100.00%
Transformer	70.60%	29.40%	100.00%

Source: Field Survey, 2024

Variation in Community Centre/Social Hall Facilities providers

The study found out there was no variations in the providers of accessed green community centre/social hall facilities. All, respondents in Kangemi, Kingongo and Transformer accessed community centre/social hall facilities provided by the County government of Nyeri.

5.5 Contribution of land tenure related urban management practices to the variations in provision of urban service facilities

As established in review of literature, provision of urban service facilities is inherent to urban development processes or pathways. This study identified two urban development pathways, in establishment of residential neighborhoods in urban areas: formal and informal pathways. From literature and guided by egalitarianism theory, this study established equity in provision of urban service facilities can only be achieved through the formal development pathway. Guided by the formal development pathway, this study also identified key management practices that lead to equitable provision of urban service facilities. The key management practices are: Formulation of urban service facilities provision policy; Formulation of legislation and regulations; Establishment of urban management institutions and devising Fiscal and Financial measures. However, this study focused on two of the identified management practices: formulation of urban service facilities provision policy and formulation of legislation and regulations excluding the rest from investigation and analysis. This study therefore sought to find out the nexus between land tenure and the key management practices and how the nexus contributed to the variations in provision of urban service facilities. Within this context, three forms of land

tenure forms were identified in Nyeri town residential neighborhoods. The land tenure forms identified were; leasehold, freehold and informal. Kingongo, Kangemi and Transformer residential neighborhoods each representing a unique land tenure form were selected as case studies to investigate the contribution of land tenure to the variations established in provision of urban service facilities.

Kingongo Residential Neighborhood (Leasehold)

According to the response from the key informant interviews, in the year 1986, Kingongo was established as a residential neighborhood through the formal development pathway.

The study established residential neighborhood was part of the Nyeri Town Development Plan, prepared by the then department of physical planning under the Ministry of Works, Housing and Physical Planning. According to the key informant interview conducted with the County Director in charge of physical planning and urban development in Nyeri County, and examination of the 1986 Nyeri Town Development Plan, the plan allocated land for provision of urban service facilities provision. In the Development Plan and in relation to this study, the plan provided:

Table 5-7: Provision of facilities by the Nyeri Town Development Plan, 1986.

Area	Urban Services Facilities Provided
Within the neighborhood	ECDE center, Primary school, at least 12M access roads
In close proximity to the residential neighborhood	Health facility, Sports field (playground), sewerage treatment plant.

Source: Authors construct from Nyeri Town Development Plan, 1986.

This management practice contributed to provision of urban service facilities in Kingongo through land allocation within the residential neighborhood as well as in close proximity to the residential neighborhood. This explains the average distances cited by the respondents from their homes within Kingongo to the nearest public service facilities that conform to the recommended standards.

The study also found out that Kingongo residential neighborhood was established on public land and therefore the residential developments were developed on public leasehold parcels. The owners of the residential allocated land were issued with a Lease document that stipulated 15 lease conditions that the owners were to adhere to as were stipulated by the Commissioner of Lands. Among the 15 lease conditions are:

Condition 1: Compliance with the plans and specifications previously approved in writing by the Commissioner of Lands or the Local Authority.

Condition 5: The land and building shall be used exclusively for a single private dwelling house (excluding guest houses).

Condition 7: The Lessee must obtain prior written consent from the Commissioner of Lands before subdividing the land.

Condition 10: The Lessee shall, upon request, pay the Commissioner of Lands a proportionate share of the costs for maintaining roads and drains that serve or border the land, as determined by the Commissioner of Lands.

Condition 12: The Lessee shall pay any rates, taxes, charges, duties, assessments, or other fees imposed by any government or local authority.

These regulations were designed to ensure the availability of urban service facilities within the neighborhood. The study also found that the Kingongo residential neighborhood was governed by the now-defunct Nyeri Municipal Council. The Municipal Council ensured compliance with development conditions and protected land allocated for public service facilities from being converted for private use. Additionally, the Nyeri Municipal Council collected land rates and development application fees in the Kingongo residential neighborhood to fund the provision of services and facilities within the municipality.

