INVESTIGATING FACTORS LEADING TO UNPLANNED SUBURBANIZATION: A CASE STUDY OF RUAI, NAIROBI

BY

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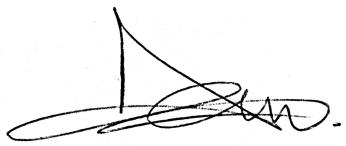
DECLARATION

I **Daisy Ondimu Monyangi** hereby certify that this is my original work and it has not been presented to any other academic professional institution for scholarly purposes or otherwise.

Signed:  27/7/2022

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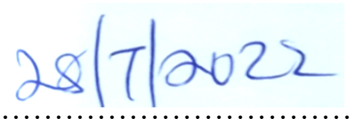
I do confirm that this report has been submitted with my approval as the University of Nairobi Supervisor.

1. Dr. Omar Kassim  

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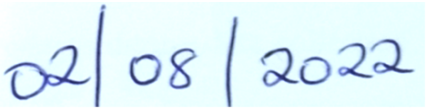
2. Dr. Maurice O. Oyugi  

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DEDICATION

I dedicate this work to my best friend and husband, Cyprian Kisimbo. This accomplishment would not be without your support through this journey on being our very best. And to my treasure, Ryan my son, you are my source of inspiration to live life to the fullest.

ABSTRACT

Suburbanization is the effect of disproportional expansion of cities to accommodate increasing functions and populations due to push and pull factors. Suburbanization fosters complexities however, given its haphazard development. The overall objective of this study therefore is to evaluate the causes, challenges and mitigation measures of suburbanization, with a focus on Ruai in Nairobi. To achieve this, descriptive and correlational research designs were used. In-depth literature review was combined with primary data through field surveys, observation checklists, and questionnaire administration and key informant interviews supported this further. Analysis reveals factors of growth of Ruai include economic opportunities, relative affordability of land and property plus infrastructural advancements. Resulting challenges were found to include disjointed urban character and uncontrolled development; land fragmentation; and environmental impacts. Mitigation measures recommended are self-organization by suburban residents, active engagement in suburban improvement through suburban associations; inclusion in city planning and management frameworks to establish integrated urban plan mapping of suburban development; and self-governance.

ABBREVIATIONS AND ACRONYMS

CBD	Central Business District
EMCA	Environmental Management and Coordination Act
JKIA	Jomo Kenyatta International Airport
KNBS	Kenya National Bureau of Statistics
NCCG	Nairobi City County Government
NMR	Nairobi Metropolitan Region
PLUPA	Physical and Land Use Planning Act
SGR	Standard Gauge Railway
SPSS	Statistical Package for Social Science
UN	United Nations

TABLE OF CONTENTS

List of Tables

List of Figures

List of Photos

List of Maps

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Suburbanization conceptually refers to the spatial expansion, extension and restructuring of cities (Pieretti, 2014). This growth requires accommodation, usually in the fringes of the city as it extends beyond its boundaries. This has led to the evolution of cities their infrastructure and systems, which are taking up increasingly more spatial cover upon the earth's surface and more vertical penetration as densities increase (Park & Burgess, 1925). Shlomo and colleagues (Angel, et al., 2011) empirically prove that we live in a suburban planet providing evidence of disproportional expansion of cities' regions to accommodate increasing functions and populations. Should existing population density trends prevail with persistent urban expansion, it is forecast that by 2030 there will be an increase in urban land cover by almost three times. That is, by about 1.2 million km^2 (Seto, et al., 2012).

Historical drivers of suburbanization include a mix of both organic and stimulated factors facilitating engagement between the city and its periphery. Population growth being a major driver (Espindola, et al., 2017), the rise in consumer incomes, individual predilections for lower-density development, physical constrictions of continuity of development of the city, such as hilly terrain (Burchfield, et al., 2006), technological and transport advancements, overcrowding of urban centres, dispersal of industrial and employment centres (Randolph & Holloway, 2004). Further, government economic policies provide incentives for firm relocation and the reduction of buffer zones which separate industrial parks, metropolitan areas and surrounding suburban residential areas (Soule, 2006); (Opp & Heberle, 2016).

Suburbanization drivers can be classified as Push and Pull factors. Push factors: leading populations out of cities and urban areas. Stimulating migration out of the city through perceived

fatigue of city life, and general feeling that urban areas are congested, over-polluted, have increasing crime, among other social vices. Pull factors: entice populations to leave urban areas for more attractive suburbs. Stimulants include perceived availability of more open space in suburbs, lower population densities, lower housing prices, lower property taxes compared to cities, a perception of being closer to nature, increasing number of job opportunities as companies relocate to suburban areas (Kolb, 2008).

The Nairobi Metropolitan Growth Strategy (1973) planned to decentralize development and services from the city's CBD, necessitating revision of the city's boundaries to accommodate satellite areas and suburbs into the city structure (Kingoriah, 1983). However, this demanded huge capital for investment. The absence of which resulted in the unstructured growth of suburbs (Odongo, 2021). This is common in the Global South, where a number of suburbs are established informally through squatters, clusters of illegal developments at the edges of cities, "rogue" developers. Their thematic and structural forms include residential developments, industrial establishments, mixed growth; dispersed, polycentric development, among others (Harris, 2015). Given the unplanned and informal nature of suburbanization in the global South, it is referred to as urban fringe development. Postulated as informal-sector settlements (Schneider & Woodcock, 2008).

1.2 Statement of the Problem

According to the World Cities Report, small urban settlements are the fastest growing cities in the world with secondary cities and urban centres making up the world's urban majority (UN-Habitat, 2020). Currently, 54 per cent of the world's population lives in urban areas. And as this proportion continues to increase to the UN expectations of 70 per cent by 2050, suburban centres continue to emerge (UNEN, 2020). Suburbs continue to grow by a parallel rate as the urban cores grow.

This is evident with suburbs emerging at an unprecedented rate, as seen around Nairobi. Beginning as a pre-colonial stopover during construction of the Railway, Nairobi's spatial extent was only 3.84 km^2 in 1910. Then growing to a railway city of 77 km^2 in 1927. And further expanding to 686 km^2 in 1963 following independence. Currently, the city occupies a land area of 696 km^2 continuing along lines of colonial segregation of city functions and class. As in the city's initial spatial frameworks developed in 1898, 1905 and 1973 (Owuor & Mbatia, 2008). Despite urban development interventions, each phase of Nairobi's development has been characterized by inefficient co-ordination of spatial, economic and industrial development (NUSG, 1973). With little intervention to control land speculation and development (Emig & Ismail, 1980).

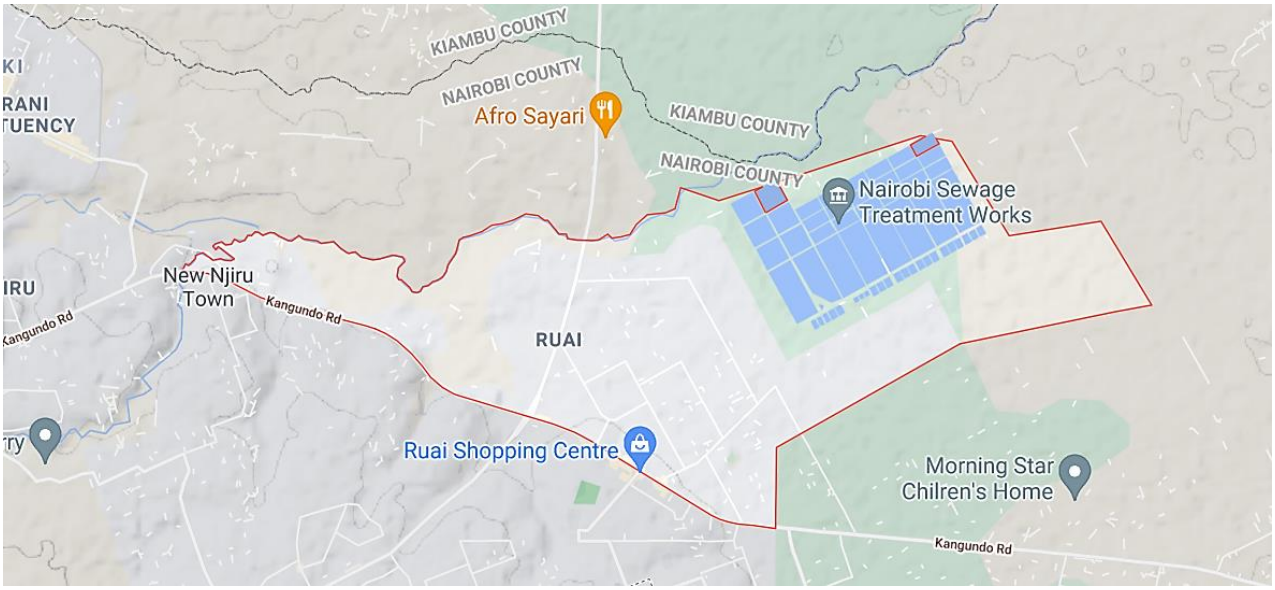
With residual effects of this foundation, radial distribution of the population and development is occurring at the fringe of the city leading to the growth of suburbs (Luo & Wang, 2019). This is observable to the west of Nairobi where it is expanding into Ruai and Kamulu in the northeast, towards Kiambu in the north, and southeast towards Athi River. Factors driving residents out of the city include blight and degradation of the city, as well as attractive offerings of these suburbs which lead to migration out of the city core. The Nairobi Growth Strategy (1973), the Nairobi Metropolitan Vision (2008), and the Nairobi Integrated Urban Plan (2018) were modelled with the intention of accommodating the expanding city into a comprehensive metropolitan framework. However, these have not been implemented resulting in informal and unplanned suburbanization persisting and gaining in complexity. This is especially with globalization and technological advancements. This pattern of growth is observed in the Global South and is reflected in the character of suburbs such as Ruai in Nairobi. Literature has not exhaustively ascertained the causes and implications of unplanned suburbanization.

Additionally, there is limited literature on factors leading to suburbanization and suburban challenges facing Ruai. The suburb is an observable by-product of uncontrolled land markets and infrastructural development of the Eastern Bypass and upgrading of Kangundo Road. Which have opened up the suburb to densification, and inadvertently, to externalities that have led to challenges in the suburb. Such as insufficient services and amenities, increased land and property prices, among others. It is therefore imperative to understand the factors leading to the growth and subsequent challenges facing Ruai suburb, and the urban management implications therein.

1.3 Scope of the Study

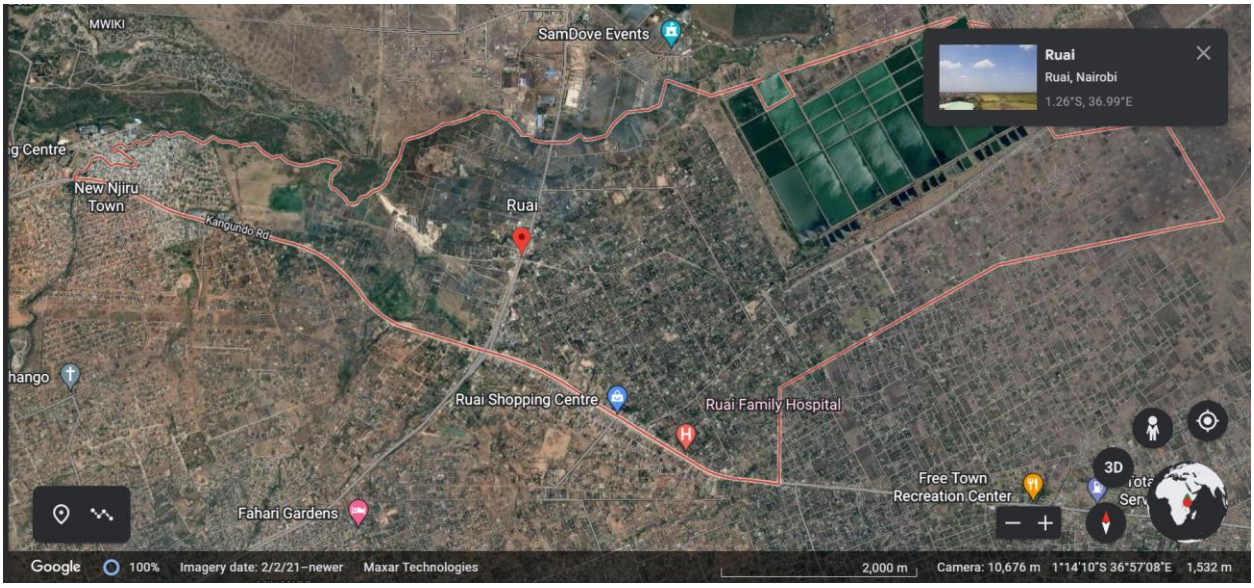
Thematically, the study will focus on factors leading to the growth and development of Ruai as a suburb, pertinent issues facing Ruai as a result, and mitigation measures. Geographically, the study area of this research is Ruai Ward, a suburb of Nairobi city located in Kasarani constituency.

Map 1: Scope of the Study Area, Ruai Ward



Source: Google Maps, 2021

Map 2: Satellite Map of Study Area



Source: Google Maps, 2021

1.4 Objectives of the Study

1.4.1 General Objective

To evaluate the causes and challenges of suburbanization, with a focus on Ruai.

1.4.2 Specific Objectives

i. To evaluate the factors leading to the development of Suburban areas.

ii. To determine the challenges that emerge as a result of suburbanization.

iii. To determine the mitigation measures for the challenges that emerges with the development of suburban areas.

1.5 Research Questions

i. What are the factors leading to the development of suburban areas?

ii. What are the challenges that emerge as a result of suburbanization?

iii. What are the mitigation measures for the challenges that emerge with the development of suburban areas?

1.6 Organization of the Study

The study is be organized into 6 chapters:

Chapter 1: Introduction. Presents the background of the study, details out the problem statement and the study scope and objectives. It also highlights the study limitations and provides the definition of key terms and concepts used in the study.

Chapter 2: Literature Review. Provides a detailed investigation of the research objectives. Discussing suburbanization through review of various forms of literature. In this chapter, the origins of suburbanization, characteristics of suburbanization, triggers and challenges of suburbanization are discussed. The chapter also reviews suburbanization theories from two general schools of thoughts and highlights various approaches for mitigation of suburbanization challenges.

Chapter 3: Study Area. Brings out the character of the study area, providing contextual framing of the location of the study area, size, population and demography, physical and governance characteristics of the study area.

Chapter 4: Study Methodology and Approach. Provides the research design, target population and the sampling approach and size for the study. It also details the data collection processes, tools for data collection and methods of data analysis.

Chapter 5: Study Findings. Presents study findings in line with the objectives of the study. Further, provides analysis of data and information gathered through the field survey.

Chapter 6: Conclusion and Recommendation. Highlights key emerging issues presented as summary of findings, the study conclusions, and recommendations. Recommendations are based on literature, best practice, and suggestions from strategic stakeholders as well as residents of the study area.

1.7 Limitations of the Study

Spatially, the study area of this research is contained within Ruai as a ward. Beginning at the Eastern Bypass and culminating at the end of Nairobi Sewerage Treatment Works. Conceptually, the study investigates suburbanization as the general trend where city dwellers move or transition away from the city core to the periphery or fringes of cities. Where, this study defines a suburb as an informally occurring clustering of urban functions and built area. There is a dearth of local studies on suburbanization which occurs organically in the Global South. Given that much of the literature on the subject has been generated from the West, this study will be done in the context of the Natural Evolution and the Flight from Blight theories. These are underpinned by the Concentric Zone Theory, the Multiple-Nuclei Concept and the Sector Theory. Which theorize the probable cause of suburbanization as a combination of pull and push factors. Which could possibly include transportation innovations, increasing dominance of nuclei around the city, and peripheral advantages relative to the city core.

1.8 Definition of Terms and Concepts

City Core – Inner city and zones surrounding the Central Business District

Land Use – is economic use of a piece of land such as agriculture, industrialization, residential, transportation, recreational and educational purposes.

Suburbanization – refers to spatial reorganization of contemporary city, highlighting the general trend where city dwellers move or transition away from the city core to the periphery or fringes of cities.

Suburbs – areas within commuting distance of the core/central city

CHAPTER TWO: LITERATURE REVIEW

2.1 Overview

Extensive literature is reviewed on the causes and challenges of suburbanization to establish the factors leading to the development of Suburban areas; challenges emerging as a result of suburbanization; and finally, seeking to determine mitigation measures for the challenges that emerges with the development of suburban areas.

Theoretical and empirical literature is reviewed by determining the models, theories and past studies on this area of knowledge. This is then followed by the summary of literature reviewed and the gaps identified in the existing knowledge.

2.2 Origins of Suburbanization

Conceptually, suburbanization refers to the growth of suburbs. That is, the general trend where city dwellers move or transition away from the city core to the edge of the city (Njuguna, 2013). It is the inevitable change which urban areas experience as they expand (Harris, 2015). However, varied reference is made to the term "suburb" based on which part of the world one is referring to. Contextual use of the concept is required. Despite existing everywhere, suburbs are comprehended diversely. Several governments establish regulation in favour of city expansion, promoting channelling of public and private sector investments towards city growth (Ekers, et al., 2012).

The Picturesque Movement popularized the trend towards suburbanization during the Pre-Civil War period, outlining a vision for the ideal residential experience. This resulted in the design and construction of Llewyn Park in the U.S. made up of about 50 houses, ranging in size from 3-10 acres, natural open spaces and curvilinear roads. Intended on accommodating the Perfectionists, a religious doctrine, the planned development provided the early makings of the suburban movement

(Reps, 1965).

Suburbanization has been a common phenomenon since the industrial revolution ages, implosion of the concept can be traced to the 19th century. It emerged as the dominant process of population reorganization in the contemporary city during the post war period (Paddison, 2001). Following the provision of post-war housing which spurred suburbanization initially, the demand for additional and larger houses increased, facilitated by the economic boom and coupled with urban flight. Further, overcrowding in urban areas, large-scale demolition of inner-city neighbourhoods for urban redevelopment, among other factors spurred a middle-class exodus to the suburbs (Nicolaides & Wiese, 2017).

Dynamic changes saw cities transition from traditional living arrangements to more modern, regional and metropolitan habitation. Allowing for comfortable relocation to city peripheries and fringe areas. While in parallel, maintaining moderate accessibility to local amenities and enjoying a sense of personal space. This triggered an influx of workers to seek work and lead a comfortable way of life (Pelosi, 2015).

The U.S. employs a political definition limiting municipalities establishment or abolishment of suburbs; Spain and Italy attach prestige to areas referred to as suburbs, whereas France stigmatizes these regions. Similar to China and India, the concept of suburbs is foreign to the global south. However, their organic manifestation is observed across the world when compared to rudimentary definition of a suburb. Evolving the Anglo-American model of suburbs, suburbs typically entail moderate residential density paired with urban fringe positioning. Fringe meaning *in close proximity* to the edge of the built-up area, and not necessarily to the edge of the city itself. With rapid urban extension, boundaries tend to be fluid, especially in the global south (Hanlon, et al., 2009).

Given the unplanned and informal nature of suburbanization in the global South, it is referred to as urban fringe development. Postulated as informal-sector settlements. It can be reasoned that suburbanization as a process was established in the West in the 19th Century. With England being the first to acquire the status of being an urban nation, and similarly, the first to experience suburban development on a large scale around London. Progressively, the 20th Century witnessed the USA establish expansive far reaching suburban development, established through decentralization (Schneider & Woodcock, 2008).

The expansion of post-colonial Nairobi was facilitated by in-migration due to the lifting of the Mau-Mau emergency restrictions in 1960, and the resulting economic growth and high demand for housing and services. The 1973 plan outlined the decentralization of services through establishment of suburbs in order to accommodate the rapidly increasing city population. Implementation failings resulted in the haphazard organic expansion of the city into suburbs such as Ruai (Odongo, 2021).

The Kenya Vision 2030's mission for urban development is to spur growth around existing urban areas with an objective for economic stimulation and investment attraction. The outcome of this has led to the development of the Nairobi Metropolitan Region as one of the planned six urban regions. The Nairobi Metro Strategy is geared towards the establishment of "A World Class African Metropolis" through establishing effective urban planning, stimulating inter-city competition and aligning with decentralization. As a result, satellite cities with distinct economic profiles were proposed as sectoral economic hubs under the NMR Spatial Plan. Illustratively, Aerotropolis, Knowledge-cum-Health City, Sports City, Transport New Town, Amboseli New Town and Cyber City. Formed within the framework of integrated regional development (Government of Kenya, 2008). Unplanned suburbanization is evident however in the absence of

implementation of these ambitious plans. This is common in the Global South, where, in the absence of governance driven implementation of growth plans, suburbs are established informally at the edges of cities by "rogue" developers. Their thematic and structural forms include residential developments, industrial establishments, mixed growth, dispersed, polycentric among others (Harris, 2015).

For monocentric cities such as Nairobi, certain determinants facilitate suburbanization. First, high rates of growth in urban population increases housing demand. Second, increasing household requirement for more floor space. In turn, higher floor space demand facilitates extension of the city into suburbs characterized by lower densities. Third, with perceived decreasing travel costs, disposable incomes increase. Stimulating further demand for increased floor space and willingness to reside far from one's workplace, eventually leading to formation of suburbs. Adjustments in traveling expenses can be perceived through infrastructural advancements such as construction of bypasses increasing accessibility to the edge of the city, wider roads, introduction of faster transport modes, etc. Fourth, opportunity cost of land outside the city, which tends to be cheaper than at the core causing cities to expand thus establishing suburbanization (OECD, 2018).

These developments feature a number of gated community developments made up of about 100 homes. Established by SACCOS and other private housing developers. Popular illustrations include The Gables Park, Stima Village Amani Village, Pelican Villas and Great Oak Villas. Larger developments include the Crystal Rivers Safaricom Mall and Gated Community made up of about 400 residences spanning 22 acres in Athi River; Hass Consult's Casa Mia with its 449 units sitting on 41 acres in Ruai and Cytonn's Newtown in Athi River made up of 1,000 Acres planned for mixed use development, among others. These establishments attract increasing investments which soon transition small urban centres into large thriving suburbs. Constant

expansion of the city is now extending into suburban areas that include peri-urban hinterlands of Kajiado, Kiambu and Machakos Counties.

2.2.1 Characteristics of Suburbanization

Dynamic spatial structure of suburbs. The spatial structure of suburban development is dynamic graduating from very dense to less dense fringe development. Concentrated and rapidly changing structures form the initial phases of suburban development. These may be characterised by dense to mid-dense residential developments, billboards, waste dumps, gravel pits, quarries and industrial developments. Thereafter, suburbs mature into large lawns, trees, low density developments with standard subdivisions. Emerging with consolidation into a continuously built-up landscape. This consolidation involves infill, perhaps in the uncoordinated form of individual houses and small subdivisions. Although individual suburbs may appear residential in character, all have depicted non-residential land, mostly parks and recreational spaces, schools, churches and commercial activities (Frankfort-Nachmias & Leon-Guerrero, 2014).

Urban sprawl as a sub-category/factor of suburbanization. Notably, urban sprawl, just as suburbanization, entails development on the periphery of the city. It includes, not only growth of large residential areas, but also presence of significant commercial and industrial areas, which often take over older developments in the city (Green, 2006). Sprawl is similarly used to define cities which require residents to commute over long distances in order in order to conduct their day-to-day activities (Glaeser & Kahn, 2004). It is further triggered by similar factors as suburbanization, such as transport innovations and technologies.

Fast growing cities' small undeveloped plots do not stay undeveloped for long. Greater historical uncertainty about growth contributes to more sprawl as developers withhold land to better adapt it to future needs. Sprawl increases substantially with features such as presence of water-yielding

aquifers in the urban fringe. Facilitating access to water through boreholes, and thus allowing people to locate far from other development without bearing the large costs of extending municipal water lines. The commute to the city also plays a role, with cities built around public transportation more compact than cities built around the car (Burchfield, et al., 2006).

Exclusivity and segregation as a result of suburban populations and residents desiring separation from other residents either in the city centre or the dense periphery developments. And the parallel desire to create a relatively socially homogenous communities without mutual social links (Hlaváček, et al., 2019).

Lower densities, open spaces and availability of recreational facilities, local shopping centres and low building densities have been characteristic features of suburbanization.

Affordability relative to the city core, affordable land and property feature chiefly as a pull factor for suburbs. Urban population seeking to buy their own home, at a rate accessible to them, prefer to relocate to suburbs.

2.2.2 Suburbanization Trends

Following urbanization, half of the world's urban dwellers reside in relatively small cities or towns of less than 500,000 inhabitants. Notably, most of these agglomerations are found in the global south, including Sub-Saharan Africa and Kenya. Further, between 1990 and 2018, more cities across the world with less than 300,000 and 500,000 inhabitants grew/sprung. This growth was more noticeable in Sub-Saharan Africa, where cities with less than 300,000 inhabitants were home to 46% of the total urban population in the region (United Nations, 2018).

