

Collins Sasakah Makunda

## URBAN HABITAT TRANSFORMATION AND THE AFRICAN MIDDLE CLASS

The Case of Kileleshwa, Nairobi, Kenya

While poverty is growing in cities of the south, a significant middle class has emerged that has also increased the demand for basic urban goods such as decent housing and infrastructure. Developers are providing housing for this class and this is evident across many cities of the south.

In this thesis, the nature of this transformation was investigated through the following key research question: What are the processes, characteristics and outcomes of the rapid transformation occurring in low-rise urban residential areas in Nairobi?

Using a case study residential area of Nairobi, the key actors involved in the process of transformation were investigated along with the neighbourhood's morphological transformation. Also examined were the social and economic outcomes, and the implications for urban quality and sustainability.

In the thesis, developers are argued as exerting dominant influence in a process of urban transformation that is imbued with both informality and irregularity. Coupled with a lax regulatory regime and growing middle-class demand, this has led to a profound shift in housing typology without commensurate physical and social infrastructure. Thus, undermining both urban quality and sustainability.

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**AHO** Arkitektur- og designhøgskolen i Oslo  
The Oslo School of Architecture and Design

PhD thesis

*Collins Sasakah Makunda*

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and the African Middle Class**  
The Case of Kileleshwa, Nairobi, Kenya

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Cities rise and fall. Streets are broadened. Buildings are taken down and new ones go up. Rooms are redecorated. Porches are added, doors painted, holes knocked into walls and windows walled in. Trees are planted, hedges clipped, sewers buried. Roads are paved and ditches dug. Monuments are erected. The site is subject to transformation. When we watch the site over time, we can study the changes that occur. This will reveal the powers that act on the site and the ways in which they relate to each other.

N.J. Habraken,  
*Transformations of the site*  
(Habraken, 1988, p. 11)



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## Dedication

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## Preface

Prior to the turn of the millennium, I moved from Kenya to the United States of America to pursue postgraduate studies. During my time there, I graduated with Masters degrees in Interior Architecture and in City Planning (with a concentration in Urban Design and Development).

A decade after I had left my home country, I moved back to Nairobi, the city where I was born and raised, to take up a teaching position at the University of Nairobi, College of Architecture and Engineering, in the School of the Arts and Design.

Upon my return to Kenya, I was shocked by how much Kileleshwa, the neighbourhood around which I had grown up, had transformed. I had left it as a low-density neighbourhood consisting of single-dwelling detached housing units.

However, that appeared to have quickly changed because high-rise apartment blocks had sprung up all over the neighbourhood.

What surprised me most was that while I was living abroad my readings on housing research in Nairobi had made scant mention of the transformation occurring in the formal housing sector. The exclusive focus on housing research in the city appeared to be on the informal sector, particularly the challenges associated with informal settlements.

So, when I was offered the opportunity of a scholarship to pursue doctoral studies in Norway, I purposed to look into the formal sector of housing in order to contribute to expanding the discourse on housing in the city. I sought to investigate the phenomenon of urban transformation that was leading to rapid densification of low-density areas in the city. This I did while questioning its implications for the future viability of the city's urban habitats.

Kileleshwa proved to be the ideal site for the investigation. It was not only experiencing the most rapid rate of transformation amongst the formal residential areas of the city but also, unlike the other residential areas, the transformations were mostly in the form of apartment blocks exclusively for residential use. A mix of apartment blocks and office blocks were emerging in the other formal residential areas experiencing rapid transformation. These were not focussed on because they were tending more towards the commercialization of existing residential space, which is beyond the scope of my study.

# Abstract

The subject of urban transformation in cities generally and in those of the global south in particular is a significant matter that requires to be understood and where possible, guide policy. The forecasting of rapid growth of cities of the south due to increasing urbanization and rapid population growth has brought with it challenges and opportunities. While poverty is growing in cities of the south, there is an emergence of a significant middle class that has also increased the demand for basic urban goods such as decent housing and infrastructure. There is increased interest by developers to provide housing for this class and this is evident across many cities of the south.

Many of the housing developments are occurring in grey field areas meaning that they are transforming these areas into a new typology. The nature of this transformation is creating new challenges that will require to be understood and addressed.

In this thesis, the nature of this transformation is explored in terms of its processes and outcomes. This was investigated through the following key research question:

*What are the processes, characteristics and outcomes of the rapid transformation occurring in low-rise urban residential areas in Nairobi?* The transformation is occurring rapidly and leading to the vertical densification of residential areas in the city of Nairobi. One such residential area is Kileleshwa, which formed the case study of this investigation. It is a residential area – in the western suburbs of the city – that continues to transform as a housing settlement unlike elsewhere, where the transformation is from housing to other economic and social activities.

Using a predominantly qualitative approach, the key actors involved in the process of transformation were investigated. Their strategies for achieving their desired outcomes was of key interest. Also explored was the physical outcome of the ongoing transformation as manifested in the emergent building typology of the residential area.

In tandem with this, the social outcomes of the ongoing transformation were of significant interest as well. Scrutinized closely, was the growing middle class in the residential area and the ways in which it was gaining a foothold in the historically upmarket neighbourhood. The question of the urban quality and sustainability of the transforming urban habitat was an important concern in the investigation. It was explored loosely as a way of evaluating the nature of the transformation vis-à-vis the future viability of the urban habitat.

The findings of the investigation are that property developers wield the greatest degree of influence in the process of urban habitat transformation hence are shaping the course of urban development in the city. Moreover, this process is permeated by informality and irregularity. Consequently, a key morphological outcome is that a profound shift in housing typology is occurring with the development of high-rise apartment blocks in place of low-rise single family detached housing. However, this is occurring in contravention of zoning regulations that cap the height limit to mid-rise

housing. As a result, a low-density residential area is transforming into a high-density one without commensurate physical and social infrastructure to support it hence potentially compromising its urban quality and sustainability. Nevertheless, the development of the apartment form of housing – ranging in type from studio to four-bedroom apartment units - is making it possible for middle-class residents – from renters to purchasers, with a wide range of incomes - to access what was, historically, an exclusive high-income residential area. This is increasing the diversity of income groups accommodated in the residential area hence creating the possibility for a more spatially inclusive urban habitat.

The investigation concludes that developers' actions, coupled with growing middle class demand for housing, and a lax regulatory regime are leading to the rapid transformation of a residential area through a profound change in its housing typology. This has both pros and cons. Seen from an economic point of view, the densification of housing, in increasing available housing units in the property market, creates the possibility for high profits for developers and investors through a significant return on investment on housing units sold or rented. Considered from a social point of view, the densification of housing in making available more housing options, is increasing access to housing for the growing middle class who would otherwise be unable to afford housing in an historically exclusive low-density urban habitat. Viewed from an environmental point of view, while densified housing is characteristic of a compact urban form, which is considered to be a feature of sustainable urban development and increasing urban quality, this has to be accompanied by commensurate urban infrastructure. However, the absence of adequate physical and social infrastructure in the ongoing transformation of the case study urban habitat is likely to lead to the habitat's deterioration both in terms of its urban quality and sustainability.

Thus, to achieve a viable urban habitat in the long-term, an important shift needs to occur in the manner of the transformation. The local authority needs to exercise greater control in the course of urban development for the city through better urban management. For higher density housing to work – for a growing population while enhancing the urban quality and sustainability of the evolving urban habitat – this needs to be deliberately planned for, with emerging infrastructural challenges addressed as well.

## Definition of Terms

<b>Apartment block</b>	A building containing separate residential housing units which are vertically attached to each other and commonly share vertical circulation. The term is used interchangeably with apartment building.
<b>Formal</b>	The term is used in this thesis to refer to actions, activities, or outcomes that fall within the official regulatory framework.
<b>High-rise Apartment block</b>	An apartment block with six or more floors.
<b>Informality</b>	The term is used in this thesis to refer to actions, activities, or outcomes that do not fall within the official regulatory framework.
<b>Local Authority</b>	In the context of Nairobi, this is the Nairobi City County government, which exercises the powers that would typically, be vested in a city council.
<b>Middle Class</b>	In the context of Sub-Saharan Africa (SSA), this is the middle income or middle-income range group that falls between the upper income group and the lower income group.
<b>Neighbourhood</b>	A bounded geographic area within the city.
<b>Sustainability</b>	This is construed as a hierarchically re-organized conceptualization of the classic definition of sustainability; in this case, with the environmental dimension prioritized ahead of the social one, which, in turn, is prioritized ahead of the economic dimension.
<b>Urban Transformation</b>	This refers to a significant and lasting change in urban form and patterns of living in a habitat within an urban context.

## Abbreviations & Acronyms

<b>AfDB</b>	African Development Bank
<b>CAHF</b>	Centre for Affordable Housing Finance in Africa
<b>CBK</b>	Central Bank of Kenya
<b>CCN</b>	City Council of Nairobi
<b>DSQ</b>	Domestic Servants' Quarters
<b>EAC</b>	East African Community
<b>GCP</b>	Gross County Product
<b>IEBC</b>	Independent Electoral and Boundaries Commission
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>ISUF</b>	International Seminar on Urban Form
<b>JICA</b>	Japan International Cooperation Agency
<b>KADP</b>	Kenya Accountable Devolution Program
<b>KBA</b>	Kenya Bankers Association
<b>KNBS</b>	Kenya National Bureau of Statistics
<b>KPDA</b>	Kenya Property Developers Association
<b>MCA</b>	Member of the County Assembly
<b>NACOSTI</b>	National Commission for Science, Technology, and Innovation
<b>NCC</b>	Nairobi City County government
<b>NCWSC</b>	Nairobi City Water and Sewerage Company
<b>NHC</b>	National Housing Corporation
<b>SSA</b>	Sub-Saharan Africa
<b>UN ECA</b>	United Nations Economic Commission for Africa
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>WCED</b>	World Commission on Environment and Development

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PART I

PART I



## 1

**Introduction: The Problem of Urban Transformation in Nairobi**

Twin global transformational phenomena are radically redefining the twenty-first century. On the one hand, particularly in the global South, there is rapid urbanization in tandem with high population growth (Parnell & Walawege, 2014; UN-Habitat, 2014) in an increasingly resource scarce context. On the other hand, there is worldwide climate change leading to extreme and unpredictable weather patterns resulting in frequent natural disasters such as floods, storms, hurricanes, tornadoes, typhoons, and wildfires. The former, in a majority urban global population (United Nations, 2018, p. 9), is radically altering the trajectory of urban development particularly in Sub-Saharan Africa (SSA)<sup>1</sup> while the latter represents a paradigm shift in assumptions previously held on the immutability of global climate.

The challenge of rapid population growth and urbanization, with a concentration in metropolitan areas, is not a new phenomenon in urban development. It was highlighted by Peter Hall (1966, pp. 7–28) more than 50 years ago in relation to advanced economies or the world cities then. Housing, in tandem with the growth of slums, amongst other problems associated with the phenomenon such as urban sprawl, unemployment, strain on the transport system, and pressure on city governance, were pointed out then as issues for the leading metropolitan areas including New York, London, and Paris (Hall, 1966, p. 29).

Now as then, humanity's basic need for shelter is still directly impacted by these phenomena. In urban contexts, especially in the global South, housing need exceeds supply at unbridgeable levels (King et al., 2017, p. 7). Presently, a majority of the global population lacks adequate shelter. This is evident in the proliferation of slums in the global South, which have been linked to urban poverty (UN-Habitat, 2014). This, in turn, has been attributed

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<sup>1</sup> According to World Bank classification, Sub-Saharan Africa consists of 48 African countries south of the Sahara. This definition excludes the six North African countries: Algeria, Djibouti, Egypt, Libya, Morocco, and Tunisia, which are typically clustered with the Middle Eastern countries (World Bank, 2018)

to a variety of reasons. These include factors such as the implementation of inappropriate policies like the Structural Adjustment Programmes (SAPs)<sup>2</sup> that led to the retreat of the state in the provision of public services, and increase in privatisation of state resources; poor economic growth leading to few jobs and high unemployment rates; lack of adequate investments; and colonial legacies (Davis, 2006; Lee, 2016; UN-Habitat, 2003, 2016). The United Nations estimates 59% of the urban population in SSA to be slum<sup>3</sup> dwellers with total urban dwellers projected to exceed one billion by 2050 (UN-Habitat, 2016, p. 8). In sum, along with inadequate housing, SSA, as part of the global South, is characterized by poverty, poor governance, rapid growth, and a prevalence of informality (Watson, 2017, p. 98).

The foregoing, notwithstanding, in recent times, besides rapid urbanization and lingering poverty, one of the more significant trends to emerge out of Sub-Saharan Africa (SSA), is a growing African middle class (Melber, 2016; UN-Habitat, 2014, p. 16). The phenomenal growth of the middle class in Africa is dramatically illustrated by a report by the African Development Bank (AfDB), which estimated it to have grown three-fold to 350 million people from 111 million people in 1980 (African Development Bank, 2011). While there is significant disagreement on how to measure this middle class (Melber, 2016; Thurlow et al., 2015), and even its actual size (African Development Bank, 2011; The Economist, 2015), aside from the great degree of variation on consumption and income ranges to use (African Development Bank, 2011; Banerjee & Duflo, 2007; Birdsall, 2010; Birdsall et al., 2000; Ravallion, 2009; Thurlow et al., 2015)<sup>4</sup>, its impact on Africa's rapidly urbanizing cities is evident. Arguably, it is a harbinger of growing incomes as well as increasing disposable income and purchasing power likely driving urban transformation that portends improved quality of life across the continent. Thus, the binary of extreme wealth on the one hand and abject poverty on the other is no longer sufficient in accounting for the totality of reality in rapidly growing twenty-first century Sub-Saharan cities such as Nairobi. The actual situation is much more nuanced.

Despite challenges such as limited supply of housing and rising property prices, the middle class or middle-income group are making a noticeable

<sup>2</sup> Structural Adjustment Programmes (SAPs) were programmes in the 1980s and 1990s in which the World Bank and IMF provided loans to less developed countries (LDCs) predicated on their agreeing to a raft of policy reforms (Weaver, 1995, pp. 3–4). These led to the opening up of these countries' economies to the rest of the world through the removal of trade barriers, increased access to foreign investment, and reversal of policies related to import substitution industrialization (Weaver, 1995, p. 4).

<sup>3</sup> The United Nations (UN) uses *slum* in the context of the definition of a *slum household* as, "one in which the inhabitants suffer one or more of the following *household deprivations*: lack of access to improved water source, lack of access to improved sanitation facilities, lack of sufficient living area, lack of housing durability and lack of security of tenure" (UN-Habitat, 2016, p. 2).

<sup>4</sup> Abhijit Banerjee, Esther Duflo, along with Michael Kremer won the 2019 Nobel Prize in Economic Sciences.

imprint on property development and societal change on the continent. Representing increased disposable incomes, the middle class are viewed as key catalysts in SSA's real estate growth in its growing economies (Kracker & Heller, 2010; Lofchie, 2014; Lufumpa et al., 2014; Phillips, 2007). The rise of middle-class lifestyles in this part of the continent can be gleaned from a number of recent trends. These include: the increase in the purchase of private motor vehicles; the entry of global fast food outlets into major cities; the growing presence of global service brands such as *uber*<sup>5</sup>; and the rapid development of mega shopping malls in various cities in SSA such as Accra and Nairobi (Makunda, 2017b; Nduire, 2019; Neubert, 2016, p. 110).

Thus, this thesis is about urbanism in the twenty-first century African city and its more recent manifestation in Sub-Saharan Africa (SSA). With a focus on Nairobi, as a case study, it is a critical study of urban development based on the growth of the new middle class, high urban growth and housing as scarcity, at the same time that property development is one of the most profitable endeavours, with capital from outside Kenya (to a large extent provided by Kenyans in diaspora) increasingly being invested locally. Rapid urban transformation and its processes and outcomes, in a rapidly urbanizing context in a city in the global South, were key interests of the research. As used in this thesis, the term urban transformation refers to a significant and lasting change in urban form and patterns of living in an urban habitat. In terms of architecture and organization, the concept transformation denotes change of structural principles and typologies and not only modifications of morphology within a given syntax. Of relevance to this interpretation of urban transformation is the reconfiguration of urban form through architectural intervention as well as the socio-economic reorganization of the urban habitat leading to a shift in the social profile of its inhabitants.

The thesis is grounded in the context of Nairobi in which the imprint of a growing middle class is evident in previously low-density urban habitats. Nairobi is not only Kenya's capital and primate city but also East Africa's regional gateway and economic hub. It is also the epicentre of Kenya's largest metropolitan area; Nairobi metro. Significantly, Kenya is the only lower-middle income economy in an otherwise low-income region (World Bank, 2020). It can be counted amongst the fastest growing countries in SSA (Adegoke, 2019), which in turn is the fastest growing region of Africa (United Nations Economic Commission for Africa, 2019).

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<sup>5</sup> *Uber*, owned by Uber Technologies Inc. headquartered in San Francisco, in the state of California, U.S.A., is a ridesharing service with a presence in more than 700 cities around the world (Uber, 2020).



Nairobi's residential neighbourhoods were the locus of the investigation. The study area is a rapidly transforming residential neighbourhood, Kileleshwa, situated in the western suburban zone of the city, four kilometres from the CBD (Hass Consult Ltd, 2016b). It is part of an area of the city – the higher ground of the city – referred to as Upper Nairobi (Halliman & Morgan, 1967, p. 106). The vertical transformation – altering structural organization and typology – of the neighbourhood's housing stock is the vector through which the processes and outcomes of urban transformation and their implications for urban quality and sustainability were investigated. While not unlike vertical transformation occurring elsewhere in the world, its particular contours, in this context, differ markedly in the specific manner in which it is configured; both in terms of the distinct interplay of the key actors involved, the specific morphological attributes of the physical transformation, the social dynamics for which it provides a setting, and the implications it has for urban quality and sustainability.

Hence, this research was undertaken to investigate the process of urban habitat transformation – particularly in terms of the actors involved and the specific roles they play – and its manifest outcomes in terms of both physical outputs and socio-economic ramifications. The research approach encompassed issues related to urbanism, architecture, sociology, the economy, the environment, and design. As urban research (urbanism), it entailed both the study of morphological change, habitat/living environment and social sciences (such as the concern with actor perspectives). The investigation was not only focused on unpacking the processes, hence, the logic underlying the production of the urban habitat through the interrelations of the various actors and factors, but also revealing the physical, socio-cultural and socio-economic outcomes of the urban residential transformation; as well as evaluating the phenomenon in relation to urban quality and sustainability.

Rossi (1984, p. 112) has argued for architecture as a valid means of reading a city. Suggesting, as well, the study of the individual dwelling as a way of studying the city (Rossi, 1984, p. 72). Peter Eisenman notes that housing was one of two main permanences in the city for Aldo Rossi, the other being monuments. Adding further that, "Rossi distinguishes between housing and individual houses." Specifically, that "Housing is a permanence in the city while individual houses are not; thus, a residential district in the city may persist as such over many centuries, while individual houses within a district will tend to change..." (Rossi, 1984, p. 6). Hence, this research employed housing as a means of understanding urban habitat transformation. Urban quality and sustainability collectively constitute the lens through which the

complex phenomenon of transformation within a dynamic urban context was evaluated. Like all actions and projects for urban development should be evaluated in the context of quality and sustainability: do the actions/projects/plans improve urban quality and sustainability or work against urban quality and sustainability?

### **1.1. Reshaping Urban Habitat**

In a rapidly expanding context (rapid population growth and increasing urbanization), the emergence of a significant African middle class in SSA, has increased pressure on, and demand for, basic urban goods. One of these is sound or decent housing. That is, good quality housing that is supplied through the formal residential property market at the behest of the private sector. It is distinct from low-cost public housing provided by government for civil servants, social housing for the poor made available through slum upgrading programmes, and informal housing that is self-built by the poor in poorly serviced informal settlements. The latter is generally a form of housing that is inadequate on many parameters including its construction using poor temporary building materials such as discarded plastic and metal tin cans amongst other found objects.

In Nairobi, from an economic perspective, the market has risen and the production of housing has increased substantially to meet this growing demand for formal housing. Property development in this sector, viewed from the perspective of neoclassical economics, represents the possibility for high profits. This can be seen in the ongoing rapid transformation of low-density residential neighbourhoods to higher density urban habitats. Single-family low-density detached housing units are progressively being replaced by high-rise high-density multi-unit apartment housing blocks.

However, as currently enacted, one may doubt the sustainability of the manner in which the transformation is being accomplished as well as the quality of the output. Arguably, with the market at the forefront, the process is being driven by the profit motive resulting in the 'exchange value' trumping the 'use value' (Brenner et al., 2012) of the housing being produced. With infrastructural capacity being stretched, previously stable planned residential neighbourhoods are undergoing unanticipated transformation that has potential implications for their urban quality and sustainability. Hence, the actions of the key actors in reshaping the urban habitat, and how and why they are doing so, is key to understanding the ongoing process of urban transformation and its outcomes.

## **1.2. Why is the Process of Transformation in Housing Areas in Nairobi relevant in a wider African Context?**

The research seeks to broaden the conversation on housing provision in a fast-growing city in East Africa while also contributing to the discourse on housing in SSA and the African city. In particular, it seeks to expand the debate on the housing market in Nairobi and extend it beyond informal settlements in the city (Ese, 2014; Mukeku, 2014) and tenement housing primarily in the east of Nairobi (Huchzermeyer, 2011a; Ondieki, 2016) in order to encompass the emergent transformative housing patterns in the west of the city. The goal is to contribute, through a critical study, to the building of a more comprehensive picture of the dynamic and heterogeneous housing market that is producing the city's residential habitats. The research also aims at providing a more comprehensive understanding of the roles played by the actors involved in this process of urban transformation and its related outcomes.

The development of a more holistic perspective on housing in sub-Saharan Africa, is a research direction that has been proposed in scholarly commentary. Almost three decades ago, Carole Rakodi (1992) called for increased attention to the analysis of citywide housing markets as well as research into processes of exchange. She suggested that such analyses should form the basis for policies which focus neither on selected income groups or residential areas in isolation from wider housing market processes nor on housing output targets, but primarily on ensuring the provision of essential inputs (Rakodi, 1992). Arguably, her call was prescient and is still highly relevant. However, limited comprehensive research has been undertaken along her proposed lines.

Instead, research undertaken on housing transformation in East Africa and in Nairobi in particular has focused primarily on processes occurring in the informal and low-income settlements (Huchzermeyer, 2011a, 2011b; Mukeku, 2014; Ondieki, 2016; Tarekegn, 2000). Scholars have established that informality is prevalent as a process underlying the housing transformations. In Nairobi, these studies have focused primarily on the eastern and southern segments of the city where the majority of the informal and low-income settlements and housing are to be found.

Thus, very limited research has contemplated the market-driven transformations occurring in the western and northern areas of the city, which, since the turn of the millennium, have experienced rapid

transformation from low-rise low-density single-family detached housing units to high-rise high-density multi-family apartment blocks. These transformations represent an emergent phenomenon, linked to a growing middle class (African Development Bank, 2011; UN-Habitat, 2014) with their concomitant need for formal housing. It differs markedly from previously documented phenomena around informal housing provision.

Hence, its substantive assessment has implications for a comprehensive understanding of the housing market and production of housing in the city as a whole. This would help inform more appropriate strategies for addressing increasing population pressure on the urban area and the growing need for housing for the city as a whole while embracing the opportunity to pursue it while enhancing urban quality, and sustainability, along the lines of sustainable urban development. The latter, an aspiration encapsulated in the UN's Sustainable Development Goal 11 – "Make cities and human settlements inclusive, safe, resilient and sustainable" (United Nations, 2019).

### **1.3. Research Questions**

This thesis sought to investigate the processes and outcomes of transformation of a dynamically evolving urban habitat. This was done in the context of increasing urbanization and an expanding African middle class, and the implications of both trajectories for the quality and sustainability of the transforming urban context in the wake of Climate Change. Consequently, this required an understanding of the interrelated dimensions of urban transformation, which was necessary for the identification of key components integral to the phenomenon. In this thesis, this meant investigating three main dimensions. Firstly, not only identifying but seeking to understand the key actors involved in the process of transformation of an urban habitat and the specific ways in which they exert their agency. Secondly, documenting and seeking to understand the features of the morphological transformation that was ongoing and ways in which it was physically reshaping the urban habitat and impacting on the social dynamics of the urban habitat. Thirdly, mobilizing concepts of urban quality and sustainability in evaluating the ongoing process and outcomes of urban transformation.

Thus, the specific research questions were addressed to a number of issues that were viewed as integral to an understanding of the complexity of the phenomenon of a dynamic process of transformation. The specific issues of concern were: the processes of rapid urban habitat transformation; the actors involved in the process of the transformation; the physical outcomes of the

transformation; the social dynamics associated with the new residents as a consequence of the transformation; and the questioning of the processes and outcomes of transformation in relation to the quality and sustainability of the urban habitat.

The key research question discussed in my thesis may be formulated as follows: **What are the processes, characteristics and outcomes of the rapid transformation occurring in low-rise urban residential areas in Nairobi?** This main research question summarises the research interest in the key attributes of the phenomenon of urban transformation occurring in a rapidly densifying urban habitat. This key research question was disaggregated into three interrelated research questions:

- 1) **How is housing in the rapidly transforming urban habitat being produced?** With this question, I not only sought to understand the primary factors driving the transformation of housing in the urban habitat but also how the key actors involved were organized and exercising their agency to make it come about. The question was, in turn, approached through two interrelated sub-questions;
  - a. *Why is the transformation occurring rapidly and how is its underlying process structured to facilitate the transformation from low-rise to high-rise residential housing?*
  - b. *Who are the actors, how do they interact and what roles do they play in the process of transformation to generate new housing typologies?*
  
- 2) **How has the process of transformation altered the urban habitat physically in terms of housing typology and how has this affected the habitat's physical and social (socio-cultural, socio-economic, and demographic) characteristics?** With this question, I explored two interrelated dimensions that were key to understanding the outcomes of the process of transformation of an urban residential area. These were first, the morphological outcomes of the process of transformation, particularly in the ongoing densification of housing, and second, the social outcomes of the process of transformation made possible by the ongoing densification of the housing.
  
- 3) **How do the processes and outcomes of the transformation of the urban habitat impinge on its urban quality and sustainability?** Through this question, I evaluated the processes and outcomes of the urban transformation of a residential area. The question sought to interrogate the urban quality and sustainability of the ongoing

phenomenon for the urban context. In so doing it mobilizes concepts of urban quality and sustainability as a means of appraising and reflecting on the merits and demerits of the ongoing urban habitat transformation.

#### 1.4. Organization of the Thesis

This thesis is in the form of a compilation; article-based thesis. It consists of an exegesis and four related articles. Thus, it is organized into two related sections; Part I and Part II.

**Part I** is the first section of the thesis. It is the exegesis and consists of seven chapters.

**Chapter one** is the opening chapter of the thesis and introduces the problem of urban transformation, linking it ultimately to the context of Nairobi. The relevance of the process of transformation in housing in Nairobi within the wider African context is also considered. Further, the chapter includes a presentation and discussion of the research questions that guided the thesis. It also describes the organization of the thesis.

**Chapter two** contextualizes the research and situates it in relevant literature. Thus, the chapter delves into the concept of urban transformation and its manifestation in Africa and Nairobi. Moreover, the theoretical perspectives that underpin the thesis are discussed in the chapter. It includes a discussion of the approaches adopted for the study as well as the key dimensions of the research. The chapter ends with an exposition of the proposed evaluative lens for the study.

**Chapter three** presents the research methods, design, and approach of the study. These are discussed in detail. A description of the research setting is given and a discussion of the ways in which the empirical materials were handled is undertaken. Furthermore, data analysis and ethical considerations are also discussed.

**Chapter four** presents the case study site in detail. It describes the location and boundaries of the site. In the chapter, the history of the site, its present circumstances and its significance for Nairobi are explored. In this, the ongoing urban transformation of the site that constituted the crux of the investigation is explored at some length.

**Chapter five** presents and discusses the findings. It commences with a summary of the four articles that make up Part II of the thesis by compilation.

Thus, a synopsis of the aims, key findings and hence main contributions of the articles is given in the chapter. This is then followed by a discussion of the findings. Based on research findings as encapsulated in the articles and exegesis, it discusses these in terms of themes, effects and issues of urban transformation. In concluding, it offers an evaluative perspective on the quality and sustainability of the ongoing urban transformation.

**Chapter six** is the closing chapter of the thesis. As the concluding chapter, it provides conclusive answers to the research questions that guided the thesis investigation. Further, it suggests key contributions to knowledge made possible by the thesis and suggests possible future research. It ends with some recommendations that could potentially inform urban policy.

**Part II** is the second section of the thesis by compilation. It consists of four articles whose content and argumentation are explicated at greater length in chapter 5. The articles are:

**One**, *The Interplay of Actors in the Production of Housing in Nairobi, Kenya*.<sup>6</sup> This article explores the activities and roles of the actors involved in the process of urban transformation, in the case study site in Nairobi, in terms of key themes of urban transformation.

**Two**, *Morphological Transformation of Kileleshwa, Nairobi*.<sup>7</sup> This article explores the morphological and typological outcomes of a vertically densifying urban habitat; as a manifestation of rapid urban transformation.

**Three**, *Middle-Class Access to Housing in Nairobi's Transforming Urban Habitat*.<sup>8</sup> This article delves into the strategies and tactics deployed by the emergent middle class in gaining access to a rapidly transforming urban habitat.

**Four**, *The Unsustainability of Urban Habitat Transformation: A Case Study of Kileleshwa in Nairobi, Kenya*.<sup>9</sup> This article suggests a possible way of deploying the concept of sustainability in evaluating the processes and outcomes of a rapidly transforming urban habitat hence reflecting on its urban quality.

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<sup>6</sup> Makunda, C.S., & Ellefsen, K.O. (forthcoming). The interplay of actors in the production of housing in Nairobi, Kenya. [Journal article submitted to *African Cities Journal*]

<sup>7</sup> Makunda, C.S., & Anyamba, T.J.C. (2020). Morphological transformation of Kileleshwa, Nairobi. *Africa Habitat Review Journal* 14(3): 1975-1998.

<sup>8</sup> Makunda, C.S. (forthcoming). Middle-Class access to housing in Nairobi's transforming urban habitat. [Accepted for publication in an upcoming book chapter].

<sup>9</sup> Makunda, C.S. & Edeholt, H. (2019). The unsustainability of urban habitat transformation: A case study of Kileleshwa in Nairobi, Kenya. *Africa Habitat Review Journal* 13(1): 1547-1560.

## 2

### **Contextualization and Literature Review**

This section is divided into three main parts. In the first part, the research study is contextualized regionally within the context of Sub-Saharan Africa (SSA) and locally within the context of Nairobi. It starts with a definition of the concept of urban transformation and includes a review of literature on urban transformation in Africa. It ends with a discussion of urban transformation in Nairobi by discussing its present dynamics in the twenty-first century as well as tracing its historical trajectory since the city's colonial provenance. In the second part, the theoretical underpinning of the thesis is elucidated. It involves reflections on southern urban theory and its usefulness in anchoring the study in an African city. It also includes a discussion of the relevance of some aspects of global North theoretical perspectives on urban transformation. In the third part, my theme is methodology, how to study this theme in order to be able to give operational answers to my research questions. Various approaches to the study of urban transformation are reviewed from relevant literature. It includes discussions on perspectives on studying urban transformation, ways of apprehending urban processes and actors, modes of reading urban outputs and outcomes, and the relevance of urban quality and sustainability as a lens for evaluating urban transformation.

#### **2.1. Contextualization of Study**

In this sub-section, the research is contextualized in terms of its broader context in SSA and its more specific context in the city of Nairobi. Discussed are the demographic shifts, urbanization trends, economic trajectories, and previous studies that have been undertaken in this context. In the case of Nairobi, the unsuccessful historical attempts to imprint the direction of the city's urban transformation through formal plans are also discussed. The sub-section begins with a general discussion of the concept of urban transformation before situating it in the context of SSA and ending with a discussion of its attributes in the context of Nairobi.



### 2.1.1. The Concept of Urban Transformation

Due to urban growth, the adaptation to new technologies, globalization of economy and production and socio-cultural change, urban areas have changed profoundly. Deindustrialization and processes of gentrification have been strong factors in transforming habitat in Western cities. Areas have been demolished and rebuilt for new use. In the global South, rapid transformation is typical of its urban areas in the wake of increasing urbanization.

According to Ellefsen (2011) the concept of transformation, in terms of theoretical references should be understood in a structuralist context.<sup>10</sup> The analytical approach in structuralist thinking was to establish ways of understanding by referring to a basic underlying structure, an abstract system providing a syntax guiding how different parts of the system relate to each other. Structuralism, disciplinary speaking originated from linguistics, and was adapted into disciplines and used in studying phenomena that could be interpreted having a linguistic structure. Certain characteristics are common for the way structuralist thinking are put into use in different disciplines. According to Piaget (1971) these are the ideas of *wholeness* (a basic regulating system), *of self-regulation* (a system is governed by rules for its own way of changing, and is not only an agglomeration of elements with different properties) and that of *transformation*.<sup>11</sup> A structure might be expressed in different ways – using terms from architecture and urbanism – a structure might take on different morphological variations. However, a structure might also – due to strong internal or external driving forces – be transformed completely, establishing new structural principles.

Urban transformation has also been viewed as a multi-dimensional process with the potential to effect social change (Williams, 2000). It has been posited as circumscribing city design and form, and, beyond economic factors, entailing the designing of qualities of physical settings and the process of shaping environments (Bosselmann, 2008). In this study, urban transformation refers to a significant and lasting change in urban form and patterns of living in an urban habitat. It is taken as entailing a concern with the processes shaping both the material urban form and the social context it structures.

<sup>10</sup> Karl Otto Ellefsen "Strukturalismen" in ed. Claes Caldenby and Erik Nygaard, *Arkitekturteoriernas historia*, Stockholm: Forskningsrådet Formas, (2011, pp. 379–407). Translated to English by the author to be referred to in this thesis.

<sup>11</sup> Jean Piaget, *Structuralism*, New York, Harper & Row Publishers, (1971). French edition 1969.

### 2.1.2. Urban Transformation in Africa

Africa is urbanizing at a rapid rate. According to the World Bank, Sub-Saharan Africa's annual growth rate of 4.1%, is currently the highest in the world (World Bank, 2019d). Several reasons have been advanced for this phenomenon. These include: rural-urban migration (Beall & Goodfellow, 2014, p. 25), growth of the existing urban population due to high birth rates, and the reclassification of cities through expansion and encroachment on peri-urban areas (Parnell & Walawege, 2014). While the continent is currently estimated to be 43% urban (United Nations, 2018), its total population now exceeds one billion people, with an estimated figure of 1.3 billion people in 2018 (World Population Review, 2019). By mid-century, it is expected to be majority urban at 54%. This will account for one fifth of the global population (United Nations, 2014) with a projected 1.2 billion urban dwellers on the continent by then (World Bank, 2015). With an estimated 60-70% of its urban dwellers living in informal settlements (World Bank, 2015) and coupled with unavailability of adequate housing, the pressure on housing is bound to grow at an unprecedented level. This is already being experienced in Kenya even with an urban population of at least 27% (World Bank, 2019c).

The inability of African governments to adequately cope with the continuous increase in its urban population has been pointed out to have resulted in a number of urban problems (Pieterse & Parnell, 2014; Rakodi, 1997b). On the continent, urban transformation has been documented as occurring both formally and informally but mostly in the latter form. In the case of housing, the planning policies by African governments have been implemented inadequately (Pieterse, 2014). This has resulted in inadequate shelter provision leading to a majority of the urban residents, estimated at 61.7% (United Nations, 2016a), living in informal settlements. In sub-Saharan Africa, more than half the urbanites in its cities live in informal settlements. In Nairobi, the share of urban households living in informal settlements is estimated at 61% (World Bank, 2017). Moreover, they occupy only five to six percent of the city's total residential land area (Alder, 1995; Kibera, 2015; Matrix Development Consultants, 1993).

Consequently, cities in Africa have been variously referred to as slum cities (Davis, 2006) (Davis, 2006) or tenement cities (Huchzermeyer, 2011a). These descriptions promote the perception of African cities as urban places where very limited formal transformation occurs. While this is largely true of low-income shelter provision, the descriptions obscure the fact that middle-income housing provision involves a great deal of formal transformation in

combination with various levels of informal interventions (Anyamba, 2006). Scholarly accounts exist of dweller-initiated housing transformation and a mix of formal and informal urbanism in various cities in Africa; for example, in Dar es Salaam, Tanzania (Bahendwa, 2013; Moshi, 2009), in Nairobi, Kenya (Anyamba, 2006; Huchzermeyer, 2011a; Makachia, 2010; Mukeku, 2014; Ondieki, 2016), in Addis Ababa, Ethiopia (Tarekegn, 2000) and in cities in other African countries including Egypt, Ghana and Zimbabwe (Tipple, 2000).

Insightfully, in a recent publication that re-examines Nairobi's colonial past, *The City Makers of Nairobi*, Ese and Ese (2020) have argued for the re-reading of the agency of the locals then as a form of non-conformity rather than informality. Thus, foregrounding their significant contribution in shaping the urban development of the city.

In this thesis, the processes and outcomes of rapid urban habitat transformation in a fast-transforming urban context in SSA were the focus of the investigation. The habitat in question is resource-constrained and characterized by poor governance. Moreover, it is also a context in which a fast-growing population is driving rapid urbanization. At the same time, rapid economic growth is occurring concurrently with an expanding middle class.

### **2.1.3. Urban Transformation in Nairobi**

East Africa is in terms of economy the fastest growing region in Africa (UN-Habitat, 2014). In 2015, its projected GDP growth rate was 5.6% compared to the continent's average of 4.5% (African Development Bank et al., 2015). Almost half a decade later, in 2019, its GDP growth rate of 5.0% was even more significantly higher than the continent's 3.4% (African Development Bank, 2020). In the region, Kenya is one of the fastest growing economies and has significantly outperformed the global GDP growth rate in recent years (**Table 2.1**). According to data from the World Bank (2019a), since 2010, with the exception of 2012 and 2017, the country's annual GDP growth rate has been five percent or higher. This growth rate, on average, has been almost double the global GDP growth rate over the same time period (**Table 2.1**).

<b>Table 2.1</b>		
<b>Global GDP growth rate compared with Kenya's GDP growth rate, 2010 – 2019</b>		
Year	GDP Growth Rate (%)	
	Global*	Kenya
2010	4.3	8.4
2011	3.2	6.1
2012	2.4	4.6
2013	2.7	5.9
2014	2.8	5.4
2015	2.7	5.7
2016	2.4	5.8
2017	3.2	4.9
2018	3.0	6.3
2019	2.4	5.4

\*Original figures for global GDP growth rate rounded off to 1 decimal place for ease of comparison.  
Source: Compiled by Author from World Bank (2019a); World Bank (2020); KNBS, (2020b)

Consequently, given its consistent economic growth over the span of a decade, the World Bank currently classifies Kenya as a lower-middle income economy<sup>12</sup> with its 2018 GNI per capita of \$1,620, which compares favourably with other SSA lower-middle income economies like Comoros (\$1,320), Lesotho (\$1,380), Zambia (\$1,430), Cameroon (\$1,440), Senegal (\$1,440), Sudan (\$1,560), Cote d'Ivoire (\$1,610), Congo Republic (\$1,640), Nigeria (\$1,960), Zimbabwe (\$1,790) and Ghana (\$2,130) (World Bank, 2019b, 2019e). However, this is in sharp contrast with Kenya's immediate neighbours and other East African countries; Somalia (no data), Burundi (280), South Sudan (\$460), Uganda (\$620), Rwanda (\$780), Ethiopia (\$790) and Tanzania (\$1020), which are all classified as lower income economies<sup>13</sup> (World Bank, 2019b, 2019e).

Kenya is the third most populous country in East Africa, the second most populous one in the East African Community<sup>14</sup>, and the seventh in Africa (Worldometer, 2020). The country also has one of the highest annual

<sup>12</sup> According to the World Bank, lower-middle income economies are those with a GNI (Gross National Income) per capita between \$1,026 and \$3,995, in 2018 (World Bank, 2019b).

<sup>13</sup> These are economies with a GNI per capita of \$1,025 or less in 2018 (World Bank, 2019b).

<sup>14</sup> East African Community is a regional economic bloc comprising of six partner states: Kenya, Uganda, Tanzania, Rwanda, Burundi, and South Sudan (East African Community, 2020).

urbanization rates in the world, at 4.3 percent, which is more than double the global average of 2 percent (World Bank, 2019d).

Nairobi, Kenya's capital city as well as East Africa's regional transportation, economic, financial, and logistics hub (Centre for Affordable Housing Finance in Africa, 2019; Obudho, 1997; Rakodi, 1997a), is bearing the brunt of this growth and urban expansion. Kenya's population was 40 million during the decennial national census conducted in 2009, with Nairobi recording a population of 3.1 million (Kenya National Bureau of Statistics, 2010a). Five years later, the country's population was estimated at 44.8 million (World Bank, 2014) representing an increase of almost 1 million people per year. Currently, based on the figures from the 2019 decennial national census, Kenya's population is now 47.5 million while Nairobi's population is 4.4 million (Kenya National Bureau of Statistics, 2019a). More than half (55%) of Kenya's population is in the age bracket 15-64 (World Bank, 2014). At least a quarter of Kenya's population is urban (World Bank, 2014).

Nairobi (See **Figure 2.1**), with its population of more than 4.4 million, accounts for more than one third of this urban population and almost 10% of the country's total population (Kenya National Bureau of Statistics, 2019a). It is also home to a majority of the country's informal settlements. In economic terms, the city also accounts for 60% of Kenya's GDP (Nairobi City County, 2019).<sup>15</sup>

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<sup>15</sup> This figure has been disputed in recent times with Nairobi county's contribution to Kenya's GDP now estimated at 20% (Calculated through a World Bank Initiative – Kenya Accountable Devolution Program (KADP) – as Gross County Product [GCP]) (Ngugi, 2019; Wankuru, 2019). Though no longer contributing more than half the share of Kenya's GDP, it is still the largest share of the country's total GDP, exceeding the county with the next largest share by a factor of 3.5 (Wankuru, 2019).



**Figure 2.1** Location map of Nairobi surrounded by three neighbouring counties; Kiambu, Machakos, and Kajiado counties. (Google Maps, 2020)

The city covers an area of 703.9 square kilometres (Kenya National Bureau of Statistics, 2019a) (**Table 2.4**). Its current boundary largely dates back at least half a century to the time of Kenya's independence in 1963 (**Figure 2.7**). Then, the city's population was 350,000 (Obudho, 1997, pp. 294–295, 299). It has a population density of 6,247 persons per square kilometre compared to the country's average of 82 persons per square kilometre (Kenya National Bureau of Statistics, 2019a). Its average household size is 2.9, which is lower than the average national one of 3.9 (Kenya National Bureau of Statistics, 2019a). It is also the largest city in the country by a factor of 3.6 (Kenya National Bureau of Statistics, 2019a).

With the population growth and improved economic development, the city's middle class has rapidly expanded in tandem with the increasing urbanization of the country. This is consistent with Africa having recorded the fastest growing middle class in the world in recent years (African Development Bank, 2011; UHY, 2012; UN-Habitat, 2014). Furthermore, this has occurred concurrently with the continent's increasing urbanization. However, while the Kenya National Bureau of Statistics (KNBS), like AfDB, defines the middle class in terms of consumption; unlike the development bank, it uses a singular category for the income group. KNBS defines the Nairobi middle-income group as households with a monthly expenditure between 23,671 and

119,999 Kenya shillings<sup>16</sup> [321 and 1,628 US dollars] (Kenya National Bureau of Statistics, 2018, p. 56) (See **Table 2.2** below)

<b>Table 2.2</b> <b>KNBS Classification of income groups in Nairobi by monthly expenditure (October, 2005)</b>		
<b>Income Group</b>	<b>Monthly Expenditure (Kenya Shillings)</b>	<b>Monthly Expenditure (US Dollars)*</b>
Lower Income	23,670 and below	321 and below
Middle Income	23,671 – 119,999	321 – 1,628
Upper Income	120,000 and above	1,628 and above

*\*Note: US Dollar figures by author based on 31 October 2005 exchange rate of US \$1 = 73.72 Kenya Shillings*  
Source: Compiled by author from the KNBS Economic Survey 2018 (Kenya National Bureau of Statistics, 2018, p. 56)

Thus, according to the KNBS middle-income group criteria, only those classified as upper-middle class in the AfDB sub-categories<sup>17</sup> would qualify as middle income in the Kenyan context. They however remain a sizeable number. Ruparel and Shah (2016, p. 3), who have suggested a coterminous growth of Kenya's middle-income population and the expansion of the country's real estate sector, estimated the size of Kenya's middle class to be in excess of 5 million in 2012 and on an upward trajectory (Ruparel & Shah, 2016, p. 3).

In Nairobi, evidence of increased conspicuous consumption as a consequence of increasing disposable incomes associated with the presence of a sizeable middle class, can be seen in various ways. Mega malls have mushroomed in various parts of the city – including the largest one in East and Central Africa;<sup>18</sup> a spike in motor vehicle registration figures (Trading Economics, 2018) has occurred along with increased congestion on the roadways; international brands such as *Burger King*, *Subway*, *KFC* and *Uber*, are increasingly entering the Kenyan market (Cytonn Investments, 2018; Makunda, 2017b); and a housing construction boom is occurring in the formal residential areas of the city (Makunda, 2019, p. 106). However, most

<sup>16</sup> These are 2005 figures that are still used by KNBS without adjusting for inflation over time.

<sup>17</sup> AfDB disaggregates the middle class into three daily per capita consumption sub-categories as the floating class (\$2 – \$4), lower-middle class (\$4 – \$10), and upper-middle class (\$10 – \$20) (African Development Bank, 2011).

<sup>18</sup> Two Rivers Mall was completed in 2017 and it covers an area of 65,000 square metres (Nduire, 2019).

significantly, areas that were previously considered exclusive enclaves for the affluent, have experienced rapid densification in housing since the beginning of the current millennium. Transformation has occurred vertically from low-rise single-family detached housing to high-rise multi-unit housing ranging from townhouses in upmarket residential areas to apartments in historically high-income areas such as Kileleshwa (Makunda & Edeholt, 2019).

These market-driven transformations may have been accelerated by investor confidence attributable to a stable political climate as a result of Kenya's transition to democratic multi-party politics with largely peaceful elections held in 2002. Despite post-election violence in 2007/2008, peaceful elections were also held in 2013 following the promulgation of Kenya's new constitution in 2010 that enshrined a plethora of democratic principles, and then again in 2017. Though the results of the latter elections were contested, the dispute was resolved in Kenya's Supreme Court hence averting excessive violence. Other factors that may be driving the housing transformations include a relatively weak legal and regulatory framework for the enforcement of development control and, significantly, a high demand for affordable housing close to the CBD as a consequence of increased population pressure on urban areas. Additionally, besides factors such as rising incomes and increasing urbanization, remittances from Kenyans in diaspora have also been suggested as fuelling housing construction demand in Kenya (Kagochi & Kiambigi, 2012). In 2004, Kenya's central bank recorded US\$33.8 million in diaspora remittances and by 2015 the annual flow had increased exponentially to US\$1.5 billion (Central Bank of Kenya, 2015). Data from 2019 indicates that the remittances had reached US\$2.8 billion, almost a 2-fold increase in less than half a decade (Central Bank of Kenya, 2020b).

Historically, for more than a century, Nairobi has been subject to formal planning. The city's roots can be traced back to British colonial rule with its establishment as a transport depot in 1896, "with stores and stables for oxen and mules" (White et al., 1948, p. 10). In 1899, it became headquarters for the Kenya Uganda Railway (KUR), when the railhead of the Kenya Uganda railway reached the area, becoming an administrative headquarters for the colonial government in the same year (Obudho, 1997, p. 297). By 1900 the Nairobi Municipal Community had been established to administer the city but this body was later replaced by the Nairobi City Council in 1919 (Obudho, 1997, p. 299). Nairobi was elevated to city status in 1954 and became Kenya's capital in 1963. Since then, the city has grown into a bustling cosmopolitan metropolis in the twenty-first century. In this entire time period of more than a century, since its founding, no less than five formal plans of the city have been made (**Table 2.3** and **Figures 2.2 – 2.6**).



Table 2.3 Formal Plans Prepared for Nairobi, 1898 – 2014		
Year	Plan Name	Author
1898	Plan for a Railway Depot	Arthur F. Church
1927	Plan for a Settler Capital	F. Walton Jameson & Eric Dutton
1948	Master Plan for a Colonial Capital	White, Silberman & Anderson
1973	Metropolitan Growth Strategy	Gupta & Monson
2014	Proposed Structure Plan for Nairobi	JICA Study Team (JST)

Compiled by Author from (Nairobi City County & JICA Study Team, 2014; Rahbaran & Herz, 2014)

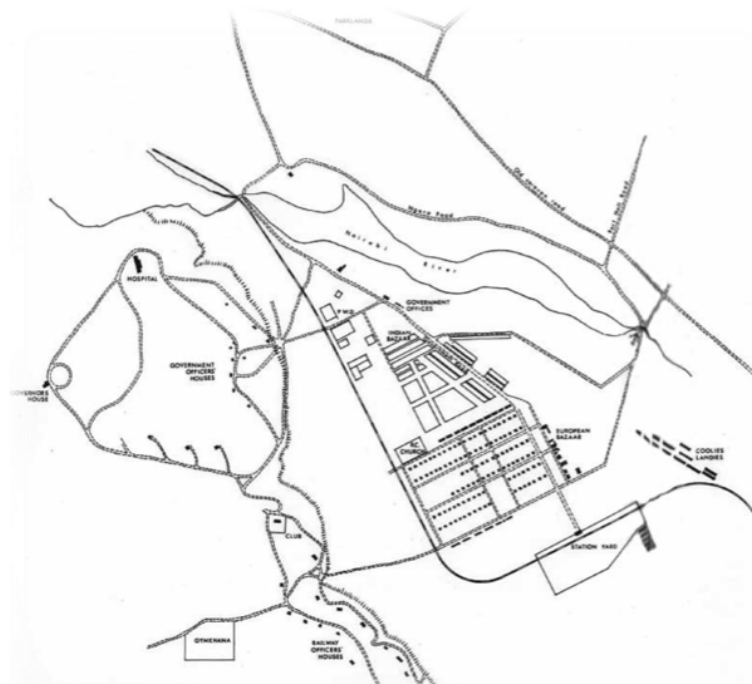


Figure 2.2 Plan for a Railway Depot, 1898 by Arthur F. Church. (Mills, 2012)

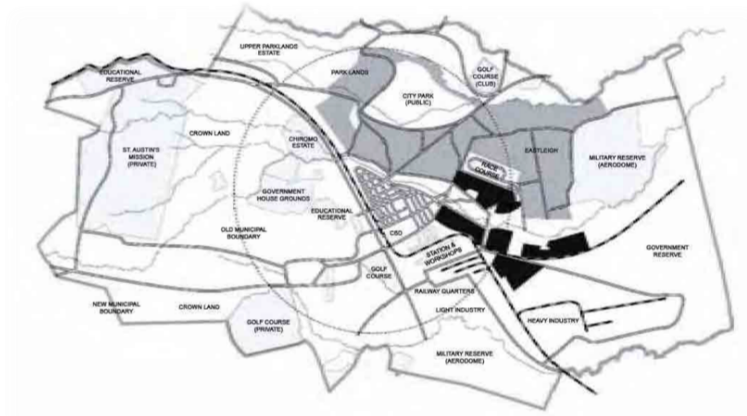
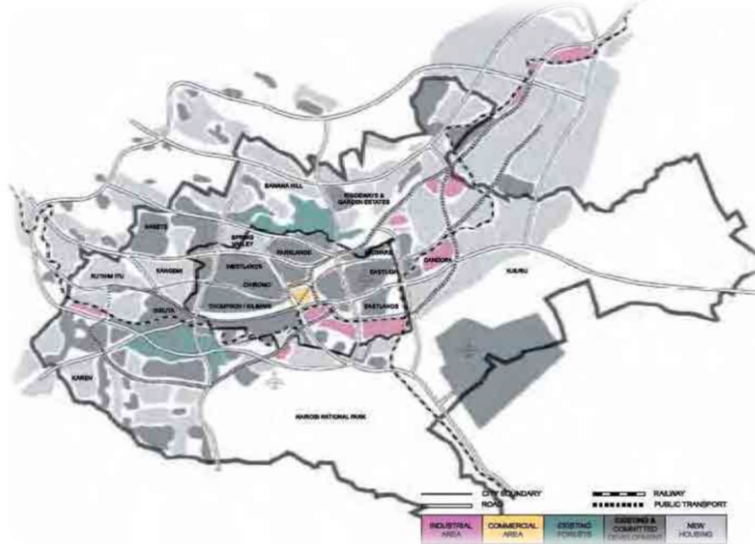


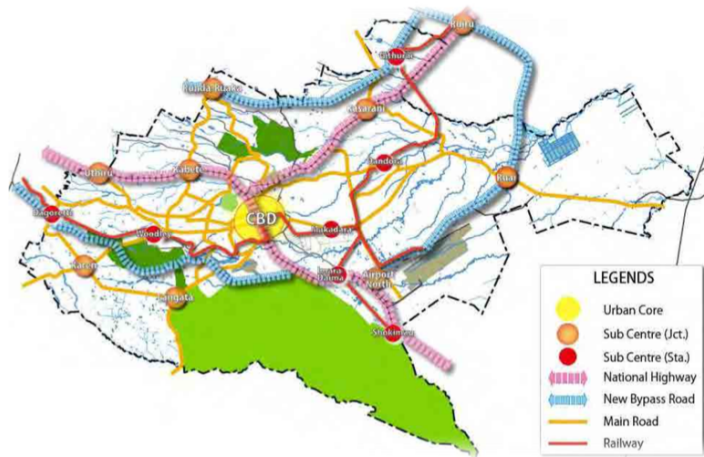
Figure 2.3 Plan for a Settler Capital, 1927 by F. Walton Jameson and Eric Dutton. (Rahbaran and Herz, 2014)



Figure 2.4 Master Plan for a Colonial Capital, 1948 by White et al. (Rahbaran & Herz, 2014)



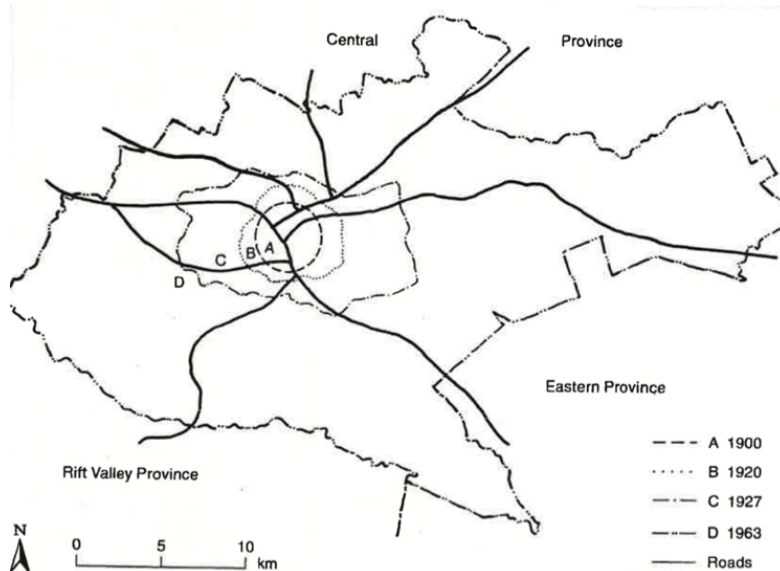
**Figure 2.5** Nairobi Metropolitan Growth Strategy, 1973 by Gupta and Monson. (Rahbaran and Herz, 2014)



**Figure 2.6** Structure Plan for Nairobi, 2014 by JICA Study Team. (Nairobi City County & JICA Study Team, 2014)

However, despite these repeated attempts to plan the city, none of the plans have ever been fully realized. With the exception of a few significant aspects, such as the location of the CBD, the basic structure of the road network, and the general disposition of the industrial and residential areas (Huchzermeyer, 2011a, p. 164; Obudho, 1997, p. 299), the city has largely transformed without adherence to the official plans. This signifies the *ad hoc* nature of the

city's urban transformation from the very beginning. Moreover, in its more than a century old history, Nairobi's boundary has been modified officially only four times<sup>19</sup>; in 1900, 1920, 1927, and in 1963, when Kenya attained independence from British rule (See **Figure 2.7**).



**Figure 2.7** Nairobi boundary changes, 1900 – 1963. (Obudho & Aduwo, 1992, p. 53 in Obudho, 1997, p. 295)

Since then, (for the more than half a century since Kenya became independent), Nairobi's boundary has remained relatively static despite the rapid expansion of the city's population. Over this time period, Nairobi's population has increased fifteen-fold from about 300,000 people at independence, in 1963, to a current population, by 2019, of almost 4.5 million people (See **Table 2.4**).

<sup>19</sup> A marginal increase in Nairobi's area of one percent from 696 to 703.9 square kilometres, is noticeable in the inter-censal period from 2009 to 2019. This may possibly be the result of the re-designation of Nairobi city as one of 47 counties following the promulgation of Kenya's new constitution in 2010. Additionally, an earlier increase of less than one percent is noticeable in the inter-censal period between 1989 and 1999 (Table 2.4). However, an explanation is not offered by KNBS for this discrepancy.

<b>Table 2.4</b>		
<b>Nairobi's Population Growth, 1906 – 2019</b>		
<b>Year</b>	<b>Area (Sq. Km)</b>	<b>Population</b>
1906	18.13	10,512
1928	25.37	29,864
1931	25.37	47,944
1936	25.37	49,606
1944	25.37	108,900
1948	25.37	118,976
1962	25.37	266,795
1969	689.45	509,286
1979	689.45	827,775
1989	689.45	1,324,570
1994	689.45	1,690,000
1999	695.1	2,143,254
2009	695.1	3,138,369
2019	704	4,397,073

Source: Compiled by Author from (Kenya National Bureau of Statistics, 2010a, 2019a; Obudho, 1997; White et al., 1948)

A consequence of the static boundary in a context of a rapidly expanding population has been increased pressure on finite habitable land. Hence, pressure on the scarce resource is predictably leading to an escalation of land costs and, in turn, consequently pushing up the cost of housing, which has historically been in limited supply. In a country with a housing deficit of 2 million units, growing annually at 200,000 units (Kioleoglou, 2019; World Bank, 2017), and with less than 50,000 units produced annually (World Bank, 2017); Nairobi, as the largest urban centre in the country, is thus at the very epicentre of the country's housing challenge.

This is further exacerbated by its larger share of the country's urban households relative to the country's other cities and counties. With more than 1.5 million households, the city accounts for 12% of the country's total number of households (Kenya National Bureau of Statistics, 2019a). This is almost twice as many households as in the next populous county (Kenya National Bureau of Statistics, 2019a). Moreover, further highlighting the housing challenge, in the ten year inter-censal period since 2009, the number of households in the city increased by 53%, or an additional 521,872 new

households in real terms (Kenya National Bureau of Statistics, 2010a, 2019a). This, compared to a population increase of 1,258,704 or a 40% increase over the same period (Kenya National Bureau of Statistics, 2010a, 2019a).

In Nairobi, empirical research of housing transformation has primarily been undertaken in the eastern and southern areas of the city that are home to a majority of the lower-middle income and low-income dwellings (Anyamba, 2006; Huchzermeyer, 2011a; Makachia, 2010; Mitullah, 1993; Ondieki, 2016) as well as informal settlements (Ese, 2014; Mukeku, 2014). Some research has also been undertaken in the north east of the city documenting informal development in a middle-income area at the periphery of the city (Gatabaki-Kamau & Karirah-Gitau, 2004). However, there is a dearth of systematic accounts of rapid market-driven housing transformations occurring in the western and northern residential areas of Nairobi that were historically the abode for the more affluent citizens. The previously low-density residential areas are visibly undergoing densification through the transformation of low-rise single-family detached housing units into mid to high-rise apartment blocks. This transformation, occurring in the city synonymously with a rapidly expanding middle class (African Development Bank, 2011; Neubert, 2016) and a fast-growing economy (International Monetary Fund, 2019), is unlike previous transformation witnessed in the city.

## **2.2. Theoretical Perspectives**

In this sub-section, a number of theoretical perspectives that collectively underpin the study are discussed. It begins with a discussion of what can generally be termed as theories from the south or southern urban theory and their usefulness for the study. This is followed by a discussion of theories of space, its conceptualization and meaning as largely derived from a global North perspective. These are however highlighted for their partial validity in a global South context. The theoretical perspectives, southern and northern, taken together, form a framework that underscores the theoretical positioning of the study. They help to inform the imbricated nature of the variant, interrelated and interlaced forces shaping the contours of the ongoing urban transformation.

### 2.2.1. Southern Urban 'Theory'

In this sub-section, the southern theoretical perspective underlying the study is explored. It suggests the broader theoretical disposition within which the ongoing urban transformation is situated; a southern urban lens or conceptualizations about African and southern urbanisms or cities of the south (Oldfield & Parnell, 2017, pp. 1–2). This was seen as important in providing a logic for interrogating the ongoing phenomenon through, “different perspectives, concepts, [and] arguments,” (Mabin, 2017, p. 23) than would otherwise obtain from relying solely on global North perspectives and urban theoretical formulations. These northern perspectives have been argued to be inadequate or insufficient in accounting for global South realities (Edensor & Jayne, 2012; Mabin, 2017; Patel, 2017; Roy, 2009; Watson, 2009) and are instead considered to be better suited at explaining urban transformation in the global North. It was important to understand that a very different form of transformation that is peculiar to the global South was occurring. The southern theoretical orientation captures well prevalent issues in this part of the globe such as informality, irregularity and poor urban management that are seen to pervade many aspects of urban life (Hansen & Vaa, 2004; Huchzermeyer, 2011b; Huchzermeyer & Karam, 2007; Pieterse & Parnell, 2014; Simone, 2004).

Alan Mabin (2017, p. 23) suggests that those engaging in the promotion of 'theory from the south' endeavour to do so in the intersection of features of cities of the south including, “a political economy of insufficient resources to provide on average a decent life for all; and (post) colonial disabilities.” 'South' as deployed in this thesis conveys both the sense of a geographical area (Roy, 2009), incorporating its delineation in the division of the world into North and South according to the Brandt line (Robinson, 2017, p. 60), and a positionality contrary to a northern or western one, particularly as a consequence of a shared history in colonialism (Patel, 2017, p. 47).

As a critique of theories from the South, Mabin (2017, p. 29) notes that what is suggested as novel in cities in the global South, may not be entirely the case. For example, he points to Samara et al.'s proposal of, “three defining aspects of the city”, which they specify as, “social polarisation and spatial division [with]...local expressions of transnational governance”; “refashioning of certain city quarters into cosmopolitan landscapes”; and “complicated politics arising from...changes cities are experiencing,” that are, “said to constitute an identifiable...transnational urbanism distinctive to the Global South” (Sumara et al., 2013a, p. 2 *as cited* in Mabin, 2017, p. 29). These he considers to be issues already explored in literature on cities such as

“New York, London, Paris, Berlin and Moscow” located in the global North (Mabin, 2017, p. 29). He nonetheless concludes that “theorizing the city” has to, “deal with difference...diversity of the urban and what difference such diversity makes for society” (Mabin, 2017, p. 31).

Thus, it can be argued that theories from the South make possible the rendering of the diversity of southern cities; an aspect that remains largely invisible in universalizing urban theory derived from the global North. Indeed, as Patel (Patel, 2017, p. 38) argues, “The new global world order, cannot accept a thesis that standardizes the western experience and hegemonizes it as the only singular articulation of a model of modernity across the world.” However, even in highlighting diversity, an important point that Robinson (2017, p. 63) makes, in terms of analytic tactics of global urbanism, has to do with “*repeated instances*.” Drawing on Deleuze (1994 *as cited* in Robinson, 2017, p. 63), she suggests, for example, in the case of urbanization, that, “many of the processes of production are shared across different instances, such as with policy circulation, or circuits of investment related to urban regeneration.” Hence, “in this view, then, each instance or repetition is only a step aside from other instances, or singularities, distinctive but intimately connected with other specific outcomes (Deleuze, 1994 *as cited* in Robinson, 2017, p. 63). Supporting this line of reasoning, she cites Jane Jacobs (2006) comparative analysis of the, “globalising residential high-rise.” As she reports, “For Jacobs, each instance *produces* [italics in original] the global *effect* [italics in original] of international modernism in her comparative research on the residential high rise: each case is a singularity, and not an example of an already given global process” (Jacobs, 2012 *as cited* in Robinson, 2017, p. 63).

Watson (2017) summarizes the potential benefits of a theory from the South. Referring to southern planning theory she suggests that such a perspective is an argument for, “contextualized and historicized grounded research which also recognizes the location of any place and process in a system of global relations” (Watson, 2017, p. 105).

Hence, much as the thesis resulted in specific outcomes that could be termed a singularity. They are, arguably, despite their particular characteristics, an instance of processes leading to urban transformation. Moreover, the thesis is grounded in a particular context in the global South but this does not mean that it is necessarily divorced from the global phenomenon of urban transformation, which is a feature of contemporary societies.



### 2.2.2. Theories of Space, its Conceptualization, and Meaning

In this sub-section, some perspectives on urban space and its conceptualization and meaning are explored. It relies on positions on urban space and its experiences put forward by Henri Lefebvre (1992). It also looks at some perspectives on understanding urban space through morphology as enunciated by Aldo Rossi (1984) and M.R.G. Conzen (1969). The perspectives all resonate, at least partially, with aspects of the ongoing urban transformation in Nairobi. Despite this being a global South context, the global North perspectives have explanatory power in partially accounting for the ongoing phenomenon hence cannot be entirely discounted. This supports the position that global South theory is not yet completely distinct from global North theoretical formulations (Mabin, 2017).

Henri Lefebvre (1992), in his book, *The Production of Space*,<sup>20</sup> suggested a tripartite conceptualization of space. These are: 1) spatial practice, 2) representations of space, and 3) representational spaces. In other words, construed as, “the perceived-conceived-lived triad...” (p. 40). Elaborating them in turn, he suggests, firstly, that spatial practice, as a perceived space, refers to the association, “between daily reality (daily routine) and urban reality (the routes and networks which link up the places set aside for work, ‘private’ life and leisure” (p. 38). Secondly, he suggests that representations of space as conceptualized space, are viewed as, “the space of scientists, planners, urbanists, technocratic subdividers and social engineers, as of a certain type of artist with a scientific bent – all of whom identify what is lived and what is perceived with what is conceived” (p. 38). In essence, they are verbally describable. Lefebvre suggests that in any society, the representation of space is, “the dominant space... (or mode of production)” (p. 39). However, in the global South, this may not be the case given that informality is viewed as almost all pervasive. Lastly, he suggests that representational spaces are, “space as directly *lived* [italics in original] through its associated images and symbols, and hence the space of ‘inhabitants’ and ‘users’...” (p. 39). This, in a sense, is the lived experience – mostly symbolic and non-verbal. Lefebvre suggests that such space, “is the dominated – and hence passively experienced – space which the imagination seeks to change and appropriate.” And further that, “It overlays physical space, making symbolic use of its objects” (p. 39).

Lefebvre’s conceptualization of space provides a useful means of understanding a transforming urban context. Deploying spatial practice or

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<sup>20</sup> First published in French in 1974 as *La Production de l’espace*. (Paris, Anthropos). English translation by Donald Nicholson-Smith: Lefebvre, H. (1991). *The production of Space*. (Blackwell Publishing).

perceived space, it is possible to examine the morphology of a transforming urban habitat as structuring the emergent link between “daily reality” and “urban reality” hence makes visible potential transformations along these dimensions of urban experience. Representations of space bring to the fore the idealized formulations of urban space held by actors such as developers, architects, planners, and regulatory authorities. These are made manifest in formal plans in which the use of urban space is conceived. Representational spaces, bring to light the lived experiences of ‘inhabitants’ and ‘users’ of urban space. In particular, it can draw attention to how users, such as residents of an urban habitat, appropriate urban space by according it symbolic meaning. For example, the notion that living in a given residential area signifies one’s status in society, such as being middle class.

While positions on space such as Lefebvre’s are critiqued within global South theoretical discourse as Western or global North perspectives of inappropriate or limited utility in the global South (Edensor & Jayne, 2012; Patel, 2017; Roy, 2009; Simone, 2004; Watson, 2009), such perspectives are not entirely without value. They do have some merit in possessing some explanatory power even though this may be partial. Thus, they are useful in providing a means of making sense of phenomena that may have commonalities regardless of locations throughout the globe (Mabin, 2017).