The study revealed the most prevalent challenge facing Kingongo residential neighborhood service facilities is quality of services provided. This was attributed to the recent densification of the neighborhood. Originally, the urban service provision policy

envisioned a low-density neighborhood consisting of single dwelling units. However, the study revealed over the years, the neighborhood transformed to a high-density neighborhood without a revision of the urban service provision policy. This practice has led to creation of pressure to the existing facilities compromising the quality of the available facilities. The land owners apply for Change of User through the County Department of lands, the study revealed development permission is often issued by proof of availability of the facilities within the residential neighborhood rather than the capacity of the available facilities.

Kangemi Residential Neighborhood (freehold)

The Kangemi residential neighborhood developed through an informal process. According to key informant interviews, its establishment resulted from the gradual subdivision of freehold agricultural land, driven by the demand for more affordable residential land compared to that allocated for housing within the town. The proximity of Kangemi to Nyeri's central business district and the town's largest health facility further fueled the demand for housing, catering to the growing population and health facility workers. Consequently, Kangemi's development lacked prior coordination and organization of land uses, including the absence of an urban service facility provision policy. This ad hoc development approach led to the neighborhood missing out on the systematic allocation and distribution of urban services, which would have ensured optimal service delivery and accessibility. Land for public urban services in Kangemi was allocated based on a discretionary process during the development application phase, deviating from best practices that advocate for a standardized policy on urban service provision. The study found that land allocation in Kangemi was not done in the public interest but was instead influenced by the discretion of urban management authorities and private developers.

The study also found that land in Kangemi is held in perpetuity, with developers subject to general regulations under the Nyeri Municipality Integrated Strategic Urban Development Plan (NMISUDP) 2014-2034. This plan broadly redistributes land for various uses to ensure harmony, but it failed to proportionally allocate land for urban services in Kangemi, which was rezoned from agricultural to residential use without a

standardized public service facilities policy to ensure equity. Developers were required to apply for a Change of Use from agricultural to residential land before beginning residential developments, but key informants indicated that permissions were granted based solely on the proposed use, without assessing the impact on existing public services. The study also revealed that private sector service providers have stepped in to fill the gap left by the absence of public urban services in Kangemi. According to an interview with the County Director of Physical Planning and Urban Development in Nyeri County, private investors see business opportunities in this gap and seek licenses and approvals to provide services within the neighborhood, albeit without adherence to planning standards.

Transformer Residential Neighborhood (Informal)

According to the key informant responses, Transformer residential neighborhood emerged through the process of invasion. Invasion is an informal development pathway. The residents invaded land that belonged to the public and reserved as a public open space due to its steep terrain. The process of establishing the neighborhood involved inhabitants building temporary structures and occupying them. Prior to inhabitation, there was no formulation of an urban service facility provision policy and there are no formal regulations on the use and development of land. As indicated in this study before, there are no public service facilities under this study investigation provided within the residential neighborhood save for one community *Water Kiosk*. The residents of Transformer residential neighborhood therefore depend on public urban service facilities provided elsewhere from the neighborhood.

5.6 Measures to improve provision of urban service facilities

In addition to the measures and strategies identified in review of literature that include Land Re-adjustment, Land expropriation, Land Banking and Pre-emption, through the responses of the key informant interviews the following measure were identified:

5.4.4 Land surrender

The study found out that Nyeri County physical planning and urban development department utilize the land surrender measure to improve provision of urban service

facilities in areas under freehold land tenure. Landowners who submit subdivision scheme plans for approval by the department, are required to surrender land for public purpose that is thereafter reserved for provision of urban service facilities and registered under the County government of Nyeri. However, this measure is faced with several challenges; First, the measure only applies when the subdivision is considered to be a ‘comprehensive development’. The department lack a clear definition of a ‘comprehensive development’ and hence development condition for land surrender is based on the discretion of the planning and approving authority. Secondly, the number of people who will be settled on the subdivided land is not pre-established, making it difficult to determine the necessary urban service facilities. Additionally, while the Physical and Land Use Planning Act mandates that developers surrender land for public utilities when subdividing, it does not specify how much land should be given, leaving this decision to the developer's discretion.