Evaluating suburbanization trends, it is uncommon for urbanization to manifest through primacy of one urban agglomeration over other urban areas. Increasing divergence of the urban system is

re-directing significance of the one prevailing city in a country's urban system. In turn facilitating suburbanization processes and therefore, the establishment of medium-sized and smaller urban centres (Schneider & Woodcock, 2008). Such configurations are projected in Brazil, China, France, Germany, India, Indonesia, Italy, Russian Federation, UK and USA:

- China and India: < 20% urban population lives in megacities (6 and 5 megacities respectively), while more than 50% live in cities with < 1 million people (54% and 55% respectively).
- USA: only 9 cities with > 5 million inhabitants
- Russian Federation: only 15 agglomerations with > 1 million people (UN-Habitat, 2020)

City models including the monocentric spatial dynamic that has defined most cities transitioning into polycentric, polynuclear dispersed development. As in a number of African countries, dominant cities are experiencing dispersal of their populations, investments, spatial and structural growth, to peri-urban, fringe regions. Contributing to suburbanization albeit outside the purview of Government regulation (Harris, 2015). The World Cities Report by the UN in 2020 reaffirms confidence in agglomeration economies, as characterized by suburbanization processes. This paired with continued dispersal of economic activities from dominant cities to periphery urban centres points to the phenomenon of suburbs in African cities coming up at increasing rates. Primary cities must compete against secondary cities and periphery urban developments (Glaeser, 2011).

Existing cities characteristically have limited empty spaces within the city leading the city to expand through fringe development to accommodate increasing populations. Redevelopment within the city through increasing densities is costly, as the process involves acquisition of prime land in the city core. This is further complicated by reluctance of landowners to sell their land. As

well as city neighbourhoods resisting vertical developments, that is, NIMBY (Not in My Back Yard).

Inner city decline and blight characterize suburbanization trends. Where the supremacy of the core city is progressively decentralized to different nodes and suburbs. With decentralization of employment centres, industries, residences into suburbs, the demolition of slums, reduction in household sizes, and relocation of population, densities in the city core eventually decline (Nechyba & Walsh, 2004).

2.2.3 Triggers of Suburbanization: Pull and Push Factors

Suburbanization is as a result of various push and pull factors, which are discussed in this section. Push factors are those that push people out of urban areas into suburban areas. Pull factors are those that attract people to suburbs to take advantages of relative benefits. Notably, all these factors are significantly inter-linked. There does not exist an elegant division where the city transitions to the suburb. Under circumstances of uncontrolled land speculation, cities have extended disproportionately. Driven by differentiated combinations of several factors. These include size, structure and state of the existing city core. Characteristics of the urban and migrant populations in terms of age, sex, family, household structure (multi-local), educational and income levels, urban experience, rural or city background. Extensive circular movement with multi-local families often traversing city and suburban areas. Physical topography and environmental barriers, if any, at the periphery of the existing built-up area. Positioning, existence and affordability of transportation networks. Land tenure, land uses and land values adjacent to the city. Variances of administrative and political urban boundaries resulting in developments at the city's edge to take advantage of the absence of zoning regulations and lack of institutional presence within unplanned suburbs for enforcement of development control (McGregor, et al., 2006).

Literature commonly attributes initial suburban growth to transportation developments. This is given the extension of the geographic limits of cities and urban areas by road transport. While rail transport is evidenced to have facilitated the rise of real estate industry activities. Permitting those who could afford access to commuter options, to live beyond the city, in the peripheries. Transportation reinforces the tendency of the middle class to live in the suburbs. Prior to transportation advancements, mid-19th Century, movement of goods and persons was high. Cities and urban areas were densely populated and spatially small. Further, development of freeways and highways has contributed to the decrease in costs of intra-urban transport, significantly increasing the spatial size of urban areas and cities. Further facilitating the process of suburbanization (Nechyba & Walsh, 2004). Cars began to shape suburbs in North America in the 1920s, Europe after 1945, Latin America in the 1960s, India in the 1970s, and then China in the 1980s (Harris, 2015).

Need to improve quality of life contributes to the stimuli for the movement of people to suburban areas and is primarily driven by efforts to improve the quality of life. As the city core deteriorates and faces gentrification, they give rise to social problems and economic stresses (Hlaváček, et al., 2019). These include increasing densities paired with congestion, decreasing open spaces to accommodate higher population, low quality of services within the city core, high crime rates, and low environmental qualities. These problems lead the city residents to migrating to the suburbs. Driving further deterioration of quality of life and fiscal situation of inner cities, facilitating more out-migration. This is especially instigated with suburbs perceived to provide much healthier environments with less social and economic stresses, cleaner air qualities and less industrial pollution (Mieszkowski & Mills, 1993).

Urban population growth is widely considered a prerequisite of suburbanization. Development of suburbs inevitably occurs as urban population increases, in turn extending demand for increased urban land area, usually in the fringes of the city (Turok & McGranahan, 2013).

Economic and employment decentralization succeed the decentralisation of residential activity as a result of population growth in cities. Made possible, in part, due to transportation developments which facilitated the movement of goods and labour. This is characterized by industrial and commercial developments, which traditionally follow populations to suburbs, both to provide services and take advantage of the lower suburban wages and land costs. Economic decentralization, more so employment decentralization, has made it possible and preferable for many employees to live in adjacent areas (Kneebone & Berube, 2013). This is notable along the Mombasa Road corridor in Nairobi, characterised by relocation of industrial and commercial activities adjacent to suburbs such as Athi River, Syokimau, Mlolongo and Kitengela.

High land and housing costs in relative regions is a trigger of suburbanization where land in the suburbs is relatively cheap compared to land in the city. Making suburban land and home ownership accessible for more households. Further, the homes and land acquired by people and firms relate to their willingness to pay in exchange for perceived advantages that come with the land/home. Such benefits may include increased land sizes, availability of green spaces, access to single-dwelling homes which decrease within the city core as vertical developments take over to accommodate increasing urban populations, among others (Covington, 2015).

According to the founder of Empire Centre for Public Policy, Edmund J. McMahon, cities in the U.S. offer a pulsating, fulfilling, productive, cultural life. However, these cities experience high rates of domestic net out-migration founded in the fact that cities are not affordable to all. Serving as temporary portals, this is evident in states such as New York and San Francisco. Illustratively,

middle-class Millennials migrate to suburbs such as Long Island to buy their first home; Baby Boomers relocate to Florida to retire (Thompson, 2017). Investors have preferred initiating projects in suburbs over the city of Nairobi. This is attributed to the high costs of land and infrastructure development within the city.

Blight in the city acts as a push factor manifesting as social pressure, overcrowding, haphazard and uncoordinated development, informal growth and formation of informal settlements, city degradation, and increasing social vices such as crime and spread of disease, lead to increasing waves of out-migration by city residents to suburbs (Turok & McGranahan, 2013).

Various international studies contribute to the body of work on suburbanization: (Frankfort-Nachmias & Leon-Guerrero, 2014) established improvements to transportation infrastructure encourage suburbanization. Enabling increased accessibility between suburbs and nearby cities and urban areas for daily activities. In turn, promoting suburbanization. Empirical studies by (Covington, 2015) evaluated poverty suburbanization between 2000 and 2008. Using 100 of the largest metropolitan regions in the USA, investigations were carried on factors causing the growing rate of the poor in the suburbs of the. The study established housing affordability in suburbs had a positive influence. Conversely, segregating populations to certain circumscribed areas of residence and employment decentralization negatively affected the suburbanization of the poor.

The high rate of suburbanization has been attributed to a number of reasons. These include improved infrastructure around cities for instance the Standard Gauge Railway (SGR), roads, superhighways and technology advances, harsh environmental conditions in cities, increased income as part of the country's plan to make the country a middle income country by 2030, increase in social vices such as murder, illegal drugs, theft and traffic jams, and migration of

employment opportunities to suburban areas as a result of most companies moving away from towns (Ngetich, et al., 2014). Illustratively, Syokimau-Katani suburb was established as a result of its strategic location which is close to the Standard Gauge Railway (SGR) and the Jomo Kenyatta International Airport (Mbithi, 2021). These factors have, according to the Cytonn Nairobi Metropolitan Residential Report (2017), led to the opening up of new development areas such as Ruai, Athi River, Rongai, Mlolongo, Kikuyu and Ruaka around Nairobi City and the Nairobi Metropolitan region. (Njuguna, 2013) outlines that suburbanisation components such as land values, land use, road infrastructure development and the cost of housing have a positive and significant influence on the performance of the real estate market within suburbs in Kiambu County. (Gitau, 2011) outlines urban management challenges facing emerging towns providing an illustration of Kiserian Market Centre in Kajiado County. The far-reaching impacts leading to infrastructural, environmental, governance, economic, social, legislative and cultural complexities. Ultimately impacting sustainability of suburbs. The management of most of these areas is still under the Nairobi City County Government (NCCG), with disconnected institutional presence within suburbs. Indicating a disconnect of management characterised by absence of a comprehensive and inclusive legal, institutional and policy framework. Further, there may be lack of an official border for upcoming suburbs which have long extended the peri-urban to the urban nucleus. However, literature has not exhaustively reviewed to ascertain drivers of suburbanization, challenges experienced within these centres and mitigation measures that can be integrated for their sustainable development.

2.2.4 Suburbanization Theories

While there are no known contemporary theories about suburbanization, there exist a number of theorists and theories underpinning the location and formation of suburbs. (Mieszkowski & Mills,

1993) offer two classes of suburbanization theories: the natural evolution theory and the flight from blight school of thought.

2.2.4.1 Natural Evolution School of Thought

The natural evolution theory is highly favoured by urban theorists and transportation experts. The theory states suburbs develop from push factors that include employment and infrastructure development. Generally, with employment located in the centre of a city, residential development takes place from the inside out. Therefore, to minimize the work commuting costs to the CBD, central areas are developed first. As land in the central city becomes filled, development moves to open tracts of land, often in the suburbs at the edge of the city. As new residential developments take place in the periphery, high and middle-income groups who can afford larger and more modern housing settle there. In parallel older, smaller, centrally located units developed when average incomes were lower, filter down to lower income groups. Creating income-stratified neighbourhoods. Further, the settling into the suburbs by the high and middle-income classes is reinforced by transport innovations and developments.

The theory further denotes that the dispersal of residential activity to suburbs is followed by employment decentralization. This is further facilitated by transportation and infrastructure innovations, as urban form follows population to the suburbs. Both to provide services to suburban residents as well as take advantage of the lower suburban wages and land costs (Mieszkowski & Mills, 1993). Notably, this school of thought is also underpinned by other theories such as Burgess' ***Concentric Zone Theory*** and Harris and Ulmann's ***Multiple Nuclei Theory***. Both theories also emphasize decentralization of population from the central city, as well as decentralization of employment and services, all of which are supported by considerations such as transportation costs, innovations in intra-urban transportation as well as changes over time in

comparative advantage of different income groups at commuting longer distances to work (Mieszkowski & Mills, 1993).

Illustratively, Burgess' Concentric Zones Theory, explains the distribution of populations within the urban areas, by assuming a relationship between the income of populace and the distance from the CBD, noting that the further from the CBD, the better the quality of housing, but longer commuting times and costs (Park & Burgess, 1925). On the other hand, Harris and Ulmann's Multiple Nuclei Theory postulates that a city starts with a single central business district (CBD), but as time goes by, its activities are modified as they are scattered that attracts individuals from the surrounding areas which act as smaller nuclei or suburbs. Over time, the small nuclei grow in size and gain importance which makes them to start influencing the growth of activities around them (Litchenberger, 2013).

2.2.4.2 Flight from Blight School of Thought

This school of thought theorizes suburbanization from the lens of the fiscal and social challenges and problems of the central city. These include high taxes, low quality of government and other institutional services, racial and social groups tensions, crime, congestion and even low environmental quality (Mieszkowski & Mills, 1993); (Bayoh, et al., 2002).

Flight from blight theorists hypothesize growth of suburbs as a result of declining public services and the deteriorating quality of life in the central city. In comparison to suburban areas, highlighting uneven distribution of private and public amenities across local jurisdictions. In particular the inferior amenities associated with core cities relative to suburbs, asserting their contribution in rise of suburbanization. This is mainly because the populace that can afford, move to the suburbs in search for safer neighbourhoods, better services and amenities, nicer environments and homogenous communities/neighbours. Leading to further deterioration of the

quality of life and fiscal situation of the central areas, inducing further out-migration (Bayoh, et al., 2002). Both Mieszkowski & Mills, (1993), and Bayoh, et al., (2002) agree that the flight from blight leads to formation of homogenous and income-stratified communities or suburbs, which are due to avoidance of redistributive taxes, as well as varying demand for local public goods caused by income and taste differences. Notably, this can be observed in Nairobi, with income-stratified communities and suburbs such as Ruai, Kamulu, Kitengela, etc.

2.2.4.3 Concentric Zone Theory

The Concentric Zone Theory also known as the Burgess Model was developed from the work of a sociologist Burgess. The theory outlines the distribution of social groups within urban areas postulating an urban land use model which divides cities into concentric circles and zones, expanding from the Central Business District (CBD) to the suburbs. The model assumes a relationship between the socio-economic status (mainly income) of households and the distance from the CBD. The farther from the CBD, the better the quality of housing, but the longer the commuting time. Thus, accessing better housing is done at the expense of longer commuting times (and costs) (Ekers, et al., 2012).

In addition, according to this model, a large city is divided into five main concentric zones:

- **Zone I**: *Central Business District* – characterized by skyscrapers and commercial activities.
- **Zone II**: *Zone of Transition* – immediately adjacent to the CBD, includes private houses in the process of being taken over as offices and light industries. Or are undergoing a process of subdivision to form smaller dwelling units. This zone attracts a lot of migration and is inhabited by low-income earners in the city who reside in informal settlements established in this zone. Tend to work in businesses or light manufacturing. It is characterized by "vice areas".

- **Zone III**: *Working Class Zone* – mainly inhabited by the working class who have escaped the deterioration of the city and desire to live within easy access of their work.
- **Zone IV**: *Residential Zone* – this zone presents a first in-look at suburbs (with others regarding this as the outer suburbs zone). It provides improved/better living houses such as high-class, multi-dwelling apartment buildings.
- **Zone V**: *Commuter Zone* – is the outermost circle or areas, beyond the city limits and represents the suburbs or satellite towns. Residents of this zone commute to the main city for work. It is characterized by high-end residences developed along lines of rapid travel. The houses are also widely spaced (Park & Burgess, 1925).

According to this model, the city continues to grow due to population pressures. And as a result of spatial competition of city activities, most/new city activities are naturally attracted to the city core (central agglomeration). At the same time, other activities are repelled to the fringe of the city (economic/commercial decentralization). These may be pushed farther out from the city. Thus, the city continues to grow outwards as activities that lost out in these spatial competitive situations relocate to the peripheral areas (Park & Burgess, 1925).

2.2.4.4 The Multiple-Nuclei Concept

The Multiple-Nuclei Concept was developed from the work of McKenzie (1933). The theory was further improved by Harris and Ullman (1945) and is considered a better model than the previous in explaining the structure of urban areas. The theory tries to explain the structure of the city while considering the growth and complexity over time. The theory suggests that a city starts with a single central business district (CBD). As time goes by core activities are modified as they are scattered that attracts individuals from the surrounding areas which act as smaller nuclei or

suburbs. Over time, the small nuclei grow in size and gain importance which makes them to start influencing the growth of activities around them.

Chauncy and Ullman (1945) also contributed to the Multiple-Nuclei Concept by positing that formation of suburbs results from four reasons. These include high land price within the city, negative and positive externalities, natural clustering tendency among certain types of activities that find it more profitable to locate together. That is, agglomeration economies, such as retail and medical centers. Finally, the need to segregate activities that may not necessarily have an affinity for one another but are considered inimical to other land uses for a variety of reasons. For instance, traffic they generate, terminal facilities they require, among others. This theory is based on the assumption that there is an even distribution of resources; people in residential areas; even transportation provision; that the land is not flat; and that people always have a goal of profit maximization (Harris & Ullman, 1945).

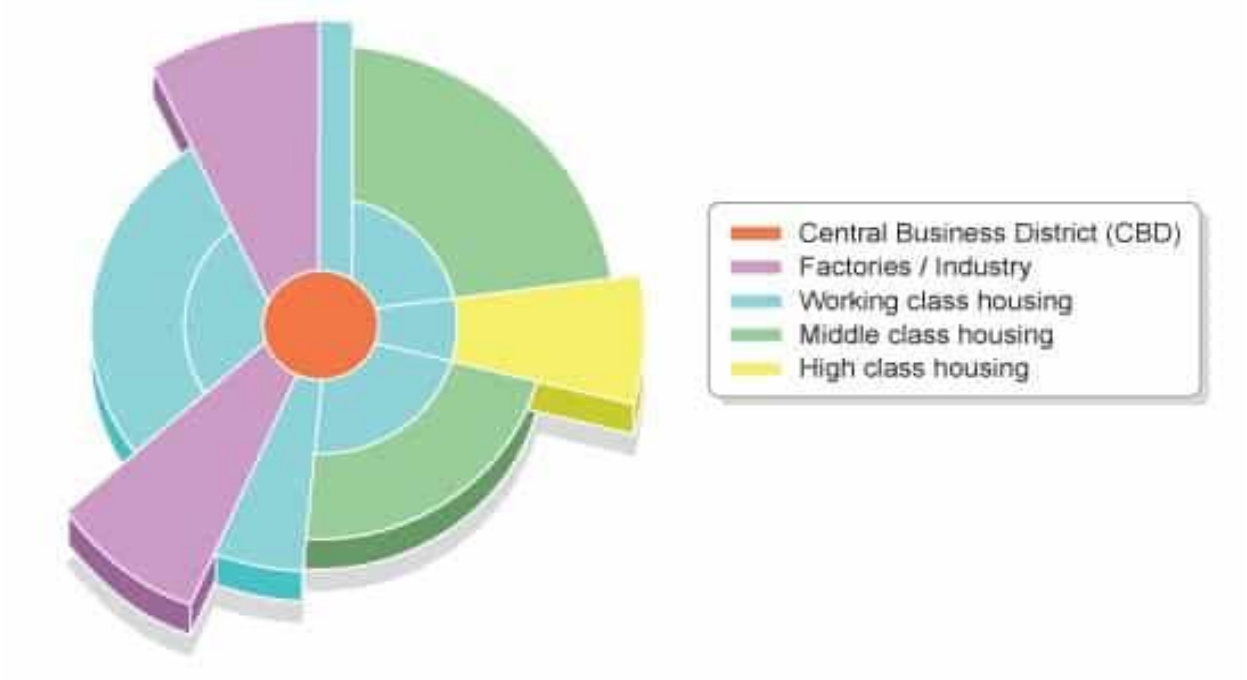
2.2.4.5 Sector Model

The Sector Model, also referred to as the Hoyt model, was developed by the land economist Homer Hoyt (1939). It is based on an evaluation of urban land use and of city development. The model was developed as a modification of McKenzie's (1933). Hoyt suggested that cities do not develop in form of simple rings which grow outwards, but in form of "sectors." Few activities which grow in the form of sectors radiate out along the main travel links lead to the development of small towns and suburban areas. The function played by each sector make up activities in the city. Implying land use activities are considered the same throughout the sector (Beauregard, 2007).

This model suggests that suburban development mostly occurs along major roads which link the urban land area to other cities and towns as well as the surrounding rural areas. Thus, construction of highways and suburban districts has been an important mechanism for bringing more land

within the ambit of the emerging capitalist mode of production. Improved roads thus enable suburban communities to commute to work. The theory is preferred because it considers the outward progression of growth by cities and towns. The model consists of five components including the Central Business District (CBD), industry and factories, working class housing, middle class housing and high-class housing (Settlement Geography, 2020).

Figure 2-1: Sector Model



Source: *Hallett, 1979*

According to the model, sectors grow along highways, railway line or rivers. These include industrial, housing activities among others. The sectors with industries would remain industrial as the area would have a typical advantage of rivers to dispose waste or a railway line. The high-class housing sector would stay high-class because it would be the most sought by the rich that would afford to live there.

Theories Overview in Relation to Nairobi Context

The government has made efforts to improve roads, major highways and open by-pass roads. This has given rise to a pattern of linear development along these roads. This is observable along Thika Superhighway, Mombasa Road and Kangundo Road. This includes Ruai along Kangundo Road. Illustratively, the same can be observed along Thika Road with suburbs such as Membley in Ruiru, and Juja. Suburbs resulting along Mombasa Road include Syokimau, Athi River, among others.

The growth of Nairobi and the surrounding suburbs can be analysed through the lens of the natural evolution school of thought and emerging theories. Historically, Nairobi's growth was influenced by the railway, while residential settlements were developed away from the city centre. Albeit along racial and social segregation lines, settlements within the city were developed with regard to considerations such as travel time and cost, leading to development of roads linking the suburbs to the city centre. Over time however, firms have set up in the suburbs of the city to provide services to these areas, such as in Kitengela, Athi River along Mombasa Road and the Eastern Bypass area. Firms also take advantage of the comparable benefits that suburbs provide. Such as available labour force, availability of more expansive and affordable land and considerable infrastructure developments facilitating intra-urban transport.

Natural Evolution Theory**:** a major criticism of the natural evolution theory is the assumption of availability of better services in the suburbs (Bayoh, et al., 2002). Consequentially natural evolution theorists and concomitant theories fail to project the extent of growth of suburbs as a result of population expansion and economic growth. Resulting in decline in quality of services due to population pressure in some of the suburbs (Kingoriah, 1983).

Concentric Zone Theory: Nairobi has developed partly along the lines of this theory. The zones around Nairobi City such as the former Asian and European residential neighborhoods (Parklands,

Pangani, Upper Hill, Kilimani) are transitioning from predominantly residential to commercial and transition zones. This change is as a result of increasing population and increased commercial activity. Blight in the CBD manifesting as congestion and social vices contributes further to the move away from the city core to other areas. The change in zones encourages haphazard and chaotic growth. Without good land use management, demand for growth with the Metropolitan region results in extension into suburban areas. With inner expansion, each inner zone extends its area by invading into the next outer zone. Depending on the rate of population expansion and the city's economic growth (Kingoriah, 1983). The Concentric Zone Theory is however criticized on the grounds that it is too simple and static and also that the theory ignores the process of redevelopment. Burgess' Concentric Zone Theory highlights how cities like Nairobi grow outward from the CBD towards the periphery with distinct land use zones. The theory however fails to explain the factors that cause this process of suburbanization.

Multiple-Nuclei Theory: is criticized on the grounds that it does not entirely explain the structure of urban areas. Further, it is not applicable to cities in the Global South which have different economic, cultural and political backgrounds. The theory suggests that formation of suburbs results from factors such as negative and positive externalities, high land prices within the city and the natural clustering tendency among certain types of activities that find it more profitable to locate together. Conversely, the theory does not clarify why land use succession and transformation as experienced in the process of suburbanization occurs and the challenges this poses to sustainable development. Nairobi has also developed partly along the lines of this model depicting residential areas that are located close to the CBD. Now transforming into mixed use and commercial zones. Further, given increasing densities, these establishments are transitioning

from single unit dwellings to multiple units and eventually high density residential and, in some cases, commercial properties.

Sector Model: limited in various capacities (Smith, 1962). For instance, the model is criticized by Rodwin, (1950), for focusing on rail transport while ignoring private cars which eases commuting to and from the city. The model is also criticized for not considering the new concepts of edge cities which had emerged in the 1980s. The Sector Model also fails to give the reasons why one land use succeeds other in sectors as is witnessed in Nairobi Metropolitan Region.

2.2.5 Suburbanization Challenges

Suburbanization stimulates rapid changes, which may result in impacts and challenges across the three sustainability fronts: economic, social and environmental.

2.2.5.1 Urban Spatial Challenges

Suburbanization is associated with significant spatial transformations and changes, which have considerable impacts on the social, environment and economic aspects of the city. The most notable issue of suburbanization is land use transformations. More often, the land on the periphery of the cities is agricultural land. Suburbanization and in-migration bring about transformation, subdivision and reduction of agricultural productive lands. This impacts food security, making the city reliant on the rural areas for food generation.

Provision of public services and civic amenities is necessary for functionality of suburbs. With unplanned, uncontrolled extension of cities into suburbs as is experienced in the Global South. Government expenditure increases indiscriminately. Creating unsustainable development, inefficient provision of services, spatial conflicts, inadequate functionality of suburbs, and unsustainable infrastructural growth (Hlaváček, et al., 2019).

Further, suburbanization is highly land consumptive, auto-dependent, especially as it is developer

and private sector led in the Global South. Going against objectives of pro-poor urbanization. Further, improved networks attract middle class developments, investments and residents creating inaccessibility by lower income groups. The cost of commuter trips to and from work prove inaccessible as well for lower income groups. Facilitating exclusive suburbs and forcing lower income groups to remain in deteriorating inner cities (Gilham, 2002); (Bryceson, 2006); (Andreasen, et al., 2016).

As urbanization increases and land prices rise in parallel, building densities are progressively increasing in suburbs. A number of recent suburbs in the developed and the developing world include vertical developments, diminishing single-dwelling houses with smaller gardens. Further, shrewd developers increasingly produce detached houses with little to no space between buildings (Marshall, 2000).

