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# SETTLEMENTS IN TRANSFORMATION:

Impacts of the emerging housing typologies on slums in Nairobi, a case of Mukuru  
Kwa Njenga settlement

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B63/60576/2013

A thesis submitted in partial fulfillment for the award of the Degree of Master in  
Urban and Regional Planning, Department of Urban and Regional Planning,  
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October, 2014

## Declaration

I hereby declare that this thesis is my original work and has not been presented for award of a degree in any other university.

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## ACKNOWLEDGEMENT

First and foremost, my greatest gratitude goes to the Centre for Urban Research and Innovations (CURI) whose financial support made my studies successful. The Centre gave me more than just financial support; I got a chance to enhance my skills in the field I love – technology application in planning and research.

I also appreciate the community guides (who are residents of Mukuru kwa Njenga), and especially the Wapewape village chairman Mr. Kimondo for introducing me to the community. Even much greater appreciation goes to the residents of Mukuru kwa Njenga for giving me their time and participating in the research. Much gratefulness goes to Patrick (a savings group mobiliser) working at Akiba Mashinani Trust. He provided me with field assistance all through the study. I also owe great thanks to the key interviewees who took time out of their busy schedules to participate in this study.

Special thanks goes to my supervisor prof. R.A. Obudho for his constant guidance and persistence on the completion of my work. Professor Peter Ngau's guidance has also been an inspiration to my work and has helped me more than he would have ever expected to. It was under his directorship at the Centre for Urban Research and Innovations that I got exposure to urban informality and various interventions to informal settlement improvement. Participation in the Mukuru Project on 'Improving Access to Basic Services and Justice in informal settlement' led to my interest in understanding the changing housing markets and their impacts on informal settlements.

Thanks goes to the Department of Urban and Regional Planning for the impactful knowledge from the lecturers and professors. Dr. Mbathi and Mr. Karisa's input into this work were a major benefit into giving direction and purpose

to the study. Mr. Baraka Mwau a friend and colleague who graduated from the University of Cape Town has constantly given me brotherly advice during challenges within this project. His excellent work on Shack settlements and Tenements gave me a great base to understanding the dynamics of housing in the informal settlement. My classmates, at the University of Nairobi have also been a great assistance to the successful completion of this work. They gave me the push towards completing it on time.

## **ABSTRACT**

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Informal settlements change over space and time and the number of people living in such housing areas has been growing worldwide. The reasons for this dynamical behavior are manifold. Nevertheless, informal settlements represent a status quo of housing which is from a humanitarian point of view in most cases unacceptable. Sub-standard building materials, poor structural designs, unsuitable building grounds ensued by poor services provision are only but a few of attributes which go aside with the phenomenon informal settlement. Due to this informal character, reliable and accurate data about informal housing trends and their inhabitants is rarely available.

The complexity of urban systems, socio-economic factors and environmental aspects makes it difficult to adequately address informal housing. The project identified a settlement undergoing housing provision transformation and analyzed the impacts and implications of the housing changes in and around the settlement. As a result, the researcher provided a platform for prediction of its future growth and development and possible policy interventions. The approach used was based on the understanding of housing market trends in Nairobi and in the context of Kenya's emerging economy. The use of surveys, interviews and focus group discussions helped in getting the current trend on housing provision. The study was conducted in Mukuru kwa Njenga settlement found approximately 6kms from the Nairobi central business district.

The study findings indicate that there has been a slow but steady transition of informal settlement housing in and around the study area. As a result of this gradual change mainly due to socio-economic factors, there is an imminent case of gentrification and eviction of the lower income cadre living within. It is recommended that there should be drastic measures put in place to consider proper housing provision for such populous at the same time making sure that it remains affordable and accessible. Public sensitization and informal housing regulations with proper development control are a few of the recommendations proposed by the research.

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## CHAPTER ONE: INTRODUCTION

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### 1.1 Introduction

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Cities across the globe have experienced an unprecedented rate of urbanization over the last half century. Since 2008, majority of the world's population lives in urban areas. Some 95% of this growth, however, has occurred in cities least equipped to manage this "urban transition" especially cities of Africa and Asia (UN Habitat, 2012). The result has been an increase in urbanization of poverty and an increase in slums within cities due to the lack of adequate affordable housing for the urban poor. In 2003, there were an estimated 1 billion slum dwellers; the figure is expected to rise to 1.6 billion by the year 2020 (UN Habitat, 2008).