Thus, Lefebvre’s conceptualization of the production of space and his triad of the perceived-conceived-lived (in spatial terms: spatial practice, representations of space, representational spaces) (Lefebvre, 1992, p. 40), contributes to the understanding of the nature of a transforming urban space and the inherent tensions between the different pulls and pushes within it. Furthermore, his triad of understanding space that proposes multiple meanings of space also helps to theoretically tie together these different pulls and pushes occurring in the transforming urban context. It has relevance in the global South because of the influence of global North capital, values, and ideas in the global South. Some of these include neoliberal ideology, post-colonialism and globalization. Moreover, as a spatial theory, Lefebvre’s concept of the production of space in describing the ways space is organized in a society, is an expression of society itself.

Another important perspective in understanding urban space is the morphological approach to reading physical structures and the different traditions of morphological studies. These traditions have different origins, in the Italian post-war academic discipline of architecture and urbanism and in the English tradition of urban geography. In my study of urban transformation both approaches are interesting. The book by the architect and

architectural theoretician Aldo Rossi *L'Architettura delle Città* (Rossi, 1966)<sup>21</sup> somehow summarized the Italian tradition, with the intention of conceptualizing and describing urban structures and artefacts. The theoretical background of the study collects from social sciences as well as art history and architectural history. The object of the study is, however, the city as architecture, or more precisely; as locus solus, the structural principles, the morphology and topology, the building typology and the iconography. Rossi thus establishes a set of analytical categories, useful in transformation analysis.

The geographical tradition deals with spatial organisation and patterns more than physical architectural objects. Here, the approach developed by M.R.G. Conzen known as the town plan analysis (Conzen, 1969) is particularly useful in offering a way of reading urban space. This approach consists of three key aspects: the town plan, pattern of building forms, and pattern of land use. The town plan in turn entails the study of three key components – streets, plots, and buildings. These components run as a common thread in the understanding of urban morphology and urban form and provided a useful way of comprehending essential features of urban transform.

The foregoing theoretical perspectives are particularly useful in enabling the understanding of urban transformation. This is especially the case in their translation into architectural and urban theory that gives prescriptions on how to conceptualize, read and interpret the architecture of the city.

The southern and northern theoretical perspectives discussed above form a theoretical constellation that constitutes the theoretical framework underpinning this study. A big motivation for using the afore-discussed theories was to approach the understanding of a dynamic phenomenon of urban transformation largely from the point of view of the drivers of change. Considered individually, the theoretical perspectives only go part of the way in explaining urban transformation in a dynamic urban context. But considered collectively, they enable a much more comprehensive and nuanced understanding of the phenomenon.

A common denominator of the southern and northern theoretical perspectives is that they centre urbanism as a way of understanding an urban context. David Harvey (2009) argues that to understand a city we must have a theory that combines social processes and spatial forms. He notes that we cannot understand the city by staying within one discipline. That different

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<sup>21</sup> First published in Italian in 1966 as *L'architettura della città*. (Padua: Marsilio). English edition: Rossi, A. (1982). *The architecture of the city*. Cambridge, MA: MIT Press, Opposition Books

disciplines represent different ways of looking at facets of the city. He argues for urbanism as a way of looking at the city. As providing, “a thread of an argument which serves to pin important but seemingly disparate topics together” (Harvey, 2009, p. 16). In this way this thesis looked at both urban form and social processes as inherently interrelated phenomena with each potentially co-constituting the other. Hence, providing a more productive way of contemplating urban transformation.

### **2.3. Approaches to the Study**

In this sub-section, the approaches that informed the research study are discussed. Perspectives on urban transformation are discussed, along with ways of understanding urban processes and actors. Ways of reading urban outputs and outcomes are also considered. A review of literature on sustainability is also undertaken particularly in relation to appraising the urban context. Also reviewed are concepts of urban quality and ways in which they can inform the evaluation of a transforming urban context. The sub-section ends with a discussion of how concepts of urban quality and sustainability inform the evaluative lens for this study.

#### **2.3.1. Perspectives on the Study of Urban Transformation**

A number of perspectives on urban transformation are evident from scholarly work. Some commentators have called for a more integrated approach to transformation. A case in point is Albers and van Beckhoven (2010) who make a strong case for integrated approaches in urban neighbourhood renewal, suggesting that a strategy that entails shared goals, strong leadership and a centralized budget is a practical way of overcoming the challenges that such an approach typically encounters. On the other hand, Tipple (2000), basing his argument on a survey of 1600 dwellings in Bangladesh, Egypt, Ghana and Zimbabwe, posits that low-income households, without authorization, tend to transform (through changes and extensions) existing government-built housing that is in poor physical condition to meet their particular expectations and that these activities add to existing housing, upgrades the housing stock and creates variety out of uniformity. He contends that the government has a lot to gain by enabling the transformations since they serve to address a real housing need. He also proposes that policy makers should take a positive view towards the transformations and implement enabling policies in financing (availability of finance for extensions, and finance for contractors and artisans), and physical planning policy and regulations (plot size and shape, design and siting of the

dwelling on the plot, review of building regulation and planning norms and service lines) in order to increase the frequency and quality of the transformations and to harness the full potential of the low-income households who, in his view, are active in the housing sector.

Tipple's proposed policy framework, which would acknowledge and enhance the role of low-income households as an integral aspect of the city's housing supply system, can be read as suggesting an alternative framework for approaching housing in developing countries. However, the proposal does not encompass the emergent market-driven role of private developers who are profoundly transforming existing government-built housing in emergent middle-income areas of rapidly developing cities such as Nairobi. Nonetheless, some of his proposals for physical planning policy and regulations may have some value for housing transformation in formal middle-income urban contexts.

An insightful perspective on the critical dimensions that impact the development of housing in Africa is offered by Kecia Rust (2016). She suggests understanding the delivery of housing in terms of a housing value chain. In her proposal, this consists of seven components: 1) Land assembly/acquisition, 2) Title/tenure, 3) Bulk infrastructure, 4) House construction, 5) Sales and transfer, 6) Maintenance and ongoing improvements, and 7) Social and economic infrastructure. Implications of this framework are that property development is most likely to occur where the proposed factors are best addressed. It also suggests the multitude of factors that may be at play in influencing housing development as a subset of urban transformation. Her approach arguably indicates the potential degree of influence for those actors able to play a leading role in any of the factors along the value chain.

A comprehensive explanation of ways in which transformation may be understood, especially within the urban context has been offered by Inam (2014) who has posited four alternatives. Three of which are relevant perspectives. These may be summarized as: one, "major shifts in patterns of the material city, in which significant changes over scales of time and space are crucial"; two, "in terms of rapid and large-scale population growth"; three, "as measured through quality of life indicators such as health, pollution, education, and infrastructure..." (Inam, 2014, pp. 212–214).

Inam (2014) nevertheless goes on to argue that the foregoing understandings of urban transformation over-emphasize spatial change thus offering a limited perspective, contending "that an over-emphasis on physical changes in the

material city can lead to a relatively superficial understanding of urban transformation” (p. 215). He therefore suggests an alternative way of understanding urban transformation that goes beyond the physical change of the material city to one that is construed as having a direct impact on people’s lives thus that, “urban transformation must be experienced as a process, an outcome, or a possibility – even if, sometimes, it can only be recognized in hindsight” (Inam, 2014, p. 215).

Inam’s critique of urban transformation as commonly understood in terms of physical material changes draws attention to the importance of contemplating and understanding the processes, outcomes and the actors impacted by transformation. In line with his approach, this thesis entailed an investigation of the processes and outcomes of urban transformation but with emphasis on the specific roles played by the actors in the foregoing. In addition, social dimensions that go beyond the physical transformation were also explored. This is particularly due to their co-occurrence with the ongoing physical transformation.

### *Using a morphological approach*

Recent definitions of urban morphology lay emphasis on certain aspects of urban form and processes to various degrees. On the one hand, the International Seminar on Urban Form (ISUF) defines urban morphology as, “the study of the physical (or built) fabric of urban form, and the people and processes shaping it” (International Seminar on Urban Form, 1990). On the other hand, taking a broader view, Karl Kropf (2017, p. 9) defines urban morphology as, “the study of human settlements, their structure and the process of their formation and transformation.” Meanwhile, Vitor Oliveira (Oliveira, 2016), in a definition that encompasses the foregoing perspectives while expounding them, proposes the following:

Urban morphology means the study of urban forms, and of the agents and processes responsible for their transformation, and that urban form refers to the main physical elements that structure and shape the city – urban tissues, streets (and squares), urban plots, buildings, to name the most important. (Oliveira, 2016, p. 2)

The foregoing can usefully be traced back to ideas put forward by Rossi (1984) and Conzen (1969), discussed in an earlier section (See **Section 2.2.2**). Conzen’s proposal for the study of the town plan as entailing the study of three components – streets, plots, and buildings – was particularly relevant for this study. However, while the three components were germane to the

study and therefore investigated, greater emphasis was placed on the latter two about which a greater degree of morphological transformation has occurred due to market dynamics. As Zhang and Ding (2017) suggest:

Of these levels the street (and street-block) is strongly interrelated with the urban structure of the entire city. This means that it is affected by urban top-down decision making and not exclusively reliant on the market, whereas the plot and the building are strongly influenced by individual developments closely related to the market.

From the perspective of urban morphology, Rossi (1984, p. 64) suggests that, “the study area would include all of those urban areas that have a physical and social homogeneity.” In his view this concept of area is particularly applicable to a residential district, which he sees as, “a piece of the city’s form.” He notes that a residential area is normally in terms of structure and morphology a homogenous area – a “morphological and structural unit” – set into the collage of the city (Rossi, 1984, p. 65).

In terms of a building as an analytical focus, the issue of typology comes into play. Rossi (1984, p. 41) suggests that, “typology is an element that plays its own role in constituting form”, rather well illustrated in the transformation of Kileleshwa, representing a full typological transformation. Rossi suggests that their forms and typological aspects of residential buildings are closely tied to urban form (Rossi, 1984, p. 70). Some building types he describes include: multi-story housing, single-family housing, and semi-detached housing (Rossi, 1984, p. 74). He also proposes the classification of houses, using socio-economic criteria, into four categories: the pre-capitalist house, the capitalist house, the para-capitalist house, and the socialist house (Rossi, 1984, p. 50). Of interest in this thesis, is the capitalist house that Rossi defines as one, “which is meant for rental and in which everything is subordinated to the production of revenue” (Rossi, 1984, p. 50). The typology of such a house, which even beyond rental yield is developed for sale, was a key focus of the investigation. In this case, this was the apartment block (multi-story housing) and the form in which it was expressed both in height and other physical attributes; as well as the types of apartment units it was comprised of. In the Kenyan real estate market, apartment unit types are categorized in terms of the number of bedrooms they contain.

The foregoing perspectives on urban morphology, in bringing into view not only urban form, its structure and building typology, but also agents and processes acting on it, emphasize important dimensions of urban transformation. Thus, urban morphology was considered to be well-suited for

the study of urban transformation in allowing for the concomitant study of both urban form and the processes and actors shaping it. It is for this reason that it was adopted as the means of studying urban transformation. With a morphological approach to the study of a transforming urban habitat, a greater level of detail of the structural changes in the urban context could be uncovered; and this could be done in tandem with the unearthing of forces shaping them. Hence, it was viewed to be a highly relevant and productive approach.

### *Using a case study approach*

Duminy, Odendaal and Watson (2014, p. 185), viewing case study research as, “a broad set of ideas, theories and methods,” argue that it is useful in two ways. One, in terms of the “type of knowledge” it produces, and two, in terms of its “process”. For the former, they argue that case study research, “generates the concrete, contextual data that are necessary for enhanced social practice, by fostering a nuanced understanding of why certain phenomenon exist and ‘how it came to be that way’.” For the latter, they point out the process by which it enables the researcher, “to engage with many different actors,” particularly, “local communities and members of the urban poor” (Duminy et al., 2014, p. 185). While the urban poor were not the primary focus of this thesis research, engaging with the local community - in this case, middle-class residents - was important as a subset of the key actors investigated.

The case study, “pays close attention to reality and focuses on the details of events as they actually happened,” hence its value is in, “its capacity to show what has happened in a given setting, and how” (Duminy et al., 2014, p. 193). Thus, with its “close attention to empirical detail and process,” it is highly suited, “to the analysis of the complex causality, material and power relations, ethics and judgements that give rise to real-world planning outcomes” (Duminy et al., 2014, p. 193).

Citing Flyvbjerg (2011), Duminy, Odendaal & Watson (2014), note that he argued that case study research was not just limited to qualitative analysis but that it was robust and flexible enough to accommodate quantitative analysis as well (Flyvbjerg, 2011 *in* Duminy, Odendaal & Watson, 2014, p. 193). This, they considered, potentially, to be, “an important means of interdisciplinary engagement and analytical innovation, offering a methodological space in which medium and long-term structural dynamics may be understood and contextualized within the specifics of a local site or event.” For them, the focus on context makes it possible to derive insights



from a wide variety of urban spaces and neighbourhoods in Africa while avoiding “uncritical generalizations” (Duminy et al., 2014, pp. 193–194).

Taking a more expansive view of the case study, Robinson (2017) argues for the redefinition of a case so as to extend it beyond the restriction of territory and comparison between relatively similar cities and enable comparison between dissimilar cities in order to make possible contribution to the theorizing of cities. She suggests, for example, comparing,

specific elements or processes in cities, or the circulations and connections which shape cities, thus rendering urban experiences comparable across a much wider range of contexts, and building research strategies which are adequate to the complex spatiality of urban forms. (Robinson, 2017, p. 57)

Robinson (2017, p. 66), in a further attempt to restructure the case, also questions whether a case should be considered as “an example of wider processes, or a ‘context’ in which wider processes are hybridized.” She proposes an alternative view. Following Deleuze, she suggests that cases be considered, “as singularities – specific (if repeated differently) outcomes resulting from empirically determinable processes” (Robinson, 2017, p. 66). She views this as a way in which a large variety of urban experiences can contribute to theorizing the urban.

In undertaking this thesis, the more expansive potential of the case and its usefulness as a singularity or specific outcome of an empirically determined process was considered an important means by which the findings of the study could contribute to a deeper understanding of the specificities and generalities of processes underlying transformation in urban contexts. Further, a corpus of empirical studies deploying the case study as a means of illuminating specific contexts exists in research undertaken in the East African context (Anyamba, 2006; Bahendwa, 2013; Makachia, 2010; Moshi, 2009; Mukeku, 2014; Okello, 2017; Ondieki, 2016; Tarekegn, 2000). Moreover, the case study, offering the context within which the empirical findings of the investigation were anchored, was viewed as central to acquiring a more detailed understanding of the processes and outcomes of the dynamic phenomenon of ongoing urban transformation.

### 2.3.2. Understanding Urban Processes and Actors

The importance of the process of urban transformation and the integral role played by the actors involved is developed elaborately in a model propounded by Ambrose (1994) who outlines a system that produces and maintains the built environment. He seeks to show that urban processes that result in the built urban environment involve interactions between various actors and factors. In his detailed diagram (Ambrose, 1994, p. 40) and description, based on the UK, he identifies five main sequential stages in the production of elements in the built environment. These he establishes as promotion, investment, construction, allocation, and management (Ambrose, 1994, pp. 40–41). He distinguishes two categories of actors and factors that may be involved in any of the stages. These he describes as either democratically accountable (DA) or non-democratically accountable (NDA). In the former, he includes state and local government authorities and public revenue sources and, in the latter, he places commercial and voluntary real estate developers, private construction companies, and private sources of finance (Ambrose, 1994, pp. 35–47). He further distinguishes the two categories of actors as either motivated by social concerns driven by social need in the case of public authorities or driven by capital accumulative or profit motives and non-profit motives in the case of investors and voluntary organizations respectively (Ambrose, 1994, pp. 35–47).

Ambrose's model is useful in identifying some of the key actors and their interrelationships in processes of urban residential transformation hence provided a valuable starting point for the development of a framework that would more accurately convey the situation in the production of high-rise apartment housing in Nairobi's suburbs.

In the context of urban transformation, the role of the planner within the local authority as a key actor cannot be overstated. Nevertheless, the planner's role has itself undergone transformation over time. Taylor (1998), conveys the change quite clearly in tracing the evolution of planning theory since the end of the Second World War, specifically in the British context, but with broader implications. In his account, he summarizes two key threads relevant to urban processes; the first, has to do with the role of planning agencies such as local planning authorities and the second, the change in the role of the planner within an agency. For the former, he notes the change in planning theory and practice from a concern with urban design, exemplified by implementation of ideas related to the garden city movement (as theorized by Ebenezer Howard and developed by Raymond Unwin); to utopian future cities and functionalist modernism (as theorized and practiced by Le Corbusier); to a concern with

systems thinking that considered the broader environmental context in the 1960s; and subsequently to a concern with the rational process of the step by step procedure of undertaking planning in the 1970s. For the latter, he notes the parallel evolution of the role of the planner within the urban process from more of a technical expert with all the requisite knowhow, to that of being more of a singular agent, amongst many others with competing values, initially playing more of a managerial role to currently acting more as a facilitator in bringing together and working as a partner with other stakeholders such as developers and residents recognized as important constituents in the urban process. Thus, Taylor's analysis of the evolution of planning establishes the planner (especially as acting through a local authority) as only one of the key actors in the urban process.

Urban processes and the various ways in which residents as primary actors have been involved in shelter provision, albeit low-income, in the context of East Africa have been discussed by various urban researchers. The various strategies can be classified as informal and includes research by: Makachia (2010) who documents dweller-initiated transformations in which formally developed planned housing in *Kaloleni* and *Buruburu*, estates in the eastern residential area of Nairobi, Kenya, have been transformed by residents to meet emergent needs in a low income context; Mukeku (2014) who discusses the logic underlying the built environment in an informal settlement in Nairobi, Kenya; Bahendwa (2013) who describes an emergent urban form in Tanzania, primarily anchored in informal housing that has been initiated by residents; Moshi (2009) who discusses emergent building types in an area of Dar es Salaam, Tanzania, in which the transformation is the consequence of uncoordinated individual decisions; and Anyamba (2006) who discusses various forms of informality by residents that are characteristic of the production of place in Nairobi.

The preceding urban processes transforming low income areas of cities in East Africa are in line with Turner and Fichter's (1972) argument for the perception of shelter as a process that meets needs and not as capital investment; and are a logical evolution of numerous state and international organization initiatives since the 1970s to ameliorate the living conditions for the urban residents of informal settlements. Absent in the scholarly accounts, with the notable exception of Anyamba (2006) who also discusses informality in formal areas, are comprehensive discussions of transformations occurring in historically affluent areas that are experiencing rapid transformation manifested in profound housing typology shifts.

Adopting a policy perspective to urban processes and comparing the cases of Nairobi and Santo Domingo and their governments' efforts at addressing the housing crisis, Muraya (2006) argues that historically, various strategies based on top-down approaches employed to curb the housing crisis in less developed countries (LDCs), failed because they did not engage the community in development projects. She notes that during the 1980s, the UN launched the bottom-up approach, which emphasized the involvement of community-based organizations in shelter projects. The approach promoted enabling strategies in an effort to overcome obstacles encountered under the top-down approach: namely displacement, affordability, cost-recovery, and replicability. Muraya explores what LDCs are doing to implement the bottom-up approach, and this she accomplished by examining the cases of Nairobi, Kenya, and Santo Domingo, in the Dominican Republic. Her study analyzed how the governments of both countries have responded to the policies promoted under the two approaches. She analyzed data on government policies to find out whether the governments of Kenya and the Dominican Republic have provided an enabling environment for other actors. Her study reveals that both governments have adopted enabling policies in their National Action Plans which include: facilitating the efforts of all actors in providing shelter; the use of non-conventional building materials; and the upgrading of low-income housing. Her research shows that the bottom-up approach is more likely to be successful in overcoming factors that inhibit the provision of low-income housing as compared to the top-down approach. However, while illuminating, the research neglects the formally planned areas of the city that constitute the majority of the zoned residential area. In Nairobi, the formal residential area of the city is quite substantial and accounts for 15.1% (105.2 square kilometres) of the city's land use composition while informal settlements account for 1.1% (7.8 square kilometres) of the city's land use composition (Nairobi City County & JICA Study Team, 2014).

Thus, while extensive literature exists on housing transformation processes in the lower income sectors of the city, market-driven urban processes transforming formal housing into profoundly different housing typologies within the formal context in East Africa have received scant attention in literature yet the phenomenon forms a salient aspect of construction activity in historically stable planned residential areas of cities such as Nairobi. The emergent housing typology, being a shift from primarily low-density horizontal dwellings to higher density vertical dwellings has potentially significant implications for the long-term viability of urban residential neighbourhoods hence warrants increasing attention. The apartment block exerts different pressures on the urban context in terms of infrastructure and

in the increase in the number of residents accommodated compared to low-density housing.

### 2.3.3. Reading Urban Outputs and Outcomes

The directly visible parts of urban outputs and outcomes are about the material city but economic and social change are also implicated. In this investigation, the interest was in housing within the urban context and the particular housing typology that arises from the habitat's particular processes of transformation. However, in tandem with this, demographic shifts and accompanying socio-cultural and socio-economic dimensions were also implicated as a natural consequence of the particular building typomorphological transformation. Housing was examined as a principal outcome of the development of an urban residential area. It is the most dominant form of physical manifestation that gives a residential neighbourhood its visible identity within the context of urban structure, defined, as it is, by the circulation or road network. In addition, the residents, who are the occupants of the newly developed apartment housing units, were also studied as an integral component of the urban habitat. They made possible an understanding of the economic and social aspects of the transformation.

In Abraham Maslow's hierarchy of human needs, shelter is considered one of the basic needs without which humans would be unable to achieve higher needs (Maslow, 1943). Indeed, shelter provision is a principal concern for most governments as evidenced by the presence of state and local government departments in various countries dedicated to issues related to housing. For example, Kenya has a State Department for Housing and Urban Development within the Ministry of Transport, Infrastructure, Housing, Urban Development and Public Works. The United States has a Department of Housing and Urban Development (HUD) while the United Kingdom has a Ministry of Housing, Communities and Local Government. Since 1978, the United Nations has echoed the importance of housing through the United Nations Centre for Human Settlements (UNCHS), which is now the United Nations Human Settlements Programme, UN-Habitat (UN-Habitat, 2014).

An incisive perspective for contemplating housing outcomes, though focusing on Medium Density Housing (MDH), is discussed by Palmer (Palmer, 2014) who suggests a user involvement perspective in advocating for an approach that would ensure the best possible housing outcome. Focusing on Australia, her main argument is that the government strategy for the provision of MDH does not result in the best possible housing outcomes.

She notes that no guidance is given beyond suggested heights and densities for MDH resulting in undesirable outcomes and calls for greater attention to be paid to the variety of MDH types possible. She argues that the lack of variety is due to the existence of a MDH production sub-system that leaves control of dwelling design in the hands of developers and financiers whose objective is to maximize development profits. Consequently, smaller dwellings for ideal rent returns, repetition of proven designs, and discouragement of innovations or deviations from the norm result because fundamental decisions about housing design, amenity, typology and usability are made via a risk adverse lens privileging market/exchange value over use value; with profit and risk having greater influence on MDH than preferences of the occupant households.

She points out that in contrast to Low Density Housing (LDH) which is developed with user input and has an owner-occupier rate of 70%, MDH and High Density Housing (HDH) is primarily purchased by investors (70%), resulting in a MDH experience of: low owner occupation rates (30%); high rates of occupant relocation compromising community network; and perception of MDH as a stepping stone towards the attainment of the ‘great Australian dream’ rather than housing equally able to accommodate the dream like LDH.

Thus, she advocates for greater diversity in MDH provision methods which encourage user input in design, prioritize use value, increase dwelling mix and prioritize design innovation. She describes successful examples from Germany and the UK and discusses in detail four emergent user design approaches in Australia – as an alternative to the prevailing MDH provision – as a possible means by which new MDH can be produced with owner input resulting in variety in design amenity, material realization, social fabric, tenure and urban texture that would assist in achieving “opportunities for denser, healthier and more liveable urban projects through greater infill opportunities and renewal of existing suburbs” (Palmer, 2014, p. n.p.).

While Palmer’s paper dwells specifically on MDH, many of the issues she highlights are useful perspectives that may be applicable to High Density Housing (HDH) as they touch on factors driving urban housing processes and their consequent outputs and outcomes.

Housing, as an outcome of the transformation process, and specifically as regards its cost of production and accessibility in terms of rent and purchase; quality of architectural design, finish, layout, and spatial use; sustainability both as a physical output and in relation to its environmental, social (and

cultural) and economic impact on the residential neighbourhood; and its relation to overall urban quality, provides a tangible measure by which the urban transformation process can be evaluated and critiqued.

My reading of sustainability issues in urban planning is that it is a necessity and a point of departure in evaluating outcomes. Does this project, plan or development make the city more sustainable? Sustainability in this way also contributes to a lens to discuss qualities. In order to answer the question, some criteria for discussing sustainability has to be established.

The vastly different perspectives on sustainability, though providing a variety of measures of sustainability, indicate the relative distances that the various approaches have in relation to environmental sustainability, which approximates a more holistic understanding of the complex and multifaceted aspects and dimensions that make up sustainability. Perhaps the ideal of sustainability is best encapsulated in the definition of sustainable development given in the 1987 Brundtland Report by the World Commission on Environment and Development (WCED) as, “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987; Strong & Hemphill, 2006). The report established three key dimensions of sustainable development – the economic, the social, and the environmental.

In general, the WCED definition is understood to have advocated a balance between the three key aspects of sustainable development: the economic, the social, and the environmental (WCED, 1987). Over the years, a number of alternative ideas have been put forward regarding possible conceptualizations of sustainable urban development. These include proposals for compact cities, carbon neutral cities, walkable cities, and green cities.

In stark contrast with development metrics premised on economic criteria such as the Gross Domestic Product (GDP) per Capita or Gross National Income (GNI) per Capita,<sup>22</sup> sustainability is increasingly emerging as an important parameter by which development is considered in the twenty-first century. It is gaining traction as the leading paradigm in global discourse on development and the transformation of cities. The emerging consensus is that current models of development that are hinged on non-renewable energy sources are no longer viable for the future sustainability of the planet (United Nations Framework Convention on Climate Change, 2018). Consequently, efforts towards global agreements on sustainable pathways have dominated

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<sup>22</sup> The World Bank, using the economic criteria of Gross National Income per Capita has classified countries into four income groups, high, upper-middle, lower-middle and low (World Bank, 2018).

the opening decades of the twenty-first century (United Nations, 2019; United Nations Framework Convention on Climate Change, 2018). For rapidly urbanizing cities in the global South, sustainability is crucial. It is increasingly no longer tenable to contemplate the future of cities without considering the issue of sustainability.

Climate Change now features regularly in international news headlines. And efforts at global agreements on how to address the challenge have become a regular occurrence. For example, the recent Paris Agreement on Climate Change in 2016 (United Nations Framework Convention on Climate Change, 2018). Global agencies such as the United Nations (UN) have adopted the sustainability mantra. In 2016, seventeen Sustainable Development Goals (SDGs) were agreed on following the expiry of the Millennium Development Goals (MDGs) (United Nations, 2019). The SDGs place sustainability front and centre on the global agenda. In addition, the international standing committee on Climate Change, the Intergovernmental Panel on Climate Change (IPCC), offers regular scientific reports on the danger of rising global temperatures and the need to forestall the trend to avoid irreversible dire consequences (Intergovernmental Panel on Climate Change, 2018).

While the SDG's are interlinked, SDG 11 is particularly specific in its focus on the sustainable development of cities. The goal is to, "Make cities and human settlements inclusive, safe, resilient and sustainable" (United Nations, 2019). The goal is particularly important for cities in the global South, which are facing rapid population growth along with unprecedented levels of urbanization. Its importance is echoed by the New Urban Agenda adopted by the UN General Assembly in 2016. The New Urban Agenda was a reaffirmation of the "global commitment to sustainable urban development as a critical step for realizing sustainable development in an integrated and coordinated manner..." (United Nations, 2016b). Sustainability is therefore becoming increasingly important as a framework for not only evaluating the viability of the choices being made in the development of fast-growing cities, but also in shaping viable pathways for ensuring the longer-term sustainability of the planet's cities.

However, literature on sustainability is inconsistent on how to define or evaluate sustainability. There are positions from which sustainability is perceived as being too narrow a perspective hence insufficient as the panacea for all urban ills. In this vein, Inam (2014) proposes that within the urban context urban transformation should be the objective rather than a singular objective such as sustainability (p. 211), and I follow Inam.



Some scholars have suggested possible features of sustainability: Unsworth (2015) discusses what she refers to as “dimensions of a sustainable neighbourhood” (p. 329). In this, she references Rudlin and Falk (1999) as having “set out principles of developing sustainable neighbourhoods for the long term” (Unsworth, 2015, p. 329). Thus, she states:

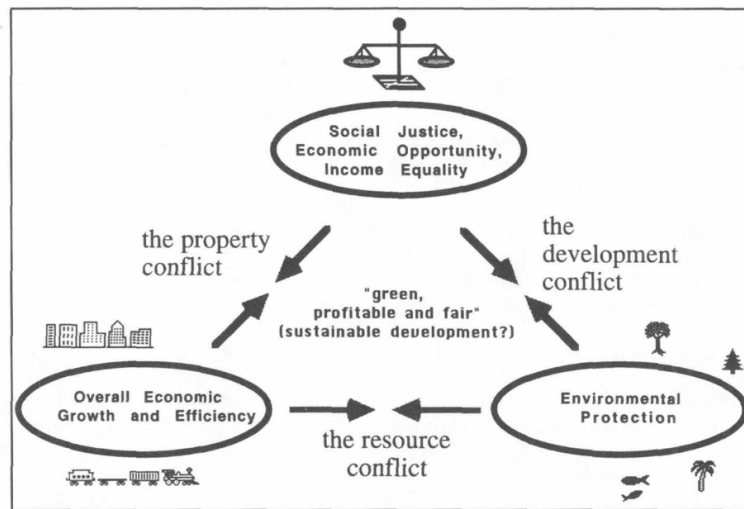
Places that accommodate households and economic activities according to thorough sustainability criteria have physical structures designed to last longer, to be as inexpensive as possible to acquire, run and maintain, while also being carbon neutral or negative and in every way exhibiting high environmental performance. Connectivity and accessibility, supporting services and cultural opportunities, green infrastructure and accommodation for productive activities have to be provided in far sighted ways to attract a wide range of residents and satisfy their needs sufficiently to keep them there. (Unsworth, 2015, p. 329)

Ancell and Thompson (2008) discuss an alternative form of sustainability, in relation to housing, which they refer to as social sustainability. They suggest that this form of sustainability can be analyzed using notions of social equity and social justice. Contrastingly, taking a broader perspective, Burton et al. (2003) consider various notions of what a compact city in relation to sustainable development may mean highlighting the different ways in which the compactness of a city especially in relation to residential areas has been conceived thus showing that a universal standard has yet to be established.

On the other hand, Dalglish et al. (1997), though focusing specifically on affordable housing provision in South Africa, bring to the fore the environmental sustainability of housing. They argue that despite new building procurement systems indicating an increasing awareness of sustainability, the concentration is on economic and social sustainability, as opposed to environmental sustainability. They go further to elaborate on a range of relevant principles for sustainable construction, which they suggest incorporates: minimisation of resource use; maximisation of reuse of resources; maximisation of use of renewable and recycled resources; use of non-toxic materials; protection of nature; achievement of quality criteria; and promotion of labour intensive methods, skills training and capacity enhancement of local people.

Notably, one of the more productive conceptualizations of sustainable urban development is Scott Campbell’s planner’s triangle (Campbell, 1996, pp. 297–300, 2016, p. 389) that proposes three E’s or priorities of sustainable

development (Equity or Social Justice, Economic Development, and Environmental protection) and their inherent tensions (Property conflict – between Equity and Economic Development; Resource Conflict between Economic Development and Environmental Protection; and Development Conflict between Environment Protection and Equity or Social Justice) with sustainability or sustainable development in the middle of the triangle (**Figure 2.8**). It suggests a way of bringing together ideas for Growing Cities, Green Cities and Just Cities<sup>23</sup> and it builds on the conceptualization of sustainable development proposed by the Brundtland report that called for a balance between the economic, social, and environmental dimensions (World Commission on Environment and Development, 1987). Nevertheless, Campbell’s diagram suggests that tension abounds between the three dimensions hence they are never in complete balance with each other.

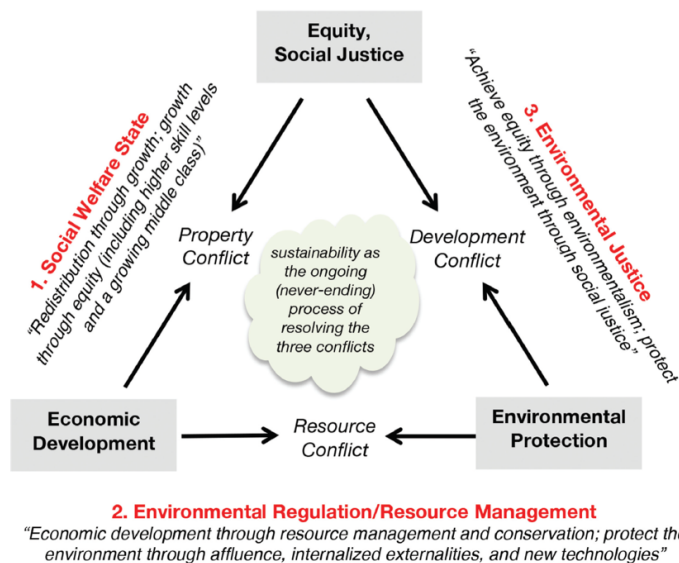


**Figure 2.8** Scott Campbell’s planner’s triangle of conflicting goals for planning, and the three associated conflicts. (Campbell, 1996, p. 298)

Moreover, since the definition of sustainable development was proposed more than three decades ago by the Brundtland report, arguably, it has been misapplied in the privileging of the economic dimension over the social and environmental dimensions (Makunda & Edeholt, 2016). In a sense the anticipated balance between the three key dimensions has never been achieved. Scott Campbell (2016), in his revised version of the planner’s triangle, twenty years on (**Figure 2.9**), suggests that the movement towards

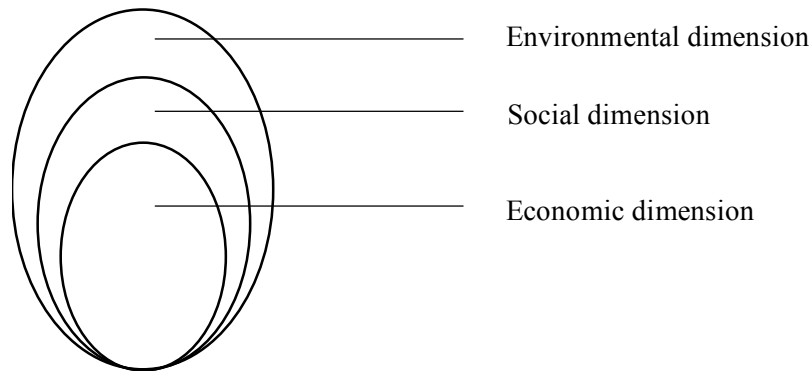
<sup>23</sup> These are terms used in the title of the 1996 Scott Campbell article: “Green Cities, Growing Cities, Just Cities?: Urban Planning and the Contradictions of Sustainable Development” (Campbell, 1996).

sustainability involves an ongoing process of resolving conflicts but never actually achieving equilibrium.



**Figure 2.9** Scott Campbell's revised and refined planner's triangle of conflicting goals for planning, and the three associated conflicts. (Campbell, 1996, p. 389)

In this thesis, rather than a focus on achieving the elusive equilibrium between the three dimensions of sustainability, a reconfiguration of the common application of the understanding of sustainable development is proposed as a useful way in which attention can also be drawn to the typically neglected environmental dimension of sustainability. In this reconceptualized understanding of sustainability in which the economic dimension is nested within the social and the environmental dimensions (Temesgen et al., 2019) (See **Figure 2.10**), the importance of the environment, which is directly linked to issues related to climate change, comes to the fore. This is not, however, to diminish the importance of the economic and social dimensions of sustainability. Rather, it suggests a possible way in which to redress the imbalance created by an over-emphasis of the economic dimension to the detriment of the other critical dimensions of sustainability, particularly the environmental one.



**Figure 2.10** A nested hierarchical disposition of sustainability's dimensions cascaded in emphasis from the environmental to the social and finally to the economic component. (Adapted from Temesgen et al., 2019)

The UN-Habitat, in its publication, *Sustainable housing for sustainable cities*, with a focus on countries in the global South, proposes a multi-scale framework for sustainable housing policies (UN-Habitat, 2012, p. 8). Expanding on the dimensions of sustainability, the framework not only has an environmental, social, and economic dimension, but also a cultural dimension. Notable in the publication, is that the environmental dimension is listed and discussed first while the economic dimension comes in last suggesting the emerging importance of the environment in current discourse on sustainability in the wake of climate change. These dimensions – the environmental, social, cultural, and the economic, are useful criteria for discussing sustainability hence, providing a way of reading and evaluating urban transformation both in terms of processes and outcomes. They can be viewed in terms of both long-term and short-term implications with respect to the local context.

Furthermore, the environmental, social, cultural, and economic dimensions of sustainability are emphasized in the UN's New Urban Agenda, which was adopted in 2016 following the United Nations Conference on Housing and Sustainable Urban Development (Habitat III) in Quito, Ecuador (United Nations, 2017). The agenda proposes a vision for a better and sustainable urban future by reconsidering the planning, designing, financing, development, governance, and management of cities and human settlements

(United Nations, 2017, pp. iv, 3). Its key aim being the achievement of sustainable urban development in cities and human settlements. Towards this aim, the agenda proposes a number of goals aimed at achieving a sustainable urban environment through what could be argued to be concepts closely related to enhancing urban quality. Some of these include: compactness, appropriate density and connectivity, social mix through the provision of affordable housing options, resilient building codes, standards and zoning regulations, combating and preventing speculation, sustainable mobility and transport infrastructure planning design, promotion of non-motorized options such as walking and cycling over private motorized transportation, provision of systems for water, sanitation and hygiene, sewage, solid waste management, urban drainage, reduction of air pollution and storm water management, provision of green and quality public spaces, and preservation of tangible and intangible cultural heritage (United Nations, 2017).

### ***Conclusion***

Thus, in conclusion, drawing from the foregoing, in this thesis, the evaluative lens deployed in the evaluation of the process and outcome of the urban transformation of Kileleshwa was informed by concepts and criteria in relation to both urban sustainability and urban quality. While there are degrees of overlap between the two, they are distinguished below for clarity.

In relation to urban sustainability, while it was important to bring to the fore the environmental component of sustainability, the social and economic dimensions were not neglected. Collectively, the three dimensions were considered an integral part of the evaluative lens with which Kileleshwa was evaluated. The cultural dimension was subsumed within the social dimension.

While many indicators are possible in the deployment of the key dimensions of sustainability as part of an evaluative lens, a few were considered particularly relevant for the context of Kileleshwa neighbourhood. Firstly, in terms of environmental sustainability, specific indicators were: the state of Kileleshwa's physical infrastructure (i.e. for water, sewerage, electricity, storm water, solid waste, and roads); availability of public open space and greenery (i.e. parks and recreational areas); and resource use (i.e. issues of minimization, efficiency, ecological footprint, and materials use). Secondly, in terms of social sustainability, indicators that were considered germane to Kileleshwa were: the availability of social infrastructure (schools, shops, health centres, and places of worship); spatial justice (in relation to income diversity, and access to the neighbourhood, which historically was an

exclusive residential area); and social cohesion (associated with a growing middle class and shared lifestyles and aspirations). Thirdly, in terms of economic sustainability, relevant indicators in evaluating Kileleshwa were: property development (i.e. return on investment for property developers, investors, and owners); public revenue generation (i.e. revenues generated for the local authority); and job creation (i.e. work at construction sites for skilled and unskilled labour, work in apartment units, and work for professionals).

In relation to urban quality, while there is lack of consensus on what would constitute a universal register of concepts and attributes related to urban quality, three dimensions were considered relevant for the evaluation of Kileleshwa neighbourhood. These are: urban form; infrastructure; and accessibility and connectivity. In terms of urban form, relevant indicators were: density, morphology, typology, building form (height, footprint, type, siting), architectural design quality, and compactness. In terms of infrastructure, physical infrastructure and social infrastructure were both pertinent. For physical infrastructure, relevant attributes were the state of infrastructure for roads, sewerage, water, storm water, electricity and solid waste. For social infrastructure, relevant attributes were the availability of schools, shops, recreational facilities, health centres, restaurants, and places of worship. In terms of accessibility and connectivity, relevant indicators were the road network and non-motorized transport (i.e. cycling and walkability).



# 3

## Research Methods and Research Design

This thesis stemmed from a need to investigate the phenomenon of rapid urban transformation in a, historically speaking, tranquil urban context. The aim of the research methods and research design adopted, was to uncover the modes and mechanisms by which the urban residential area was quickly undergoing densification from single-story to multi-story housing and the implications of this for the long-term viability of the urban habitat. A case study research design was used for the investigation. As defined by Yin (1994, p. 19), a research design is, “the logical sequence that connects the empirical data to a study’s initial research questions and...its conclusions.” He points out four problems with which it deals: “what questions to study, what data are relevant, what data to collect, and how to analyse the results” (Yin, 1994, p. 20). Within this design, a predominantly qualitative methods approach was considered to be the appropriate avenue by which the investigation could be most effectively undertaken. In this chapter, in relation to research methods and design, the following are discussed: the approach to empirical materials, interviews, case study and its qualitative and quantitative aspects, case selection and unit of analysis, review of documents, data analysis, quality of the empirical materials, ethical considerations, and the evaluative lens.

### 3.1. Approach to Empirical Materials

The empirical material was clustered into three main categories: 1) Process, 2) Morphology, and 3) Residents. It comprises data derived from a variety of sources. These include data on: the process of urban transformation derived from interviews of key actors; the physical characteristics of the study site obtained from various forms of site documentation, including drawings, maps, photo-registration, and field notes from direct observation; and the perspectives of living in the transformed urban context drawn from interviews of urban residents living in the study area. Secondary data from relevant published documents was used to augment and triangulate the



primary data. These included: Reports on the state of the economy, demographic trends, and other national statistics drawn from Kenya's national government entities; documents by the local authority; real estate sector reports derived from several sources including private sector associations, banking sources and some real estate firms active in Kenya; and reports by international entities on pertinent issues such as the economy, demographic, and climate issues. Secondary data sources are discussed in more detail in a later sub-section (See **Section 3.1.3**, below).

The approach to the empirical research was structured into two main but interrelated activity components: The first empirical activity involved in-depth interviews with key actors involved in the process of transformation. The second empirical activity involved case study research of the urban habitat under investigation, which included site documentations and in-depth interviews of residents. These key segments of the empirical investigation are discussed below.

### **3.1.1. Interviews**

As an important part of the investigation, in-depth interviews were undertaken with several research participants. Brinkmann and Kvale (2015) define an interview as, "a conversation that has a structure and purpose" (p. 5). They suggest that unlike everyday conversation, an interview is, "a careful questioning and listening approach with the purpose of obtaining thoroughly tested knowledge." In this thesis, interviews were important for purposes of data collection and knowledge creation. A key interest in conducting the interviews was to gain insights and an understanding of the phenomenon under investigation from the actors' own perspectives. The knowledge sought was about, "the interview subjects' experiences and opinions" (p. 41).

The first part of the empirical inquiry was guided by the first research question: *How is housing in the rapidly transforming urban habitat being produced?* With this question, through its sub-questions, I sought to understand the process of urban residential transformation and the actors involved. Interviews were used to obtain primary qualitative data. This involved interviewing the stakeholders and actors who had been identified through literature (Bernstock, 2014) and a pilot interview (Anyamba, 2006) as key players in the process of urban habitat transformation. The key players, similarly to those identified by (Bernstock, 2014) were: residents, developers, real estate agents, purchasers and renters (pp. 242-244), in

addition to architects and planners. For clarity in identifying their roles, the actors in the process were classified into six groups (See **Appendix II**), whose interrelations, specific roles and relative importance were identified through the interviewing process.

A total of 89 interviews were conducted for the study. Two letter codes are used to distinguish between different categories of interviewees. Nine of the interviewees were property developers (PD) and seven were architects (AR). Twelve real estate professionals (RE) were interviewed as were three county government officials (CO). Additionally, six planners (PL), four contractors (CT) and two environmental impact assessment experts (EI) were also interviewed. In total 40 residents (RS) were interviewed – 17 were owners while 23 were renters. Six urban commentators (UC) comprising of two architects, two planners and two real estate experts drawn from academia were also interviewed.

The findings from the interviews were augmented by data obtained from document review that included data related to the urban residential area's evolving history, housing regulations, property ownership and changes in property use over time (See **Appendix III**).

The interviews were recorded, transcribed, and subjected to thematic analysis with the aid of tables. The themes were informed by both literature review and the actual data, which was interpreted for its meaning (Catherine Marshall & Rossman, 2010, p. 219) as well as triangulated with secondary sources.

### ***Reflexivity***

Reflexivity in qualitative research is useful where a constructivist perspective underlies the researcher's positionality because it brings to light the researcher's experiences in the research process (Lynch, 2008).

Key informant interviews with key actors were a rich source of data. The developers, architects, and real estate professionals actively practicing in the field were very open to the interviewing process and did not express any reservations regarding the audio recording of the interviews. Those actively practicing in the field shared at length from their personal experience in response to the semi-structured interview questions. The interviews lasted an average of 45 minutes with some exceeding an hour in duration – with the respondents seemingly having a lot to say – and were highly engaging encounters characterized by relaxed dialogue. It appeared that the interviews

offered a rare avenue for the expression of views and opinions on the city's real estate market. Urban commentators who included architects, planners and real estate professionals in academia were also forthcoming with their considered opinions on the ongoing transformations in the city's residential areas. They were quick to point out the pros and cons of the phenomenon.

With county government officials, there was a reluctance to be audio recorded. Thus, note-taking was undertaken during the interviewing process. This approach had the desirable quality of allowing for clarification of ideas and opinions being expressed to assure accurate note-taking. Hence, required greater attention to what was said to ensure full comprehension. Moreover, reflections on the interview were written down later in the day after the interview to enable a recording of aspects of the interview that may not have been captured in the interviewing process such as body language (demeanour) and contextual factors. Access to the county government officials was facilitated by contacts I had at the University of Nairobi hence the county government officials were willing to participate in the interviews. During the interview, I observed how busy the county's planning department was with constant phone call interruptions and people constantly streaming into the office to seek the officials' audience. It is a wonder that work was actually accomplished on any given day. It also seemed to be an opportunity and space in which informal negotiations on project approvals and follow-up on projects was potentially taking place.

Accessing residents on the case study research site first required making contact with the developer – who was one of the key informants – involved in the development of the apartment block since the apartment block project was in the process of handover<sup>24</sup> at the commencement of the field investigation. Consequently, I attended the apartment complex's initial residents' association meeting in order to seek audience with the chair of the group from whom I obtained permission to conduct interviews on the site, which was private property. The caretaker, became particularly instrumental in introducing me to the residents that I eventually interviewed. This fostered a degree of trust of the interview participants who were then willing to be interviewed. The caretaker seemed to know whom among the tenants or owner-occupiers would be receptive to being interviewed and those who did not want their privacy intruded upon hence would not want to talk to

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<sup>24</sup> Transfer to the new owners, who, in the case study site, had come together through their joint investment to form a company through which the apartment complex was developed from design to implementation. However, this is not the only mode of apartment block development in the neighbourhood. Other approaches include joint ventures between the land owner and the property developer, and bank/investor financed purchase of land and apartment block development for later sale either through pre-sale prior to and during construction or post-construction.

outsiders. Since the apartment block was in the early stages of occupation, it was not yet at full capacity and had few residents. The in-depth interviews conducted with the residents were done in an informal manner. All the participants interviewed at the case study apartment block were open to being audio recorded and consented to this. They also responded in full to the interview questions. The interviews were conducted in the relaxed setting of their apartment unit's living room with the exception being the few conducted outdoors in the parking lot.

A challenge encountered in the interviewing process of the residents was that some residents whom I approached after introduction by the caretaker were unwilling to participate in the interview and, in some cases, interviews had to be re-scheduled due to changes in the potential interviewees schedule. However, in the cases where an interview was granted the process was highly enjoyable and was akin to a conversation with a colleague. Moreover, my credentials as a student researcher was helpful in easing the interview process. I clarified at the beginning of each interview that the research was purely for academic purposes. This, presumably, elicited greater willingness of the interviewees to share as much as they could in response to the interview questions, which enriched the data thus obtained.

### **3.1.2. Case Study**

In this sub-section, the case study, which was central to the research design, is discussed. Also discussed are its qualitative and quantitative aspects as well as the case selection and unit of analysis.

Case studies have been defined by a number of scholars in largely compatible ways. Hamel et al. (1993) defines a case study as, "an in-depth study of the cases under consideration," and suggests that it uses methods such as, "interviews, participant observation, and field studies" (p. 1). Further, he notes the congruency of the case study, "with the three key words that characterize any qualitative method: describing, understanding, and explaining" (p. 39). Gerring (2006), in general concurrence, defines a case study as, "an intensive study of a single unit or a small number of units (the cases), for the purpose of understanding a larger class of similar units (a population of cases)" (p. 37). He adds further that one of the merits of the case study method is "the depth of analysis that it offers" (p. 49). And, describes depth as, "referring to the detail, richness, completeness, wholeness, or the degree of variance in an outcome that is accounted for by an explanation" (p. 49). Yin (1994), emphasizing the research context,

defines a case study as, “an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (p. 13).

Yin (1994) recommends the use of case studies, “when ‘how’ or ‘why’ questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context” (p. 1). This was the situation in this study in which a dynamic urban habitat was under investigation. Hence, a case study was adopted with the richness of data thus obtained; a key aim. Moreover, the sources of evidence for a case study research highlighted by Yin (1994) – documentation, archival records, interviews, direct observations, participant observations, and physical artefacts (pp. 79-80) – were employed in the investigation. In this thesis, along with the benefits of case studies highlighted by Flyvbjerg (2006), opting for a case study method was also informed by the need for exploring the issues at hand in greater depth rather than breadth (p. 241) so as to unearth deeper insights into and arrive at a more nuanced understanding of the dynamic phenomenon of transformation.

Having delved into the more overarching issues using in-depth interviews of the key actors involved in the process of transformation, the second part of the empirical inquiry was guided by the second research question: *How has the process of transformation altered the residential habitat physically in terms of housing typology and how has this affected the habitat’s physical and social characteristics?* With this question, I was interested in the spatial and architectural design transformation of the housing typology in the urban habitat, the characteristics of the habitat’s buildings, infrastructure, and its demographic, socio-economic and socio-cultural characteristics. It was an urbanistic and architectural investigation inspired by methods derived from urban morphology. The locus of this inquiry was Kileleshwa, the residential habitat that constituted the case study of the investigation.

This second part of the investigation had two components: A qualitative aspect and a limited quantitative aspect. Specifically, the unit of analysis was identified within the case study area using criteria informed by both the interviewing process in the first part of the empirical research and review of literature and documents. The qualitative and quantitative aspects of the case study and the selection of the unit of analysis are discussed below.

***Qualitative aspect of the case study***

In defining qualitative research, Denzin and Lincoln (2011) suggest that, “the word *qualitative* [emphasis in original] implies an emphasis on the qualities of entities and on processes and meanings that are not experimentally examined or measured (if measured at all) in terms of quantity, amount, intensity, or frequency” (Denzin & Lincoln, 2011, p. 8). They further suggest that, “qualitative researchers stress the socially constructed nature of reality, the intimate relationship between the researcher and what is studied, and the situational constraints that shape inquiry” (Denzin & Lincoln, 2011, p. 8). In addition, they add that, “[s]uch researchers emphasize the value-laden nature of inquiry” (Denzin & Lincoln, 2011, p. 8).

A recent definition is that by Creswell and Creswell (2018, p. 4). They define qualitative research as, “an approach for exploring and understanding the meaning individuals or groups ascribe to a social or human problem.” They note further that the process of such research involves a number of considerations and activities, including: “emerging questions and procedures, data typically collected in the participant’s setting, data analysis inductively building from particulars to general themes, and the researcher making interpretations of the meaning of the data.”

Thus, a qualitative research approach was considered appropriate for this thesis. A significant motivating factor for the choice was my primary concern with issues dealing with processes and their outcomes. This is unlike quantitative research that is more suited to deriving measurable data and establishing causality between variables (Denzin & Lincoln, 2011). Further, the research was situated in a dynamic context that required an approach best able to cope with a fluid phenomenon in a natural setting. The relevance of this choice is highlighted in Denzin and Lincoln’s (2011) view of qualitative research as, “a situated activity that locates the observer in the world.” They suggest that qualitative research:

consists of a set of interpretive, material practices that make the world visible.... They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memos to the self.... [It] involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of or interpret phenomenon in terms of the meanings people bring to them (Denzin & Lincoln, 2011, p. 3).

The qualitative research approach was considered to be useful in a number of ways when compared to a quantitative approach. Strauss and Corbin (1990) propose that, “qualitative methods can give the intricate details of phenomenon that are difficult to convey with quantitative methods” (p. 19). They go further to suggest three major components of qualitative research as: data, especially from interviews and observations; analytic or interpretive procedures, used to arrive at findings or theories; and written and verbal reports for the presentation of findings (p. 20).

The qualitative aspect of the case study involved interviewing residents identified (as key informants) through purposive sampling in terms of their residence in apartment blocks that particularly represented the marked transformation in housing typology over time. The apartment blocks considered for investigation had to meet the selection criteria of exceeding the residential area’s height limit of four floors. The apartment block selected for in-depth analysis of residents and their living habitat was also selected due to ease of access. The interview data was recorded whenever possible (and documented using notes when recording was not possible), transcribed and analysed thematically in tabular form.

Some differences between owners and renters emerged in interviews with residents. On the one hand, owners tended to be older (over 45 years of age), married with children, and had graduate level education. They also had higher incomes (were frequently double-income households), larger household sizes, and were holders of professional jobs. They were also more likely to own multiple cars and had monthly household expenses closer to 30% of income. Children in owner-occupied households tended to be older and the apartments were larger – three-bedroom. On the other hand, renters tended to include younger people (under 35), single households, single-parent households, married people without children, and married people with very young children. Their incomes tended to be lower than those of owners and they had lower-paying jobs – they were also more likely to include renters who were students. It was not uncommon to find renters who did not own a car. They were also more likely to use public transport as a primary mode of mobility – in addition to walking to nearby amenities. Household monthly expenses for renters exceeded 50% of income and the rent was perceived as being too high. Renters were more likely to occupy the full range of apartments (studio, one-, two-, and three-bedroom) on offer in the market. Their educational achievement level encompassed both graduate and diploma level.

***Quantitative aspect of the case study***

In their definition of quantitative research, Denzin and Lincoln (2011) suggest that, "...quantitative studies emphasize the measurement and analysis of causal relationships between variables, not processes." And that claims are made that the "work is done from within a value-free framework" (Denzin & Lincoln, 2011, p. 8). Meanwhile, Creswell and Creswell (2018, p. 4) define quantitative research as, "an approach for testing objective theories by examining the relationship among variables." They add further that the variables, "can be measured, typically on instruments, so that numbered data can be analysed using statistical procedures." In the case of Kileleshwa, it was interesting to measure the physical dimension of the ongoing urban transformation. This was particularly relevant in terms of the extent to which single-dwelling detached housing units were being transformed to multiple-dwelling apartment blocks. Thus, the physical characteristics of the high-rise apartment blocks being developed was considered relevant. Hence, indicating the degree to which the housing typology was undergoing significant lasting change.

Quantitative research was not of central concern in this thesis. Since the research approach was primarily qualitative, the focus was less on the quantity of findings and more on their quality (Bazeley, 2013, p. 3). Thus, the quantitative facet of the investigation was limited to demonstrating the emergent trend of a new form of housing taking hold in Kileleshwa as well as capturing demographic and real estate trends. In such a dynamic context, the number of new apartment blocks, the increase in the number of new residents, and the state of the real estate sector are in constant flux. While the quantitative data was useful in indicating the reality of morphological transformation, greater emphasis was placed on a qualitative understanding of the emergent urban transformation. Nevertheless, the delimited quantitative aspect of the research, with regards to physical or morphological transformation, involved documenting the site with the aid of aerial maps, plan drawings and photography (capturing the morphological changes in the architecture), and tracking changes in property ownership and development (plot ratio and plot density) using the historical cadastral<sup>25</sup> maps and direct observation. Multiple site visits (Inam, 2014, p. 29) were made to the case study site, and photographs were taken of the features of the habitat that were the subject of the investigation such as apartment buildings and physical infrastructure. In addition, a count of apartment blocks was conducted with the aid of aerial photographs<sup>26</sup> of the case study site. Particular attention was

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<sup>25</sup> database of registered properties

<sup>26</sup> Google Maps of the case study site were the aerial photographs used for the exercise.



paid to apartment blocks that exceeded the height limit of four floors. Furthermore, the documentation of such apartments provided the empirically grounded accounting of the extent of the ongoing densification of the urban habitat. Thus, the morphological transformation was captured through photography, mapping, and drawings that collectively constituted a visual documentation of the site. Moreover, the quantitative data enabled the triangulation of qualitative data (Strauss & Corbin, 1990, p. 19).

### *Case selection and unit of analysis*

The site for the investigation was Kileleshwa, which is an inner ring residential suburb of Nairobi. It is located to the west of Nairobi's CBD in what is referred to as upper Nairobi (Halliman & Morgan, 1967, p. 106). The residential area covers an area of 9.1 square kilometres (Kenya National Bureau of Statistics, 2020a, p. 240). Its population in 2019, during the most recent decennial census, was 32,513 persons, with a total of 10,392 households, and a population density of 3,570 people per square kilometre (Kenya National Bureau of Statistics, 2020a, p. 240). However, the sub-area of Kileleshwa that constituted the study area focus of the investigation covers an area of 5.3 square kilometres (Kenya National Bureau of Statistics, 2019a). Its population in 2019 was 22,216 persons, with a total of 6,864 households and a population density of 4,229 people per square kilometre (Kenya National Bureau of Statistics, 2019a).

Kileleshwa can be traced back to colonial era Kenya when it was then the preserve of the British colonial settlers (Freund, 2007, p. 79). In the post-colonial era, beyond the extant colonial housing, civil servant housing was built by the National Housing Corporation (NHC)<sup>27</sup> in the residential area (Former Director, MoLS,<sup>28</sup> personal communication, April 2, 2018). The neighbourhood formed part of the constellation of exclusive low-density residential suburbs in the western zone of the city. Since the turn of the millennium, particularly over the past decade, Kileleshwa has become the locus of rapid densification with the development of high-rise apartment blocks on plots that previously had single-dwelling detached units. My research interest was in unearthing how the transformation into this present state of affairs has occurred.

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<sup>27</sup> The National Housing Corporation (NHC) is a statutory body in the Kenya government that plays a leading role in the implementation of the government's housing policies and programmes (National Housing Corporation [NHC], 2020).

<sup>28</sup> Ministry of Lands and Settlement (MoLS), Kenya.

While the research setting was a physical site, Kileleshwa, the scope of the research field was much broader. It encompassed key actors involved in the process of transformation of the urban habitat including the local government authority, other pertinent government regulatory authorities, developers, investors, and relevant professionals including architects and planners. (The research setting is discussed in greater detail in **chapter four** of this thesis).

Kileleshwa was selected as a case study for this investigation because it is a paradigmatic case, making it possible, “to develop a metaphor... for the domain that the case concerns” (Flyvbjerg, 2006, p. 230). It is a paradigmatic case of an urban habitat undergoing rapid transformation from low-density housing to high-density housing within a short time span.

In discussing his approach for the selection of the case studies in his investigation of pragmatism as a perspective for the practice of urbanism, Inam (2014) developed four main criteria that would ensure that the cases were in alignment with his thesis. Of relevance is his fourth criterion that he termed as the most practical one. In this he asked several pertinent questions of a potential case study:

Is there enough documentation of primary sources (e.g., site visits, authors’ photographs, personal interviews, original documents) and/or secondary sources (e.g., journal, magazine, and newspaper articles, books, scholarly studies by other authors) to justify a thorough and fruitful analysis of the case study? (Inam, 2014, p. 29)

Inam’s criterion practically informed the nature of the evidence that was collected in this investigation. Multiple site visits were made to the case study site, and photographs were taken of the features of the habitat that were the subject of the investigation such as apartment buildings and physical infrastructure. In-depth interviews with several key actors were also conducted and original documents such as maps and statistical sources were referred to. These were augmented and triangulated with a review of both relevant documents (such as government and private sector reports) and pertinent literature.

The type of case study design was an embedded, single-case design (Yin, 1994, p. 39). This design was adopted because the phenomenon under investigation was of a particularly extreme nature in this case (Yin, 1994, p. 39) and more than one unit of analysis was examined (Yin, 1994, p. 41). The case study apartment block complex within the field of inquiry consisted of eight apartment blocks set on a plot that was approximately one acre in size.

The conjoined apartment blocks consisted of 52 completed three-bedroom apartment units, and 6 one-bedroom apartment units that were still under construction at the time of the fieldwork. While the key unit of analysis was the apartment block, the entire residential setting in which the apartment blocks are situated constituted the field of investigation. This is because the neighbourhood context of the apartment blocks was relevant in addressing some of the research questions investigated in this thesis. In particular, questions to do with urban morphology and the social aspects of interest in the study.

Thus, for the inquiry, the use of a case study proved to be the most appropriate strategy for qualitatively investigating a phenomenon in its natural context. It is a dynamic residential neighbourhood that is still undergoing rapid transformation from low-density housing to high-density apartment housing. Of interest was understanding the key actors involved in the transformation process as well as documenting the morphological and social dimensions of the transformation. It was therefore crucial to identify and use data collection methods that could cope with the fluid nature of the phenomenon under investigation.

### **3.1.3. Review of documents**

A review of documents in tandem with a review of relevant literature was undertaken to both augment and triangulate the primary data. The secondary data was obtained from publications by both public and private sector entities as well as international organizations.

Documents from public sector entities included: Reports by the Central Bank of Kenya (CBK) on the state as well as various facets of the Kenyan economy; Reports by the Kenya National Bureau of Statistics (KNBS) on Kenya's demographic trends such as the decennial censuses and other pertinent national statistics, and reports by Kenya's Auditor General's office on the fiscal discipline of various government entities, both national and local. Additionally, documents by the local authority such as zoning regulations and planning regulations were also reviewed.

Documents from private sector entities included: Reports on the state of Kenya's and Nairobi's real estate sector by a variety of organizations including Kenya Property Developers Association (KPDA), Kenya Bankers Association (KBA), and several real estate sector firms in Kenya. These firms included: Hass Consult Limited that has, for more than a decade, been

publishing quarterly reports on the state of Nairobi's real estate sector; Knight Frank and Cytonn Investments, both of which publish regular reports on the state of the real estate sector, particularly in Nairobi.

Documents from international entities included: Reports on economic and demographic issues published regularly by a number of international organizations such as The World Bank, International Monetary Fund (IMF), the United Nations, and the Intergovernmental Panel on Climate Change (IPCC).

#### **3.1.4. Data Analysis**

Data analysis involves making sense of the collected data. In this research, data that was subjected to analysis included: interview data; field observation notes; visual data, including maps, drawings, aerial imagery, and photography; and secondary data derived from various published reports.

During the in-depth interviews, of key informants and at the case study site, data was collected through audio recording. In some cases, where it was not possible to audio record, detailed handwritten notes were taken instead. The data was then transcribed from the recorded materials. The transcribed material was subjected to thematic analysis. These were presented in tabular form. The themes were derived from a close reading of the transcribed material in combination with themes derived from literature review prior to undertaking the study.

Data on the morphological transformation of the case study area was collected using visual documentation aids such as maps, drawings, aerial imagery, and photography. This visual material was subjected to visual analysis. Comparisons were made between the physical state of the study site in the first decade subsequent to the turn of the millennium and its evolution over more than a decade to its current state two decades into the current millennium. Its transformation over this time period was thus analysed in terms of changes in building and plot density, in building height and form, and urban structure of the neighbourhood.

Demographic data and economic data was organized, presented, and analysed using tables, graphs, and charts. These made clear various trends on different measurement parameters.

### 3.2. Quality of the empirical materials

The quality of the empirical materials is an important aspect of any research undertaking. It is important that the data obtained through the various data collection tools, such as in-depth interviews, case study, field studies and observation, and document review, is valid and reliable.

In relation to case study research, which was a key component of the empirical investigation in this thesis, Yin (1994) suggests three principles that are important for data collection if the quality of the case study investigation is to be improved:

These include the use of (a) multiple sources of evidence, that is, evidence from two or more sources, but converging on the same set of facts or findings; (b) a case study database, that is a formal assembly of evidence distinct from the final case study report; and (c) a chain of evidence, that is, explicit links between the questions asked, the data collected, and the conclusions drawn (p. 1).

Yin's foregoing recommendations were adhered to in this study. This was done by collecting evidence on the same issue from both primary and secondary sources; accurately recording the evidence in a form in which it could easily be analysed particularly with the aid of tables, photographs, maps and drawings; and consistently drawing from the research questions to frame the type of data that was collected and analysed as well as deriving conclusions and their delimitations based on the actual data collected.

Moreover, the quantitative data (as obtained in the latter part of the case study and through the review of documents) also enabled the triangulation of qualitative data – obtained from the in-depth interviews (Strauss & Corbin, 1990, p. 19). Further, the use of case study research as a valid means for substantive investigation has been persuasively argued for by Flyvbjerg (2006) who debunked five key myths associated with this mode of research (pp. 219, 221-241).

Challenges about data obtained in global South contexts has been documented on numerous occasions by various scholars and research entities (Duminy et al., 2014; Pieterse, 2014; Smit & Pieterse, 2014). Key concerns about its quality have been the accuracy, relevance, reliability, comprehensiveness, and age (recency) of the data, and even, more problematically, lack of data in the first place. Undoubtedly, these are still persistent challenges. However, some of the ways these were addressed are as follows:

In terms of accuracy, statistical data such as census data and economic data obtained from government entities such as the Kenya National Bureau of Statistics (KNBS) and Central Bank of Kenya (CBK), was compared and triangulated with data tabulated by international agencies such the United Nations, the World Bank Group, and OECD. In addition, in-depth interviews provided a useful way of verifying some of the published data.

In terms of the age (recency) of the data, more recent data is now available on key issues concerning the real estate sector due to the availability of regularly published (at least quarterly) real estate sector reports by the private sector on various housing indicators. Moreover, a decennial census was conducted in Kenya in 2019 making available more recent and arguably more reliable demographic data that could be compared with previous census data and other estimates. Nevertheless, its relevance remains partly problematic. While the aggregate data on demographic trends is made readily available, disaggregated data typically remains difficult to obtain. For example, data at the level of political jurisdictions is available but comprehensive data at neighbourhood level is largely absent or made unavailable. Thus, relevant demographic data that would have shed valuable insights on the socio-cultural and socio-economic profile of Kileleshwa as a residential neighbourhood is aggregated together with other neighbourhoods that collectively form a political jurisdiction. Hence, estimated data becomes the only viable recourse given the time and resource constraints that a quantitative survey to obtain more precise data would entail. Nonetheless, in the more recent census (2019), considerably more comprehensive data at the neighbourhood level has been made available on many more parameters compared to earlier censuses. This greatly contributed to relevant data that was accessible for the current study. However, further disaggregation of the data at the neighbourhood level would greatly ease access to more useful data for future studies.

Reliability still remains a perennial challenge. For instance, on the issue of the real estate data published by the private sector, the key firms that publish the data also have a stake in the real estate sector as property developers or real estate agents. Hence, the possibility of their vested interests distorting the data to their advantage or even collusion amongst the firms cannot be firmly ruled out. It remains a distinct possibility due to the absence of a non-partisan or neutral source of such data. Nonetheless, the research undertaken for this thesis, was deliberately designed to afford convergence of primary and secondary sources of evidence on similar issues of interest so as to enhance the possibility of obtaining more reliable data (Yin, 1994, p. 1).

### 3.3. Ethical Considerations

Particularly in relation to interview research, Brinkmann and Kvale (2015), suggest that ethical issues arise due to the involvement of human subjects (p. 85). Specifically, the issues arise from, “researching private lives and placing accounts in the public arena” (Birch et al., 2002, p. 1 *as cited in* Brinkmann & Kvale, 2015, p. 85). Hence the concern becomes how not to harm the participants as a result of their involvement in the research. Consequently, some basic tenets closely associated with conducting ethical research were adhered to in this inquiry. These key precepts are informed consent, confidentiality and anonymity.

To begin with, prior to engaging in field studies in Nairobi, permission to conduct the research was sought and obtained from the National Commission for Science, Technology, and Innovation (NACOSTI). This is the agency responsible for approving research undertakings within the territory of Kenya (NACOSTI, 2020). In tandem with this, permission was also sought and obtained from the Nairobi County Education Department, which is responsible for approving research being conducted within the county of Nairobi.