5.4.5 Establishment of Growth Areas Authority

The Growth Areas Authority is a measure is an institutional measure that was established in Melbourne City in Australia. The authority was designated as responsible for overseeing the preparation of all precinct structure plans for areas outside the city growth boundary. In addition, it was given the responsibility for preparing Infrastructure Plans in cooperation with other State agencies, local government, and developers, to underpin and inform the preparation of the structure plans, and to assist in staging development and financing infrastructure. Growth Area Authority can be applicable in Nyeri Town to oversee urban service provision policies in areas the town is expanding towards.

6 SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

6.1 Introduction

This study, conducted with meticulous attention to detail, sought to investigate the contribution of land tenure to the provision of urban service facilities. Particularly, it sought to examine the variation in provision of urban service facilities in residential neighborhoods under different land tenure forms, analyze the land tenure related urban management practices that contribute to the variations and finally compiling possible measures to improve provision of urban service facilities in all residential neighborhoods. Towards this end, the study investigated the nature of variations in urban service facilities focusing on availability, accessibility and the provider in a field survey in Kingongo, Kangemi and Transformer residential neighborhoods in Nyeri town. In addition, it sought to analyze the land tenure-related urban management practices that contribute to the variation in the provision of urban service facilities across residential neighborhoods in urban areas both in theory and practice and finally it sought the best practices and strategies for improving equity in the provision of urban service facilities in urban areas from literature, experts and academics.

This chapter offers a summary of the study's findings, as detailed in Chapter Five, and draws conclusions based on these findings in relation to the study objectives. Additionally, it outlines the recommendations for addressing the research objectives and suggests potential areas for further research related to this study, thereby instilling hope in the reader about the practical implications and potential impact of the study's recommendations.

6.2 Summary of study findings

6.2.1 How provision of urban service facilities varies in residential neighborhoods under different land tenure forms.

The study findings show that provision of urban service facilities in residential neighborhoods in Nyeri town vary on three different fronts: First, there are residential neighborhoods that have public service facilities provided within their boundaries and

there are those that lack public service facilities. Secondly, provision of service facilities also varies in accessibility. The variation in accessibility is illustrated by distance travelled to reach to the nearest public facility and the cost spent to reach the facility location. Finally, variation in provision of urban service facilities is demonstrated by the providers of the urban service facilities within the residential neighborhoods.

Variation in availability of public service facilities

The study findings indicated that availability of public urban service facilities in leasehold residential neighborhoods is higher than that of freehold residential neighborhoods. The study shows 62.5% availability of urban service facilities in Kingongo residential neighborhoods while 50% in Kangemi residential neighborhood. The study also shows minimal availability of public service facilities in informal land tenure residential neighborhoods. This finding confirms the findings of past studies that describes scarcity of urban service facilities in freehold and informal areas in urban areas.

Variation in accessibility

The study findings also indicate that accessibility of urban service facilities in leasehold residential areas is better compared to accessibility in freehold and informal land tenure areas. For instance, the accessibility analysis indicated that respondents in leasehold (Kingongo) neighborhood travel an average of 0.5Km while those in freehold (Kangemi) travelled an average of 3.5Km and those in Informal (Transformer) travelled an average of 3.9 Km to access a public ECDE centers.

Variation in provider

The findings indicate that leasehold residential neighborhoods are mainly provided with urban service facilities by the public sector. Freehold neighborhoods on the other side mainly depend on both the public and private sector. Informal residential neighborhoods mainly depend on private service facilities providers.

6.2.2 How land tenure related urban management practices contribute to the variation in provision of urban service facilities in leasehold, freehold and informal residential neighborhoods.