In the 'State of the World Cities 2010/2011', slum dwellers comprise of over 50% of the total population in Africa, Asia and Latin America. In Kenya, 32.4% of the total population was recorded as urban in the national census of 2009. Of this population, over 50% is accommodated within slums (GoK, 2009).

According to the Kenya census data, the population of Nairobi city was 800,000 in 1980. This population has since grown to 3.1 million in 2009. Housing provision for In addition, urban problems such as perennial traffic congestion, expansion of slum area, environmental deterioration have been left unsolved. for a long time and are already causing negative impact on the economic activities and daily lives of those living within the city.

Nairobi city doubles as the capital city and the largest city in Kenya as well as one of the most important economic centers in East and Central African Regions. The Nairobi city accounts for 50 % of formal employment in Kenya and generates 60 % of GDP (GoK, 2011). The Kenya Vision 2030 shows that Kenya aims at becoming a middle income country by 2030 and provides the base line of the economic, social, and political frameworks, and also shows actions to be taken to achieve the development goals such as MDGs (GoK, 2009). Nairobi city plays an important role not only as a political center but also as a model for economic development and social development. Despite this

ambition, the urban development plan of Nairobi city, has hardly been updated since 1973 and the direction of urban development is not clearly defined.

The rapid growth of Nairobi has produced a polarized city, where the distribution of growth benefits has been imbalanced. More than half of Nairobi's residents live in slums; over 180 slum settlements identified within Nairobi County (UN Habitat, 2010). And with the increased rural to urban migration and extreme urban poverty the city has faced a major housing shortage thus leading to the development of slums. People lack a source of income to sustain their livelihoods in the expensive urban areas (UN Habitat, 2011), something that could also be attributed to the lack of affordable housing for the low income residents.

In paradox, Nairobi has experienced a housing sector growth in the past decade, especially for the middle and upper income tier, and also multi-storey high-rise (NHC, 2011). A phenomenon that has been accredited to Kenya's economy experiencing a moderate growth of 4.4% in 2011 and 4.2% in 2012 and was expected to reach 4.5% in 2013 and 5.2% in 2014 (AFDB, 2013). In September of 2014, the Kenya National Bureau of Statistics revised the country's GDP for 2013 from KES 3.8 trillion (USD 42.6 billion) to KES 4.76 trillion (USD 53.3 billion). As a result, the growth rate in 2013 was revised from 4.7 percent to 5.7 percent leading to a 25 percent increase in the value of Kenyan economy.

The construction industry grew by 4.8% in 2012 compared to 4.3% in the year 2011 especially in housing and infrastructure development (AFDB, 2013). Cement consumption was recorded to have grown by 21.1% in 2009 and has been increasing ever since (NHC, 2011). The outcome has been a rapid transformation of real estate and housing markets within Nairobi. This transformation, mainly caused by market/economic forces is characterized by an increase in rents and home prices, increases in the number of evictions, conversion of rental units to ownership (condos) and new development of luxury housing. In some areas, there has been a general increase of middle income populous, a reduction in household size, as the low-income families are replaced by young singles and couples. Other areas have faced the generation of new ideas about what is desirable and attractive, architecture,

landscaping, leading to a change in housing typologies, a change in the neighborhood morphology and the general spread and shape, an increase in offices or multimedia uses and the development and re-development of high-end housing, retail, and restaurants (GoK, 2011).

Informality has been tantamount to Nairobi's urbanization. Efforts to enforce technocratic planning regulations have failed to control the growth of slums in the city. Such uninformed interventions have led to the growth of the informal housing markets for the low income populous that forms majority in Nairobi (Huchzemeyer, 2011; Gulyani et al, 2009). Slums began in colonial times despite governments efforts to contain them. They have been propelled by the dysfunctional land markets, distorted formal housing markets, and existence of centrally located demand for rental low-cost housing (Baraka, 2013). Slums have been and are still part of the larger city and are affected by changes that manifest within the larger real-estate and housing markets.