In conducting the in-depth interviews for the study, the participants informed consent was obtained. Participants were informed about the purpose of the research (Brinkmann & Kvale, 2015, p. 93). They were also made aware that they had a right not to participate in the interviews or not to answer questions they felt uncomfortable answering. Moreover, to address concerns about the risks and benefits of participating in the investigation, the participants were informed that it was an approved inquiry of a purely academic nature. Additionally, the research permit from NACOSTI was shown to them for inspection. They were also provided with a consent form to sign that not only described the purpose of the research but also sought their approval to use the data obtained from the investigation in publications and other forms of dissemination that would result from it. Permission to audio record the proceedings prior to the commencement of the interviews was also sought. Thus, interviews were only recorded with the express permission of the participants. In cases where this was declined, note taking was employed instead in tandem with additional reflective notes immediately after the interview was concluded.

To maintain confidentiality and anonymity, the participants were not required to state their names during the interview. In addition, the transcribed data was

devoid of any identifying information. Even in the case where permission was given to include the data arising from the inquiry in publications and public presentations, this was eventually utilized without providing any identifying information. The concept of anonymity was adhered to by the researcher even in cases where the researcher knew the names of key informants simply from the process of securing appointments for the interviews. Moreover, data was stored using codes in lieu of names for the various participants hence even with the transcribed material, the identity of the participants was safeguarded thus minimizing any risk that would have arisen from participating in the investigation.

### **3.4. Deploying an Evaluative Lens**

The deployment of an evaluative lens, which was informed by concepts and criteria linked to urban quality and urban sustainability, was prompted by the third question of the thesis investigation – *how do the processes and outcomes of the transformation of the residential habitat impinge on its urban quality and sustainability?* – that aimed at questioning the processes and outcomes of the ongoing urban transformation of Kileleshwa as uncovered through the empirical investigation of the urban habitat.

The concepts and criteria related to urban quality and urban sustainability (See concluding paragraphs of **section 2.3.3**) provided the basis for assessing the findings of the investigation of Kileleshwa's transformation. They were deployed in determining the extent to which the ongoing urban transformation was re-shaping the urban habitat in terms of its quality and sustainability. This was done relative to the outputs of the transformation, the process of transformation, and the social factors associated with the transformation. The evaluation considered both the long term and short term implications of the urban transformation relative to the concepts and criteria with respect to the local context.

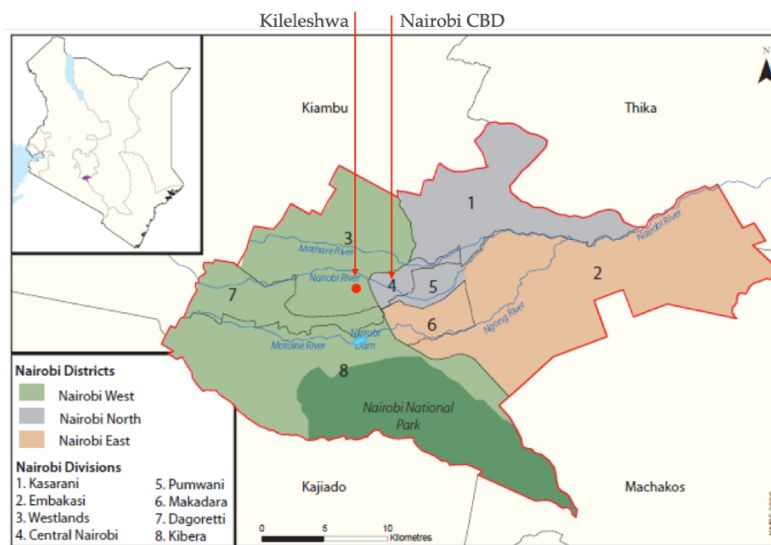




## 4

## Kileleshwa in Context

Kileleshwa neighbourhood is the case study site of the empirical investigation. It is a residential neighbourhood with roots in colonial era Nairobi (Obudho, 1997, p. 299). The neighbourhood is located in the inner suburbs of Nairobi, four kilometres west of the city's central business district (CBD) (Hass Consult Ltd, 2016a) (**Figures 4.1 and 4.2**).



**Figure 4.1** Location of Kileleshwa in Nairobi (adapted by Author from Kenya National Bureau of Statistics, 2008)

Kileleshwa was purposively selected as the research site because I consider the area as a paradigmatic case of rapid residential transformation in the city. Meaning that the area is transforming in a way that the city has not experienced before, and that this new phenomenon might establish a new typology for transformation in Nairobi. In the western and northern suburbs of the city, it is the leading residential area in which the most extensive transformation of low-rise low-density single-family detached housing to high-rise high-density multi-family residential housing is occurring.

Compared with the other residential areas in the western and northern suburbs of the city, Kileleshwa bears the most noticeable imprint of the dramatic shift in the extent of housing transformation, which has occurred in the current millennium over a span of more than a decade. This is all the more striking considering the historical provenance of the residential area as one that was exclusively zoned for low density low-rise single-family detached residential units, remaining so up to the close of the twentieth-century. Below, a closer look is taken of Kileleshwa neighbourhood's transformation over time and its current state of transformation in the present millennium.



*Figure 4.2 Aerial image of Kileleshwa (encompassing its broadest boundary delimitation) indicating its location relative to Nairobi CBD. (Adapted by Author from Google Maps, 2006)*

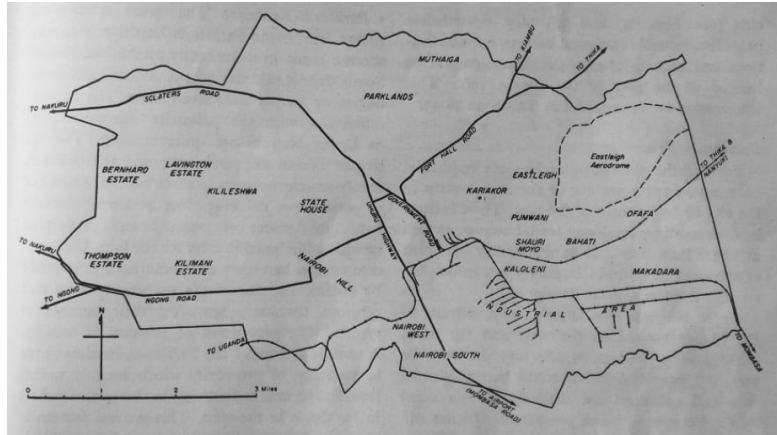
#### **4.1. Kileleshwa's Situation in Nairobi**

In this sub-section, Kileleshwa's locational characteristics and boundaries are discussed. First its locational characteristics relative to Nairobi's CBD are discussed. Second, the ways in which its boundaries are defined is addressed, as is the boundary adopted as the study area for this thesis.

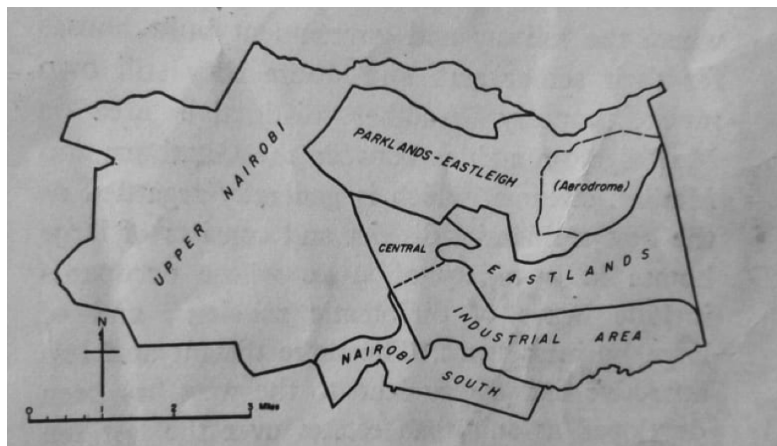
##### **4.1.1. Locational Characteristics**

Kileleshwa is a residential neighbourhood in Upper Nairobi (Halliman & Morgan, 1967). Upper Nairobi is higher elevation ground to the west and north of the city that lies above 5,500 feet (Halliman & Morgan, 1967, p. 106). It is considered the best residential land in the city and other prominent

neighbourhoods in this area, excluding Muthaiga (which is part of the area but located more to the north west), include: Lavington, Kilimani, Bernhard, and Thompson estates (Halliman & Morgan, 1967, p. 106) (See **Figures 4.3 & 4.4**). All these are suburban neighbourhoods that have been in existence since Kenya's colonial era. Of all of them, Kileleshwa and Kilimani are the closest to the CBD, with Kileleshwa also close to the commercial and business district of Westlands; an important centre of employment and business in Nairobi.



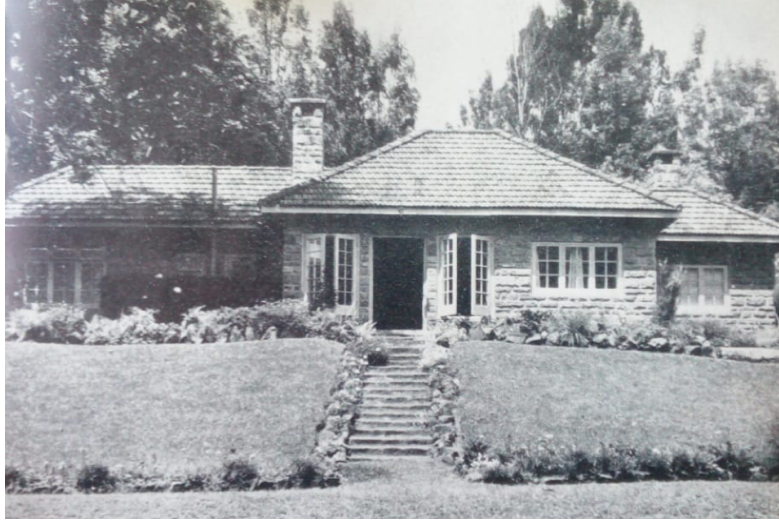
**Figure 4.3** Nairobi: Principal place names. (Halliman & Morgan, 1967, p. 105)



**Figure 4.4** Areas of Nairobi: Land use survey. (Halliman & Morgan, 1967, p. 105)

Topographically, the area consists of ridges, which are separated by deep wooded valleys (Halliman & Morgan, 1967, p. 106). The area has fertile red soil unlike the eastern area of the city with its black cotton soil on a flat terrain (Halliman & Morgan, 1967, pp. 106, 109).

Historically, in this part of the city, the typical dwelling was, “a one-family detached house of one storey built of stone under a tile roof with separate servant’s quarters on a plot of a quarter of an acre or more...” (Halliman & Morgan, 1967, p. 106). Furthermore, the plots had well-developed gardens on sloping land. (Halliman & Morgan, 1967, p. 106). (See **Figures 4.5 & 4.6**).



**Figure 4.5** Typical upper income housing in Nairobi: Built of lava tuff under tiles, fireplace, well-developed garden on sloping land with red soil. (Halliman & Morgan, 1967, plate 13)



**Figure 4.6** A poorly maintained single-family detached dwelling unit. (Author, 2018)

#### 4.1.2. Boundaries of Kileleshwa

According to the Nairobi City County government, the following is the description of the boundary of Kileleshwa: Kileleshwa's boundaries<sup>29</sup> are defined by two rivers, Nairobi River and Kirichwa Kubwa, on its northern and north eastern/south eastern boundaries respectively. Two major roads aligned on a north-east/south-west axis provide primary access through the neighbourhood. These are: Othaya Road<sup>30</sup> that forms part of the south-western edge of the neighbourhood; and Oloitokitok Road, that runs parallel to Kirichwa Kubwa River. Likoni Road, which becomes Olenguruone Road cuts across the two major roads in the lower half of the neighbourhood providing major access on a north-west/south-east axis; connecting Kileleshwa to the adjacent upmarket Lavington and Kilimani neighbourhoods. Othaya Road, which becomes Nyeri Road, connects with Olenguruone Road defining the south-western edge of the neighbourhood.<sup>31</sup> Mzima Springs Road forms the north-western boundary of Kileleshwa while Riverside drive is the major road that runs along the northern edge of the neighbourhood, parallel to, and between Nairobi River and Kirichwa Dogo River.<sup>32</sup> The neighbourhood is nestled between three upmarket suburban residential neighbourhoods that share its northern, western, and eastern boundaries. These are Westlands, Lavington and Kilimani neighbourhoods respectively (**Figure 4.7**).

However, the map below (**Figure 4.7**) differs to some extent from the actual map of Kileleshwa availed by the Nairobi City County government as indicating its boundaries (See **Figure 4.8**). This demarcates an area that the county government refers to as Kileleshwa Ward. It stretches the north-western portion of the area much further to the west. However, a note on the map suggests that the County is not an authority on the boundaries of the area.

<sup>29</sup> Kileleshwa's boundary information is based on an interview conducted on 14 October, 2016 with a senior official in the Nairobi City County Government.

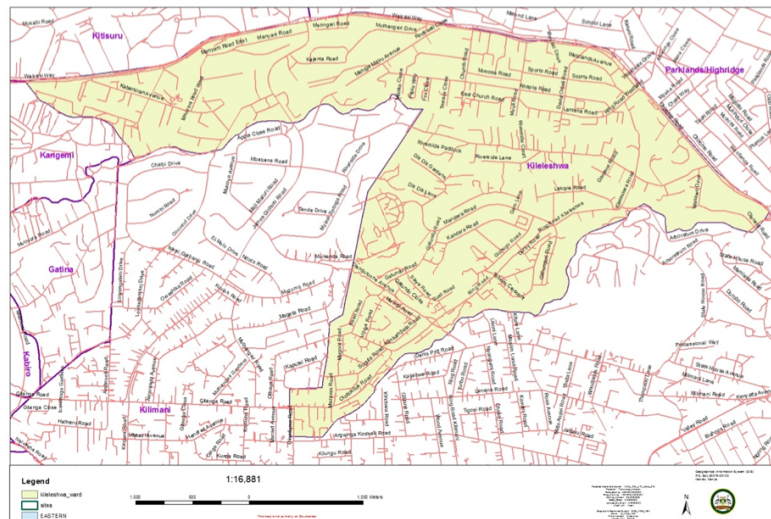
<sup>30</sup> Othaya Road is part of a road with multiple names. As it winds upwards through the neighbourhood, its name changes from Othaya Road to Nyeri Road, then to Gatundu Road, and eventually to Manderu Road that turns north-east to connect with Oloitokitok Road.

<sup>31</sup> Alternative suggestions are that the south-eastern edge of Kileleshwa is defined by Muthangari Road and Mageta Road (Google Maps, 2019).

<sup>32</sup> Confusingly, both Nairobi River and Kirichwa Dogo River are indicated as the northern boundary of Kileleshwa depending on the source of the definition. However, IEBC uses Nairobi River to define the northern limit of the broader Kileleshwa area, while it uses Kirichwa Dogo River to define the sub-area of Kileleshwa. The latter is also the upper boundary used by real estate stakeholders, who also refer to the area between Kirichwa Dogo River and Nairobi River as Riverside. Thus, Kirichwa Dogo River was used to define the upper boundary of the study area.



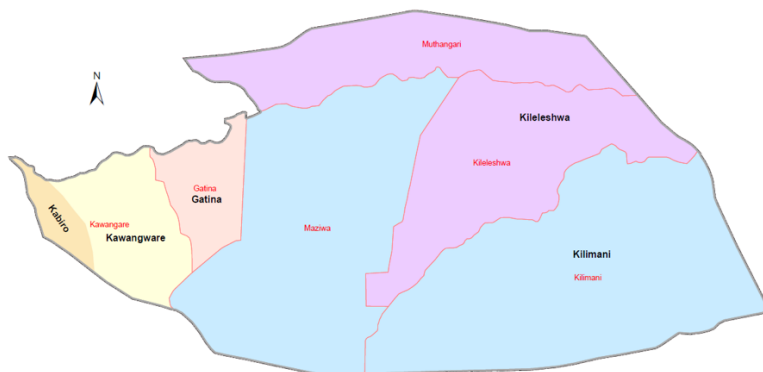
**Figure 4.7** Map of broadest boundary of Kileleshwa (circumscribed by key boundary roads with surrounding upmarket suburban residential neighbourhoods and the two rivers along its northern and south-eastern edges. (Adapted by Author from Google Maps based on a verbal description of the boundaries by a Nairobi City County government official, 2016)



**Figure 4.8** NCC boundary of Kileleshwa, Nairobi. (Nairobi City County Government, 2016)

While the map above (**Figure 4.8**) differs to some degree from the preceding map (**Figure 4.7**), especially from the mid-section going upwards, it, nevertheless, aligns with the boundary delineation, provided by Kenya’s

Independent Electoral and Boundaries Commission (IEBC)<sup>33</sup> (**Figure 4.9**). Even so, in the IEBC version, Kileleshwa is further subdivided into two sections; an upper section, referred to as Muthangari, and a lower section, referred to as Kileleshwa (See **Figure 4.9**).



**Figure 4.9** Map of Dagoretti North Constituency indicating Kileleshwa as both a ward and a sub-area (the latter adopted as the study area). (Kihiu, 2013 based on IEBC, 2012)

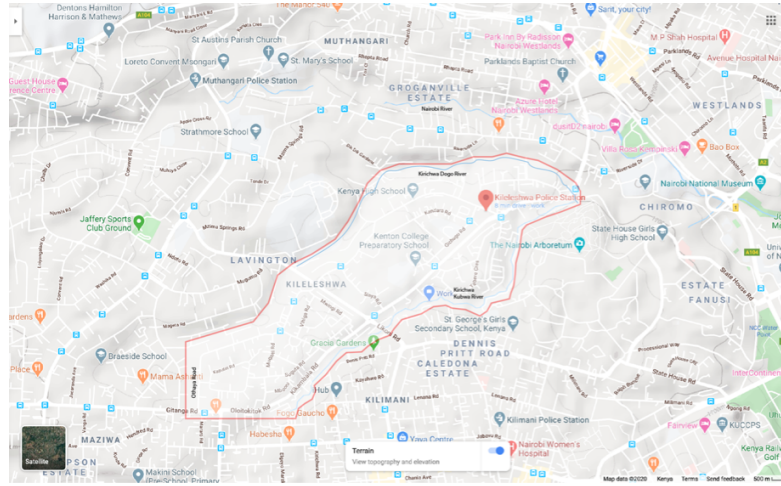
Since IEBC is the constitutionally mandated body with the authority to delimit the boundaries of various jurisdictions in the country, its prescribed boundaries were adopted as the official boundary of Kileleshwa. This is an area that covers 9.1 square kilometres (Kenya National Bureau of Statistics, 2010b, 2020a).

However, the study area was based on the sub-area of Kileleshwa as depicted on the IEBC map (See area indicated as Kileleshwa in a smaller typeface in **Figure 4.9**). This sub-area covers 5.3 square kilometres (See **Table 4.4**). This decision was made because the sub-area of Kileleshwa (**Figure 4.9**) is the residential area that is commonly understood, by real estate stakeholders active in Nairobi, to be Kileleshwa. Real estate reports on the state of the real estate sector make this distinction; separating it from the upper part of Kileleshwa, which is classified by the sector as Riverside (Hass Consult Ltd, 2020). This distinction was also verified from interviews conducted with various real estate stakeholders active in Nairobi. Within this sub-area of Kileleshwa, the study area boundaries were delimited by two rivers –

<sup>33</sup> The Independent Electoral and Boundaries Commission (IEBC) is Kenya's independent commission responsible for conducting or supervising referenda and elections to any elective body or office established by the constitution, and any other elections as prescribed by an Act of Parliament and, among other responsibilities, the delimitation of constituencies and wards (Independent Electoral and Boundaries Commission, 2020).



Kirichwa Dogo River (west, north-west and north boundary) and Kirichwa Kubwa Rivers (north-east, east, and south-east boundary) – in addition to two roads – Othaya Road (south-west boundary) and Gitanga Road (south boundary). (See **Figure 4.10**)

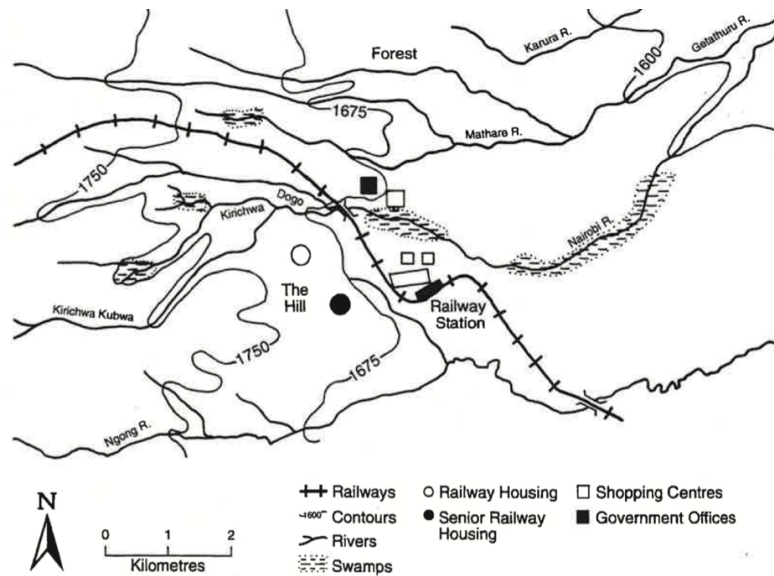


**Figure 4.10** Kileleshwa study area (defined by: Kirichwa Dogo River [west, north-west, and north boundary], Kirichwa Kubwa River [north-east, east, south-east boundary], Gitanga Road [south boundary], and Othaya road [south-west boundary]). (Adapted by Author from Google Maps, 2020)

## 4.2. Transformation of Kileleshwa

Kileleshwa, as a residential area, in tandem with other formal residential areas to the west of the city, was planned and developed during Kenya's colonial era along the principles of the garden city movement<sup>34</sup> presumably to entice European settlers to the then newly colonized country (Freund, 2007, p. 79), which was part of the British Protectorate in East Africa (**Figure 4.11**). White et al., (1948), who were responsible for Nairobi's 1948 Master Plan, proposed the neighbourhood unit as the organizing principle for planning the city's residential areas (White et al., 1948). The residential area can be located on the early maps of Nairobi then (See **Figures 2.2, 2.3, 2.4 & 4.11**).

<sup>34</sup> The neighbourhood appears to have been modeled along Raymond Unwin's Ebenezer Howard-inspired garden city residential neighbourhoods in the UK such as Hampstead, a suburb of London (Taylor, 1998).



**Figure 4.11** Nairobi in 1900 with the two rivers (Kirichwa Dogo and Kirichwa Kubwa) that form part of the boundary of Kileleshwa neighbourhood. (White et al., 1948, p. 10 in Obudho, 1997, p. 298)

The neighbourhood has remained a residential area since then. This is unlike adjacent densifying residential neighbourhoods such as Kilimani that are increasingly accommodating commercial developments as well. Historically, neighbourhoods such as Kileleshwa were the primary domicile of the European colonialists. From census data of Nairobi in 1962, a year prior to Kenya's independence from British colonial rule, the disaggregation of the population figures along racial lines indicates that the majority of the European settlers (82%) were domiciled in areas such as Kileleshwa in Upper Nairobi while the majority of Africans (71%) resided in Eastlands, which consisted of working class estates, in the east of the city, built by the City Council or large corporations (Halliman & Morgan, 1967, p. 106). (See **Table 4.1**). Even though the number of Africans living in Upper Nairobi outnumbered Europeans, a majority were mostly there as house servants or working in connection to some institutions in the area (Halliman & Morgan, 1967, p. 106).

	Upper Nairobi	Parklands and Eastleigh	Nairobi South	Eastlands	Industrial	Central	Total
African	18,513	15,900	2,745	110,227	3,668	4,335	155,388
Arab	42	630	12	230	16	52	982
European	17,686	2,262	435	95	86	912	21,476
Goan	153	3,431	672	3	105	886	5,250
Indian	672	45,780	6,322	19	1,034	15,665	69,492
Pakistani	210	9,695	690	13	369	735	11,712
Somali	15	764	–	36	17	26	858
Mixed	35	132	60	20	–	8	255
Coloured							
Other	148	725	162	19	14	61	1,129
Not Stated	47	112	11	58	3	22	253
<b>Total</b>	<b>37,521</b>	<b>79,431</b>	<b>11,109</b>	<b>110,720</b>	<b>5,312</b>	<b>22,702</b>	<b>266,795</b>

Source: Adapted by author from Halliman & Morgan, 1967, p. 107

The turn of the millennium ushered Kileleshwa into an era of rapid transformation. Since then, the neighbourhood has undergone significant transformation from low-density, low-rise single-family detached residences to multi-family residences in the form of mid- to high-rise, higher density apartment blocks. Despite the existence of development controls for the residential area in the form of a zonal building height limit of four floors (City Council of Nairobi, n.d.), the transformation of dwelling units from the typical bungalow form to apartment blocks that exceed the height limit appears to have occurred exponentially in little over a decade and in an area that had remained virtually unchanged for more than half a century. This change is easily noticeable to the casual observer visiting the western suburbs of Nairobi (**Figure 4.12**).



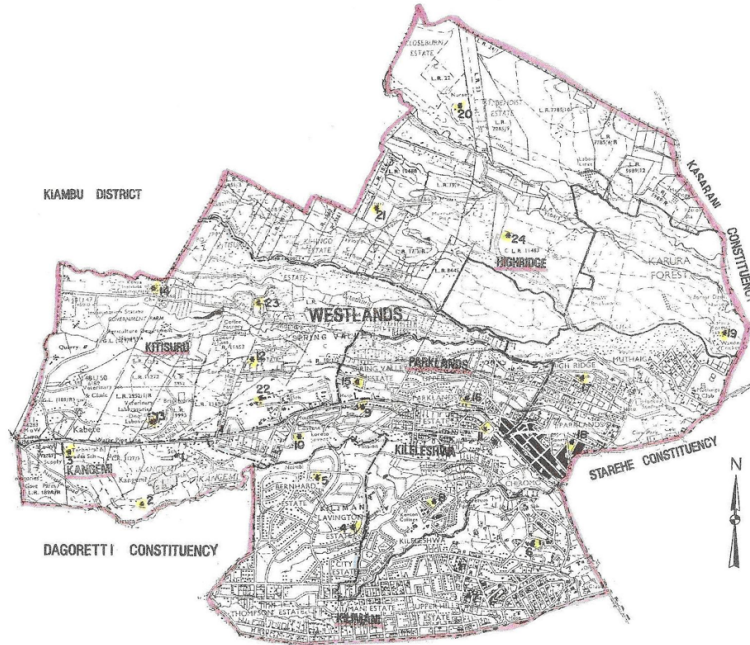
**Figure 4.12** A high-rise apartment block under construction in Kileleshwa, Nairobi. (Author, 2016)

This rapid transformation from low-rise horizontal residential dwellings to high-rise vertical residences, in tandem with a significant demographic shift, is resulting in a novel urban habitat and altering the urban residential living environment for residents of the neighbourhood. It has generated increased pressure on the physical infrastructure of the urban residential neighbourhood such as water supply, sewer system, storm and surface water drainage, electricity supply, and road network. It is also placing undue pressure on the social infrastructure of the neighbourhood including schools and the shopping area. This situation has potential negative externalities for the urban quality and sustainability of the neighbourhood.

#### **4.2.1. Administrative and Political Structure**

Prior to the promulgation of Kenya's new constitution in August, 2010, Kileleshwa was part of Westlands constituency or sub-county. After 2010, it became part of Dagoretti North constituency or sub-county that was hived off from Westlands constituency or sub-county. (See **Figures 4.9 & 4.13**). In the colonial era, Nairobi was governed by a municipal council, the Nairobi Municipal Council, headed by a mayor from 1923, before Nairobi was incorporated as a city in 1950 (Nairobi City County, 2020b). This led to the establishment of Nairobi City Council, which continued as such under Kenya's post-independence constitution until it was replaced by the Nairobi City Commission in the 1980s (Nairobi City County, 2020b). The Commission was subsequently replaced by a reconstituted Nairobi City Council with an elected mayor in the 1990s (Nairobi City County, 2020b). In 2013, following elections under the new constitutional dispensation (The

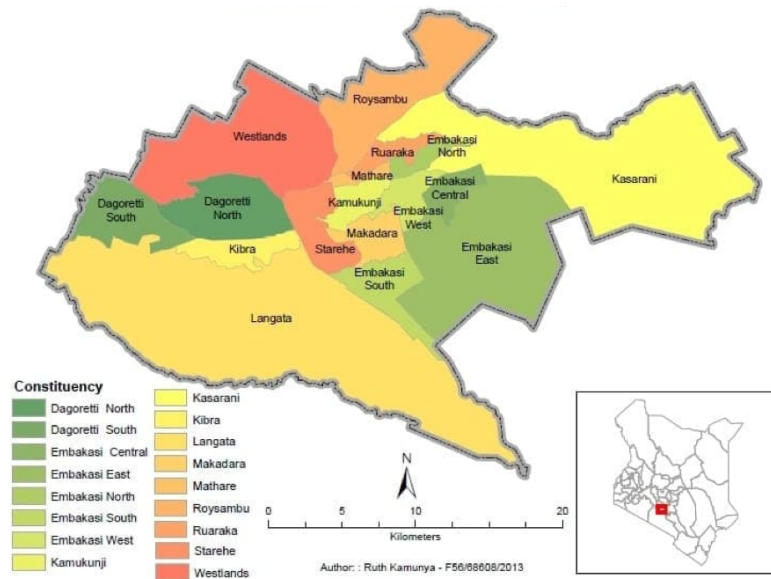
2010 constitution), Nairobi City Council became Nairobi City County with an elected Governor replacing the Mayor (Nairobi City County, 2020b). Historically, the city has been subdivided into constituencies each represented at the national level by an elected Member of Parliament (MP) who sits in the legislative branch of the National government.



**Figure 4.13** Westlands Constituency (1969-2012) from which Dagoretti North was hived off. Kileleshwa is indicated in the lower section of the constituency. (Kithiu, 2013)

Since the promulgation of Kenya's new constitution in 2010, Kileleshwa area is now classified as one of five electoral wards in Dagoretti North sub-county or constituency in Nairobi (See **Figure 4.9**, **Table 4.2**, and **Table 4.3**).

The city is sub-divided into 17 sub-counties or constituencies each with 5 wards adding up to a total of 85 wards. (See **Figure 4.14**). Politically, Kileleshwa is represented in the county assembly by an elected Member of the County Assembly (MCA), who serves a five-year term. On the other hand, the constituency into which the ward falls is represented by an elected Member of Parliament (MP), who also serves a five-year term.



**Figure 4.14** Nairobi City County Wards. Kimunya as cited in (Nyanchama, 2018)

While Kileleshwa, indicated in a smaller typeface (See **Figure 4.9**),<sup>35</sup> was selected to be the delineated study area in this thesis (See **Figure 4.9**), contrarily, from an administrative point of view, the Nairobi City County government treats the two sub-areas of Kileleshwa (See **Figure 4.8 & 4.9**) as constituting Kileleshwa, referring to the entire area as a ward with an appointed ward representative. This in effect provides an administrative counterpoint to the elected MCA who is the political representative of the ward at the county level.

#### 4.2.2. Morphological Changes

Morphological changes are evident in Kileleshwa at three levels: The street level, the plot level, and the building level. These are discussed in turn, below.

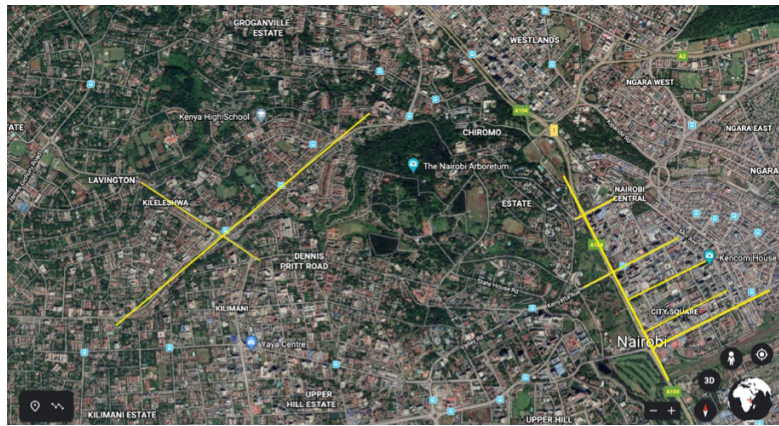
##### *Street Network*

While Nairobi CBD's grid-iron street layout (**Figure 4.15**) was deliberately planned due to ease of setting out as happened to many cities planned in the colonial era (Halliman & Morgan, 1967, pp. 128–129), the street layout of

<sup>35</sup> The Kileleshwa sub-area of the broader Kileleshwa Ward.



south-western corner of the neighbourhood and winds due north eastwards on a 45-degree axis. As it does so, its name changes to Nyeri Road, then to Gatundu Road, and finally to Manderu Road before connecting with Ring Road Kileleshwa. The path traced by the foregoing roads was historically the main street of Kileleshwa. The second of the long streets through the neighbourhood is Oloitokitok Road or Ring Road Kileleshwa. It begins in the south-eastern corner of the neighbourhood, traversing past two roundabouts, connecting at a 90-degree angle with Likoni Road at the first roundabout, then Manderu Road at the second roundabout, eventually intersecting both Laikipia Road and Arboretum Drive, before exiting the neighbourhood at its north-eastern corner, where it also intersects with Riverside Drive. This road, as a link road, provides a convenient connection between the western suburbs and a major commercial and business centre – Westlands – located north west of Nairobi’s CBD (See **Figure 4.17**). It does this via a connection with the major highway (A104)<sup>36</sup> that cuts through Westlands<sup>37</sup> area and the city, as Waiyaki Way/Uhuru Highway. A major latitudinal street, Likoni Road, aligned at a 45-degree angle to the CBD’s main highway, Uhuru Highway, cuts through Kileleshwa at its midpoint, connecting it to its adjacent neighbourhoods in the western suburbs (See **Figure 4.17**).



**Figure 4.17** Diametrically opposed alignment of streets through Kileleshwa, with those through Nairobi’s CBD. (Adapted by Author from Google Earth, 2020)

Thus, at present, Kileleshwa’s street plan remains unchanged from its pattern that was established in colonial era Nairobi. The most recent improvement that has occurred has been the construction of a Ring Road that connects the residential area to adjacent residential neighbourhoods and nearby

<sup>36</sup> A104 Highway is also a major highway that cuts through Kenya, connecting Tanzania in the south at the border town of Namanga and Uganda in the west at the border town of Malaba.

<sup>37</sup> This a major business district lying Northwest of Nairobi CBD.



commercial areas, particularly the significant commercial and business area of the city, Westlands, located north west from Nairobi's CBD (See **Figure 4.18**). However, the improvement simply required the construction of a road along an existing road reserve.



**Figure 4.18** Kileleshwa's Connecting Streets: The Ring Road (NE/SW axis) connects the area to commercial zones and neighbourhoods to the North and South. The bisecting road (NW/SE axis) connects Kileleshwa to adjacent residential areas. (Adapted by Author from Google Earth, 2020)

Hence, while the improvement has made Kileleshwa more accessible to adjacent neighbourhoods and led to some vertical densification of housing along its stretch, the ring road was, for the most part, the implementation of a road that had been planned for hence reserved for this purpose and not necessarily the creation of an entirely new road on a greenfield site. Thus, the ring road has better defined Kileleshwa's street structure, and arguably made the neighbourhood more desirable for property development, without necessarily altering the original street structure. Nevertheless, the construction of the ring road has altered the street hierarchy of Kileleshwa. The ring road is now the major road in and through the neighbourhood. It is arguably the new main street, while the previous main street<sup>38</sup> is arguably now a secondary road providing access to a number of the properties in the neighbourhood, while also acting as the artery from which minor streets to other properties in the neighbourhood emanate. Moreover, the construction of the Ring Road created a better connection with the bisecting road that runs on a north-west/south-east axis, Likoni Road, connecting adjacent neighbourhoods in Nairobi's western suburbs (See **Figure 4.18**).

<sup>38</sup> This is the original street forming a spine through the neighbourhood, portions of which have different names – Othaya Road-Nyeri Road-Gatundu Road-Mandera Road.

### ***Plot***

The initial plots in Kileleshwa on which the single family detached dwelling units were built were at least a quarter of an acre in size or more (Halliman & Morgan, 1967, p. 106) with some around three-quarters of an acre. The situation has remained virtually the same in the midst of the ongoing building densification in the residential area. While there are scattered cases of plot amalgamation occurring before the development of apartment blocks, this is the exception rather than the rule. In most cases, the existing plot is retained but the original single unit dwelling is demolished and replaced by a multi-tower high-rise apartment block on the same site. Thus, the biggest change in this regard is in relation to both the plot ratio and building mass (See **Figure 4.19**). In contrast to single-unit detached dwelling units, apartment footprints cover a wider extent of the plot area with a greater than 50% coverage the norm in Kileleshwa. Furthermore, compared to single-dwelling detached units, apartment blocks are massive structures. They are leading to the vertical densification of the plots. Where trees and greenery were the dominant feature on plots, the concrete structure of apartment blocks is now beginning to predominate.

Hence, in the wake of the ongoing intensive urban transformation since the turn of the millennium, Kileleshwa's plot patterns have remained remarkably resilient. The original plot configurations of a quarter of an acre or more have been retained, with high-rise apartment blocks being developed on the same plots that historically housed single-family detached dwelling units (See **Figure 4.19**). On very few occasions has plot amalgamation preceded the development of the high-rise apartment blocks.



**Figure 4.19** A section of Kileleshwa depicting similar three-quarter acre plots with different formal categories of the residential functional building type. "S" are the original single family detached dwelling units; "T" are townhouses developed in the first-generation transformations that adhered to the residential area's height limit; "A" are the second-generation

*transformations or recent high-rise apartment blocks built beyond Kileleshwa's height limit. (Adapted by Author from Google Earth, 2020)*

In the cases where the original single-family houses have been replaced by high-rise apartment blocks, the most noticeable change has been the intensification of the use of the plot and the increase in plot coverage. With apartment blocks, plot coverage has increased extensively and more massive building structures have become widespread. In some cases, particularly in those where the apartment block has been designed as an undifferentiated mass, the plinth area of the apartment block covers almost the entirety of the plot. Thus, there is barely any set back from the plot boundary. The result is that apartment blocks on adjacent blocks barely have any space between them apart from the boundary wall. This is in sharp contrast to the original sites with single-family detached dwelling units on which the plot ratio was much lower. With single-family housing, the offset from the property line was much greater hence there was ample room between the dwelling unit and the property boundary. Thus, the hard surface coverage of the plot was much lower and plenty of room was available for soft coverage in the form of greenery such as grass, shrubs, and trees (See **Figure 4.19**).

### ***Building Typology***

Historically, the typical buildings in Kileleshwa were single-family detached dwellings (Halliman & Morgan, 1967, p. 106). These houses were built of stone, had a tiled roof and included a separate servant's quarters (DSQ) (Halliman & Morgan, 1967, p. 106). (See **Figures 4.5 & 4.6**).

However, at the turn of the millennium, this stable nature of the low-density character of the residential area began to change. Although the neighbourhood was zoned for low-density housing, the zoning provisions for the area had an allowance for the development of mid-rise flats or buildings provided that they were connected to a sewer line (City Council of Nairobi, n.d.). In the first decade of the millennium, this was the direction that densification took. The initial densified buildings, the first-generation transformations, were either town houses or mid-rise flats or apartment blocks that did not exceed the maximum zoning limit of not more than four floors and an attic or, in effect, five floors (**Figure 4.20**) that only required walk-up vertical circulation.



**Figure 4.20** Kileleshwa's first-generation transformations: Mid-rise walk-up apartment blocks. (Author, 2016)

Moreover, the second decade of the millennium has been characterized by second-generation transformations. This represents the most extensive transformation that has occurred in Kileleshwa to date. At present, high-rise apartment blocks proliferate in the neighbourhood. From a single-family detached dwelling unit on a given plot of land in Kileleshwa, the emergent characteristic is that of a high-rise apartment block on the same plot of land. Present day Kileleshwa is peppered with apartment blocks at various stages of development, all exceeding the residential area's *de jure* height limit of four floors (plus an attic – translated in effect to 5 floors total). It is now quite common to come across high-rise apartment blocks in the neighbourhood exceeding five floors and ranging in height from six to 14 floors, which require a lift/elevator for vertical circulation (See **Figures 4.21, 4.22, 4.23, & 4.24**).



**Figure 4.21** Kileleshwa's second-generation transformations: High-rise apartment blocks with lifis/elevators. (Author, 2018)



**Figure 4.22** Kileleshwa: High-rise apartment blocks under construction. (Author, 2018)



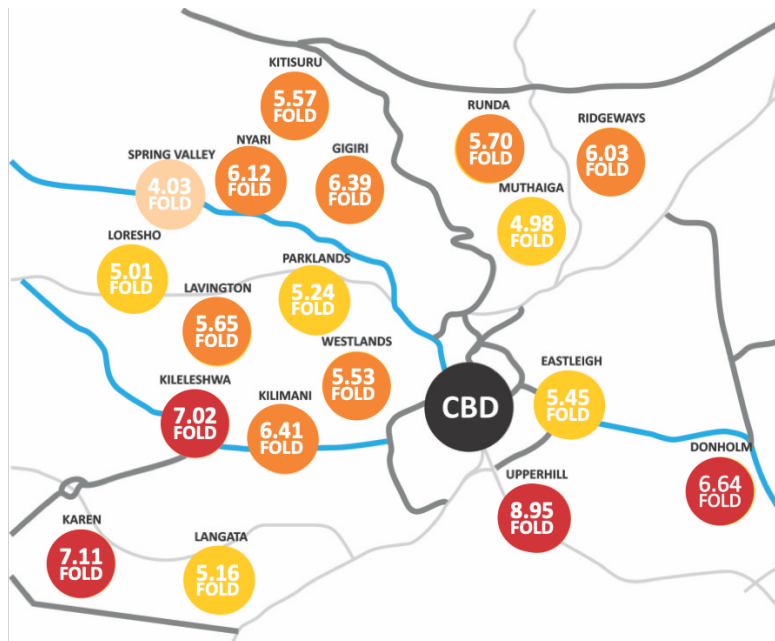
*Figure 4.23 Kileleshwa: A high-rise apartment block under construction. (Author, 2018)*

The apartment blocks perpetuate the enclaving of the neighbourhood by maintaining the historical gated nature of the residential area in which the single-family housing was contained within a gated compound (See **Figure 4.6**). The apartment blocks are built as an enclave, are mostly inwardly oriented and make minimal reference to adjacent buildings. The result is a series of apartment blocks, at various heights and in various forms; some neighbouring each other, some surrounded by low-density housing units, and some at a distance from each other. All in all, they form an incoherent picture of variegated massive structures spawned by the idiosyncratic approach seemingly adopted for the development of the emergent high-rise apartment block. Thus, present day Kileleshwa is characterized by a diversity of apartment blocks with significant variation on the high-rise tower typology.



**Figure 4.24** Kileleshwa: Completed high-rise apartment blocks along Olenguruone Road – the ring road through Kileleshwa. (Author, 2018)

This evolution in building typology, which is densifying the land use of the neighbourhood, has been accompanied by an escalating cost of land in the area. Land prices have increased seven-fold over the course of a decade (**Figure 4.25**). This, in turn, is further accelerating the conversion of single-dwelling detached housing units to multi-dwelling apartment blocks.



**Figure 4.25** Nairobi: 18 suburbs change in price since 2007 (Hass Consult Ltd, 2016c)

From a single-family detached dwelling unit, the emergent typology is that of a multi-dwelling high-rise apartment block with multiple towers. In some cases, the towers are structurally connected; in others, a courtyard separates them. Some apartments have provision for underground or basement parking while others offer surface parking or a combination of both surface and underground parking. Some buildings are raised on piloti, allowing for parking space and access underneath them, while others are built from the foundation up without openings below them.

Thus, the transformation in Kileleshwa deals primarily with building typology. This is the dimension from which the ongoing transformation of the neighbourhood is strikingly evident. This has resulted in new building types – variants of the high-rise apartment block; new populations in terms of a growing middle class; new ways of living associated with a middle-class lifestyle that includes conspicuous consumption leading to phenomena such as the proliferation of car ownership; and higher plot value as the pressure on the existing land increases with growing demand for the construction of more apartment blocks. Some of the social changes are discussed in the sub-section that follows.

#### **4.2.3. Social Changes**

When its history is traced from its colonial origins to the post-colonial era, a variety of social changes are evident in Kileleshwa. These are presented below in terms of socio-economic/cultural changes and demographic changes.

##### ***Socio-economic/cultural changes***

Nairobi has grown from a racially segregated city in the colonial era to one that is now strongly marked by income disparities in the twenty-first century post-colonial era. In the colonial era, Kileleshwa was part of the western and north-western residential area of the city. This was referred to as Upper Nairobi, which was exclusively designated for European settlers in a spatially and racially segregated city in which the north-eastern area was reserved for Asians, while the eastern and southern areas were allotted to Africans (Myers, 2003, pp. 35–37; Obudho, 1997, pp. 300, 305, 315–316) (See **Figure 4.26**). As Rahbaran and Hertz (2014) note, citing Omenya (2013, p. 216 - 219) regarding the initial plan for Nairobi:



Its primary spatial organization was based on a threefold system of racial segregation separating Europeans, Indians, and Africans: the European settlers and railway management were to live in the west on the highlands, in an ideal climate of higher altitude. Indian traders and railway construction labourers were placed in the city's north and centre, close to the railway infrastructure. The local African population was to live outside of the city on the dry eastern edges of Nairobi, where the risk of flooding and the prevalence of malaria was high..." (Omenya, 2013, p. 216-213 in Rahbaran & Hertz, 2014, p. 13)

The authors go further to note that the divisions, spatial and racial, were reinforced in the first master plan for Nairobi in 1927 (Figure 2.3) and the subsequent master plan of 1948 (Figure 2.4) (Rahbaran & Herz, 2014).

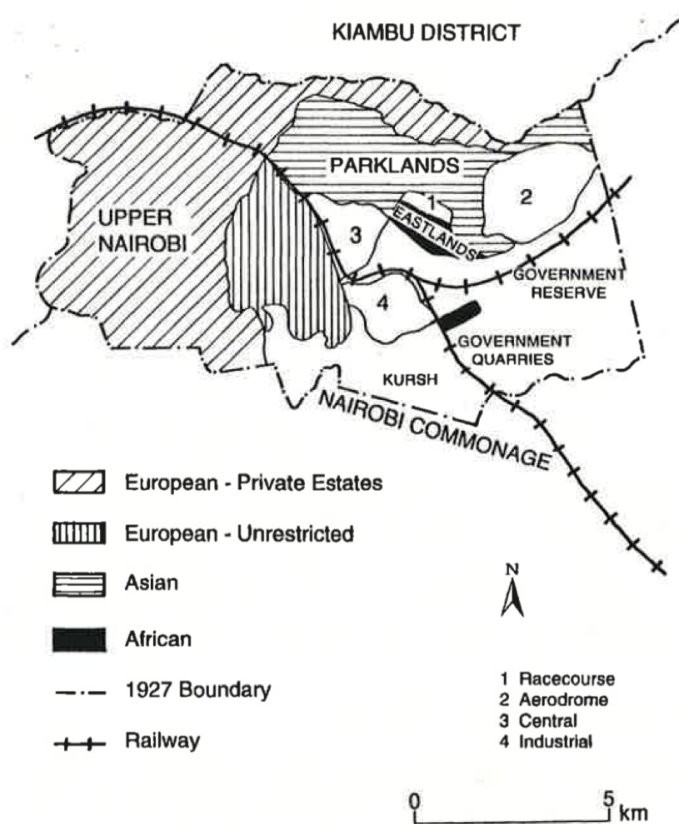
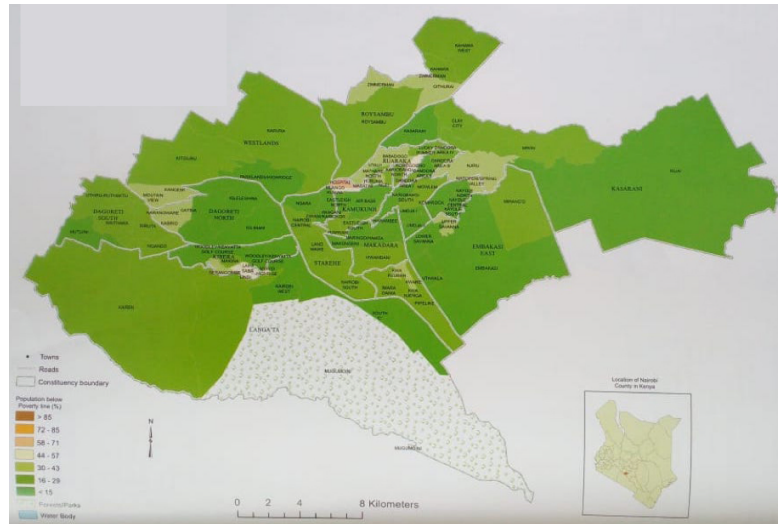


Figure 4.26 Plan for a settler capital, 1927, (by F. Walton Jameson and Eric Dutton) depicting the spatial racial segregation of Nairobi during the colonial era. (Obudho, 1997, p. 300)

In census figures, just before Kenya attained independence in 1963, this racial disparity is clear with specific racial groups, e.g. European, African, Indian, dominant in particular residential zones of Nairobi (**Table 4.1**). Since independence, in the post-colonial era, economic segregation has superseded racial segregation (Obudho, 1997, p. 316) as a key feature of social transformation. Slums have proliferated throughout the city to accommodate those with little or no income (Amnesty International, 2009; UN-Habitat, 2016; World Bank, 2017), while upmarket residential suburbs such as Kileleshwa, Lavington and Kilimani (See **Figure 4.7**) have retained their status as bastions of the well-off.

In the shift from race to income-level as a distinguishing factor, the Africans who took up residence in neighbourhoods such as Kileleshwa, in the post-colonial era, maintained the historical character of the residential areas up to the turn of the millennium. Kileleshwa was thus considered to be a leafy green suburb along with its adjacent neighbourhoods. Characterized by single-family detached dwelling units on plots with mature trees, car ownership was common.

A poverty map based on the 2009 census (**Figure 4.27**) indicates that Kileleshwa was one of four wards out of 85 with the lowest incidences of poverty (less than 15%) in the city (Kenya National Bureau of Statistics, 2015b, p. 120) lending credence to the notion of the area as the abode of the middle class and well-off in the city of Nairobi. This is in keeping with Kileleshwa's historical legacy as one of the better neighbourhoods in the city particularly due to its colonial origins as one of the neighbourhoods in the exclusive Upper Nairobi zone. What is new in the current millennium is the growth, in the residential area, of a middle-class socio-economic grouping displacing the upper-middle class and the wealthier residents for whom the neighbourhood had remained an exclusive residential area in the city's post-colonial era.



**Figure 4.27** Nairobi City County: Poverty incidence by wards, 2009. (Kenya National Bureau of Statistics, 2015b)

As a primarily residential area the social amenities in Kileleshwa have historically included churches, nursery schools, a primary school, a police station, and a shopping centre. Other amenities such as shopping malls and hospitals, were historically sought in nearby commercial areas in other neighbourhoods. Apart from domestic work, security services and services offered at the shopping centre, the neighbourhood does not accommodate any sizeable form of formal economic activity.

However, the turn of the millennium brought about significant social change. With the building of apartment blocks, more people have moved into Kileleshwa either as tenants or owner-occupiers. Socially, rather than a preponderance of the members of the upper-middle class, this has meant an increase in the diversity of income groups represented in the neighbourhood, particularly due to the possibility of renting apartments that range from studio (bedsitter) to one, two, three and four-bedroom apartment units.

The increase in population has led to a growth of various amenities and services. There has been an increase in places of worship, and a growth in restaurants, a hotel, hospital, mall, and businesses housed on some of the original sites of single-family detached residential dwellings. For example, car wash facilities, a spa, wine distributor, kindergarten, and restaurants. Informal activities have also become much more prevalent. Much of it associated with the ongoing construction activities and some of it serving the needs of a growing population. For example, informal food and vegetable vending stands have become increasingly common at various road

intersections in the neighbourhood. In addition, informal car washing services are offered on some roadsides in the neighbourhood. However, the emerging amenities still lag behind the pace of the residential area's increasing population. Hence, are insufficient and predominantly informal.

At a socio-economic level, a number of characteristics are evident for Kileleshwa, which is becoming a very different place to what it was prior to the turn of the millennium. The residential area is increasingly associated with a growing middle class.

In Westlands sub-county, into which Kileleshwa is re-clustered<sup>39</sup> for purposes of census socio-economic data, various characteristics can be gleaned from the 2019 census data. While not specific to Kileleshwa or the specific study area within Kileleshwa, the census data are indicative of the trends in the broader area in which Kileleshwa belongs. Hence, provide a hint of what is likely occurring in Kileleshwa and the study area.

In terms of educational attainment, one-third of the residents of Westlands sub-county have post-secondary qualifications with at least two-thirds of this group having completed university level education. This adds up to one-fifth of the residents having completed university level education (Kenya National Bureau of Statistics, 2019c, p. 106). In comparison, in Nairobi, quite similarly, one-fifth of its residents have post-secondary qualifications. However, only 40% of this group have completed university level education, which adds up to 9% of the city's residents with university level education (Kenya National Bureau of Statistics, 2019c, p. 106). Hence, a much greater proportion of highly educated citizens reside in the sub-county compared to the city's average.

In Westlands, 16% of the households own their home while 83.5% pay rent for their place of residence (Kenya National Bureau of Statistics, 2019c, p. 245). In comparison, the city's average homeownership rate is 9.3% while the proportion of households that rent is 91%. (Kenya National Bureau of Statistics, 2019c, p. 245). While rental rates for the city are high, the preceding indicates a greater degree of homeownership in Westlands sub-county and a lower rate of households that rent compared to the city's average. And, of the dwelling units that are owned in Westlands, 61.9% were purchased, 26.5% were constructed and 11.7% were inherited. In

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<sup>39</sup> Perhaps a probable reason for this was to enable historical comparison of data since no explanation is offered in the census publication for the re-clustering into the pre-2010 sub-counties. Further adding to the confusion, the population figures in the first volume of the census publications were disaggregated according to the official sub-county, Dagoretti North, and also included data at the levels of the wards and sub-areas of wards.

comparison, in Nairobi, of the homes that are owned, 30.8% were purchased, 53.7% were constructed and 15.5% were inherited (Kenya National Bureau of Statistics, 2019c, p. 252). Thus, Westlands sub-county has twice the rate of house purchase and half the rate of owner constructed houses than the city's average. Of the households that rent, 80.4% rent from individuals while 12.6% rent from a private company. The rest, at less than 4% each, rent from the National government, the county government, parastatals, and faith based/non-governmental organizations and religious groups (Kenya National Bureau of Statistics, 2019c, p. 259). In comparison, in the city, on average, more households rent from individuals (87.4%), and fewer households rent from private companies (7.2%) (Kenya National Bureau of Statistics, 2019c, p. 259). This also indicates the lower degree of significance of public or social housing in the city, and the greater role that individuals and private companies play in the housing market.

In terms of infrastructure, in Westlands, 56.3% of households have access to piped or borehole drinking water with 6.1% relying on water from a water vendor and 19.8% relying on water from a public tap or standpipe (Kenya National Bureau of Statistics, 2019c, p. 300). Further, 45.3% of households are connected to a main sewer line while 19.5% use a septic tank. This level of connection to the sewer line is lower than the city's average of 54.3% while the use of a septic tank is higher than the city's average of 18.1% (Kenya National Bureau of Statistics, 2019c, p. 310). The use of septic tanks was historically common in areas such as Kileleshwa that had single-dwelling detached units on large plots.

In Westlands, 56.3% of the solid waste is collected by a private company while 18.1% is collected by the county government with 8.5% collected by community associations. In contrast, the city's average for solid waste collection is 30%, 12.9% and 37.9% respectively (Kenya National Bureau of Statistics, 2019c, p. 317). In Westlands, 97.1% of the households use mains electricity for lighting (Kenya National Bureau of Statistics, 2019c, p. 337) with only 3.8% using it as a source of cooking fuel (Kenya National Bureau of Statistics, 2019c, p. 330). The predominant source of cooking fuel in the sub-county is gas (LPG)<sup>40</sup> at 73.9% (Kenya National Bureau of Statistics, 2019c, p. 330).

Considering car ownership, the increase of which is typically linked with growing incomes associated with an expanding middle class; in Westlands sub-county, one-third of the households own a car. This is two-and-a-half times the city's average car ownership rate, which was recorded as 13%

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<sup>40</sup> LPG: This Liquid Petroleum Gas sold in 13kg or 6 kg refillable gas cylinders at petrol service stations and supermarkets, and used in conjunction with gas cookers.

(Kenya National Bureau of Statistics, 2019c, p. 462). Westlands is only one of two sub-counties out of 11 sub-counties<sup>41</sup> in the city with such a high car ownership rate. The rest have an average that is closer to the city's average, with rates ranging from a low of 2.6% to a high of 16.9% (Kenya National Bureau of Statistics, 2019c, p. 462). Hence, Westlands sub-county, in which Kileleshwa is located, is likely a significant contributor to the vehicular congestion on Nairobi's streets.

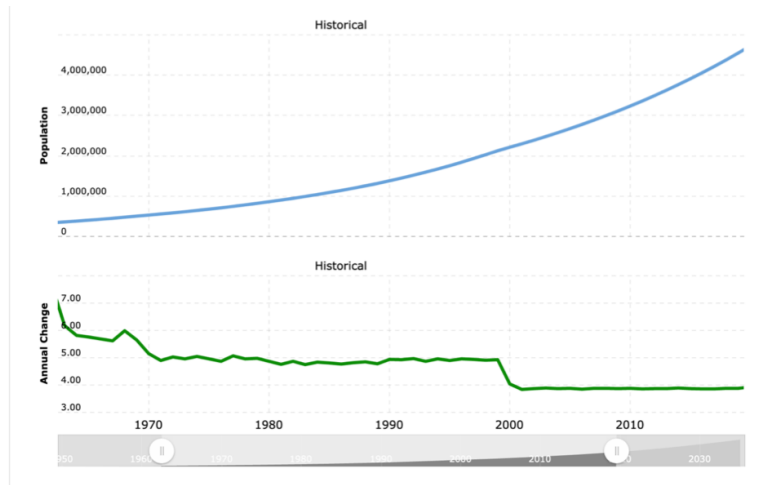
### ***Demographic Changes***

At the time of Kenya's independence from British colonial rule in 1963, Nairobi's population was estimated to be 340,000 persons (Macrotrends, 2020). It took more than two decades, until 1984, for the city's population to cross the 1 million mark (1,040,000 in 1984) (Macrotrends, 2020). Then, it took a shorter period of a decade and a half for the city to cross the two million mark (2,028,000 in 1998) (Macrotrends, 2020). Thus, by the close of the twentieth century Nairobi had a population of more than two million.

In the twenty-first century, the city's population increase has been exponential. It took less than a decade for Nairobi's population to cross the 3 million mark (3,000,000 by 2008) (Macrotrends, 2020). Half a decade later, the city's population had crossed the 4 million mark (4,065,000 by 2016) (Macrotrends, 2020). The latest decennial census conducted in 2019, estimated a current population of 4.4 million (Kenya National Bureau of Statistics, 2019a). This rapid population growth since the turn of the millennium, translates to the city adding more than 100,000 new residents annually. This is occurring despite the annual rate of change levelling out since 2000 (See **Figure 4.28**).

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<sup>41</sup> In the socio-economic data reported in the 2019 census, the city was sub-divided into the pre-2010 sub-counties instead of the current 17 sub-counties.



**Figure 4.28** Nairobi: Population growth and annual rate of change, 1963-2019. (Macrotrends, 2020 based on data from UN-World Population Prospects)

In Dagoretti North sub-county in which Kileleshwa is clustered, a significant increase in the population in all its wards is clearly evident (See **Table 4.2** and **Table 4.3**). The population in the sub-county has increased by more than 50% in the span of a decade while the number of households have increased by more than one-third. Furthermore, the population density of the sub-county has increased by more than 50%.

<b>Table 4.2</b>				
<b>Dagoretti North Constituency: Wards, population, area, households, and density, 2019</b>				
Ward	Population	Households	Area Sq. Km.	Population Density Pers./Sq. Km.
Kilimani	50,457	15,331	16.0	3,149
<b>Kileleshwa</b>	<b>32,513</b>	<b>10,392</b>	<b>9.1</b>	<b>3,570</b>
Gatina	63,560	24,005	1.5	42,772
Kawangware	91,487	33,008	2.4	37,533
Kawangware*	30,587	10,893	0.9	33,605
Kabiro**	36,228	13,328	0.8	46,767
<b>Total</b>	<b>238,017</b>	<b>82,736</b>	<b>29.0</b>	<b>8,207</b>
*This is a sub-area of the original Kawangware ward that was sub-divided into three to accommodate Kabiro and Muslim sub-areas.				
**Though listed as a ward, according to the 2019 census data, it is a sub-area of Kawangware.				
Source: Compiled by author from KNBS census data (Kenya National Bureau of Statistics, 2020a, pp. 236, 240).				

<b>Table 4.3</b>				
<b>Dagoretti North Constituency*: Wards, population, households, area, and density, 2009</b>				
Ward	Population	Households	Area (Sq. Km)	Population Density Pers./Sq. Km.
Kilimani	43,122	11,350	16.1	2,685
<b>Kileleshwa</b>	<b>27,202</b>	<b>7,743</b>	<b>9.0</b>	<b>3,009</b>
Gatina	45,872	15,987	1.5	30,411
Kawangware	34,683	22,262	2.4	28,258
Kabiro**	-	-	-	-
<b>Total</b>	<b>150,879</b>	<b>57,342</b>	<b>29.0</b>	<b>5,202</b>

\*The constituency was created after 2010 bringing together the listed wards.  
\*\*Area not delineated in the 2009 census.  
Source: Compiled by author from KNBS census data (Kenya National Bureau of Statistics, 2010b, pp. 34, 36).

The current demographic situation in Kileleshwa is illustrative of a significant change in the new millennium. While Kileleshwa ward's share of the sub-county population has declined by 4% from 18% to 14% between 2009 and 2019, according to the 2019 census, Kileleshwa ward had a total population of 32,513 persons (Kenya National Bureau of Statistics, 2020a, p. 240); an increase of 19.5% from the 2009 total of 27,202. This was half the city's average population increase rate of 40%, over the same time span, from 3,138,369 to 4,397,073 (Kenya National Bureau of Statistics, 2020a). The ward's population density increased by 18% to 3,570 persons per sq. km. in 2019 (Kenya National Bureau of Statistics, 2020a, p. 240) from 3,022 persons per sq. km. in 2009. This was half the rate of the city's increase of 38% from 4,515 persons per sq. km. to 6,247 persons per sq. km. It also represents 57% of the city's population density per sq. km. Kileleshwa ward had 10,392 households in 2019 compared to 7,743 in 2009 or an increase by one-third over the inter-censal period. (See **Tables 4.4 & 4.5**)

Meanwhile, in the sub-area of Kileleshwa ward, the study area, even more rapid population growth has occurred over the past decade. In the 2019 census, the sub-area of Kileleshwa had a population of 22,216 persons (Kenya National Bureau of Statistics, 2020a, p. 240); more than two-thirds of the ward's population. Compared to a 2009 population of 16,802 persons (Kenya National Bureau of Statistics, 2010b), this was an increase of 32%, a much higher rate than the ward's. It also had a higher population density than the ward's at 4,229 persons per sq. km (Kenya National Bureau of Statistics, 2020a, p. 240); 18% higher than the ward's and more than two-thirds of the city's population density. This was an increase by one-third of the 2009 density of 3,210 (Kenya National Bureau of Statistics, 2010b). The sub-area



of Kileleshwa had 6,864 households in 2019 compared to 4,592 households in 2009 (Kenya National Bureau of Statistics, 2010b, 2020a), an increase of 2,272 households or almost 50% in the inter-censal period; more than 10% higher than the city's average rate of increase. (See **Tables 4.4 & 4.5**)

<b>Table 4.4</b>								
Kileleshwa: Distribution of Population by Sex, Number of Households, Land Area, Population Density, and Sub Locations, 2019.								
Sub Location	Sex			Households			Land Area Sq Km	Density Persons/ Sq. Km.
	Total	Male	Female	Total	Conventional	Group Quarters		
<b>Kileleshwa</b>	32,513	14,608	17,903	10,392	10,250	142	9.1	3,570
<i>Kileleshwa</i> <sup>42</sup>	22,216	9,761	12,453	6,864	6,864	-	5.3	4,229
Muthangari	10,297	4,847	5,450	3,528	3,386	142	3.9	2,672

Source: Compiled by Author from KNBS census data (Kenya National Bureau of Statistics, 2020a)

<b>Table 4.5</b>						
Kileleshwa: Population Distribution by Sex, Number of Households, Area, Density, and Administrative Units, 2009.						
Administrative Unit	Sex			Households	Area in Sq. Km.	Density
	Total	Male	Female			
<b>Kileleshwa</b>	27,202	12,207	14,995	7,743	9.0	3,009
<i>Kileleshwa</i> <sup>43</sup>	16,802	7,389	9,413	4,592	5.2	3,210
Muthangari	10,400	4,818	5,582	3,151	3.8	2,734

Source: Compiled by Author from KNBS census data (Kenya National Bureau of Statistics, 2010b)

The average household size of the sub-county into which Kileleshwa<sup>44</sup> is clustered is 2.8 (Kenya National Bureau of Statistics, 2010a, p. 26). This is marginally different from the city's 2.9 but lower than the country's average

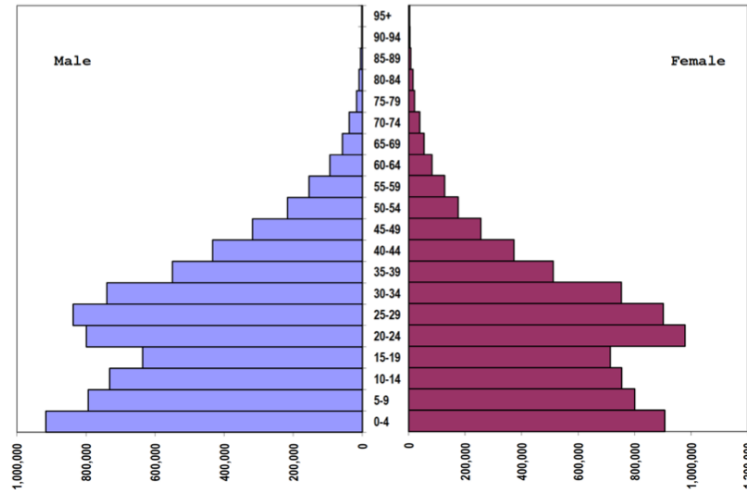
<sup>42</sup> Kileleshwa in italics is the study area.

<sup>43</sup> Kileleshwa in italics is the study area.

<sup>44</sup> Kileleshwa as used in this thesis refers to the sub-area of **Kileleshwa** – the study area as explained earlier unless otherwise noted (See **Figure 4.10**).

household size of 3.9 (Kenya National Bureau of Statistics, 2010a, pp. 21, 29).

According to the 2019 population and housing census, the majority of the population in urban areas is concentrated between ages 20 and 34 among both sexes (Kenya National Bureau of Statistics, 2019b, p. 12) (See **Figure 4.29**) The shape of the pyramid with a large bulge at the bottom signifies a rapidly growing population (Becker, 2008, p. 40).

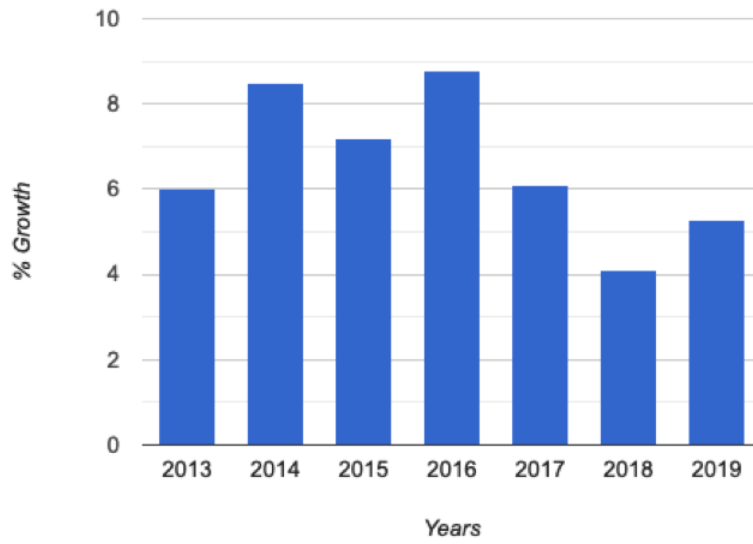


**Figure 4.29** Population pyramid – Urban areas, 2019 (Kenya National Bureau of Statistics, 2019a)

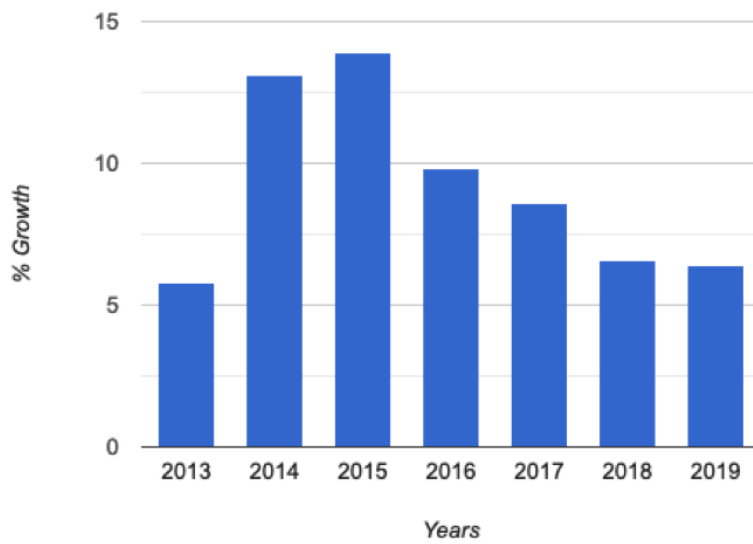
### 4.3. Kileleshwa's Role in the city

Kenya's real estate and building and construction sectors have been some of the best performing sectors in the country's economy in recent years with both consistently registering an average growth of 5% or more over the past seven years (See **Figures 4.30 & 4.31**) (Kenya National Bureau of Statistics, 2015a, 2016, 2017, 2018, 2019d, 2020b)<sup>45</sup>.