Review of Literature in this study established that equity in provision of urban service facilities can only be achieved through the formal development pathway. Guided by the formal development pathway, this study also identified key management practices that lead to equitable provision of urban service facilities. The key management practices under the consideration of this study were: Formulation of urban service facilities provision policy and Formulation of legislation and regulations. This study therefore sought to find out the nexus between land tenure and the key management practices that and how the nexus contributed to the variations in provision of urban service facilities.

Formulation of Urban Service Facility policy.

As noted in the methodology section of this study, Kingongo residential neighborhood was identified by this study for a detailed case to represent leasehold areas in Nyeri town. The study found that leasehold residential areas were as a result of an urban development plan, herein referred to as an Urban Service Facility Provision Policy (USFPP). The study established that availability of public service facilities within Kingongo residential neighborhood was as a result of the USFPU formulated in 1986. The 1986 USFPP of Kingongo provided for establishment of a public ECDE centre and a Public Primary school. It also provided for 12 M access roads which the study established were precursor to provision of water and sewerage system, placement of solid waste disposal facilities. Public Urban service facilities such as public health facility, playground and community center that were not allocated within the Kingongo residential neighborhood by the USFPU, the study established they are not available within the neighborhood.

On the other hand, Kangemi residential neighborhood was identified by this study for a detailed case to represent freehold land tenure areas in Nyeri Town. The study established Kangemi residential neighborhood was established as a result of land subdivision and conversion of agricultural land to residential. The study also revealed the land subdivisions and conversions were not subjected to an USFPP rather provision of public

USFs was dependent on a discretionary concept referred in this study as Land Surrender. The Land surrender concept was deemed discretionary because there were no clear guidelines on the size and use of the land to be surrendered.

Transformer residential neighborhood was identified to represent informal land tenure areas. The study revealed that Transformer residential neighborhood emerged as a result of invasion of public land – Public Open space. The study found out that the area was not considered suitable for residential development and was therefore allocated as open space due to its steep terrain. The study established there was not any form of USFPP for provision of USFs and as a result the neighborhood lacks public service facilities.

This study therefore finds that USFPP is a key contributor of provision of urban service facilities. The USFPP identifies and allocates land for provision of urban service facilities.

Formulation of Legislation and Regulations

On assessment of contribution of legislation and regulations to provision of urban service facilities, the study found out that existence of development conditions contributed to operationalization of provision of urban service facilities established in the Urban Service Facility Provision Policies or frameworks. The study found out only in Kingongo residential neighborhood development regulations were clearly stipulated in land ownership documents. The regulations were found to contribute to provision of urban service facilities by securing land that was allocated for provision of public urban service facilities from conversion to other users as well as stipulating development typologies to ensure the predetermined population is effectively served by the provided service facilities. However, the study established that lack of adherence to the regulations stipulated have an impact on provision of urban service facilities. For instance, Kingongo residential neighborhood was designated for single dwelling residential development but later through application of Change of User, was converted to multi-dwelling high density neighborhood without commensurate provision of urban service facilities. In addition, the study found out that increased densification in Kingongo neighborhood, caused distortions in the pre-determined population during the USFPP formulation. This distortion caused

the provided USFs to be deemed inadequate and overutilized therefore compromising the quality of services provided.

The study established land in Kangemi residential neighborhood is held in perpetuity. Developers are not subjected to specific development regulations and conditions. The developers must adhere to general regulations set by the overarching land use plan, which reassigns land for various purposes to ensure compatibility among different uses. This broad plan changed the zoning of an area from agricultural to residential without establishing practical and equitable regulations for providing public urban services. The study also revealed, residential development permission is granted based on the permitted user without an assessment of the impact of the residential developments to the available public service facilities provided. In Transformer residential neighborhood, residents invaded land that belonged to the public and reserved as a public open space due to its steep terrain. Land is held illegally without any form of development regulations. Development in this neighborhood is done without any regard to provision of public urban service facilities.