Other urban challenges presented by suburbanization is the inadequate provision of critical amenities and infrastructural services, such as water supply, waste and sanitation facilities (Gitau, 2011). Notably, in Nairobi, most of the suburban areas are outside the limits of control of the urban authorities. The result of this is that regulation guidelines are inefficient or non-existent, and in some cases, not adhered to at all. The enforcement of these regulations is also poorly done, resulting in inadequate service provision, haphazard and uncontrolled development in suburban areas. This kind of uncontrolled development is projected to result to serious developmental challenges in the future for most suburban areas in the Nairobi Metropolitan region. One such externality is growth of informality in the suburbs. Informality in this case is both within the suburbs, as well as the inner city due to decay caused by movement of city residents into the suburbs (O'Sullivan, 2012). There is therefore a need for an urban management framework to define suburban development to guide the process of urbanization in suburban areas for the

purpose of a sustainable future (Mativo, 2015).

2.2.5.2 Social Challenges

In a number of suburbs, these areas are characterized by poverty, widespread, underemployment and unemployment. As well as the deterioration of important infrastructural and social services such as housing, health and transportation. Due to inadequate guidance and regulation on urban growth and low urban economic growth, suburbanization in Africa has been a tragedy and chaotic, giving rise to a number of social challenges such as crime, poverty and social segregation (Kessides, 2006). Using the USA as an example, the Wall Street Journal 2013 observed that between 2001 to 2010, violent crime has reduced in cities while spiked in the suburbs (Hilsenrath, 2020).

2.2.5.3 Environmental Challenges

Suburbanization takes place rapidly, often resulting in unplanned growth with negative impacts to the environment. This includes impact in ecosystems and biodiversity such as degradation of fauna and flora and natural water systems. Which are due to anthropogenic interventions related to suburbanization processes such as haphazard increase in built up area densities, transport and other physical infrastructure. Further, the adverse impacts of climate change can also be attributed to suburbanization processes (Wang, et al., 2017). Globally, suburban households account for up to 50% of the total carbon footprint by national households. This may be attributed to the increase in industrial and commercial developments in suburbs, as well as rise in residential population and related anthropogenic activities (Hlaváček, et al., 2019).

Environmental challenges as a result of suburbanization are manifested in the increase in levels of air and noise pollution (Obudho, 1993), water and natural resources pollution and degradation due to insufficient and inadequate sanitation facilities and waste disposal systems especially in the

dense periphery of Nairobi city (Nabutola, 2011)

Suburbs in developing countries face major health and environmental challenge of disposing solid waste. They are surrounded by poorly managed dumpsites which contaminate surface and ground water, producing bad odours and greenhouse gases (GHGs) from rotting organic matter. These conditions, in addition to affecting the health of people around, also cause climate change. This is given their production of high levels of carbon-dioxide and methane resulting in enhanced greenhouse effect (Tume & Tanyanyiwa, 2018).

2.2.6 Mitigation of Suburbanization Challenges

Nairobi Metropolitan region has had a fair share of approaches and plans aimed at addressing some of the challenges arising from suburbanization. These range from policy and legal framework approaches to institutional and citizen-based approaches. The first plan that recognized the issues of suburbanization in the 1973 Nairobi Metropolitan Growth Strategy. Which recommended decentralization and development of alternative service centres and the extension of the city boundary to the west and north-east (towards Ruai) when required. As well as encouraging the growth of satellite towns. However, the plan is critiqued for providing a basis for social segregation. And lacking an investment plan to coordinate government and private sector investment in satellite towns and city suburbs. Especially where services would be decentralized leading to organic growth and development of suburbs around the city (Owuor & Mbatia, 2008).

The late 1990s and 2000s saw concerted efforts towards policy and legal framework changes aimed at decentralization and local authority empowerment to provide services and amenities. There was also introduction of the Local Authorities Transfer Fund (LATF) as a tool to provide citizens with basic services. In concert, the Local Authorities Transfer Act, indicated preparation of Local Authority Service Delivery Action Plan (LASDAP), by local authorities. These were introduced

as a participatory planning and budgeting tool purposed to identify local priority needs in the urban local authorities (Government of Kenya, 1988). However, the city growth forces, coupled with inadequate implementation of the plans and other policy tools has hindered successful delivery of services to some suburb areas, including Ruai.

The Nairobi Integrated Urban Plan (NIUPLAN) for the period 2014-2030 outlines proposals for development of hierarchical sub-centres, along functionality and transport developments. Ruai is earmarked to be developed as a secondary sub-centre, due to its strategic position as a transport hub. Its implementation however has been hindered by the lack of development control guidelines (NCCG, 2014); (Odongo, 2018).

Urban practitioners and literature outline a number of management models that can be used to mitigate the challenges that face suburbs. These include:

2.2.6.1 Three (3) D City Models Plan

The 3D City Models Plan is a management model plan that represents urban environments virtually in terms of terrain, buildings, landmarks, vegetation and infrastructure landscapes. They integrate geospatial data that culminates into a real-world, three-dimensional visualization of the city. This model enables effective urban planning, encouraging public participation in developing suburbs and environmental analyses through use of various application-based uses (Moser, et al., 2010). The 3D City Models Plan helps mitigate the challenges that face suburbs. This is accomplished through improving traffic and disaster management by enabling the effective spatial analyses and mapping of emergency response routes in case of fires, building collapse, floods, accidents and explosions. Resulting in a framework for planners in suburbs to better prepare and manage rescue operations and resource mobilization, enabling decrease in pollution by enabling analysis of air and traffic pollutant distribution through assessing multiple emissions. The

framework further enables optimization of building temperatures by allowing for the estimation of thermal comfort in buildings; and facilitating local governments to efficiently and effectively analyse proposed development projects.

2.2.6.2 Communities Participation Approach

This approach involves engaging the public in the planning of suburban areas. Due to the extreme complexity of urban problems, urban planning authorities alone cannot solve them. Active participation of the community in the planning process facilitates tangible, agreeable, implementable mitigation measures for land use development. Unlike traditionally staged participation, the Communities Participation Approach is different and uses two methods to facilitate participation. These are Participatory e-Planning which involve use of ICT in urban planning to enhance citizen participation. And Time Planning, which involves scheduling time and organizing people's actions to ensure participation (Horelli, et al., 2013). The planning process involves processes of community organization of different social networks and groups. However, this approach faces challenges of finding appropriate ways of engaging citizens, planners, policy makers and other stakeholders in the establishment of solutions for everyday operation of the local community.

2.2.6.3 Integrated Urban Management Model

This model views the city metropolitan region as a special socio-economic entity existing in space. Isolated transaction with any proportion of this entity is impossible. Meaning, to impact any part, is to impact the viability of the whole (Wingo, 1963). Establishing the significance of integrated urban planning and management of urban regions comprehensively, and not merely built-up areas of independent cities. Development in suburban areas occurs and emphasizes the need for advances in this approach so as to accommodate the inevitable effects of fringe development

(McGregor, et al., 2006). (McGill, 1995) evaluated the integrated urban management as an operational model for third world city managers a case of Lilongwe, Malawi. The study established that there is an increasing consideration for the model as it enables the suburbanization management. Addressing challenges such as population growth with increasing pressure on infrastructure and services.

2.2.6.4 Self-Governance

Self-governance as a model of development, emphasizes citizen power, participation and devolution (Lee, 2011). Rhodes, (1997) outlines a similar change in governance indicating a changed condition in how society is governed. Newman, (2001) characterizes this shift to community driven governance as informal, flexible with ambiguous relationships and accountabilities. This shift has been stimulated in Western Europe by a decline in the welfare state leading to civic initiatives in relation to community building as well as urban development (Mayer, 2003); (Newman, 2001); (Moulaert, et al., 2013).

The initiative to self-govern is characterized by active citizen engagement as well as non-governmental agencies in leading decision as relate to development. Increased emphasis falls on citizens taking responsibility for initiating, resourcing and participating in projects, service provision, security, social advancement, elevation of local areas, illustratively, within a ward, suburb, neighbourhood and even a city. Self-governance conceptually takes on the form of bottom-up development as outlined by Miazzo and Kee, (2014); tactical urbanism (Lydon & Garcia, 2015) and grassroot initiatives (Newman, et al., 2004).

This concept manifests itself in the United States, through self-contained utopian communities characterized by closed off establishments set up away from mainstream life. These establishments of self-governance are devoted to their pursuit of an array of individual as well as collective

perfection. Such devotions may owe their creations to political, spiritual or social derivatives. Whatever their motivation, the impulse to commune in groups of similarly driven individuals with the hope of establishing a better way of living has existed in pre-colonial United States and is still evident presently. Such groupings include religious communities, eco-villages, survivalist communities, among others. Illustratively, the Protestant sect known as the Shakers set up dozens of settlements across the United States based on religious beliefs shared by community members; the Oneida Community, made up breakaway opposing beliefs from those of the church; conversely, secular utopias existed including those of the German Pietists established their own settlements within Eastern United States fleeing persecution in Europe; the community of Harmony, Indiana established by a Preacher but later acquired by Robert Owen, a major Welsh industrialist and social reformer; Brook Farm, Massachusetts community based on principles of Transcendentalism and constituted by a number of prominent intellectuals (Sreenivasan, 2008); (Sutton, 1994); (Hayden, 1976).

The spiritually driven community of Rajneeshpuram from India, in the 1980's made up of a guru and his followers, transformed a remote, 65,000-acre in Wasco County, Oregon ranch into a small city, building residences and meeting halls, a dam and an airport.

Whether religious or secular, these Utopian communities illustrated a full commitment to communal goals perceiving their establishments as models of an improved way of living, hoping that outsiders would be motivated to emulate their way of life (Sutton, 1994).

2.3 Legal and Policy Frameworks on Suburbanization

2.3.1 Legal Frameworks

The Constitution of Kenya 2010, which is the country's supreme law, grants every citizen (including those in urban areas and cities), the right to reside in areas of their choice (Article 39),

right to own property (Article 40), and the right to a clean and healthy environment, including in residential and working areas. Additionally, the Constitution provides for the regulation of any use of land including urban and suburban land, in the interest of public order, public safety as well as land use planning (Government of Kenya, 2010).

The Urban Areas and Cities Act 2011**,** provides for the classification, governance and management of urban areas as well as suburban areas, and outlines for the principles of governance and participation of urban residents in the planning and development of their urban and suburban areas. The Act calls for incorporation of an inclusive process in urban development and management, engaging citizens and all stakeholders.

Additionally, Section 36 of the act provides for the development of plans which should be the basis for provision of physical and social infrastructure and transportation, overall service delivery including water supply, electricity, health, telecommunication and waste management, disaster preparedness and response, for the sustainable development of urban and suburban areas (Government of Kenya, 2011).

The Physical and Land Use Planning Act (PLUPA) 2019, provides for the planning, use and regulation of land in the country, including in urban and suburban areas. It outlines the principles, procedures and standards for the preparation and implementation of physical and land use plans across all levels, including urban and suburban areas, as well as procedures and standards for development control and regulations and frameworks for equitable and sustainable use, planning and management of land in urban and suburban areas (Government of Kenya, 2019).

The County Governments Act 2012, outlines the functions and roles of local (County) governments, including in development/land use planning and management of urban areas. It outlines the types of plans to be prepared to realise development, and calls for citizen participation

in development processes, including urban and suburban development processes (Government of Kenya, 2012).

Environmental Management and Coordination Act (EMCA) 1999, accords everyone the right to a clean and healthy environment, and the duty to safeguard and enhance the environment including urban and suburban environments. Thus, residents of suburban areas such as Ruai are accorded the right to a clean and health environment. Further, they are given the mandate to protect the quality of the living environment, including air and natural resources from pollution and any form of degradation (Government of Kenya, 1999).

Land Act, 2012, provides for the sustainable administration and management of land and land-based resources across the country, through sustainable management and cost-effective administration of land (Government of Kenya, 2012).

2.3.2 Policy Frameworks

Table 2-1: Policy Framework, Government of Kenya

Policy	Policy Relevance
National Urban Development Policy (GOK, 2016)	Creates a framework for sustainable urban development in the country and addresses the following thematic areas: urban economy; urban finance; urban governance and management; national and county urban planning; land, environment and climate change; social infrastructure and services; physical infrastructure and services; urban housing; urban safety and disaster risk management; and marginalized and vulnerable groups.
Housing Policy Sessional Paper No. 3 of (GOK, 2004)	Underscores comprehensive land-use planning as a major component of housing in facilitating provisions of adequate shelter and a healthy living environment, at an affordable cost to all socio-economic groups in order to foster sustainable human settlements
Integrated National Transport	Aims to develop a world-class integrated transport system that is responsive

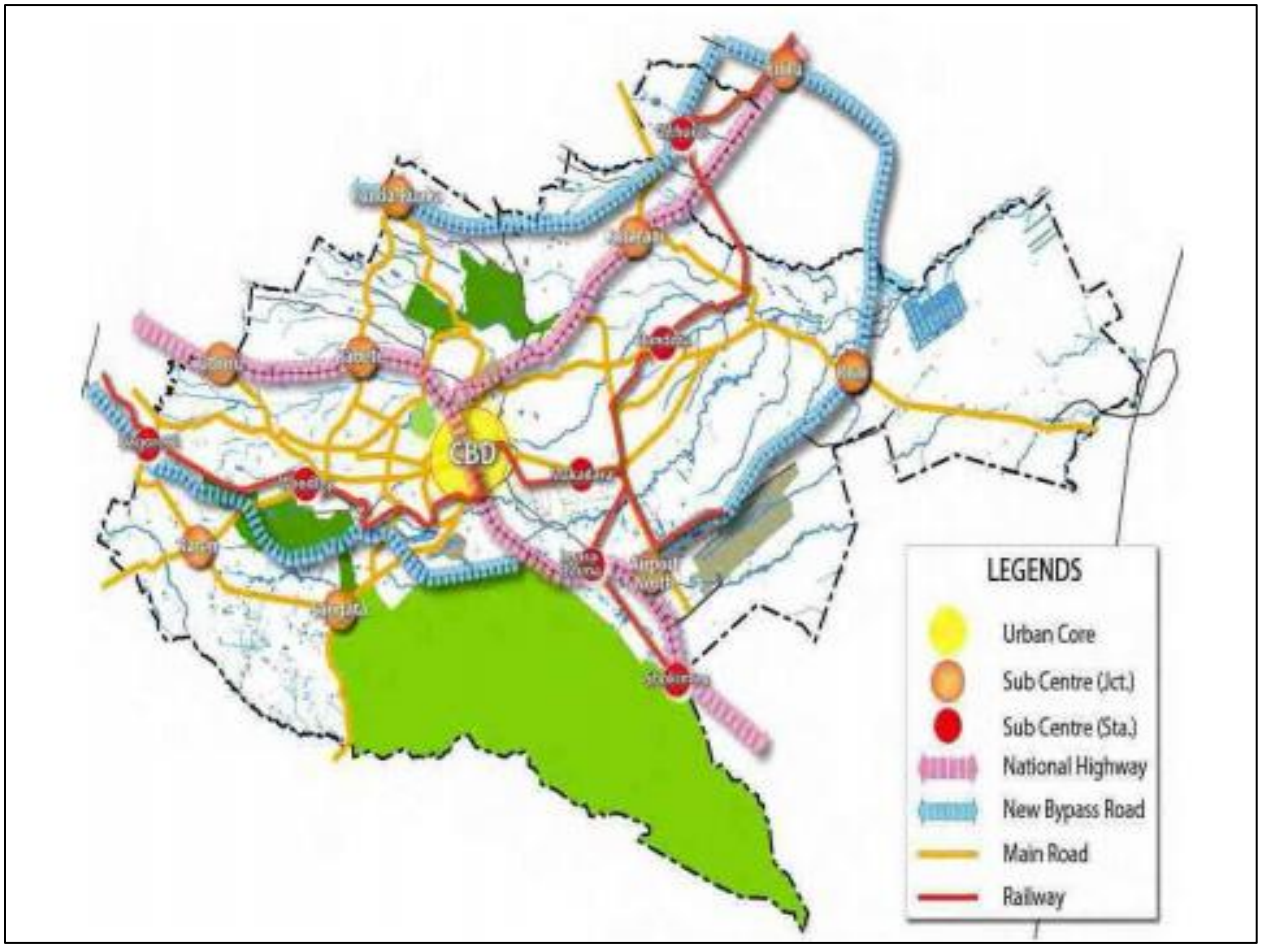
Policy (GOK, 2012)	to the needs of people and industry, since the Government recognizes the transport sector as one of the critical enablers in achieving Vision 2030.
National Climate Change Response Strategy (GOK, 2010)	Seeks to strengthen and focus nationwide actions towards climate change adaptation and GHG emission mitigation.
Energy Policy (GOK, 2012)	Seeks to ensure adequate, quality, cost-effective, and affordable supply of energy to meet development needs while protecting and conserving the environment.

Source: Government of Kenya, 2004-2012

2.3.3 Urban Development Plans

Development in Nairobi City is governed by the Nairobi Integrated Urban Development Master Plan (NIUPLAN) (NCCG, 2014).

Figure 2-2: Sub-Centres Development Proposal for Nairobi



Source: NIUPLAN, 2014

Notably, the NIUPLAN is yet to have development control guidelines, with the city currently using the Nairobi City Development Ordinances and Zones, which were developed before the current NIUPLAN was adopted.

The City Development Ordinances zone Ruai into zone 18, with residential, agricultural and mixed-use developments permitted, as shown in the figure below.

Figure 2-3: Zoning Guidelines for Ruai

ZONE	AREAS COVERED	GC %	PR %	Dept Ref. Map	TYPE (S) OF DEVELOPMENT ALLOWED	MIN. AREA (Ha.)	REMARKS/POLICY ISSUES
16	**Baba Dogo**			CP/FP/XXX	Industrial Zone Residential (Mixed Residential Development	0.05 lower if comprehensive	High Density Residential
	• Industrial	80(s) 50(u)	300(s) 100(u)				
	• Residential	35(s) 25(s)	75s) 25(u)				
	Ngumba/Ruaraka/	50(s)	200(s)				
17	**Githurai 44 &45**	50(s)	200(s)		Industrial Zone Residential (Mixed Residential Development		• Replete with unplanned developments hence "Blanket approval" vide TP resolution of 18/7/97
	Zimmerman						
	Kahawa West	50	100				
	• Commercial	50	100				
	• Residential	50	75				
	• Industrial	50	100				
18	**Kasarani**			CP/FP/XXX	• Agricultural • Residential Mixed Development	• 2.0 • 0.05 on sewer • 0.1 ha. if not on sewer • lower min. size if land buying company	Area has potential for residential developments (invasion by land buying companies and land speculators) Industrial not attractive here
	• Clayworks	50	100				
	• Clay City						
	• Sports View						
	• Mwiki	50	200				
	• Njiru	25	25	CP/FP/XX			
	• Ruai						

Source: Nairobi City Development Ordinances and Zones, NCCG, 2000

2.4 Theoretical Framework

The study relied on a combination of theories which suggest that certain push and pull factors are the probable cause of development of Ruai as a suburb. Pull factors may be identified as infrastructural developments or availability of land. Conversely, push factors may include deteriorating quality of life in the city core, increasing densities, among others. The author contends a probable cause of these stimulating factors aligns with the Concentric Zone and Multiple Nuclei Theories. Which reinforce postulations concerning decentralization from the city core to its periphery, potentially triggering the flow of people, services and employment out of the city to its edge. The modification and diversification of city core functions to surrounding nuclei or suburbs may further trigger the process of suburbanization.

2.5 Conceptual Framework

2.5.1 Overview

The conceptual framework for this study as shown below, outlines the independent and dependent variables for the study. The triggers for suburbanization present the independent variable, while the suburbanization challenges and mitigation of these challenges are the dependent variables.

Table 2-2: Conceptual Framework

Tiggers of Suburbanization		**Suburbanization**		**Suburbanization Challenges**	**Mitigation of Suburbanization Challenges**	
Economic decentralization and income growth (*formal and informal opportunities*) Affordable land and property Family and social ties Population growth Infrastructure development Blight of central city and need for better quality of life	→	**Suburbanization**	→	Urban spatial challenges *Uncoordinated urban structure* *Uncontrolled development* *Fragmentation* *Stress on infrastructure and amenities* Social challenges *Social inequalities and deterioration of important infrastructural and social services such as housing, health* Environmental challenges *Air, and resources degradation*	Integrated urban management approaches Communities and stakeholder's participation approaches Self-Governance 3-D City Models Approach	**Sustainability**

Source: Author, 2021

CHAPTER THREE: STUDY AREA

3.1 Overview

This chapter provides a detailed snapshot of the Ruai. Specifically analysing the location of the study area in three lenses: national, regional and local contexts. As well as the physical and demographic characteristics.

3.2 History of the Study Area

The history of the growth and development of Ruai can be traced back to the immediate post-colonial era in 1972. The Embakasi Ranching Company (ERC), led by the late Member of Parliament, Godfrey Muhuri Muchiri, acquired a vast piece of land in the current location of Ruai. His intention being to resettle the landless African community living in Nairobi. Prior to the acquisition, the land belonged to the European settlers, who practiced sisal farming.

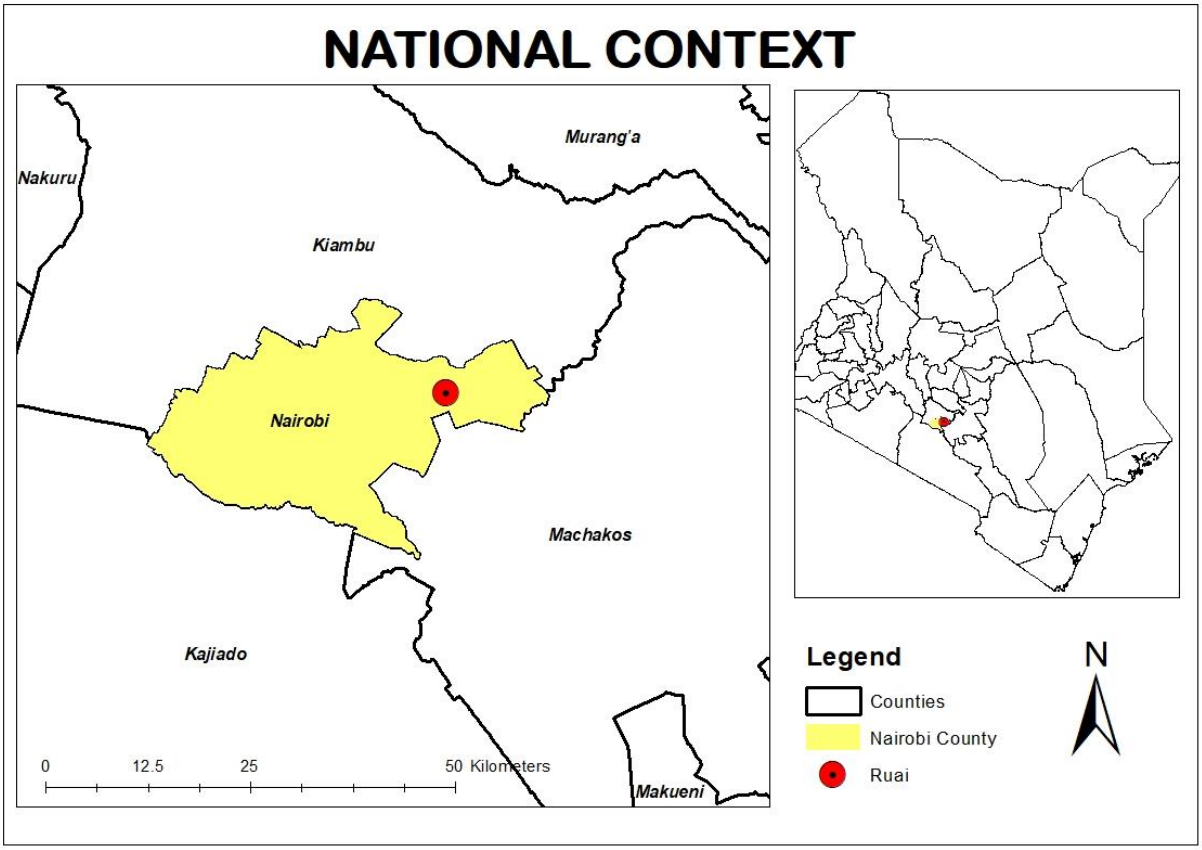
The ERC comprised of shares owned by the landless African community, who initially had to pay Kshs. 1,100 for membership. This entailed a land fee, valued at Kshs. 600, and a survey fee valued at Kshs. 500. Further, each member would be required to provide an additional Kshs. 3,500 as fees for processing of title deeds, planning and amenities provision in the area. Originally, it was agreed that each share by the members would equate to 2.5 acres.

The initial plan was to develop a stratified suburb within a well-defined and unified vision for Ruai, however, population pressure has given rise to unprecedented growth of Ruai. Currently, the growth of the suburb is organic influenced by recent infrastructure developments such as the Eastern Bypass, and an uncontrolled land market. Further, with change of leadership of the ERC, personal and political interests played out in Ruai. Manifesting as subdivisions and illegal land acquisitions. Several individuals and land buying companies acquired large tracts of land for subdivision, selling and speculative holding. According to Cytonn Investments, Ruai is one of the populous suburbs of Nairobi, with the cheapest land prices (Cytonn, 2019).