<sup>45</sup> Based on Kenya National Bureau of Statistics Economic Survey Highlights, 2015-2020.



**Figure 4.30** Kenya: Percent Growth of Real Estate Sector (Adapted by Author from Kenya National Bureau of Statistics, 2015-2020)



**Figure 4.31** Kenya: Percent Growth in Building and Construction Sector (Adapted by Author from Kenya National Bureau of Statistics, 2015-2020)

Nairobi contributes approximately one-fifth<sup>46</sup> of Kenya's GDP (Ngugi, 2019; Wankuru, 2019). With its thriving real estate, building and construction sectors, the city continues to be an important contributor to the country's economic growth. According to annual reports published by the Kenya Property Developers Association (KPDA), within Nairobi county, Dagoretti North sub-county, in which Kileleshwa is located, has consistently featured among the top sub-counties in the number of building permits approved (Kenya Property Developers Association, 2018, p. 4) (See **Figure 4.32**), and continues to feature among the top performers (Kenya Property Developers Association, 2019, p. 2).

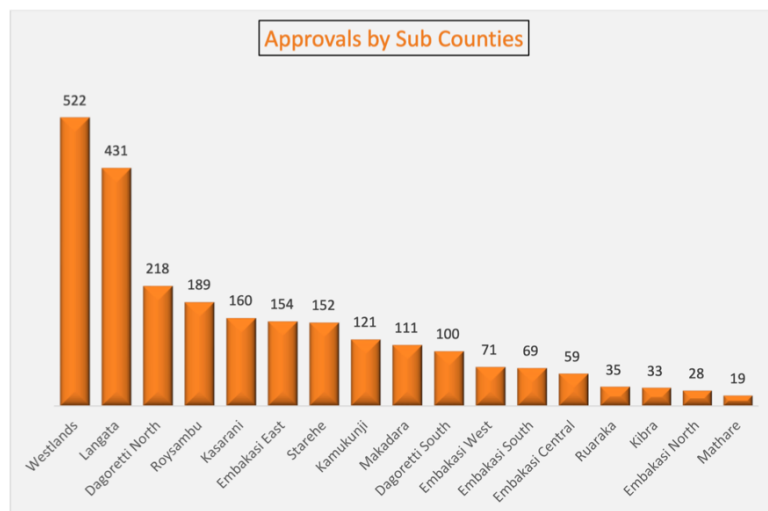


Figure 4.32 Building Permit Approvals Classified by Nairobi's Sub-Counties (KPDA, 2018)

In recent years, more than three quarters of the building permit approvals have been for Domestic Class (DC) buildings (mostly residential buildings) (Kenya Property Developers Association, 2016, 2017, 2018, 2019), indicating the extent to which this sector of the real estate is thriving in the city. With the building and construction activity increasing commensurately with the approvals, localities such as Kileleshwa continue to play an important role in the economy of the city as sites where most of this activity

<sup>46</sup> This share of Kenya's GDP represents a dramatic drop from previous estimates of 60% of Kenya's GDP. The findings were obtained through a World Bank initiative, Kenya Accountable Devolution Program (KADP), which, in collaboration with KNBS, published the 2017 Gross County Product (GCP) (Wankuru, 2019). Despite Nairobi's lower contribution to Kenya's GDP, in this new formulation, the estimated 21.7% is still four and a half times higher than that of Kenya's second largest city, Mombasa, which had an estimated contribution of 4.7%. It is also three and a half times higher than the 6.1% attributed to Nakuru county, which is the county with the second largest share of Kenya's GDP.

is occurring (Kenya Property Developers Association, 2019, pp. 5–6) (See Figures 4.33 & 4.34).

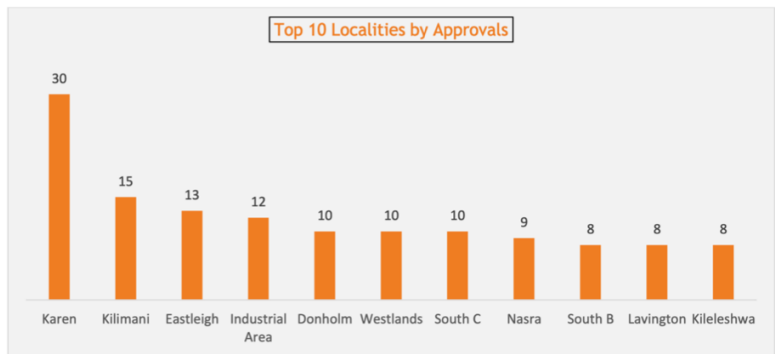


Figure 4.33 Kileleshwa among the Top 10 Localities by Permit Approvals (Source: KPDA, 2019)

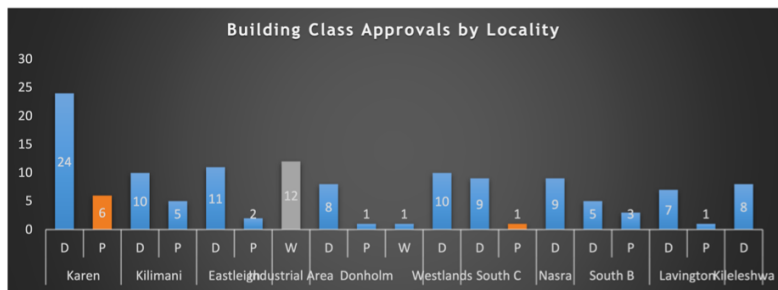


Figure 4.34 Building Class Approvals for Localities with Kileleshwa Approved for Residential Buildings (Building Class D) (Source: KPDA, 2019)

With building and construction activity and real estate growth, formal and informal work becomes available. Hence, due to its contribution to these sectors through the ongoing development of apartment blocks, Kileleshwa is playing a significant role in contributing to the city’s economy not only through the work associated with the two interrelated sectors, but also through the financial investments involved in bringing such developments to fruition.

Furthermore, as the site of the development of apartment blocks, of various types, which are suitable for a diversity of household types and income ranges, Kileleshwa, is gradually developing into a middle-income residential area. This, in turn, is contributing to the gradual income diversification of the previously exclusive western residential suburbs of the city. Moreover, the

presence of a sizeable and expanding middle-income group in a residential area is strongly correlated with a stable and growing economy (Madland, 2011).



# 5

## Findings and Discussions

This section consists of two main sub-sections. First is a summary of the findings of the investigation and, second, is a discussion of the findings.

### 5.1. Summary of Findings

In this sub-section, the findings in the four articles that make up **Part II** of this thesis by compilation are summarized. This is done with a focus on their aim and contributions to the thesis.

#### 5.1.1. Article I: The Interplay of Actors in the Production of Housing in Nairobi, Kenya

Article one was written with the aim of exploring actor roles in the ongoing process of urban habitat transformation as contextualized in Kileleshwa neighbourhood. The article sought to identify the key actors involved in the process, their levels of agency, and how they exercised their agency to achieve the resultant outcomes. It primarily centres on the agency of the key actors involved in the process of urban habitat transformation in Nairobi. Using the case study of Kileleshwa neighbourhood, an historically low-density suburb of Nairobi, it discusses the roles played by the various actors in the ongoing densification of the neighbourhood. The findings of the paper are that a number of key actors, playing different roles, are instrumental in the ongoing process of urban habitat transformation. These actors have various levels of agency. Property developers have enhanced agency in wielding dominant influence in the re-shaping of the urban habitat through the process of transformation from low-rise single-unit detached housing to high-rise multi-unit apartment blocks. The local government and regulatory agencies have limited agency as depicted in their yielding to the demands of property developers through acts of commission or omission that make possible the development of apartment blocks beyond the statutory height limit. In addition, the growing middle class, though a factor in the market demand for housing units, have marginal agency in affecting the specific



form of the housing being produced and supplied in the market. They are in effect consumers of a product that they had a minimal role, if any, in shaping. The article contributes to the thesis by highlighting some identified key themes that were suggested as underscoring the ongoing transformation. Those explored in the article, in relation to urban habitat transformation were: its process, the pervasiveness of informality, and the prevalence of irregularity, which was leading to negative externalities with implications for the urban quality and sustainability of the urban habitat. The article specifically contributes to addressing the two-part first research question on why the transformation is occurring rapidly and leading to the manifest outcomes of greater densification. Additionally, it identifies who the actors involved in the process are and the roles they are playing in the ongoing transformation.

### **5.1.2. Article II: Morphological Transformation of Kileleshwa, Nairobi**

Article two was written with the aim of exploring the physical manifestation of the ongoing urban habitat transformation in the context of Kileleshwa neighbourhood. It sought to explore this through an analysis of the emergent morphology by delving into various levels of urban resolution: the street network, the plots, and the buildings. In so doing, the aim was to understand the degree to which these dimensions had undergone change as a consequence of the ongoing urban transformation. Thus, it was an investigation of the physical transformation of the neighbourhood as evidenced in the material record. Its findings are that minimal transformation has occurred at the level of the street network. These have largely remained unchanged despite the ongoing densification. The plots have undergone moderate transformation in the process of densification. In a few cases amalgamation of plots has occurred. However, most of the densification is occurring without alteration to the original plot size although leading to a more extensive use of the plot. Significantly, the greatest degree of transformation has occurred at the building level. These have been the site of substantial transformation with a significant change in the building typology. The original low-rise single-dwelling detached housing units are being demolished and replaced by high-rise multiple-dwelling apartment blocks. Hence, not only has the height of the housing increased, its building footprint has also increased substantially. From a previous plot coverage of a maximum one third of the area of the plot, the plot coverage of the buildings has increased to more than two-thirds of the area of the plot. This represents a much more intensive use of the plot. Additionally, the article discusses the

variety of emergent apartment block types and building layouts that are a direct result of the ongoing process of transformation. A wide variety of apartment blocks heavily influenced by global North designs are being developed. Moreover, the interior layouts of the emergent apartment units represent a significant departure from layouts of the original low-density houses, in configuration and size. In shedding light on Kileleshwa's morphological transformation, the article, in relation to the second research question, contributes to a deeper understanding of how the urban neighbourhood has actually transformed, as manifested in its physical outcomes, consequently setting the stage for the social transformation of the urban context.

### **5.1.3. Article III: Middle-Class Access to Housing in Nairobi's Transforming Urban Habitat**

Article three was written with the aim of investigating in detail the social dimension of the ongoing urban habitat transformation, contextualized in Kileleshwa, from the perspective of the residents moving into the neighbourhood. Thus, it focuses on the socio-cultural and socio-economic outcomes of the process of transformation. The article sought to explore the ways in which the altered urban habitat with densified housing was making possible novel modes of urban living. In particular, the focus was on the emergent middle class and the ways in which they navigate urban residential space and stake a claim in a previously exclusive urban habitat. It discusses the middle class as a representation of the primary demand for the formal housing being produced for the residential property market in the city. Thus, the paper discusses who the middle class are and why they choose to live in densifying neighbourhoods such as Kileleshwa. It discusses the strategies, which they employ to obtain sufficient financing to enable them access, as buyers or renters, the relatively expensive apartment-type housing that has become the most dominant housing type of the process of urban transformation. The paper highlights how the middle class are a force to reckon with in the ongoing transformation. It further discusses their potential significance in altering the discourse on housing and urban living in global South cities such as Nairobi, typically discussed from the point of view of pervasive poverty and widespread informality. In this regard, the paper points to the prospects of a positive discourse in the emergent novel form of urban dynamics in this context that would typically be expected of global North cities. The article, in exploring how the new residents are making Kileleshwa their new domicile, sheds light on the social dynamics reshaping the socio-economic and socio-cultural attributes of the transforming urban habitat.

Hence, it addresses the second part of the second research question on the social outcomes of the ongoing transformation especially as manifested in the densifying housing.

#### **5.1.4. Article IV: The Unsustainability of Urban Habitat Transformation: A Case Study of Kileleshwa in Nairobi, Kenya**

Article four was written with the aim of discussing sustainability as a potentially useful evaluative lens particularly when the environmental dimension is privileged over the social and economic ones in a hierarchical relationship thus fronting an ecological perspective. Accordingly, with this approach, sustainability was proposed as a way of appraising the processes and outcomes – and especially the resultant infrastructural implications – of the ongoing urban habitat transformation as manifested in the case study neighbourhood. It takes the position that the ongoing market-driven urban transformation of the city as occurring in its urban habitats is leading to certain outcomes that may be unsustainable. Additionally, it is resulting in some negative impacts on urban quality despite the typical association of higher density with the possibility for sustainable urban outcomes. This is discussed especially from a long-term point of view given the prevailing global context of climate change in which the usual way of doing development – in which the economic dimension is fronted at the expense of social and environmental factors – has increasingly come under close scrutiny. The paper discusses the question of sustainability using the case study of Kileleshwa, which is currently undergoing rapid vertical densification of its housing stock. It draws attention to and discusses some of the unsustainable features of the process and outcomes of the ongoing transformation of the neighbourhood that also undermine the residential area's urban quality. The paper suggests a reconsideration of the concept of sustainability to emphasize the environmental aspect ahead of both the social and economic facets with the argument that it makes the latter two components more viable. The underlying motivation of the proposal is not to relegate the social and economic dimensions to a position of irrelevance but rather to redress the ways in which sustainability has been practiced, particularly at the expense of the environmental dimension, with the resultant deleterious consequences for global sustainability. The contribution of the article to the research is in showing how a re-configured conceptualization of sustainability reveals some of the unsustainable outcomes, and negative impacts on urban quality, of the ongoing urban habitat transformation particularly in regards to the increasing inadequacy of the available physical and social infrastructure. In so doing, the article addresses the third research

question that sought to deploy urban sustainability and urban quality as an evaluative lens with which the ongoing processes and related outcomes of the urban habitat transformation could be interrogated.

## 5.2. Discussion of Findings

In this sub-section, a structured discussion of the findings is undertaken. It is based on findings – from the empirical materials of the research – captured in the four articles that form part of the thesis as well as the comprehensive work with the compilation, putting the total investigation together. The articles are found in **Part II** of the thesis and summarized **above in section 5.1**. The schematic diagram (**Figure 5.1**) is used as scaffolding<sup>47</sup> for organizing the discussion on findings. Its usefulness lies in making it possible to discuss the phenomenon of urban transformation in Nairobi in a structured way. This is done by disaggregating the discussion into three different but related levels. They are categorized as themes, effects, and issues. The three levels are all related to the research questions that guided the study. This is explained further below.

The first level is a discussion on *Themes in Transformation*. This focuses on cross-cutting themes that permeate the phenomenon of urban transformation, which were investigated within the context of Kileleshwa neighbourhood. The themes discussed are: process, informality, and irregularity. The theme of *process* addresses the question of how and why the housing in the rapidly transforming urban habitat of Kileleshwa is being produced. It also addresses who the actors involved in the process are and how they interact with each other to achieve the emergent housing outcomes (**research question one**). The themes of *informality* and *irregularity* address the underlying nature of the process and outcomes of transformation. Hence, are linked not only to the how, why and who of the transformation (**research question one**). These themes also address part of the question of how the process of transformation has altered the residential habitat physically in terms of housing typology as well as the physical characteristics of the urban habitat (**first part of research question two**).

The second level is a discussion of the *Effects of Transformation*. It focuses on effects that were considered to be strongly apparent as an immediate outcome of the phenomenon of urban transformation in Kileleshwa

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<sup>47</sup> The concept of scaffolding is used in the same sense employed by Thomson and Kamler (2016, p. 8), where they suggest that the appropriate image to have in mind is that of, “an actual scaffold that builders use in the construction process,” that, “...helps them do things safely, step by step, without falling,” which upon completion, is dismantled without leaving a trace of its ever having been present.

neighbourhood. The effects discussed are: morphological outcomes, housing quality, and socio-economic/cultural outcomes. These three effects address **research question two** on how the process of transformation has altered the residential habitat physically in terms of housing typology and the effects of this on the habitat's (Kileleshwa's) physical and social characteristics. The effects of *morphological outcomes* and *housing quality* directly address the first part of the question on housing typology and physical characteristics while the effect of *socio-economic/cultural outcomes* directly addresses the second part of the question on social characteristics.

The third level is a discussion of the *Issues of Transformation*. It focusses on issues that were viewed to have arisen in the context of Kileleshwa neighbourhood as a result of the processes and outcomes of the ongoing urban transformation. While there are many possible issues related to urban transformation, the ones focussed on were considered to be relevant in my way of discussing the local transformation hence given priority. The issues discussed are: urban management, planning for densification, and infrastructural challenges.

Bookending the schematic diagram, on the extreme right, an evaluative lens based on concepts of urban quality and sustainability is indicated. It is discussed at the tail-end of this section where it is deployed as a lens with which to appraise and evaluate the phenomenon of urban transformation in Kileleshwa. It is not only informed by the *themes of transformation* but also by the *effects* and *issues of transformation*. The three levels collectively form the basis of considering the implications of the processes and outcomes of the transformation of the residential habitat (Kileleshwa) for its urban quality and sustainability (**research question three**).

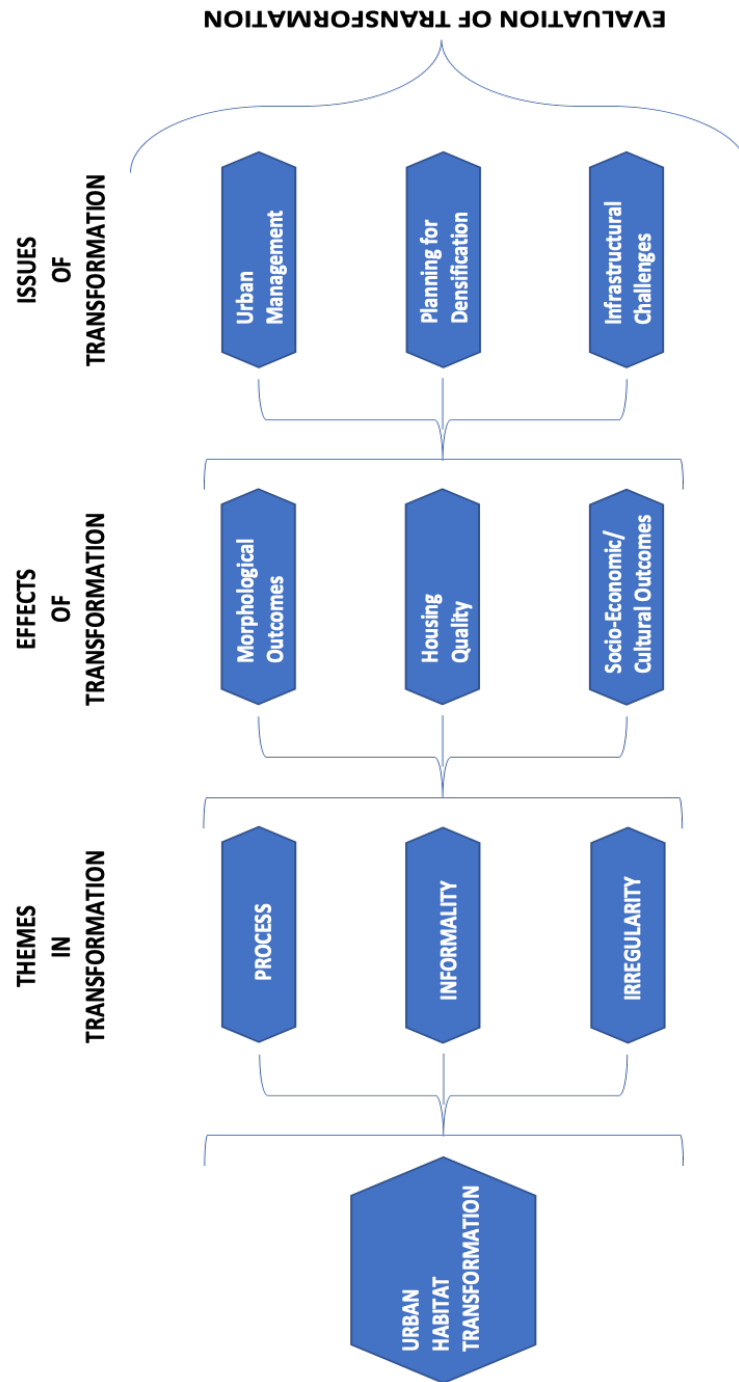


Figure 5.1 Schematic diagram of urban habitat transformation

### 5.2.1. Themes in Transformation

Three identifiable themes in the context of rapid urban habitat transformation are discussed. These are: process, informality and irregularity. These themes address the first research question: *How is housing in the rapidly transforming urban habitat being produced?* And its two sub-questions: *Why is the transformation occurring rapidly and how is its underlying process structured to facilitate the transformation from low-rise to high-rise residential housing? Who are the actors, how do they interact and what roles do they play in the process of transformation to generate new housing typologies?*

In the ongoing transformation of Kileleshwa neighbourhood, its process is of central concern. Kileleshwa neighbourhood is used as a vector for investigating rapid urban transformation in Nairobi. Informality and irregularity, on the other hand, are integral attributes of the phenomenon of transformation as it currently manifests in the neighbourhood. They seem to be inescapable aspects of the habitat transformation that is occurring in Nairobi. The three themes are discussed in turn in the following sub-sections.

#### *Process*

The process of transformation is a theme that encapsulates the way in which urban transformation is occurring in Nairobi's urban habitats. As explored in **Article 1**, it is centred on empirical research undertaken in Kileleshwa, which is an historically low-density urban residential neighbourhood situated in the western suburbs of Nairobi. The angle that was adopted to gain deeper insight was to consider the process from the point of view of the key actors involved in the process. These included developers, investors, architects, planners, the local authority, other regulatory government agencies, and residents. However, from the findings of the investigation of the process of transformation in Kileleshwa, developers emerged as the pivot around which the other actors revolved.

The interplay of the key actors involved in the process of transformation makes possible a clearer understanding of how and why the ongoing transformation is unfolding as it is. It sheds light on how and why it is leading to the rapid vertical densification of Kileleshwa. One way in which this is occurring is in terms of the levels of agency of the various actors involved in the process. On the one hand, the findings reveal that developers exercise enhanced agency in the process of transformation of Kileleshwa

neighbourhood while, on the other hand, the local authority,<sup>48</sup> the principal regulatory actor, exercises limited agency in the process. Meanwhile, the middle-class residents, arguably, have marginal agency in shaping the physical form that the urban habitat is taking but are critical to the newly emergent socio-economic/cultural outcomes.

Developers' enhanced agency ensures that they play a key role in the process of transformation of the city's residential areas. This role is facilitated by their access to financing in various guises. Sources include investors, banks and potential home buyers. Developers get their way by manipulating the development approval process. In the case of Kileleshwa neighbourhood, they justify their actions by arguing strongly for their need to make a return on investment (ROI). They also argue that in building beyond the permitted density, they are making a contribution to alleviating the city's housing need. Thus, the end justifies the means. Furthermore, they also manipulate the county government by playing off its political arm against its technical arm. This is illustrated by a county government official who complained that some challenges with development control stemmed from political pressure instigated by developers. In an interview, the official described how developers manipulate the approval process if unsuccessful in gaining approval for a proposed apartment project:

If a developer is unsuccessful through the normal channels, they go through the political arm; officers are under a lot of pressure; the officers are never given a chance to explain themselves when they receive direction from the political arm (Interviewee, County Government Official, CO 01 – October 14, 2016)

Thus, using the foregoing strategies that highlight their enhanced agency, developers are able to get their way despite the potential detrimental impacts of their proposed projects to the urban habitat. Moreover, other professionals involved in property development, work at the aegis of the developer who hires them and constrains them to stringent demands. For example, developers limit the funds available for architectural design fees as well as budgets for actual construction – resulting in ever smaller apartment units. This is driven by the developer's need to maintain consistently high profit margins on the projects. This view is espoused by an architect, involved in the process of transformation, who stated at length in an interview that:

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<sup>48</sup> In the context of Nairobi, the local authority is the Nairobi City County government (NCC).



Developers look at making between 25 and 30 per cent return on investment. So...you work backwards...you look at what you currently sell an apartment for. If you're looking at selling an apartment for...25 million (Kenya shillings) [250,000 US dollars] or 30 million (Kenya shillings) [300,000 US dollars], you remove...15 to 25 per cent as developer's profit, whatever remains has to cover all the costs: Cost of land, cost of construction, bank interest and finance cost, legal costs, approvals, and any other costs...[such as] marketing, related to the property development. So, once you get all that off, you're left with a construction cost. And the construction cost is determined by the area of the building.

The developers' dominant role in the process of transformation is, arguably, enabled by the local authority's apparent laissez-faire attitude in dealing with developer demands to develop beyond the restrictions of legislation. The local authority and other statutorily responsible state agencies exhibit limited agency in the process of urban transformation. They seem to be playing a facilitating role rather than a guiding one in shaping the course of urban transformation. In Kileleshwa, the county government appears to tolerate the development of apartment blocks exceeding the regulatory height limit of four floors. Developers argue that they have to build higher due to the high cost of land. As a developer explained in an interview regarding the high cost of an acre of land in Kileleshwa, which he uses as justification for building higher than the stipulated height limit in order to recoup and make a return on investment:

Land costs 300 million [Kenya] shillings [300,000 US dollars]. To make proper returns, recoup investment, each unit has to be sold at 10 to 15 million Kenya shillings (100,000 to 150,000 US dollars). I have 34 apartments in 3 towers." (Interviewee, Developer PD 01 – September 16, 2016).

However, this is a problem created by developers in their rush to densify the low-density neighbourhood hence increasing the demand for land in the neighbourhood.

Nevertheless, these arguments appear to persuade the county government to tolerate irregular procedures in their approvals of high-rise apartment projects in Kileleshwa. As a county government official acknowledged, though stating it as a challenge:

Pressure from developers to go beyond policy requirement with strong arguments, for example, financing. A limit to 4 or 5 floors means that they can't break even; [we face] pressure every day; half [of the applications are] not within policy; architects and other submitting agents (planners, etc) are the source of pressure. (Interviewee, County Government Official, CO01 – October 14, 2016)

Further limiting the agency of the county government in the process of urban transformation of the city, is the perceived lack of understanding of the importance of planning when viewed from a political angle. As pointed out by a county government official as a source of perpetual frustration, the official noted politicians' have a preference for tangible short term projects, presumably those which can be accomplished within the time frame dictated by election cycles:

People [are] not seeing planning as an important activity. i.e. they prefer something visible. With a planning time span of 10 to 20 years, politicians don't see the benefit. More lobbying for funding [is] needed. In [the] current year, 200 million [Kenya shillings] was requested for detailed studies of Nairobi. However, funding was slashed to 20 million. (Interviewee, County Government Official CO 01 – October 14, 2016)

And even further, the county government points to its lack of capacity to enforce regulations as a pressing limitation. Nevertheless, the county government lauds the fact that the approvals of apartment developments in neighbourhoods such as Kileleshwa have made the development control department one of the leading departments in revenue generation for Nairobi City County government. This points to the county government's assessment of the ongoing housing transformation in terms of its exchange value rather than its use value. As a county government official suggested as a benefit of the transformation: "[It is] adding to the economic development of the city in terms of revenue from approvals. The department is top in terms of revenue generated." (County Government Official, CO01 – October 14, 2016).

Middle-class residents have insubstantial agency in the ongoing process of urban transformation of the urban habitat, particularly in terms of the physical form that the housing is taking. This is reflected in their minimal influence on the process of transformation leading to the development of apartment blocks. Developers deploy them as justification, in representing dire present and future housing need due to their increasing numbers. Hence,

argue for the development of apartment blocks in Kileleshwa over other forms of housing. This justification is used despite the fact that more than 60 per cent of the city's population resides in informal settlements (UN-Habitat, 2016; World Bank, 2017) hence cannot possibly afford to rent or purchase the apartment units currently being developed. Moreover, given that countrywide banks have very few mortgages on record – less than 25,000<sup>49</sup> mortgages in 2016 (Central Bank of Kenya, 2016) – it very quickly becomes apparent that the need for affordable housing is not the primary driver of the ongoing transformation of housing. However, the appeal of the neighbourhood due to its historical prestige and proximity to places of work and other urban amenities, has meant that the city's middle class have developed strategies for accessing the neighbourhood. This is discussed further in a later section (**Section 5.2.2.3**). Arguably, the apartment projects in Kileleshwa are exemplars of the commodification of housing in which the profit motive is shaping the physical configuration of the housing.

Thus, there is a great deal of power play in which the developer emerges on top. The end result is that irregular outcomes become inevitable since developers usually have their way. Hence, high-rise apartment blocks that exceed the zoned height limits and plot ratios are being put up haphazardly in Kileleshwa. Consequently, this is eroding the planned form of the neighbourhood. The predictable result of this will be the stretching of the infrastructural capacity to breaking point. Inevitably, negative impacts on urban quality and sustainability would likely accompany such a scenario as key systems such as sewer lines, electrical supply, storm water drainage and water supply come under increasing pressure from excessive resource demand from housing built beyond the neighbourhood's infrastructural capacity.

The developers' enhanced agency in the process of transformation of Kileleshwa indicates that the ongoing process of urban transformation is heavily skewed in favour of the market. In such a climate, economic values prevail over other values as exchange value trumps use value as well as other considerations such as enhancing urban quality and sustainability. The market is made up of actors seeking to benefit from the process of transformation. This market is created as a result of different actors having variant stakes in the process of transformation. Developers seek a high return on investment, the government agencies seek to increase revenue flows,

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<sup>49</sup> This had increased to 26,187 mortgage accounts by 2018, growing further to 27,993 mortgages by December 2019 – with an average mortgage loan size of 8.49 million Kenyan shillings [approx. USD 83,000] (Central Bank of Kenya, 2019, p. 80). However, by 2019, 3193 mortgage accounts were non-performing (Central Bank of Kenya, 2019, p. 80), leaving a balance of 24,800 as active mortgages.

while the middle class scramble to access property in an historically prestigious and conveniently located residential neighbourhood. However, while the prevailing process of transformation enhances the level of economic activity in the urban habitat, it has implications for the urban quality and sustainability of the urban habitat in the long run. This aspect is explored further in **Section 5.2.4**, below.

### *Informality*

In this thesis, informality is defined as states, activities, and practices that exist outside the ambit of the formal. It encompasses the extra-legal as well as actions and relational practices that fall outside the purview of formal expectations.

Informality is a characteristic feature of cities in the global South. Nowhere is this more apparent than in the phenomenon of informal settlements and informal economies that dominate the cities (Hansen & Vaa, 2004; UN-Habitat, 2016). In SSA, more than 60 percent of urban dwellers reside in informal settlements (UN-Habitat, 2016; World Bank, 2017). Moreover, the majority of the work is in the informal sector (Hansen & Vaa, 2004). In Kenya, the situation is no different, with informality the more prevalent feature of human settlements and places of work in urban areas such as Nairobi (World Bank, 2017). In such contexts informality permeates the reality of how things are done. It also affects activities in the formal domain (Anyamba, 2006).

The pervasiveness of informality in the global South has led some scholars to speak of an informal turn in this region (Elsheshtawy, 2011, p. 6). Thus, it would be virtually impossible to comprehend the ongoing urban transformation of neighbourhoods such as Kileleshwa, without taking informality into account. It permeates both the process and outcomes of urban transformation. Discourse on housing in SSA dwells heavily on the informality of the phenomenon both in terms of the nature of housing and the practices of those who live in informal housing (Mukeku, 2014). However, some attention has also been given to informality that pervades formal planned residential areas as well (Anyamba, 2006; Makachia, 2010). This discussion is focussed on findings related to informality, which is viewed as a theme in the formal context of the historically planned residential area of Kileleshwa.

For clarity, the discussion draws on McFarlane and Waibel's (2016) layered conceptualization of informality. They suggest that formality and informality

can be conceived in four distinct ways: one, “as territorial formulations (e.g., the ‘slum’ and the ‘city’),” two, as “categories of particular groups (e.g., ‘informal labour’),” three, as “forms of organisation (e.g., structured/unstructured; rule-based/unruly; predictable/unpredictable), and four, as “modes of knowing the city (e.g., formal and informal knowledges and practices) (McFarlane & Waibel, 2016, p. 2). They further suggest four main concerns of the formal-informal divide. Three of these concerns were found to be particularly germane to the findings on informality in this study and are used to structure the discussion that follows:

First, McFarlane and Waibel (2016) suggest that the informal-formal can be “read as a spatial categorisation” (p. 3). However, they note that it is no longer limited to territorialisation within ‘slum’ settlements at the margins of the city but that it is also an integral aspect of the ‘logic of urbanism’ (p. 3). This can be said to reflect urban transformation in Nairobi which is suffused with informality. Though informality has typically been discussed in the context of informal settlements, the ongoing transformation of the formal neighbourhood of Kileleshwa offers a counterpoint to this perception of informality.

Informality underlies the logic of the relations that exist between developers and the various actors whom they have to engage with, such as the county government, in order to execute their high-rise apartment block projects in Kileleshwa. A case in point is the process of application for apartment project approval. This is done online on the county website. However, developers are never content with this formal process. They follow-up informally either personally or through their agents such as architects or planners to ensure that their project application is approved. Thus, the relevance of informality is seen in their seeking ways to circumvent the formal approval process in order to achieve their goals. This has been highlighted in the preceding sub-section in the ways in which they seek recourse in the political arm of the county government to override unfavourable decisions.

Moreover, despite formal approval to put up apartment blocks to the stipulated height limit, they are still built beyond this ceiling. Some developers go to the extent of modifying apartment designs mid-construction, adding units that were not part of the original approved design plan. This practice was pointed out by a property owner in Kileleshwa, who was in a joint venture with a developer. She complained that the developer had decided to alter the approved apartment block design and increase the number of apartment units yet the project was already in the advanced stages of the construction process (Interviewee, Property Owner PO 01 – March 17, 2017).

Second, according to McFarlane and Waibel (2016), the informal-formal can be understood as an organisational form. Here they contrast the formal and the informal noting that, “Formal is...rule-based, structured, explicit, predictable, and regular, while informal is...defined by the absence of these forms” (p. 3). In Kileleshwa, this commingling of the formal and the informal can be seen in the ways in which labour is organized for the construction of apartment blocks. While a formal arrangement is required between the developer and contractor to offer some sort of predictability on the expected project outcome, this is not necessarily the case with the labour employed for the actual construction of the apartment blocks. Informality is prevalent in the construction of apartment blocks in Kileleshwa. Unskilled labour is heavily employed. The labourers learn on the job, are hired without contracts and are paid on a daily basis. A contractor suggested this as a challenge in ensuring the quality of the constructed apartment blocks. He noted that the use of unskilled labourers meant that the quality of the construction could not be fully assured since the concerned labourers did not fully understand why they were doing what they had been instructed to do. For example, lack of knowledge of carrying load and the basic principles governing proper reinforcement of columns and beams (Interviewee, Contractor CT 02 – January 24, 2018).

Even in the completed apartment projects, informality is evident. It can be seen in how most of the employees at apartment complexes from the security guards to the domestic help, and to the cleaners and gardeners, are drawn from informal settlements. From the outside, it may appear as though the planned apartment developments establish an exclusive realm for the formal. But the reality is that this urban zone is permeated by varieties of informality. Both in terms of the ‘making’ and the ‘running’ of the apartments. What emerges is a complex picture of an intertwining of the formal and the informal in what would seemingly be formal.

Informal forms of labour and services are affordable in the context of the formal and provide a means of bypassing similar market determined labour and services. They make possible what would otherwise be out of reach. However, the labour relations vary in degree from exploitative to symbiotic. On the one hand, the informal labourers on apartment block construction sites and workers, who are key to the running and maintenance of apartment blocks, are poorly compensated. On the other hand, due to lack of superior alternatives, they are dependent on the jobs made possible by the development of apartment blocks. On a typical weekday, during a visit to an apartment block in Kileleshwa one would find a majority of the apartments

occupied by cleaners and domestic servants while the owners and renters of the apartment units are away for various reasons such as work, school or some other engagement.

Lastly, McFarlane and Waibel (2016) suggest that informality is a negotiable value. They argue that there is a constant interaction between the formal and the informal and that the “informal does not exist in isolation from the formal city” (p. 5).

In Kileleshwa, the use of informality as a negotiable value can be surmised from the actions of the developers and the county government in urban transformation. On the one hand, developers argue for the need to build beyond the regulatory height limit in order to make a return on investment. Thus, they push for and succeed in building apartment blocks beyond the stipulated height limits through informal negotiations that seemingly involve monetary transactions beyond regulatory fees for applications for approval of apartment projects. A developer remarked that apartment block developments are costly since it involves parting with more than the approval fees in order to get an approval for a proposed project. On the other hand, the county government, while noting the existence of a height limit and claiming resource challenges in enforcing extant regulations, also acknowledges strategies employed by developers to circumvent these. However, they also welcome the high revenues generated from the project applications for approvals, which they note to be the leading source of revenue for the county government. This indicates their tacit support of the developers’ point of view because they benefit directly from the economic windfall of large projects like apartment block developments. Vaguely alluded to as justification by both parties is the need for more housing in the city. However, scant attention is paid to the appropriateness of the type and affordability of the housing being produced. Thus, taking advantage of the lucrative real estate enterprise appears to be a prime motivation for the mobilisation of informality in this urban context.

Informality in the ongoing urban transformation of Kileleshwa, has more to do with relational practices that typically confound formal procedures or expectations. This has led to a perpetual state of tension between the formal and the informal. Formality is imbued with aspects that are informal. Hence, it appears that formal residential areas such as Kileleshwa are not immune to informal practices and features particularly when a significant economic windfall is at stake. In the long run, this ensures a lack of predictability in the eventual outcomes of the ongoing transformation.

### *Irregularity*

While informality has, over time, come to be perceived in a positive light as purveying some form of agency, particularly for those with odds stacked against them (Hansen & Vaa, 2004), irregularity comes loaded with negative connotations. It is considered to be a deviation from the regulatory norm and is seen to be an indicator of the prevalence of corruption. The pervasiveness of irregularity in the global South indicates the poor state of governance in this lower half of the globe. In SSA the problem is even more acute. Even where progressive policies that could make a significant difference have been adopted, their translation to reality in the implementation process has repeatedly been impeded by irregular practices.

In Kenya, the situation differs little from that of SSA as a whole. The country consistently fares poorly on Transparency International's corruption index. In 2018, Kenya was ranked 144 out of 180 countries with a score of just 27 out of 100 (Transparency International, 2018).<sup>50</sup> Its capital city, Nairobi, is a case in point. Since the city's founding more than a century ago, it has been subject to several masterplans. These have never been fully implemented (Obudho, 1997). While the segregationist zoning of the city in the colonial era succeeded in establishing residential zones, of variable housing quality, according to race (Myers, 2003; Obudho, 1997; Rahbaran & Herz, 2014), the picture has become even more haphazard in the post-colonial era. The areas that were unplanned mushroomed to become informal settlements particularly to the south and east of the CBD (with a few notable exceptions to the north and west)<sup>51</sup> (Huchzermeyer, 2011a). Presently, the eastern zone of the city is dominated by tenement housing that has been irregularly developed over several decades (Huchzermeyer, 2011a; Ondieki, 2016). Other irregularities include dweller-initiated transformations of some planned residential areas in the eastern zone of the city (Makachia, 2010). Now, upmarket residential areas of Nairobi, such as Kileleshwa neighbourhood, in which formal planning and building regulations were, historically, largely adhered to, are experiencing rapid transformation. They are fast becoming irregularly developed urban habitats. Driven by developer agency, a lax regulatory regime and growing middle-class demand, these market driven transformations are leading to the demolition of single-dwelling low-rise detached housing units, which are being replaced by high-rise high-density apartment blocks. This is occurring irregularly as they are

<sup>50</sup> Kenya's problem with corruption particularly in public offices has become so endemic (Githongo, 2020) that it is now a regular feature in the local press and in the annual reports by the Auditor General (Nation Team, 2016).

<sup>51</sup> The typical urban settlement pattern in Nairobi is that informal settlements tend to locate in close proximity to formal settlements, which are a significant source of livelihood for the city's low income residents. Thus, creating a dyad of formal/informal residential areas particularly in the north and west of the city.



not occasioned by an extant plan for extensive vertical densification and fail to adhere to extant planning regulations.

In Kileleshwa, the irregular transformation of housing units is conspicuous. It is a residential area zoned for a building height limit of four floors. However, the neighbourhood is currently being transformed by developers into a zone of buildings of irregular heights. These range in height from six to fourteen floors (See **Figures 4.21, 4.22, 4.23, 4.24**). Unsurprisingly, this is placing enormous pressure on the neighbourhood's physical and social infrastructure, which has not been commensurately upgraded.

In turn, this has led to even more irregularities. For instance, due to the shortage of water as a result of increased demand for finite municipal supplies, developers have irregularly resorted to drilling boreholes on the premises of their apartment block projects without seeking approval from the relevant authorities. Newly developed apartment projects in Kileleshwa are promoted as having a borehole to augment the unreliable piped county water supply. Consequently, the Nairobi City Water and Sewerage Company (NCWSC)<sup>52</sup> estimates that more than two-thirds of the boreholes in the city are unregulated since they were sunk without the agency's approval (Lang'at, 2016).

The development approval process is notorious for its imperviousness. This is the case for the approval process leading to the development of high-rise apartment blocks in Kileleshwa. While the outlined procedures for seeking project development approval are clear enough (Nairobi City County, 2020a), the actual experience of obtaining the approval is not straight forward. On the one hand, some developers complain of having to part with more than the stipulated application fee in order to receive approval for their apartment projects. This can be seen as a sign of the presence of corrupt practices in the approval process. On the other hand, incessant pressure is exerted on county government officials to approve apartment development projects even in cases where they conflict with regulatory requirements. While this may paint the local authority and other authorities in a poor light, the developers themselves do have a part to play in this state of affairs. They exert undue pressure on the authorities to deviate from clearly stipulated regulations. This they do by arguing, for instance, that they cannot make a return on investment (ROI) if they adhere to the stipulated height limits. Thus, in seeking approval for apartment blocks that exceed the four-floor height limit, and, in some cases twice or even more than three times as high, they set the

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<sup>52</sup> NCWSC is the Nairobi City county agency responsible for water and sewerage services in Nairobi county.

stage for the creation of an environment where irregularity becomes the logical outcome in the cases where they succeed in getting their way.

In Kileleshwa, the irregularity is evident not only in terms of building heights above the height limit but also in terms of exceeding the stipulated plot ratio and density, use of septic tanks instead of a connection to the sewer line and other variations from the zoning guidelines. The quality, design, layout, siting, and construction of apartment buildings – and their interiors, is irregular in not adhering to set standards. The issue of liveable spaces arises with many of the apartment projects. For example, some apartment complexes lack adequate provision for children’s playing areas and inefficient layouts of apartment interior spaces is a frequent occurrence. Apart from the questionable configurations of apartment layouts is their diminishing size over time, with ever smaller apartment units being offered in the property market.

In Kileleshwa, the case study apartment block was the site of constant repairs immediately after hand over. Indoor plumbing had to be redone in some cases. One owner, displeased with the layout, fixtures and fittings of the three-bedroom apartment unit he had purchased, decided to undertake a major remodel immediately upon gaining possession of the apartment. He re-organized the layout of the bathroom to improve its functionality and replaced the poor-quality fixtures and fittings that had been imported from China by the developer. He had an opening created between the dark kitchen and the better day lit dining room. He also installed on demand heaters for the bathroom showers. This is because the rooftop communal solar panel system had failed to function efficiently by requiring excessive withdrawal of cold water before hot water became available. The entire remodelling of the apartment unit cost the owner the equivalent of one-tenth the purchase price of the three-bedroom apartment unit.

Thus, the irregularities are proving to be costly in small and big ways. Repairs and refurbishment should not be a feature of newly completed apartment units. And the use of inefficient systems and fixtures is avoidable considering the options readily available in the market for newly constructed apartment blocks.

### **5.2.2. Effects of Transformation**

Linked to the themes of rapid urban transformation, this study highlights three effects of the ongoing transformation: Morphological outcomes;

Housing quality; and Socio-economic/cultural outcomes. These effects address **the second research question:** *How has the process of transformation altered the urban habitat physically in terms of housing typology and how has this affected the habitat's (Kileleshwa's) physical and social (socio-cultural, socio-economic, and demographic) characteristics?* The effects are discussed in more detail below.

### ***Morphological Outcomes***

In this section, the discussion on morphological outcomes centres on the built fabric of urban form particularly as it relates to the emergent physical characteristics of Kileleshwa neighbourhood. In this approach, morphological outcomes are viewed in terms of degrees of resolution that correlate with different scales of the urban context (Kropf, 2017, p. 15). It involves both a diachronic<sup>53</sup> and synchronic<sup>54</sup> discussion of the different scales that make up the morphological transformation of the neighbourhood. This perspective is adopted because it makes possible both a much more layered and nuanced way of understanding the morphological outcomes of Kileleshwa's transformation.

The morphological outcomes of Kileleshwa's transformation can be understood in terms of degrees of change of the neighbourhood. These are discussed at the neighbourhood/area level, at the street level, in terms of ownership and plots, the transformation of building typology and on the apartment block level with the latter discussed conterminously with the apartment unit and room level.

At the neighbourhood/area level, the most significant morphological change has been in the formal category of residential type housing. From a colonial era in which the most prevalent residential type housing category was a single-family detached dwelling unit as the form of housing planned for the area, significant transformation has occurred over time. In the post-colonial era, zoning regulations allowed densification of the residential area up to a maximum height of four floors. This envisaged mid-rise housing units as the maximum form of densified housing to accommodate future growth. Over time, this type of densification in the form of town houses and mid-rise apartment blocks not exceeding five floors occurred in scattered areas of the neighbourhood. This did not result in a significantly noticeable change in the neighbourhood's character nor did it stretch its extant infrastructure beyond

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<sup>53</sup> Historical evolution of urban form.

<sup>54</sup> Current state of urban form.

limit. However, since the turn of the new millennium, high-rise apartment blocks exceeding the neighbourhood's height limit are increasingly becoming a common feature of the historically low-density residential area. The resultant effect is the transformation of the neighbourhood to a high-density one, characterized by piecemeal, incoherent urban development that threatens both its physical and social infrastructural capacity, hence the neighbourhood's future viability.

The street network defines the circulatory system of the neighbourhood and is directly linked to the urban structure of the city, which is primarily structured by its network of streets. Streets typically delimit the areas of the city's blocks and define the boundaries of the city's neighbourhoods. The existing street network of Kileleshwa has been maintained despite the increased densification occurring in the plots in the residential neighbourhood. Even a recent upgrade of a ring road that runs through the neighbourhood was based on an existing road reserve intended for such a purpose. In the few cases where plot amalgamation has occurred to accommodate larger apartment complex developments, this has occurred within the confines of the existing street network. Thus, Kileleshwa's basic urban structure has been maintained despite the ongoing transformation of the neighbourhood.

The form of redevelopment of the plot into apartment blocks can be seen as a case of adaptive development since it is occurring within the existing street system (International Seminar on Urban Form, 1990). However, the neighbourhood is characterized by profound changes in building typology, transforming the area. Apartment blocks have been developed on existing singular plots that are a quarter of an acre or more in size. In very few cases has plot amalgamation occurred. Where this has happened, larger apartment complexes have been developed. Existing plot boundaries have typically been maintained but the intensity of land use on the plots has dramatically increased as high-rise developments replace low-rise housing units.

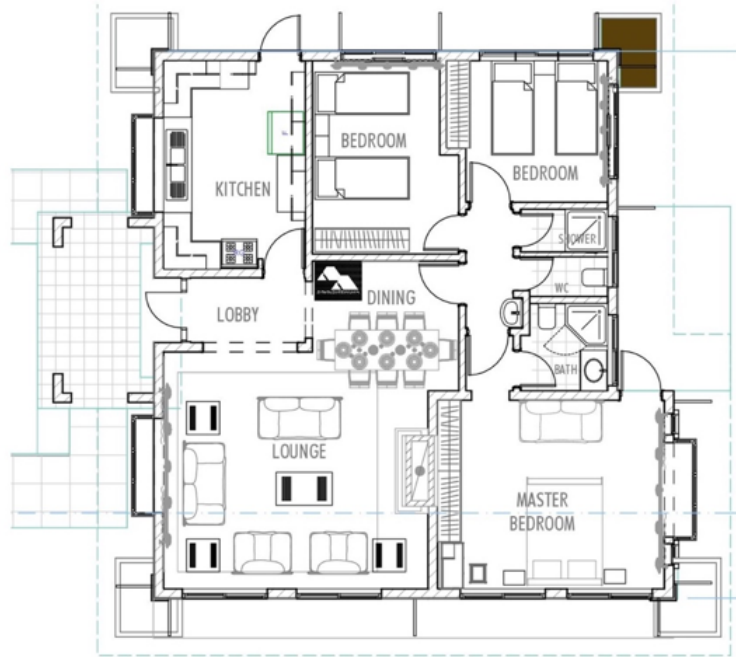
However, setbacks from plot boundaries on the sites on which apartments are located are minimal. Adjacent apartment blocks on neighbouring plots are now too close to each other since they are built up almost to the plot boundary. This is creating challenges with access to adequate daylight despite the presence of large windows. The proximity of the apartment blocks to each other inhibits adequate circulation of air. Insufficient daylight and inadequate air circulation are negative externalities of poor housing development critiqued as contributing to the poor living conditions of tenement housing in the eastern zone of Nairobi (Huchzermeyer, 2011a; Ondieki, 2016).

Historically, such conditions, particularly as a consequence of the industrial revolution, were critiqued in cities such as Berlin (Huchzermeyer, 2011a), New York (Riis, 1970) and Manchester (Marr, 1904).

Substantial transformation has occurred at the level of the building in tandem with the room level. This is most evident typologically in terms of building height increase, exterior building footprint expansion, and interior building layout re-organization. Building height has increased as a result of the ongoing replacement of low-rise housing units with high-rise apartment blocks that range in height from six floors to fourteen floors. The building footprint has expanded from the smaller one of the single-dwelling detached unit that had a maximum plot coverage of 35 per cent to an apartment block's plot coverage that is at least twice as much.

The apartment buildings are poorly laid out and sited in terms of building orientation and exposure to daylight. This is in sharp contrast to the single-dwelling detached housing units that were deliberately oriented in relation to the sun's angle of incidence, in the context of a tropical city. Thus, rooms in the new apartments in Kileleshwa tend to be dark and excessively cool, with some dependent on artificial lighting during the day. This not only makes for less pleasant living spaces due to an inadequate ambient environment, but also means higher energy costs due to excessive use of electric lighting in the daytime.

Substantial transformation is also evident in the interior layout of the new apartments in Kileleshwa. The interior layout of rooms in apartment blocks represents a shift from the traditional approach of separate rooms (**Figure 5.2**) as found in the single-dwelling units being replaced, to one in which an open plan is more common particularly in the relation between the kitchen and the living room area (**Figure 5.3**).



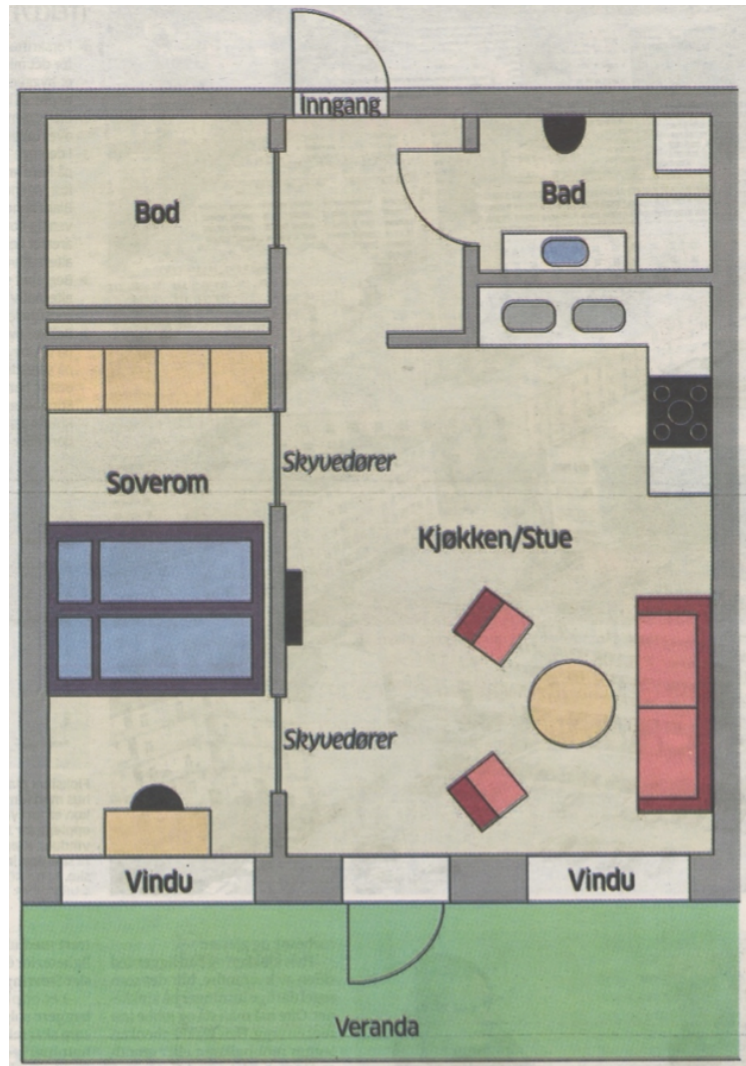
**Figure 5.2** Floor plan of a three-bedroom bungalow (120 square metres) showing the separation between the kitchen and living room that is characteristic of single-family detached housing units in Kileleshwa (Chola, 2020)



**Figure 5.3** Floor plan of a one-bedroom apartment unit (54 square metres) in Kileleshwa showing the open plan typified by the absence of a full separating wall between the kitchen and the living room. (Vaal Real Estate, 2019, p. 26)

This approach reduces the habitable floor area within apartment units. It could be read as an emergent practice of moving away from the traditional organization of space in pursuit of the ideal of a modern Western lifestyle. This can be surmised from the way in which new apartment blocks in the neighbourhood are inspired by western prototypes and marketed as, for example, “New York Style” and, where furnished, as having, for example, “European Style” furniture (Makunda, 2017b). However, a different reading of the change in interior layout could be that it is the most viable design

approach in the wake of shrinking apartment unit sizes. The continual reduction in apartment unit sizes in Kileleshwa, could potentially lead to housing unit sizes as small as those found in cities of developed countries like Norway, which require unconventional layouts to remain viable (See **Figure 5.4**). The depicted layout (**Figure 5.4**) also shows the necessity of an open plan when space is at a premium. Hence the kitchen and the living are open to each other.



**Figure 5.4** Laila plan: Example of a typical floor plan in a new building in Oslo, Norway. The bedroom area is so small it requires two separate sliding doors to access the space on either side of the bed. (Aftenposten, 2018, p. 4)



A colonial holdover is the development of apartment units that mimic the colonial single-dwelling house that had an attached but spatially segregated domestic servants' quarters (DSQ) (Barnow et al., 1983, p. 52 as cited in Harris and Hay, 2007, p. 200). In colonial times this part of the house that was designed for use as living quarters by domestic servants, was limited in space, poorly laid out and had inadequately finished surfaces. For example, walls were finished in rough plaster and floors left as concrete slabs without tiles or wood flooring, and toilets modelled on the pit latrine. In contrast, the walls of the main house were smoothly finished and painted, floors were finished in wood or ceramic tile, and bathrooms had conventional flush toilets and bath tubs. This reflected the racial segregation of the society then between white home owners and black domestic servants. While the finishes are much improved in the new apartment units in Kileleshwa, the poor layout of the DSQ has carried over into post-colonial practices. Moreover, the fact that it is not just designed as an additional room in the apartment unit can be read as emphasizing income and social segregation between the family in residence and the hired domestic servants.

Morphologically, Kileleshwa is transforming from a neighbourhood with a regular pattern both vertically and horizontally to a much more haphazard one. The building typology is no longer consistent as buildings of variable form and height are erected. The neighbourhood now has an emergent high-rise building skyline that is progressively replacing the previous one that was characterized by tree canopies.

As an urban habitat, Kileleshwa is also transforming typologically in an unpredictable manner. Hence, the height to which a new apartment block is built and the footprint it covers seems subject to developers' desires rather than the requirements of regulatory authorities – who appear to engage mainly at the application and approval stages of the development process but not in the project implementation phase. Consequently, the process appears to have been reduced to a rubber-stamping exercise rather than a genuinely applied one.

The issue of accommodating a growing urban population in the context of increasing urbanization, population explosion and climate change is indeed an important and urgent one. However, in the ongoing process of urban habitat transformation, as is showcased in Kileleshwa neighbourhood, little attention is being paid to the resulting morphological outcomes such as haphazardly increased vertical densification of housing through indiscriminate building typological change. This is occurring piecemeal without reference to an overall plan or blueprint for the neighbourhood or the

city. The potential negative consequences of unplanned densification of the urban habitat on the urban quality and sustainability of the residential area warrants careful attention in order to safeguard the future viability of the urban habitat. Densification can be leveraged for a sustainable future if planned for. This is discussed in greater detail in a later section (**Section 5.2.3.2**), below.

### ***Housing Quality***

In this section, housing quality is discussed by focussing on the specific attributes of the apartment units, apartment blocks, and neighbourhood. Arguably, these three dimensions, in concert, reflect the degree of housing quality in Kileleshwa neighbourhood. However, the concept of housing quality is contentious. It has been approached by a number of scholars in various ways (Brkanić, 2017; Lawrence, 1995; Streimikiene, 2015). Thus, housing quality can be assessed in different ways using a variety of criteria. Ivana Brkanić (2017), in a recent comprehensive review of housing quality criteria, with a specific focus on apartment type housing, suggests four criteria that lend themselves to three different scales of assessed spaces: apartment unit quality criteria, apartment building quality criteria, neighbourhood quality criteria, and social and economic criteria. These lend themselves to three different scales of assessed spaces – apartment unit, building, and neighbourhood (p. 37).

Though her summary lacks definitions for the various parameters presented, its merit is in providing categories of assessment criteria, which are further sub-divided into sub-groups with specific indicators that could be assessed (**Tables 5.1 and 5.2**). This makes the summary useful as a strategy for assessing the quality of housing in Kileleshwa on different but related parameters. Thus, the categories were deployed for the assessment of the quality of Kileleshwa's housing at the level of the first two of the three interrelated spatial scales of apartment unit, apartment block, and the neighbourhood. For the latter scale, which has inspired a wider variety of assessment criteria, additional sources were drawn on, as well, for assessment.

First, in terms of apartment unit quality criteria, important aspects are the apartment's internal organization, design and atmosphere (Brkanić, 2017, p. 41). Brkanić sub-divides these into four sub-groups: general apartment unit characteristics, rooms, construction, and ambience, with the latter sub-divided into indoor comfort, light and other. The categories are accompanied

by specific indicators (**Table 5.1**) (p. 41). The criteria informed the structuring of the discussion on Kileleshwa’s apartment units that follows.

<b>Table 5.1 Apartment Unit Quality Assessment Criteria</b>		
In general	-	apartment area - unit plan and size – layout - condition and design of walls, floors, windows, doors
Rooms	-	interior of living room, kitchen, bedroom, and bathroom - living room, kitchen, bedroom, and bathroom size, location, number and orientation - entrance and hallway - storage - outer spaces – balcony, terrace, garden (existence, size, position)
Construction	-	well-being and environment-friendly design and materials - high-tech solutions - design style (space and equipment) - sustainability - flexibility and adaptability
Ambience	Indoor	- ventilation – natural, artificial
	Comfort	- noise - comfort (thermal, acoustic) - indoor air
		Light
	Other	- privacy - view
Source: Brkanic’, 2017, p. 41 [Table 1]		

In general, in terms of area, apartment units in high-rise apartment blocks in Kileleshwa are significantly smaller than those encountered in single-dwelling detached units in the neighbourhood. The apartment unit layouts are mostly open plan in which the kitchen is open to the living room and dining area. The walls in the apartment units are made of masonry stone and concrete but plastered to a smooth finish. Floor finishes range from wood, laminate, to ceramic tiles. Wooden doors and metal security grill doors have been used.

Kileleshwa’s apartment units vary in typology in terms of the number of rooms. The most common types are studio, one-bedroom, two-bedroom, and three-bedroom apartment units. A bathroom and kitchen area can be found in all types. The three-bedroom apartment units typically have multiple bathrooms, dining area, living room, and access to a balcony. They have the

most family-oriented apartment layout. Some also have a domestic servants' quarters (DSQ) – which is designed as a studio unit attached to the three bedroom apartment unit and used by live-in domestic servants.

In Kileleshwa, construction of the apartment units has not employed environmentally-friendly design and materials. Imported construction materials, particularly from China, are widely used. The predominant design style of apartment units in Kileleshwa is modernist. The use of an open plan layout is in keeping with this approach. The high-rise apartment blocks have elevators and those on the higher end of this market have incorporated smart technology for digital access and control of some indoor features.

In terms of ambience, the use of natural ventilation through operable windows is prevalent in Kileleshwa's apartment units. Large windows in many of the apartment units allow for access to daylight. However, poor layout and poor building design and siting has resulted in some apartment units not receiving sufficient daylight during the day. In some cases, kitchens are without access to daylight during the day hence residents have to rely on the costly and inefficient option of using electrical lighting during the day. Some apartment units are very close to roadways hence noise from vehicular traffic is a constant nuisance. In addition, noise from neighbouring apartment projects under construction is also a source of constant nuisance. While some apartment units, especially those higher up the apartment blocks, have very good exterior views, others face onto other apartment units hence not only have poor views but raise issues of privacy.

Second, in terms of apartment building quality assessment criteria, this should be understood in relation to an apartment building's interior and structure as well as its immediate environment (parcel)<sup>55</sup> (Brkanić, 2017, p. 42). Brkanić divides these into five sub-groups: general apartment building characteristics, structural features, common building areas, building lot, and a sub-group of other important criteria (p. 42). The categories are accompanied by specific indicators. (**Table 5.2**) (p. 42). These frame the discussion that follows on apartment building quality.

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<sup>55</sup> Synonym for plot or lot.

<b>Table 5.2 Apartment Building Quality Assessment Criteria</b>	
In general	<ul style="list-style-type: none"> <li>- building age</li> <li>- building size and type</li> <li>- building layout</li> <li>- building orientation</li> <li>- condition of exterior structure</li> </ul>
Structure	<ul style="list-style-type: none"> <li>- storey height</li> <li>- construction technology</li> </ul>
Common areas	<ul style="list-style-type: none"> <li>- building entrance</li> <li>- stairs/elevator/corridor (placement, existence)</li> </ul>
Building lot	<ul style="list-style-type: none"> <li>- parking lot/underground parking</li> <li>- parcel condition (landscaping, drives, walks, tidiness)</li> <li>- presence and quality of common areas (storage, trash, playground)</li> </ul>
Other	<ul style="list-style-type: none"> <li>- utilities (sewage, public water supply, streets and walks, garbage disposal, electricity, heating)</li> <li>- fire escape and protection</li> <li>- accessibility for disabled</li> </ul>
Source: Brkanic', 2017, p. 42 [Table 2]	

In general, the high-rise apartment blocks in Kileleshwa are less than ten years old with many still under construction. Their building footprints generally cover more than two-thirds of the plot on which they are situated. They tend to be oriented towards the main street and align parallel with the property boundaries hence are not oriented to maximize access to daylight but, rather, are laid out to maximize the use of the plot.

In terms of structure, the high-rise apartment blocks in Kileleshwa vary in size and height from six to fourteen floors. They are typically constructed using a mix of masonry stone and concrete. In terms of common areas, each apartment block tends to have its own building entrance and contains both stairs and elevators for vertical circulation. Corridors are used for horizontal circulation to access individual apartment units.

In terms of Kileleshwa's high-rise apartment buildings' plot, surface parking is common. In some cases, parking is provided under buildings that are raised on piloti. Landscaping tends to be minimal due to the extensive apartment building footprints and paved driveways and parking bays. In some cases, amenities such as swimming pools and playgrounds have been provided in a small area, and in others these are absent altogether. In terms of utilities, connection to public water supply has been done but this is typically augmented by an onsite borehole. In a number of cases, electricity supply is supplemented by solar panels for hot water heating and as a temporary

backup system. There is connection to the limited existing sewer line but in some instances this has been supplemented by connections to septic tanks. This was the case in the case study apartment block in Kileleshwa.

Third, the neighbourhood quality assessment criteria are important in assessing the context in which the apartment blocks are situated. The ways in which the apartment blocks are related to each other and other facilities in the neighbourhood as well as the state of those facilities also contributes to defining the character of the neighbourhood. This in turn informs the perception of the quality of housing in the neighbourhood.

Neighbourhood quality assessment criteria has been approached variously by different scholars. Two recent approaches are those by Brkanić (2017) and Poortinga et al. (2017). On the one hand, Brkanić suggests that neighbourhood quality assessment criteria are used for the quality assessment of a building's closer or wider surroundings (Brkanić, 2017, p. 43). Basing her classification on a review of recent literature, she groups the criteria into four sub-groups: general neighbourhood characteristics, traffic, hazards, and the existence of and distance from different services and facilities, all of which have specific indicators (Brkanić, 2017, p. 43). In terms of general neighbourhood characteristics, indicators include: condition of adjacent structures and parcels; building and population density; and district name-location. In terms of traffic, indicators include: condition of sidewalk, street, curbs and alleyway; traffic – access (proximity of major traffic streets and railroads); traffic – nuisance (streets, railroads, airport); parking; and pedestrian network. In terms of hazards, indicators include: hazards and nuisances from natural causes (flooding, swamps, topography) and industry. And, in terms of presence of services and facilities, indicators include: commercial facilities; cultural and educational facilities; post office, bank; distance to the medical centre, healthcare facility; distance from main street/inner street/city centre; recreation facilities, playgrounds; and parks, lakes and forests (Brkanić, 2017, p. 43).

On the other hand, Poortinga et al. (2017) discuss the Revised Residential Environment Assessment Tool (REAT), which they view to be a reliable and easy-to-use tool for neighbourhood assessment. The tool has four separate dimensions and consists of eighteen questions in relation to the street level or property level. The four dimensions are: neighbourhood condition, natural surveillance, natural elements, and miscellaneous (urban form) (Poortinga et al., 2017). In terms of the neighbourhood condition, at the street level, the questions address: litter in public space; condition of public space; vandalism/graffiti in public space. At the property level, the questions

address: property maintenance; garden maintenance; and external beautification. In terms of natural surveillance<sup>56</sup>, at the street level, the question addresses the view of the street, while at the property level it addresses the view of windows and doors. In terms of natural elements, at the street level, the question addresses natural elements in public space, while at the property level, questions address: trees in front garden; and purposively planted vegetation in front gardens. In terms of miscellaneous attributes related to urban form, at the street level, the questions address housing type, road type, road layout, car parking, recreational space, and neighbourhood watch sign. At the property level, the question addresses the space outside the front door.

The neighbourhood assessment criteria suggested by Brkanic' (2017) and Poortinga et al (2017), with the former specific to apartment housing and the latter applicable to housing in general, both informed the discussion that ensues.

In general, high-rise apartment blocks in Kileleshwa are being erected side by side on plots that are adjacent to each other. Minimum set-backs from plot boundaries are not being adhered to. Hence, neighbouring apartment blocks are blocking daylight to each other. Thus, besides poor building orientation, this is resulting in dark interiors during the day for many of the apartment units in the apartment blocks. As a result of the construction of apartment blocks in Kileleshwa, the building and population density of the neighbourhood has increased exponentially. The neighbourhood is perceived as prestigious due to its historical status as an upmarket low density residential neighbourhood that is close to the city centre.