6.2.3 Possible measures to improve provision of urban service facilities in residential neighborhoods

The compiles the following measures and strategies from the review of literature and key informant interviews:

- Land Re-adjustment: This process involves consolidating dispersed and irregular plots into a cohesive area, then re-subdividing the consolidated land while adding necessary amenities and services such as roads, parks, social infrastructure, and utilities. It is considered an effective strategy for providing urban infrastructure in Freehold and Informal land tenure regions.
- Land Expropriation: This approach entails the government compulsorily acquiring land from its owners for public purposes, such as developing urban service facilities.
- Land Banking: This strategy involves acquiring undeveloped land either through compulsory or voluntary means in advance of its immediate need, with the aim of

later distributing it to the private sector through sale, lease, or rent for various development projects.

- Pre-emption: This right allows landowners to offer their property to the state or local government first, at market value, before it is offered to other potential buyers.
- Establishment of Growth Areas Authority: The creation of an authority tasked with overseeing and managing designated growth areas.

6.3 Study Conclusion

The study sought to examine the variations in provision of urban service facilities in Nyeri town residential neighborhoods under different land tenure forms. It was evident from the study variations in provision of public service facilities exists in form of availability, accessibility and facility providers across the residential neighborhoods under different land tenure forms. The study concludes residential neighborhood under leasehold land tenure are better provided with public urban service facilities compared to residential neighborhoods in freehold and informal land tenure forms.

The study also sought to analyze the land tenure related urban management practices that contribute to the variations in provision of urban service facilities in residential neighborhoods under different forms of land tenure. The study concludes formulation of public urban service facilities provision policy and formulation of development legislation and regulations in residential neighborhoods contribute to provision of urban service facilities. Formulation of public urban service facilities provision policy contributes to equitable provision through; first, ensuring availability through allocation of adequate land for provision of urban service facilities commensurate to the anticipated population and secondly, ensuring accessibility by positioning the facilities within the acceptable distances in the residential neighborhoods and thirdly facilitating the public sector to invest in the public facilities since there is already available land allocated for the facilities. The study also established, for the public urban service facilities provision policies to be effective, they must constantly be reviewed to meet the new demands

occasioned by urbanization. Lack of the public urban service facilities provision policy results to ineffective measures that perpetuate inequalities in provision of the facilities.

Formulation of development legislation and regulations contribute to provision of urban service facilities by safeguarding land allocated for public service facilities from conversion for other uses as well as safeguarding quality of the provided facilities by controlling population. Finally, the study compiled Land Re-adjustment, Land expropriation, Land Banking, Pre-emption, Land surrender and Establishment of Growth Areas Authority as measures to improve provision of urban service facilities in residential neighborhoods under different forms of land tenure.

To ensure equity in provision of public urban service facilities, this study concludes residential neighborhoods in all leasehold, freehold and informal land tenure forms must be subjected to formulation of public urban service facilities provision policy and formulation of development legislation and regulations to ensure equity in availability and accessibility of the facilities within the residential neighborhood.

6.4 Study recommendations

Based on the research findings and conclusions, the study suggests that the following strategies and measures are crucial for ensuring equitable outcomes in the provision of urban service facilities in Nyeri's residential neighborhoods.

a) Immediate Measures

- Formalization of Land Surrender Concept

The study recommends the urban management institutions, in-conjunction with public land management institutions to develop clear legislations and regulations on the sizes of land to be surrendered for provision of respective urban service facilities during land subdivision in freehold areas intended for residential development.

- Adoption of residential neighborhoods as planning units

The study recommends adoption of residential neighborhoods by the urban management institutions as planning units to be considered for preparation of urban public service facilities policies.

b) Short-term Measures

- Periodical review and update of Urban Public Service Facility Provision Policies

The study recommends that urban management institutions to keep updating the Urban Public Service Facility Provision Policies regularly in leasehold areas to keep pace with the urban growth trends.

- Establishment of Growth Areas Authority

The study recommends establishment Growth Area Authorities in the urban management structures to be in charge predicting urbanization and growth expansion of areas under different land tenure for urban service facilities planning.

c) Long-term Measures

- Adoption of retrospective measures

The study recommends urban management institutions to initiate Land re-adjustment in existing freehold and informal land tenure established residential neighborhoods with an aim to formulate urban public service provision policy and development legislations and regulations.