3.3 Location and Context of the Study Area

3.3.1 National Context

Map 3: Ruai in National Context



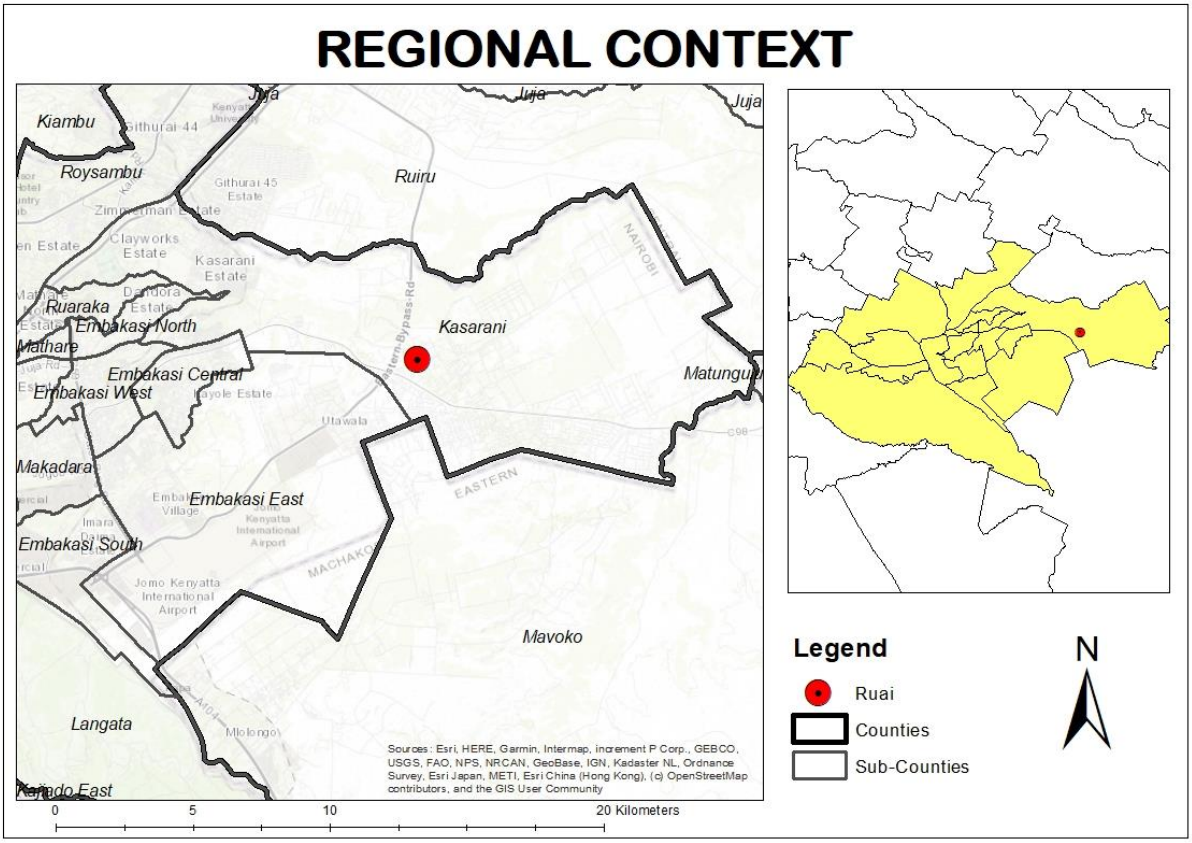
Source: Author, 2021

Nationally, Ruai is located towards the southwest area of the country in Nairobi City County, one of the 47 semi-autonomous regions in the country, which is bordered by Kiambu County to the North, Machakos to the East and South-East, and Kajiado County to the South and South-West, as shown in the map above.

3.3.2 Regional Context

Regionally, Ruai is part of the Nairobi Metropolitan Region, and within Nairobi City County part of Kasarani sub-county and constituency. It is located towards the North-West of Nairobi City County, bordered by Ruiru constituency to the North, Mavoko constituency to the south, and Embakasi East to the South-West.

Map 4: Ruai in Regional Context

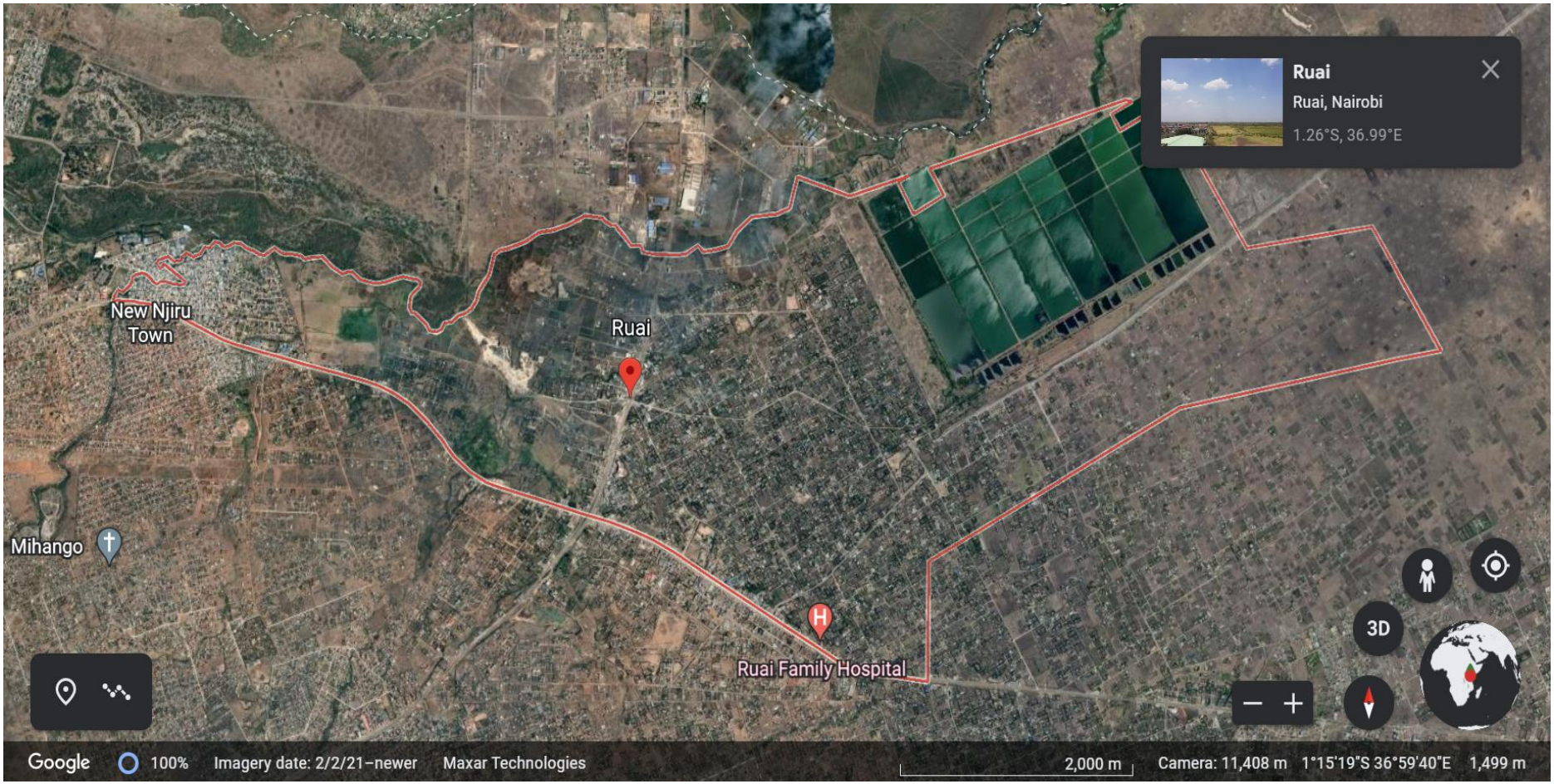


Source: Author, 2021

3.3.3 Local Context

Locally, Ruai is located in Ruai ward, one of the 5 wards within Kasarani Sub-County/Constituency. It is strategically located towards the west of the Eastern Bypass, and along Kangundo Road (C99). It is located approximately 28 kilometres from the west of Nairobi CBD, at the intersection of Kangundo Road and Eastern Bypass. The suburb neighbours' other busy suburbs such as Kamulu to the East, Utawala to the South and Njiru and Mihango to the West. Ruai's existing land use is predominantly residential with commercial uses clustered along Kangundo Road with a significant number of traders existing within the road reserve. Inner zones within the urban market centre are interspersed by high and medium density residential land use.

Map 5: Spatial View of Ruai Suburb



Source: Google Earth, 27th June 2022

3.4 Characteristics of the Study Area

3.4.1 Size

Ruai covers a total land area of 18.2 km^2. And is defined by the Eastern Bypass and Kangundo roads, the Nairobi River to the North and the Ruai Sewer Treatment Facility to the North-West of the town, and the Machakos County border to the south.

3.4.2 Population and Demographic Characteristics

According to the 2019 Population and Housing Census, Ruai ward has a total population of 72,134 persons, with approximately 22,787 households and a male-female ration of 1:1, as shown in the table below.

Table 3-1: Population Characteristics of Ruai

	Population
Total Population	72,134
Male	35,605
Female	36,526
Households	22,787

Source: KNBS, 2019

The current population presents a 50.1% increase between 2009 – 2019. The current population is projected to grow to 90,552 persons by the year 2030 (NaMSIP, 2017).

3.4.3 Climate, Drainage and Other Physical Features

Ruai lies about 1544 m above the sea level, and has a warm and temperate climate, with an annual average temperature of 24.5^{0}C and annual average precipitation of approximately 1,100mm.

With regard to drainage, River Nairobi is located to the north of Ruai, and flows eastwards into

the Athi River.

3.4.4 Urban Governance

Ruai is part of Kasarani Constituency and is represented in Parliament by a Member of Parliament. In the Nairobi City County Assembly, it is represented by a Member of County Assembly (MCA), representing Ruai ward. Further, law and order in the study area is a function of the national government, which is represented by the area Chief, and administration police. With respect to services, the Nairobi City County Government has decentralized some key services to the constituent sub-counties/constituencies, including Kasarani sub-county.

CHAPTER FOUR: RESEARCH METHODOLOGY

4.1 Overview

This chapter discusses the methodology that was used during collection, analysis and presentation of findings. The sections discussed include research design, target population, sample and sampling techniques, data collection instruments, data collection procedures, pilot testing, data analysis and presentation.

4.2 Research Design

The study adopted both descriptive and correlational research designs. Descriptive design was used to describe the extent to which various factors lead to the development of Ruai suburb; the challenges emerging as a result of suburban development; and mitigation measures for arising challenges following development of Ruai suburb. Correlation design was used. This was to establish the relationship between overcrowding in the cities, improved transport and communication, crime and insecurity, availability of essential services, high land and housing costs within the city and emergence of Ruai suburb.

4.3 Target Population

Target population refers to a homogenous group to which the researcher wants to generalize the results of the study. Therefore, the aggregate number of respondents making up this study's environment of interest (Kothari, 2004). These specifically included the residents and business/enterprise owners and operators of Ruai Ward in Nairobi City County. Further, Key Informants were targeted from various governance institutions as well as service delivery institutions with mandate in the study area. These include the County Government of Nairobi City, parastatals, private institutions and community-based groups.

4.4 Sampling

4.4.1 Sampling Technique

The study employed stratified random sampling technique. This involved categorization of the target population into strata, in line with the diverse population characteristics. Two strata were adopted: Households and Businesses.

4.4.2 Sample Size

The sample size of the population was calculated using the formula below. A confidence level of 95% was used to minimize bias and simplify the analysis of results.

$$n = Z2.P.Q.N$$

$$e2(N-1)+Z2.P.Q$$

Where;

N = Size of the Population of Case study

n = Sample size

P = Sample proportion assuming a confidence level of 95% of target Population

Q = 1-P

e = Acceptable Error

Z = Value of Standard deviation at a given confidence level and worked out using normal distribution curves, taken here as 1.96 (David & Chava Nachmias, 1996).

The total population of people living in Ruai is 26,448 persons (KNBS, 2019). Hence, size of population in the case study is 26,448 people.

$$n = 1.962(0.5)(0.05)(\ 26{,}448)$$

$$0.052(72134-1)+1.962(0.95)(0.05)$$

$$n = 133 \text{ Respondents}$$

The sample size of 133 respondents according to the above calculation was adopted and used. These were split into two strata, with Households allocated 70% of the sample size and Business/Enterprises allocated 30%. The higher allocation for households is mainly because Ruai is predominantly a residential suburb. Thus, 93 households and 40 businesses/enterprises were sampled.

4.5 Data Collection Instruments

A research instrument refers to the tool used to collect data in regard to a given phenomenon (Chandran, 2004). The below data collection instruments were used to facilitate this study:

4.5.1 Questionnaires

This study used household and enterprise questionnaires. Household questionnaires targeted people living in the study area. While enterprise questionnaires targeted businesses set up and operating in the study area. The questionnaire was the preferred instrument of data collection because it allows data collection in an objective and standardized format. Further, use of a questionnaire makes it possible for the researcher to give the respondents adequate time to respond to the questions. The questionnaire also allows the researcher to collect data from a large population.

The questionnaires contained both closed and open-ended questions, with the questions guided by the objectives and variables in the study. This approach provided the study with greater uniformity in collecting the respondents' attitudes and thoughts regarding causes and challenges of suburbanization in Ruai.

Further, the questionnaires were programmed into an online open-source platform; Kobo Collect and administered through the use of mobile phones. This is because:

- The platform is free, easily accessible and secure, as all information and data collected is securely stored in an online server, thus providing for data security and minimizing data loss that may be experienced by use of printed questionnaires.
- Ease of Administration: The platform allows for administration of questionnaires through mobile phones; thus, the researcher and research assistants were spared from bulkiness of printed questionnaires and ease of administering.
- Covid-19 safety: the use of mobile phones ensured minimal interaction and touching of unnecessary shared surfaces such as printed material and pens, thus minimizing the risk of infection or spread of the Covid-19 infection.
- Finally, the 'anonymous' nature of the questionnaires allowed the respondents to provide, in addition, sensitive information (Kothari, 2004).

4.5.2 Key Informant Interviews

Additionally, key informant interviews were targeted and scheduled for interviews. These included land buying companies, real estate developers, institutions, civic leaders, physical planners from the Nairobi City County Planning Department, technical director at the Nairobi Sewerage Treatment Works.

4.6 Pilot Testing

In order to collect valid and reliable data, the researcher pre-tested the questionnaire with respondents who match the respondents to be involved in the actual study. (Leedy & Ormrod, 2005) outline that a questionnaire can be pre-tested by administering to at least six respondents to establish if they have any difficulties when responding to the questions. The researcher pretested the tools with 6 residents of Ruai prior to the fieldwork, and identified gaps and areas for

improvement, to ensure its validity and reliability in measuring the causes and challenges of suburbanization.

4.7 Data Analysis and Presentation

4.7.1 Data Analysis

Data analysis is carried out with the intention of systematically organizing and synthesizing research data (Polit & Hungler, 1991). This involves categorising, ordering, manipulating and summarizing the data and describing it into meaningful terms (Brink, et al., 2009). As aforementioned, Kobo Collect facilitated administration of questionnaires. Each finalized questionnaire was then uploaded to a common server. During analysis, each questionnaire was sorted to eliminate those with errors and any that were incomplete. The questionnaires were then coded and entered into Statistical Package for Social Sciences (SPSS) software for analysis. Both descriptive and inferential statistics were used to analyse the data.

Descriptive analysis was considered appropriate as it allowed the researcher to describe the variables using measures of central tendency and measures of dispersion. Descriptive techniques used include means, standard deviations and frequency distributions. Qualitative data collected using open-ended questionnaires was analysed using content analysis where the content was summarized thematically. Correlation analysis was also employed to analyse the relationship between the triggers of suburbanization and emergence of Ruai suburb.

4.7.2 Data Presentation

The findings of this study were presented using figures and tables. The tables highlight the frequencies, percentages, means and standard deviations as well as correlation analysis findings. Some of the findings are presented using charts for ease of understanding. The tables were

generated using Statistical Package for Social Sciences (SPSS) while the charts were be generated using Microsoft's Excel.

4.8 Data Needs Matrix

Table 4-1: Data Needs Matrix

Research Question	**Methodology**	**Statistical Analysis**	**Presentation**
1. What are the demographic characteristics of the respondents? • Age • Gender • Level of education • Occupation	• Questionnaire • Personal observation	• Frequency • Percentage	• Tables and figures
2. What are the causes of suburbanization? • Push Factors – Physical, social and environmental blight • Pull Factors -	• Questionnaire • Key Informant Interview • Focus Group Discussion • Government agency records	• Mean • Standard deviation	• Tables and figures
3. **What challenges are associated with emergence suburban areas?** • Environmental Issues • Social Issues	• Questionnaire • Key Informant Interview • Personal Observation	• Mean • Standard deviation	• Tables, figures and maps

• Economic Issues • Urban Spatial Issues • Legal, Policy and Institutional Issues	• Focus Group Discussion • Photo documentation		
4. **What mitigation measures can be used to address the challenges?** • Three (3) D City Models Plan • Communities Participation Approach • Integrated Urban Management Model	• Questionnaire • Key Informant Interview • Personal Observation • Focus Group Discussion • Photo documentation	• Mean • Standard deviation	• Tables and figures

Source: Author, 2021

CHAPTER FIVE: RESEARCH FINDINGS

5.1 Overview

This chapter provides a detailed description of the study findings according to the objectives of the study: To evaluate the causes and challenges of suburbanization, with a focus on Ruai. Specifically investigating the extent to which various factors lead to the development of Ruai suburb; the challenges emerging as a result of suburban development; and mitigation measures for arising challenges following development of Ruai suburb.

Over the last 20 years, the suburb has transitioned from an undeveloped agricultural area made up of a number of ranches with low densities. To a highly developed suburb hosting several functions. From highly active commercial zones to residential structures ranging from single dwelling residences to apartments. Green areas have been mostly taken over by concrete jungles with ranches being subdivided to supply the high demand for developments to accommodate the rapidly urbanizing suburb.

Photo 5.1: Structural Characteristics of Ruai

Source: Author: 2021

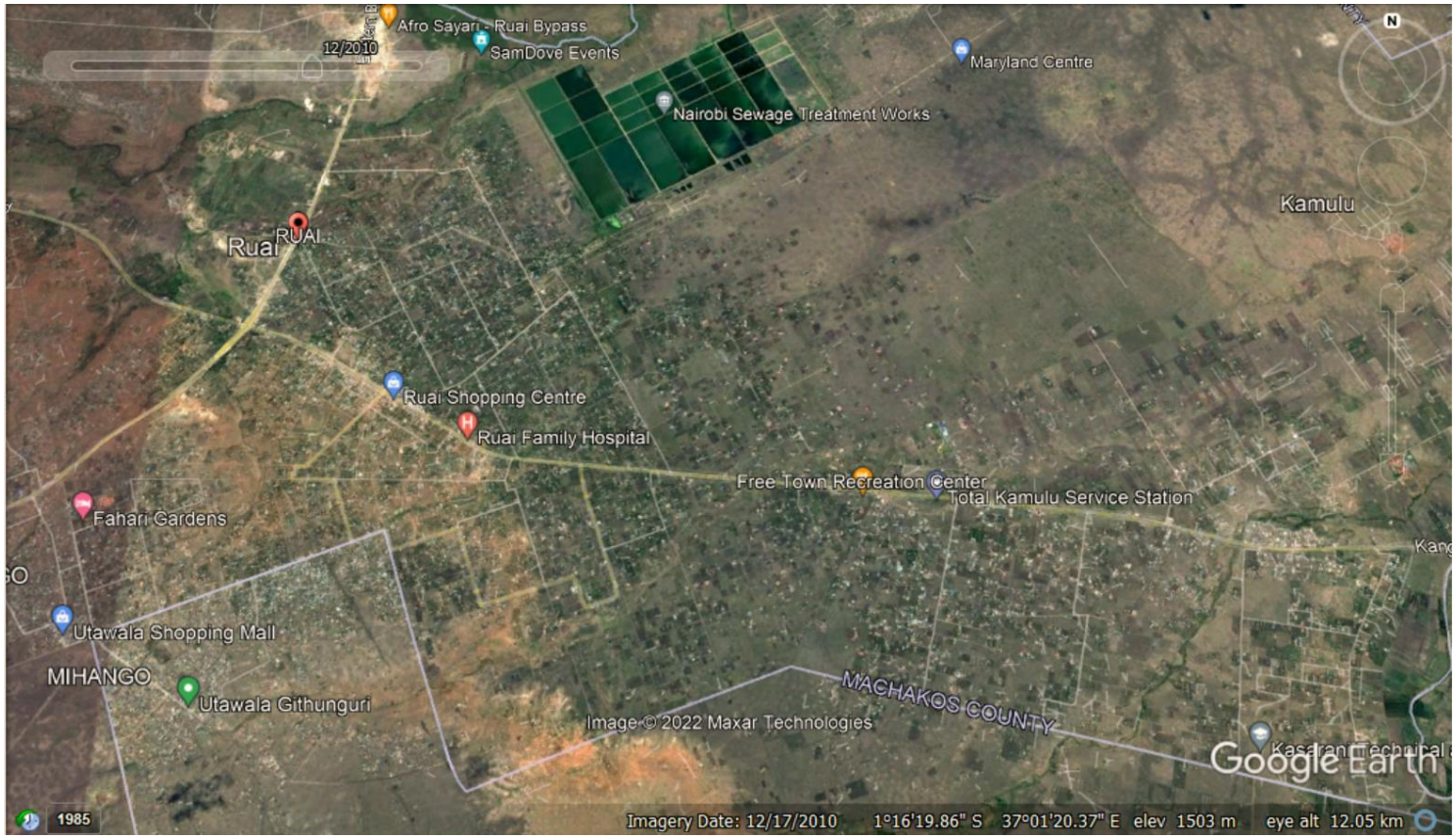
The map below outlines Ruai 20 years ago made up of large ranches characterized by green areas, tress and vegetation. Ranching was undertaken with residents keeping large herds of livestock for economic and personal purposes. Subsistence farming was also an activity engaged in on a small scale by residents for personal use.

Map 6: Ruai 20 Years Ago

Source: Google Earth, Retrieved December 31st 2002

The map below shows the suburb 10 years ago. Illustrating the initial stages of subdivision of ranches to accommodate development of single dwelling residences and commercial buildings to support the initial demand as the city expanded. At this point greenery is maintained along development of the suburb.

Map 7:Ruai 10 years Ago Illustrating Ranches within Green Zones which have Progressively Been Subdivided



Source: Google Earth, Retrieved December 17th 2010

The map below shows Ruai 5 years ago, illustrating the effects of haphazard development, rampant subdivision and high in-migration. These impacts can be observed from the decreased greenery and the increased density of human settlements.

Map 8: Ruai 5 Years Ago with High Densities and Decreasing Green Zones

Source: Google Earth, Retrieved September 13^{tht} 2016.

The suburb is characterised by a greenfield development area which has seen an influx of development especially residential and commercial developments. Its growth has been further catalysed by the development of the two roads: Kangundo road and the Eastern by Pass.