## 1.2 The problem statement

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For the low income tier, the effects of this transformation have not been clearly established. What is clear is that slums also experience growth and decline, just like the city (Mitullah, 2003). The demand for low cost housing by the urban poor still remains high in Nairobi. As the demand for low-cost housing escalates, some studies have shown the emergence of informal high-rise housing (Huchzemeyer, 2011; Kamau and Gitau, 2004).

Slums in Nairobi have been characterized of extreme deplorable conditions. They share common traits of tenure insecurity, high population densities, poor access to infrastructure and services, water supply and sewerage, low and unstable income levels, poor and temporary housing, poor health and sanitation and consist of a socially excluded community (OXFAM, 2006). Tenure insecurity vestiges as the hardest and most complicated aspect affecting the slum populous and remains a requisite for sustainable upgrading and other improvement interventions (Majale, 1995 and De Soto, 2000). It is due to tenure insecurity that slum housing has been comprised of temporary building material where the community envisages moving out of the slum once their

economic status improves. This argument has been reinforced by the fact that the government of Kenya has not managed to provide adequate housing for the ever increasing population of Nairobi. Nairobi city is home to an approximate 4 million populous of whom more than half are found within the slums (CCN, 2008 and GoK, 2009).

Slum settlements and the alleged informal high-rise housing present complex challenges to Nairobi's urban future, but they also comprise a vital housing market for low income groups. Slums do not exist in a vacuum; they form part of the larger Nairobi real estate and housing market. The largest slums of Nairobi, Kibera, Mathare and Mukuru slum belt are found in a 5 kilometer radius from Nairobi's CBD. And as the housing market transforms, it is necessary to understand its impacts and implications on informal housing; it is necessary to find out how slum settlements have been affected by the housing market 'boom' of the past decade in Nairobi and expected future outcomes of the situation they might be in.

This research therefore anchors itself on the understanding of how the low-income housing tier in Nairobi has been affected by the changing real estate and housing markets. The fact that most slums house majority of Nairobi's populous and also occupy a main share of Nairobi's prime lands makes them of major interest to this research. The main question asked is how they have responded to this transformation. Further, the implications of such transformation on them. Such information is expected to advice future government and non-government interventions on providing for the low income populous. It also provides a general picture of how majority of Nairobi residents are being affected by what is currently viewed as the long awaited economic emergence of Nairobi as a global and regional hub (GoK, 2008).

### 1.3 Research Questions

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This research will be based on the following descriptive, analytical, explanatory and policy/planning questions:

1. What are the existing and the emerging housing typologies in and around Mukuru kwa Njenga settlement?

2. Who are the main actors and drivers towards the emerging housing typologies?
3. What are the implications of such changes on Mukuru Kwa Njenga settlement growth and development?
4. How can the information gotten be used to address future planning and policy interventions on slum upgrading and low-cost housing provision for Nairobi residents?

#### 1.4 Research Objectives

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##### 1.4.1 General objective

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The main objective of this research will be to understand the impacts of the emerging housing typologies and their implications on slum settlements in Nairobi.

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##### 1.4.2 Specific Objectives

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- i. To outline the existing and emerging housing typologies in and around Mukuru kwa Njenga settlement.
- ii. To outline the key actors and drivers of such changes.
- iii. To assess the implications of such changes on the future growth and development of Mukuru kwa Njenga settlement.
- iv. To give recommendations on future planning interventions on slum upgrading and provision of low cost housing.

#### 1.5 Study Assumptions

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- i. An understanding of slum settlements as part of the larger housing market is necessary when addressing issues affecting slum dwellers and the low-income populous of a city.
- ii. If proper and informed policies and development control measures are put in place, the provision for low-cost housing and slum upgrading mechanisms can be achieved.
- iii. Slums are in transformation because of the changing socio-economic, environmental and political sectors in Kenya.