- Adoption of progressive measures

The study recommends adoption of progressive measures by the urban management institutions and the private landowners such as land banking and pre-emption of land in the urban hinterland for future urbanization. The acquired land shall later be available for establishment of residential neighborhoods upon formulation of urban public service facilities policy.

6.5 Areas of further research

During this study, several topics surfaced that were beyond its original scope. Consequently, the study suggests that future research could focus on the following areas:

1. The role of public land management institutions in delivering urban public service facilities.
2. The impact of urban fiscal and financial management practices on the provision of urban public service facilities.
3. The coordination between the public and private sectors in supplying urban service facilities in residential neighborhoods to enhance equity in both availability and accessibility.

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APPENDICES

Appendix I- Key Informant Interview Schedules

CONTRIBUTION OF LAND TENURE IN PROVISION OF URBAN SERVICE FACILITIES: A CASE OF NYERI TOWN RESIDENTIAL NEIGHBOURHOODS.

A. KEY INFORMANT INTERVIEW SCHEDULE- COUNTY DEPARTMENT OF PHYSICAL PLANNING AND URBAN - NYERI COUNTY PHYSICAL PLANNER

DECLARATION: As a requirement of the University of Nairobi, students are required to conduct practical research studies to effectively understand and appreciate research process and to contribute in creating knowledge. The Information generated through this questionnaire will be held professionally and will only be used for academic purposes in informing the research on how Land Tenure Contribute to Provision of Urban Service Facilities in Nyeri Town Residential Neighborhoods.

1. How did Kingongo, Kangemi and Trasformer residential neighbourhoods in Nyeri town emerge?

2. What were the land related urban management practices that were undertaken when establishing Kingongo, Kangemi and Transformer as residential neighborhoods in Nyeri town?

3. How did the urban management practices undertaken ensure provision of urban service facilities within the respective neighborhoods?

4. What are the challenges involved in the respective urban management practices followed in relation to provision of urban service facilities in the residential neighborhoods?

5. What can be done/what is being done to address the challenges involved in the respective urban management practices undertaken in relation to provision of urban service facilities in Kingongo, Kangemi and Transformer the residential neighborhoods?

6. What land related strategies/measures that can be undertaken to improve provision of urban service facilities in Kingongo, Kangemi and Transformer residential neighbourhoods?

Thank you for your time and co-operation!

CONTRIBUTION OF LAND TENURE TO PROVISION OF URBAN SERVICE FACILITIES: A CASE OF NYERI TOWN RESIDENTIAL NEIGHBOURHOODS.

B. KEY INFORMANT INTERVIEW SCHEDULE -NYERI TOWN MUNICIPAL MANAGER

DECLARATION: As a requirement of the University of Nairobi, students are required to conduct practical research studies to effectively understand and appreciate research process and to contribute in creating knowledge. The Information generated through this questionnaire will be held professionally and will only be used for academic purposes in informing the research on how Land Tenure Contribute to Provision of Urban Service Facilities in Nyeri Town Residential Neighborhoods.

1. Are the following public urban service facilities available within Kingongo, Kangemi and Transformer residential neighborhoods in Nyeri town?

Provide answers in this table

No.	Facility	Kingongo	Kangemi	Transformer
		1. Yes 2. No	1. Yes 2. No	1. Yes 2. No
1.	ECDE Centre			
2.	Primary School			
3.	Health facility			
4.	Green Park/Playground			
5.	Water Supply Point.			
6.	Liquid waste disposal facility			
7.	Solid waste collection facility.			
8.	Community Centre/Social Hall			

2. What land related challenges do you face while ensuring the public urban service facilities are provided in Kingongo, Kangemi and Transformer residential neighborhoods in Nyeri town?

Provide answers in this table

No.	Facility	Challenges		
		Kingongo	Kangemi	Transformer
1.	ECDE Centre			
2.	Primary School			
3.	Health facility			
4.	Green Park/Playground			
5.	Water Supply Point.			
6.	Liquid waste disposal facility			
7.	Solid waste disposal facility.			
8.	Community Centre/Social Hall			

3. What land related measure can be undertaken to improve availability and accessibility of urban service facilities in Kingongo, Kangemi and Transformer residential neighborhoods?