Photo 5.2: Ruai Near the Eastern Bypass

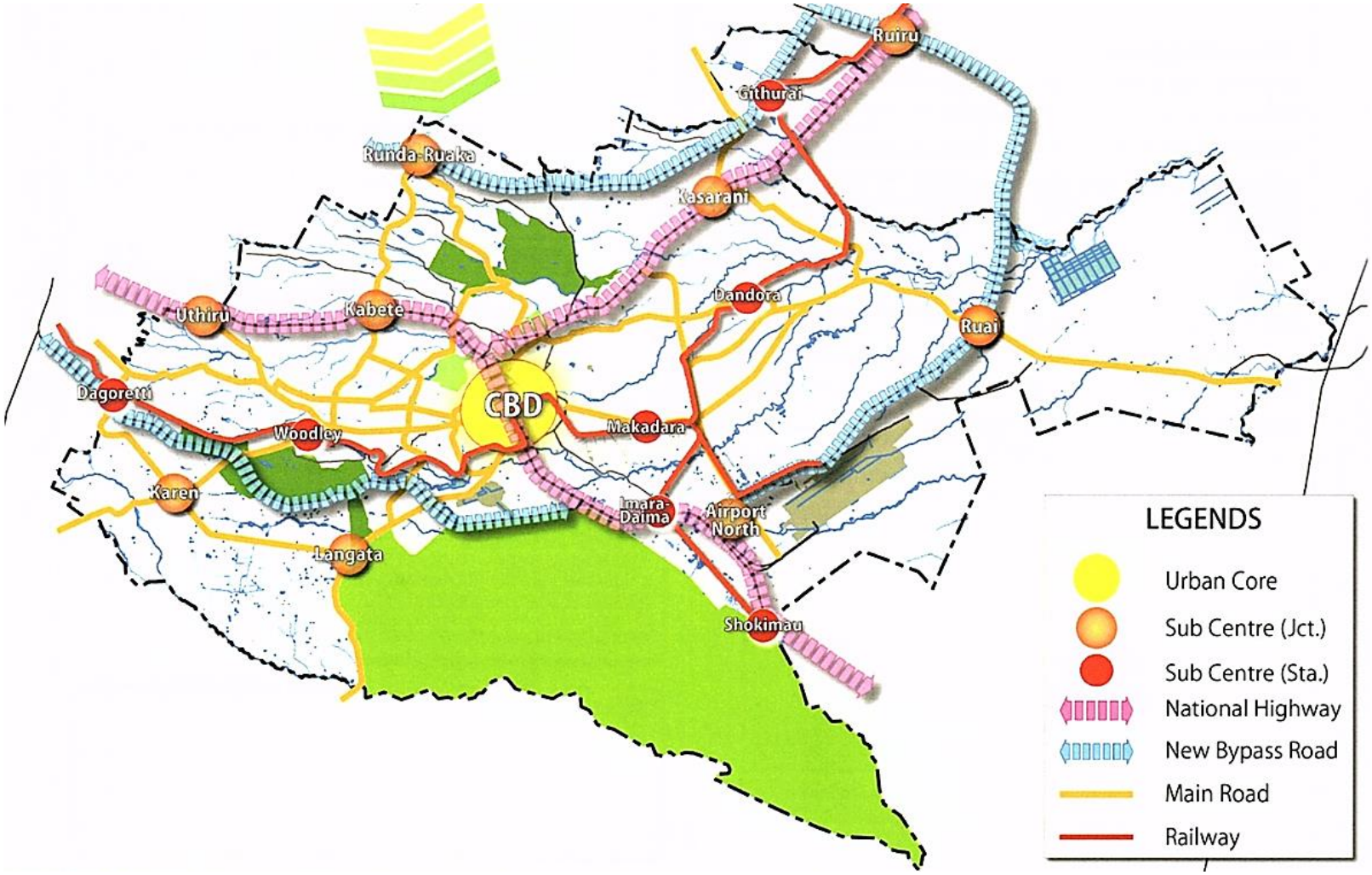
Source: Author, 2021

According to Nairobi City County, the turnover of development applications is quite high where most applications are for the establishment of light industry developments such as warehousing. This passive land use contributes less to the economic opportunities in suburb and its environs. In most cases, warehousing serves as a place holder for land owners who build these establishments for speculation purposes. Ruai has empty go-downs due to the shortage of local industries that can use available storage space. This encourages second hand products, clothes and agricultural produce imports, discouraging growth of local industries. Other industrial activities include petrol stations and hardware shops. This creates a problem due to the land pattern which is largely residential and not commercial.

Ruai's close proximity to the main city centre of Nairobi affords it a strategic advantage where it has unofficially grown as a suburb of the city. This has further contributed to the establishment of housing and related facilities to serve the night population coming from the city.

During an institutional visit, Nairobi County planner, referenced the Nairobi Integrated Urban Plan (NIUPLAN) which articulates the needs to decongest Nairobi City through the development of regional hubs around the County. This would serve to distribute developments and investments to all areas within the County. Ruai's strategic position provides a good basis to be developed as a sub-centre as proposed under NIUPLAN. The suburb has been identified as one of the regional hubs, as a commercial/industrial centre for the Eastern part of the Nairobi City. Ruai's development is private sector driven and most developments have been funded by owners' savings of the squatters who have settled in the centre.

Figure 5-1: NIUPLAN Proposed Sub-Centres Including Ruai



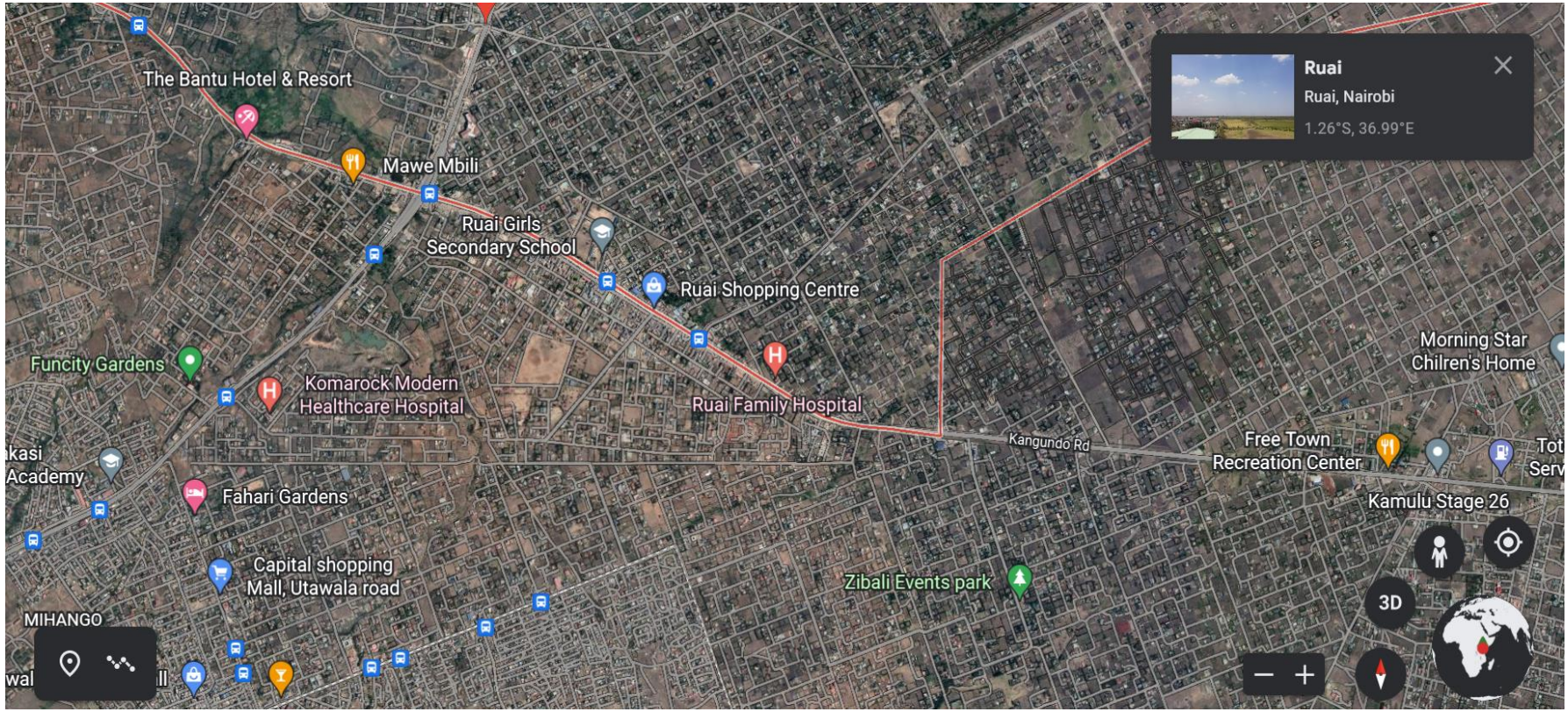
Source: NIUPLAN, 2018

Photo 5.3: Ruai Spatial Characteristics

Source: Author, 2021

The map below analyses Ruai and depicts a loose grid pattern of development. This pattern of development encourages inter-connectivity. Additionally, the well-packed sequences resulting from this pattern maximize land utility.

Map 9: Ruai Settlement Patterns and Boundaries



Source: Google Maps, 27th June 2022

Subdivisions of land and infrastructural provisions have led to the grid model of development which is influenced mainly by the patterns adopted in subdividing the land. Planning intervention will align appropriate land uses in order to maximize utilization of the land.

Further, haphazard ribbon development along major transport arteries is evident in Ruai. Developments tend to occur along Kangundo Road clustering in high densities, along smaller connector roads within the grid networks aforementioned. Ribbon developments occur when extensive residential, commercial or even industrial developments arise in a linear pattern along both sides of arterial roadways.

Photo 5.4: Ruai Ribbon Development

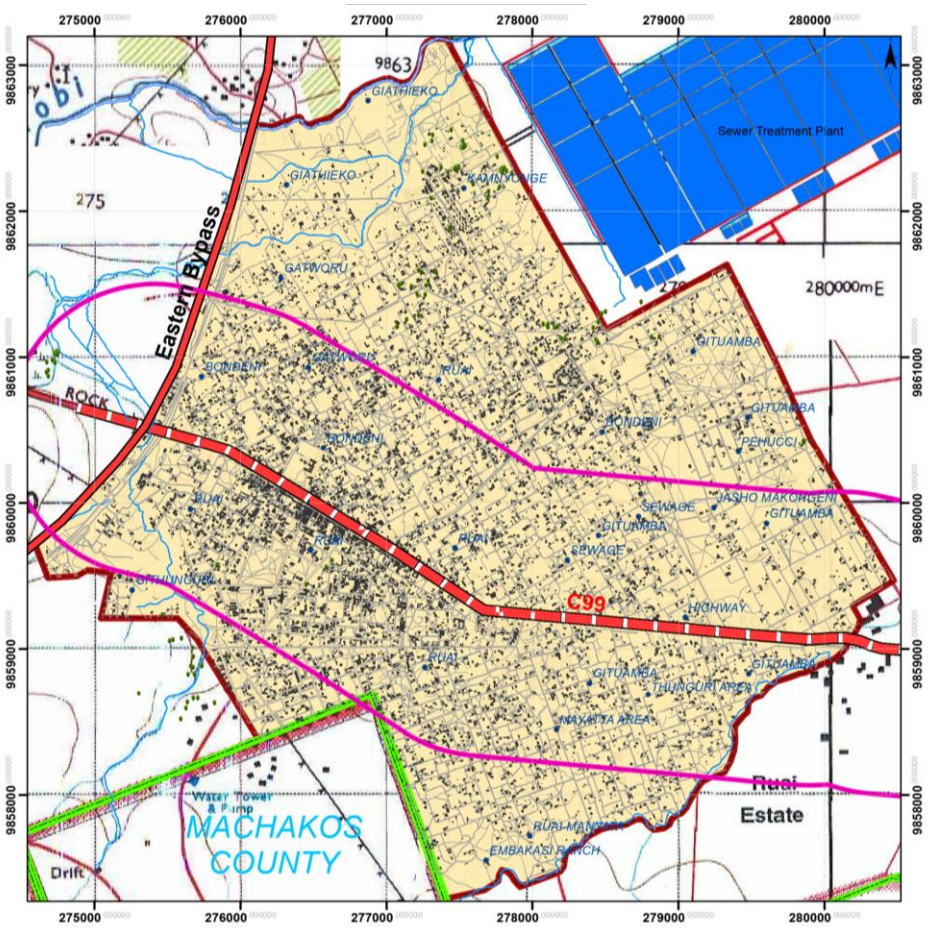
Source: Author, 2021

Ribbon development occurs due to greater accessibility to services and facilities which is a great incentive for residents to settle closer to transport infrastructure. These developments are however unplanned and disorganised with lack of services such as water supply, liquid waste infrastructure and storm water drainage. Thus, on the ground, development is chaotic with afterthought of

boreholes and septic tanks provided for in almost every plot as well as random building heights and converted open spaces leaving little to none left over for communal use.

The Nairobi Integrated Action Plan has identified Ruai as the location for the commercial hub that will serve the region. It is important to note that the land availability for establishment of a comprehensive commercial hub is adequately available in subsequent less developed centres after Ruai, such as Joska, Kamulu and Malaa. Ruai presently is mostly developed 3-4 kilometres from Kangundo Road which would make it a challenge to establish the hub in Ruai. However, the commercial hub can be established in the less developed centres around Ruai.

Map 10: Ruai Base Map



Source: Author, 2021

In Ruai, residential land use is amongst the highest in the area, followed by commercial land use with a few centres established along Kangundo Road. Ruai makes a good satellite town to Nairobi city where most residents work. It is in close proximity to the city centre, while providing the ambience of the countryside with fewer developments, less noise, and more expansive land is a pull factor for those who choose to live in the suburb. The prime land for development is a factor that attracts many investors. Although Ruai is considered to be a low-density area, the housing developments in and around Ruai which are being undertaken by private developers are projected to develop the area into a high density and low open space area.

The intersection area called "By-pass", has been developed with no planning guideline provisions. The outcome is a severe crowding by motorbikes and buses offloading passengers. Shops and markets are located in a disorderly manner and residential areas are laid out behind the road. It is anticipated that once Kangundo Road is upgraded, there will be more rapid population increase and urban development in Ruai suburb with a growing locale and a moderate population density.

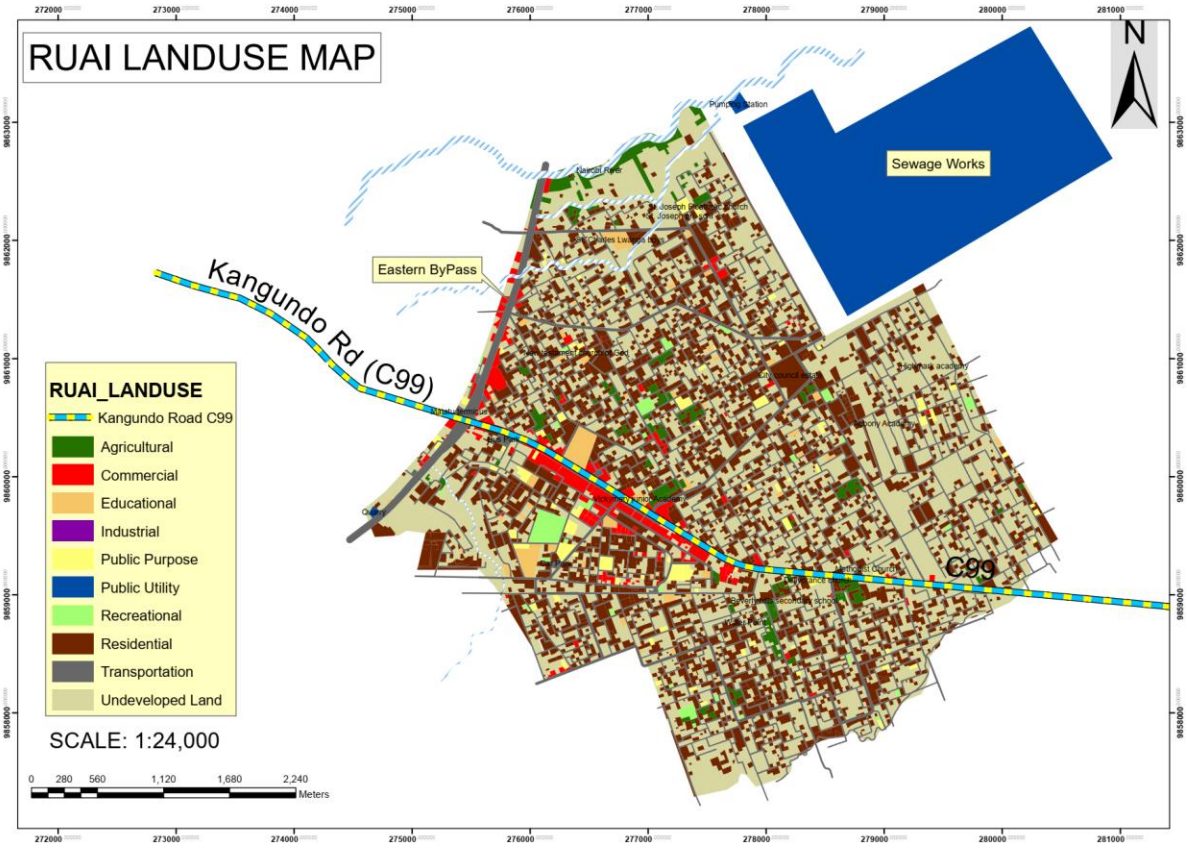
The upgrading of Kangundo road will bring development to the roadside which will cause problems with more disorderly development along the road. Therefore, the living environment will deteriorate due to commercial buildings and other activities spread into the residential areas to serve the growing population. It is necessary to organize the uncontrolled development along the road and establish a zoning and land use plan with green buffer zones for the markets and shops on the road. Furthermore, there is need to plan for public facilities including bus stations and motorbike stations, which will replace the existing congested and dangerous area around the intersection of Eastern by-pass and Kangundo road. The zoning and land use plan for residential areas behind Kangundo road is also needed.

The area of the bypass is an integral section of the corridor and serves as an intersection for

passengers to Thika Road, Mombasa Road and to Outer Ring Road. The area has sufficient space to widen the road by providing more lanes, a BRT, parking for public transport, walkways, as well as a bus station which will be required to allow for bus and minibuses to park and wait for passengers.

The Nairobi Master Plan also aims for transit-oriented development. This refers to very intense development around the sub-centres that is compact and mixed. In every sub-centre, there should be facilities such as courts, banks and Huduma Centres. This should come out clearly in the plan for Ruai.

Map 11: Ruai Land Use Map



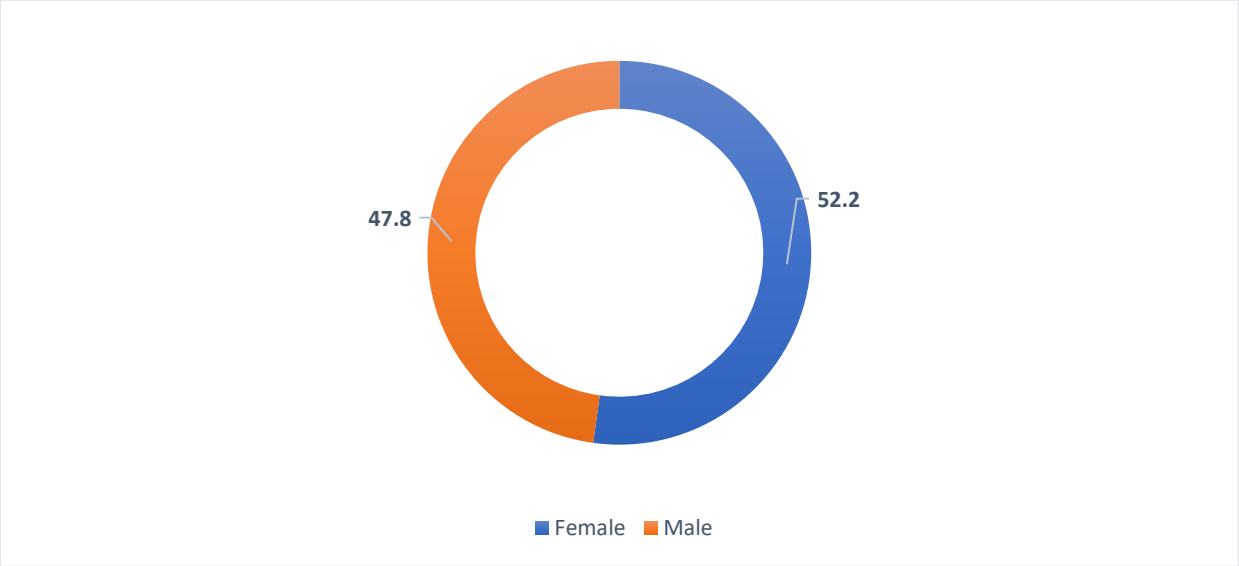
Source: Author, 2021

Data collated and analysed is from household and enterprise questionnaires, key informant interviews, spatial mapping and literature review. The presentation of findings is done in line with the study objectives. Discussion of the findings provides an analytical assessment of primary data and secondary data.

5.2 Demographic Characteristics of Respondents

Respondents constituted landowners, renters, homeowners, developers and business owners (informal and formal). Majority of the respondents from the sampled population were female (52.2%). Age distribution of the respondents shows that Ruai is largely characterised by a youthful population with a receding elderly population. Majority of the sampled population (64.1%) are within 18-35 years, with only 10.9% of the population being above 50 years of age, as shown by figure 5.2 below.

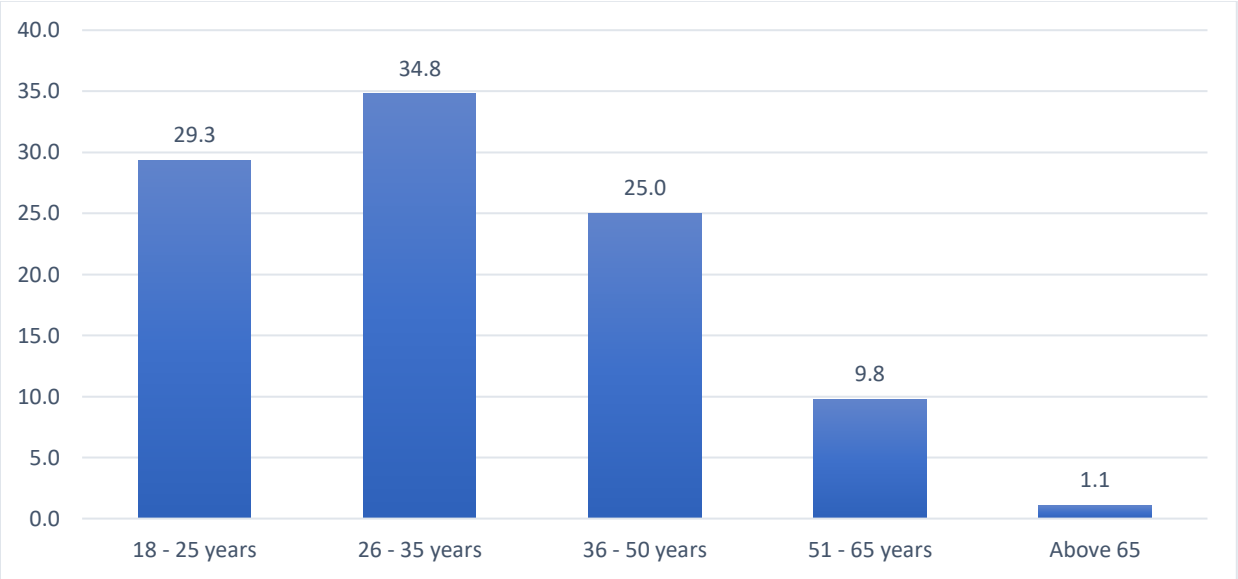
Figure 5-2: Gender Distribution of Respondents



Source: Field Survey, 2021

This correlates to the existing population and demographic trends dynamics in most urban areas.

Figure 5-3: Age Distribution of Respondents

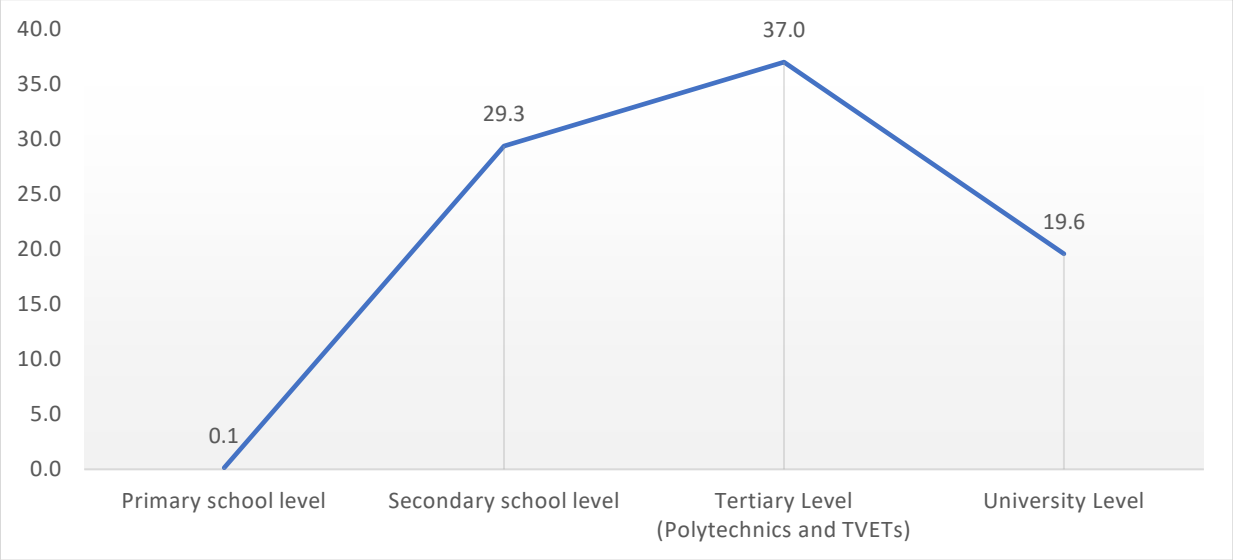


Source: Field Survey, 2021

Regarding household characteristics, 56% of the respondents were the head of their respective households, indicating there are more female-headed households in Ruai. The average household size in the study area is 4 persons, slightly higher than the national average (3.9) as well as the average for Nairobi City County (3). This portrays Ruai as a centre spurred by both population influx and natural growth.

In relation to social development, Ruai is also characterised by a literate population, with majority of the residents having pursued and attained diplomas or degrees from higher learning institutions. From the sampled population, majority of the respondents (56.6%), had either been through polytechnics/TVETs or universities, 29.3% had attained secondary school level education, and only 0.1% had only attained primary school level education, as shown by figure 5.3 below.