In terms of traffic, the conditions are problematic in Kileleshwa during the weekday rush hour. This is because the apartment blocks are situated in close proximity to major traffic arteries that traverse the neighbourhood. Many of the middle-class residents own cars hence, in living in the apartment developments, contribute to the increasing congestion as they make their daily trips by car to various destinations including places of work, schools, shopping centres, and recreational facilities. Parking is usually provided for apartment units that have at least two bedrooms and limited parking is available for visitors. However, some apartment developments have made provisions for parking along the pavement areas adjacent to the property's boundary wall. This parking borders the street.

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<sup>56</sup> Drawing on Newman's concept of *defensible space* (Newman, 1972).

In terms of hazards, flooding is a perennial concern. This is due to the increase in the built up, hard surface area of Kileleshwa as a result of the large apartment footprints and paving for driveways and parking lots, which has led to an increase in surface runoff during the rainy seasons (Makunda & Edeholt, 2016).

In terms of services and facilities, commercial facilities such as shops, markets and restaurants can be found in Kileleshwa. However, their scale and capacity is not commensurate with the increasing population density of the neighbourhood. Major supermarket chains do not have a presence in the neighbourhood. Furthermore, the neighbourhood lacks sufficient educational, medical and healthcare facilities to cater for the increasing size of the neighbourhood. While it borders an arboretum, and is bordered by two streams, the streams are unexploited for their recreational potential and the neighbourhood lacks a common public open space or park.

Housing quality in Kileleshwa is variable. Measured using apartment unit, apartment building, and neighbourhood criteria, the level of quality can be summarized as inconsistent. The discussion in the previous section, on the neighbourhood's morphological outcomes, interrogated some of the specific features of Kileleshwa's emerging morphology that all have a bearing on this mixed picture of housing quality. The next section delves into the cost, socio-economic and socio-cultural outcomes of the ongoing transformation.

### ***Socio-Economic/Cultural Outcomes***

In this sub-section, issues of cost and the emergent socio-economic and socio-cultural attributes of Kileleshwa are considered and discussed in order to shed light on the emergent social profile of the rapidly transforming neighbourhood. The physical transformation of the city has demographic and social consequences. In addition, the transformation of housing has cost implications as well as impacts on the socio-economic and socio-cultural profile of the implicated neighbourhood.

Demographically and socially, a shift is occurring in the upmarket western and northern suburbs of the city. This is particularly evident in Kileleshwa where a process of filtering (Lowry, 1960) has been occurring over the past decade. The wealthy are gradually moving out. They used to live in single-family low-density detached housing, such as bungalows, which are rapidly being demolished and replaced by high-density high-rise apartment blocks.



As the wealthy sell off their property and move out<sup>57</sup>, the middle class are streaming in. As the middle class establish themselves in the neighbourhood, they are transforming the neighbourhood in various ways; demographically, socio-economically and socio-culturally.

Demographically, the population density is increasing. For example, the typical case is that a quarter acre or more plot that used to accommodate a single-dwelling unit is transformed to accommodate an apartment block with at least 50 apartment units. At the time of the last national census in 2009, Kileleshwa's population density was 3,022 persons per square kilometre compared to Nairobi's population density of 4,429 people per square kilometre, and Kenya's population density of 66 people per square kilometre (Kenya National Bureau of Statistics, 2010a; Wiesmann et al., 2014, p. 32). A much higher density for both the city and Kileleshwa neighbourhood is evident in the recently concluded 2019 census in which Kileleshwa registered a density of 3,370 persons per square kilometre compared to the city's population density of 6,247 persons per square kilometre, and the country's population density of 82 persons per square kilometre (Kenya National Bureau of Statistics, 2020a).

Socio-economically and socio-culturally, a new social reality is emerging in Kileleshwa neighbourhood. With their ability to purchase or rent new apartments, the middle class are growing in number in the neighbourhood. Arguably, the effect is to increase the socio-economic diversity of the previously exclusive upmarket residential area. This is because the new residents are a mix of both purchasers and renters who are drawn to the neighbourhood for various reasons. These include its historic prestige and convenient location relative to the CBD and other urban amenities. Unlike gentrification, this has positive connotations in signalling access for more citizens to better neighbourhoods as the wealthy relocate or opt to live in a more income and culturally diverse habitat. This is undoubtedly contributing to a more spatially just city (Soja, 2008) as residents with a greater diversity of incomes begin to live in an historically segregated and high-income area.

The middle class creatively navigate the financial obstacles of buying apartment units in Kileleshwa in a number of ways. One way in which they do this involves purchasing apartment units while they are still undergoing construction – or off-plan purchase. In this scenario, developers allow them

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<sup>57</sup> Some of the original wealthy residents opt to buy into the apartment developments for various reasons including as a form of investment through joint venture agreements where they acquire a percentage of the apartment units as well as some cash compensation in exchange for allowing the developer to put up a number of units for sale or rent on their land.

to make scheduled term payments<sup>58</sup> over the duration of the period it takes to complete the construction of the apartment blocks. They accomplish their payment obligations by combining various sources of finance. This can include a combination of savings, supplemental income from consultancies, and short-term personal loans from financial institutions and savings and credit cooperative societies (SACCOS). This reduces their need for long-term mortgages, which are nevertheless largely inaccessible to them due to a number of reasons. Two of these reasons include; one, the high interest rate<sup>59</sup> that makes mortgages costly and, two, the highly risk-averse nature of the Kenyan banking sector that prefers to invest in government securities.

The limited number of mortgages offered by banks in Kenya, highlights the challenge of accessing adequate financing for the purchase of housing. In 2014, Kenya's mortgage debt to GDP ratio was 4.2 per cent when the country had a total of 24,500 mortgages in the banking sector. Comparatively, South Africa's ratio was 20 per cent while that of the US was over 70 per cent (Njoroge, 2016). According to the Residential Mortgage Market Survey conducted by the Central Bank of Kenya, in 2017, the total number of mortgages in the Kenyan market was 26,187 (Central Bank of Kenya, 2017, p. 19), an increase of less than 2,000 over a three-year span. Thus, mortgages have not been a significant aspect of the middle-class access to housing in neighbourhoods such as Kileleshwa. More affordable mortgages would likely drive up the demand for housing in places like Kileleshwa, expanding the housing market and accelerating the rate of conversion of single-dwelling detached units to high-rise multi-dwelling apartment blocks.

A better understanding of the shifting socio-economic and social-cultural profile, associated with a growing middle class, in the rapidly transforming Kileleshwa neighbourhood, necessitates a discussion of specific attributes. Useful dimensions to consider include; finance (such as expenses and income), family size, social relations (such as interactions between neighbours), and issues of safety, privacy and overall satisfaction (Brkanić, 2017, p. 44).

In the case study apartment block in Kileleshwa, a majority of the interviewed homeowners had purchased their apartment units at a discounted rate since they had paid for their units – paying in instalments – during the

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<sup>58</sup> The process of middle-class purchase of apartment units in Kileleshwa neighbourhood is developed further in Article IV.

<sup>59</sup> Kenya's banking loan (including mortgages) interest rate is 13% following a rate cap in September, 2016 and may rise following the removal of the rate cap in November, 2019 (African Banker, 2020). This is still more than four times higher than would be found in global North countries where interest rates are less than 3%.

three-year period of construction. Many had double incomes as couples in professional employment. Some earned income from international consultancies. Household expenses including; payment for utilities, upkeep of personal vehicles, and maintenance charge for common services such as the maintenance of the swimming pool, cleaning of common areas, and security, consumed at least one-third of the family budget. The costs for those renting were at least three times higher than those for owner-occupiers in comparable apartment units due to the high rental cost.

Families ranged in size from single households to couples without children and couples with children. Single households and couples without children were typically renters. Most homeowners were couples with children although some couples with children were renters. The number of children in households with children ranged from one to four children. In this particular case study apartment block in Kileleshwa, the majority of the apartment units were three-bedroom but a few apartment units were single-bedroom units. The latter were rented out to single households and the income was utilized by the residents' committee (which was responsible for the property management) to meet part of the costs for common services such as cleaning of common areas and security.

In terms of social relations, the case study apartment block in Kileleshwa was newly occupied at the time of the fieldwork. It was yet to achieve full occupancy then since many of the homeowners were yet to move in and others were waiting to rent to tenants. But from interview feedback at the time, there was indication of a lack of full community cohesiveness. Many residents kept to themselves and events had yet to be organized to get the community together. However, a social media platform on which issues were communicated by residents was already actively being used. Also, a residents' committee comprising of the original homeowners was already fully operational at the time of building handover. It was the *de facto* management body for the residents of the apartment blocks in the case study site. The residents' committee was responsible for managing the common services such as cleaning of common areas and security. This was largely financed from the service charge collected from the residents.

In terms of other issues, security at the case study site in Kileleshwa was commonly organized and the property had one common entrance, which was manned 24 hours a day by two security guards. An electrical fence ringed the entire boundary wall of the apartment complex. Residents reported overall satisfaction with living in the neighbourhood particularly due to its proximity to social amenities, shopping, places of work and schooling. Many of the

residents, in keeping with a middle-class lifestyle, had private vehicles that enabled them to easily access other nearby neighbourhoods for amenities that were lacking in Kileleshwa such as sizeable recreational areas. They also took pride in the fact that they were living in what was historically considered a prestigious neighbourhood.

The middle class represent acts of identity forming. They are developing modes of distinction (Bourdieu, 2010) in making Kileleshwa their new habitus (Bourdieu, 2010). For them, Kileleshwa is a space of representation (Lefebvre, 1992) as they leave their indelible mark on the fabric of the neighbourhood. This they do as both owner-occupiers and renters who exhibit and perpetuate a middle-class lifestyle in which various modes of consumption proliferate (Baudrillard, 2016). In so doing they are re-shaping the social configuration of the neighbourhood in an enduring way as their lifestyles imprint on the neighbourhood. As the middle class increase in number, their critical mass is likely to enable them to agitate for an improvement in physical and social infrastructure as well as other urban amenities. The greater mix of residents, due to a growing middle class, is a desirable aspiration and goal for the stabilization of the city both economically, culturally and socially. Slum upgrading on its own will not necessarily resolve the underlying problem of undesirable livelihoods. Better livelihoods are key to lifting people out of poverty. A middle-class lifestyle can be an achievable goal for any who can access better livelihood.

The middle class represent an opportunity for a bottom-up approach to moving towards sustainable pathways. Nairobi has a long history of resident associations<sup>60</sup> that self-organize to improve the quality of the built environment. Where present, these have been effective in maintaining the character of low-density neighbourhoods. The upcoming apartment blocks in Kileleshwa have individually organized management bodies to which residents pay a service charge for the maintenance of the common amenities and services within the apartment blocks and complexes such as cleaning and security. These management entities, though focusing exclusively on their particular apartment block or complex, are, nonetheless, an important avenue for mitigating the lack of adequate services from the local authority. They have become a means of resident self-organization to improve their immediate common living environment.

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<sup>60</sup> Two successful ones are Karen and Muthaiga Residents Associations that have consistently fought attempts to densify their neighbourhoods.

As a city such as Nairobi and its neighbourhoods such as Kileleshwa transform due to increasing urbanization and consequent population pressure on urban infrastructure such as housing and the constellation of supporting urban systems, the concentration of the dominant agency in shaping the future of the city in the hands of a few key actors does not serve the long-term interests of the majority of the residents. The market cannot be expected to deliver democratic outcomes. The city rightfully belongs to its residents and to be more democratic; their genuine participation should become central in shaping the agenda for the transformation of the city towards a more inclusive, equitable, just, and sustainable city.

### **5.2.3. Issues of Transformation**

Related to both the themes and effects of rapid urban transformation, this study draws attention to three important issues that arise: Urban Management, Planning for Densification, and Infrastructural Challenges. These are discussed further below.

#### ***Urban management***

Urban management is critical in directing the development of an urban area. In the editorial of the *Journal of Urban Management*, Ding and Lai (2012) suggest that urban management integrates cities and management and deals with systems of extreme complexity. They propose that its primary concerns are with planning, regulations and governance. As they elaborate: “Planning focuses on making, arranging, and coordinating decisions. Regulations emphasize the restriction, expansion, and distribution of rights. Governance focuses on collective choices and actions as manifested by central bodies such as local and central governments” (Ding & Lai, 2012, pp. 1–2). They argue that in order to fully realize the goals of urban management, the three aspects have to be engaged with in a balanced manner (Ding & Lai, 2012). These suggested tripartite concerns of urban management are employed in framing the discussion in this section.

Planning is an important tool in the toolkit of a local authority in guiding the course of urban development. When used effectively, it has the potential to enhance the urban management of a city. In Nairobi, the Nairobi City County government exercises the powers that would typically be wielded by local authorities in many other cities in the world. Thus, the county government is the legally mandated entity to guide the urban development of the city. With this legal authority, the county has the powers to plan the city.

Nairobi has been subjected to a number of plans since its founding. However, none of the plans have been fully implemented. The little that has been accomplished is the planned general disposition of major land uses in the city. These include the locations of the central core of the city (the CBD), the industrial area, the national park, and residential areas throughout the city.

Kileleshwa neighbourhood is situated in a residential area to the west of Nairobi that was historically well-planned. In the colonial era, it was part of the suburban area that was reserved for colonial settlers (Halliman & Morgan, 1967) and its planning was influenced by garden city principles and the neighbourhood concept (White et al., 1948). This resulted in a low-density neighbourhood with single-dwelling detached units on large lots that were at least a quarter of an acre or more (Halliman & Morgan, 1967) – with some three-quarters of an acre or more in size. In the post-independence era, Kileleshwa became a high-end neighbourhood as well as the residence of senior government officials and other well-off citizens. Up to the end of the twentieth century, planning regulations that applied to the residential neighbourhood were largely adhered to. Where single-dwelling detached units were densified, the new housing developed did not exceed the height-limit of four storeys and an attic thus leading to the development of some three-storey town houses and four storey mid-rise apartments.

However, since the start of the twenty-first century, many of the planning regulations that apply to the neighbourhood have been flouted. In the city's zoning regulations, the height limit stipulated for Kileleshwa is a maximum of four storeys (City Council of Nairobi, n.d.). The maximum plot coverage is 35 per cent. Despite this, these regulatory stipulations have been disregarded with the ongoing rapid development of high-rise apartment blocks. The apartment blocks have been built to irregular heights that range between six and fourteen floors. The plot coverage of the apartment buildings is more than double the stipulated maximum and, in some cases, the apartment blocks are built so close to the property line that balconies of apartment blocks in neighbouring plots are almost abutting.

Moreover, despite the development of apartment blocks in Kileleshwa, the physical and social infrastructure has not kept pace with the growing needs. In terms of physical infrastructure, a number of shortcomings are readily apparent. The road network is still the same one that served the original low-density neighbourhood. Consequently, with the increase in car ownership in Kileleshwa, traffic congestion is a growing problem. The sewer system was not designed for high-density, high-rise apartment type housing and is yet to be upgraded. The extant storm water drainage system lacks capacity to

handle the increased water runoff from the paved surfaces of apartment block sites. The existing water supply system is yet to be expanded to handle the increased consumption demand from the swelling number of households. Additionally, electricity supply is insufficient to handle the increased energy consumption thus leading to frequent power outages in the neighbourhood.

Social amenities have not kept pace with the increased densification of Kileleshwa neighbourhood. The extant shopping centre was designed to serve a low-density community. The number of schools, nurseries, day care centres, and health facilities are insufficient to cater for the needs of the increasing family households with children. In the neighbourhood, spaces for social interaction such as restaurants and cafeterias are few and far between. Furthermore, outside of apartment development sites, significantly sized public open spaces are lacking in the neighbourhood.

This state of affairs illuminates the shortcomings of the city's urban management – in regards to planning practice, regulations, and governance. Indeed, the county government appears to have adopted a *laissez-faire* attitude towards the densification of the city's low-rise residential areas. The authorities tasked with managing the city appear to have surrendered to market forces in the urban development process. Absent in the city's actions are any efforts towards enhancing planning practice, diligent enforcement of extant regulations, and taking the lead in the dispensation of guidance for urban development.

### ***Planning for densification***

Planning for densification is necessary for the densification of housing to lead to positive outcomes. It can lead to improved urban quality and sustainability. However, in Kileleshwa, the ongoing urban transformation is occurring without a blueprint on how it should be done. This does not auger well for the city since it is becoming entrenched as the norm for the city's housing development. The current *ad hoc* development of high-rise apartment blocks in this previously low-density residential area, presents a new challenge for urban development. The latest plan for the city, the 2014 Nairobi Integrated Urban Plan, proposes densifying existing low-density county housing in the city's county estates (Nairobi City County & JICA Study Team, 2014). However, the proposal lacks guidance on how the densification should be approached yet denser developments present peculiar challenges (Larcombe et al., 2019; Colin Marshall, 2015; Wang & Shaw, 2018) that can be avoided or mitigated through proper planning (E. by W. Förster & Menking, 2019; HUD, n.d.; Makunda, 2018a).

The question of the type of density that is appropriate and where it should be applicable does not seem to feature in considerations by the local authority. As it stands, the desire for developers to densify the low-density neighbourhood of Kileleshwa appears to dictate the direction that the urban habitat is taking. Planning that would guide the type of increased density that would be appropriate for the area is completely non-existent. Also lacking is the readiness to consider channelling the forces leading to the vertical densification of Kileleshwa to other areas of the city that may be more suited to such a level of densification. Market forces currently hold sway in the redevelopment of existing residential areas such as Kileleshwa.

The issue of density is inescapable in the context of present day and future cities. With rapid urban growth coupled with the ever-growing challenges of climate change; in addition to the need for better urban qualities and sustainable urban development as well as limits to available urban land, the question of densification of cities is of paramount importance to both city managers and urban residents. For the former it is viewed as a vital tool for addressing the challenge of accommodating the huge growth in the population of urban residents. For the latter, it is becoming an ever-increasing reality to contend with in living in the city. It is fast emerging as the predominant urban experience. Nevertheless, density needs to be planned for if it is to be directed towards desirable outcomes rather than allowed to become the outcome of spontaneous activity that can lead to undesirable outcomes. Considering the current trajectory of re-development occurring in Kileleshwa, the possibility for outcomes that may be more desirable for the viability of the urban habitat is rapidly diminishing.

### ***Infrastructural challenges***

The rapid transformation occurring in Kileleshwa has left in its wake a great deal of infrastructural challenges – both physical and social. This largely stems from the fact that Kileleshwa neighbourhood was originally planned for low-rise single family housing units with an envisioned building height ceiling of four storeys (City Council of Nairobi, n.d.). Now, a typical plot that is a quarter of an acre or more that previously hosted a single-family unit is home to apartment blocks with at least two towers; six or more floors, and at least 50 apartment units. Inevitably, pressure on infrastructure has been multiplied by a factor of at least 50 or more, resulting in negative environmental impacts. Key among these are challenges with the sewer system, water supply capacity, surface and storm water drainage, electricity supply, solid waste disposal and road network in addition to vehicular traffic



with its attendant air and noise pollution. Additionally, extant social infrastructure has suffered from the effects of rapid urban transformation. Issues have now arisen with the adequacy of neighbourhood schools, shopping centres, health centres, places of worship, places of work, security, and public open spaces such as parks and children's playgrounds.

The trunk sewer system in Kileleshwa was not designed to cope with high-density housing despite the trend towards building high-rise apartment blocks. As noted by an architect involved in the design of apartments:

We have, in Kileleshwa, some areas, [where] the sewer is almost at full capacity so the government needs to think how they're going to expand [it] because definitely the trend will be to go taller and taller but then when you have [a] 220mm sewer, it can only take so much (Interviewee, Architect AR 01 – April 10, 2016)

Septic tanks, for sewage handling, were the norm for Kileleshwa and other adjacent residential neighbourhoods that were planned for low-density housing. The use of septic tanks for high-density housing as some developers have opted to do is not a viable strategy in the long run. The main challenge is that the current capacity of the sewer system will not be able to cope with the increased volume of effluent in the long run. A higher capacity sewer system is necessary if high-density housing is to lead to an improvement of the urban quality and sustainability of the residential area in the long run.

Water supply capacity has been a challenge for the city for many years. Thus, the building of high-rise apartment blocks in low-rise residential areas only exacerbates a problematic situation. The developers resorting to unilaterally drilling boreholes without approval from relevant authorities only succeed in making a bad situation worse. The fact that the agency responsible for regulating the city's water resources cannot account for two-thirds of the city's boreholes (Lang'at, 2016) is alarming at the very least. It is not a sustainable strategy without a coordinated approach from the local authority to address the water challenge for a growing urban population.

Surface and storm water drainage has become a challenge for the area due to the expanding apartment building footprint that increases the volume of runoff during the rainy season. Little attempt has been made by developers to install water harvesting features to reduce the strain on the extant storm water drainage system. Consequently, flooding is now a perennial problem in Kileleshwa during the rainy seasons (Makunda & Edeholt, 2016). Rather than expand the existing storm water drainage system, the county government has

instead focussed on efforts to clean and unblock the current system – an exercise carried out intermittently. It is also a strategy that does not address the root cause of the problem, which is the insufficiency of the extant system.

Electricity supply to Kileleshwa was designed with capacity for low-density housing. With higher-density housing, frequent power cuts are now a regular occurrence. The county government's requirement for new build housing to have solar water heating systems installed where more than 100 litres of water per day is to be used (Mutai, 2018) has not been enforced. This has resulted in limited uptake of the proposed strategy towards a more sustainable approach to meeting energy needs.

Solid waste disposal is a challenge for the city of Nairobi. Dumping sites are a political issue and the privatisation of garbage collection has not had the desired effect of full coverage for the city. Garbage collection is thus undertaken inconsistently throughout the city. In the case of new apartment developments, while garbage is indeed collected, little attempt has been made to promote recycling. Hence, the refuse from apartment blocks is adding to the problem of solid waste disposal and management by merely increasing the volume of waste dumped at the city's main 30-acre landfill that reached its capacity in 2001 (Environmental Justice Atlas, 2015).

Kileleshwa's road network was designed for few cars in the context of low-density housing. In the cases where road reserves have been upgraded, this was only done to provide a link road to major business areas in the city as well as adjacent residential areas. The increase in vehicular traffic on the road due to the increase in apartment residents, as a consequence of apartment developments, many of whom own cars, appears to have been unanticipated by the planning authorities. The road capacity is woefully inadequate to cope with the increased demand, a situation that has led to perpetual congestion during the weekday rush hour.

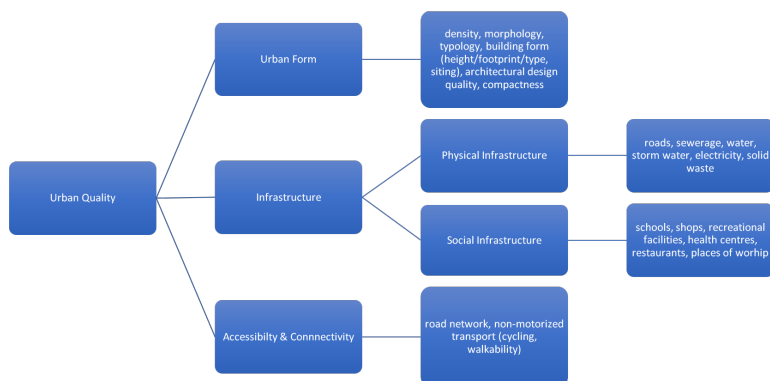
Social infrastructure in Kileleshwa neighbourhood has come under increasing strain. Social amenities and facilities such as schools, shopping centres, health facilities, places of worship, and recreational facilities in the form of public open space and children's play areas were designed for a smaller community of residents. Consequently, the new residents have been forced into unsustainable patterns of seeking these essential amenities including, health and fitness centres in adjacent and distant neighbourhoods, which they do at a great deal of inconvenience by driving.

### 5.2.4. Evaluating Kileleshwa's Transformation

In this section, the urban transformation of Kileleshwa is evaluated in relation to concepts of urban quality and urban sustainability. The evaluation draws on the themes, effects, and issues of transformation that have been discussed in the preceding sections relative to the findings of the study. These are considered in relation to urban output, process, and social factors. The evaluation is done both in terms of short-term and long-term implications, particularly in relation to the local context. This evaluation addresses **the third research question**: *How do the processes and outcomes of the transformation of the urban habitat impinge on its urban quality and sustainability?*

#### *Urban quality*

Many aspects of urban quality can be deployed usefully in the evaluation of an urban habitat. However, a few aspects of urban quality were considered to be particularly relevant in the context of Kileleshwa. Those discussed below in the evaluation of Kileleshwa are: urban form; infrastructure; accessibility and connectivity. Their relevant indicators are summarized below (**Figure 5.5**).



**Figure 5.5** Aspects and indicators of Urban quality

## 1) Urban Form

In the ongoing replacement of low-rise single-unit detached dwellings with high-rise apartment blocks, a significant change is occurring in Kileleshwa. The transformation has resulted in the shift in the neighbourhood's building typology. The high-rise apartment block – ranging in size from 6 floors to 14 floors – with its large footprint, is gradually becoming the dominant building form in Kileleshwa.

The emergent vertical densification of the neighbourhood is altering the character of the neighbourhood from one that was historically tranquil to one that is more dynamic. With high-rise housing, more residents are able to be accommodated within the residential area hence a more compact urban setting is becoming a possibility. In contrast with the horizontal profile of the original low-density dwellings that were set back deep into their plots away from the street, the neighbourhood is acquiring a more urban character due to the increased vertical profile of the high-rise apartment blocks with building lines fronting the street.

Further, due to the developer-led property development process that results in the piece-meal development of plots, certain limitations for the urban form of the neighbourhood are emerging. The high-rise buildings that are developed on a given property are designed as an enclave rather than as a series of buildings that relate to each other in a way that enhances the urban form. Thus, leading to an urban form that lacks visual coherence. Moreover, the variegated apartment block designs – the product of a variety of developers and architects – contribute to the emergent visual incoherence of the urban habitat's architectural expression. This is also resulting in an architectural design quality of the emergent apartment blocks that varies from poor to good.

In the short term, the alteration in urban form, from a sparse, less densified one to one that is compact and densified, is making available more housing units within an existing residential area hence increasing the local supply of housing. However, in the long term, the ad hoc manner of the development of housing will likely result in the reduction of the viability of the urban form for the urban habitat.

Furthermore, while in the short term, the plots are able to accommodate the high-rise apartment blocks, in the long term, as more high-rise apartment blocks are developed too close to each other, access to daylight is bound to reduce on adjacent façades hence undermining the urban quality of the

neighbourhood. Amalgamated plots are better suited for high-rise apartment blocks because they afford the space in which better designed apartment blocks – in terms of layout and spacing – can be accommodated.

Due to the developer-led process of urban transformation, the emergent urban form of Kileleshwa is being shaped in a direction that would yield the highest return on investment. Hence, the high-rise apartment block has become the developer's preferred housing type for development. Consequently, incoming residents to the neighbourhood are limited to choosing between types of high-rise apartment blocks and apartment units rather than types of housing. Thus, Kileleshwa's developing urban form is skewed heavily in favour of one key actor – the developer. This is resulting in an urban form tending towards compactness but limited to high-rise buildings with little room for alternative housing types.

## 2) Infrastructure

As the densification of housing in Kileleshwa continues, the neighbourhood's physical and social infrastructure is coming under increasing pressure.

Basic physical infrastructure such as roads, sewerage lines, water supply, storm water drainage, electricity supply, and solid waste removal are below the requisite capacity for the densifying urban habitat. The extant infrastructure was designed for low-density housing with an ideal for low-density housing and a maximum capacity for medium-density housing. In the short term, the presence of the extant physical infrastructure makes the residential area an attractive site to developers for infill and grey field development and redevelopment. However, in the long term, lack of increased capacity of the infrastructure will likely result in the physical deterioration of the urban habitat leading to poor quality.

In Kileleshwa, extant social infrastructure such as schools, shops, and places of worship were designed for low-density housing. Recreational facilities such as public open spaces were not as critical since single-dwelling units were situated on large plots with ample compounds of greenery. However, the onset of housing densification has not been accompanied with commensurate expansion of available social infrastructure. With the increasing population, the need for adequate social infrastructure – including schools, shops, places of worship, health centres, and recreational facilities, as well as sites of social interaction such as restaurants, becomes increasingly important. Thus, in the short term, while the extant social infrastructure makes Kileleshwa attractive for property development, in the long term, the

absence of adequate social infrastructure will increasingly undermine the urban quality of the urban habitat as the needs of the residents remain insufficiently met.

Moreover, while, in the short term, the developer-led process of urban transformation is leading to the availability of more housing units in Kileleshwa, the exclusive development of high-rise apartment blocks as the developers' preferred housing type is questionable. High-rise apartment development requires a high infrastructural outlay that may be beyond the capital investment scope of Nairobi City County government.

### 3) Accessibility and Connectivity

Part of Kileleshwa's appeal to developers and residents alike is its proximity to Nairobi's CBD. The neighbourhood has a road network that makes it accessible to the CBD from various points in the residential area. In addition, the recent upgrade of a ring road through the area, not only increased access to the neighbourhood but also created greater connectivity between the western suburbs of the city and a major commercial area – Westlands – located north-west of the CBD. Thus, Kileleshwa is accessible to important places of employment in the city. Through its road network, it is also well-connected to important areas outside the neighbourhood such as shopping malls, major hospitals, and larger educational institutions.

However, the road network was designed for limited vehicular traffic given the historical low-density nature of the neighbourhood. This road network has not been sufficiently expanded to accommodate the increasing traffic demand associated with the increase in car ownership by the growing middle class – who are increasingly moving into the residential area. The resultant congestion on the roads is likely to lead to negative outcomes such as the deterioration of the neighbourhood's air quality from vehicular exhaust. Thus, undermining the urban quality of the neighbourhood.

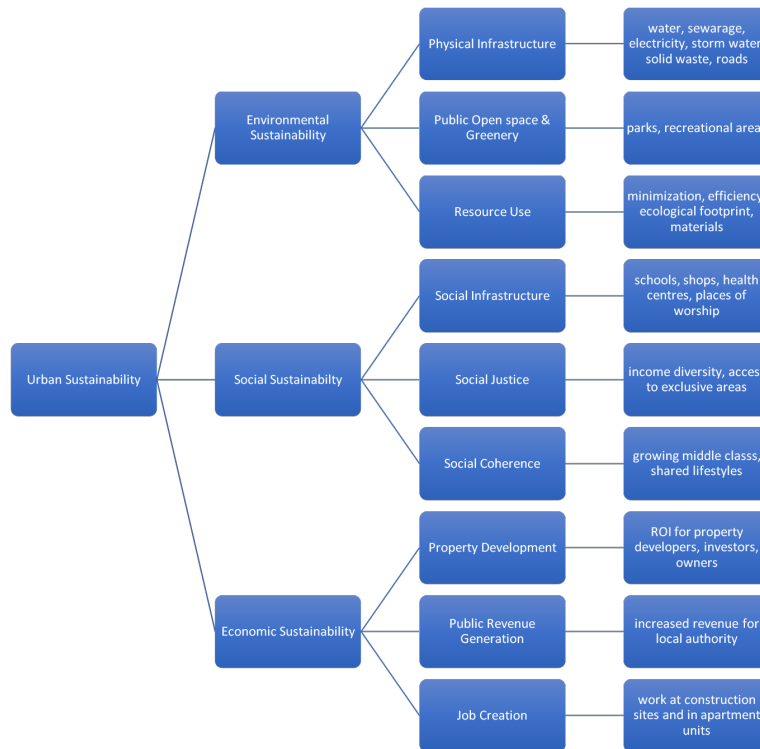
Little attention has been paid to the development of non-motorized transportation infrastructure such as pedestrian pathways and cycling lanes, which would increase mobility options such as walking and biking. The exception has been the development of this infrastructure along the upgraded ring road and along the road that connects Kileleshwa to the adjacent historically low-density western suburbs of Lavington and Kilimani. However, lack of integration with the extant road network is a significant limitation.

Thus, while, in the short term, the upgraded ring road through the neighbourhood has made the urban habitat more accessible and connected to adjacent areas, in the long term, the primary focus of this access and connectivity on the car has limited the possibility of making the neighbourhood even more accessible and connected due to lack of sufficient infrastructure for non-motorized transport as well as public transit. Consequently, traffic congestion, especially on the upgraded roads is a frequent occurrence.

Additionally, due to the developer-led process of urban transformation, property development in Kileleshwa is focussed on the delivery of singular sites (plots) as comprehensive developments without adequate consideration of adjacent properties. Hence, the overall access and connectivity of the neighbourhood that requires an overall plan is ignored with little upgrade made to the existing infrastructure to cater to the increased demands occasioned by the presence of more vehicles and residents requiring improvements in the road network and non-motorized means of travel.

### *Urban sustainability*

Aspects of urban sustainability that are discussed in the evaluation of Kileleshwa are: environmental sustainability, social sustainability, and economic sustainability. Their relevant indicators are summarized below (**Figure 5.6**).



**Figure 5.6** Aspects and indicators of urban sustainability

Given that the above diagram is very general and could potentially be used in reference to any city in sub-Saharan Africa, what does it mean for my evaluation of Kileleshwa? And how should I use it?

The diagram (**Figure 5.6**) is particularly relevant as a basis for evaluating Kileleshwa, which is undergoing rapid urban transformation (see the concluding paragraphs of section 2.3.3). Thus, the extent to which the selected aspects and indicators of the key dimensions of urban sustainability are evident in the neighbourhood is a possible way in which Kileleshwa can be meaningfully evaluated. This is discussed sequentially below.

#### 1) Environmental sustainability

The environmental dimension of urban sustainability is directly impacted by the ongoing densification of Kileleshwa. Its neglect significantly undermines the urban sustainability of the neighbourhood. This discussion focusses on a



number of indicators that are relevant in the context of Kileleshwa. These are: physical infrastructure, public open space and greenery, and resource use.

Physical infrastructure as an indicator of environmental quality overlaps with that of urban quality. In this regard, the lack of sufficient infrastructure for water, sewerage, electricity, storm water drainage, solid waste management, and roads undermines the environmental sustainability of Kileleshwa. This is because the insufficiency is leading to negative externalities that have a direct bearing on the environment. Some of these externalities include: unregulated sinking of boreholes resulting in excessive withdrawal of water from underground water aquifers increasing the dangers of ground subsidence; sewerage overflows that could contaminate both underground water supply as well as ground surfaces with noxious substances; storm water drainage system failure leading to flooding during heavy downpours accompanied by soil erosion; poor solid waste management adding to health hazards in the environment; and traffic congestion due to a road network of inadequate capacity resulting in an increase in air pollution from vehicular exhaust.

The lack of adequate public open space and greenery means that in the short term, residents of Kileleshwa neighbourhood have inadequate access to the health benefits of regular use of parks and other public open recreational areas. In the long term, due to the resultant minimal greenery such as trees and shrubs, these carbon sinks with the potential to mitigate the effects of increased air pollution are consequently diminished. This is in stark contrast to the single-dwelling housing units that were located on plots that had ample room for open space and greenery, as well as a preponderance of mature trees, which compensated for the lack of these amenities in the public arena.

The ongoing densification of Kileleshwa has the desirable effect of minimizing the amount of land being put to use for housing. Land is a scarce resource. Hence, in the vertical densification of the neighbourhood, more housing is made available on the same plot of land that only had a single-dwelling unit. In the long term, this ensures the minimization of the use of a finite natural resource hence contributing to the preservation of the natural environment and consequent conservation of a part of the natural ecosystem. However, the densification of housing also means that more resources such as water, electricity, and increased handling capacity for sewerage, storm water, and solid waste, in addition to transportation infrastructure such as roads, are needed. This intensifies the use of these resources to a level that may not be sustainable for the urban habitat in the long run, while, in the short term, the systems for the resources may end up failing due to excessive demand.

While global trade benefits from the use of imported building materials such as cement. Such a practice is not environmentally sustainable due to the pollution associated with transportation of goods over great distances. Alternatively, an opportunity exists to use more of the locally produced building materials such as cement and locally quarried building stones in housing construction in Kileleshwa. While cement production is a source of environmental pollution and quarrying activities lead to environmental degradation, the reduced transportation distances from sourcing these building materials locally would have a smaller ecological footprint. Hence, will be less environmentally unsustainable in the long run when compared to imported building materials.

Furthermore, due to the developer-led process of urban transformation, choices are made to service the profit motive rather than the environment. Consequently, developers prefer to import building materials and interior fittings due to their lower cost compared to locally available materials and finishes. Hence, inappropriate and less locally adaptable construction materials and interior finishes are commonly used in apartment block developments in Kileleshwa, thus, not only undermining the quality of the end product but also resulting in less environmentally sustainable outcomes.

## 2) Social sustainability

The ongoing densification of Kileleshwa has a direct bearing on its social sustainability. In this discussion, three indicators of social sustainability with a direct bearing on Kileleshwa, are considered. These are: social infrastructure, spatial justice, and social cohesion.

An area of overlap between the evaluation of urban quality and urban sustainability is in the social sustainability indicator – social infrastructure. In Kileleshwa, the social infrastructure – schools, shops, health centres, places of worship – is insufficient for the growing population of residents. The social amenities were designed to cater for a low-density neighbourhood hence have come under increasing pressure due to the ongoing densification of the residential area.

Kileleshwa is conveniently located close to Nairobi's CBD. It is a short distance from important amenities such as shopping centres, the Nairobi arboretum, public parks close to the city centre, and recreation centres. It is close to a variety of schools and places of employment. It has historically been the preserve of the elite few living in single-family detached housing units. However, with the development of apartment blocks, more housing

units in the form of apartment units have become available in Kileleshwa. This has provided access to housing in the residential area to the middle class. Given the diversity of apartment units on offer in the residential area – studio, one-bedroom, two-bedroom, three-bedroom, and four-bedroom – some of the new residents are able to buy housing units while others are able to rent. Hence, a variety of household types – from single adults, to couples without children, to couples with children – are able to access the neighbourhood.

Thus, with the increasing entry of middle-class residents – as both buyers and renters – into Kileleshwa, the area is not only growing in number of residents but also increasing in its income diversity. The middle-class group in Kenya represents a wide range of incomes (Kenya National Bureau of Statistics, 2018). Hence, the greater diversity of income levels represented in the neighbourhood due to a difference in housing unit sizes in which they are accommodated allows for some level of social mixing in Kileleshwa. Consequently, the growing presence of middle-class residents in Kileleshwa means that the neighbourhood is opening up to a wider variety of the city's residents. This suggests increased spatial justice for the city (Dempsey et al., 2011; Fainstein, 2011; Soja, 2008) and augers well for the social sustainability of the neighbourhood.

To gain access to the neighbourhood as owners of apartment units, the middle class employ a variety of buying strategies (See **Article III: Makunda, forthcoming**).<sup>61</sup> Depending on income and access to alternative sources of finance, strategies to gain home ownership in Kileleshwa range from cash purchase and cash instalment payment to mortgage purchase of apartment units (or some form of combination of strategies). The diversity of buying options introduces flexibility to the process of gaining access to the neighbourhood and makes it more sustainable in the long run. Additionally, the option of renting as opposed to buying an apartment unit creates even more opportunities for middle-class residents to gain access to the neighbourhood. This ease of access to the neighbourhood either through buying or renting allows for a constant influx of middle-class residents into Kileleshwa.

The increasing congregation of the middle-class residents as renters and homeowners in Kileleshwa not only contributes to the city's spatial justice but allows for the development of the social cohesion of the neighbourhood. Though the income range for the classification of the middle class in Kenya is relatively broad, an affinity in lifestyle is characteristic of the class. A

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<sup>61</sup> Makunda, C.S. (forthcoming). *Middle-class access to housing in Nairobi's transforming urban habitat*.

middle-class lifestyle is associated with conspicuous consumption indicated by an increase in car ownership, shopping in malls, and residence in prestigious neighbourhoods. The middle class are also distinguished by their formal employment in the professional sector of the economy, a greater degree of educational achievement, and aspirations towards upward mobility. Thus, the largely shared values of the new residents moving into Kileleshwa contributes to the stability of the neighbourhood, which in turn, enhances its social sustainability.

However, due to the developer-led process of urban transformation, developers are driven largely by the profit motive. Consequently, their focus is on delivering as many housing units as possible in a given high-rise apartment block, in order to maximize their return on investment. The result is smaller apartment units in Kileleshwa despite their high cost per square metre, and inadequate provision of social amenities such as children's play areas, recreational amenities and open space within apartment complexes. Yet, if adequately provided, would greatly enhance the social sustainability of the neighbourhood in improving the quality of the shared living environment.

### 3) Economic sustainability

The ongoing densification of Kileleshwa has implications for the neighbourhood's economic sustainability. Three indicators considered in the evaluation of Kileleshwa's economic sustainability are: property development, public revenue generation, and job creation.

Viewed from an economic point of view, the ongoing property development of Kileleshwa as manifested in the densification of housing, is providing significant benefit to a number of stakeholders. Property developers, investors and property owners are achieving significant returns on investment from the sale of apartment units, rental income, and the sale of land.

Arguably, a market logic structures the agency of the key actors involved in the process of Kileleshwa's urban transformation (See **Article I**: Makunda & Ellefsen, forthcoming). Property developers have enhanced agency in the ongoing process and lie at the epicentre of investment finance and property development decisions. They are the conduit through which investor finance flows into the real estate sector with the aim of a high return on investment. In seeking to satisfy these investor needs, developers seek to make a profit by developing and offering apartment housing units at exorbitant prices to prospective middle-class buyers.

Finances flowing into the real estate sector are diverse and include: construction mortgages from banks, loans from housing cooperatives and savings and credit cooperative organizations (SACCOs), diaspora remittances, foreign direct investment (FDI), and proceeds of graft. These vary in levels of economic sustainability. Diaspora remittances have been growing steadily over the years (Central Bank of Kenya, 2015, 2020b), recently surpassing FDI. Thus, becoming a sustainable source of financial investment into Kenya's real estate sector. Other growing and sustainable sources of investment financing include those from SACCOs. However, further sources of finance such as the proceeds of graft are not sustainable in the long run since they are likely to run afoul of enforced anti-graft regulation<sup>62</sup> at some point in the future (Odhiambo, 2020). Additionally, due to de-regulated high interest rates (Central Bank of Kenya, 2020a), financing from banks while an important source of finance in the short-term may become too costly in the long-term to be a sustainable source of real estate investment finance.

Although the new residents in Kileleshwa have limited agency in shaping the arc of property development in the neighbourhood, and are deployed by property developers as justification for the densification of housing in the neighbourhood; in the short term, the development of apartment type housing in Kileleshwa, has increased the availability of housing options – for renting and buying – in the neighbourhood. Thus, the increasing buying and renting of apartment units in Kileleshwa by the growing middle class, is leading to the development of the housing market in Nairobi. The availability of a variety of strategies employed by the middle class for purchasing the housing units contributes to the economic sustainability of the housing market in the long run.

In order to build high-rise apartment blocks in Kileleshwa, developers circumvent regulatory barriers by pointing to the growing demand for formal housing as justifying their need to build beyond the regulatory height-limit. They also argue that the high cost of land in Kileleshwa makes it economically unviable to build only to the regulatory limit of four storeys. Through political pressure on the development control department of the county government, they are also able to reverse negative decisions on their applications for property development approval. Instances of corruption have also been suggested as contributing to the violation of existing restriction on

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<sup>62</sup> Kenya has already established an Assets Recovery Agency while the National Treasury has published draft proceeds of crime and anti-money laundering (Criminal Assets Recovery Fund) (Administration) regulations 2020 (Kenya Financial Reporting Centre, 2020).

building height in Kileleshwa. This process of transformation that relies on the circumvention of extant regulation, while achieving gains for developers and investors in the short term, is not economically sustainable in the long term because it introduces a lot of uncertainty into the property development market and reduces the potential for predictable outcomes.

While in the short term, the entire venture is profitable, especially for property developers, investors, land owners, and the segment of new residents who are able to purchase some of the apartment units, in the long term, profits are bound to diminish as the housing market becomes saturated due to the rapid development of apartment blocks; which will likely lead to the housing supply of apartment units outstripping the targeted demand. Additionally, without infrastructural challenges being addressed in the near term, the urban quality of the residential area will likely be irremediably compromised in the long term, which would further dampen the profitability of investing in the housing development.

With the increase in applications for apartment block developments in Kileleshwa, Nairobi's county government will continue to earn a great deal of revenue from the approval fees in the short term. However, in the long term, as infrastructural needs commensurate with the ongoing property development remain neglected, the appeal of the neighbourhood both for property developers and investors as well as potential residents, will begin to diminish as the residential area's urban environment continues to deteriorate due to inadequate infrastructural provision. Thus, undermining the economic sustainability of the ongoing urban transformation.

The proliferation of construction activity due to the development of high-rise apartment blocks in Kileleshwa has brought with it employment particularly in the construction sector – both formal and informal. Some of these include work for building professionals such as architects, surveyors, planners, and engineers; and for trades such as plumbing, masonry, and electrical work. Additionally, a great deal of informal and formal employment has been generated by the increase in the number of households in the neighbourhood. Some of these jobs include: domestic work, for example, house cleaning and child care. Since most of the apartment block developments are designed as gated communities, security work has increased with apartment block managers hiring security personnel to guard and control access to the apartment block premises. Other jobs include landscaping and maintenance jobs such as cleaning of common areas. At construction sites, informal food vendors can be found selling cooked food. In addition, with the increase in the number of residents moving into the residential area, in combination with

inadequate shopping facilities in the area, informal kiosks have been set up strategically at road intersections to sell fruits and vegetables. Thus, providing an alternative to driving out of the neighbourhood to purchase such groceries.

The increase in car ownership in the neighbourhood has arguably led to the increase in carwash facilities – both informal and formal. The informal ones tend to locate close to major road intersections while the formal ones are the result of the conversion of single-family homes to car wash facilities. The established restaurant premises, which were originally the sites of single-dwelling units, also provide formal car wash service.

Additionally, due to the inadequacy of water supply in Kileleshwa, compounded by frequent water shortages, apartment block sites without borehole water supply, rely on water purchase. Thus, the water vending business is thriving in the area. Water bowsers are a frequent presence on the roads as they ferry water to various apartment complexes to mitigate the perennial water shortages as a supplementary source to county water supply or as an alternative to borehole water supply. Reliance on water vending to plug the water-supply deficit, while profitable for the water vendors, is economically unsustainable in the long run for the residents of apartment units because it is significantly more expensive than piped water supply.

While in the short term, the developer-led process of property development in Kileleshwa is profitable for actors such as property developers and other investors, in the long term, the ad hoc nature of the neighbourhood's property development enterprise is not economically sustainable. This is primarily because the ongoing high-rise apartment developments are not guided by a comprehensive plan for urban transformation. Hence, basic requirements such as adequate infrastructural provision and adherence to a predictable plan are lacking. Consequently, these inadequacies are likely to compromise the urban quality and sustainability of the neighbourhood, which in turn would diminish the economic gains possible from investing the neighbourhood.

#### ***Overlap between urban quality and urban sustainability indicators***

Challenges and opportunities in relation to urban quality and urban sustainability have been discussed in terms of urban form, infrastructure, and access and connectivity in relation to the former; and in terms of environmental, social, and economic dimensions of sustainability in relation to the latter. Areas of overlap between urban quality and urban sustainability

exist. The table below (**Table 5.3**) highlights some of those areas of overlap in terms of indicators.

		URBAN SUSTAINABILITY		
		Environmental	Social	Economic
URBAN QUALITY	Infrastructure	physical infrastructure	social infrastructure	property development public revenue job creation
		physical infrastructure	Social infrastructure	physical & social infrastructure
	Urban Form	resource use	social justice	property development public revenue job creation
	compact urban form	density	architectural design quality	
Accessibility & Connectivity	public open space & greenery Non-motorized transport (cycling, walkability)	social justice social cohesion Non-motorized transport (cycling, walkability)	Road network Non-motorized transport (cycling, walkability)	

Figure 5.7 Overlap between urban quality and urban sustainability indicators

Distinct overlaps are evident in terms of Kileleshwa’s physical infrastructure in relation to the environmental dimension of urban sustainability and the infrastructure aspect of urban quality. This is also the case for the neighbourhood’s social infrastructure in terms of the social dimension of urban sustainability and the infrastructure aspect of urban quality. Arguably, the quality of Kileleshwa’s physical and social infrastructure has a bearing on the economic sustainability of the neighbourhood through its influence on the level of property development and related revenue generation, and job creation.

Areas of overlap exist between aspects of urban form and the three indicators of urban sustainability. In relation to environmental sustainability, the emerging compact urban form minimizes the use of land for housing by intensifying the use of existing plots of land in Kileleshwa hence minimizing



the use of the limited resource. However, at the same time, high-rise housing consumes more building materials and requires more natural resources such as water both during and after construction. In relation to social sustainability, the increasing density associated with the emerging compact high-rise urban form of Kileleshwa, means that more people are being accommodated within the neighbourhood hence broadening the possibility of a more income diverse group of residents living in Kileleshwa considering that a wide variety of apartment unit types are being rented and purchased in the area. Thus, contributing to social justice in making possible access for a more income diverse group of residents in an historically exclusive residential area. In relation to economic sustainability, the architectural design quality of the emerging urban form in Kileleshwa has a bearing on the growth of property development, public revenue generation, and job creation in the neighbourhood.

Overlap also exists between the accessibility and connectivity aspect of urban quality and the three dimensions of urban sustainability. In relation to environmental sustainability, infrastructure to support non-motorized transport (cycling and walkability) would work in tandem with public open space and greenery. However, in Kileleshwa, these features of urban quality and environmental sustainability are insufficient, and in terms of public open space, are lacking all together. In relation to social sustainability, increased accessibility and connectivity, particularly in terms of non-motorized infrastructure, would increase the opportunities for social interaction of residents. Hence would likely contribute to enhanced social cohesion. However, the non-motorized infrastructure available in Kileleshwa is not only insufficient but also not fully integrated. In relation to economic sustainability, the accessibility and connectivity aspect of urban quality is reinforced by the road network aspect of economic sustainability. Thus, in Kileleshwa, the increasing level of connectivity – both motorized and non-motorized, though not fully sufficient contributes to increasing economic activity, which is associated with economic sustainability.

Thus, while the two concepts of urban quality and urban sustainability have been discussed separately, in reality, they are intertwined and indeed share some key indicators. More challenges that have an impact on the two concepts are more apparent; such as the paucity of adequate infrastructure. Additionally, the developer-led process of the urban transformation of Kileleshwa, is resulting in more negative than positive externalities for the neighbourhood with implications for the long-term viability of the neighbourhood. However, key opportunities also exist with direct implications for the two concepts; such as the potential of higher vertical

density for the development of a compact urban form, which is associated with increasing the urban quality and sustainability of an urban habitat.



## 6

## Conclusions and Recommendations

This thesis was guided by the key research question: **What are the processes, characteristics and outcomes of the rapid transformation occurring in low-rise urban residential areas in Nairobi?** The main question was operationalized through three interrelated questions. In this section, the key findings under each of these questions are summarized. Afterwards, in subsequent sub-sections, the contributions to knowledge, highly relevant findings, proposed future research, and recommendations are summarized.

### 1) How is housing in the rapidly transforming urban habitat being produced?

This question sought to understand the primary factors driving the transformation of housing in the urban habitat as well as how the key actors involved were organized and exercising their agency to realise this outcome. Specifically, the question was pursued through the following sub-questions: a) *Why is the transformation occurring rapidly and how is its underlying process structured to facilitate the transformation from low-rise to high-rise residential housing?* b) *Who are the actors, how do they interact and what roles do they play in the process of transformation to generate new housing typologies?*

This question has been addressed through a discussion of the key themes in the ongoing urban habitat transformation in the case of Kileleshwa. These have been identified as process, informality and irregularity. In relation to the process of urban habitat transformation this has largely been seen in the market-led, developer-driven process of urban transformation in which developers have dominant agency in the trajectory that housing has taken in terms of high-rise apartment block development in Kileleshwa, an historically low-density urban habitat. I have argued that the developers are profit-driven and their need to make a quick return on their investment is a

factor driving the rapidity of the transformation. Other actors such as the local government and other regulatory agencies have been shown to have a diminished role with residents playing an even more peripheral role in influencing the course of development and the nature of the housing produced, although, as the presumed source of demand, are key in the developers' justification of the form of housing they are choosing to develop, and the urgency with which the projects are being developed. Directly related to the process of transformation, I have argued that it is permeated by informality and irregularity, which have been discussed at length, in the preceding chapter, as the two other key themes in the ongoing process of transformation.

**2) How has the process of transformation altered the urban habitat physically in terms of housing typology and how has this affected the habitat's physical and social (socio-cultural, socio-economic, and demographic) characteristics?**

This question explored two interrelated dimensions that were key to understanding the outcomes of the process of transformation of an urban residential area. These were first, the morphological outcomes of the process of transformation, particularly in the ongoing densification of housing, and second, the social outcomes of the process of transformation made possible by the ongoing densification of the housing.

This question has been addressed through a discussion of the key effects of the ongoing phenomenon of urban habitat transformation in the case of Kileleshwa. These have been identified as morphological outcomes, housing quality, and socio-economic/socio-cultural outcomes. In relation to the morphological outcomes, this has been discussed in relation to profound housing typology change as signified by the transformation of low-rise single-dwelling detached housing units to high-rise multi-family apartment blocks in Kileleshwa. I have argued that it is at this level that the informality and irregularity is evident in terms of housing forms that have been developed in complete disregard of extant regulations that stipulate standards such as building height limits, plot coverage, and plot ratio. The research has documented that the newly emergent apartment blocks exceed the stipulated building height limit of four floors for Kileleshwa neighbourhood and have plot coverage far in excess of the maximum 35% plot coverage stipulated for the residential zone. The discussion has empirically shown that the urban habitat transformation, as exemplified by Kileleshwa, is occurring primarily

in terms of the switch from low-density single-dwelling detached housing units to high-rise multi-family apartment blocks. Furthermore, the transformation is undermining the urban habitat's physical and social infrastructural capacity. Relatedly, the mixed picture of the quality of the emergent housing has been discussed at some length in the preceding section.

In relation to the social aspect, the socio-economic and socio-cultural transformation of the neighbourhood in the context of urban transformation has been discussed as largely due to the emerging trend of middle-class residents – who have devised ways of meeting the cost of living in the neighbourhood either as purchasers or renters – gradually becoming the dominant group in the neighbourhood as the residential area transitions from an exclusive upper income residential suburb to one that is becoming more income diverse, beginning with the growth of the middle class as a significant category of new residents in the neighbourhood. This is argued as improving the social justice of the city as a more income diverse demographic group gains access to an historically exclusive residential area. Further, I have argued that the increase in middle-class residents in Kileleshwa is leading to some degree of social cohesiveness due to shared values and aspirations.

### **3) How do the processes and outcomes of the transformation of the urban habitat impinge on its urban quality and sustainability?**

This question was set up as an evaluative question on the processes and outcomes of the urban transformation of a residential area. It sought to interrogate the urban quality and sustainability of the ongoing phenomenon for the urban context. In so doing it mobilizes concepts and criteria of urban quality and sustainability as a means of appraising and reflecting on the merits and demerits of the ongoing urban habitat transformation.

This question has been addressed through a discussion of the evaluation of the ongoing urban habitat transformation in relation to concepts and criteria of both urban quality and urban sustainability that informed an evaluative lens. On the one hand, in relation to urban quality, relevant criteria and indicators that were deployed included those related to urban form such as morphology, typology, architectural design quality, and the nature of the emergent urban form such as compactness, density, and connectivity; state of social and physical infrastructure; and level of the urban habitat's accessibility and connectivity in relation to mobility and transportation infrastructure. On the other hand, in relation to urban sustainability, its key

dimensions – the environmental, the social, and the economic – and some of their indicators were relied upon. Areas of overlap between urban quality and urban sustainability were also considered. The evaluation was done from both a long term and short term perspective, with respect to the local context. In summary, the current nature of Kileleshwa’s urban transformation has both positive and negative implications. However, negative externalities outweigh the positive ones with potential deleterious consequences for the urban quality and sustainability of the neighbourhood.

### **6.1. Contribution to Knowledge**

Rapid urban habitat transformation is a challenge being faced by fast urbanizing cities in the global South. As highlighted in this thesis that focussed on the case of formal housing transformation in Nairobi, which is occurring in response to the increasing demand for housing, the current approaches to the challenge have significant implications for urban quality and sustainability. Themes that permeated this study in relation to urban transformation were: its process, its informality and the irregularity characterizing it. These have been discussed in the context of the key effects of urban habitat transformation – morphological outcomes, housing quality, and socio-economic/socio-cultural outcomes. In turn, they have been linked to the emergent issues of the ongoing urban transformation – urban management, planning for densification, and infrastructural challenges. In this sub-section, some key contributions that the thesis makes to knowledge are summarized.

The thesis, in my opinion, contributes to expanding the discourse on the transformation of urban habitats in rapidly transforming urban contexts in sub-Saharan Africa (SSA), and, in turn, in global South contexts. It stretches the discourse on urban shelter beyond informal settlements and foregrounds the expanding middle class in a SSA context by contributing insights into how they are situating themselves in a city and influencing the nature of housing market dynamics. Thus, offering new perspectives on how to look at formal housing in a global South context.

The research also contributes a way of looking at rapidly transforming urban contexts in SSA by interrelating themes of: its process, and the informality and irregularity that have become characteristic of SSA contexts.

Significantly, it contributes the insight that the key actors involved in processes and outcomes of urban transformation have asymmetrical levels of agency, with the developers having the greatest influence in determining the

trajectory of rapid urban transformation. Moreover, it brings to the fore the reality that the ongoing rapid urban transformation in a global South context is primarily market-led with the profit motive a key factor in the choices that prevail in the processes and outcomes of the phenomenon.

## 6.2. Highly Relevant Findings

In this sub-section, some highly relevant findings of the investigation are highlighted.

The thesis, in my opinion, has uncovered the process of urban habitat transformation in a formal urban habitat and exposed its low-quality output. Moreover, it has done so through a case study of a city in SSA that has potential for comparison with the nature of the process and outputs in other rapidly transforming cities in SSA.

The thesis highlights the pervasiveness of informality and prevalence of irregularity in a formal urban context hence their perpetual presence in processes and outcomes of rapid urban habitat transformation in a sub-Saharan African context. Thus, it re-affirms the importance of the two themes in the study of urban contexts in SSA as a sub-set of the global South.

In the rapidly expanding urban context of Nairobi, densification of historically low-density residential areas is accelerating with the growing need to accommodate an expanding middle class. Consequently, high-density multi-unit housing is becoming a significant residential housing type in what was initially a low-density context in a formal residential area historically characterized by single-family detached housing units. However, the emergent urban neighbourhood is insufficient in some ways with few urban qualities. Despite the increase in density and number of residents, the neighbourhood is monofunctional hence lacking in urbanity.

The agency of actors varies in the transforming urban habitat that was investigated. While developers have a great deal of leeway in their exercise of agency in shaping the direction of transformation, the county government's agency is limited somewhat by following the lead of developers rather than in guiding the direction of transformation. The agency of the residents (owners and renters) is exercised in the selection of various strategies for buying apartments and in choosing to live in the transforming residential neighbourhood either through buying or renting an apartment unit. However, this agency is significantly circumscribed by the developers' dominant role in the choice and decision to develop and offer particular types



of apartment blocks and units as the housing options available on the market for either purchase or rent.

### **6.3. Outstanding Questions and Proposed Future Research**

A holistic approach to the transformation of urban habitats necessitates the planning for critical components that would result in a viable neighbourhood in the long run. For example, ensuring that requisite infrastructure and amenities are part of the proposed and developed novel forms of housing. It necessarily implies working with all the key actors (and their affiliates) including developers, the county government (local authority) and residents. How could this possibly work? It may entail a much more open process in which the stakeholders are involved in the housing development process from inception to implementation. One way to do this could be through effective participation (Arnstein, 1969) by the key actors, in determining desired middle-class housing outcomes. In such an environment, it is more likely that mutually beneficial compromises can be arrived at and concessions made that could allow for the attainment of a balance between developers' market-driven private interests and the public interest of housing provision for the middle class. A scenario that could possibly lead to the creation of better developments.

The case study, in bringing to the fore issues of informality versus illegality as well as irregularity has some bearing on theory. It suggests that the theory of southern urbanism and its theory of space allows for a fruitful reading of a case study in a southern urban context by, arguably, anticipating these issues amongst others. It also reveals the potential for the further development of the theory. If multiple urban contexts from different cities in the South could be studied in detail thus revealing the variation on these issues, the comparison between the various contexts could be the genesis of a grounded approach to empirically enriching the theory of southern urbanism that would have greater utility for southern urban contexts. The persistent questions of informality, irregularity and illegality that arise from the way development occurs in southern urban contexts suggests uncertainties of development outcomes as a distinguishing feature between these contexts and the global North. Hence, creates the space within which a theory that is distinct from the global North is needed to account for these variations - the theory of southern urbanism goes a significant distance in filling this gap.

Some proposed areas for future research include:

- 1) Investigations of viable models and pilot projects for urban transformation and densification in a rapidly expanding urban context in SSA that would enhance urban quality and sustainability.
- 2) Explorations into ways of achieving desirable urban outcomes in SSA in the context of informality and irregularity.
- 3) Research into holistic housing policy in SSA that caters for the needs of diverse income groups in urban contexts, particularly in the wake of a growing middle class in SSA.
- 4) Investigation into strategies for improving urban management, planning for high-density housing, and adequate social and physical infrastructure provision in a resource-constrained global South context.

#### **6.4. Recommendations**

In this sub-section, some recommendations informed by the research are presented. These are given particularly in relation to the process of urban transformation, infrastructural challenges, and the quality of the area.

##### **1) Process of Urban Transformation**

In relation to the process of urban transformation, the issue of urban management is directly implicated. The course of urban development is far too important a factor for the future outcomes of the city to be left solely in the hands of private enterprise that is necessarily profit-driven. The concentration of the dominant agency in shaping the future of the city in the hands of a few key actors does not serve the long-term interests of the majority of the residents. The county government needs to take up its mantle of leading the charge in the course that urban development should take. It is the entity that is directly accountable to the electorate and legally mandated to be responsible for the trajectory that the urban development of the city should take in the interest of the common good for the city. Thus, the onus is on government authority to take the lead in urban development through proper urban management by, for example, providing the requisite guidance for how private finance through the hands of property developers shapes urban transformation. A crucial starting point is, first, ensuring that enacted regulations foster desirable outcomes in relation to urban quality and sustainability. Second, the local authority should ensure that the enacted

regulations are enforced and adhered to. This not only requires political will but also an increase in the resource capacity of the local authority, both in terms of sufficient personnel and finances, to be able to effectively undertake this responsibility.

A planned approach to urban transformation is much more likely to yield desirable results and provide some semblance of predictability of future outcomes compared to the current seemingly ad hoc approach that is already leading to some undesirable results and fostering unpredictability of future outcomes. Informality in what should be formal is an aspect that requires greater attention if the challenges associated with policy implementation such as policies on housing, are to be addressed effectively. Its neglect ensures that formal intentions such as those encapsulated in the city's plans are never fully realised. Thus, the viability of enacted regulations to govern urban development in a context permeated by informality such as Nairobi, and even in neighbourhoods that are formally planned, would need to take cognizance of informality.

The county government could empower the resident associations and the emergent resident-organized apartment management entities to self-organize for services that the local authority lacks capacity to provide efficiently such as garbage collection. These could be sub-contracted by the associations to private entities with the means and capacity to do so. Additionally, the local authority could collaborate with these residential management entities to collectively work towards the improvement of the entire neighbourhood for the mutual benefit of all. For example, this could work on issues such as fixing potholes in the neighbourhood road network, ensuring working street lights and storm water drainage, and the greening of the neighbourhood through the planting of trees. This would not only promote resident participation in community affairs and engender social cohesion but would increase their sense of ownership and interest in the betterment of their living environment. This potentially offers an opportunity for engagement with various stakeholders in contemplating how best to improve the quality and character of the built environment.

Density needs to be managed if it is to be directed towards desirable outcomes rather than allowed to become the outcome of spontaneous activity that can lead to undesirable outcomes. Planning for densification should be at the centre stage of an approach to properly planned densification of residential neighbourhoods such as Kileleshwa. Standards are needed for how this should be done in order to guide the process as part of an enforceable approval process for property development.

Thus, this would require the development and enforcement of appropriate standards for high-density development that would safeguard the viability of the urban habitat. This would necessitate a holistic approach to the planning of neighbourhoods that results in a properly configured compact urban form with commensurate infrastructure and amenities that would enhance its urban quality and sustainability. Standards for the design of the apartment blocks, minimum sizes of apartment units, building orientation, building set back, configuration of the building footprint, building height, and neighbourhood character would be needed.

Along with densification, issues related to high-density living should be properly taken into consideration and specifically addressed in enforceable regulations. These should include mitigating the challenges of over-crowding that emerge with higher densities and mandating the provision of much needed open space in the design of apartment complexes. Amalgamation of contiguous properties should be encouraged if adequate land is to be assembled to allow for more space to enable better designed apartment complexes with adequate amenities for the residents.

Standards for minimum sizes for apartment units should be developed to ensure the liveability of apartment units. Diversity of apartment unit types (studio, one-bedroom, two-bedroom, three-bedroom, and more) should be encouraged further with the aim of promoting access to a diversity of residents or households at various stages of life from families with children, to those without, to single people; and from owner-occupiers to renters. This would foster a greater income and cultural mix in residential neighbourhoods and foster a greater sense of community and diversity in a more spatially equitable and just urban habitat (Soja, 2008; Fainstein, 2010).

## **2) Infrastructural Challenges**

The pressing infrastructural challenges that are pushing neighbourhoods such as Kileleshwa towards undesirable outcomes need to be addressed. This would mean enhancing the capacity of the water, sewerage, storm water drainage, solid waste disposals, and electricity systems to meet the demands of a densified form of housing. Boreholes to augment water supply should be under the control of the county government rather than private developers to augment the city's water supply while the installation of solar panels, which have the desirable effect of reducing demand for power from the national grid should be enforced. Water harvesting features should also be a required

design aspect of densified housing as it would also minimize excessive runoff that leads to flooding.

Addressing the infrastructural challenge of increasing traffic congestion would also require the planning for and development of a transportation system that aligns better with a compact city form. Given the proximity of Kileleshwa to Nairobi's CBD, the local authority should develop alternatives to car-oriented travel. Hence, the need for the development of a multi-modal transportation system that offers viable options to driving, which would in turn contribute to reducing levels of air and noise pollution in the city. This could include the development of a mass transit system, bike lanes and pedestrian walkways that are fully integrated into a citywide system that connects urban residential areas to places of work, schooling, shopping, health, and recreation. Social amenities such as schools, shopping centres, health facilities, and recreational facilities would need to be expanded to meet the needs of a larger population in a densified neighbourhood. Additionally, the local authority may need to appropriate land in the neighbourhood to create public open space while the opportunity still exists to do so before the neighbourhood is completely overrun by high-density apartment block developments. The social amenities should be planned with walking distance in mind to encourage more walking than driving, with a view to healthier living and sustainable lifestyles.

### **3) Quality of the Residential Area**

In the development of high-density urban habitats specific policies that would encourage improved quality of urban residential areas are needed. Some of these could be achievable through regulations or incentives. For instance, these could encourage the use of less resource intensive construction methods and materials, creation of green roofs, full integration of solar panels, use of efficient fixtures such as less water intensive water closets, and better orientation, siting, and spacing of buildings as well as appropriately sized and situated windows to take full advantage of daylight.

Given the current context of market-led housing provision, government-led affordable housing strategies for the neighbourhood will be necessary to ensure that housing becomes affordable to more of the city's residents hence increasing both the diversity of the neighbourhood and its long-term social sustainability through increased social inclusiveness. The current development and maintenance of the apartment blocks is already dependent on labour and workers drawn from informal settlements hence a symbiotic relationship already exists between middle- and low-income city residents

that should be sustained through greater access to housing in the neighbourhood.

Ultimately, to move towards the enhancement of the urban quality of residential areas such as Kileleshwa, in the ongoing rapid urban transformation of the city, the issues of urban management, planning for densification, and overcoming infrastructural challenges have to be addressed. This would require proper urban management in which the local authority assumes centre stage in guiding the transformation of urban habitats like Kileleshwa towards better quality outcomes. This requires addressing the needs for adequate infrastructure, appropriate architectural qualities and other desirable urban qualities. Appropriate densification and design strategies through planning for density would be necessary in providing a roadmap on how to move the city's transforming formal urban habitats towards a more viable future in the long run.