Provide answers in this table

No.	Facility	Strategies/Measures to improve provision		
		Kingongo	Kangemi	Transformer
9.	ECDE Centre			
10.	Primary School			
11.	Health facility			
12.	Green Park/Playground			
13.	Water Supply Point.			
14.	Liquid waste disposal facility			
15.	Solid waste disposal facility			
16.	Community Centre/Social Hall			

Thank you for your time and co-operation!

CONTRIBUTION OF LAND TENURE TO PROVISION OF URBAN SERVICE FACILITIES: A CASE OF NYERI TOWN RESIDENTIAL NEIGHBOURHOODS.

C. KEY INFORMANT INTERVIEW SCHEDULE - ACADEMICS/EXPERTS

DECLARATION: As a requirement of the University of Nairobi, students are required to conduct practical research studies to effectively understand and appreciate research process and to contribute in creating knowledge. The Information generated through this questionnaire will be held professionally and will only be used for academic purposes in informing the research on how Land Tenure Contribution to Provision of Urban Service Facilities in Nyeri Town Residential Neighborhoods.

1. From theory and practice, what is the ideal land related urban management practices of ensuring urban residential neighborhood are provided with adequate, equitable and accessible urban service facilities when establishing the neighborhoods?
2. How does land related urban management practices involved in establishing residential neighborhoods under leasehold, freehold and informal land tenure forms deviate from the ideal process of ensuring provision of urban service facilities in the respective neighborhoods?
3. How does the deviation in the management practices of establishing residential neighborhoods under leasehold, freehold and informal land tenure forms contribute to variations in the provision of urban service facilities in the respective neighborhoods?
4. Which measures/strategies in theory and/or practice can be adopted to improve provision of urban service facilities in residential neighborhoods established under leasehold, freehold and informal land tenure forms?

Thank you for your time and insights!

Appendix II- Observation Checklist

CONTRIBUTION OF LAND TENURE TO PROVISION OF URBAN SERVICE FACILITIES: A CASE OF NYERI TOWN RESIDENTIAL NEIGHBOURHOODS

OBSERVATION CHECKLIST

Neighborhood	Kingongo			Kangemi			Transformer		
Facilities	Availability	Provider	Quality	Availability	Provider	Quality	Availability	Provider	Quality
ECDE Centre									
Primary School									
Health Facility									
Green Park/Playground									
Water Supply network/facilities.									
Liquid waste disposal facility									
Solid waste disposal facilities.									
Community Centre/Social Hall									

Appendix III- Household Questionnaire

CONTRIBUTION OF LAND TENURE TO PROVISION OF URBAN SERVICE FACILITIES: A CASE OF NYERI TOWN RESIDENTIAL NEIGHBOURHOODS.

HOUSEHOLD QUESTIONNAIRE

DECLARATION: As a requirement of the University of Nairobi, students are required to conduct practical research studies to effectively understand and appreciate research process and to contribute in creating knowledge. The Information generated through this questionnaire will be held professionally and will only be used for academic purposes in informing the research on how Land Tenure Contribute to Provision of Urban Service Facilities in Nyeri Town Residential Neighborhoods.

Residential Neighborhood Kangemi () Kingongo () Transformer ()

1. Respondent's Profile

Tick (√) in the space provided, the appropriate answer.