Figure 5-4: Education Level of Respondents



Source: Field Survey, 2021

5.3 Objective 1: Factors Leading to Development of Ruai as a Suburb

5.3.1 Economy

Findings established economic reasons as one of the key factors for growth of Ruai as a suburb. Economic reasons are manifested both as push and pull factors in Ruai. A high number of respondents (38%) share that they moved to Ruai in search of better economic opportunities, as well as work relocation. Within Nairobi, this has been evident through relocation of industries and enterprises away from the city, into suburbs. Several factors have contributed to big and established enterprises' relocation from the Nairobi city centre. These include influx of informality, congestion and dilapidated infrastructure and services within the city. As well as lack of requisite amenities that support enterprises. Thus, the movement into suburbs, which have continued to enjoy infrastructure investments, presents an attractive alternative by firms and industries from the congested CBD (Muiruri, 2017).

This was corroborated by the city physical planner. He noted that migration of city residents into Ruai in search for better economic opportunities, coincides with the relocation of many firms and enterprises to Mombasa Road, Athi River and Eastern Bypass regions. Areas easily accessible from Ruai. Accessibility is further facilitated by increasing investment in road infrastructure around Ruai.

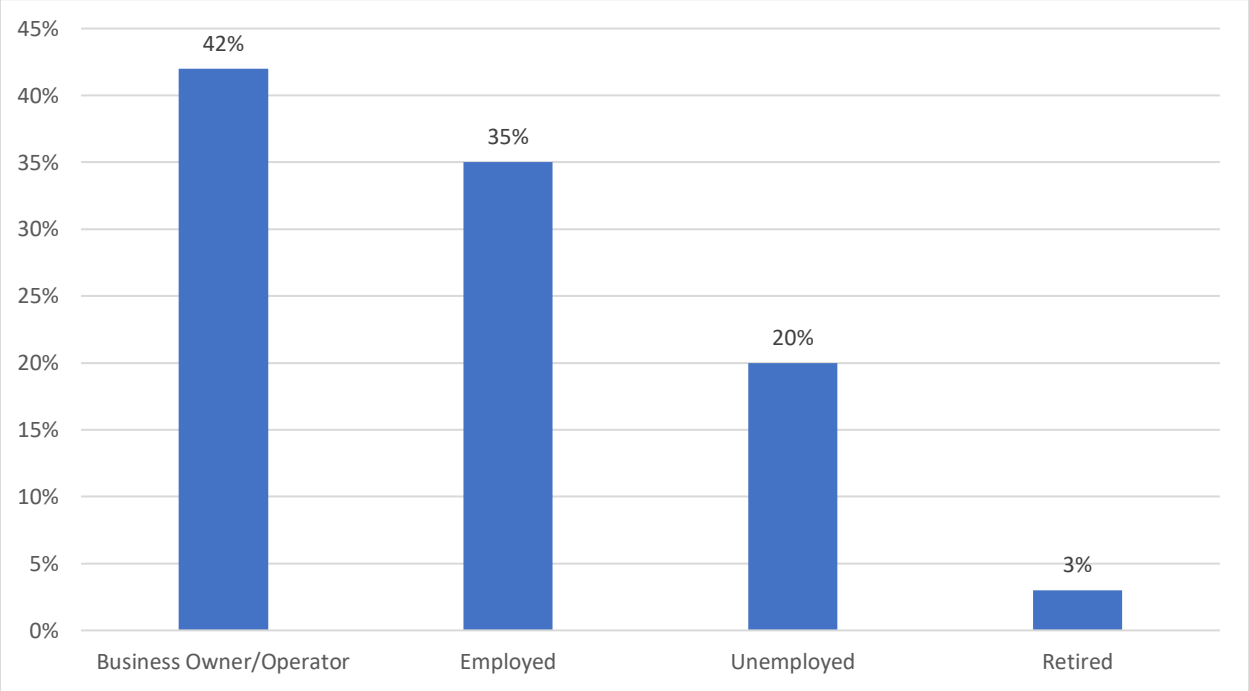
Further, (Mieszkowski & Mills, 1993) indicates that economic decentralization of firms follows movement of the population to the suburbs where both labour and land are relatively more affordable.

For Ruai, the availability of better economic conditions, presents economic pull factors for the growth of the suburb.

About 23% of the respondents shared that they moved to Ruai due to the town's attractiveness for business establishment and increasing job opportunities. Such opportunities include construction, carpentry, transportation, and supply of labour to industries along Mombasa Road and the Eastern Bypass.

The economic characterization of the residents in Ruai shows a diverse economic background including both formal and informal economy. As well as employment and entrepreneurship. Majority of the sampled respondents (77%) are engaged in work or income earning activities, either as business owners (42%), or as employees (35%). About 20% are unemployed and 3% retirees, as shown in figure 5.4 below. Formal and informal employment have almost equal representations in Ruai, at 52% and 48% respectively.

Figure 5-5: Employment Trends in Ruai



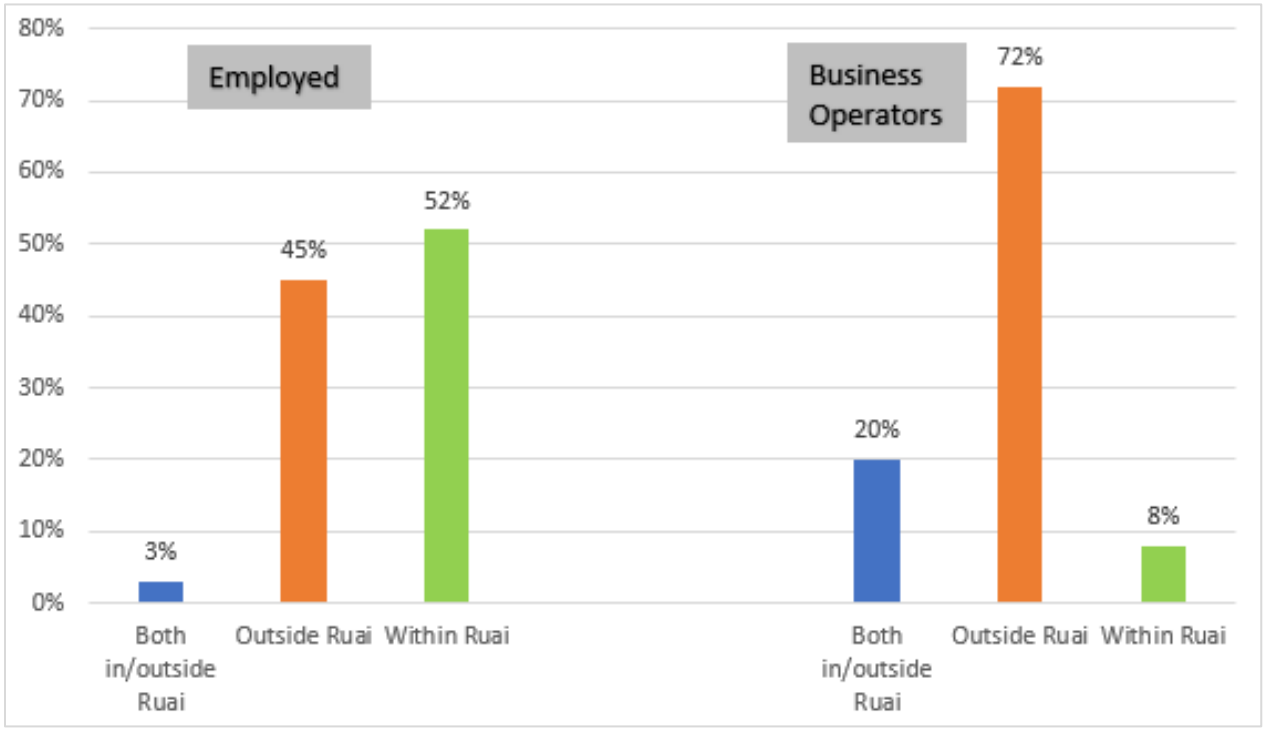
Source: Field Survey, 2021

Notably, majority of the working population in Ruai (both employed and business owners) work or operate exclusively within Ruai, as shown in figure 5.5 below.

About 52% of those who are employed work exclusively within Ruai town. The 45% who work outside Ruai work in areas within Nairobi, including the CBD, Juja Road, Muthaiga, Kayole, Eastleigh and Eastern Bypass.

On the other hand, 72% of the business operators operate within Ruai. While 20% operate in Nairobi CBD, Pipeline, Kamulu, among other areas within the city.

Figure 5-6: Employment Areas in Ruai



Source: Field Survey, 2021

One of the key reasons for preference to live in Ruai, despite working outside the suburb, is lower cost of living. Additionally, availability of better and increasing economic and investment opportunities in Ruai.

Further, results from the field survey indicate an average monthly income by the employed

population in Ruai as Kshs. 76,181.82.

Conversely, the average annual revenue for business operators in Ruai is Kshs. 431,950.00.

This emphasizes the growing character of Ruai as an attractive self-sufficient economic suburb. Especially for the lower middle income.

5.3.2 Land and Property

Land and property also emerge as push and pull factor for development of Ruai as a suburb.

As a push factor, the inaccessibility of land and property in Nairobi city core and other areas has contributed to the migration of most city residents to the suburbs. About 25% of the residents shared that they migrated to Ruai due to the unaffordability of land and property in their previous areas. (HassConsult, 2021) confirms land prices within Nairobi centre remain high.

This relative unaffordability corresponds with 6% of Ruai residents, who, in addition to seeking accessible land and property, shared that high costs of living pushed them into Ruai. (Njuguna, 2013) highlights that city development has a direct impact on price, (not supply), of housing. City density leads to increase in housing prices coinciding with declining population, as people move into more affordable suburbs.

Price of basic necessities such as food, housing, clothing and domestic supplies in Nairobi have increased consistently between 2015 – 2019. This has seen a rise in smaller houses as city dwellers look to cut costs (Theuri, 2021).

As a pull factor, the availability of relatively affordable and bigger parcels of land has made Ruai attractive, leading to an increase in population and enterprises relocating to the area.

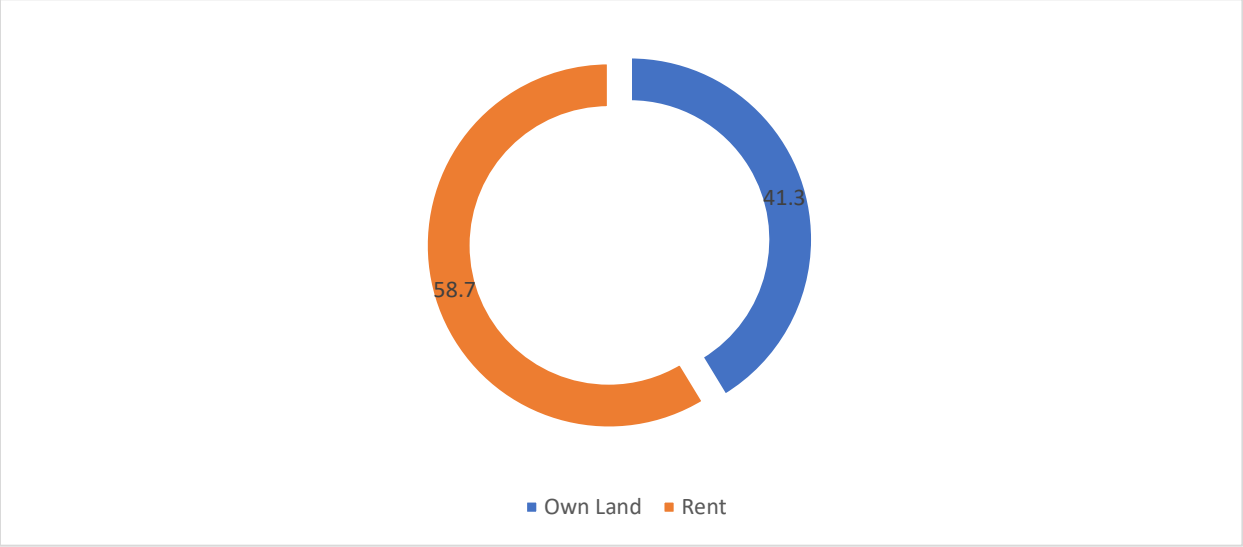
Findings established that the biggest factor influencing migration into Ruai is the availability of accessible land and properties. Notably, 27% of the respondents opined that they settled into Ruai

due to availability of affordable land. This was further corroborated by a physical planner at Nairobi City County who shared that land prices in Ruai and adjacent areas along Kangundo road, are much cheaper. This is in contrast to areas within the same distance around the city's metropolitan region, such as Kitengela, Rongai, Kiserian and Juja. A key informant from Mkono Poa Housing Cooperative Society, a land buying and selling company situated in Ruai, stated that land buying in Ruai intensified within the last decade. This is due to the availability of big portions of land in Ruai (the least being 50ft by 100 ft or $1/8^{th}$ Acre), as opposed to any other area within Nairobi and its environs, most of which have been subdivided beyond $1/8^{th}$ acre.

Results from the field survey show the share of those who own land in Ruai to be 41.3% (see figure 5.6 below), while 58.7% of residents rent. The share of those who own land in Ruai is much higher than the national average for urban areas. According to CAHF (2019), about 30% of the households living in urban areas own the land and houses which they reside in, while 70% rent.

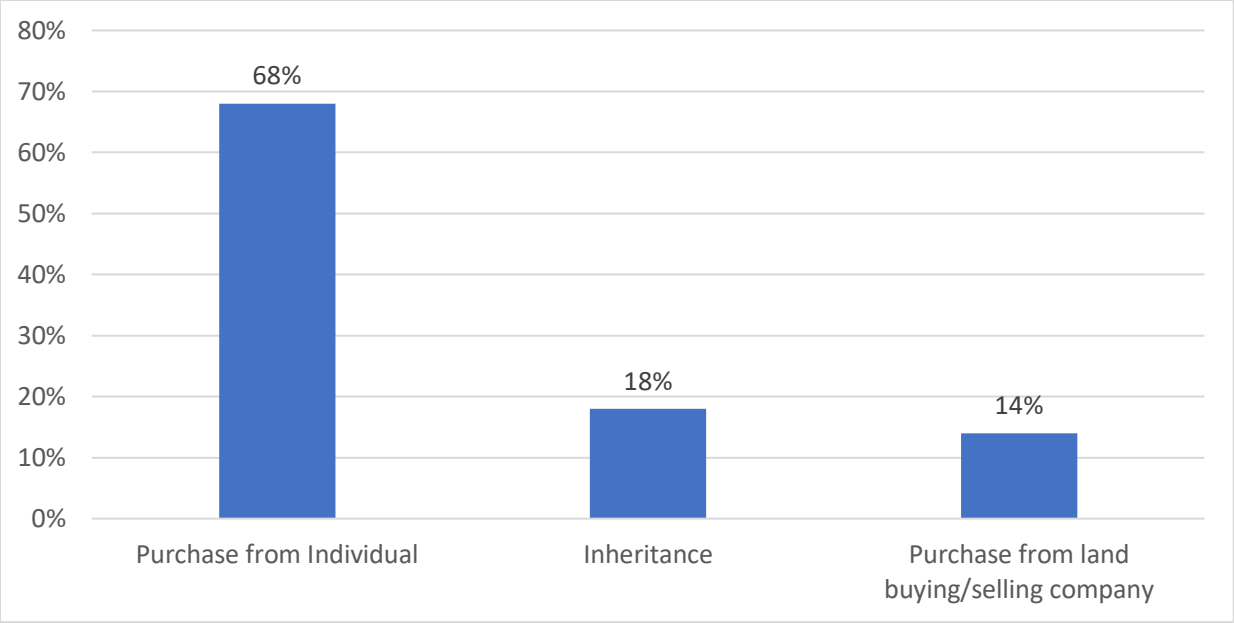
The main mode of land acquisition is purchase from either individuals (68%), or land buying companies (14%), as shown by figure 5.7 below. Further, majority of those who own land have between 0.125 – 1 acre, with the average land holding sizes in Ruai being 0.8 acres, as shown by table 5.1 below.

Figure 5-7: Land Ownership Vs Renting in Ruai



Source: Field Survey, 2021

Figure 5-8: Modes of Land Acquisition in Ruai



Source: Field Survey, 2021

Table 5-1: Land Ownership and Size in Ruai

	If own, what is the current size of land that you own? (in acres)								Total
		0.125	**0.25**	**0.5**	**0.75**	**1**	**1.25**	**1.5**	
Land Owners	0	14	7	9	1	5	1	1	38
Renting	54	0	0	0	0	0	0	0	54
Total	54	14	7	9	1	5	1	1	92

Source: Field Survey, 2021

Notably, key informants from Mkono Poa Cooperative Society stated that the share of land ownership in Ruai has been on the rise over the last decade. They project that the trend is likely to continue, and stretch from Ruai to the adjacent neighbourhoods such as Kamulu and Joska.

Key informants, including, a land surveyor operating in Ruai and Mkono Poa Cooperative Society, shared that current land prices in Ruai range from Kshs. 2-3 million, for $1/8^{th}$ of an acre, depending on the location of land. Parcels along or near Kangundo road fetch higher prices than those in the interior. This price range is relatively lower when compared to other suburbs such as Athi River, Kitengela, Rongai or Kiserian, where it is more difficult to find land beyond 40 ft by 80 ft. Further, the land is quite accessible, with availability of large parcels of land attracting/influencing acquisition.

Regarding property, relative affordability of housing features prominently as a both a push and pull factor for suburbanization in Ruai. About 18% of the respondents shared that they moved to Ruai due to its relative affordability, in terms of housing costs and other basic needs, as opposed to other areas within the city and regions. This has been established by various research government agencies and research institutions. CAHF (2019) argues that Nairobi has faced a perennial challenge of inadequate affordable housing, with the demand for affordable housing

within the city outstripping supply.

Findings established that the average rent paid by residents of Ruai for a one-bedroom unit flat is Kshs 7,411. This is relatively low compared to other suburbs in the city, as well as neighbourhoods in close proximity to the city such as Donholm, Umoja and Embakasi. The Cytonn Annual Real Estate Market Review report 2020 shows that the average rent price per square foot in Eastlands and along Mombasa Road to be Kshs 137 and 140 respectively, while the suburbs along Ngong', Kiambu and Thika Roads fetch an average of Kshs 178, 176 and 158 per square foot.

5.3.3 Family and Social Ties

Human beings are inherently social, with strong sense of cultural values. Family and social ties were evidenced by findings to be a key factor for suburbanization in Ruai, with 19% of the respondents indicating family related factors, as reasons for moving from their previous residences, and into Ruai. These include marriage, moving in with family members, or the need to be close to extended family.

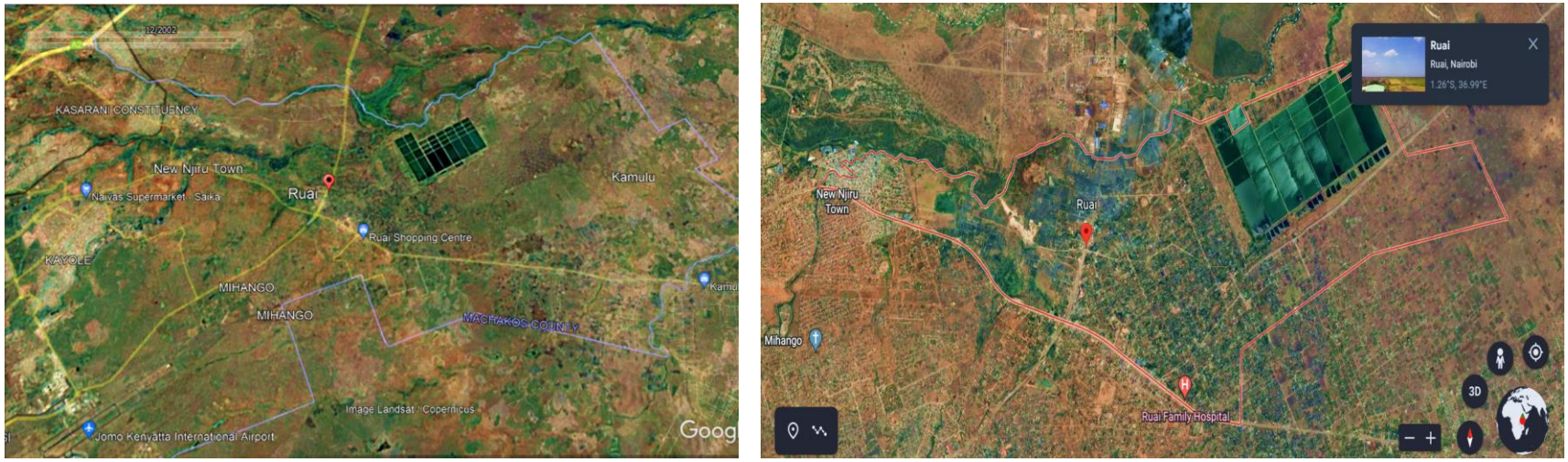
(White & Guest, 2003) support this by asserting that urbanization within the city results in densification of city neighbourhoods, which disrupt existing social and cultural ties, including kin and non-kin ties.

Similarly, while studying the social dynamics of suburbanization, (Reckien & Luedeke, 2014) argue that social repulsion and attraction dynamics within cities lead to a situation of fluctuating residential in-migration and out-migration and to waves of suburbanization. Therefore, the need to reconnect with kin, and maintenance of social ties influences the choice of out-migration from cities and in-migration into suburbs.

5.3.4 Population Growth

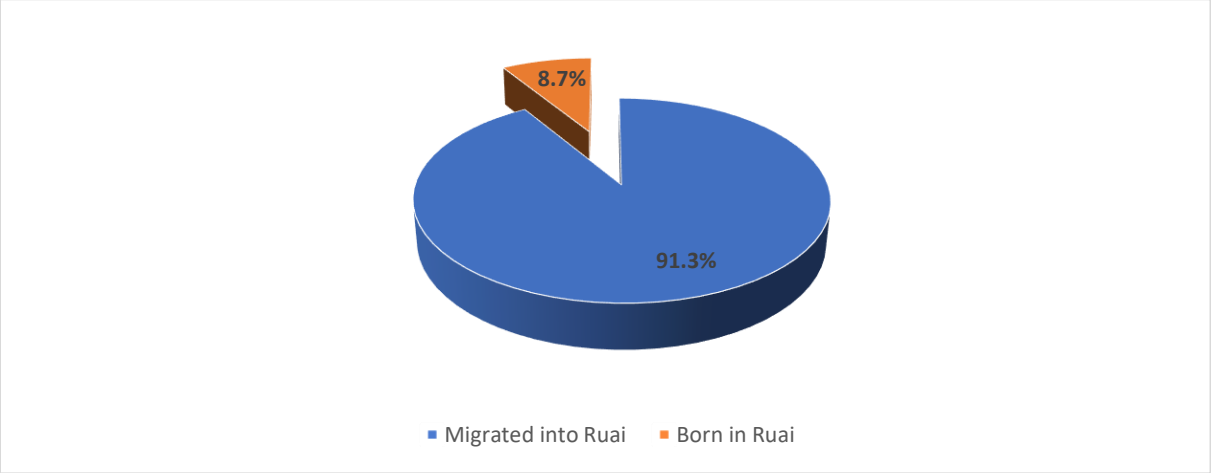
Population influx is one of the key factors for growth of Ruai as a suburb. From field survey, it was established that the population of Ruai is dominated by those who migrated to Ruai, as opposed to those who were born and raised in the area. The field survey further showed the average years of residency in Ruai to be 4.5 years, highlighting that Ruai is characterised by recent in-migrations.

Map 12: Evolution of Ruai's Density from 10 Years Ago to Now



Source: Google Earth, 27th June 2022

Figure 5-9: Population Composition of Ruai

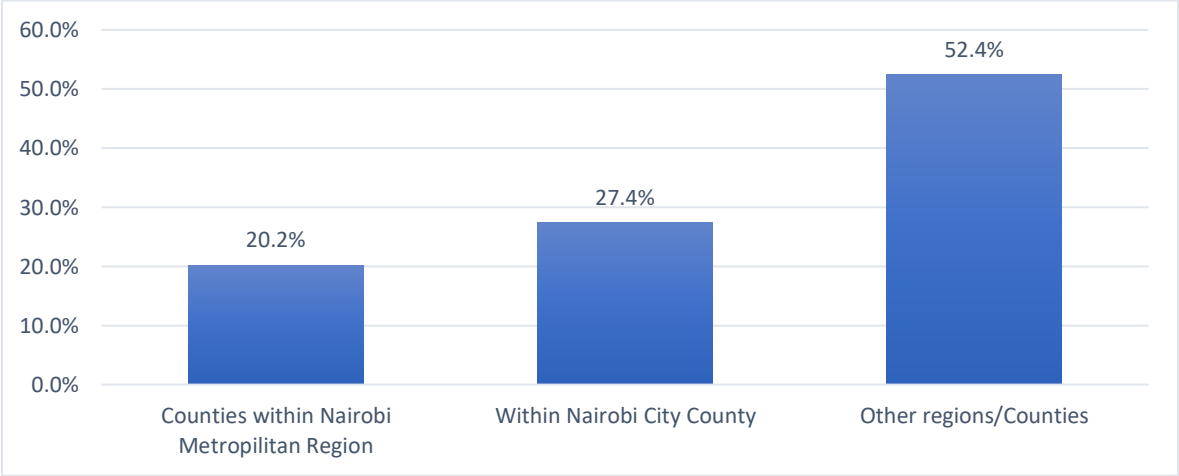


Source: Field Survey, 2021

The field survey further established the existence of various push and pull factors, which influence the high-rate of in-migration that has characterised the growth of Ruai.