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PART II

PART II



## ARTICLES



## Journal Article

### **Article I:**

Makunda, C.S. & Ellefsen, K.O. (forthcoming). The interplay of actors in the production of housing in Nairobi, Kenya. [Submitted to *African Cities Journal*]



# The Interplay of Actors in the Production of Housing in Nairobi, Kenya

Collins Sasakah Makunda<sup>1</sup> and Karl Otto Ellefsen<sup>2</sup>

Like many countries in the global South, Kenya is experiencing rapid population growth in tandem with rapid urbanisation. This presents an intractable challenge for the country as it becomes majority urban. This paper considers the present dynamic scenario of rapid vertical transformation of housing in Nairobi. Using the case study of a residential suburb in the city, the paper explores the rapid transformation that the neighbourhood has undergone over the past decade from low-rise housing units to high-rise apartment blocks. The paper investigates the how and why of the rapid transformation through an analysis of the interplay of the key actors involved in the process of urban transformation. Through qualitative interviews, spatial surveys, document and literature review, the modes of agency of the different actors are investigated. The nature of the dynamic transformation of the urban context is discussed as a process and outcome of the interplay of the key actors whose agency is perpetuating a novel norm for the production of housing in the city. The key findings of the research are that the urban habitat is undergoing rapid physical transformation through increasing flows of capital into the city's real estate sector; a limited number of key actors, principally real estate developers and their agents, are playing a key role in shaping the production of housing in the city; government authorities appear to have adopted a laissez faire attitude towards urban transformation; residents have marginal agency in determining the housing offered; and the process is leading to unsustainable outcomes.

Keywords: agency, housing production, interplay of actors, unsustainability, urban transformation, Nairobi, Kenya

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## **Introduction**

Like many countries in the global South, and particularly those in sub-Saharan Africa, Kenya is experiencing rapid population growth in tandem with rapid urbanisation. The country is situated in the East African region of Africa, which is experiencing the most acute levels of population growth due to rural-urban migration, natural increase due to high fertility rates,<sup>1</sup> better nutrition and health (Fox 2014; Parnell & Pieterse 2014; UN DESA 2015). Kenya's current population, estimated at 46.1 million, is increasing by about a million annually (World Bank 2017a). In 2016, Kenya's population growth rate, at 2.6 per cent, was at least twice as high as the global one (World Bank 2016b). Its GDP growth rate of above 5 per cent annually is not only higher than sub-Saharan Africa's 1.2 per cent but over the last seven years<sup>2</sup> has almost doubled the global average (World Bank 2016a; World Bank 2016b).

Nairobi, Kenya's capital and primate city and also East Africa's economic hub and largest city, is a stage upon which rapid population growth, urbanisation and economic growth can be seen to frame the dynamic interplay between key actors in the shaping and re-shaping of the urban context. The city, in tandem with three other contiguous counties,<sup>3</sup> which collectively constitute the Nairobi Metro Region, accounts for 60 per cent of Kenya's GDP (Kenya National Bureau of Statistics [KNBS] 2015: xii). It rapidly increased in population, by almost a million persons, from 2,143,254 to 3,138,369 in the ten-year span from 1999 to 2009 (KNBS 2017a). In the inter-censal period between 2009 and 2019, Nairobi's population has grown by an additional 1.2 million persons to 4,397,073 persons. The city is home to a growing middle class (Shah and Ruparel 2016), and makes up one-third of Kenya's urban population (Grida 2011, KNBS, 2019) – in a country with an urbanisation rate of 4.4 per cent<sup>4</sup> (World Bank 2017b) – making it central to the country's future development. In 2009, when a

national census was undertaken, the city had 985,016 households with a population density of 4,509 persons per square kilometre (KNBS 2017b, 17). Now, according to the most recent national census undertaken in 2019, Nairobi's households have increased by more than 50% to 1,506,888 households (KNBS, 2019). This has resulted in an increase in the city's population density to 6,247 persons per square kilometre.

Kenya has an estimated housing backlog of 2 million units<sup>5</sup> (World Bank 2017b), an annual housing deficit of 200,000 units with an annual output of merely 50,000 units. (Government of the Republic of Kenya [GoK] 2018; World Bank 2017b). Nairobi, as the capital and most populous city in the country, bears the greatest brunt of this acute housing shortage hence is a stage upon which the need and demand for housing far exceeds the extant supply. Arguably, this scenario contributes to fanning the forces of urban transformation as currently manifested in the process of rapid housing transformation in the city.

Driving the agenda of urban transformation in the city is arguably a market-logic informed by neoliberal ideology that structures the agency of the key actors involved in the process. It is an approach that is pointedly at odds with the proclaimed desire for sustainable development that is frequently espoused and can be surmised from the government's official pronouncements and documents such as the Nairobi Metro 2030 strategy (UN 2008; GoK 2008) and the National Spatial Plan 2015 – 2045 (GoK 2016).

The case of the production of housing in the city offers a useful avenue for gleaning deeper insights into the motivations of the key actors involved. Focussing primarily on developers and their agents such as architects on the one hand and the local authority (Nairobi City County Government [NCCG]) and other state actors (The National Environmental Management Authority [NEMA] and the National Construction Authority [NCA]) on the other hand, this article seeks to shed light on the strategies and

tactics (de Certeau 1984) at play leading to unplanned realities in the transforming urban habitat.

In order to understand how the demand for and supply of formal housing is being addressed, the paper explores the current rapid transformation that the city's historically low density western residential suburb (see Figure 1) has been undergoing over the past decade; in densifying from single story detached single-family low-rise housing units<sup>6</sup> to multi-story multi-family high-rise apartment blocks<sup>7</sup>.

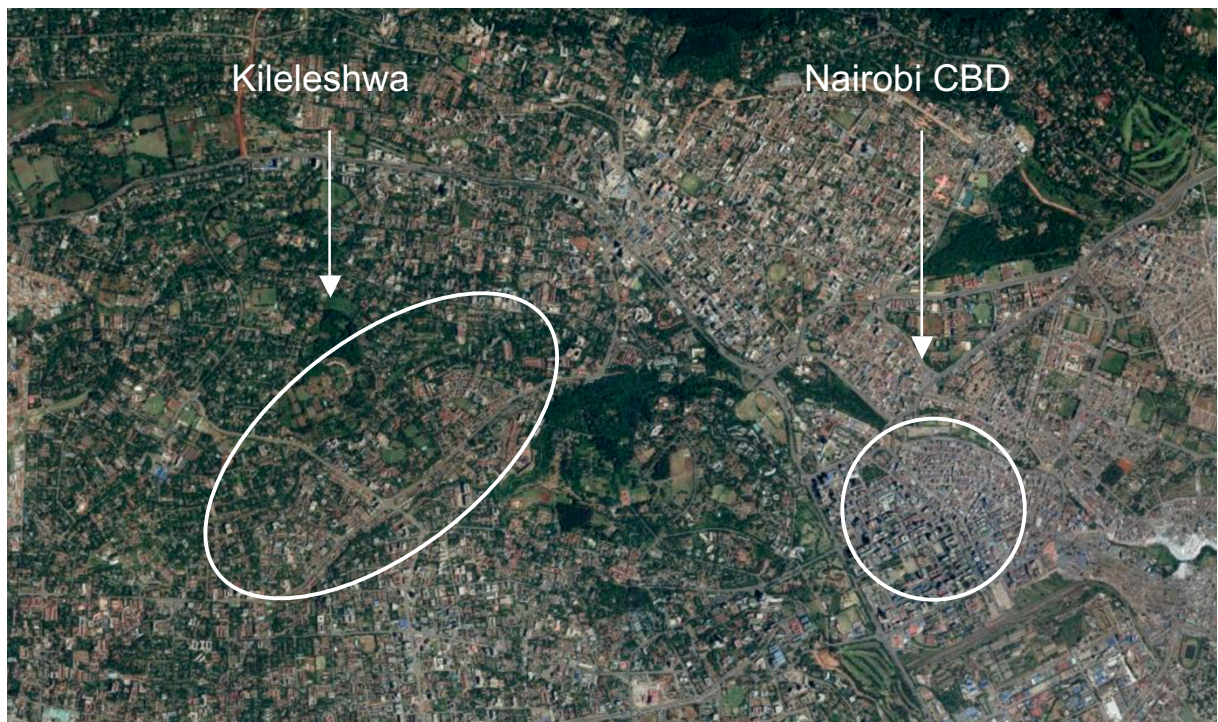


Figure 1. Map showing the location of *Kileleshwa* neighbourhood 5 km west of Nairobi CBD.  
Source: Adapted by first author from Google Maps 2018

The paper seeks to elucidate the structuring and commodification of the urban context in Nairobi in which housing as currently produced is conceived in terms of its “exchange-value (profit-oriented)” rather than its “use-value (everyday life)” (Brenner

et al 2012, 3 – 4). It unpacks the agency of the key actors involved in the process of urban transformation through housing and reveals the influences and power imbalances at play, exposed through the actors' interplay, and, in turn, the inevitable unsustainable outcomes. The article aims to achieve this through an analysis and discussion of the interrelated themes of the tensions between formality and informality, regularity and irregularity, and the consequent unsustainable outcomes evident in the process of transformation.

## **Methods**

The research is empirically grounded in a case study of a residential neighbourhood, *Kileleshwa*, situated in the western suburbs of Nairobi. A case study was employed since, “the focus is on a contemporary phenomenon within some real-life context.” (Yin 1994, 1). *Kileleshwa* neighbourhood is located five kilometres from the Central Business District (CBD) (see Figure 1), and traces its origins to the colonial segregation-based residential zoning of the city in which it was configured as a settler zone planned along garden city principles with “tree-lined boulevards” on large lots with single-family detached housing units (Freund 2007). The neighbourhood is one of several upmarket residential areas in the city in which densification of housing has been ongoing for more than a decade. However, *Kileleshwa* was selected because it exhibits the most extreme case (Yin 1994, 39), in the western suburbs of the city, of rapid vertical residential housing transformation from single story low-rise detached housing units to multi-story high-rise apartment blocks. It was thus considered a paradigmatic case (Flyvbjerg 2006, 230) of how such transformation is occurring. The fieldwork was undertaken through multiple site visits conducted between May 2016 and December 2017.

The modes of agency of the different actors were explored qualitatively. In-depth interviews were conducted with key actors including; developers and their agents such as architects, and local government authority (NCCG). The role of regulatory state agencies (NEMA and NCA) was considered through a review of their pronouncements available in the public domain. Spatial surveys of *Kileleshwa* were undertaken through several site visits and field observations during which the ongoing typological transformation of housing was documented with the aid of photography and field notes. Aerial imagery was used to register the site. These aided in the visual analysis of the site's urban transformation. The data obtained was augmented and triangulated with secondary sources through a review of relevant literature and documents,<sup>8</sup> including reports by the central government (i.e. those prepared by the Central Bank of Kenya [CBK], Kenya National Bureau of Statistics [KNBS], Auditor General's office, and National Government ministries), and reports by the private sector (i.e. including the real estate and banking sectors).

### **Transformation of the urban habitat**

The urban habitat transformation that was focused on in this study is occurring in the upmarket western suburbs of the city of Nairobi in which housing has historically been produced formally. This differs markedly from the informal densification of housing that has been well-documented by a number of scholars and referred to as tenement housing (Huchzermeyer 2011; Ondieki 2016), which is occurring in the lower income eastern suburbs of the city.

*Kileleshwa* neighbourhood is zoned for low-rise, single-family housing units with a provision for a change in development type to apartment blocks that are a maximum of four storeys (NCCG 2004, 4). The zoning regulations (Ibid) anticipated future development of the neighbourhood to be mid-rise housing units.<sup>9</sup> However, in

practice, a number of apartment buildings developed and under development exceed the stipulated height limit with some, two and three times as high (see Figure 2 and Figure 3).



Figure 2. Image of a high-rise apartment block with eight floors on the main street of *Kileleshwa* neighbourhood. Source: first author, 5 January 2017.



Figure 3. Image of several high-rise apartment blocks exceeding the stipulated building height limit along a ring road that passes through *Kileleshwa* neighbourhood. Source: first author, 10 February 2017.

A review of aerial photographs spanning more than a decade, in the current millennium, indicates the intensity of transformation that *Kileleshwa* has experienced (See Figure 4 and Figure 5). The issue of apartment blocks in *Kileleshwa* exceeding the stipulated height limit was documented in a report prepared by the Japan International Cooperation Agency (JICA) during its participation in the preparation of a new master plan, the Integrated Urban Development Masterplan, for the City of Nairobi (NIUPLAN).<sup>10</sup>

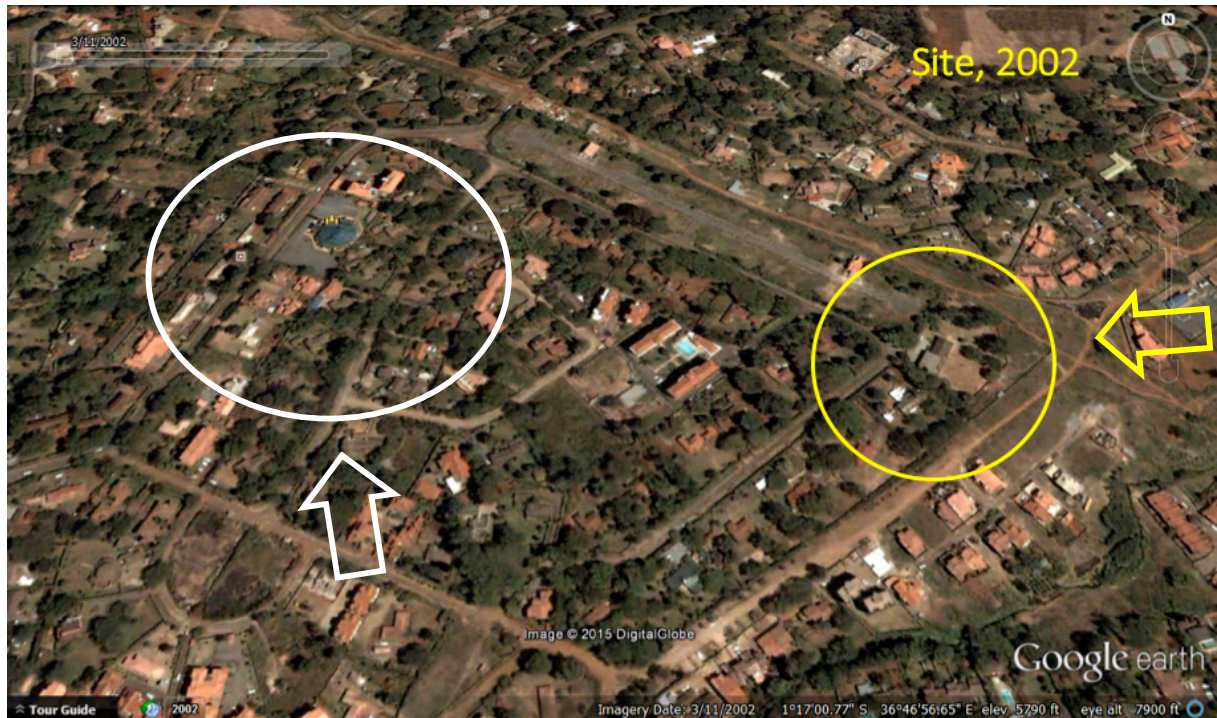


Figure 4. Aerial photo of a section of *Kileleshwa* neighbourhood, in 2002, before the development of apartment blocks. Source: Adapted by first author from Google Earth, 2002.



Figure 5. Aerial photo of the same section of *Kileleshwa* neighbourhood, in 2015, showing the development of several apartment blocks. Source: Adapted by first author from Google Earth, 2015.

The scale of apartment developments in the neighbourhood indicates increasing flows of capital into the real estate sector with some of the apartment projects bearing the imprint of foreign developers and investors (Tonkiss 2013, 33). For instance, billboard signs permeate various constructions sites with names of Chinese construction firms. Government and private sector reports have documented the steady growth of the real estate sector. A report by the Central Bank of Kenya (CBK) notes that the real estate sector accounted for 8.2 per cent of Kenya’s GDP in 2015, having doubled from 4.1 per cent in 2013, making it only third after the agricultural and manufacturing sectors in terms of share of the economy, with the three sectors combined making up more than 40 per cent of the country’s GDP (CBK 2016a, 14; CBK 2017, 9). Property development reports by various private sector firms also indicate a steady increase in investment in



the real estate sector leading to a property boom over the last decade (Hass Consult 2017; Knight Frank 2017, Kenya Bankers Association[KBA] 2017).<sup>11</sup> The cost of land in the western suburbs of the city has also skyrocketed over the past decade. Hass Consult reports that the cost of land in *Kileleshwa* has increased seven-fold since 2007 (Hass Consult 2016).

The key actors in the process of urban transformation foresee the trend towards high-rise apartment form of housing continuing. However, all also expressed concern about negative externalities: As a county government official remarked on ongoing transformations to apartment blocks, viewing them as unavoidable but also likely to lead to undesirable outcomes:

It's not stoppable; it [housing] has to go higher; ... [We are] moving towards encouraging mixed compatible development to minimise on the need to commute; live, work plus shopping facilities...However, the water and sewerage needs to be expanded. This will soon be a problem since the area was initially planned for lower density (Interviewee, NCCG official CO 01).

An architect involved in the design of apartment blocks echoed similar sentiments:

We have, in *Kileleshwa*, some areas, [where] the sewer is almost at full capacity so the government needs to think how they're going to expand because definitely the trend will be to go taller and taller but then when you have [a] 220 mm sewer, it can only take so much (Interviewee, Architect AR 01).

A developer involved in apartment block development in *Kileleshwa*, concurred: "The biggest problem is that the infrastructure is not there. Water is an issue. A borehole was sunk for this development. I have been talking to NEMA about how sewage is being pumped into the river back here" (Interviewee, Developer PD 01).

Corruption is seen as one of the driving factors in the city's urban transformation. A gubernatorial candidate singled it out as the reason behind the

irregular densification of *Kileleshwa* during Nairobi's gubernatorial debate<sup>12</sup> that preceded Kenya's 2017 General Election. Developers have suggested corruption as a challenge that increases the costs of doing business, as a developer stated:

Corruption in City Hall makes it expensive. For example, recently, the county government demolished five structurally unsound buildings in *Huruma*.<sup>13</sup> Already two of the plots have been redeveloped in the same way. Corruption is the biggest problem especially in the construction industry (Interviewee, Developer PD 01).

### **Actor Agency**

In-depth interviews revealed that developers have enhanced agency in the process of urban transformation. They lie at the epicentre of investor finance and property development decisions. Their influence is partly due to the financial clout they wield in property development. It is through developers that investor finance flows into the real estate sector with hope of a high return on investment. Developers on the other hand seek to satisfy these investor needs while making a profit by developing and offering apartment housing at exorbitant prices to the would be middle class purchasers.<sup>14</sup>

Suggested sources of financing flowing into the real estate sector are diverse and include; construction mortgages from banks, loans from housing cooperatives and Savings and Credit Cooperative Organisations (SACCO's), diaspora remittances (CBK 2018),<sup>15</sup> foreign direct investment (FDI) especially from China (Tonkiss 2013, 33), money laundering from piracy in neighbouring Somalia (*Business Insider*, January 1, 2010), and proceeds of graft (*Daily Nation*, January 31, 2016).

The demand for apartment units is also seen to be driven by a rising middle class (Neubert 2016, 113, Shah & Ruparel 2016; Tonkiss 2013, 33) with their desire for prestigious residential locations and need for the convenience that comes with proximity to places of work (such as the Central Business District [CBD]) and cultural amenities.

Also viewed as contributing to the demand for apartments is the growth of multinational and transnational organisations,<sup>16</sup> establishing an African base in Nairobi, with the concomitant need for formal housing for their expatriate personnel.

Developers get their way by manipulating the regular development approval process. They justify their actions by not only arguing on the basis of the need to make a return on investment (ROI), and their contribution in alleviating the housing need, but also manipulate the county government by playing off its political arm against its technical arm. As a county official complained regarding challenges with development control:

Political pressure: If a developer is unsuccessful through the normal channels, they go through the political arm; officers are under a lot of pressure; the officers are never given a chance to explain themselves when they receive direction from the political arm (Interviewee, County Government Official CO 01).

The foregoing illustrates the enhanced agency of developers who are able to get their way despite the detrimental impacts of their proposed projects. Moreover, their agency goes far beyond their dealings with the county government. It stretches, as well, to professionals over whom they maintain control through their financial clout and who act as their agents in the process of developing apartment projects. Architects, working under the aegis of property developers in creating designs for apartments, tend to be more influenced by the limited budget afforded them by real estate developers, which directly impacts on the size and layouts of apartments, than by the preferences of intended purchasers and renters. As an architect explained when questioned on what informed the size of the apartments he designs:

A lot of it is determined by the cost of construction. Because many of the clients you get are developers who look at making between 25 and 30 per cent return on investment. So, often times you work backwards, as in you look at what you

currently sell an apartment for, like in this market. If you're looking at selling an apartment for say 25 million [Kenya shillings] or 30 million [USD 250,000 – 300,000]<sup>17</sup>, you remove 20 per cent, 15 to 25 per cent as developer's profit, whatever remains has to cover all the costs: Cost of land, cost of construction, bank interest and finance cost, legal costs, approvals, and any other costs...[such as] marketing, related to the property development. So, once, you get all that off, you're left with a construction cost. And the construction cost is determined by the area of a building. So, the bigger the area the greater the construction cost. So now if you're left with...out of 30 million [USD 300,000], if say the contractor's profit, I mean the planning...and all those other costs, which are say 30 per cent...if you're left with the difference, that determines your cost of construction.... (Interviewee, Architect AR 01).

In a sense, the end users, the purchasers and renters, are consequently faced with a Hobson's choice of either accepting the apartment units offered or foregoing the opportunity for a prime real estate investment. Both purchasers and renters complain about the inadequately sized apartments as well as their poor interior and exterior layouts but nevertheless settle for them not only due to their convenient locations but also because of the historical prestige associated with the residential address.

The local authority and other statutorily responsible state agencies exhibit limited agency in the process of urban transformation. They are playing a facilitating role rather than a guiding one in shaping the course of urban development. The county government rarely rejects proposals for apartment development approvals<sup>18</sup> exceeding the regulatory height limit of four floors. Instead, it acquiesces to the developers' argument for the need to make a return on investment (ROI) by building higher than the four floors to compensate for the high cost of land while contributing to plugging the high housing deficit. As a developer explained in an interview regarding the cost of an acre of land in *Kileleshwa* where he justifies building higher than the stipulated height limit: "Land costs 300 million [Kenya] shillings.<sup>19</sup> To make proper returns, recoup

investment, each unit has to be sold at 10-15 million Kenya shillings [USD 100,000-150,000]. I have 34 apartments in 3 towers” (Interviewee, Developer PD 01).

These arguments appear to persuade the county government to tolerate irregular procedures in their approvals of high-rise apartment projects. As a county government official acknowledged, though stating it as a challenge:

[There is] pressure from developers to go beyond policy requirement with strong arguments, for example financing – [a] limit to 4 or 5 floors means that they can’t break even; [there is] pressure every day; half [of the apartment development applications are] not within policy; architects and other submitting agents (planners, etc.) are the source of pressure (Interviewee, County Government Official CO 01).

Moreover, the county government appears captive to the free market ethos in arguing for the updating of zoning guidelines to reflect market realities. As a county government official remarked, though noting it as a challenge: “Not having policy instruments that are in tandem with the market forces; the instruments are easily overtaken within two years; the instruments are not as fast as the market forces; some people find the parameters laughable” (Interviewee, County Government Official CO 01). The official further notes that the situation is due to a lack of capacity and funding, stating:

The lack of adequate instruments is due to a lack of internal capacity to review the policies; there is no funding for engaging consultants; projects through consultants don’t end well; internally, time lapses by completion of the review; we’re spread too thin (Interviewee, County Government Official CO 01).

Further limiting the agency of the county government in the urban transformation of the city is the perceived lack of understanding of the importance of planning when viewed from a political angle as well as limited budgetary allocation to the county government’s planning department. As a county government official expressed as a

perpetual frustration:

People not seeing planning as an important activity. i.e. they prefer something visible; with a planning time span of 10 – 20 years, politicians don't see the benefit; more lobbying for funding [is] needed; in [the] current year 200 million [Kenya shillings] [USD 2 million] was requested for detailed studies of Nairobi, however funding was slashed to 20 million (Interviewee, County Government Official CO 01).

And even further, the county government acknowledges lack of capacity to enforce regulations. However, and quite intriguingly, is the county government's lauding the fact that the approvals of apartment developments have made the development control department of the county government one of the leading departments in revenue generation for the county. Thus, pointing to the county government's assessment of the housing transformation in terms of its exchange value rather than its use value. As a county government official states as a benefit of the changes: "[They are] adding to the economic development of the city in terms of revenue from approvals.<sup>20</sup> The department is top in terms of revenue generated"<sup>21</sup> (Interviewee, County Government Official CO 01).

Yet, despite the significant contribution of the department to the county government's revenue collection (25 per cent of annual total revenue collected), the department continues to be poorly funded. In the fiscal year 2014-2015, out of a total Nairobi City County development budget of 6,852,815,590 Kenya shillings (USD 68,528,156), the planning department was allocated 157,000,000 Kenya shillings (USD 1,570,000), only 2.29 per cent of the budget, which is less than 10 per cent of the revenue that the department generates (GoK 2015, 13 – 14).

The National Environmental Management Authority (NEMA)<sup>22</sup> and the National Construction Authority (NCA)<sup>23</sup> have, arguably, not grown fully into their regulatory

role as evidenced by their actions. Based on their actions, both state regulatory agencies seem more preoccupied with the procedural statutory requirement of fee payment in return for their approval of property developments rather than ensuring that negative externalities are mitigated by real estate developers and that building construction standards are adhered to, respectively. A developer complained about lack of success in seeking NEMA assistance with dealing with the problem of noxious effluent flowing into a river from some property developments (see earlier quote). The developer also complained that NCA fails to act on its mandate on time by arriving at a construction site when it is nearing completion rather than at the very beginning. The interviewee notes: “NCA seems overwhelmed. They wait for the shell of the building to be built before intervening; this should happen at the beginning of construction.... And due to corruption, we end up with poor construction....” (Interviewee, Developer PD 01).

As the regulatory authority charged with protecting the environment, NEMA appears to have abdicated its responsibility of safeguarding the sustainability of the urban context. It inadvertently encourages unsustainability by providing approvals without coupling this with a mechanism for ensuring that the mitigations articulated in the mandatory Environmental Impact Assessment (EIA) report have been implemented. Instead, greater priority seems to have been placed on charging and collecting the fees<sup>24</sup> for the approval of proposed apartment projects.

Residents have marginal agency in the ongoing process of urban habitat transformation. This is reflected in their minimal influence on the process of transformation leading to the development of apartment blocks.<sup>25</sup> They play a marginal role, if any, in influencing the form of housing that is developed. Yet, they are mobilised as justification, in representing dire present and future housing need, for the development of apartment blocks over other forms of housing. This justification is used

despite the fact that more than 60 per cent of the city's population resides in informal settlements (World Bank 2017b) hence cannot possibly afford renting or purchasing the apartment units currently being developed. Moreover, considering that countrywide banks have less than 25,000 mortgages on record (Central Bank of Kenya [CBK] 2016b),<sup>26</sup> it very quickly becomes clear that the need for affordable housing is not the primary driver of the ongoing transformation in housing. Arguably, the apartment projects are exemplars of the commodification of housing in which the profit-motive is shaping the physical configuration of the apartment blocks and units, which typically have inadequate interior and exterior space with poor spatial configurations and inferior finishes.

### **Formality and informality**

Much more than formality, scholars have interpreted informality in the urban context in various ways. Elsheshtawy (2011, 5), citing the Holcim Foundation, which promotes sustainable construction, describes informal urbanism as, “the intermingling of formal and informal modes of organisation’ which ‘promotes a split condition, leaving its traces in the very fabric of the city.’” Anyamba (2011), referencing the legal regime, considers informal urbanisation as, “the forms of urban development that take place outside the legal, planned and regulated channels of city making”, suggesting, additionally, the need to view informal practices, “not as illegal but governed by a different set of rules” (Ibid, 60). He agrees on the extensiveness of informality in the global South, noting that: “The phenomenon of informal urbanisation has become the single most pervasive element in the production of cities in developing countries.” (Ibid, 57).

Arguably, the key actors in the production of housing in the city, employ informal practices to achieve their aims, goals and objectives. The practices of the



developers and the local government authority demonstrate the tension between formality and informality in the decisions and actions that have led to the transformation of a low-density neighbourhood, with low-rise single-family detached housing units, to one that is densifying with a preponderance of high-rise multi-family apartment blocks. In the primarily market-led housing market of Nairobi, developers and investors or a conflation of the two, are plausibly key actors on the supply side of the housing market. For more than a decade, apartment blocks have mushroomed in the city at an ever-increasing pace (Hass Consult 2017; KBA 2017). According to Hass Consult, “apartments now account for more than half of all properties in the rental market and 40.1 per cent of all properties that are for sale on the market” (Hass Consult 2017).

The presence of apartment blocks that exceed the height limit in the study area indicates the tension between formality and informality in the production of housing. Part of the building may have been built according to the zoning guidelines with the rest that is above the height limit considered to be informal. Possibly aiding the developers’ agency in developing apartments that exceed the height limit, is the county government’s contention of the need for more housing to help plug the national housing deficit, which currently stands at 200,000 units per year (GoK 2018; World Bank 2017b). The county government also argues that it is in the process of reviewing the zoning guidelines, yet, in the meantime, has not imposed a moratorium on new apartment developments in the neighbourhood. This arguably provides a loophole in which decisions can thrive outside the existing provisions for expected actions thereby rendering them informal since they would be governed by a different set of rules (Anyamba 2011); in this case, the various justifications for unsanctioned actions through the use of arguments not envisaged in the current zoning regulations.

The formality enshrined in the provisions of the zoning code, which are expected to guide the city's formal physical transformation, appear to have been supplanted by the informality of the apartment blocks actually being built that are the result of the agency of developers' decisions and actions that perpetuate outcomes that align more with their profit-oriented goals than the city's planned formal physical development.

### **Regularity and Irregularity**

In contrast to regularity, irregularity can be understood in a number of ways. Anyamba (2011, 60) suggests that practices may be considered irregular, "if they do not conform to the rules that are legally constructed..." In Kenya, the prevalence of corruption, which is arguably a glaring manifestation of irregularity, is frequently highlighted. Transparency International ranks Kenya as one of the most corrupt countries in the world. The country consistently falls within the bottom quarter of the ranking with the most corrupt countries. In 2016, Kenya was ranked 145<sup>th</sup> out of 176 countries (Transparency International 2016), a decline of 6 places from 2015 when it was ranked 139<sup>th</sup> out of 168 countries (Transparency International 2015). In 2018, Kenya's ranking marginally improved to 144 out of 180 countries (Transparency International 2018). Kenya's Auditor General's office has documented the decentralisation of corruption in the new constitutional dispensation.<sup>27</sup> In the Auditor General's 2016 audit report, most counties, including Nairobi, were considered corrupt due to lack of fiscal accountability, including; failure to adhere to procurement procedures, unaccounted for funds, payment for services not rendered, irregular use of county bank accounts, and incurring of unauthorised expenses (*Daily Nation*, November 22, 2016).

The NCCG is the body legally mandated to control the physical development of the city (GoK 2010). Its operational instruments such as its zoning guidelines constitute

part of the legal framework against which regularity and irregularity has to be viewed. In this regard, a building that conforms to existing zoning regulations fits within the legal framework of regularity. Conversely, one that does not is irregular. Into the latter includes payments made outside the stipulated fees for permits. The regulatory fees for approval for an apartment building are regular even when the building exceeds the height limit. Arguably, the irregular practices are instances of corruption.

In *Kileleshwa* neighbourhood, irregularity is evident where apartment blocks exceed the stipulated height limit; a discrepancy also noted by the Japanese technical team that developed a new master plan for Nairobi in 2014 (NCCG & JICA 2014). Provisions for exceptions do not exist in the city's regulations hence the variations are a pointer to irregularity in the development control process.

While the county government acknowledges revenue generated from the application process for apartment development proposals, what remains unacknowledged, are the high costs that developers claim the approval process costs them. The developers allude to parting with more than the required fees in order to circumvent the legal restrictions, such as the building height limit, which would keep their apartment development projects from being approved.

Architects involved in the apartment development projects have some agency in this state of affairs. However, as noted by Zukin (2003, 47), their agency is circumscribed by conditions imposed upon them by their clients who include real estate developers. Without signed architectural drawings, developers would be unable to meet the minimum threshold of submitted documents required for the consideration of an application for approval.<sup>28</sup> Evidently, in the architects' involvement in apartment development projects, economic concerns far outweigh social, environmental and cultural considerations.

It appears that agency on both the part of the developer and the county government contrive to result in irregular outcomes. Intriguingly, regularity is the entry point from which the irregularity is then enacted where developers, for instance, obtain approvals for apartments up to the stipulated height limit but exceed it anyway in actual practice or override negative decisions of the technical arm of the local authority through its political arm. Thus, developers undertake their project developments with impunity.

The tension between regularity and irregularity plays out through the enhanced agency of the developers and the limited agency of the county government not only in the interpretation of regulations but also in the justifications presented for the circumvention of regulations. In all these the enhanced agency of the developer prevails in a manner that has a mixture of beneficial and deleterious effects for the actors involved.

### **Unsustainable Process and Outcomes**

The ongoing process of urban transformation in Nairobi is imbued with traces of both informality and irregularity. This is marked by infrastructural challenges that are leading to unsustainable outcomes. This paper argues that a hierarchical conceptualisation of sustainable development offers a useful way of evaluating the processes and outcomes of urban transformation. In such a perspective, the commonly held view of the key dimensions of sustainable development<sup>29</sup> – the economic, social and environmental (World Commission on Environment and Development [WCED], 1987) – as being on an equal footing, is considered a misconception, while the privileging of the economic dimension over all else, is considered a misapplication (Makunda & Edeholt 2016). The article argues for an ecologically-driven hierarchical view of sustainable development in which the environmental dimension is prioritised

over both the social and economic dimensions (Makunda & Edeholt, 2019).

The profit-driven, market-led imperative under which the urban development of the city is occurring does not foster sustainable development. This is apparent in the development of apartment blocks in residential areas such as *Kileleshwa*, which lack adequate infrastructural capacity to cope with the emerging multi-story housing. Approval of apartment buildings without consideration for adequate infrastructural capacity to handle the increased demand on water, electricity, sewage, storm-water drainage, solid waste, roads, open space, and other public amenities is questionable and invites unsustainable outcomes.

The county government acknowledges that the current trend in apartment development in *Kileleshwa* will lead to unsustainable outcomes. It is considering redressing the concerns by reconfiguring the neighbourhood into a 'compact city' form by providing amenities such as shopping facilities. However, this amounts to *ad hoc* planning and as more of the low-density developed residential land rapidly disappears due to haphazard apartment developments the proposal becomes ever more untenable. Thus, tension exists between proposed sustainable approaches and actual unsustainable practices. The county government should lead with a plan that ensures development that is commensurate with adequate infrastructure, rather than following on the heels of developers whose interest wanes after the profit has been secured, leaving the county government and the residents to grapple with the negative externalities of the projects (Makunda 2018).

Some half-measures towards sustainability are evident in *Kileleshwa*. An infrastructure improvement programme resulted in some upgraded roads with pedestrian walkways, bike paths and storm-water drainage. However, this was done without factoring in the emergent apartment blocks or adjacent areas. For instance, the new

storm water drainage lacks the capacity to cope with increased water runoff due to the larger apartment block building footprints that contribute to the transformation of the area into a concrete jungle hence flooding occurs in the rainy season (Makunda & Edeholt 2016). Likewise, the upgraded road network failed to accommodate increased vehicular volume from apartments resulting in increased traffic and perennial congestion during the weekday rush hour.

Moreover, the limited sewerage system and water capacity has resulted in the developers' inappropriate use of septic tanks for apartment blocks and their indiscriminate and illegal drilling of boreholes (*Daily Nation*, October 3, 2016) to meet the higher water supply needs for apartment blocks. These have potential adverse health consequences and unsustainable outcomes in relation to poor sanitation and potential depletion of underground water reservoirs in a city already encumbered with poor sanitation infrastructure, and experiencing perennial water shortages.

## **Conclusion**

Population pressure, economic growth, a growing middle-class, and rapid urbanisation of Kenya are factors influencing the rapid urban transformation of Nairobi. The vertical transformation of the city's residential neighbourhoods points to both sustainable and unsustainable features but with a preponderance of the latter.

The rapid physical transformation of the urban habitat is fuelled by increasing capital flows into the city's real estate sector. However, the haphazard nature of the transformation is the effect of a limited number of key actors, principally property developers, who, demonstrating enhanced agency, in getting their way, are playing a key role in not only shaping but also re-shaping the production of housing in the city. Consequently, high-rise apartment type housing is becoming the dominant form of new housing being developed in the city.

With the local authority and other pertinent government entities appearing to have adopted a laissez-faire attitude and demonstrating limited agency by not enforcing extant regulations; unsustainable outcomes, particularly exacerbated by inadequate infrastructure, have become the prevalent feature of the urban transformation. Much of the limited agency of the local authority and other government entities is occasioned by insufficient personnel and financial capacity as well as poor urban governance and management evidenced by the prevalence of corruption and inadequate prioritisation of urban planning.

Meanwhile, the city's residents have emerged as having marginal agency in determining the course of housing production resulting from the ongoing process of transformation, which is leading to the production of housing that is unaffordable and largely out of reach to the majority of the city's residents.

Vertical transformation of residential habitats is arguably the most viable way in which to meet the growing need for housing in the city given the city's rapidly expanding population amidst finite available residential land. It has the potential to be sustainable if it leads to a sustainable urban form such as the compact city and the urban containment, which are two of four sustainable urban forms<sup>30</sup> summarised by Jabareen (2006). However, tensions in which the informal, the irregular and the unsustainable trump the formal, regular and the sustainable make for an unsustainable process of transformation with its concomitant negative outcomes. This has to be tempered with a more sustainable development approach towards urban transformation that ensures a correspondence between the nature of housing units developed and requisite infrastructure. Given the profit-motive at the heart of the market-led transformation occurring in the rapidly transforming urban habitat, a sea change in approach is required from one that is centred on profit-making to one that is more use-value oriented and

anchored on sustainability with an emphasis on the environmental dimension, if unsustainable outcomes are to be overcome.

## Notes

- <sup>1</sup> Between 2010 and 2015, the East African region had fertility rates ranging from 4.05 in Rwanda to 6.61 in Somalia (UN DESA 2015, 38 – 41). Kenya's fertility rate then was 4.44. (UN DESA 2015, 41).
- <sup>2</sup> With the exception of 2012 arguably due to the uncertainty surrounding the general elections, eventually held in 2013.
- <sup>3</sup> Nairobi Metropolis consists of four counties: Nairobi, with Kajiado to the south, Kiambu to the north and west, and Machakos to the east. (KNBS 2015, xii – xiii).
- <sup>4</sup> Estimated by the World Bank to be the, 'equivalent of 0.5 million new city dwellers every year' (World Bank 2017b).
- <sup>5</sup> It is estimated that 61 per cent of Kenya's urban households live in slums (World Bank 2017b).
- <sup>6</sup> Low-rise housing units are housing units that do not exceed 2 floors.
- <sup>7</sup> High-rise apartment blocks are apartment blocks that exceed 4 floors.
- <sup>8</sup> Hass Consult, a real estate research and consultancy firm, has been publishing comprehensive reviews of the state of formal real estate in the city and its surrounding hinterland, using a housing price and land price index, since 2009. The Kenya Bankers Association has also been publishing quarterly reviews of the state of real estate in Nairobi and surrounds, using a housing price index, since 2013 (Hass Consult 2017; Kenya Bankers Association [KBA] 2017).
- <sup>9</sup> Mid-rise housing units are housing units such as townhouses and flats that do not exceed 4 floors.
- <sup>10</sup> This was completed in 2014 (NCCG & JICA 2014).
- <sup>11</sup> Hass Consult issues quarterly reports on housing and land price indices; Knight Frank publishes annual Wealth Reports; KBA has published a quarterly price index since 2014.
- <sup>12</sup> Kenya Television Network (KTN) News (3 July 2017)  
<https://www.youtube.com/watch?v=iqaEZ92J4f4>
- <sup>13</sup> This is a lower income neighbourhood located in the eastern zone of the city.



- <sup>14</sup> Strategies and tactics employed by the middle class to access the costly housing are explored in a forthcoming publication (Makunda, forthcoming).
- <sup>15</sup> The Central Bank of Kenya tracks monthly diaspora remittances (since January 2004). In February 2012, the monthly remittances surpassed USD 100 million for the first time, and in December 2017, they exceeded USD 200 million for the first time.
- <sup>16</sup> This includes the United Nations – with its Headquarters for the United Nations Human Settlements Programme (UNHABITAT) and the United Nations Environment programme (UNEP), World Bank, and various global technology companies such as Google, Microsoft and General Electric (GE).
- <sup>17</sup> Average exchange rate is 1 US Dollars = 100 Kenya Shillings.
- <sup>18</sup> In 2016, the value of approved planning permits submitted to NCCG was 117.9 billion Kenya Shillings [USD 1.18 billion], 75.41 per cent of which were classified as residential. (Kenya Property Developers Association [KPDA] 2017, 2,8).
- <sup>19</sup> Approximately 3 million US Dollars.
- <sup>20</sup> In 2016, NCCG collected permitting fees in excess of 862.9 million Kenya shillings [USD 8.63 million] from approved permits for developments worth more than 117.9 billion Kenya Shillings [USD 1.18 billion]. (KPDA 2017, 2).
- <sup>21</sup> In the financial year running from July 2014-June 2015, the Department of Physical Planning, Housing and Lands was the second highest source of revenue for NCCG in generating a total of 2,938,650,552 Kenya shillings [USD 29,386,500], which accounted for 25 per cent of the total revenue (11,715,649,501 Kenya shillings [USD 117,156,495]) collected by the county government. (GoK 2015, 3 – 4).
- <sup>22</sup> NEMA, established in 1999, is responsible for general supervision and coordination over all matters related to the environment as well as the implementation of policies related to the environment. (NEMA 2018a).
- <sup>23</sup> NCA, established in 2011, is responsible for accrediting and registering contractors and regulating their professional undertakings (NCA 2018).
- <sup>24</sup> The fees are 0.05 per cent of the total project cost. (NEMA 2018b)
- <sup>25</sup> The exception are land owners who benefit financially through joint ventures with developers by offering their land to developers in exchange for a percentage of developed apartment units, and other land owners who profit by selling off their land to developers, at the high prevailing market prices, who in turn recoup their investment through high apartment selling prices.
- <sup>26</sup> CBK (2016b, 18), reported a total of 24,085 mortgage loans in the Kenyan market in 2016 with the average mortgage loan size at 9.1 million Kenya shillings [USD 91,000].

- <sup>27</sup> In 2010, Kenya promulgated a new constitution that established 47 counties. With the new constitution, the national government decentralised some functions to the counties along with an annual budgetary allocation (GoK 2010).
- <sup>28</sup> Statutory requirements for an application for approval of an apartment project proposal include submission of architectural drawings, NEMA permit based on an Environmental Impact Assessment (EIA), and a change of user report from a planner.
- <sup>29</sup> In the urban context, Campbell (1996) proposes priorities of sustainable urban development in terms of a planner's triangle (Equity or Social Justice, Economic Development and Environmental Protection).
- <sup>30</sup> The other sustainable urban forms he summarised are: the neo-traditional development and the eco-city.

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We declare that there is no conflict of interest arising from or in relation to this research.

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## Journal Article

### **Article II:**

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# Morphological Transformation of Kileleshwa, Nairobi

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## Abstract

*In this paper, we investigate the physical manifestation of ongoing urban habitat transformation in the context of a residential neighbourhood, Kileleshwa, which is located in the western suburbs of Nairobi. This is done through an analysis of the emergent morphology of the urban habitat by delving into various levels of urban resolution: the street network, the plots, and the buildings, while tracing the roots of the neighbourhood in the colonial era and its rapid change in the current millennium. In so doing, the aim was to understand the degree to which these dimensions had undergone change as a consequence of the urban transformation. The findings of the paper are that at the different levels – the street, plot, and building – a variation in transformation has occurred, with a resultant increase in the density of the urban habitat. This variation is explored in detail at these different levels of the neighbourhood's urban tissue. In shedding light on this ongoing transformation, the paper contributes to a deeper understanding of how an urban habitat has actually transformed, as manifested in its physical outcomes, which have in turn set the stage for the social transformation of the urban context.*

**Keywords:** Apartment block, Building typology, Density, Kileleshwa, Morphology, Nairobi, Plot, Street layout, Transformation, Urban habitat.

## INTRODUCTION

Morphological transformation is a feature of urban areas all over the world. However, in cities in the global South, the nature of morphological transformation is profoundly influenced by the rapid population growth and high urbanization rates currently being experienced (United Nations Department of Economic and Social Affairs (UN DESA), 2014; UN DESA, 2015).

A case in point is a city such as Nairobi, which is at the epicentre of a demographic boom. While Kenya's population in 2019 was 47.56 million persons, Nairobi's share of this population was about 10% with a population of 4.4 million persons (Kenya National Bureau of Statistics (KNBS), 2019). This represents a 40% increase or a growth by 1.26 million persons in a decade. The city also makes up one-third of Kenya's urban population (KNBS, 2019). In addition, in 2019, it accounted for 12% of the country's households with a total of 1.5 million households (KNBS, 2019).

In recent years, neighbourhoods in the capital city have manifested signs of pressure from the expanding population. One such neighbourhood is Kileleshwa, located 4 km from the Central Business District (CBD) (Hass Consult, 2016a). Historically, this was a low-density residential neighbourhood. It is part of Nairobi's suburban upmarket neighbourhoods referred to as the 'leafy green' suburbs with roots in colonial era Kenya (White, Silberman & Anderson, 1948). These are the old suburbs in the upper, western area of the city (Halliman & Morgan, 1967). They are typically known for their single-family detached dwelling units set in plots that are a quarter of an acre or more with a preponderance of mature trees. Their planning, in the colonial era, was inspired by garden city principles and the concept of the neighbourhood unit (Freund, 2007; White, Silberman & Anderson, 1948; Huchzermeyer, 2011).

From its establishment and over the intervening years up until the turn of the millennium, Kileleshwa remained fairly stable as a low-density

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residential neighbourhood. However, the onset of the twenty-first century ushered in significant change in the urban habitat. The neighbourhood has experienced noticeable morphological transformation. In the current millennium, Kileleshwa’s housing stock has been undergoing rapid transformation from single-story detached dwellings to multi-story apartment blocks. This is a process occurring conterminously with a growing middle-class (Shah & Ruparel, 2016) who are viewed by developers as the source of the demand for the apartment form of housing (Makunda & Ellefsen, forthcoming).

This study traced the historical evolution of Kileleshwa in the context of the city. While Kileleshwa is presented historically from its provenance, the primary focus was on the rapid transformation that has occurred in the neighbourhood in the opening decades of the current millennium. This transformation from a low-density neighbourhood to an emerging high-density urban habitat was tracked. This is something that has been occurring rapidly in a little over a decade. In this, the study was concerned with the morphological and typological aspects of the phenomenon. Consequently, the urban tissue of the neighbourhood was investigated. This was done by probing the key elements of its urban form: the street network, the plot pattern and density, and the building form.

**THEORY**

According to the International Seminar on Urban Form (ISUF), urban morphology is the study of the physical (or built) fabric of urban form, and the people and processes shaping it (ISUF, 1990). This is affirmed in a recent definition by Karl Kropf who defines it as the study of human settlements, their structure and the process of their formation and transformation (Kropf, 2017). In addition, Kropf (2017), suggests that urban tissue consists of the combination of streets, plots and buildings seen as a composite, multi-level form. Kropf (2017), proposes the foregoing elements as levels in a multi-level diagram forming a generic structure (Table 1) noting that the level of complexity of the elements increases with successive movement up a level.

**TABLE 1:** Levels in a multi-level diagram of a generic structure with an upward increasing level of complexity

Urban Tissue		
Streets		
Plot Series (Blocks)		Street spaces
Plots		
Buildings	Open areas	
Rooms		
Structures		
Materials		

Source: Kropf 2017

Meanwhile, Vitor Oliveira, combining urban morphology and urban form, suggests the following basic definition:

*‘Urban morphology means the study of urban forms, and of the agents and processes responsible for their transformation, and that urban form refers to the main physical elements that structure and shape the city – urban tissues, streets (and squares), urban plots, buildings, to name the most important,’* (Oliveira, 2016).

The foregoing perspectives on urban morphology and urban form informed our investigation of Kileleshwa neighbourhood. Focus was on the built fabric of the urban form without neglecting the people and processes shaping it. Further, the approach adopted for the morphological understanding of Kileleshwa neighbourhood was inspired by approaches developed by Conzen (1969) and Rossi (1982). M.R.G. Conzen developed an approach known as a town-plan analysis (Conzen, 1969). This approach consists of three key aspects: the town plan, pattern of building forms, and pattern of land use. The town plan in turn entails the study of three key components; streets, plots, and buildings (Conzen, 1969). These components run as a common thread in the understandings of urban morphology and urban form that influenced the study. These were adopted as defining the urban tissue of Kileleshwa neighbourhood. However, while the three were germane to our study and therefore deliberately attended to, greater emphasis was placed on the latter two about which were argued the more significant degree of morphological

transformation has occurred due to market dynamics. As Zhang & Ding (2017) suggest:

*‘Of these levels, the street (and street-block) is strongly interrelated with the urban structure of the entire city. This means that it is affected by urban top-down decision making and not exclusively reliant on the market, whereas the plot and the building are strongly influenced by individual developments closely related to the market.’*

Furthermore, Aldo Rossi in ‘The Architecture of the City’, established architecture as a valid means of reading the city (Rossi, 1982). Hence, the relevance of the residential buildings that constitute Kileleshwa, for this study.

## RESEARCH METHODS

A mixed methods approach was employed for this study. This entailed the use of a combination of both quantitative and qualitative methods that involved the collection and integration of both quantitative and qualitative data (Creswell & Creswell, 2018). A case study of a residential neighbourhood in Nairobi was undertaken, which enabled an in-depth investigation of the dynamic phenomenon of rapid urban habitat transformation.

On one hand, quantitative methods were used for obtaining empirical data on the built fabric of the case study neighbourhood. These entailed the use of photography, aerial imagery, maps and plans. They informed the spatial analysis of the physical site. A review of historical plans, land use plans and maps of the city was undertaken to detect the spatial changes in the neighbourhood over the course of the century of its existence. In addition, Google Maps, Google Earth, and other available plans of the area were studied for changes in the neighbourhood in the current millennium. The various maps and plans made it possible to analyse the degrees of transformation of the neighbourhood’s streets, plots and building footprints. During multiple site visits, the site was documented with the aid of photography. The photographs taken of the buildings in the area were then used to analyse the vertical transformation of the neighbourhood in the current millennium.

On the other hand, qualitative methods were used for obtaining data on the people and processes shaping the built fabric of the emergent urban form. These primarily involved in-depth interviews with direct and indirect agents of change (Oliveira, 2016) or key actors involved in the process of neighbourhood transformation. These were central to gaining insights into the logic of the morphology of the transforming urban habitat. The interviewees included county government officials, developers, real estate agents, planners, architects and Environmental Impact Assessment (EIA) experts. The key actors were interviewed to understand their role and perspectives in the process of neighbourhood transformation. In addition, reports by various government entities involved in the process of transformation were reviewed. The key entities in this regard were the development control department of the county government, the National Environmental Management Authority (NEMA), and the National Construction Authority (NCA). Urban commentators were also interviewed to gain insights into the ongoing process of morphological transformation.

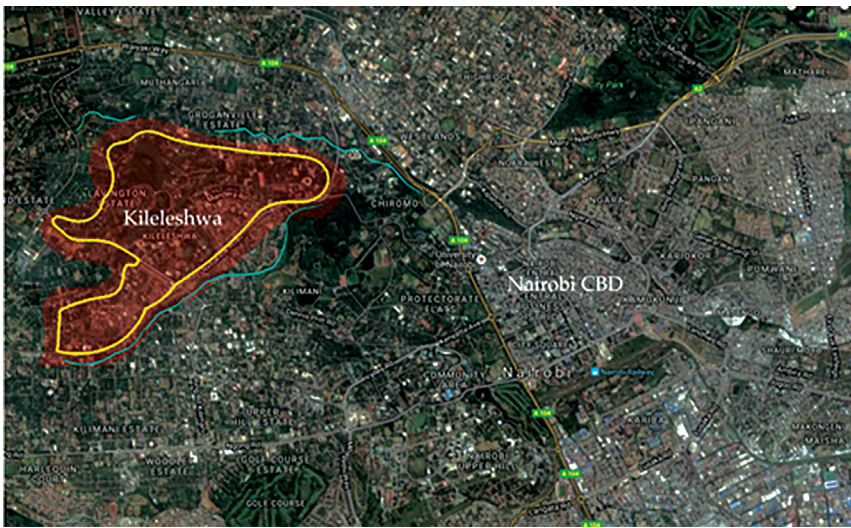
The focus of the study was Kileleshwa neighbourhood. It was selected because it was viewed to be a paradigmatic case of rapid urban habitat transformation. It is historically a low-density residential zone in the western suburbs of the city in which the most extensive transformation of housing units from low-rise dwellings to high-rise apartment blocks has occurred in recent years. Moreover, unlike other neighbourhoods in the western and northern suburbs of Nairobi in which office developments are also emerging, Kileleshwa’s transformation has largely remained centred on the development of residential units.

Kileleshwa neighbourhood is located 4 km from Nairobi’s central business district (CBD) (**Figure 1**). It is part of the upper side of Nairobi in the western suburbs of the city. The neighbourhood’s boundaries are defined by two rivers, Nairobi River and Kirichwa Kubwa. These two rivers define the neighbourhood’s northern and south-eastern boundaries respectively. Nairobi Arboretum flanks its north-eastern border while its south, southwestern, western and northwestern border

is defined by several connecting roads: Gitanga Road, Othaya Road, Nyeri Road, Olenguruone Road and Mzinga Springs Road.

The neighbourhood is nestled between three upmarket suburban residential neighbourhoods that share its northern, western, and eastern boundaries. These are Westlands, Lavington and Kilimani neighbourhoods respectively (Figure 2).

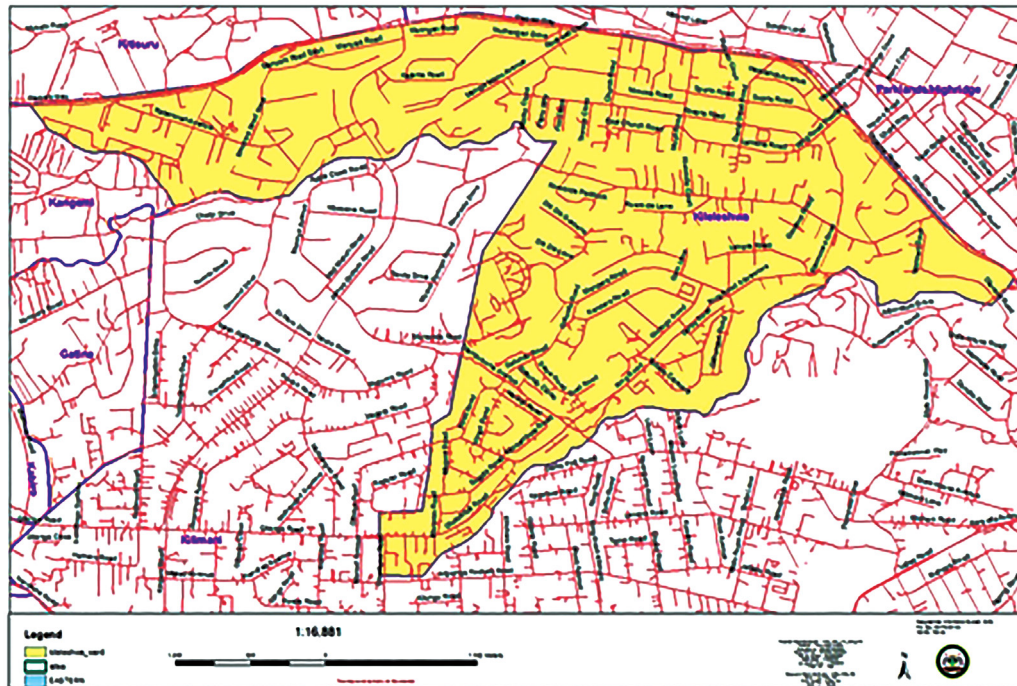
According to the Nairobi City County, the map shown in Figure 3 indicates what the local government considers to be the administrative boundaries of Kileleshwa. This demarcates an area that the county government refers to as Kileleshwa Ward. It stretches the north-western portion of the area much farther to the west. However, a note on the map suggests that the County is not an authority on the boundaries of the area.



**FIGURE 1**  
Aerial image of Kileleshwa neighbourhood showing its broadest boundary delimitation and location relative to Nairobi CBD  
**Source:** Adapted by Authors from Google Maps 2016



**FIGURE 2**  
Boundary of Kileleshwa with surrounding upmarket suburban residential neighbourhoods and the two rivers along its northern and south-eastern edges  
**Source:** Adapted by Authors from Google Maps 2016



**FIGURE 3**  
NCC boundary of Kileleshwa, Nairobi  
**Source:** Nairobi City County Government 2016

**Figure 3** differs significantly from the preceding boundary map presented earlier especially in its northern half. However, it aligns with the boundary delineation provided by Kenya's Independent Electoral and Boundaries Commission (IEBC) (**Figure 4**). Nevertheless, in the IEBC version, Kileleshwa is further subdivided into two sections, an upper section, referred to as Muthangari, and a lower section, referred to as Kileleshwa (**Figure 4**).

Since IEBC is the constitutionally mandated body with the authority to delimit the boundaries of various jurisdictions in the country (IEBC, 2020), its prescribed boundaries were adopted as the official boundary of Kileleshwa. This is an area that covers 9.1 square kilometres (KNBS, 2010a; KNBS, 2019; KNBS, 2020a).

However, the study area was limited to the sub-area of Kileleshwa as depicted in the IEBC map (See area indicated as Kileleshwa in a smaller typeface in **Figure 4**). This sub-area covers 5.2 square kilometres (**Table 9**). This choice was made because the sub-area of Kileleshwa is the residential area commonly understood, by real estate stakeholders active in Nairobi, to be Kileleshwa. Real estate

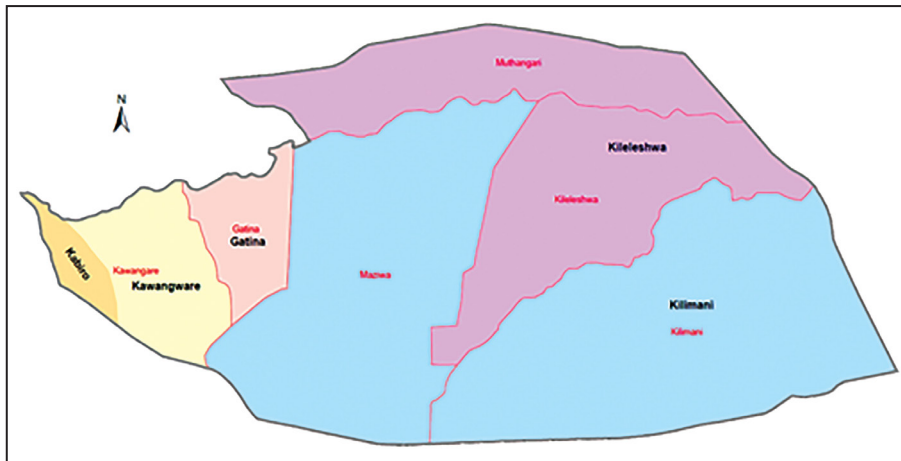
reports on the state of the real estate sector make this distinction; separating it from the upper part of Kileleshwa, which is classified by the sector as Riverside (Hass Consult Ltd, 2020). Within this sub-area of Kileleshwa, the study area boundaries were delimited by two rivers – Kirichwa Dogo River (south west, west, north west and north boundary) and Kirichwa Kubwa Rivers (north east, east, and south east boundary) – in addition to two roads – Othaya Road (west boundary) and Gitanga Road (south boundary) (**Figure 5**).

## RESULTS AND DISCUSSION

### Transformation of Kileleshwa in the context of Nairobi's urban transformation

Nairobi's origins can be traced to the late 19th Century when it was established as a railway depot by British colonialists in 1899 (Halliman & Morgan, 1967). During its more than a century of existence, Nairobi has undergone significant transformation. From a railway depot at the close of the 19th Century, it is now a bustling cosmopolitan metropolis in the 21st Century. In that time period the city has been subject to no less than five formal plans (**Table 2**).





**FIGURE 4**  
Dagoretti North Constituency showing Kileleshwa as both a ward and a sub-area (the latter adopted as the study area)  
**Source:** Kihiu 2013 based on IEBC 2012



**FIGURE 5**  
Kileleshwa study area  
**Source:** Adapted from Google Maps 2020

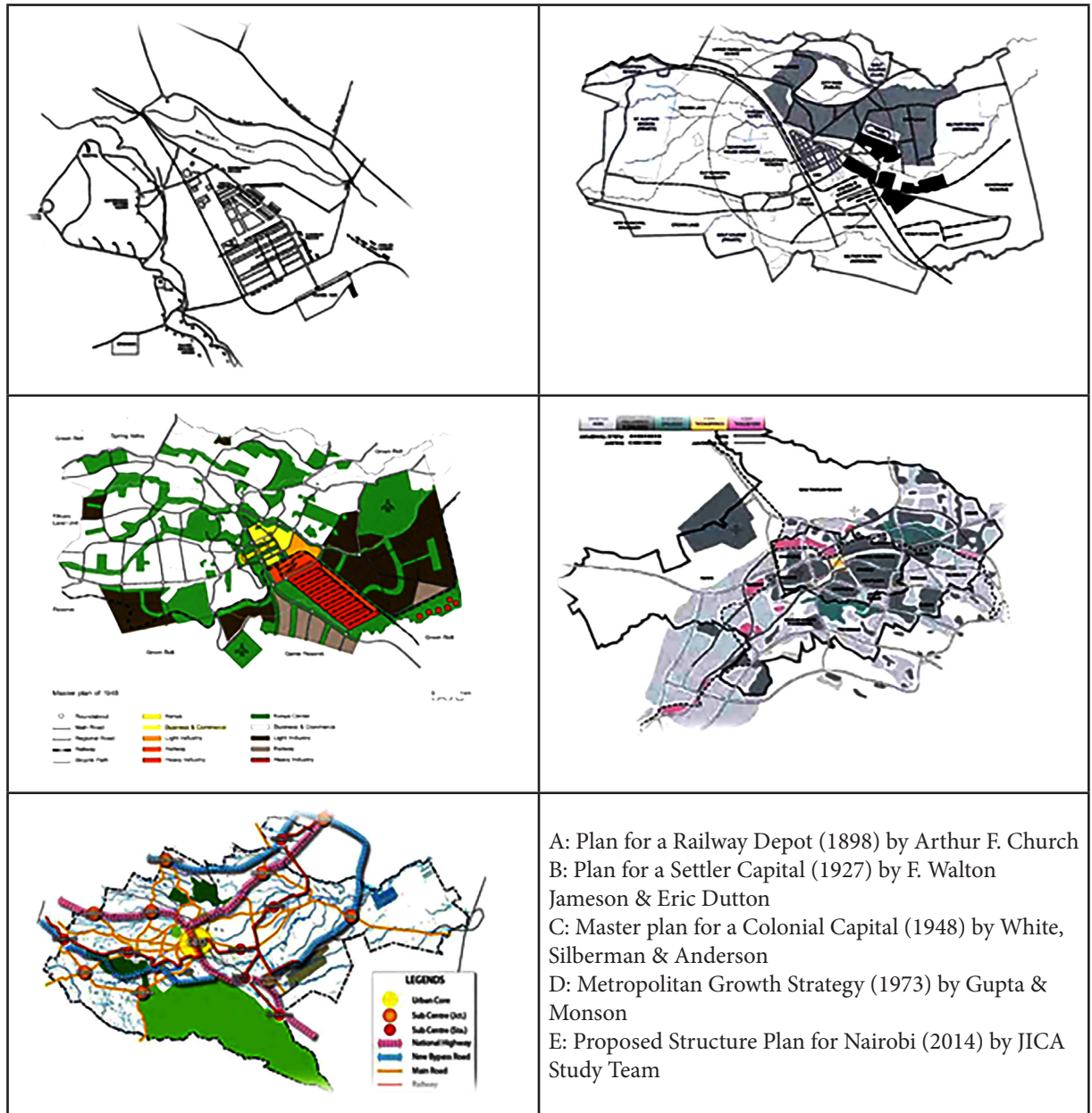
The plans were all attempts at structuring the city’s land uses. While largely unsuccessful, they nonetheless succeeded in establishing the general disposition of the CBD, industrial area and the city’s residential areas, especially formally designated ones such as those situated in Upper Nairobi, in which Kileleshwa is located. The city’s land use indicates that less than one fifth of its area is devoted to residential use (Table 3).

The following land use map by Columbia University shows land use in Nairobi in 2008

(Figure 6) (Columbia University Earth Institute, Center for Sustainable Urban Development, 2008). Residential areas are spread throughout the city. The western suburbs are predominantly residential in use.

Figure 7 shows a map by Columbia University on building density in Nairobi in 2008 (Columbia University Earth Institute, Center for Sustainable Urban Development, 2008). High rise structures are clustered around the city’s central core,

TABLE 2: Formal plans prepared for Nairobi 1898-2014



A: Plan for a Railway Depot (1898) by Arthur F. Church  
 B: Plan for a Settler Capital (1927) by F. Walton Jameson & Eric Dutton  
 C: Master plan for a Colonial Capital (1948) by White, Silberman & Anderson  
 D: Metropolitan Growth Strategy (1973) by Gupta & Monson  
 E: Proposed Structure Plan for Nairobi (2014) by JICA Study Team

Source: Compiled by Authors from Mills 2012; Rahbaran & Hertz 2014; NCC & JICA 2014

TABLE 3: Land use distribution in Nairobi

Land Use	Area (sq. km)	Area (%)
Residential	105.2	15.1
Commercial	5.9	0.8
Industrial	22.2	3.2
Mixed Commercial & Industry	3.6	0.5
Mixed Residential & Commercial	4.2	0.6
Institutional	39.8	5.7

No structures*	0.3	0.0
Open space**	332.0	47.8
Recreational	8.7	1.3
Res slum***	7.8	1.1
Transportation	15.5	2.2
Unknown****	42.3	6.1
Water	10.9	1.6
<b>Total</b>	<b>598.2</b>	<b>86.1</b>
National Park	96.9	13.9
<b>Grand Total</b>	<b>695.1</b>	<b>100.0</b>

\* This appears to refer to land without any man-made forms but not designated as open space or recreational

\*\* This is land not designated to have any buildings but also not classified as recreational

\*\*\* This refers to the areas in which slums are located

\*\*\*\* This is unclassified land whose use does not seem to have determined

Source: Adapted from NCC & JICA 2014

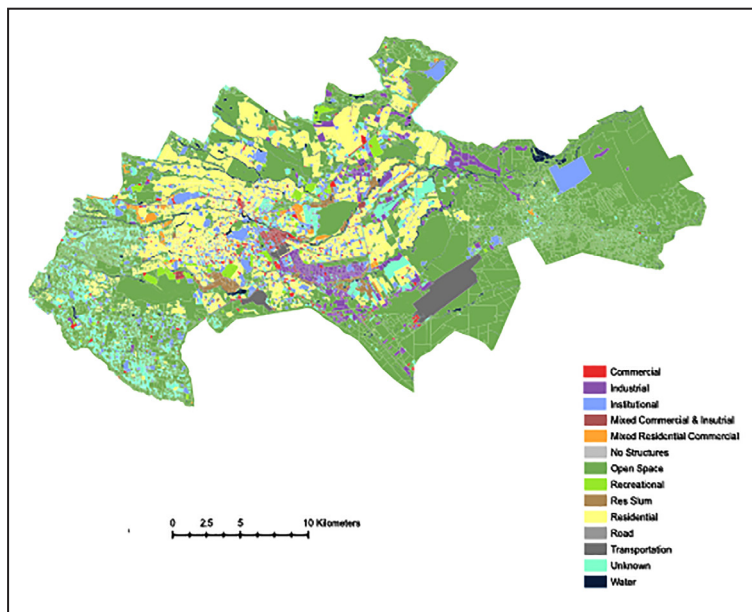


FIGURE 6

Nairobi land use map

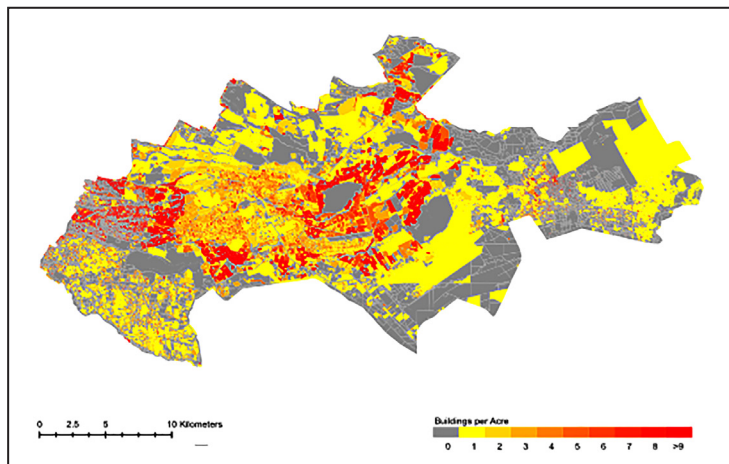
Source: Columbia University Earth Institute, Center for Sustainable Urban Development 2008

commercial zones in the inner peripheral areas, and the eastern residential suburbs of the city.