1.0 How old are you? (Years)

18-25 () 26-35 () 36-50 () 50-65 () Above 65 ()

1.1 What is your household size

<3 () 3-5 () 6-10 () Above 10 ()

2. Provision of urban service facilities

No.	Facility	Do you have access to this facility? (1. Yes, 2. No)	Is the facility you access located within your neighborhood? (1. Yes, 2. No)	Who provides the facility you access? 1. Private 2. Public 3. Others, specify.	Distance of the facility you access from your home (Km) 1. 0-0.5 2. 0.5-1 3. 1-2 4. 2-5 5. Over 5	Opinion on quality of the facility you access. 1. Very poor 2. Poor 3. Good 4. Very Good 5. Excellent	Cost of access of the facility (Ksh.) 1. <50 2. 50-100 3. 100-150 4. Above 150
1.	ECDE Centre						
2.	Primary School						
3.	Health Facility						
4.	Green Park/Playground						
5.	Water Supply Points.						
6.	Liquid waste disposal point						

No.	Facility	Do you have access to this facility? (1. Yes, 2. No)	Is the facility you access located within your neighborhood? (1. Yes, 2. No)	Who provides the facility you access? 1. Private 2. Public 3. Others, specify.	Distance of the facility you access from your home (Km) 1. 0-0.5 2. 0.5-1 3. 1-2 4. 2-5 5. Over 5	Opinion on quality of the facility you access. 1. Very poor 2. Poor 3. Good 4. Very Good 5. Excellent	Cost of access of the facility (Ksh.) 1. <50 2. 50-100 3. 100-150 4. Above 150
7.	Solid waste collection point.						
8.	Community Centre/Social Hall						

3. What is main the challenge associated with the access to the service facility provided?

No.	Facility	Challenges 1. Cost 2. Distance 3. Availability 4. Quality 5. Others, specify
1.	ECDE Centre	
2.	Primary School	
3.	Health Facility	
4.	Green Park/Playground	
5.	Water Supply Point.	
6.	Liquid waste disposal facility	
7.	Solid waste disposal facility.	
8.	Community Centre/Social Hall	

4. What recommendations do you have to improve access to and nature of urban service facilities in this Neighborhood.

No.	Facility	Recommendation
1.	ECDE Centre	
2.	Primary School	
3.	Health facility	
4.	Green Park/Playground	
5.	Water Supply Point.	
6.	Liquid waste disposal facility	
7.	Solid waste disposal facility.	
8.	Community Centre/Social Hall	

Thank you for your time and co-operation!

Appendix IV- Consent Statement

PARTICIPANT CONSENT STATEMENT

Dear Sir/ Madam,

RE: **REQUEST FOR PARTICIPATION**

I am a student of the University of Nairobi currently in the final year of study pursuing a Master's Degree in Urban Management. I am conducting a study on the *Contribution of Land Tenure to Provision of Urban Service Facilities: A Case of Nyeri Town Residential Neighborhoods* as my research project. As one of the sampled respondents, your views are essential in this study and would be highly grateful if you provided information on this area of study.

I would like to assure you that the information provided by you in the questionnaire/interview schedule shall be strictly for academic purposes and be treated with utmost confidentiality.

Please find attached a copy of the Research Letter from the university department and a Questionnaire/Interview Schedule for your valued input.

Thank you for your time and co-operation.

Ndichu Peter Ngugi

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Appendix IV- University Introduction Letter

INTRODUCTION LETTER



UNIVERSITY OF NAIROBI

Faculty of Built Environment and Design
DEPARTMENT OF ARCHITECTURE
E- mail: architecture@uonbi.ac.ke

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Our Ref: UON/FBED/Arch/12760/18

Date: 16th February, 2024

TO WHOM IT MAY CONCERN

RE: NDICHU PETER NGUGI - REG NO. W50/12760/2018

This is to confirm that the above named is a bona fide student pursuing Master of Urban Management degree in the Department of Architecture, University of Nairobi. He is undertaking a project titled "*Contribution of Land Tenure to provision of urban service facilities: A case of Nyeri Town Residential Neighbourhoods.*"

Mr. Ndichu wishes to collect data for his project. We are thus requesting you to give him some of your valuable time and respond positively to his enquiries, provision of drawings, maps, etc as may be required. This is for academic purposes only.

Any assistance accorded to him will be highly appreciated.

Yours sincerely,

 CHAIRMAN
DEPARTMENT OF ARCHITECTURE
UNIVERSITY OF NAIROBI

Arch. Musau Kimeu
CHAIRMAN,
DEPARTMENT OF ARCHITECTURE

/pmm