Notably, Ruai receives population from all regions across the country, with majority of the migrations being form other regions (52.4%) other than Nairobi City County (27.4%), or counties within the Nairobi Metropolitan Region (20.2%), i.e., Kiambu, Kajiado and Machakos counties, as shown by figure 5.9 below.

Figure 5-10: Migration Patterns and Trends



Source: Field Survey, 2021

Thus, Ruai has developed into a cosmopolitan suburb, with diverse socio-cultural and socio-economic characterization in the suburb. (Soja, 2013) argues in favour of these findings stating that modern metropolises are evolving and adapting into polycentric centres. This is increasingly dominated by the evolving nature of suburbs which are increasingly urbanizing. With this development, the periphery of cities is increasingly characterized by cultural, social and economic diversity. This mimics heterogeneity typically associated with city cores. Therefore, Ruai can be seen to be evolving into its own city core which may eventually replicate the functions of Nairobi city core.

5.3.5 Infrastructure and Amenities

Provision of infrastructure and amenities is an overarching factor that has contributed to development of Ruai as a suburb. The development of suburbs as a result of infrastructural developments is evident even in the Global South. (K. Murat Güney, 2019) characterize suburbanization in Latin America as rapid increasing urbanization owing to improved transport and infrastructure provision, guaranteeing all developments as peripheral through suburban developments.

This is in alignment with key informant feedback indicating that infrastructure and services are facilitating factors for development of suburbs. With government investments in infrastructure attracting residential, industrial and commercial developments. The Nairobi County Physical Planner shared that service provision influences connectivity to strategic areas and nodes of economic or administrative importance.

Ruai has seen a number of infrastructural investments including strategic arterial and connector roads. Some of these networks include dualling of Kangundo Road, establishment of the Eastern By-Pass that links to Kangundo Road, Outer Ring Road, Thika Road and Mombasa Road A104.

The Machakos County Government has also constructed new roads from Daystar University to Kangundo road through Mua Hills, Mlolongo interchange to Kangundo road and Kenya Meat Commission to Joska which neighbours Ruai.

As a key pull factor, the availability and provision of infrastructure and amenities has influenced both in-migration into Ruai as well as choice of neighbourhood within Ruai. Proximity to the city as well as work and schools due to improved connectivity influenced about 13% of the residents to settle in Ruai. This is mainly due to the strategic location of Ruai at the intersection of the above-mentioned networks. And the ease of accessibility to strategic economic nodes such the CBD, Mombasa Road and Jomo Kenyatta International Airport. This was reflected by 9% of the respondents, who shared that good roads and accessibility influenced their choice for settling in Ruai.

With regard to amenities and services, about 5% of the residents cited availability of amenities and services such as adequate water supply and good security as factors that influenced their migration into Ruai.

Further, the presence of the Dandora Estate Waste Water Treatment Plant in Ruai. The plant is located along Kangundo road in the heart of Ruai. The plant occupies approximately 4,000 acres. It treats both domestic and industrial waste of about 120,0000m^3/day. This is equivalent to 80% of wastewater generated from Nairobi city. (Keil, 2017) outlines that there are infrastructural arrangements established between the city and the suburb. Given the context of Nairobi and Ruai, and the unplanned nature of the establishment and growth of the suburb, this could be categorized as an unconscious agreement. An example of this is the planning and locating of Nairobi's sewerage treatment function 26 km outside the city, in Ruai. With the plant performing below its design capacity, which is 160,000 m^3, Ruai could potentially benefit from the close proximity of

the facility.

5.3.6 Physical and Socio-Economic Blight in City

Physical and social blight is a manifestation of various factors for suburbanization. This includes economic factors, land and property, infrastructure and amenities as well as environmental factors. The physical and socio-economic blight of Nairobi city is manifested by push factors that drive city residents into Ruai. As seen in previous sections, these include the city's degraded infrastructural services and amenities, inadequate economic opportunities and the shift by established firms and industries into suburban areas. Further, high land and housing rates and the inadequate supply of affordable housing, as well as poor living environment are contributing factors.

In Ruai, about 4% of the respondents shared that the need for a better and more ambient living environment and scenery pushed them from their previous residential areas and into Ruai. While 9% of the residents shared that good/ambient living environment influenced their selection for settling in particular neighbourhoods within Ruai.

5.4 Objective 2: Challenges Resulting from Suburbanization in Ruai

5.4.1 Urban Spatial Challenges

5.4.1.1 Disjointed Urban Character and Uncontrolled Development

Population influx dynamics are evident in Ruai. These have manifested as various urban spatial challenges. Observation of the development character of the town depicts this, which is largely influenced by infrastructure provision.

The front façade of the town is structured by a stretch of informal/undesignated market stalls on the Kangundo road reserve (photo 5.1 below). This portrays an eyesore character, made further complex and haphazard by inefficient provision of services such solid waste management.

Photo 5.5: Undesignated Market Stalls on Road Reserve Fronting the Town

Source: Author, 2021

Source: Author, 2021

The secondary frontage of the town, along the occupied road reserve, is characterized by mixed use developments and tenements. These are mostly beacon to beacon commercial-cum-residential tenements, deprived of adequate lighting and circulation.

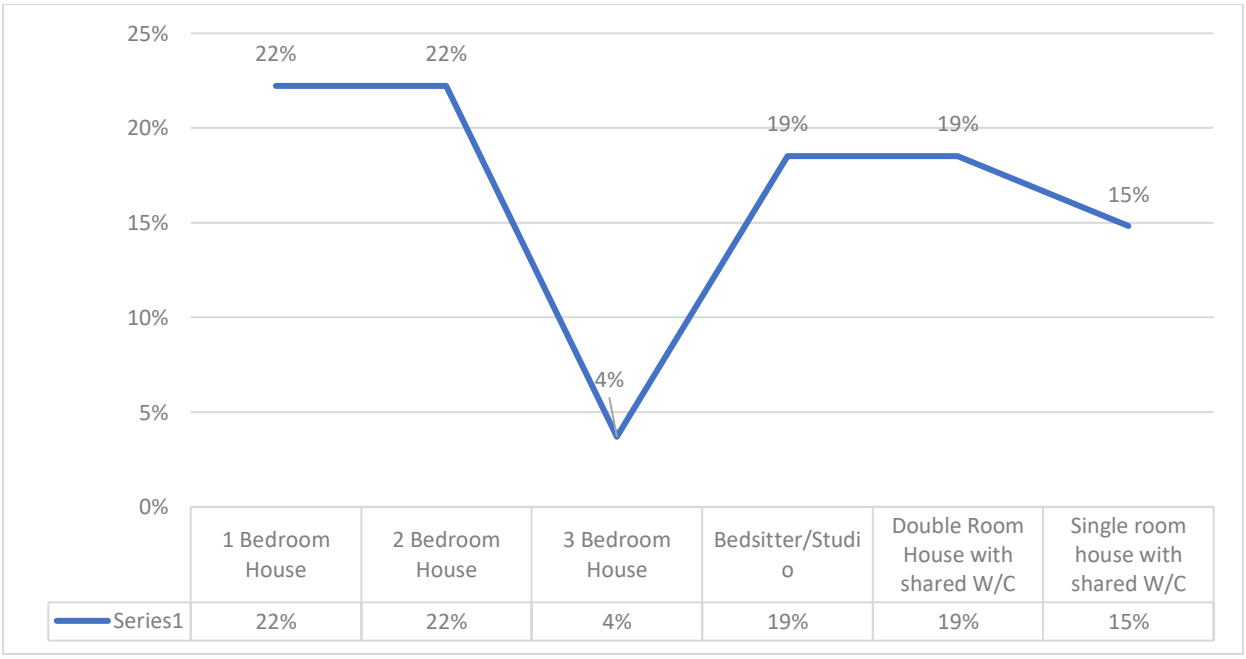
Photo 5.6: Beacon to Beacon Mixed Developments Fronting Ruai

Source: Author, 2021

Source: Author, 2021

The rise of tenements is reflected in the field survey data, with 34% of the households living in single and double room tenements with shared washroom and toilet facilities, 22% living in one bedroom and 2-bedroom flats and 19% living in bedsitters/studio apartments.

Figure 5-11: Types of Housing in Ruai



Source: Field Survey, 2021

The Ruai shopping Centre is also characterised by congested and uncoordinated agglomeration of human activities, which curtail ease of movement and access by pedestrians and motorists.

Further into the interior, uncontrolled developments are also manifested, with ongoing construction of apartments and tenements without approval from city authorities. As a result, many developments have failed to observe the building lines, with many developers falling victim to their developments being earmarked for demolition by various state and county agencies.

Photo 5.7: Development Site in Ruai Closed Down by the National Construction Authority

Source: Author, 2021

5.4.1.2 Land Fragmentation

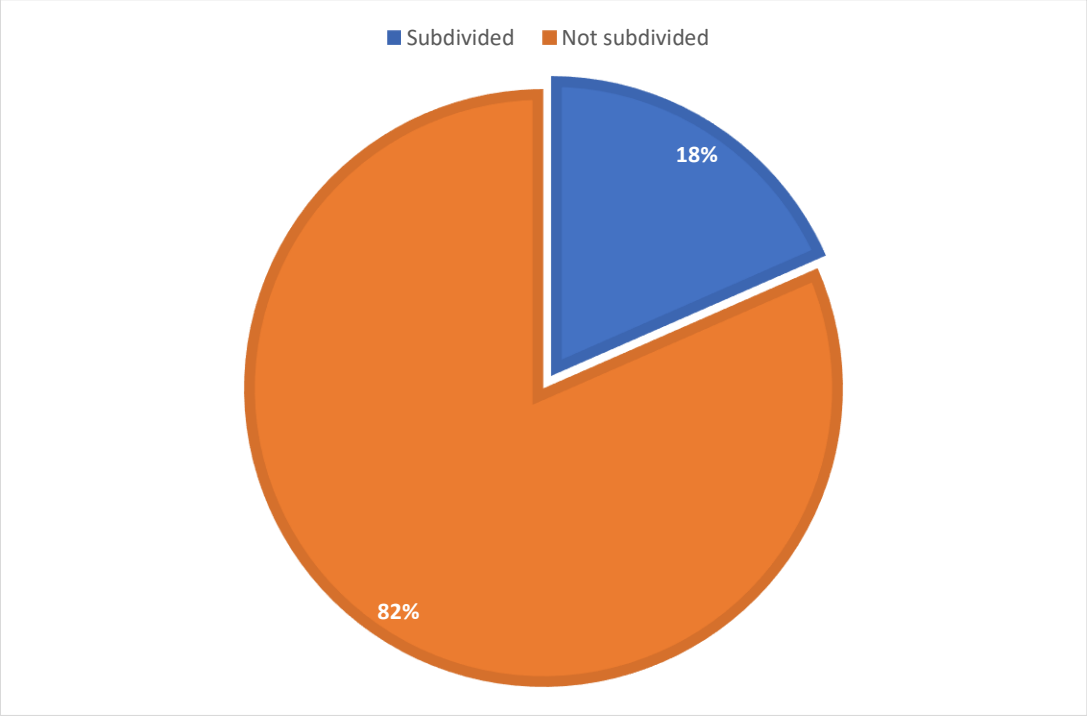
The 2004 Nairobi City Development Ordinance had outlined the potential of Ruai as a residential area, and warned concerning invasion by land buying companies and speculators. This has played out in Ruai over the last decade, with increase in demand for land in Ruai. According to a Key informant at the Mkono Poa Housing Corporation, the demand for land in Ruai is far exceeding supply, with current supply limited to a few parcels that are held speculatively, by few individuals and land buying companies. As a result, there has been a rise in land subdivision in Ruai, from the conventional 1/8th acre that has characterised Ruai, to as low as 30ft by 60ft parcels.

Photo 5.8: Land Selling Advertisement in Ruai

Source: Author, 2021

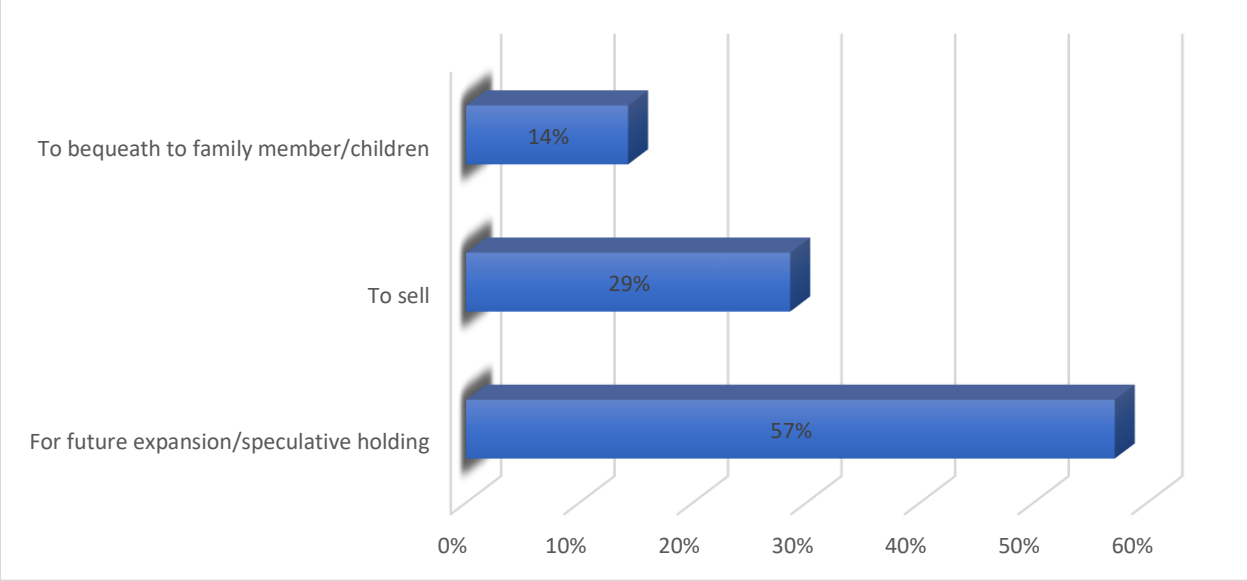
Notably, this projected increase in land subdivisions is indicated in responses from respondents during the field survey. Majority are subdividing for speculative holding (57%), future expansion, for selling and for inheritance purposes, as shown by figure and 5.12.

Figure 5-12: Prevalence of Land Subdivision in Ruai



Source: Author, 2021

Figure 5-13: Reasons for Land Subdivision in Ruai



Source: Author, 2021

Notably, according to a key informant at the Nairobi City County Planning Department, much of these subdivisions are illegal, with developers not following the due legal and procedural

processes, taking advantage of the development guidelines and control loopholes.

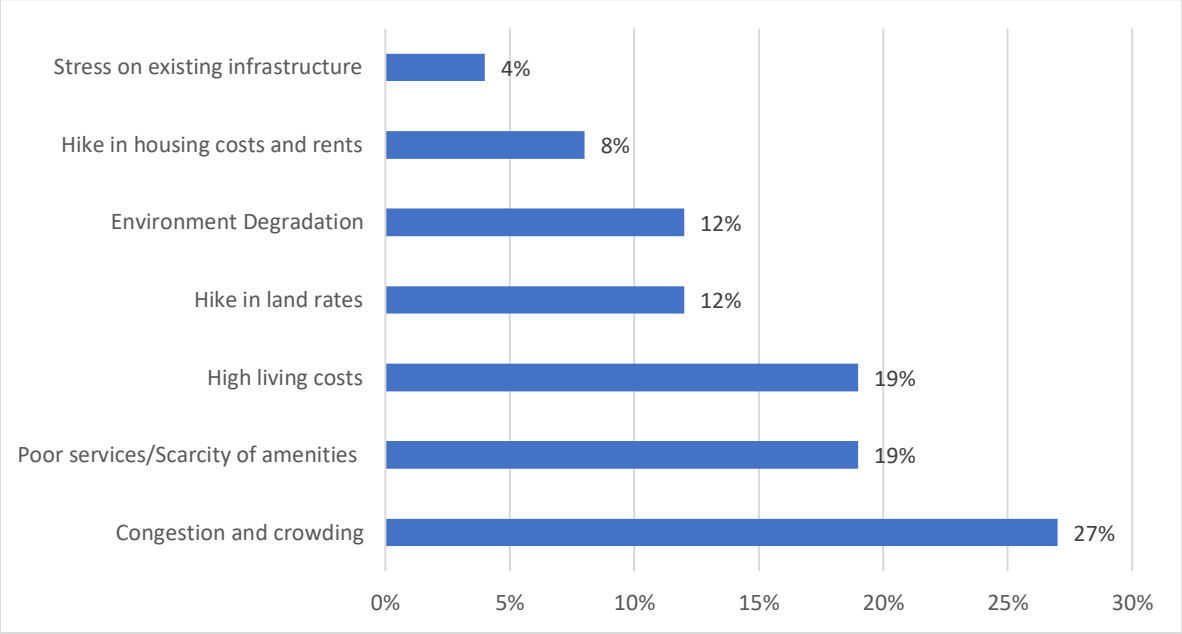
5.4.1.3 Stress on Land, Infrastructure, Services and Amenities

These are manifested by traffic congestion that is now characteristic of Kangundo and Eastern Bypass roads, inadequate provision of drainage and waste management facilities and indiscriminate waste dumping within residential and commercial zones.

As shown by figure 5.13 below, 8% of the population opine that the influx of people into Ruai has resulted in congestion and overcrowding, including traffic congestion and in housing developments, while 4% point to stresses on existing infrastructure such as drainage and sewerage, as well as roads. Notably, despite the Nairobi Sewage Treatment Works being located in Ruai, only 45% of the households are connected to the municipal sewerage system. According to a key informant at the treatment plant, this is attributed to both geographic difficulties of some residential zones in Ruai, as well as the unprecedented influx of people and developments, which have preceded provision of key services such as sewerage.

About 19% of the population suggest that suburbanization in Ruai has led to inadequate and poor municipal service provision. Such as waste management, rationing and scarcity of basic services and amenities such as water.

Figure 5-14: Suburbanization Challenges in Ruai



Source: Author, 2021

Photo 5.9: Clogged Open Drain in Ruai

Source: Author, 2021

5.4.2 Environmental Challenges

Environmental challenges are mainly manifested by increased waste generation and poor/inadequate waste management within Ruai, and increased pollution by vehicles due to traffic congestion. Notably, as shown by Figure 5.13 above, about 12% of the population in Ruai opine that suburbanization has resulted into environmental degradation in the area.

Photo 5.10: Residential Road in Ruai without Storm Water Drainage Facilities

Source: Author, 2021

Photo 5.11: Indiscriminate Dumping of Waste in a Residential Neighbourhood in Ruai

Source: Author, 2021

5.5 Objective 3: Mitigation Measures for the Suburbanization Challenges

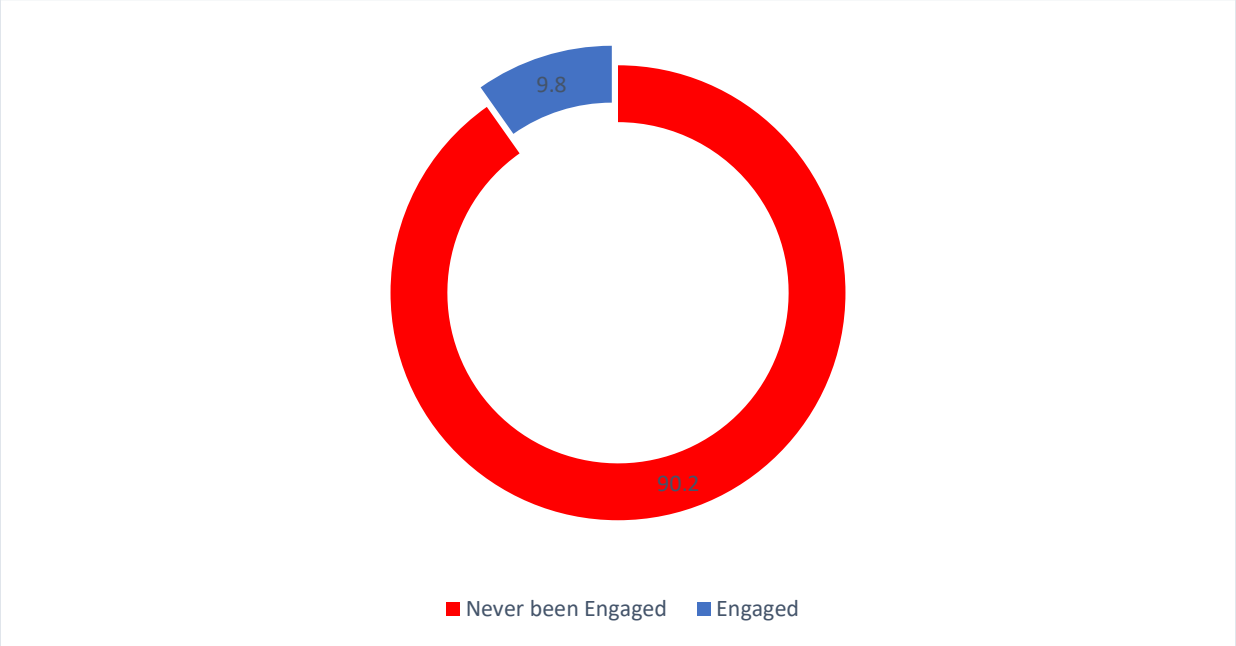
5.5.1 Self-Organization and Active Roles for Residents and Neighbourhood Associations

Majority of the residents (92.4%), stress the fact that little is done to address the spatial, environmental and social issues arising from suburbanization in Ruai. However, they also shared that while they expect city and civic leadership to address these, some of the responsibilities of dealing with challenges have been taken up by the local community, with some residents pooling resources for their respective neighbourhood associations to provide some redress.

Notably, 79% of the residents in Ruai do not have a residents' association or group of any kind. However, the 21% of those in neighbourhood associations indicate that these have been effective in addressing some neighbourhood challenges, including mobilization for security, amenities and infrastructure provision, as well as sustainable waste management in their respective neighbourhoods.

(Newman, et al., 2004) asserts that active citizen roles in development and self- organization of different social networks and groups have positive impacts that include the transformation of urban space. However, this requires deliberate efforts to develop systems for community engagement and involvement in development of their areas and suburbs. Notably, only 9.8% of the residents in Ruai have been engaged in community participation initiatives, as shown by figure 5.15 below. These engagement initiatives have mainly included Kazi kwa Vijana, an economic empowerment programme that champions for cleaning of neighbourhoods. However, there is no evidence of concrete engagement of the residents or associations concerning a development agenda for Ruai.

Figure 5-15: Engagement in Community Initiatives



Source: Author, 2021

5.5.2 Inclusion in City Planning and Management Frameworks

The study reveals a distinct level of disassociation between suburbs and city management and planning. This is evidenced by two distinct factors:

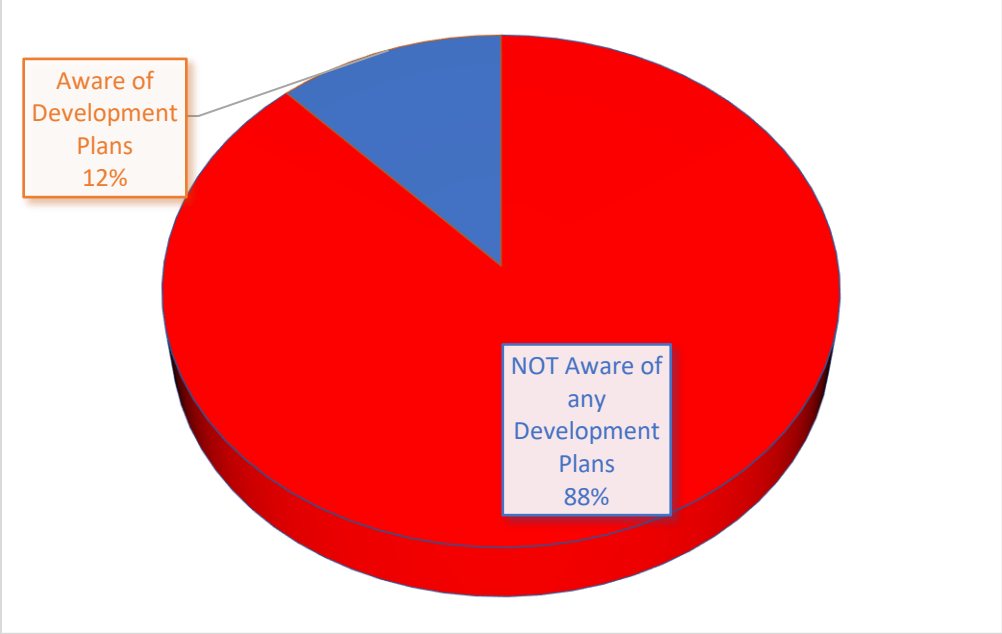
First, the inadequate presence of city management or planning personnel in Ruai. While the city has decentralized planning and related development control offices to the sub-county level, these offices are located at Kasarani, which is quite far from Ruai. As noted by a key informant from Mkono Poa Cooperative Society, despite having a sub-county planner, most of the land and planning related transactions, such as approvals for subdivisions and change of users, are sought from City Hall located within Nairobi's main CBD.