Over the course of the century, the city’s population has exploded from 11,000 in 1906 to a population of 4.4 million in 2019 (Table 4) (KNBS, 2019).

The city’s road network (Figure 8) defines the structural disposition of the city. Major roads radiate from the heart of the city- its CBD- to various parts of the city.

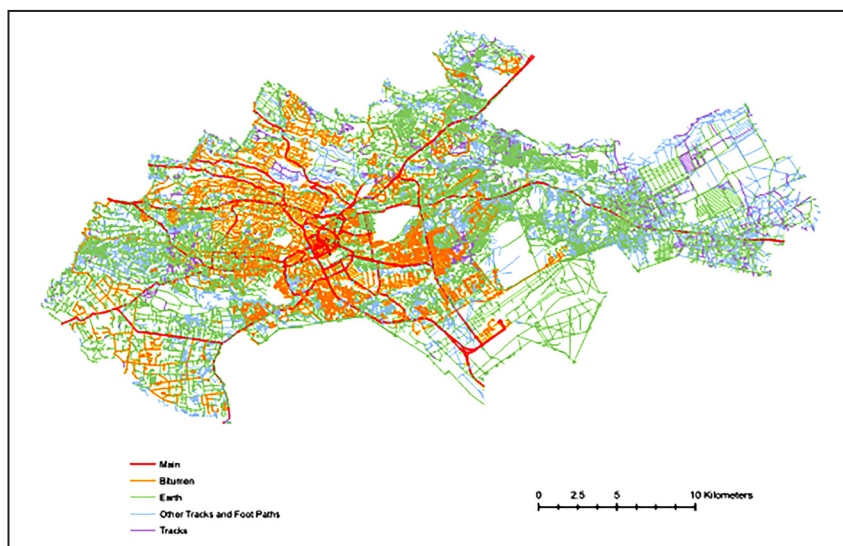
However, despite the tremendous growth that the city has experienced and the formal plans that have been made to guide the city’s development, the urban transformation of Nairobi has been largely



**FIGURE 7**

Nairobi building density map

**Source:** Columbia University Earth Institute, Center for Sustainable Urban Development 2008



**FIGURE 8**

Nairobi's road network

**Source:** Columbia University Earth Institute, Center for Sustainable Urban Development 2008

**TABLE 4:** Nairobi population growth from 1906 – 2019

Year	Population (1,000)	Growth Rate (%)	Comment
1906	11		Plan 1 & 2-1898, 1927
1948	119	6.84	Master Plan 3 - 1948
1963	342	7.29	Independence 1963
1969	509	6.85	National Census 1
1979	828	4.99	Plan 4 - 1973; Census 2
1989	1 325	4.81	National Census 3
1999	2 143	4.93	National Census 4

2009	3 138	3.89	National Census 5
2019	4 398		National Census 6

**Source:** Compiled by Authors from KNBS 2019; KNBS 2020b; NCC & JICA 2014

haphazard and predominantly ad hoc (Obudho, 1997). A key factor in this has been the failure of the city's governance to implement its formal plans and planning policies due to reasons ranging from poor governance, poor leadership, lack of capacity, inadequate resources, lack of proper prioritization of resources, a culture of corruption, and lack of a shared vision for the future of the city (Huchzermeyer, 2011).

At the same time, global paradigms have had a significant impact on the urban transformation of the city (Table 5). The neo-liberal paradigm is arguably still a dominant underlying orthodoxy in the current millennium with the private sector driving the nature of the urbanization process. This is despite emergent concerns with sustainability in 21st Century global discourse on development.

Significantly, as the city's population exploded, growing exponentially over the five decades since independence, a housing crisis emerged in the city as slums proliferated. Initiatives from international agencies such as the World Bank and the United Nations to help alleviate the problem metamorphosed over the years. Site and services schemes were initiated in the 1970s which have now evolved to slum upgrading initiatives as the latest approach to providing better housing for informal settlement dwellers. In the early years after independence, the government had programs to provide public housing particularly for civil servants. However, this promising strategy fell afoul of the much-criticised structural adjustment programmes introduced in the 1980s (to make governments in the developing countries more efficient) that pared down the role of government in public service provision, and led to the privatization of state assets (Weaver, 1995), and also, generally, ushered in the neo-liberal era that prioritizes market processes (Fainstein, 2010) and business interests (Harvey, 2006 as cited in Fainstein, 2010) – that now defines the

paradigm within which the city's current urban transformation occurs.

Arguably, in the current millennium, the city is in the grips of market-driven urban transformation. This has ushered in developer-led property development, which is leading to the transformation of neighbourhoods such as Kileleshwa into higher density urban habitats. This is evident in the ongoing construction of high-rise apartment blocks which are replacing the extant single-dwelling detached housing units. Furthermore, the rapid densification of Kileleshwa has been accompanied by the growing presence of a middle-class, which has been associated with the purchase and rental market of apartment units in the residential area.

### Kileleshwa's Regulatory Environment

Administratively, Kileleshwa is one of five wards in one of the 17 sub-counties (constituencies) into which Nairobi city county is sub-divided (Nairobi City County, 2020a). Each constituency is represented by an elected member of the National Parliament and each ward has an elected representative in the Nairobi County Assembly. Kileleshwa is in Dagoretti North constituency. The other wards in this constituency are Kilimani, Kawangware, Gatina and Kabiro. In total, there are 85 wards in Nairobi City County (Nairobi City County, 2020a). The Nairobi County Assembly has jurisdiction in formulating laws that have a direct impact on the city.

According to the Nairobi City County (NCC) zoning guidelines (NCC, n.d.; NCC & Japan International Cooperation Agency (JICA), 2014), Kileleshwa is classified as a Zone 4 (Table 6 and Figure 9) residential area, which stipulates low-density housing on a minimum plot size of 0.05 hectares; with a plot ratio of 25% if the property is not connected to a sewer line and 75% if the property is connected to a sewer line. The zoning



TABLE 5: Global development paradigms and their characteristics

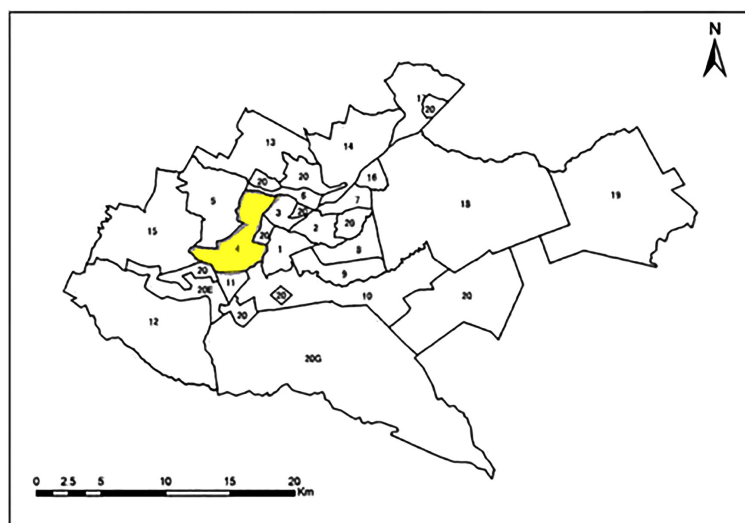
Time Period	Dominant Orthodoxy	Geopolitical Trends	Strategy for Urbanisation
1960s	Modernization Theory with a strong Western bias	Emergence of newly independent countries and the cold war	Import substitution strategy for industrialisation plus slum eradication
1970s	Growth and Redistribution Theory plus Basic Needs Theory	Cold War, Oil Shock and the emergence of the Debt Crisis	Focus on Site and Service Schemes, Self-help Projects, Core Housing etc. Projects to satisfy: Affordability-Cost Recovery – Replicability formula
1980s	Emergence of the Neo-liberal Theory	Debt Crisis full blown, and severe economic decline in developing countries	Problems of affordability come to fore. Tacit acceptance of informal settlements. Relaxation of laws
1990s	Neo-liberal Theory the driving orthodoxy. Emphasis on enablement and Good governance	End of Cold War. Increased emphasis on democratisation based on Western models	Cities increasingly seen as engines of economic growth. Restrictive building and land use standards increasingly being phased out
2000s	Sustainable Livelihoods Theory, Focus on Poverty eradication	USA as the dominant super power. Increasing urban poverty	Privatization. Focus on private/public sector partnerships

Source: Reconstruction by Anyamba 2006 based on Syagga 2002

TABLE 6: Section of Nairobi zoning guidelines indicating classification of Kileleshwa in zone 4

ZONE	AREAS COVERED	GC %	FR %	Dept Ref. Map	TYPE (S) OF DEVELOPMENT ALLOWED	MIN. AREA (Ha.)	REMARKS/POLICY ISSUES
3	<b>Parklands</b>			G17/100X	Commercial/Residential (High-rise Flats)	0.05	
	o Commercial	50	100				
	o Residential	35	75				
	City Park Estate /Upper Parklands	35	75				
	<b>Westlands</b>			G17/100X	Commercial/Offices/Residential (High Rise Flats) – Four Storeys Max.	0.05	
	o Westlands CBD	80	240				
	o Westlands/Museum Hill						
	o Block 1 Commercial	80	200				
	o Block 2&3 Offices & Highrise Residential	35	80				
	o Block 4 Offices	80	200				
o Block 5 Commercial/Residential Hotels							
4	<b>Spring Valley</b>			G17/100X	Residential (Apartments allowed on sewer only) – Four Storeys Max.	0.05	• Policy Under Review
	Riverside Drive						
	Kileleshwa	35(a)	75(a)				
	Killimani	25(a)	25(a)				
	Thompson						
Woodley							
5	<b>Upper Spring Valley</b>			G17/100X	Low-Density Residential One-Family House	0.2(u) 0.1(S)	• Maisonettes Allowed On Sewered Areas Of Lavington
	Kyuna	25	25				
	Loresho						
	Lavington /Bernard Estate						
o On sewer	35	75					
o Unsewered	25	25					
6	<b>Muthaiga</b>	25	25	G17/100X	Low-Density Residential	0.2	Single Family Dwelling
	New Muthaiga						

Source: NCC and JICA 2014



**FIGURE 9**

Nairobi zoning guidelines indicating the geographical distribution of the various zones within the city of Nairobi

Source: NCC and JICA 2014

guidelines also mandate a maximum ground coverage of 25% if the property lacks a sewer line and 35% if the property is connected to a sewer line. While the guidelines allow a maximum building height limit of four storeys in the zone (NCC, 2020b), apartment blocks, while still restricted by the height limit, are only allowed if connected to a sewer line (NCC, n.d.; NCC & JICA, 2014).

However, despite the existence of these regulations, as will be demonstrated in a later subsection, Kileleshwa's recent and ongoing housing transformations are occurring in contravention of the development controls.

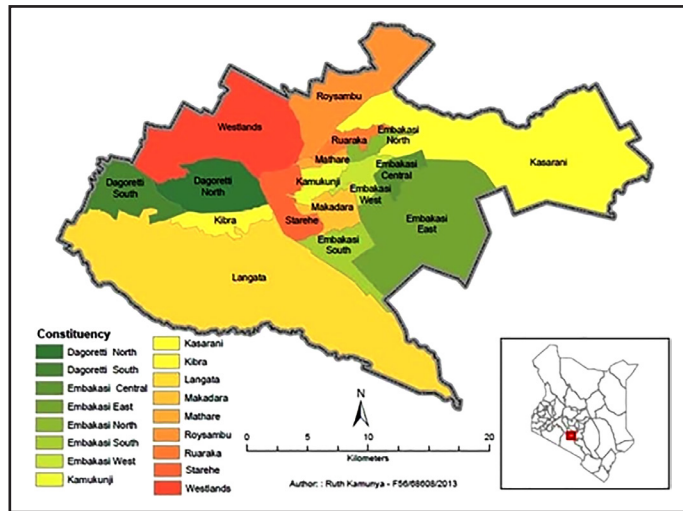
### Kileleshwa's Recent Demographic Changes

As of the 2009 decennial census, Kileleshwa, as a ward was part of a constituency referred to as Dagoretti North (**Figure 10**) with a population of 151,000 persons, which was then 5% of the city's total population of 3.1 million (KNBS, 2010a).

However, the recent demographic situation in Kileleshwa is illustrative of significant change in the current millennium. While Kileleshwa ward's share of the sub-county population has declined by 4% from 18% to 14% between 2009 and 2019, its population has increased by 20% from 27,202 in 2009 to a total population of 32,513 persons in

2019 (KNBS, 2020a). This was half the city's average population increase rate of 40%, over the same time span, from 3,138,369 to 4,397,073 (KNBS, 2020a). The number of households have increased by one-third over the same time period from 7,743 households in 2009 to 10,392 households in 2019. Population density has grown by 18% to 3,570 persons per sq. km. in 2019 (KNBS, 2020a) from 3,022 persons per sq. km. in 2009 (KNBS, 2010a) (**Tables 7 and 8**). This was half the rate of the city's increase of 38% from 4,515 persons per sq. km. to 6,247 persons per sq. km. It is also about two-thirds the city's population density per sq. km. The average household size of the sub-county into which Kileleshwa is clustered is 2.8 (KNBS, 2010a). This is marginally different from the city's 2.9, but lower than the country's average household size of 3.9 (KNBS, 2010a).

In the sub-area of Kileleshwa ward (**Figure 4**), which most closely corresponds with the study area (**Figure 5**), and accounts for more than two-thirds of the ward's population in 2019, even more rapid population growth has occurred over the past decade. The residential area's population increased by more than 30% between 2009 and 2019 from 16,802 persons (KNBS, 2010b) to 22,216 persons (KNBS, 2020a), which was a much higher rate of growth than the ward's. While its number of households increased by 50% (or 2,272 households) from 4,592 to 6,864 households



**FIGURE 10**  
Nairobi City County Constituencies  
**Source:** Kamunya 2013 as cited in Tuko 2020

**TABLE 7:** Dagoretti North Constituency: Wards, population, area, households and density, 2019

Ward	Population	Households	Area Sq. Km.	Population Density Pers./ Sq. Km.
Kilimani	50,457	15,331	16.0	3,149
<b>Kileleshwa</b>	<b>32,513</b>	<b>10,392</b>	<b>9.1</b>	<b>3,570</b>
Gatina	63,560	24,005	1.5	42,772
Kawangware	91,487	33,008	2.4	37,533
Kawangware*	30,587	10,893	0.9	33,605
Kabiro**	36,228	13,328	0.8	46,767
Total	238,017	82,736	29.0	8,207

\* This is a sub-area of the original Kawangware ward that was sub-divided into three to accommodate Kabiro and Muslim sub-areas hence figures are already included in the preceding Kawangware Ward

\*\* Though listed as a ward, according to the 2019 census data, it is a sub-area of Kawangware hence figures are already included in Kawangware Ward

**Source:** Compiled from KNBS 2020a

between 2009 and 2019 (KNBS, 2010b; KNBS, 2020a) – which was more than 10% higher than the city’s average rate of increase in the inter-censal period – its population density (persons per square kilometre) increased by one-third over the inter-censal period. It grew to a density of 4,229 persons per sq. km in 2019 from a 2009 population density of 3,210 persons per square kilometre (KNBS, 2010b; KNBS, 2020a). This was 18% higher than the ward’s and more than two-thirds of the city’s population density (**Tables 9 & 10**).

### Degrees of Urban Habitat Transformation

Kileleshwa has undergone morphological and typological transformation to various degrees as a result of market-oriented developer-led habitat transformation. In this analysis, the focus is on the street pattern, plot pattern, and building pattern, which are important components of urban form. An analysis of the neighbourhood’s street network, plots and buildings (footprints and units) makes this apparent. The foregoing aspects can usefully



**TABLE 8:** Dagoretti North Constituency\*: Wards, population, households, area and density 2009

Ward	Population	Households	Area Sq. Km.	Population Density Pers./ Sq. Km.
Kilimani	43,122	11,350	16.1	2,685
<b>Kileleshwa</b>	<b>27,202</b>	<b>7,743</b>	<b>9.0</b>	<b>3,009</b>
Gatina	45,872	15,987	1.5	30,411
Kawangware	34,683	22,262	2.4	28,258
Kabiro**	-	-	-	-
Total	150,879	57,342	29.0	5,202

\* The constituency was created after 2010 bringing together the listed wards

\*\* Area not delineated in the 2009 census

**Source:** Compiled from KNBS 2010a

**TABLE 9:** Kileleshwa: Distribution of population by sex, number of households, land area, population density, and sub locations, 2019

Sub Location	Sex			Households			Area Sq. Km.	Density Persons/ Sq. Km.
	Total	Male	Female	Total	Conventional	Group Quarters		
Kileleshwa	32,513	14,608	17,903	10,392	10,250	142	9.1	3,570
<i>Kileleshwa</i>	<i>22,216</i>	<i>9,761</i>	<i>12,453</i>	<i>6,864</i>	<i>6,864</i>	-	5.3	4,229
Muthangari	10,297	4,847	5,450	3,528	3,386	142	3.9	2,672

**Source:** Compiled from KNBS 2020a [Italics by authors to indicate figures in the study area]

**TABLE 10:** Kileleshwa: Population distribution by sex, number of households, area, density, and administrative units, 2009

Administrative Unit	Sex			Households	Area Sq. Km.	Density
	Total	Male	Female			
Kileleshwa	27,202	12,207	14,995	7,743	9.0	3,009
<i>Kileleshwa</i>	<i>16,802</i>	<i>7,389</i>	<i>9,413</i>	<i>4,592</i>	<i>5.2</i>	<i>3,210</i>
Muthangari	10,400	4,81	5,582	3,151	3.8	2,734

**Source:** Compiled from KNBS 2010b [Italics by authors to indicate figures in the study area]

be viewed as nested within each other [Table 1]. Through the analysis, issues of spatial morphology and building typology are interrogated. These are analysed and discussed in turn, below, in terms of degrees of transformation.

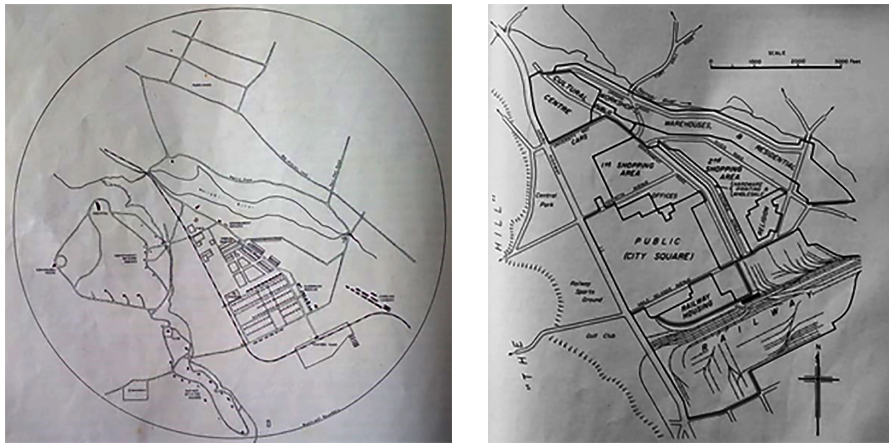
#### Minimal transformation: Street

While Nairobi CBD's grid-iron street layout (Figure 11) was deliberately planned due to ease of setting out as happened to many cities planned in the colonial era (Halliman & Morgan, 1967), the street layout in Kileleshwa developed

much more organically, constrained as it was by the neighbourhood's topography of ridges and valleys (Halliman & Morgan, 1967), and in keeping with ideas of a garden city suburb and the neighbourhood unit (Figure 12) (Huchzermeyer, 2011).

The two main longitudinal streets that structure the spatial layout of the neighbourhood are inclined at nearly a right angle to the CBD's main highway, Uhuru Highway (Figure 13). One of these streets,

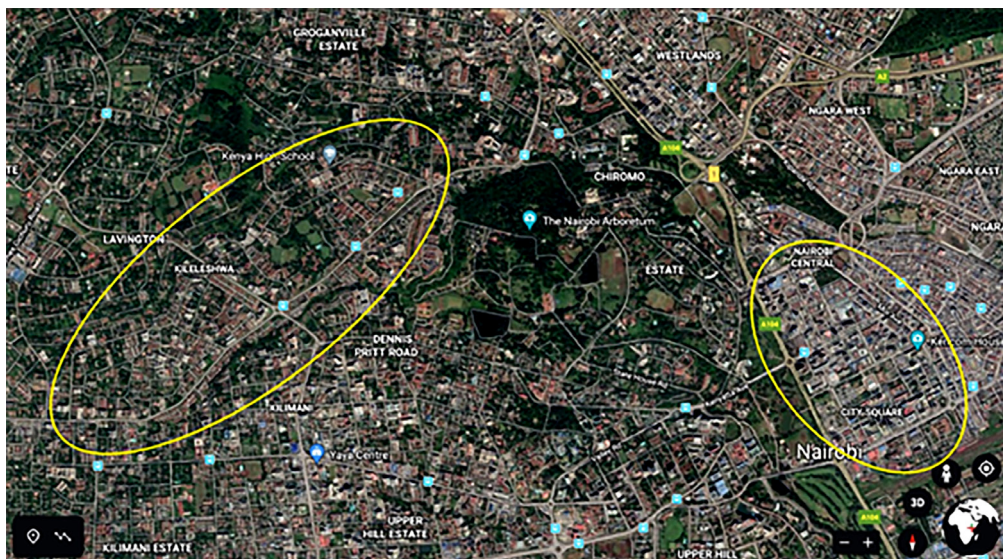
Othaya Road, which parallels the upper boundary of the neighbourhood, starts in the south-western corner of the neighbourhood and winds due north eastwards on a 45-degree axis. As it does so, its name changes to Nyeri Road, then to Gatundu Road, and finally to Manderu Road before connecting with Ring Road Kileleshwa. The path traced by the foregoing roads was historically the main street of Kileleshwa. The second of the long streets through the neighbourhood is Oloitokitok Road or Ring Road Kileleshwa. It begins in the south-eastern corner of the neighbourhood, traversing past two



**FIGURE 11**

Nairobi: CBD in 1905 (left) and structure (right) laid out on a grid (geometrically constrained by the railway alignment in the south, Nairobi River in the North East, and the Nairobi trachyte bluff (the Hill), in the west)

Source: Halliman & Morgan 1967



**FIGURE 12**

Kileleshwa's irregular street plan (left) compared to the CBD's regular gridiron street plan (right)

Source: Adapted from Google Earth 2020

roundabouts, connecting at a 90-degree angle with Likoni Road at the first roundabout, then Manderu Road at the second roundabout before exiting the neighbourhood at its north-eastern corner. This road, as a link road, provides a convenient connection between the western suburbs and a major commercial and business centre – Westlands – located north west of Nairobi’s CBD (Figure 13). It does this via a connection with the major highway that cuts through the city. A major latitudinal street, aligned at a 45-degree angle to the CBD’s main highway, cuts through Kileleshwa at its midpoint, connecting it to its adjacent neighbourhoods in the western suburbs (Figure 14).

Thus, at present, Kileleshwa’s street plan remains largely unchanged from its pattern that was established in colonial era Nairobi. The most recent improvement that has occurred has been the construction of the Ring Road (Oloitokitok Road) that connects the residential area to adjacent residential neighbourhoods and nearby commercial areas, particularly the significant commercial and business area of the city, Westlands, located north west from Nairobi’s CBD (Figure 14).

Hence, while the improvement has made Kileleshwa more accessible to adjacent neighbourhoods, the

ring road was the implementation of a road that had been planned for hence reserved for and not necessarily the creation of an entirely new road on a greenfield site. Thus, the ring road has better defined Kileleshwa’s street structure, and arguably made the neighbourhood more desirable for property development, without necessarily altering the original street structure. However, it can be argued that the ring road has altered the street hierarchy of the neighbourhood since it is now the new main street through Kileleshwa. Moreover, the construction of the Ring Road created a better connection with the bisecting road that runs on a north-west/south-east axis, connecting adjacent neighbourhoods in Nairobi’s western suburbs (Figure 14).

Thus, at the level of the street network, which defines the circulatory structure of Kileleshwa neighbourhood, minimal transformation has occurred. The street network, which bounds the original blocks/zones that constitute the neighbourhood has remained the same throughout the period of the ongoing rapid transformation of the urban residential area in the current millennium. Even in the few instances where plot size and shape is becoming increasingly inconsistent due to plot amalgamation, this is occurring without the alteration of the street network.

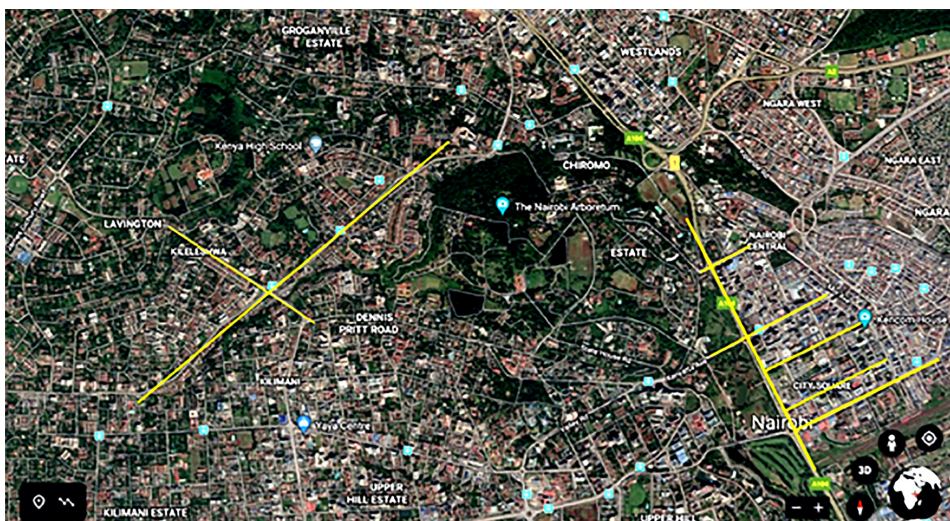


FIGURE 13

Diametrically opposed alignment of streets through Kileleshwa, with those through Nairobi’s CBD

Source: Adapted from Google Earth 2020



**FIGURE 14**

Kileleshwa's Connecting Streets: The Ring Road (NE/SW axis) connects the area to commercial zones and neighbourhoods to the North and South. The bisecting road (NW/SE axis) connects Kileleshwa to adjacent residential areas

**Source:** Adapted from Google Earth 2020

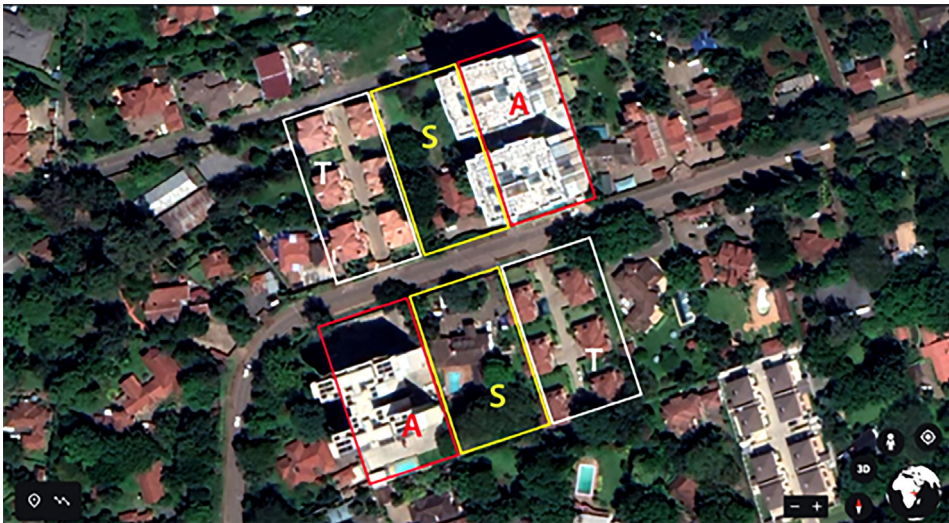
#### **Moderate transformation: Plot**

In the wake of the ongoing intensive urban transformation since the turn of the millennium, Kileleshwa's plot patterns have remained remarkably resilient. The original plot configurations of a quarter of an acre or more have been retained, with high-rise apartment blocks being developed on the same plots that historically housed single-family detached dwelling units. **Figure 15** shows a section of Kileleshwa depicting similar three-quarter acre plots with different formal categories of the residential functional building type. "S" are the original single family detached dwelling units; "T" are townhouses developed in the first-generation transformations that adhered to the residential area's height limit; whereas "A" are the recent high-rise apartment blocks built beyond Kileleshwa's height limit. On very few occasions has plot amalgamation preceded the development of the high-rise apartment blocks.

In the cases where the original single-family houses have been replaced by high-rise apartment blocks, the most noticeable change has been the intensification of the use of the plot and the increase in plot coverage. With apartment blocks, plot coverage has increased extensively and more massive building structures have

become widespread. In some cases, especially where the apartment block has been designed as an undifferentiated mass, the plinth area of the apartment block covers almost the entirety of the plot. Thus, there is hardly any offset from the plot boundary. The result is that apartment blocks on adjacent blocks barely have any space between them apart from the boundary wall. This is in sharp contrast to the original sites with single-family detached dwelling units in which the plot ratio was much lower. With single-family housing, the offset from the property line was much greater hence there was ample room between the dwelling unit and the property boundary. Thus, the hard surface coverage of the plot was much lower and plenty of room was available for soft coverage in the form of greenery such as grass, shrubs, and trees (**Figure 15**).

Thus, at the level of the plot, moderate transformation has occurred. The form of redevelopment of the plot into apartment blocks can be seen as a case of adaptive development since it is occurring within the existing street system as defined in the ISUF glossary (ISUF, 1990). In the current millennium, the plot has undergone moderate transformation within the context of housing transformation in Kileleshwa.



**FIGURE 15**

A section of Kileleshwa depicting similar three-quarter acre plots with different formal categories of the residential functional building type

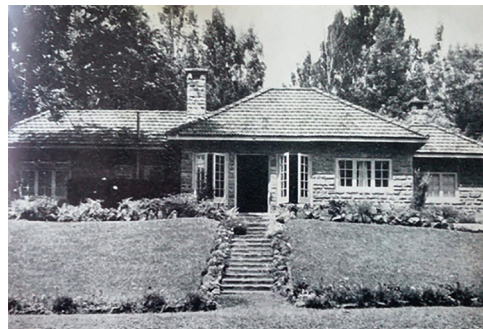
**Source:** Adapted from Google Earth 2020

The original plot sizes have been retained to a large extent despite the ongoing transformation from single-family dwellings to high-rise apartment blocks. While the plot boundaries have been retained in many of the developments, their built-up area has increased, exceeding the stipulated plot ratios, as the density of the housing has risen. Building footprints vary on the developed sites as regulations on plot coverage are flouted.

### Substantial transformation: Building

Historically, the typical buildings in Kileleshwa were single-family detached dwellings (Halliman & Morgan, 1967). These houses were built of stone, had a tiled roof and included a separate servant's quarters (DSQ) (Figures 16 & 17) (Halliman & Morgan, 1967).

However, at the turn of the millennium, this stable nature of the low-density character of the residential area began to change. Although the neighbourhood was zoned for low-density housing, the zoning provisions for the area had an allowance for the development of mid-rise flats or buildings provided that they were connected to a sewer line (City Council of Nairobi [CCN], n.d.). In the first decade of the millennium, this was the direction that densification took. The



**FIGURE 16**

Typical upper income housing in Nairobi: built of lava tuff under tiles, fireplace, well developed garden on sloping red soil

**Source:** Halliman & Morgan 1967



**FIGURE 17**

Kileleshwa: a poorly maintained single family dwelling unit

**Source:** Author 2018

initial densified buildings were either town houses or mid-rise flats or apartment blocks that did not exceed the maximum zoning limit of not more than four floors and an attic or, in effect, five floors (**Figure 18**). Moreover, these mid-rise apartment blocks require only a walk-up vertical circulation system.



**FIGURE 18**  
Kileleshwa: First Generation Transformation: Mid-rise apartment Blocks with walk-up vertical circulation system  
**Source:** Author 2016

However, the second decade of the millennium has been characterized by a second generation of apartment block developments. From a single-family detached dwelling unit on a given plot of land in Kileleshwa, the emergent characteristic is that of a high-rise apartment block on the same plot of land. These apartment blocks exceed five floors and range in size from six to 14 floors (**Figures 19, 20 & 22**). Consequently, they require a lift or elevator vertical circulation system.

This evolution in building typology, which is densifying the land use of the neighbourhood, has been accompanied by an escalating cost of land in the area. Land prices have increased seven-fold over the course of a decade (**Figure 21**). This, in turn, is further accelerating the conversion of single-dwelling detached housing units to multi-dwelling apartment blocks.

Thus, in Kileleshwa, from a single-family detached dwelling unit, the emergent building typology is that of a multi-dwelling high-rise apartment block with multiple towers. In some cases, the towers are structurally connected; in others, a courtyard



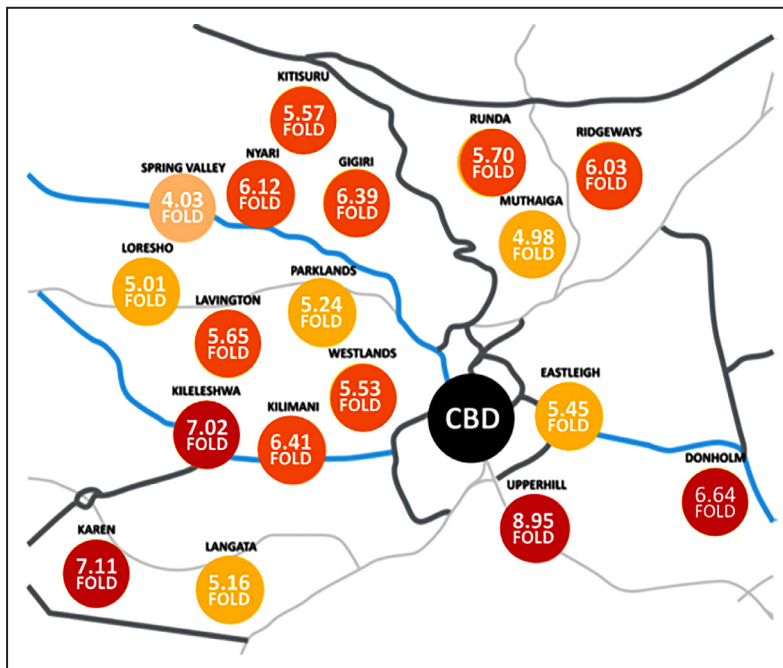
**FIGURE 19**  
Kileleshwa: Second Generation Transformation: High-rise apartment blocks with elevator vertical circulation system  
**Source:** Author 2018



**FIGURE 20**  
Kileleshwa: A high-rise apartment block under construction  
**Source:** Author 2018

separates them. Some apartments have provision for underground or basement parking while others offer surface parking or a combination of both surface and underground parking. Some buildings are raised on *piloti*, allowing for parking space and access underneath, while others are built from the foundation up without openings beneath.

Hence, the most extensive transformation that has occurred in Kileleshwa in the current millennium has been in terms of building



**FIGURE 21**

Nairobi: 18 suburbs change in price since 2007

Source: Hass Consult 2016b

typology. At present, apartment blocks proliferate in the neighbourhood. They are at various stages of development, all exceeding the residential area's *de jure* height limit.

The apartment blocks perpetuate the enclaving of the neighbourhood by maintaining the historical gated nature of the residential area in which the single-family housing was enclosed within a gated compound (Figure 17). The apartment blocks are built as an enclave, are mostly inward oriented and make minimal reference to adjacent buildings. The result is a series of apartment blocks, at various heights and in various forms; some neighbouring each other, and some surrounded by low-density housing units. The overall result is that of an incoherent picture of residential housing. Thus, present day Kileleshwa is characterized by a diversity of apartment blocks with significant variation on the high-rise tower typology (Figure 22). With the emergence of apartment blocks, a substantial increase has occurred in the neighbourhood's building density.

Thus, at the level of the building, substantial transformation has occurred. The building typology (height and exterior footprint) has transformed substantially. Building heights have increased substantially as low-rise housing units make way for high-rise ones. The building coverage (or plot ratio) – the amount of plot area covered by buildings, expressed as a percentage of the total plot area (Conzen, 1969) – has increased in size from 35% of plot coverage to at least twice as much.



**FIGURE 22**

Kileleshwa: Completed high-rise apartment blocks

Source: Author 2018

## Some Positives and Negatives of the Morphological Transformation

### The positives

Apartment blocks make it possible to accommodate more people, within a limited area, in a rapidly expanding city. This is an important consideration because Nairobi's boundaries are now firmly established. The promulgation of Kenya's new constitution in 2010 resulted in Nairobi becoming a county with its boundaries clearly defined in relation to neighbouring counties, which together with Nairobi constitute the Nairobi metro region. Consequently, Nairobi city's outward growth is constitutionally and politically constrained. Hence, the emerging viable option is for the city to expand upwards and to densify existing residential areas. A significant feature of apartment block developments is that they make possible the opportunity to structure the urban habitat into a more compact urban form, which has the desirable quality of reducing urban sprawl and enhancing urban sustainability.

Apartment blocks, in accommodating more people in comparison to single-dwelling units, can potentially lead to a more economically diverse neighbourhood. In the case of Kileleshwa, a previously exclusive neighbourhood for the elite is now becoming accessible to a growing middle-class. Arguably, this is contributing to the increased democratization of space as more people access a previously exclusive locale. This in turn can be viewed as contributing to spatial justice (Soja, 2008), and a more just city (Fainstein, 2010), which are key to social sustainability as more diverse income groups co-exist close to each other compared to the current state of residential income segregation.

### The negatives

The ongoing densification of Kileleshwa is occurring without the availability of commensurate infrastructure. Inadequate physical infrastructure (water supply, electricity, sewage reticulation, storm water drainage) and insufficient social infrastructure (public open space, and amenities such as schools, shopping areas, health centres), if left unaddressed, will compromise the neighbourhood's viability as an urban habitat, and lead to the deterioration of its urban qualities.

The reduction in greenery (and micro-climate) as trees are cut down to make room for apartment block developments is resulting in the previously leafy green streets becoming barren avenues. And, in combination with the loss of public open space and decrease in water permeability due to the expanding building footprints, the residential area is becoming a concrete jungle.

There is a big discrepancy between the regulations on paper and the reality on the ground. The lack of adherence to regulations and disregard of planning practices, hence unpredictability of future outcomes, has the potential to entrench practices resulting in negative externalities such as poor urban quality and unsustainable outcomes.

With the ongoing morphological and typological transformation, Kileleshwa is becoming an intensive machine for living. This in turn raises issues of its long-term viability in the face of rapidly increasing building density. The residential area was not deliberately designed for high-density living, rather the opposite, hence the current densification is tending towards undesirable outcomes for the urban habitat. The question of how to accommodate rising density in a dynamic urban context is yet to be addressed.

Furthermore, as the apartment blocks become the norm for housing in the residential area, an emergent trend is the increasingly smaller apartment units on offer based on the open plan apartment unit layout concept. This raises the issue of liveable space since set standards for the minimum size of the apartment unit interior spaces are yet to be articulated in relation to the building permit approval process.

## CONCLUSION AND RECOMMENDATIONS

A new normal for the pattern of urban habitat transformation for Nairobi is emerging in historically low-density neighbourhoods such as Kileleshwa. However, in the interest of securing a viable future for the urban habitat, the piecemeal nature of the residential property developments needs to be supplanted by a planned approach to urban development.



Vertical living and emergent middle-class lifestyle is arguably a pointer to improving quality of life. Thus, their emergence as a factor in the formal residential property market is a significant occurrence. With greater disposable income, the middle-class are likely to invest in their neighbourhood and contribute to the thriving of not only the city's economy, but the national economy as well.

A vision-led approach to a desired future ought to be the driver of the trajectory of transformation rather than the neo-liberal profit-oriented market-led approach with the developer at the apex of decision making on the future form of the city. Market-led development will not deliver a desirable outcome without a strong role for the government to direct the course that it takes. Developers and investors are motivated by maximizing profits in the shortest time possible for the least amount of investment. High returns on investment are a great motivator. However, this may not necessarily deliver desirable outcomes for the greater good of the society.

There is need for proper planning for higher density living. It is a present reality that the population of the city is increasing rapidly along with rapid urbanisation. Hence, more housing is needed to accommodate the expanding population. Given the constraints of the city's set boundaries, densification of the city's existing neighbourhoods is fast becoming the leading viable approach to meeting the growing housing need. But this has to be done properly by deliberate planning for densification rather than its current ad hoc evolution.

As part of proper planning, the City authority should compulsorily acquire appropriate land within the Kileleshwa area for the construction of social amenities/social infrastructure. Similarly, some guidelines should be set for maximum and minimum heights and spaces between blocks, as well as for minimum spaces of dwelling interiors to ensure the development of a liveable residential dwelling.

Overall, the nature of the current morphological and typological transformation of Kileleshwa is leading to more negative than positive outcomes. There is therefore a strong need to redress this imbalance – by addressing infrastructural challenges, both physical and social, and ensuring that the transformation is deliberately planned for and guided – to increase the possibility of the urban habitat remaining viable for the foreseeable future.

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## Book Chapter

### **Article III:**

Makunda, C.S. (forthcoming). Middle-class access to housing in Nairobi's transforming urban habitat. [Accepted for publication in an upcoming book chapter].



# **Middle Class Access to Housing in Nairobi's Transforming Urban Habitat**

Collins Sasakah Makunda

## **Abstract**

In this article, I discuss the expanding market for middle class housing in Nairobi. I examine how the middle class engages with housing in the light of the way in which housing is being produced by profit-driven developers in a process that is rapidly transforming the urban habitat. Who comprises the middle class, how do they make a living, where do they live and why, and, significantly, what strategies do they deploy to access housing? What does this all portend for the future of the city? I look at *Kileleshwa*, a low density neighbourhood in the suburbs of Nairobi as a case study to explore the ways in which the middle class are an important factor in the emerging transformation of low-density housing to higher density apartment housing. I conclude that the growth of the middle class bodes well for the city if the potential they represent is appropriately harnessed in shaping a better more diverse and sustainable habitat.

## **Introduction**

The phenomenon of a growing middle class in Africa has featured prominently in recent years in both the popular press and academic discourse (Thurlow et al, 2015; Melber, 2016). It has been accompanied by a lively debate on who the middle class in Africa actually are and how to accurately measure them. Most scholars have suggested socio-economic definitions (Neubert, 2016: 112). They have defined Africa's middle class in terms of either income or consumption. In addition, commentators have estimated the total number of the continent's middle class as ranging from 11 million households (The Economist, 2015) to 350 million people (African Development Bank [AfDB], 2011). While the middle class have been defined variously, in terms of consumption, as those with a per capita daily consumption ranging from \$2 – \$10 to \$2 – \$20; in terms of income, they have been defined as those with daily earnings ranging from \$10 – \$20 to \$20 – \$50 (See AfDB, 2011; Banerjee & Duflo, 2007; Birdsall, 2010; Birdsall, Graham & Pattinato, 2000; Ravallion, 2009; Thurlow et al, 2015).

The debate on the definition and magnitude of the middle class notwithstanding, it is occurring against a backdrop of rapid urbanization and population growth in sub-Saharan Africa. The general consensus is that the highest population and urbanization growth rates in the twenty-first century, will occur in the global South (United Nations Department of Economic and Social Affairs [UN DESA], 2014) with Africa and Asia making up the lion's share of the demographic trend (UN DESA, 2015). The continent of Africa was 40% urban in 2014 (UN DESA, 2014). At current trends, it is estimated that by mid-century it will be majority urban at 54%, accounting for one fifth of the global urban population (Ibid). This radical shift represents a significant challenge for the continent. And, for East Africa, which has the continent's fastest growth rate (World Bank, 2016), an even greater challenge of rapid transformation is being faced; the immediate consequence of which is the absence of adequate infrastructure and basic urban amenities to cope with the shift.

Nairobi,<sup>1</sup> Kenya's capital city and East Africa's regional economic hub, is a case in point. With the country's urbanization rate at 4.28% (Centre for Affordable Housing Finance Africa [CAHF], 2018) people ever more face the pressures of inadequate housing. Kenya has a housing deficit currently estimated at 2 million units with an annual urban housing need of at least 200,000 units, which is increasing annually in tandem with the growing urban population (World Bank Group, 2017). The consequence of this is the prevalence of informal settlements in the country's urban areas. The World Bank estimates that 61% of urban households in Kenya live in informal settlements (Ibid) while Nairobi's Kibera Slum is considered to be one of the largest informal settlements in Africa (Habitat for Humanity, 2017). However, in recent years, the growing middle class have increasingly exerted pressure on the formal housing stock in urban areas; particularly in Nairobi. An outcome of this, over the past decade, is the densification of housing stock in the city's elite neighbourhoods with single story housing units rapidly being transformed into multi-story high-rise apartment blocks (See fig. 1).

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<sup>1</sup> Nairobi is not only the capital and primate city of Kenya, it is also the gateway and economic hub of East Africa as well as the largest economy in the East African region.



*Figure 1: A high-rise apartment under construction in Kileleshwa neighbourhood, Nairobi*  
(Source Author, 2015)

The nature of the ongoing transformation engenders a number of questions regarding the city's inhabitants and the future trajectory of the urban habitat. The transformation is haphazard and, physically, creates a seismic shift in the vertical structure of the urban habitat, while, socio-culturally, manifests a new way of life for the residents in the residential neighbourhoods. In addressing the foregoing, I will discuss who the middle class are in the Kenyan context with particular reference to the country's urban centres such as Nairobi as well as their significance in the prevailing real estate market. I explore how they make a living, where they live and why (i.e. their aspirations), and the strategies they deploy to access formal housing.<sup>2</sup> What do all the changes wrought by the middle class mean for the urban habitat and what does it portend for the future of the city, particularly in terms of sustainability?

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<sup>2</sup> Formal housing is used in this article to refer to decent housing provided in the real estate sector. It excludes housing in informal settlements.



## Middle class in Kenya

While a number of parameters have been employed elsewhere to classify the middle class, the Kenyan government, like AfDB defines the middle class in terms of consumption but unlike the development bank, uses a singular category for the income group. The Kenya National Bureau of Statistics (KNBS) defines the Nairobi middle income group as households with a monthly expenditure between 23,671 and 119,999 Kenya shillings<sup>3</sup> (KNBS, 2018: 56) (See Table 1 below for a breakdown of income group categories in Kenya).

**Table 1**

*KNBS Classification of income groups in Nairobi by monthly expenditure (October, 2005)*

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<u>Income Group</u>	<u>Monthly Expenditure</u> <u>(Kenya Shillings)</u>	<u>Monthly Expenditure</u> <u>(US Dollars)*</u>
Lower Income	23,670 and below	321 and below
Middle Income	23,671 – 119,999	321 – 1,628
Upper Income	120,000 and above	1,628 and above

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*\*Note: US Dollar figures by author based on 31 October 2005 exchange rate of US \$1 = 73.72 Kenya Shillings*

Source: Compiled by author from the KNBS Economic Survey 2018 (KNBS, 2018: 56)

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<sup>3</sup> These are 2005 figures. Using a conservative annual inflation rate of 4%, at the very least, the middle income group should be classified as having a monthly expenditure of between 37,898 Kenya shillings [US\$ 367] and 192,122 Kenya shillings [US\$ 1860] in 2017 (at an exchange rate of US\$ 1 = 103.3 Kenya Shillings on 31 December 2017).

According to KNBS income criteria, only those classified as upper middle class in the AfDB sub-categories<sup>4</sup> would qualify as middle income in the Kenyan context. The rest of AfDB's middle class sub-categories would fall under the lower income category in Kenya. KNBS estimates 24% of Kenyans to be in the middle class (Rateng, 2014)<sup>5</sup>. In a recent study, Shah & Ruparel (2016: 3) suggest a coterminous growth of Kenya's middle income population and the expansion of the country's real estate sector. They estimated the size of Kenya's middle class to be in excess of 5 million in 2012 and on an upward trajectory. This upward trajectory is consistent with the growth of the middle class on the continent in the new millennium who increased from 220 million in 2000 to 350 million in 2010 (AfDB, 2011). AfDB (2011: 5) estimated the size of Kenya's middle class, in 2010, to be 16.8% of the country's total population, which would be approximately 6.5 million persons<sup>6</sup> but 44.9% if the "floating class" were included. The latter proportion places Kenya amongst the sub-Saharan African countries with the largest proportions of the middle class<sup>7</sup> (Neubert, 2016: 113). Kenya's proportion of the middle class, even while excluding the "floating class," is significantly higher than that of its East African neighbours whose proportions range from 2.9% (Tanzania) to 8.2% (Ethiopia) (AfDB, 2011: 5). However, the foregoing estimates of the middle class in Kenya are tempered by the fact that there were only 2.6 million Kenyans in formal sector employment (1.9 million of whom were in the private sector with 700,000 in the public sector) in 2017, while those estimated to be in informal sector employment were 11.1 million (KNBS, 2018: 39). Hence, the size of the middle class may be significantly smaller than estimated. Indeed, the Institute of Economic Affairs [IEA] (2016), basing their study on this wage employment, suggests an even more conservative estimate of the middle class in Kenya. Using an income category of Kenya shillings (Kshs) 49,656 to 67,380 (US\$ 655 – \$888) in 2009 and Kshs 76,392 to 102,429 (US\$ 739 – \$991) in 2015,<sup>8</sup> their study suggests the middle class to have been 166,515 in 2009 and 272,569 in 2015 constituting only 8.5% and 11% respectively of wage

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<sup>4</sup> AfDB disaggregates the middle class into three daily per capita consumption sub-categories as the floating class (\$2 – \$4), lower middle class (\$4 – \$10), and upper middle class (\$10 – \$20) (AfDB, 2011).

<sup>5</sup> Rateng (2014) questions the veracity of the proportion viewing it as an exaggeration when compared to reality.

<sup>6</sup> This number is estimated as a percentage of Kenya's total population of 38,610,097 in the 2009 population census (KNBS, 2010).

<sup>7</sup> The others include: South Africa, Botswana, Ghana, Gabon, and Côte d'Ivoire.

<sup>8</sup> Using exchange rates: US\$ 1 = Kshs 75.85 in 2009; US\$ 1 = Kshs 103.33 in 2015.

employment. They suggest that Nairobi's size of the middle class in wage employment in 2012 was 62,409.<sup>9</sup> Similarly, South Africa's Standard Bank (2014), taking a conservative view as well, suggests that the size of Kenya's middle class is only 4% of Kenya's households.

In explaining the drivers of the growth of the middle class in Africa, AfDB (2011: 14) highlights four critical factors: economic growth; an expanding private sector; "stable, secure, well-paid jobs with good benefits," and "higher tertiary education." In addition, beyond consumption and income, the development bank also suggests a number of characteristics of the middle class:

education, professions, aspirations...lifestyle...permanent dwellings with modern amenities...ownership of major household durable goods such as refrigerators, telephones and automobiles...salaried jobs or small business...smaller family sizes...fewer children...values aligned with greater market competition... (AfDB, 2011: 6)

In the interviews conducted with residents in the study area, I corroborated a number of these factors. Interviewees had at least tertiary level education, owned automobiles, had few (2 to 3) or no children, either owned or rented the apartments they lived in, and were either in salaried employment or owners of small businesses.

The middle class make a living in a wide variety of ways. They are frequently in formal employment or proprietors of successful businesses. In interviews conducted in *Kileleshwa*<sup>10</sup> neighbourhood, sampled residents mentioned a motley of professions and modes of earning income. Some of the means by which income was earned was as: doctors, business persons, consultants, and as politicians. It was not unusual to find some engaged as expatriates in other countries but investing back into the real estate sector in Nairobi.

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<sup>9</sup> Middle class range: Kshs 57,308 to 77,922 (US\$ 666 – \$905). Using 2012 exchange rate: US\$ 1 = Kshs 86.10.

<sup>10</sup> This was the case study residential neighbourhood located in the western suburbs of Nairobi, 4 km from the CBD.

Despite lack of clarity and consensus on the actual size of the middle class in Kenya, there is ample evidence of increased conspicuous consumption in Nairobi. This includes a mushrooming of large malls in various parts of the city, an influx of international brands into the local market, a spike in motor vehicle registration figures and a housing construction boom in the formal residential areas of the city. New malls<sup>11</sup> (See fig. 2) have sprung up in Nairobi and vicinity within the wider metropolitan area, as is happening elsewhere in other African urban centres (Neubert, 2016: 110). International brands increasingly are entering the Kenyan market; e.g *Dominos Pizza*, *Pizza Hut*, *Burger King*, *Subway*, *KFC* and *Cold Stone Creamery* in addition to other international firms such as the rideshare service, *Uber* and the French retailer *Carrefour* (Makunda, 2017; Cyttonn, 2018).



*Figure 2: The Hub Mall in the Karen suburb of Nairobi completed in 2016*  
(Source: Author, 2017)

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<sup>11</sup> Over the last few years, a number of mega malls have sprung up in Nairobi: Garden City Mall, size 50,000 sq.m., opened in 2015; The Hub Mall, size 35,000 sq.m., opened in 2016; Two Rivers Mall (the largest mall in East and Central Africa), size 65,000 sq.m., opened in 2017 (Nduire, 2016; 2017).

Automobile ownership has increased (Trading Economics, 2018)<sup>12</sup> with a concomitant rise in traffic congestion on the city's streets. And, significantly, for the urban habitat, developers are developing apartments in historically low density residential areas in response to the formal housing need of the growing middle class. The new apartments are not only shifting the physical profile of residential neighbourhoods from horizontal to vertical but are diminishing in size as their prices increase. In promotional materials, they are likened to Western style concepts such as 'New York Style' apartments outfitted with 'European' furniture and fixtures (Makunda, 2017).

### **Middle class real estate market and urban habitat**

The middle class are an important factor in both the real estate sector and the wider economy. As mentioned earlier, they have been associated with the emergence of apartment developments in historically low density urban habitats. To developers and investors, they represent effective demand for new housing hence are a significant means to a reliable return on investment. In recent years, a large influx of foreign direct investment and diaspora remittances into Kenya's economy has resulted in a booming real estate sector in urban areas such as Nairobi. Kagochi and Kiambigi (2012) suggest a link between diaspora remittances and increasing demand for housing construction in Kenya. Between 2004 and 2017, annual diaspora remittances<sup>13</sup> increased from US\$337.3 million to US\$1.9 billion, topping the US\$1 billion mark in 2012 (Central Bank of Kenya [CBK], 2018). Residential construction now accounts for three quarters of building permit approvals in Nairobi (Kenya Property Developers Association [KPDA], 2018). The share of apartments compared to detached and semi-detached houses in the market has increased from 45.3% of the market in 2001 to 63.4% of the market in 2017 compared to a decrease from 34.1% to 18.5% share of the market for detached houses (Hass Consult, 2018). To the government, the middle class are an important factor in the wellbeing of the country's

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<sup>12</sup> New vehicle registrations in Kenya currently average at more than 20,000 per month (Trading Economics, 2018). The cumulative number of registered vehicles in Kenya increased threefold from 749,680 to 2,458,731 in the decade between 2005 and 2015 (National Transportation and Safety Authority [NTSA], 2018).

<sup>13</sup> According to the World Bank (2017: 24, box b.4) Kenyan diaspora remittances in 2016 amounted to US\$1.6 billion, equivalent to 3.4% of Kenya's GDP and in the new millennium, between 2001 and 2014, annual Kenyan diaspora remittance was 6 times more, on average, than foreign direct investment (FDI) to the country.

economy. Kenya's GDP growth rate at an average above 5% over the past decade (KNBS, 2018; World Bank, 2017) has occurred in tandem with a growing middle class (Shah & Ruparel, 2016). And, real estate has contributed more than 7% to the GDP each year since 2013 (KNBS, 2018: 22). Arguably, a sizeable middle class represents economic health and stability (Birdsall, 2010) since they are likely to be financially secure both in terms of ownership of property that represents significant financial investment (e.g. housing and cars) and a high disposable income and access to regular employment, as well as having their wishes for a better quality neighbourhood accommodated by city authorities.

### ***The Appeal of Kileleshwa Neighbourhood***

Apart from the need for shelter, the middle class have aspirational values (Lentz, 2016). Both buyers and renters are motivated by a number of factors. They desire convenient locations to places of work, shopping, and schooling for their children. They also actively seek out places that they perceive to be safe but are also motivated by the prestige of a residential address. *Kileleshwa* appears to meet the foregoing criteria. It is only 4 kilometres from Nairobi's CBD. It is close to most of the city's key commercial centres. It is also a short distance to important amenities such as shopping centres, the Nairobi Arboretum, and public parks close to the city centre, as well as recreation centres. And, it is close to a variety of schools and places of employment. A composite of responses by some of the interviewed residents to the question on their reasons for choosing to buy and live or rent in *Kileleshwa*, illustrates the appeal of neighbourhoods such as *Kileleshwa* for the middle class:

Accessibility...Status, security, accessibility to CBD...*Kileleshwa* is a pretty urban area, better developed than most...it has good views as you can see from the balcony...it's beautiful. It's a really nice place to have your children grow...it's a better area to stay. It's near most of the facilities, it's strategically located...We chose the *Kileleshwa*...area because we wanted the one that is nearer school. First, we chose the school for our daughter who was...to begin school then...we looked for apartments near the school...because we didn't want to stay in a place where the school transport will be coming at 6 a.m. to pick her...we wanted a place where it is reasonable and would come at 7:30 or thereabouts...Convenience...

(Resident, RS 01; Resident, RS 02; Resident, RS 03; Resident, RS 04; Resident, RS 05)

While exchange value features prominently for buyers; for those who buy to live in the apartments or rent the apartments, symbolic value, besides use value, is arguably more important. The choice to live in neighbourhoods such as *Kileleshwa* may be due to aspirations of being modern as defined from a western perspective. As Watson (2017:12) points out, “middle class tastes for particular built forms and living environments...” indicates the, “ways in which modernization has become entrenched in post-colonial societies...” Thus, the middle class may find it prestigious to be associated with historically upmarket neighbourhoods such as *Kileleshwa*. The exotic-sounding suffixes of the names of *Kileleshwa*'s new apartment complexes such as 'wood' and 'ville' betray a bias towards association with the global North. Equally revealing are words such as 'park' and 'villas' that frequently constitute part of the complexes' names.

Thus, it comes as no surprise that some of the most intense transformation of low-rise houses to high-rise apartments is occurring in *Kileleshwa*. The transformation to high-rise apartments is occurring even though the city's zoning regulations stipulate a height limit of 4 floors for the residential area. The newly developed apartments range from 6 to 12 floors. Not only does the ever increasing apartment height beyond the height limit indicate a high level of irregularity in the housing development process, it exposes the significant demand by the middle class for housing in desirable residential locations.

### **Middle class access to housing**

Apartments being developed in Nairobi are expensive. Those in *Kileleshwa* are no exception having increased in price more than two-and-a-half times since 2007 (Hass Consult, 2018). Knight Frank (2018) listed Nairobi 75<sup>th</sup> in its latest PIRI index of 100 leading city residential markets in the world. CAHF (2018) noted that, in Kenya, the least expensive housing cost US\$ 15,753 for a developer built 30 square metre unit. According to Hass Consult (2018), the average value of a 1 – 3 bedroom property is 14 million Kenya shillings [KShs] (US\$ 138,614) and the average rent per month of a similar property is KShs 66,268 (US\$ 656).<sup>14</sup>

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<sup>14</sup> Based on an average exchange rate of US\$ 1 = 101 Kenya shillings (KShs).

### ***The Mortgage Barrier***

The cost and nature of mortgages is a significant barrier to accessing housing in Kenya's urban areas. Kenya had a total of only 24,085 mortgages<sup>15</sup> in 2016 (CBK, 2016:18). The typical payment to household income ratio was high at 51% in 2014 (Housing Finance Information Network [HOFINET], 2018). The average mortgage value was low at Kshs 9.1 million (US\$ 88,867).<sup>16</sup> The loan maturity period was fairly short, averaging 12 years, but ranging from 5 to 25 years. And, the average mortgage interest rate was high at 13.46% but ranging between 10.5 and 18% (CBK, 2016: 19). Thus, mortgages are not so easy to access. CBK states that this is due to the many factors that banks have to evaluate in deciding the risk they're taking on a potential borrower (See Table 2).

**Table 2: Risk Factors considered by banks in evaluation of mortgage applications**

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<b>Mortgage Risk Factors</b>
1. Ability and willingness to repay – Debt Service Ratio
2. Collateral/security value – Loan to Value and Location of the property
3. Sustainability of the borrower income – terms of employment
4. Industry outlook
5. Legitimacy of the property – it should be free of encumbrances
6. Credit history and Credit Reference Bureau Reports
7. Caveats on the property
8. Collateral/security value – Loan to Value and location of the property
9. Property location and ease of sale in case of default

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*Source: Adapted by author from CBK Bank Supervision Annual Report, 2017 (CBK, 2017: 19)*

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<sup>15</sup> These mortgages were valued at KShs 219.9 billion (US\$ 21.5 million) in 2016 (CBK, 2016: 18)

<sup>16</sup> Based on the 2016 exchange rate of US\$ 1 = 102.4 KShs (CBK, 2016: 18).



According to the World Bank mortgage debt in Kenya was 3.15% of GDP compared to South Africa at more than 30% and the U.S.A. at 59%, indicating a very low level of market penetration (World Bank, 2017: 27-28). This raises the question of how the middle class are paying for housing. The reality, however, is that the level of mortgage uptake does not represent the full picture of house buying behaviour in the Kenyan real estate market. To navigate the challenging terrain, the middle class deploy a number of strategies to access housing.

### ***Buying Strategies***

One realtor offered a possible explanation of who buys housing by describing the disaggregation of the middle class pointing to who is able to afford to buy and who is only able to afford to rent. She suggested that professionals, business people and those in senior management in government parastatals were able to afford to buy with those below top management only able to afford rent up to a certain ceiling (Property Developer, PD 02). But her comment only goes part of the way in shedding light on who is buying and says little of how the buying is being done. The middle class category she portrayed as able to afford to buy is too small to account for the high number of apartments coming online on the market annually at ever increasing costs yet quickly selling out.

From interviews with developers, realtors/real estate agents, and middle class residents, it was apparent that a number of buying strategies are deployed by the would-be middle class purchaser of an apartment. These buying strategies have developed as a way in which developers and potential buyers work within the realities of the local economy in which reliable finances is a constant challenge. There are a variety of buying strategies open to the would-be middle class buyer with insufficient income. These buying strategies are possible because developers are willing to consider alternative buying approaches that would ensure that they sell as many apartment units as possible by the time the project is complete. Three main buying strategies for buying housing are discernible from the interview and document review findings (Table 3), which a developer and a potential buyer may agree on. In all instances, the key entry point is having sufficient deposit.

**Table 3*****Apartment Purchase Payment Plan Options in Nairobi***

<b>Payment Plan</b>	<b>Payment Arrangement</b>	
	<b><u>Deposit</u></b>	<b><u>Balance of payment*</u></b>
A Cash	10 – 30%	Balance within 90 days.
B Cash Installment	10 – 30%	Balance in regularly staggered installment payments over the duration of the construction period. (Typically, 24 months).
C Mortgage	10 – 30%	Balance as mortgage from a bank upon completion of the project.

*\* Not indicated are government taxes (stamp duty: 4%) for title transfer (all options) and bank costs (mortgage option).*

Source: Compiled by author from interviews and document review

The Cash payment plan, option (a), is a buying strategy that offers the highest returns on investment for the buyer since the apartment is bought 'off plan'<sup>17</sup> or pre-construction. It therefore carries the greatest amount of risk. The Cash installment or stage payment plan, option (b), offers the best flexibility for buyers wishing to balance risk and a significant return on investment since the buyer can track construction progress throughout the intervals of making payments. The mortgage payment plan, option (c), is the most expensive way to go since mortgages in Kenya are pegged at an interest rate of 14%.<sup>18</sup> In addition, the developer adds a premium to the purchase price of the apartment (e.g. 15% of the cash payment plan option) to this payment option hence the return on investment for this option is not as significant for the buyer as that for the cash and cash installment options. The mortgage option is also the least risky option since a mortgage can only be granted on the basis of an actual building. Option (c) thus does not represent a complete picture of buying options for the middle class buyers. The

<sup>17</sup> On the basis of the plan i.e. without the existence of an actual physical structure on the ground apart from the foundation, and in some instances, only on the basis of the existence of the intended construction site.

<sup>18</sup> Interest rates were higher than 20% until a rate cap of 14% was instituted through a legislative Act of parliament in the Banking Amendment Act of 2016 (Kenya Bankers Association [KBA], 2018). There has been recent pressure from local banks to have the cap revoked on the basis of the argument that the cap resulted in a drying up of credit in the local market since the banks are forced to use the same maximum interest rate regardless of the borrower's credit history (Ibid).

middle class buyers used a combination of savings and their income to buy apartments over the duration of the construction period.<sup>19</sup> It is a particularly risky approach but those able to manage the financial arrangement appear to take the risk in stride since the returns on investment are quite significant when an apartment is bought before construction is completed.

### ***Motivations for Buying or Renting***

Those who buy are motivated by a number of factors – including the opportunity to own and live in a home in a secure and prestigious location or the opportunity to make a significant return on investment by; i) selling the property on completion or shortly after to cash in on the property's appreciation in value to the prevailing market value or ii) retaining the property but rather than live in it, lease it for rental income.

However, not all those who can afford to buy do so, for one reason or another. Some opt to rent even though their income qualifies them to own. Convenience was a significant factor when it came to opting to rent. For example, an interviewee, a medical doctor whose spouse was also in the medical profession stated that their main reason for choosing the location was primarily proximity to the place of schooling for their daughter whom they wanted to be near enough to the school she attended so that she did not have to take the school bus very early in the morning (6 a.m.) but could go to school at a reasonable time (7:30 a.m.) instead – to them, her welfare came first as a location choice factor.

On the issue of buying an apartment, the interviewee stated that buying an apartment was something the couple would do primarily because of the security that it offers. As he stated:

I think I would still buy an apartment. We're actually planning to buy one and it's simply because of security. I think it's more secure that you have a common entry with so many people coming in and it's a little bit more secure in Nairobi rather than having your own compound where somebody can easily come in and lock you in your compound where

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<sup>19</sup> The current average duration of construction from start to finish is 24 months.

nobody knows. So, you see here even if somebody was to waylay you at the gate they're not sure if your neighbour is behind you coming or who else is going out.

(Resident, RS 05)

The issue of security as a driving factor for buying apartments was reiterated by an urban commentator with expertise in real estate development who noted how wealthy property owners were selling their upmarket single dwelling houses on large lots in the outer suburbs of Nairobi and were then buying apartments in gated communities because of security amongst other factors e.g. shared costs, sense of community, etc.

...one of the things I consider is security...to me that's paramount because when you're living in such apartments, you're living in a kind of gated community. There's a close neighbourhood, there are common entrances, the same parking, so you feel safer. So, security to me is important. The other thing is... as compared to the bigger bungalows, the bigger compounds, here you have shared facilities so even the quality and the cost will go down. Now things like parking, even that security itself, waste management... there would be better quality, one, because a lot of those communities form themselves into groups. There are management...committees.

(Urban Commentator, UC 01)

### ***Choice of Method of Buying***

The choice of method of buying, whether cash plan, instalment or mortgage, boils down to affordability or one's means. If one is well endowed, they go for the cash plan, which though it comes with the greatest risk, also offers the greatest return on investment on the final cost of the property with the price differential accruing to the buyer. The second option of stage payments appears to be the preferred option even for those who might conceivably qualify for a mortgage. Rather than take a mortgage, they would rather pay down as much as possible in terms of the down payment and some of the stage payments, then instead of taking a mortgage, take a personal loan that they pay down through e.g. rental income from letting the property out. In addition, even when they know that they probably qualify for a mortgage with the down payment that they have, they would still prefer the stage payment in order to benefit from the

discounted rate of the apartment unit compared to the mortgage price, which always comes at a premium.