Effective decentralization of planning functions requires structural adjustments to city governance and management, that include adequate personnel and structures for planning, development control and enforcement. According to the key informant at the Nairobi City County Planning Department,

there is need for providing checks and balances to uncontrolled developments in the city, through decentralization of human resource in the planning department to ward level. This would provide effective monitoring of development on the ground. Further, there is need for updating of the planning guidelines and standards, under the framework of NIUPLAN, as the existing guidelines are outdated and disjointed from current dynamics and realities.

Secondly, there is inadequate awareness by residents in Ruai on development plans and strategies pertaining to Ruai. Findings show only 12% of the residents are aware of development plans and strategies.

Figure 5-16: Residents Awareness of Development Plans



Source: Author, 2021

Thus, the current challenges manifested in Ruai may be linked to the low levels of awareness on plans, strategies, standards and development guidelines by the residents and developers in Ruai. Therefore, incorporating awareness into citizen engagement mechanisms becomes imperative.

5.5.3 Self-Governance

The initiative to self-govern includes active citizen engagement and non-governmental agencies in leading decision as relate to development. Increased emphasis falls on citizens taking responsibility for initiating, resourcing and participating in projects, service provision, security, social advancement, elevation of local areas, illustratively, within a ward, suburb, neighbourhood and even a city. Self-governance conceptually takes on the form of bottom-up development as outlined by (Miazzo & Kee, 2014); tactical urbanism (Lydon & Garcia, 2015) and grassroot initiatives (Newman, et al., 2004) in the case of Ruai, a suburb, despite the failings of legislative and policy frameworks, as well as enforcement of development control, a case is made for a thriving establishment driven in large by residents. Within a framework of self-governance, Ruai and similar suburbs can benefit from establishing their own governance structures motivated by an intention to establish an economically and socially robust suburb. With support from existing governance structures, this growing suburb can expand its initial organic reason for establishment which has continued to be facilitated by increasing investment, in-migration and resourcing.

CHAPTER SIX: SYNTHESIS OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

6.1 Overview

This section highlights the key emerging issues presented as a synthesis of the findings, the study conclusions and recommendations. Recommendations are based on literature, best practices and suggestions from strategic stakeholders as well as residents of the study area.

The objective of this study was to evaluate the causes and challenges of suburbanization, with a focus on Ruai. Specifically, this entailed the evaluation of:

i. The factors leading to the development of Suburban areas
ii. The challenges emerging as a result of suburbanization
iii. And finally, determination of mitigation measures for the challenges that emerges with the development of suburban areas.

The conceptual framework for this study outlined the independent variables triggering suburbanization as population increase, infrastructural development, economic decentralization and increasing incomes, affordable land and property, blight of the city core and a need for better quality of life. Dependent variables were outlined as challenges resulting from suburbanization and mitigation measures for the same. Challenges were categorized as urban spatial challenges, environmental and social challenges. The study provided that these could be mitigated through use of integrated urban management approaches, community and stakeholder participation approaches and 3-D City Modelling. This would in turn lead to a sustainable process of development.

6.2 Summary and Synthesis of Findings

Key findings can be categorised into four sections:

6.2.1 Objective 1: Factors Leading to Development of Ruai as a Suburb

6.2.1.1 Character and Influence of Ruai as a Suburb

The findings outline key socio-economic, demographic and spatial character of Ruai. The findings show both an organic and inorganic development of Ruai. Historically, it is evident that the initial objective of Embakasi Ranching Company was to resettle the landless community of the city, albeit in a coordinated and planned neighbourhood, with adequate land and services. However, recent manifestations point to a shift from the initial objectives, with inorganic growth that is not informed by any processes or form, but rather market forces and demand for land and housing. This is further supported by the population structure and composition, with the majority of the current population comprising of migrants as opposed to those born and raised in Ruai.

Demographically, Ruai displays a growing youthful population, which shows the role and influence of the town as a dormitory for Nairobi city's labour force. With majority of the population having attained tertiary level education, there is a strong potential for development of formal economic structures in Ruai, including formal commercial and industrial enterprises, for self-sustainability of the suburb. Further, findings show that most of the households in Ruai are female-headed, and this presents a need for development and maintenance of gender-sensitive and children friendly services and amenities.

6.2.1.2 The Nairobi City – Ruai Nexus

In addition to Ruai's character as a dormitory for the city's human resource, findings show an intricate relationship between the two, based on the push-pull factors. Key factors that have contributed to suburbanization in Ruai point to manifestation of social, economic and spatial blight

of Nairobi city's core areas. And therefore, the attractiveness of Ruai as an alternative with availability of larger tracts of land, better economic opportunities and low cost of housing, amenities and services.

Notably, the findings show the unaffordability of the city's core areas, where the cost of living, including housing costs and basic services are high and unaffordable for majority of the city residents. Further, the rising rates of urbanization have taken a toll on the city, with accessibility to services and amenities such as water and schools driving the city dwellers into Ruai and other similar suburbs.

The search for self-actualization also proves difficult in the core city for much of the city dwellers, thus Ruai presents a much affordable alternative, with the land and property prices as well as costs of development of housing being relatively affordable. Economically, findings show that Ruai presents a better alternative for better economic opportunities for the city residents, with both formal and informal enterprises contributing to the drive of the city populace into the town.

6.2.2 Objective 2: Challenges Resulting from Suburbanization in Ruai

6.2.2.1 Gaps and Role of Urban Management in Ruai

Currently, the spatial character of Ruai is disjointed due to inadequate enforcement of urban development and management policies to guide the spatial development. The current rise and growth of tenements in Ruai is reminiscent of those in other failed suburbs such as Githurai and Pipeline, which have grown as a resulting of inadequate enforcement of planning and urban management regulations and principles.

The devolution of planning functions to counties and subsequent devolution of planning offices to the sub-county level has failed to benefit suburbs growing organically at the city's edge. Ruai is characterised by increased land subdivision and fragmentation and unapproved housing and

commercial developments. Further, there is a distinct gap with respect to engagement of community members in development of Ruai, as well as information and knowledge gaps pertaining to development plans, strategies and guidelines by the residents and developers in Ruai.

6.2.3 Objective 3: Mitigation Measures for the Suburbanization Challenges

6.2.3.1 Potential for Sustainable Suburb

Pull and push factors evidence continually expanding suburban expansion providing what other regions within Nairobi and the CBD itself cannot provide. Further, the demographic, spatial and socio-economic composition of Ruai present strategic opportunities and potentials for its development into a sustainable suburb.

Spatially, land sizes in Ruai are relatively bigger as compared to similar suburbs and areas within Nairobi, and this makes it easier to provide adequate services and amenities such as water, power and sanitation infrastructure and services. Further, existing and proposed infrastructural developments are likely to spur economic growth of the area, if adequately managed. With regards to location, Ruai's proximity to strategic economic hubs such as Mombasa Road and Ruiru, JKIA as well as the CBD, continues to make it favourable as a residential hub, as well as a secondary service centre.

Demographically, Ruai's dominant youthful population, coupled with existence of informal and formal enterprises in the area, presents a potential for a self-sustainable economic hub.

6.3 Conclusion

Objective 1: Factors Leading to Development of Suburban Areas

The existing and projected trends of urban growth and expansion will continually give rise to pull and push factors that drive suburbanization. The demand for increasing urban land cover, infrastructure, services and amenities and the spatial, socio-economic and environmental blight in

city cores make the shift into suburbs attractive and better alternatives. Further, public and private sector investment in suburban spatial, economic and infrastructural services have rubberstamped the growth and functions of suburbs such as Ruai.

Objective 2: Challenges Emerging as a Result of Suburbanization

However, as seen in Ruai, uncontrolled and uncoordinated growth and development of suburbs is more than likely to spur a myriad of spatial, socio-economic and environmental challenges and concerns. Like Ruai, many suburbs are characterised by haphazard, unregulated and illegal spatial developments, which are spurred by market forces and demand and supply dynamics. In the case of Ruai, its growth has given rise to unrestrained subdivision and land fragmentation, uninhibited and unapproved housing and commercial developments, encroachment of road and other amenity reserves. Notably, the growth has preceded infrastructure, service and amenities provision, with Ruai also characterised by inadequate water and sanitation services as well as unsustainable waste management practices, which contribute to environmental deterioration.

Objective 3: Mitigation Measures for Challenges Emerging from Suburbanization

However, national and county government are responsible for the framework within which land use changes occur and the urban management of the same. The greatest power for influencing policy and legislative processes to inform development and enforcement lies with these institutions. Existing gaps in management of suburbs are visible in Ruai, with private developments taking advantage of policy and enforcement loopholes as well as human resource and capacity gaps by national and county agencies.

Urbanization contributes to economic growth as proven in both Africa and Asia, with the potential to promote developmental evolution. This is however dependent on a favourable institutional setting with suitable infrastructural advancements (Turok & McGranahan, 2013).

6.4 Recommendations

The study makes the following recommendations:

1. Integration of suburbs into city-wide development plans, policies and management. Despite the city's NIUPLAN proposing the development of Ruai as a secondary node, its current development character is largely isolated and uninformed by the city's management and development policies and plans. Policy trade-offs integrating characteristics of suburban development as they are occurring plus best practice land use planning and service provision will ensure equilibrium. This will in turn facilitate a development framework modelling fringe development within the context of policy and regulation.
2. Effective decentralization of urban development and management roles and functions is imperative. Most of the urban planners and managers at the County level are oblivious of the suburban development occurring at the fringes of the City, due to capacity and resource deficiencies. In the case of Ruai, the town and its environs are served by one planner who is based in Kasarani. As such the County is incapacitated in implementing and enforcing regulations, with land developers taking advantage of the capacity and enforcement gaps.
3. Self-Governance. Within a framework of self-governance, Ruai and similar suburbs can benefit from establishing their own governance structures motivated by an intention to establish an economically and socially robust suburb. With support from existing governance structures, this growing suburb can expand its initial organic reason for establishment which has continued to be facilitated by increasing investment, in-migration and resourcing.
4. Leveraging community self-organization synergies for sustainable planning and development of suburbs.

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APPENDICES

Household Questionnaire

UNIVERSITY OF NAIROBI

CAUSES AND EFFECTS OF SUBURBANIZATION: A CASE OF RUAI

HOUSEHOLD QUESTIONNAIRE

Disclaimer: This questionnaire seeks to collect data on the causes and challenges of suburbanization with a focus on Ruai. Any information given will be treated with utmost confidentiality and shall be used for academic purposes only.

SECTION A: LOCATION AND GENERAL INFORMATION

Name of Sub-County	
Name of Ward	
Name of Location	
Date of Interview	
Respondent Name (Optional)	
Interviewer Name	

SECTION B: RESPONDENT INFORMATION AND HH CHARACTERISTICS

B.1	Gender of Respondent	1. Male 2. Female
B.2	Respondent's age	1. 18 – 30 2. 31 – 40 3. 41 – 50 4. 51 – 60 5. Above 60
B.3 A.	Are you the HH Head?	1. Yes 2. No
B.3.B	Did you make the decision to move to Ruai	1. Yes 2. No
B.4	HH Size – How many people are there in your household	Fill with numbers/integers
B.5A	Do you have any children?	1. Yes 2. No
B.5B	If yes, No. of children in HH	
B.5C	Do children school within Ruai	1. Yes 2. No
B.5D	If No, where do they go to	Name of Place/Estate/Area

	school?	
B.6	Highest Level of Education of Respondent	1. Primary Level 2. Secondary Level 3. Tertiary Level (Polytechnics and Technical Training Institutions) 4. Tertiary Level (University) 5. No formal Education

SECTION C: FACTORS FOR SUBURBANIZATION IN RUAI

C.1 A	Were you born in Ruai?	1. Yes 2. No
C.1. B	If No, from where did you migrate from?	1. Nairobi County 2. Counties within Nairobi Metropolitan Area (Specify) 3. Other regions (Specify)
C.1 C	How long have you lived in Ruai?	
C.1. D	What reasons made you migrate from where you had previously settled?	
C.1. E	If no, what attracted you to settle in Ruai?	
C.1 F	Why did you choose to live in this particular location in Ruai?	
C.1. G	If born in Ruai, what in your opinion, has attracted people to settle in Ruai?	
C.1. H	Are there any challenges with the current in-migration patterns in Ruai	1. Yes 2. No
C.1 I	If yes, what are the challenges?	
C.2. A	Do you own or rent the land on which you live?	1. Own land 2. Rent Land
C.2. B	If own, what is the current size of land that you own? (in acres)	
C.2 C	How did you acquire land?	1. Purchase from individual 2. Purchase from land buying/selling company 3. Inheritance

		4. Allocation by government 5. Others (Specify)
C.2. D	If purchased by 1 or 2 above, how much did you buy (price of land in Ksh)	
C.2 E	Do you have ownership documents?	1. Yes 2. No
C.2 F	If yes, type of ownership document	1. Title Deed 2. Allotment Letter 3. Others (Specify)
C.2. G	Have you ever sub-divided or sold your land?	1. Yes 2. No
C.2. H	If yes, what size of land did you sell, and at what price?	
C.2. I	If yes, what did you do with the money acquired from selling of land?	
C.2. J	If rent, what is the size of house that you live in?	1. Single Room House with shared W/C 2. Double – Room House with shared W/C 3. Bedsitter/Studio 4. One-Bedroom House 5. Two-Bedroom House 6. Three-Bedroom House 7. Other (Specify)
C.2. K	If rent, how much do you pay per month? (in Ksh)	
C.2 L	If rent, how affordable are the monthly rent in Ruai?	1. Very affordable 2. Fairly Affordable 3. Unaffordable
C.2. M	Do you own land elsewhere within Ruai?	1. Yes 2. No

C.2. N	If yes, where within Ruai and size of land	
C.2 O	In your opinion, how affordable is land in Ruai?	1. Very Affordable 2. Fairly affordable 3. Expensive
C.3 A	Are there conflicts between neighbours/people living in your neighbourhood?	1. Yes 2. No
C.3 B	If yes, what type of conflicts exist?	
C.3 C	How are these conflicts addressed?	
C.3 D	Do the conflicts affect the rate and type of in-migration into Ruai?	1. Yes 2. No
C.3 E	If yes, kindly specify how	
C.4 A	Employment status	1. Employed 2. Unemployed 3. Business Owner
C.4 B	If employed, type of employment	1. Formal Employment 2. Informal employment
C.4. C	If employed, where (location) do you work?	1. Within Ruai 2. Outside Ruai
C.4. D	If within Ruai, specify where	
C.4. E	If outside Ruai, specify where	
C.4 F	If business owner, where do you conduct business?	1. Within Ruai 2. Outside Ruai 3. Both

C. 4 G	If within Ruai, specify where	
C.4. H	If outside Ruai, specify where	
C.4 I	If employed/have business outside Ruai, why then, did you choose to settle in Ruai?	
C.4 J	How is the level of accessibility of your place of work from your home?	1. Good 2. Fair 3. Difficult
C.4 K	If difficult, what are the reasons?	
C.4 L	What mode of transport do you use to your place of work?	1. Walk 2. Public Service Vehicles (Matatu) 3. Train 4. Private vehicle 5. Motorcycle 6. Others (Specify)
C.4 M	How much money do you use for fare/fuel from home to place of work (In Ksh)	
C.4. N	How long do you take from home to place of work? (in minutes)	
C.4 O	If employed, monthly income (in Ksh)	
C.2 P	If Business Owner, how much revenue annually? (in Ksh)	
C.5	**Level of Service/Amenities Provision and Challenges** What services/amenities are available in Ruai, who is the service provider, and what is	

	your rate of these services				
	Service	**Availability (1 for Yes; 2 for No)**	**Service Provider**	**Rate (1 for Good, 2 for Average, 3 for Poor)**	**Challenges**
	Security				
	Piped Water				
	Electricity				
	Waste Collection				
	Sewerage				
	Health Services				
	Education/Schools				
	Supermarkets and Retail Stores				
	Recreational Facilities				
	Emergency Services (Fire, ambulance)				
C.6 A	What is the level of road infrastructure development in Ruai?		1. Highly developed 2. Fairly developed 3. Undeveloped		
C.6 B	In your opinion, has road development contributed to growth of Ruai?		1. Yes 2. No		
C.6 C	If yes, how?				
C. 6 D	What challenges has road development brought?				

SECTION D: SUBURBANIZATION CHALLENGES IN RUAI AND MITIGATION MEASURES

D.1 A	What are the challenges you face as a resident of Ruai?	1. Urban Spatial challenges 2. Environmental Challenges 3. Socio-economic Challenges
D.1 B	If spatial challenges, what kind of spatial challenges?	1. Uncontrolled land sub-division 2. Traffic congestion 3. Uncoordinated/unplanned development 4. Land Conflicts 5. Strain on physical infrastructure 6. Others (Specify)
D.1 C	If environmental challenges, specify	1. Air pollution from industries and vehicular emissions 2. Waste management challenges 3. Noise pollution 4. Others (Specify)
D.1 D	If socio-economic challenges, specify	1. Increase in crime rate 2. Inadequate social facilities 3. Inadequate economic opportunities 4.
D.2A	Have any of these challenges been addressed/ has there been attempts to address these?	1. Yes 2. No
D.2 B	If yes, how and by who?	
D.2 C	How would you propose these challenges be addressed	
D.3 A	Do you have a neighbourhood association?	1. Yes 2. No
D.3 B	If yes, are you a member?	1. Yes 2. No
D.3 C	If yes, what role(s) does the NA play in solving the above	3.

	identified challenges?	
D.4 A	Have you been involved in any community participation initiatives?	1. Yes 2. No
D.4 B	If yes, what type of initiatives?	
D.4 C	How effective has community participation been in addressing challenges	1. Very effective 2. Fairly effective 3. Ineffective
D.4 D	If ineffective, what are the reasons?	4.
D.5 A	Are you aware of any development plans or strategies pertaining to Ruai?	1. Yes 2. No
D.5 B	If yes, which are these?	
D.6	What, in your opinion, would be the ideal Ruai	

Enterprise Questionnaire

UNIVERSITY OF NAIROBI

CAUSES AND EFFECTS OF SUBURBANIZATION: A CASE OF RUAI

ENTERPRISE QUESTIONNAIRE

Disclaimer: This questionnaire seeks to collect data on the causes and challenges of suburbanization with a focus on Ruai. Any information given will be treated with utmost confidentiality and shall be used for academic purposes only.

SECTION A: LOCATION AND GENERAL INFORMATION

Name of Sub-County	
Name of Ward	
Name of Location	
Date of Interview	
Respondent Name (Optional)	
Interviewer Name	
Respondent Gender	1. Male 2. Female

SECTION B: ENTERPRISE INFORMATION AND CHARACTERISTICS

B.1	Name of Enterprise	
B.2 A	Type of Enterprise	1. Commercial 2. Industrial 3. Informal
B.2 B	If commercial, specify type	1. Retail/Wholesale/Merchandise 2. Service (e.g. Mpesa, Mobile Money, Hotels and Restaurants, Salons and barber shops, etc) 3. Others (Specify)
B.2 C	If industrial, specify type	1. Manufacturing 2. Agro-processing 3. Food processing 4. Service 5. Warehouse/Godowns 6. Others (Specify)
B.2 D	If informal, specify type	1. Jua kali industrial activities 2. Vending and selling 3. Service related 4. Others (Specify)
B.3 A	Location of enterprise within Ruai	Name of Location/Geo-point
B.3 B	Reasons for location of business	1. Availability of target market/customers 2. Proximity to raw materials/market for goods 3. Availability of affordable labour 4. Low transaction costs 5. Accessibility due to transport development 6. Availability/affordability of land/premises to operate in

		7. Proximity to home/residence 8. Others (Specify)
B.4 A	Target market (From where does your customers/clientele mostly come from?)	1. Within Ruai 2. Outside Ruai
B.4 B	If outside Ruai, please specify where	1. Within Nairobi County 2. Regions within Nairobi Metropolitan Area 3. Other Regions (Specify)
B.4 C	If outside Ruai, reason for setting up/operating in Ruai?	
B.5 A	Do you have employees?	1. Yes 2. No
B.5 B	If yes, how many?	
B.5 C	If yes, from where do most of your employees come from/reside?	1. Within Ruai 2. Outside Ruai
B.5 D	If outside Ruai, please specify where	
B.5 D	If yes, what is the average wage/salary of your employees monthly	1. Up to 10,000 2. 10,000 – 20,000 3. 20,000 – 30,000 4. 30,000 – 40,000 5. 40,000 – 50,000 6. Above 50,000
B.6 A	From where do you source your stock/raw	1. Within Ruai

	materials?	2. Outside Ruai
B.6 B	If outside Ruai, specify where	
B.6 C	If outside Ruai, reasons for setting operation in Ruai	
B.7 A	Type of premise/structure the enterprise operates in (observe)	1. Permanent 2. Semi-Permanent 3. Temporary
B.7 B	Do you own or rent/lease the structure the enterprise operates in?	1. Own 2. Rent/Lease
B.7 C	If own, how did you acquire land/structure?	1. Purchase 2. Inheritance 3. Gift 4. Allocation by Government 5. Other (Specify)
B.7 D	If purchased, how much did the land/premise cost?	
B.7 E	If rent/lease, how much do you pay monthly?	
B.7 F	In your opinion, how affordable are the costs for buying/renting/leasing	1. High 2. Fair 3. Affordable

	in Ruai?	
B. 8	How long have you operated your enterprise in Ruai (in years)	
B. 9 A	Does your enterprise have any permits/licenses?	1. Yes 2. No
B.9 B	If yes, specify type of license, license issuer and rates paid	**License/Permit type** / **License/Permit Issuer** / **Rates paid**
B.9 C	In your opinion, how affordable are the rates for these licenses?	1. Very High 2. Fair 3. Affordable

B.10 Type and Level of Services and amenities

Service/Amenity	Availability (1 for yes; 2 for No)	Use for Amenity	Cost (Either annually or monthly)	Source/Service Provider	Rate (1 for Good, 2 for Average, 3 for Poor)
Portable water					
Electricity/Power					

Waste Collection					
Sewer					
Credit facilities					

SECTION C: SUBURBANIZATION CHALLENGES AND MITIGATION

C.2	What challenges do you experience due to location of enterprise in Ruai?	
C.3	Services and amenities challenges	**Service/Amenity** / **Challenge**
C.4	Infrastructural challenges	
C.5	Socio-economic challenges	
C.6	Institutions/Governance challenges	
C.7	Proposals and suggestions on how to solve the identified challenges	

Key Informants Schedule

UNIVERSITY OF NAIROBI

CAUSES AND EFFECTS OF SUBURBANIZATION: A CASE OF RUAI

KII SCHEDULE

Disclaimer: This questionnaire seeks to collect data on the causes and challenges of suburbanization with a focus on Ruai. Any information given will be treated with utmost confidentiality and shall be used for academic purposes only.

Name of Key Informant	
Role and Department /Name of Institution	
Date of Interview	

A. PHYSICAL PLANNER
○ What is the geographic jurisdiction of your role/office? ○ What issues do you address in your role as a physical planner? ○ What is the planning office's capacity with relation to: → Senior Physical Planner → Junior Physical Planner → Enforcement Officers → Other relevant staff (Specify) ○ Do you have an office in/near Ruai? If not, how do you oversee your functions in Ruai? ○ What, in your opinion, would be the main reason(s) for the growth of Ruai?

- What challenges have you seen/do you foresee with the current growth and development of Ruai?
- What plans/strategies exist to ensure sustainable growth and development of Ruai?
- How have these plans/strategies been implemented? If not, what encumbrances to the implementation of these plans/strategies exist?
- What solutions could you propose to sustainably address the spatial, environmental and socio-economic challenges in Ruai?

B. LAND COOPERATIVE/BUYING & SELLING COMPANY / SURVEYOR

- How long have you operated in Ruai?
- What, in your opinion has spurred the growth and development of Ruai?
- What has been the trend of land ownership in Ruai over the last 10 years, and how has this influenced the growth of Ruai?
- What is the current average land holding size in Ruai, and how is this compared to 5-10 years ago? – what factors have contributed to this shift, and what challenges exist?
- What is the price of land in Ruai?
- How are the current land prices compared to land prices 5-10 years ago?
- What has contributed to the shift in land prices?
- Which areas of Ruai are most attractive for prospective land buyers?
- What is the profile of land buyers in Ruai – for housing development, enterprise development or speculative holding?