The difference between the mortgage price and cash instalment is typically at least 1 million Kenya shillings [US\$10,000] and the difference between the cash and stage payments is usually another million Kenya shillings. Since the mortgage price is typically the estimated market price<sup>20</sup> for the apartment unit when it gets completed, choosing the two other payment options (cash or stage payments) results in significant savings or profit upon the completion of the apartment project. So, even if the property appreciates in value after completion (hence motivation to sign the agreement for a mortgage plan payment option, where this is the buyer's only viable option, even before completion to lock in the estimated mortgage price, with a promise of an undertaking from the bank), those who bought on the cash plan or cash instalment plan still benefit more than the mortgage buyer who remains exposed to the vagaries of the interest rate, which (at least before the rate cap) tended to vary widely – shooting up unexpectedly every year. A property developer highlighted some of the challenges that arose from the fluctuation and unpredictability of the interest rate describing how he had to sell one property in an upmarket neighbourhood (*Lavington*) to avoid foreclosure on his property in *Kileleshwa* on which he was developing apartments:

It's a good thing the interest rates were capped. Up to 2013 when the interest rates were 15% loans were easy to service from the investment income. But all of a sudden interest rates shot up to 24%. I had to sell a property in *Lavington* in order to pay off my loan in the bank for the investment in *Kileleshwa*.  
(Property Developer, PD 01)

Lack of sufficient income at the time of buying the property results in some opting for the cash stage payment plan or mortgage. For the former, the additional income is sought after through various means e.g. consultancies to supplement regular employment income. For the latter,

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<sup>20</sup> The bank requires valuation of the apartment unit after construction is completed to determine the prevailing market price before a mortgage application is approved.

mortgages are much tougher to access due to credit history and ability to repay based on income as some of the critical qualifying factors.

### ***Experiences with Different Payment Methods***

Those on the cash plan seem to have a more or less problem free buying experience because in essence they do have the money, for example, in savings or high income and all they are doing is deciding where to invest (They are most likely second home buyers).

Those that do installment or stage payments sometimes do run into problems in terms of finding the instalment cash on time. If unable to make instalments on time, they usually seek a personal loan from a bank or from a developer<sup>21</sup> who has the facility to do so but at a higher interest rate than the bank. A developer noted how this occurs and how they have a penalty system for delayed payments. The developer in this case was able to offer a high interest rate loan (akin to a loan shark – at 3% per month), which in a year would translate to 36% (Property Developer, PD 03), which is considerably higher than a bank's default penalty. So, it can be highly punitive. If, even with this loan option, the buyer is still unable to pay then they forfeit the property in addition to a certain percentage of the property value. The property is then sold to another buyer at the same or higher price. For personal loans from the bank, the repayments can be relatively steep; up to two-thirds of income. This is mostly due to the short repayment period with a maximum length of about 6 years<sup>22</sup> (Kenya Bankers Association [KBA], 2018b).

Those who take on mortgages were always at risk of being hit by escalating interest rates. The situation is somewhat better with the current interest rate cap but compared to the global North, the capped interest rate is around 5 times higher. Yet there is pressure, locally, from the banking

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<sup>21</sup> A loan from the developer with the facility to do so is only possible where there is an existing financial relationship between the developer and buyer i.e. the buyer has to be already in the process of buying property from the developer.

<sup>22</sup> This is a loan period for unsecured personal loans based on a review of repayment periods of Kenya's leading local banks. (KBA, 2018b).

sector<sup>23</sup> and, internationally, from the International Monetary Fund (IMF) to remove the rate cap, which Kenya's parliament has resisted so far (Ndiso & Malalo, 2018) although it may capitulate to the demands at some point in the near future.

For the most part, middle class buyers prefer the cash plan or stage payment plan modes of payment rather than the mortgage plan. This is because these options offer a favourable rate of return on investment. The stage payment plan also offers the buyers greater flexibility in terms of a payment plan. The buyer can come to a mutual agreement with the developer to make regular payments at a financially comfortable interval during the construction period. Conversely, loans from the bank, both personal and mortgage are costly. The cost of credit in Kenya is extremely high. For example, the typical average loan while subject to the prevailing rate cap eventually adds up, over the duration of the repayment period, to almost twice the rate cap.<sup>24</sup>

### **Reflections on middle class access to housing**

While the middle class are perceived to represent the need for housing in the formal market, they have limited agency (Makunda & Ellefsen, forthcoming) in determining the form of housing on offer in the market. As outlined earlier, the housing in the middle class housing market is expensive and credit is limited. Because of this, developers are willing to compromise, though minimally, their opportunity to make a significant return on investment by accommodating alternative flexible buying strategies while still retaining the mortgage option for those who may still find the alternatives to be unaffordable. The middle class have to conform to conditions imposed on them by the developer supplying the housing on the market. They use buying strategies to access housing that are sanctioned by the developer, but which fail to dislodge the prevailing system of housing production instead further entrenching the developers dominant position in the housing market.

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<sup>23</sup> The push for a rate cap removal by the banking sector is spearheaded by KBA. However, KBA is not a non-partisan party because it is the umbrella body for Kenya's local banks.

<sup>24</sup> KBA in conjunction with CBK, in demystifying the cost of credit, offers an online calculator on its website for calculating the actual cost of credit offered by local banks. See calculator at: <https://www.cost-of-credit.com/>

Developers stand to gain the most in selling an apartment unit at its market value upon completion. The anticipated strategy is for the middle class buyer to buy the apartment unit by obtaining a mortgage from the bank. Official statistics<sup>25</sup> (e.g. reports by CBK, KNBS, World Bank, KBA) capture the quantity of mortgages that evidence this activity and measure it in terms of degree of availability of credit in the market. However, what the data fails to capture are the buying strategies deployed by the buyer to access housing without recourse to mortgages. Given the limited penetration of mortgages, middle class buyers are adopting the strategy of buying apartment units 'off plan' or pre-construction. This is the case where they use various forms of cash installment buying arrangements (see Table 3). This strategy works because the developer reduces his financial exposure during the construction period despite offloading the unit below market value while the middle class buyers obtain apartment units at below market value with the appreciation in value of the apartment units on completion (when they become saleable at market value) accruing to their benefit. Additionally, the middle class buyers are employing a number of strategies to find the finances to fulfil their financial obligations to the developer. These include: undertaking private consultancies to augment salaried employment in order to meet the cash instalment payment obligations that exceed income from regular employment; personal loans from banks and Savings and Credit Cooperative Organizations (SACCOs);<sup>26</sup> and engagement in short-term but high paying expatriate consultancies. In other words, a regular, above average income is necessary. One interviewee mentioned making money to pay for apartments using his profits from engaging in bitcoin transactions. He had managed to buy two apartments using the cash instalment arrangement. Another interviewee managed to buy an apartment using the cash instalment plan from income gained in engaging in multiple short-term expatriate consultancies in combination with savings and a personal loan from the bank. Then there are those who use a combination of their regular employment income and personal savings accrued over several years of regular employment.

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<sup>25</sup> Official reports document housing statistics that include the number and value of housing projects as well as the number of mortgages.

<sup>26</sup>A SACCO allows a member to borrow up to three times their savings in the organization.



The motivation to buy an apartment 'off plan' stems primarily from the desire for a significant return on investment or profits achievable upon completion of the apartment and its valuation at market rate, which is typically higher than its pre-construction value. At this point the buyer can either sell the completed apartment to benefit from its appreciation in market value or retain it as a prestigious residence or source of rental income. Thus, the pre-construction purchase makes it possible to access an otherwise inaccessible apartment unit in a desirable residential location. This is an exercise of agency on the part of the middle class in making use of an opportunity to profit from an otherwise inaccessible housing market. Nonetheless, while the 'off plan' middle class buyer makes a modest profit from the property's appreciation on completion, the developer makes away with the lion's share of profits since the combined profit of all the apartments sold regardless of the buying arrangements, collectively accrues to him. Developers profits can be as high as 30% as an architect remarked: "...Many of the clients you get are developers who look at making between 25 and 30% return on investment..." (Architect, AR 01). Hence, in deploying the various buying strategies, the middle class are able to make it in the relatively inhospitable real estate market ending up with a significant investment and access to a prestigious neighbourhood.

## **Conclusion**

The middle class are an important factor in the context of rapid urbanization and population growth in Africa. In Kenya, through their impact on the real estate sector in urban areas such as Nairobi, they're significantly contributing to the economic well-being of the country. While a definitive account of their actual numbers is elusive, the magnitude of their impact on the urban habitat is evident. Most significantly, their demand for housing has resulted in the ongoing rapid transformation of low-rise housing to high-rise housing in some of the city's historically upmarket neighbourhoods. Although the developed housing is expensive, the middle class have deployed a number of flexible buying strategies to access the housing. In choosing to buy, they are not only motivated by security and the prestige of the residential address but also by the opportunity to make a significant return on investment in the event that they sell the property on completion or some time afterwards. In situations where the middle class choose to rent due to insufficient income for buying or because of not being ready or willing to buy at the time, they're still motivated by the prestige of the address but, more significantly, by the convenience of the location.

The growing middle class are a distinct feature in the current nature of urbanization in sub-Saharan Africa. They represent an opportunity for escaping the binary between the minority elite and the majority non-elite that dominates the discourse on Africa. While inequality is a stark reality, the middle class are propitiously situated in the middle and represent the potential for a stable prosperous future. And, as Lentz (2016: 46) puts it; “Much more than other class cultures, middle-classness seems to embody not only actual socio-economic achievements and actually practiced lifestyles, but desires and aspirations...” It is potentially a much more inclusive social category that speaks more to hope than despair or exclusion. Arguably, their entry into historically exclusive upmarket residential areas is contributing to the diversity of the city in reducing the extreme spatial segregation of the city’s housing that is based on socio-economic status. However, as a class, the middle class is still a nascent category on the continent, with the vast majority precariously middle class and in danger of slippage into the lower echelons of society.

In terms of housing, as their clout increases with growing financial stability, they can gain power to influence future trends by insisting on quality, regularity, and sustainability through the choices they make. The current challenge is that many are only too happy to own a home despite its poor quality, irregular provenance or unsustainable form and attributes since ownership of a home carries with it a great deal of social prestige. And, to a large extent they heavily subscribe to foreign values that arguably limits their ability to form much more locally rooted hence more sustainable social values such as a sense of community as opposed to a more individualistic lifestyle. Nevertheless, they still desire a better habitat in terms of apartment space, neighborhood character, and physical and social infrastructure.

Overall, there is need to move away from exclusively pro-poor policies in favour of embracing policies that also include the middle class, which will have the net effect of improving the lot of both income categories. For example, instead of a policy that exclusively focuses on affordable housing for the low income, which would further entrench the income segregation of the city, a better policy would focus on affordability for both income segments and would, in the case of market rate housing, insist on the provision of a certain percentage of affordable housing as part of the housing development approval process. This would have the desirable

effect of increasing access to housing for a wider range of income groups while enhancing income diversity within the same residential neighbourhood.

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## Journal Article

### **Article IV:**

Makunda, C.S. & Edeholt, H. (2019). The unsustainability of urban habitat transformation: A case study of Kileleshwa in Nairobi, Kenya. *Africa Habitat Review Journal* 13(1): 1547-1560.





# The Unsustainability of Urban Habitat Transformation: *A Case Study of Kileleshwa in Nairobi, Kenya*

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## Abstract

*This paper interrogates the issue of sustainability of the market-driven urban residential transformation of Nairobi through a case study of Kileleshwa, a residential neighbourhood located in the western suburbs of the city. The paper examines the impact of the ongoing transformation from low-density housing to higher density high-rise apartment housing on the sustainability of the urban habitat. This is predicated on an understanding of sustainability in which its components are hierarchically organized to privilege the environmental component over the social and economic ones. The investigation was undertaken qualitatively using the case study of high-rise apartment blocks. This entailed qualitative interviews with key actors implicated in the process of transformation including property developers, the local authority, and residents. Research methods also included visual documentation of the apartment blocks being developed as well as document review of public sector and private sector reports on the real estate sector. The results indicate that the current production of housing in Kileleshwa is unsustainable. This is demonstrated by the inadequacy of the neighbourhood's infrastructure in supporting the current trajectory of the habitat's densification. The infrastructural challenges are discussed in detail highlighting the extent to which they are leading to unsustainable transformation. A reframing of the approach to urban development that requires a paradigm shift in prioritizing the environmental component of sustainability and deliberate planning for densification in place of the current ad hoc approach to urban development is also discussed. The paper concludes that sustainable urban development requires both a foregrounding of environmental concerns and the adoption of a holistic approach in the satisfaction of urban needs such as housing with their commensurate physical and social infrastructure. The paper recommends the upgrading of the existing physical infrastructure to support densification, and the redirection of the ongoing urban development towards the more sustainable compact city structure.*

**Keywords:** Apartment housing, climate change, densification, Kileleshwa, Nairobi, sustainability, unsustainability, urban transformation.

## INTRODUCTION

Long term sustainability is arguably the *zeitgeist* of the 21<sup>st</sup> century. With the turn of the millennium sustainability has become an important global concern. This is evident in the opening two decades of this century. Calls have arisen to address the growing threat of global climate change particularly due to anthropogenic factors. The issue now features prominently in the international press.

The concerns with global warming and the need to keep global temperatures below two degrees celsius above pre-industrial levels culminated in the signing of the Paris Agreement on climate change in November 2016 (United Nations

Framework Convention on Climate Change [UNFCCC], 2018). This was an acknowledgement by world leaders of the urgency of the matter and the need for concerted global efforts in addressing climate change. Only a year earlier, the United Nation's Sustainable Development Goals (SDGs) had been agreed to at the sunset of the Millennium Development Goals (MDGs) (United Nations Department of Economic and Social Affairs [UN-DESA], 2018a). The 17 SDGs are a deliberate move to place sustainability at the top of the global agenda (UN-DESA, 2018a).

Further, the Katowice COP24 agreement was adopted in December 2018. It will operationalize the Paris Climate Change Agreement in 2020

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(McGrath, 2018). In addition, the New Urban Agenda (NUA) was adopted in October 2016 at the United Nations Conference on Housing and Sustainable Urban Development (Habitat III) held in Quito, Ecuador (United Nations [UN], 2017). It calls for a global reconsideration of urban systems and the physical form of urban spaces in the pursuit of, a shared vision for a better and more sustainable future (UN, 2017). In viewing the urbanization of cities, if well-planned and well-managed, as an opportunity for achieving sustainable development, it is well-aligned with SDG 11 that focuses on the sustainability and resilience of cities (UN, 2017).

The seriousness of climate change is underscored by the extreme weather events now featuring regularly in global news headlines. Heatwaves and record temperatures are now an annual occurrence as are extreme wildfires decimating hundreds of acres of forests in various parts of the world. In July 2019, Western Europe experienced an extreme heatwave with the highest ever temperatures recorded in the Netherlands, Germany and Belgium (BBC News, 2019). Hurricanes, cyclones and tropical storms are increasingly grander, more severe, and more frequent across the globe. In March 2019, Tropical Cyclone Idai devastated Mozambique and Malawi when it led to extreme flooding that resulted in the destruction of homes, displacement of thousands of people and at least 60 fatalities (United Nations Office for the Coordination of Humanitarian Affairs [OCHA], 2019). Melting arctic ice has raised fears of sea-level rise that would have catastrophic consequences for heavily populated low lying human settlements, particularly coastal regions. Heavier rainfall with its concomitant floods, property destruction, and loss of life, is now a common occurrence. Drought, water shortage and increasing food insecurity has become a major global concern. In early 2018, Cape Town, South Africa, came perilously close to running out of portable water (Alexander, 2019).

The world is already majority urban (UN-DESA, 2014) with 55% of the global population residing in urban areas in 2018 (UN-DESA, 2018b). However, while this is the case in the global North, the situation varies in the global South. Asia is estimated to be 50% urban with Africa only 43% urban (UN-DESA, 2018b). However, both continents are predicted to account for 90% of the

global urban population growth anticipated by 2050 when the global population is projected to be two-thirds urban (UN-DESA, 2018b).

Sub-Saharan Africa (SSA) is experiencing rapid demographic change and unprecedented rates of urbanization. While the continent's economies are growing, the pattern is uneven with most of the growth occurring in East Africa. The consequence of this is rapid transformation of East African cities. The pace and magnitude of the transformation is rapidly altering the cities in an ad hoc manner, which threatens their viability as sustainable urban settlements. Thus, their current trajectory raises an important question regarding urban sustainability: Is the current approach to urban development sustainable? As will be demonstrated in this paper, the current approach to urban development is not leading to sustainable outcomes. For example, in Kileleshwa, the ongoing densification of housing is straining extant infrastructure.

The paper suggests the need for a re-evaluation of present approaches to development if a shift onto sustainable pathways is to occur. This is done by focusing on habitat transformation in Nairobi, the capital of Kenya and a fast-growing city in East Africa. Of interest is the nature of the processes and outcomes of habitat transformation in relation to the concept of sustainable urban development. Thus, the paper focuses on the transformation of the built environment in a residential neighbourhood and the ways in which the ongoing replacement of low-rise single-family detached housing units with high-rise multi-family apartment blocks is altering the characteristics of the urban habitat and impacting on the long-term sustainability of the urban settlement.

The world is on a trajectory to become two-thirds urban by 2050 (UN-DESA, 2014). With urbanization occurring fastest in the global South, which is still mostly rural (UN-DESA, 2014), it is ever more imperative that a sustainable urban context becomes the focus of development if the future is to be a viable one for present and future generations.

## THEORY

The term sustainability while in common use

is itself problematic. There is lack of universal consensus on its meaning and appropriate usage. Thus, it has been deployed in various ways in scholarly discourse on sustainability and sustainable development. Ancell & Thompson (2008), in relation to housing, focus on what they refer to as social sustainability. In this, they view it as including notions of social equity and social justice. Taking a broader perspective, Burton, Jenks & Williams (2003) consider various notions of what a compact city in relation to sustainable development may mean highlighting the different ways in which the compactness of the city, particularly in relation to residential areas, has been inconsistently conceived. On the other hand, Dalglish, Bowen & Hill (1997), in relation to affordable housing, bring to the fore the environmental sustainability of housing. They argue that despite new building procurement systems indicating an increasing awareness of sustainability, the concentration is on economic and social sustainability at the expense of environmental sustainability. Dessein et al. (2015) argue for an approach to sustainable development in which culture takes centre stage while Unsworth (2015) suggests features of a sustainable neighbourhood that include durable physical infrastructure, connectivity, and accessibility as well as other supportive services.

Meanwhile, Jabareen (2006) in a comprehensive analysis drawing extensively from sustainable development and environmental planning literature, identifies four types of sustainable urban forms; the neo-traditional development, the urban containment, the compact city, and the eco-city. These various approaches in scholarly discourse differ primarily on the dimensions of sustainability that is emphasized. Nevertheless, the World Commission on Environment and Development (WCED)'s definition of sustainable development is generally viewed as a useful starting point for understanding sustainability. The Commission's 1987 Report, *Our Common Future*, popularly known as the *Brundtland Report*, defined sustainable development as "... development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (WCED, 1987)

In acknowledging future generations, it can be

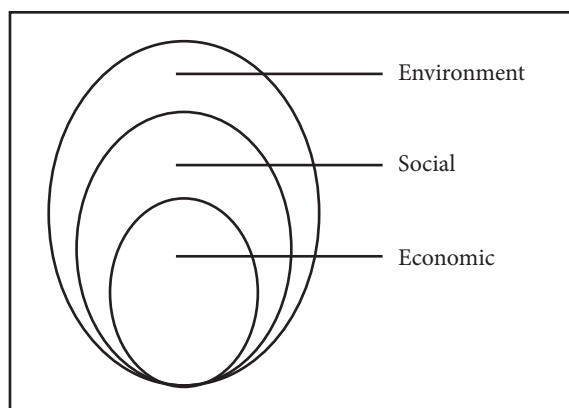
argued that the commission had an eye on long term sustainability. However, the stark reality, though, is that the definition, as we have argued elsewhere (Makunda & Edeholt, 2016), has been misapplied in fronting the economic dimension at the expense of both the social and environmental dimensions of sustainable development. Consequently, the environment has been viewed as subservient to the economy with resultant deleterious effects for long-term sustainability.

Challenging the current use of the term sustainable development, Cuthbert (2006) argues that it is used to refer to how much abuse nature can withstand rather than to how much it should be respected. Cuthbert (2006) decries the lack of a supporting political agenda for the key approaches to sustainability in sustainable urban design which he summarizes as formal solutions supported by appropriate technologies and better management of resources (Cuthbert, 2006).

The importance of the environment in sustainability was emphasized by the late Wangari Maathai, the 2004 Nobel Peace Prize Laureate. In the context of the now expired UN Millennium Development Goals (MDGs), Maathai (2010) argued that ensuring environmental sustainability (which was MDG 7) should have been the goal around which all other seven MDGs were arrayed.

In this paper, sustainability is viewed as hierarchical in the interrelationship between its three key dimensions. The paper suggests that prioritizing the environmental dimension over the social and economic dimensions offers a useful conceptual lens with which to interrogate the issue of sustainability within an urban context. While not negating the importance of the social and the economic components in the understanding of sustainable development, the proposed reframing suggests that privileging the environmental dimension over the others is more likely to lead to sustainable outcomes. The environmental dimension is arguably critical for the long-term viability of human society. As the late Wangari Maathai argued, without human beings, the creatures and plants and trees would flourish; but without those species, human beings have no hope of survival (Maathai, 2010).

The proposed approach to sustainability is summarized in **Figure 1**. This is a reversal of the usual way in which sustainability has commonly been approached. Typically, the economic dimension is, in effect, prioritized over both the social and the environmental ones in actual practice. For instance, Kenya's Vision 2030 frames the country's development agenda in economic terms in the articulated aspiration for the country to become a middle-income economy by 2030.



**FIGURE 1**  
 Conceptual lens: prioritizing the environment in a hierarchical approach to sustainable urban development  
 Source: Authors 2018

## RESEARCH METHODS

Kileleshwa, a residential neighbourhood in Nairobi, was the site of the investigation. Issues of long-term sustainability were considered in the context of urban development with a particular focus on the mode by which the urban habitat was transforming from low-rise low-density single-family detached housing to high-rise high-density apartment housing.

The approach was qualitative and based on a case study, which made possible in-depth investigation of issues of concern (Yin, 1994). Key informants, who included property developers, county government officials, and Kileleshwa residents, were interviewed. The data obtained was supplemented and triangulated through a review of relevant literature and document review of published reports by the public and private sectors. These included reports on the state of the economy, housing, environment, and official demographic statistics. The Central Bank of Kenya (CBK) and the Kenya National Bureau of Statistics (KNBS)

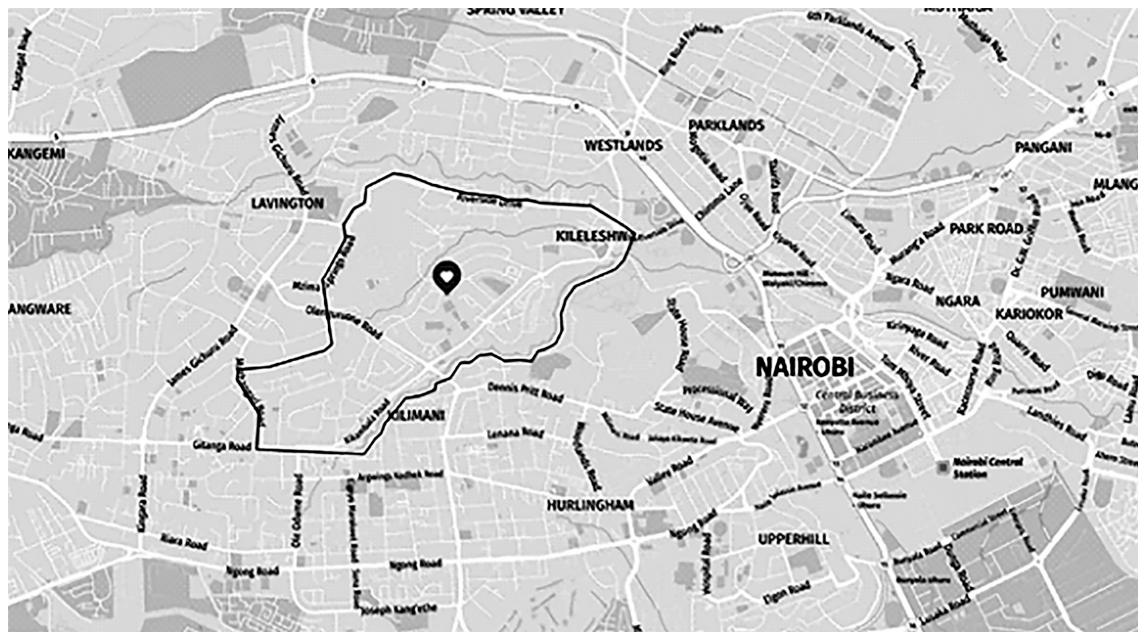
were the sources of the public sector reports. The two were selected as sources of public data because they are the public agencies mandated to collect, aggregate, and disseminate Kenya's financial and demographic data respectively. CBK also provides regular economic reports and tracks the number of mortgages issued by Kenya's banks. The Kenya Bankers Association (KBA) and three real estate firms; Hass Consult, Knight Frank and Cytonn Investments were the sources of the private sector reports. KBA is the umbrella body for Kenya's banking sector hence was a source of data on the state of real estate from the banking sector's point of view. The real estate firms selected issue regular reports on the state of the real estate sector from property developers and property managers perspectives.

The case study was based on Kileleshwa, an historically upmarket residential neighbourhood situated in the western suburb of Nairobi city. It is located four kilometres from Nairobi's Central Business District (**Figure 2**) and is officially zoned as a low-density neighbourhood with a maximum building height limit of four floors (City Council of Nairobi [CCN], n.d.).

The neighbourhood has been undergoing rapid transformation of its low-density housing stock for more than a decade. Single-story housing units in the neighbourhood are rapidly being replaced by high-density apartment blocks.

The fieldwork entailed multiple visits to Kileleshwa. During the visits, a visual documentation of the high-rise apartment blocks was undertaken using photography. This was augmented by historical and current aerial imagery of the area. Additionally, residents living in an apartment complex were purposively sampled and interviewed for their perspectives on living in the neighbourhood.

The interviews were subsequently transcribed and subjected to thematic analysis from which issues on the nature of the housing transformation in the urban context were identified and discussed. The photographs were subjected to visual analysis and compared with the zoning provisions for the residential area.



**FIGURE 2**  
Location of Kileleshwa neighbourhood  
**Source:** Adapted from Mapz 2019

## RESULTS AND DISCUSSION

### Unsustainable Transformation

Since its establishment in colonial era Nairobi, Kileleshwa was a low-density neighbourhood (White et al, 1948). However, the high-rise apartment blocks that have emerged in the neighbourhood in recent years have rapidly altered its character. There is a diversity of apartment blocks in Kileleshwa, exceeding the height limit of four floors (**Figure 3**). When examined from the point of view of the environmental component of the hierarchically ordered sustainability triad (**Figure 1**), it is argued that they are leading to unsustainable outcomes. This is because the high-rise housing developments are undermining this facet of sustainability in stretching the neighbourhood's infrastructural capacity.

This infrastructural challenge was pointed out by the key informants who consisted of Property developers, Local authority [Nairobi City County Government] and Residents. The results of the interviews indicate that property developers were motivated to build high-rise apartment blocks because of the need to make a profit (**Table 1**). The local authority (Nairobi City County Government) viewed the development of apartments as adding to the city's housing stock (**Table 2**). Residents chose to live in apartments in Kileleshwa due

to their convenient location and proximity to places of work and schooling (**Table 3**). All key informants emphasize inadequate infrastructure as a key challenge facing the neighbourhood. It is evident in terms of the inadequacy of the water supply, sewage reticulation, storm water drainage, energy supply and road capacity. These issues are discussed in turn below. In addition, the loss of greenery and insufficient amenities in Kileleshwa are also discussed.

Water supply to Kileleshwa is already insufficient in a city with a water shortage. The public water supply infrastructure was not developed for high density housing nor a large population in the residential area. The city's water infrastructure was last upgraded in the 1970s when the city's population was less than one million people. Since then the city's population has quadrupled to more than four million people, to a current population of 4.4 million people in 2019 (Kenya National Bureau of Statistics [KNBS], 2019). As a result, water rationing has been instituted to meet the growing demand. Each sector of the city is now supplied with water once a week in a programme geared towards its equitable distribution (Nairobi City Water and Sewerage Company, 2019).

Consequently, as developers erect apartment

TABLE 1: Property Developer responses to four queried issues

Property Developers	
Issue queried	Response
<i>Choice of apartment project</i>	- Able to make returns on investment.
<i>Challenges faced</i>	<ul style="list-style-type: none"> <li>- Unfavourable interest rates from banks. (rates at 25% - now capped at 14% may be easier to service loans).</li> <li>- Since 2014, land not accepted as collateral by banks.</li> <li>- Corruption in City hall makes it expensive to undertake the developments (it allows the circumvention of regulation).</li> <li>- Contractors doing shoddy work. Compromise on materials and finishes (having to do repairs on water leaks, damaged roofs, piping issues, improper plumbing, poor window seals).</li> <li>- Exorbitantly high cost of land.</li> <li>- National Construction Authority not doing its work properly. They wait for the shell of the building to be completed before intervening hence poor quality of construction.</li> </ul>
<i>Thoughts about the types of apartments coming up</i>	<ul style="list-style-type: none"> <li>- Inadequate infrastructure to support the developments.</li> <li>- Water an issue – development has a borehole.</li> <li>- Sewage being pumped into the river (lack of enforcement by the National Environmental Management Agency [NEMA]).</li> </ul>
<i>Comments/thoughts/reflections</i>	<ul style="list-style-type: none"> <li>- Lack of role models from political leadership</li> <li>- Outdated regulations</li> <li>- Need to make housing construction and provision more affordable.</li> <li>- Need to respect zoning.</li> <li>- Need for decentralization of population.</li> <li>- Should build on non-productive land.</li> </ul>

Source: Field survey 2018

TABLE 2: Local Authority (Nairobi City County Government) responses to six queried issues

Local Authority (Nairobi City County Government)	
Issue queried	Response
<i>Guidelines for approvals of apartment development</i>	<ul style="list-style-type: none"> <li>- Ground Coverage = 35 (revised to 75)</li> <li>- Plot Ratio = 1</li> <li>- Zoning dates back to 1978</li> </ul>
<i>Zoning Regulations for Kileleshwa</i>	<ul style="list-style-type: none"> <li>- Multiple units allowed</li> <li>- Minimum subdivision = 0.05 ha (1/8<sup>th</sup> acre)</li> <li>- Height Limit = 4 levels + attic</li> <li>- Classified as Zone 4</li> <li>- Review done in 2006 and 2012 (Currently reconciling the two)</li> </ul>
<i>Conditions imposed on the approvals</i>	<ul style="list-style-type: none"> <li>- Height Limit</li> <li>- Conformity with urban form/character</li> <li>- Parking contained within unit</li> </ul>
<i>Owners of the properties in Kileleshwa</i>	<ul style="list-style-type: none"> <li>- 90% privately owned</li> <li>- A few institutions</li> </ul>

<p><i>Thoughts about the types of apartments coming up</i></p>	<p><b>Negative:</b></p> <ul style="list-style-type: none"> <li>- The address will no longer be appealing once it's saturated with apartments; no longer be a leafy green suburb.</li> <li>- Vices will come up.</li> <li>- Infrastructure – sewerage and water needs to be upgraded.</li> </ul> <p><b>Positive:</b></p> <ul style="list-style-type: none"> <li>- It is meeting National and County goals for housing provision.</li> <li>- Area perceived as secure.</li> <li>- Due to population growth, vertical development is the way to go.</li> <li>- It's development in a serviced area.</li> <li>- Embracing compact city structure.</li> </ul>
<p><i>Challenges faced by the County</i></p>	<ul style="list-style-type: none"> <li>- Pressure from developers to go beyond policy requirements – argument is that they cannot break even at 4/5 floors.</li> <li>- Political pressure – developers going through political arm to bypass regulation.</li> <li>- Not having policy instruments that are in tandem with market forces.</li> <li>- Lack of appreciation of the importance of planning in guiding development.</li> <li>- Lack of capacity – few officers to handle the applications, and undertake regular reviews.</li> <li>- Hostility from people served.</li> </ul>

**Source:** Field survey 2018

**TABLE 3:** Residents' responses to six queried issues

Residents		
Issue queried	Response	
<i>Location choice factors</i>	Choice of location	- Accessibility, security, convenient location, own the property, proximity to child's school, urban area with good views, nice place for a child to grow
<i>Children and related aspects</i>	Have children/Number  Attend school/if so where  Playground nearby/if so, where If no, where do children play	- Yes, 1; Yes, 3; Yes, 2; Yes, 2; Yes, 1  - Yes/ Hospital Hill, Parklands; Kianda, Makini, Kyota  - Not yet done hence use parking lot; Not available here hence go to Valley Arcade, Carnivore or Thika Road
<i>Mobility factors</i>	Own a car/Number	- Yes/ 1; Yes/ 3; Yes/ 2
<i>Means of travel to work</i>	(Walking, Biking, Bus, Matatu, Car, Taxi)	- Matatu, Car
<i>Social factors</i>	Engage neighbours/where, when, how  Events in neighbourhood -which ones/participate in them	- Yes (a few); Informally in corridors; Not yet; No; Yes, once in a while and there is a WhatsApp group - None, no organized meetings



<i>Neighbourhood factors</i>	Like about the neighbourhood	- Quiet, convenient location, proximity to school, not overcrowded.
	Don't like about the neighbourhood	- Theft (motorbike thefts), noise from neighbouring pubs, poor state of roads, i.e. potholes, recent break-in due to ongoing repair work, lack of common spaces, lack of children's play areas, noise from cars at night, loud music from neighbouring restaurant, break-ins due to ongoing construction, too many potholes on the roads, too much traffic.
	Like to see improved, changed, introduced, eliminated	- Leaking sewage, poor service, fixing of roads with potholes, provision of children's playground, swimming pool, gym, transportation.
	Thoughts on changes from bungalow to apartments	- Good idea because more people are accommodated; Encourages cohesion because one encounters a diversity of people; Infrastructure needs to be improved to accommodate the growing population, i.e. sewage facilities, water, electricity, roads; social infrastructure needed to enable things to work well; Biggest challenge will be the infrastructure – water shortages and burst sewers will be the norm like places on the east of Nairobi e.g. Umoja; The apartments are coming up too quickly and are too many in a block, which will become a crisis at some point; Apartments are very expensive – life is very expensive like Dubai; Don't mind because it is happening all over; It's good, the more people accommodated in a metropolitan area the better.

Source: Field survey 2018

blocks, they resort to drilling their own boreholes to augment the inadequate water supply. In some cases, this is being done irregularly without official authorization but with potential deleterious effects. A 2016 report by the Water Resources Management Authority (WRMA) indicated that fully two-thirds of Nairobi's boreholes were sunk without authorization. Out of 6,000 boreholes citywide, only 2,000 boreholes were said to be in the Authority's database (Lang'at, 2016). And, many of the boreholes violate the minimum spacing of 150 metres required between boreholes (Kinyanjui, 2019). This is apparent with neighbouring apartment developments having their own boreholes. It is a situation that poses some risks. First, is the questionable safety of the water in the unsanctioned boreholes. Second, is the dual danger of subsidence and depletion of underground water reservoirs due to excessive abstraction of water from the city's underground aquifers.

Sewerage reticulation is also a challenge that was highlighted in the interviews with key informants. Kileleshwa was planned as a low-density neighbourhood with single dwelling housing units serviced with septic tanks, which were sufficient for such density. The extant sewerage line is limited. The high-density apartments currently being developed (**Figure 4**) are therefore inappropriate if considered from the point of view of sewerage handling capacity. The ongoing connection of the high-density apartment blocks to the extant sewer system risks breaching its capacity.

Already, serious issues are emerging. In the case study apartment development in Kileleshwa, the developer connected a section of the apartment blocks to a septic tank within the development. This is an unsustainable solution. The septic tank will not only result in costly maintenance due to the need for frequent emptying, its proximity to the borehole increases the risk of contamination of the drinking water supply. The WHO minimum



**FIGURE 3**  
High-rise apartment block in Kileleshwa, Nairobi with a flat roof  
**Source:** Author 2018



**FIGURE 4**  
High-rise apartment block under construction in Kileleshwa, Nairobi  
**Source:** Author 2018

recommended distance between a septic tank and a borehole is 30 metres (Ebri, Emmanuel & Ebye, 2016).

With the expanding building footprint associated with apartment blocks, is the rising challenge of storm water drainage whenever it rains. The extant storm water drainage was not designed to service high-density buildings. As pointed out by Makunda & Edeholt (2016), flooding is now a perennial challenge in the lower area of Kileleshwa whenever the neighbourhood is inundated during

the rainy season. This is due to the increase in the hard surface area as trees are cut down to make room for apartment blocks with their large plinth areas. The situation is likely to deteriorate considering the extreme weather events associated with climate change.

Other unsustainable patterns are evident in Kileleshwa. Increasing energy consumption is an issue as the demand for electricity rises with the increase in apartment units on plots that were previously occupied by single dwelling units. At minimum, apartment blocks with at least 50 units are being constructed on each plot of land. However, apartment block developments with more than 100 units are becoming increasingly common as the newer apartment blocks are built to a height of 14 floors (Figure 5). A power sub-station exists in Kileleshwa but this was not designed to cater for apartments hence lacks the capacity to handle the extra energy demand. Frequent power outages are thus a common occurrence in the neighbourhood.

Vehicular traffic is also a growing concern pointed out by most of the interviewees. It is also observable during the rush hour in the morning and evening. The neighbourhood was not designed for car ownership in a high-density area. Consequently, with the emergence of apartment blocks with residents who own cars, and in some cases more than one car per household, motorists on Kileleshwa's streets now experience heavy weekday traffic. This has not only dire implications for the residential neighbourhood's air quality due to the pollution associated with vehicular exhaust but also increases the number of productive hours wasted in traffic.

One of the more immediate consequences of apartment block developments in Kileleshwa is the loss of greenery through the cutting down of trees. Historically, Kileleshwa is part of the leafy green suburbs of Nairobi. These are suburbs with low density housing on large lots with a high preponderance of mature trees (Freund, 2007). The cutting down of trees to make room for apartments with their larger footprints compared to low-density housing units, is resulting in the loss of an important carbon sink and likely contributing to the city's heat-island effect.

Moreover, the neighbourhood is rapidly losing its appealing character as a tranquil leafy green neighbourhood (**Figure 6**).

Low-density housing on large lots in Kileleshwa were designed with the appealing feature of each property having its own open space. However, with apartment block developments, open space has been sacrificed as developers strive to maximize the number of units possible on a given plot in order to maximize their profits. For example, in some apartment complexes, children lack open spaces or playgrounds with play equipment. This was a concern raised by interviewed residents who have children (**Table 3**). Hence, they resort to playing on the hard surface driveways which increases their risk of serious injury from falls.

Adult residents also lack communal open spaces. In one apartment complex, when meetings are organized, they are left with no option but to meet in the parking lots within the complex. In effect, parking lots have become the *de facto* open space, however ill-suited they may be for such a purpose. Where a communal amenity such as a swimming pool has been provided, its capacity is an issue as it is insufficient in size to cater for the large number of residents accommodated in the apartment complexes. But, crucially, due to the piecemeal development of apartment blocks on individual plots, the need for a communal public open space for the neighborhood as a whole has been neglected. Additionally, Kileleshwa is bordered by two rivers but these are neither easily visible nor accessible. Some apartment developments have encroached on the riparian reserves of the rivers with the consequent loss of a potential communal public space.

Arguably, the densification of housing in Nairobi's suburban zones such as Kileleshwa is a market-driven phenomenon in which exchange-value is trumping use-value. It is an approach to the urban development of the city that is driven primarily by developers' profit motive as they rush to satisfy an emergent middle class housing need. Brenner, Marcuse & Mayer (2012) discuss the issue of exchange-value (profit-oriented) vis à vis that of use-value (everyday life) in describing how urban space is constantly being shaped and re-shaped under capitalism. In this case, the rapidity



**FIGURE 5**  
 High-rise apartment block with a curvilinear façade in Kileleshwa, Nairobi  
 Source: Author 2018



**FIGURE 6**  
 Multiple apartment blocks altering the character of Kileleshwa, Nairobi  
 Source: Author 2018

and haphazardness with which densification is occurring in Kileleshwa is leading to an unsustainable habitat.

### Achieving Sustainable Outcomes

In its New Urban Agenda, the United Nations, provides guidance for achieving the Sustainable Development Goals and provides the underpinning for actions to address climate change (UN, 2016). More than half of the eight key commitments in the agenda have to do with sustainability (**Table 4**).

**TABLE 4:** New Urban Agenda commitments that touch on sustainability

New Urban Agenda Commitments
<ul style="list-style-type: none"> <li>- Promote measures that support cleaner cities – issues here include the use of renewable energy, and greener public transportation.</li> <li>- Strengthen resilience in cities to reduce the risk and impact of disasters – mitigation measures here include better urban planning and quality infrastructure.</li> <li>- Take action to address climate change by reducing their greenhouse gas emissions.</li> <li>- Improve connectivity and support innovative and green initiatives.</li> <li>- Promote safe, accessible and green public spaces – this includes increase in public spaces such as sidewalks, cycling lanes, gardens, squares and parks.</li> </ul>

**Source:** UN 2016

However, as with many desirable measures, the challenge is not only their interpretation but more crucially, their implementation. To be achievable, this requires the foregrounding of environmental concerns in what is being proposed in this paper as the hierarchical view of the common understanding of sustainable development (**Figure 1**). In this approach to development, environmental concerns, which require a long-term view of development, take precedence over both social and economic ones. This is suggested as a framing that is necessary in order to move closer to sustainable urban development as an outcome.

To consider habitat transformation from a long-term sustainability point of view requires a paradigm shift (Kuhn, 1962 as cited in Meadows, 1999) from an economic-centred market-oriented approach to an environment-centred sustainability approach. This is where the conversation needs to begin if approaches to long-term urban sustainable development are to be pursued.

Political will is also a necessary ingredient in effecting a paradigm shift from the current unsustainable trajectory to more sustainable pathways. Recent efforts by the county government in Nairobi to enforce regulations regarding riparian areas along rivers and their tributaries are a case in point (Business Today, 2018).

Sustainable urban development is the outcome of a deliberate plan (Makunda, 2018). Thus, the piecemeal mode by which densification is occurring in neighbourhoods such as Kileleshwa makes it that much more difficult to achieve desirable sustainable outcomes. With market

forces already having a strong foothold in the current unsustainable pattern of urban development, it becomes even more imperative for the relevant planning agencies along with key stakeholders to exert their influence in guiding urban development towards sustainable pathways.

## CONCLUSION

In this paper, the current unsustainable trajectory of urban development in Kileleshwa, Nairobi, has been discussed. It has been shown how this state of affairs is leading to unsustainable outcomes. This has been highlighted in relation to the inadequacy of the neighbourhood's extant infrastructure. The position taken in this paper is that the current approach to property development, that is primarily profit-driven, is not a tenable proposition if sustainable urban development is to be achieved. Instead, environmental concerns ought to be foregrounded if the adopted approach is to lead to sustainable urban development. This has been proposed as a hierarchical view of the common understanding of sustainable development that privileges the environmental dimension ahead of both the social and economic dimensions.

The paper has suggested that a paradigm shift is necessary in embracing long-term sustainability in the face of climate change. It will require that the city's governance adopts a broader approach to urban development that holistically considers the needs of all the city's inhabitants while ensuring that these needs, such as the need for adequate housing with its commensurate physical and social infrastructure, are met sustainably. This will require a deliberate plan and strategy for sustainable urban development as opposed to

the ad hoc and piecemeal manner in which urban development is currently being approached.

## RECOMMENDATIONS

The ongoing densification of Kileleshwa would be sustainable if it was supported with commensurate infrastructure and structured to lead to compact development, which has been suggested as one of several sustainable urban forms (Jabareen, 2006).

Existing infrastructure for water reticulation, sewage handling, storm water drainage, energy supply, and road network should be upgraded to align with the needs for densified housing. In addition, opportunities made possible by high-rise apartment blocks should be embraced. For example, apartment blocks should be purposely built with flat roofs to accommodate green roofs. They should also be fitted with solar panels to augment electricity supply to the neighbourhood.

Water harvesting features should be incorporated in apartment block designs to collect rain water. Additionally, multi-modal transit should be considered for Kileleshwa as its population increases to a level that can support such a system. And, public open space that is integrated with the neighbourhood's rivers' should be developed as an amenity for the neighbourhood before it becomes over-densified.

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# Appendix

## I: INTERVIEW GUIDES

<b>Actor I</b>	County Government (Regulatory role)
<b>Interview Objective</b>	Understand process of approval and how it differs from the regulations to result in the reality on the ground.
<b>Interview Questions</b>	
<ol style="list-style-type: none"> <li>1. What are the boundaries of <i>Kileleshwa</i> (residential area)?</li> <li>2. What are your guidelines for approvals of apartment developments? What steps should be followed?</li> <li>3. What are the zoning regulations for this residential area? Are they available to the public? [Developers? Who?] If so, how does one access them? [GIS database? Zoning Map, Text document?]</li> <li>4. How long does it take to approve a change of use [or extension of use] from single unit housing to apartments?</li> <li>5. Do you impose any conditions on the approvals? If so, which ones?</li> <li>6. How many requests do you receive in a month/year for change of use [extension of use] from single unit housing to apartments?</li> <li>7. Please give me an example of a project you accepted, turned down or are undecided on.</li> <li>8. Who are the owners of the properties undergoing changes?</li> <li>9. What do you think are the reasons for the demand in apartment type housing?</li> <li>10. Do you have any say in the design of the apartments?</li> <li>11. What do you think about the types of apartments coming up?</li> <li>12. How does the county benefit from the changes?</li> <li>13. What challenges do you face in your undertakings?</li> <li>14. Do you have instances of apartments violating stipulated zoning regulations? If so, how do you detect [<i>any inspections?</i>] and address these violations?</li> <li>15. What policies are you implementing in relation to land development in this area [<i>Kileleshwa</i> and the Western suburbs]?</li> <li>16. Have you had to revise your regulations as a consequence of the rise in demand for apartment type housing?</li> <li>17. Do you have any other comments/thoughts/reflections regarding this type of development in <i>Kileleshwa</i> and the western suburbs of Nairobi?</li> </ol>	



<b>Actor II</b>	Developers (Development Role)
<b>Interview Objective</b>	To understand their reasons in being involved in the projects in the area.
<b>Interview Questions</b>	
<ol style="list-style-type: none"> <li>1. How did you get into property development? When did you start?</li> <li>2. What guides your choice of projects?</li> <li>3. How do you acquire the land? [e.g. Joint Ventures (JVs), etc]?</li> <li>4. Why are you developing apartments in the western suburbs? [How do you make a Return on Investment (ROI)?] What factors determine your price offering? Off-plan? Complete?</li> <li>5. How do you organize funding for the project?</li> <li>6. Who are your clients? Who invests in your projects? [Professionals e.g. lawyers, doctors, etc.]</li> <li>7. How long does it take from the start to the end of the project? i.e. What is the turnaround time from deciding to develop, organizing funding, obtaining project development approvals, to completion of the project?</li> <li>8. Do you only sell or do you also rent the developed properties?</li> <li>9. What other types of projects are you involved in? [Is it only apartments?]</li> <li>10. Who are your competitors? How do you differentiate yourselves from them?</li> <li>11. What is the state of demand for these types of projects? Which apartment types are most popular? 1 bed, 2 bed, 3 bed, 4+?</li> <li>12. What are the sizes of apartments that you develop [in sq. m]? How many units in a project, typically?</li> <li>13. Are you involved in the sourcing of the materials used in the construction of apartments? If so, from where do you source them?</li> <li>14. What is your experience with the development approval process (i.e. with the County government, NEMA, NCA)? [Positives, Negatives]</li> <li>15. What challenges do you face in your undertakings?</li> <li>16. How many apartments have you developed in the Kileleshwa area specifically and in other adjacent areas such as Kilimani, Lavington, Westlands?</li> <li>17. Do you have any upcoming apartments in Kileleshwa and adjacent areas?</li> <li>18. What do you think about the types of apartments being developed generally in these areas (western suburbs)?</li> <li>19. Do you think the trend to apartments in the western suburbs is sustainable? If so, why?</li> <li>20. Any other comments/thoughts/reflections?</li> </ol>	

<b>Actor III</b>	Architects (Design Role)
<b>Interview Objective</b>	Understand how they develop the particular apartment designs – form and internal spatial articulation.
<b>Interview Questions</b>	
<ol style="list-style-type: none"> <li>1. How do you get involved in projects in this particular location [Kileleshwa and/or the western suburbs of Nairobi]?</li> <li>2. What informs your apartment design? (i.e. the typology and spatial articulation?)</li> <li>3. Are residents (users) a factor in your design? If so how (especially in terms of the design process and final design form and layout)?</li> <li>4. What is the size of the apartment that you typically design? How many floors? How many units are typically one-bedroom, two-bedroom, three-bedroom, four-bedroom, five-bedroom or more?</li> <li>5. What are the typical sizes of the rooms and spaces you design in apartments?</li> <li>6. What criteria do you use to determine the amount of space allocated for the various rooms and spaces in the apartment and outside the apartment?</li> <li>7. What type of apartment, in terms of number of bedrooms, do developers most often request for? Least request for?</li> <li>8. What fees are you paid for your design?</li> <li>9. Who are your competitors?</li> <li>10. What is the system of work in such an undertaking? What's involved in doing the work?</li> <li>11. How do you work with contractors?</li> <li>12. How much time does it take from initiation to completion of the project? i.e. What is the turnaround time?</li> <li>13. Do you do other kinds of projects? If so, which ones?</li> <li>14. Are there architects who specialize in these kinds of projects?</li> <li>15. What challenges do you face in your undertakings?</li> <li>16. Do you have any other comments regarding this type of development in Kileleshwa and the western suburbs of Nairobi?</li> <li>17. What do you think about the types of apartments coming up?</li> <li>18. Any other comments/thoughts/reflections?</li> </ol>	

<b>Actor IV</b>	Estate Managers (Management Role)
<b>Interview Objective</b>	Understand their role in managing the new developments and especially their overall perspectives on the residents moving in.
<b>Interview Questions</b>	
<ol style="list-style-type: none"> <li>1. What is your experience with the new residents?</li> <li>2. Who are the residents living here? Families, singles, couples?</li> <li>3. What is the resident mix of this area? [Singles, Families, couples]</li> <li>4. What type of apartment is the most popular with residents? 1-bedroom, 2-bedroom, 3-bedroom, 4-bedroom, 5-bedroom, or more?</li> <li>5. Why, do you think, these sorts of developments are coming up?</li> <li>6. Why, do you think, residents are choosing these sorts of developments?</li> <li>7. When was this apartment completed?</li> <li>8. What is the turnaround time from letting to occupancy? Or from placing the property on the market to its acquisition?</li> <li>9. How do you go about the ABOVE process?</li> <li>10. What are the rental or selling prices? And how have they changed since the apartment was constructed?</li> <li>11. What challenges do you face in this residential area?</li> <li>12. How has the neighbourhood changed since the apartments came up?</li> <li>13. What do you think about this area transforming into a residential zone of apartments?</li> <li>14. What do you think about the types of apartments coming up?</li> <li>15. Any other comments/thoughts/reflections?</li> </ol>	

<b>Actor VIII</b>	Urban Commentators e.g. academia, think tanks
<b>Interview Objective</b>	To understand the theoretical perspectives underlying the transformation.
<b>Interview Questions</b>	
<ol style="list-style-type: none"> <li>1. Why do you think the transformation from single unit housing to apartment blocks in Kileleshwa is occurring so rapidly?</li> <li>2. What could be driving this change to apartments?</li> <li>3. Who do you perceive as the key actors driving the transformation to apartments?</li> <li>4. Where is the demand for apartment housing coming from?</li> <li>5. Do you think the trend towards apartments is temporary or do you foresee it sustained for a long time?</li> <li>6. What would you say are the positive outcomes of the transformation to apartment housing?</li> <li>7. What would you say are the challenges of the transformation to apartment housing?</li> <li>8. What do you think about the emergent building designs and typologies?</li> <li>9. What do you think about the changes from single-unit housing to apartment type housing?</li> <li>10. What are your reflections on the possible implications of this type of transformation in <i>Kileleshwa</i>, the western suburbs and the city's residential environment overall?</li> <li>11. Any other comments/thoughts/reflections?</li> </ol>	

<b>Actor IX</b>	Investors (Investment Role)
<b>Interview Objective</b>	To understand their reasons for investing in projects in the residential area.
<b>Interview Questions</b>	
<ol style="list-style-type: none"> <li>1. What guides your choice of a project(s) to invest in?</li> <li>2. Why did you invest in an apartment(s) in this particular location? [How do the projects fit your calculus on Return on Investment (ROI)?]</li> <li>3. How do you organize funding for investment in the project?</li> <li>4. What steps do you go through from identifying the apartment to completing its purchase? How long does the preceding process take you?</li> <li>5. Do you sell, rent, or live in the apartment?</li> <li>6. What other types of projects are you involved in?</li> <li>7. Do you have an apartment(s) in other areas? If so, where?</li> <li>8. What is the cost of the apartment(s) you've invested in? What do you think about this cost?</li> <li>9. What challenges do you face in your undertakings?</li> <li>10. What do you think about the types of apartments coming up?</li> <li>11. What do you think about the emerging neighbourhoods?</li> <li>12. Any other comments/thoughts/reflections?</li> </ol>	

<b>Actor X</b>	Residents (Drawn from units of analysis from the case study area)
<b>Interview Objective</b>	To understand the resident or user perspective in the transformation process and outcome.
<b>Interview Questions</b>	
<i><b>Bio-Data:</b></i>	
<ol style="list-style-type: none"> <li>1. Age bracket [18-24], [25-34], [35-44], [45-54], [55-64], [65+]</li> <li>2. Sex</li> <li>3. Marital status</li> <li>4. Education level</li> <li>5. Occupation</li> <li>6. Household income [0-29K] [30-59K], [60-89K], [90-119K], [120K+]</li> <li>7. Household members [kin, others]</li> </ol>	
<i><b>Location Choice Factors:</b></i>	
<ol style="list-style-type: none"> <li>1. How did you learn of the availability of the apartment?</li> <li>2. Why did you move to this location?</li> <li>3. Where were you living before?</li> <li>4. How much were you paying for rent in the previous location?</li> </ol>	
<i><b>Apartment and Household Cost Factors:</b></i>	
<ol style="list-style-type: none"> <li>1. How much do you spend per month on: (approximately?) <ol style="list-style-type: none"> <li>i) Rent or Mortgage</li> <li>ii) Food</li> <li>iii) Electricity</li> <li>iv) Water</li> <li>v) Gas</li> </ol> </li> <li>2. Did you buy the apartment or do you rent it?</li> <li>3. If you rent, what do you think about the rent amount?</li> <li>4. If purchased, how much did it cost you? What do you think about the purchase cost?</li> <li>5. How did you pay for it or how are you paying for it?</li> <li>6. If purchased, at what point did you buy the property? <ol style="list-style-type: none"> <li>i) Off-plan (before construction began).</li> <li>ii) During construction.</li> <li>iii) On completion of the project. If (iii), how long afterwards?</li> </ol> </li> </ol>	
<i><b>Apartment Attributes/Characteristics:</b></i>	
<ol style="list-style-type: none"> <li>1. Did you have a say in the design of the apartment?</li> <li>2. How many bedrooms does your apartment have?</li> <li>3. Does your apartment have an SQ (Servants Quarters)? If so, do you rent it out?</li> <li>4. What do you think about the exterior design and finish of the apartment? [materials, colour, quality of building]</li> </ol>	

5. What do you think works well on the exterior of the apartment building?
6. What do you think does not work well on the exterior of the apartment building?
7. What do you think about the interior design of the apartment? [layout and quality of finishes – materials, colour, fixtures, sizes of rooms – living room, dining room, bedroom(s), kitchen, bathroom(s)]
8. What do you think works well in the interior apartment space?
9. What do you think does not work well in the interior apartment space?

***Children and related aspects:***

1. Do you have children? If so, how many?
2. If YES above, what are the ages of the children?
3. Do they attend school? If so, where?
4. How do they go to and from school?
5. Is there a playground nearby where they can play? If so, where?
6. If NO above, where do the children play?

***Mobility Factors:***

1. Do you own a car? If so how many?
2. If YES above, how much do you spend on its upkeep – fuel, service, insurance?
3. When you shop for groceries, where do you shop? How frequently do you shop? And how do you go shopping?
4. How do you go to work?
  - i) Walking
  - ii) Biking
  - iii) Bus
  - iv) *Matatu*
  - v) Car
  - vi) Taxi (*uber*, other?)
5. How long does it take you to get to and from work?
  - i) In the morning?
  - ii) In the evening?

***Social Factors:***

1. Do you attend a place of worship? If yes, where and how regularly?
2. What do you do for relaxation? Where? (either at home or elsewhere)
3. Do you exercise? If so where?
4. Do you interact with your neighbours? If so, where, when, and how? What do you think about your neighbours?
5. Are there any events organized in the neighbourhood? If so, which ones? And do you participate in them?

**Neighbourhood Factors:**

1. What do you think about this residential neighbourhood? (Noise level, traffic, safety, common spaces, landscaping, open spaces, vegetation?)
2. What do you like about the neighbourhood?
3. What don't you like about the neighbourhood?
4. What would you like to see improved? Changed? Introduced? Eliminated?
5. What do you think about the changes in Kileleshwa from the previous bungalows to apartments?

<b>Actor XI</b>	Contractors (Design Implementation Role)
<b>Interview Objective</b>	Understand their level of qualifications, experience with apartment projects and how they implement architects' designs of apartments as well as fulfill developer goals.
<b>Interview Questions</b>	
<ol style="list-style-type: none"> <li>1. How many apartment projects have you been involved in?</li> <li>2. For how long have you been a contractor? What did you do previously?</li> <li>3. What type of apartment projects have you been involved in? No. of floors? No. of units? No. of bedrooms per unit? Size of plot occupied by the apartment(s)?</li> <li>4. What type of training do you have for doing contracting work? Construction work?</li> <li>5. Are you registered with NCA (National Construction Authority)? If so, when did you get registered and what steps did you go through to get registered?</li> <li>6. What types of materials do you typically use in your apartment projects? For the building structure? For interior finishes? Which are the most popular materials?</li> <li>7. Where do you source the materials from? Locally? Internationally?</li> <li>8. What sort of challenges have you encountered in your apartment projects as a contractor?</li> <li>9. What is the level of education/ skill level of the construction workers that you engage to undertake the construction work? Did they get formal training in construction work or learn on site on other construction projects? How are they paid? How much are they paid?</li> <li>10. How long does it take you to complete an apartment project from</li> </ol>	



start to finish?

11. Do you have any quality control measures? Do you inspect the work to ensure it is of good quality?
12. What trends do you see in the construction industry?
13. What do you think of the types of apartments coming up?
14. What do you think about the quality of construction of the apartments being developed in *Kileleshwa*?
15. What experiences have you had with the regulatory authorities – County government, NEMA, NCA?
16. Any other comments/thoughts/reflections?

II: ACTOR/STAKEHOLDER CATEGORIES

	<b>Role</b>	<b>Actors</b>
<b>Stakeholders and Actors in the urban residential transformation process</b>	Legislative/Regulatory/ Policy Issues	<ul style="list-style-type: none"> <li>- County government</li> <li>- National Environmental Management Authority</li> <li>- County Representative</li> <li>- National government</li> <li>- County/Ward Representatives</li> </ul>
	Housing (Apartment) Production/Output	<ul style="list-style-type: none"> <li>- Property developers</li> <li>- Property owners</li> <li>- Architects</li> </ul>
	Housing Financiers	<ul style="list-style-type: none"> <li>- Banks/Financial Institutions</li> <li>- Investors (Individuals and Corporates)</li> </ul>
	Housing (Apartment) Managers	<ul style="list-style-type: none"> <li>- Estate Managers</li> <li>- Resident Associations</li> </ul>
	Housing (Apartment) consumers	<ul style="list-style-type: none"> <li>- Residents/Users                             <ul style="list-style-type: none"> <li>a) Renters</li> <li>b) Buyers</li> </ul> </li> </ul>
	Urban Commentators	<ul style="list-style-type: none"> <li>- Academia                             <ul style="list-style-type: none"> <li>a) Planners</li> <li>b) Architects</li> <li>c) Designers</li> </ul> </li> <li>- Real Estate Analysts                             <ul style="list-style-type: none"> <li>a) Real estate experts</li> <li>b) Real estate review firms</li> </ul> </li> <li>- Think Tanks</li> </ul>
	<i>Source: Compiled by author</i>	

III: DOCUMENT REVIEW SOURCES

	Source	Document
<b>Document Review</b>	National Government (Ministry of Lands, Housing and Urban Development)	<ul style="list-style-type: none"> <li>- Urban and Housing policies (current/historical)</li> <li>- Kenya's Vision 2030 for a Middle income economy</li> </ul>
	County Government (Planning and Housing department)	<ul style="list-style-type: none"> <li>- Planning and Building by-laws</li> <li>- Zoning Regulations</li> <li>- Master and Urban development plans of Nairobi (current and historical)</li> <li>- Records of change of land use and building approvals</li> </ul>
	Survey of Kenya	<ul style="list-style-type: none"> <li>- Maps of study area (Current and historical)</li> <li>- Property ownership data (plot boundaries/sizes)</li> </ul>
	National Archives/ Newspaper Archives	<ul style="list-style-type: none"> <li>- Historical Photographs of study area</li> <li>- Newspaper clippings of study area</li> </ul>
	Libraries (University of Nairobi, County and National)	<ul style="list-style-type: none"> <li>- Relevant literature on study area</li> </ul>
	Kenya National Bureau of Statistics	<ul style="list-style-type: none"> <li>- Demographic Census data (current/historical)</li> </ul>
	Central Bank of Kenya	<ul style="list-style-type: none"> <li>- Summary of Economy data</li> </ul>
	Architects (involved in designing apartments)	<ul style="list-style-type: none"> <li>- Architectural drawings</li> </ul>
	<i>Source: Compiled by author</i>	

IV: RESEARCH PERMISSIONS



**NATIONAL COMMISSION FOR SCIENCE,  
TECHNOLOGY AND INNOVATION**

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when replying please quote

9<sup>th</sup> Floor, Utalo House  
Uhuru Highway  
P.O. Box 30623-00100  
NAIROBI-KENYA

Ref: No

Date

**NACOSTI/P/16/12562/13092**

**1<sup>st</sup> September, 2016**

Collins Sasakah Makunda  
University of Nairobi  
P.O. Box 30197-00100  
**NAIROBI.**

**RE: RESEARCH AUTHORIZATION**

Following your application for authority to carry out research on *“Urban habitat transformation: Process, output, critique - the case of Kileleshwa, Nairobi.”* I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending **1<sup>st</sup> September, 2017.**

You are advised to report to **the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

  
**BONIFACE WANYAMA**  
**FOR: DIRECTOR-GENERAL/CEO**

Copy to:

The County Commissioner  
Nairobi County.

COUNTY COMMISSIONER  
NAIROBI COUNTY  
P. O. Box 30124-00100, NBI  
TEL: 341666

The County Director of Education  
Nairobi County.





**NATIONAL COMMISSION FOR SCIENCE,  
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NAIROBI-KENYA

Ref. No **NACOSTI/P/17/12562/20151**

Date: **22<sup>nd</sup> November, 2017**

Collins Sasakah Makunda  
University of Nairobi  
P.O. Box 30197-00100  
**NAIROBI.**

**RE: RESEARCH AUTHORIZATION**

Following your application for authority to carry out research on “*Urban habitat transformation: Process, output, critique - the case of Kileleshwa, Nairobi,*” I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending **20<sup>th</sup> November, 2018.**

You are advised to report to **the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit a **copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

  
**GODFREY P. KALERWA MSc., MBA, MKIM**  
**FOR: DIRECTOR-GENERAL/CEO**

Copy to:

The County Commissioner  
Nairobi County.

The County Director of Education  
Nairobi County.

**COUNTY COMMISSIONER  
NAIROBI COUNTY  
P. O. Box 30124-00100, NBI  
TEL: 341336**

V: CONSENT FORM

**Interview Consent Form**

<b>Research Project Title</b>	Urban Habitat Transformation: The Case of <i>Kileleshwa</i> , Nairobi.
<b>Research Investigator</b>	Collins Sasakah Makunda
<b>Research Institution Affiliation(s)</b>	The University of Nairobi (UoN), Nairobi, Kenya, and the Oslo School of Architecture and Design (AHO), Oslo, Norway.

Thank you for agreeing to be interviewed as part of the above research project. Ethical procedures for academic research require that interviewees explicitly agree to being interviewed and how the information contained in their interview will be used. This consent form is necessary for us to ensure that you understand the purpose of your involvement and that you agree to the conditions of your participation. Would you therefore read the accompanying information sheet and then sign this form to certify that you approve the following;

1. The interview will be recorded and a transcript will be produced.
2. You will be sent the transcript and given the opportunity to correct any factual errors.
3. The transcript of the interview will be analysed by the Research Investigator.
4. Access to the interview transcript will be limited to the Research Investigator and academic colleagues and researchers with whom he might collaborate as part of the research process.
5. Any summary interview content, or direct quotations from the interview, that are made available through academic publication or other academic outlets will be anonymized so that you cannot be identified, and care will be taken to ensure that other information in the interview that could identify yourself is not revealed.
6. The actual recording will be kept securely and destroyed at the completion of the research.
7. Any variation of the conditions above will only occur with your further explicit approval.

I also understand that my words may be quoted directly. With regards to being quoted, please initial next to any of the statements that you agree with:

	I wish to review the notes, transcripts, or other data collected during the research pertaining to my participation.
	I agree to be quoted directly.
	I agree to be quoted directly if my name is not published and a

	made-up name (pseudonym) is used.
	I agree that the researchers may publish documents that contain quotations by me.

All or part of the content of your interview may be used;

1. In academic papers, policy papers or news articles.
2. On our website and in other media that we may produce such as spoken presentations.
3. On other feedback events.
4. In an archive of the project as noted above.

By signing this form I agree that;

1. I am voluntarily taking part in this project. I understand that I don't have to take part, and I can stop the interview at any time.
2. The transcribed interview or extracts from it may be used as described above.
3. I have read the information sheet.
4. I don't expect to receive any benefit or payment for my participation.
5. I can request a copy of the transcript of my interview and may make edits I feel necessary to ensure the effectiveness of any agreement made about confidentiality.
6. I have been able to ask any questions I might have, and I understand that I am free to contact the researcher with any further questions I may have in the future.

\_\_\_\_\_  
Interviewee's Name

\_\_\_\_\_  
Interviewee's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Researcher's Signature

\_\_\_\_\_  
Date

This research has been reviewed and approved by the National Commission for Science, Technology and Innovation (NACOSTI), Kenya. If you have any further questions or concerns about this study, please contact:

Collins S. Makunda  
P.O. Box 48477-00100, Nairobi, Kenya.  
Mobile: +254(0)729274192  
E-mail: collins.makunda@uonbi.ac.ke

VI: PUBLICATIONS NOT INCLUDED IN THESIS  
COMPILATION**Conference Proceedings**

- Makunda, C. (2018b). **Changing Times in Housing Production: Market-led Housing Transformation in 21st Century Nairobi.** In S. Rugare & J. Kruth (Eds.), *AMPS Proceedings Series 16: Alternatives to the Present: A conference on Architecture, Urbanism, Sociology, Development & Planning* (pp. 138-146). Ohio, U.S.A.: Kent State University.
- Makunda, C.S. (2017a). **Bridging the Divide Between Problem and Solution: A Design Approach to Housing Production in Nairobi.** In A. L. Bang, M. Mikkelsen, & A. Flinck (Eds.), *Proceedings of Cumulus REDO Conference: Redoing Creativity, Design Process and Student Learning* (pp. 658-661). Kolding, Denmark: Design School Kolding & Cumulus International Association of Universities and Colleges of Art, Design and Media.
- Makunda, C.S. (2017b). **Harnessing Cultural Heritage for Locally Relevant Interior Design Solutions for New Apartments in Nairobi.** In M. Ogot & A. Ambole (Eds.), *Proceedings of the 1st Annual Innovation Research Symposium: Innovating to Solve Pressing Local and Global Challenges* (pp. 129-140). Nairobi, Kenya: University of Nairobi.
- Makunda, C.S., & Edeholt, H. (2016). **How African Design Perspectives Challenge Sustainable Development.** In J. J. de Melo, A. Disterheft, S. Caeiro, R.F. Santos & T. B. Ramos (Eds.), *Proceedings of the 22nd International Sustainable Development Research Society Conference: Rethinking Sustainability Models and Practices: Challenges for the New and Old World Contexts.* Lisbon, Portugal: International Sustainable Development Research Society (ISDRS).

**Book Chapters**

- Makunda, C. (2019) **African Development and Management: Development in Nairobi: Three Into One Does Not Go!** In F. Birkin & T. Polesie (Eds.), *Intrinsic Capability: Implementing Intrinsic Sustainable Development for an Ecological Civilisation* (pp. 103-110). London: World Scientific.
- Makunda, C.S. (2018a). **Sustainable Housing Through Sustainable**



**Planning Practices: Challenges and Opportunities for Formal Housing Provision in Nairobi, Kenya.** In U. Azeiteiro, M. Akerman, W. Leal Filho, A. Setti & L. Brandli (Eds.), *Lifelong Learning and Education in Healthy and Sustainable Cities, World Sustainability Series* (pp. 539-549). Cham: Springer.