## 1.6 Justification and Significance of the Study

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In Nairobi, slums have been classified under three main tenure regimes (Makachia, P 2011). There are slums sprouting on land that is owned and titled by Land Buying Companies and Cooperatives (LBC's and Co) and Temporary Occupation Licenses (TOLs) holders who subdivide the land, sell or develop without proper planning and approval (Quasi-legal). There is a second class of slums where the dwellers inhabit public or private land without permission of any sort, thus not planned and lack services and infrastructure provision (Invasion). The final class is of slum dwellers who have had rights and occupy customary land that has not been registered and is not planned. All the three categories constantly face risks of becoming victim to evictions and threats especially in a city bursting with visions of economic prosperity, a booming housing industry and an upcoming 'Young generation' that is aware of lavish lifestyle living and not just basic survival.

Indeed, most slums are located on prime lands within the city at a radius of approximately 6kms from the CBD. Such slums include Mathare valley, Kibera stretch, Mukuru slum belt and Korogocho in Nairobi. With Kenya implementing the devolved system of governance, with a national aim of growing economically, a number of investments and development projects have been inevitable especially in major urban areas (GoK, 2007). Such activities have been met with massive resistance from the slum populous leading to a number of demonstrations and law suits that in many cases have resulted to injunctions on proposed planned developments. Such a case would be the Mukuru kwa Njenga residents demonstrations in 2012, 2013 that were followed by a court injunction on Chandaria's efforts to subdivide his privately owned land and sell on a free market basis (CURI, 2012). Even with such successes on prevention on evictions, the threats on what is to come still loom on the residents. Such threat is evident from the continuous growth of the surrounding areas of South B, Imara Daima, Kware, Avenue park estates, Fedha estate, Villa Franca and the industrial area, all middle and upper income developments. There are also huge infrastructural upgrades expected on Outering road, Mombasa road and Airport North road that boarder Mukuru kwa Njenga. This infrastructural upgrades are expected to attract more investment for economic growth such as business parks, shopping malls and hotels e.g.

Sameer business park, Ole sereni, Panari Sky lounge etc. The state understands the risk of preventing such projects on the future economic growth of a city like Nairobi that aspires to be a regional hub for the global market and investment as per the Nairobi Metro 2030 (GoK, 2008).

There are also an array of socio-economic implications to slum settlements in Nairobi, especially ones located on privately owned lands that have proper titling to certain individuals and companies. The promise of better future economic opportunities in Nairobi has driven most of the absentee land owners back to claim their lands. In some cases, pieces of slum land have been subdivided and sold on a willing buyer willing seller basis e.g. selling of a piece of Mukuru kwa Njenga - Motomoto village and MCC leading to the development of apartments, tenements and flats; in Mathare, shack owners have ended up building high-rise shacks or permanent tenements that still carry the same high densities and lack proper servicing. These optional housing that is replacing the former single shack dwelling seems to only serve a certain fairly upper-level of low income residents. The same socio-economic challenges still remain within such housing and for those who cannot afford, other options have to be established (Baraka, 2013).

Slums occupy either public or private land, many occupying reserves (Syagga, 2001). These slums have been classified as Nairobi's mark of shame, where all forms of perceived dirt, crime and insecurity is found. For this reason, there have been many slum upgrading initiatives for slum settlements. Some of these include the Kibera High Rise project and the Pumwani-Majengo slum redevelopment by the National Housing Corporation (NHC). Such studies have shown that in both cases the projects did not benefit the intended population but instead were allocated and/or traded to the middle class (Syagga, et al. 2001; Huchzermeyer, 2006). Similarly, the recent Kibera upgrading project in Soweto (KENSUP) was faced with the community disowning it and making claims that it was un-affordable – if challenges are not addressed it will be occupied by the middle income. In Mukuru kwa Reuben, the mabati structure owners have started building permanent structures that are better and more durable but go for a much higher cost. Even unique cases of In-situ slum upgrading initiatives like Kambi-moto in Huruma, are faced with residents renting out their houses for income generation (CURI, 2013).

The effects of the emerging housing typologies in Nairobi to slums would be necessary to consider if long-term practical solutions are to be achieved. From the current scenario, majority of the slum upgrading intervention are a mere temporal and physical transfer of problems. This research is commended for researchers and physical planners, the government, investors and the communities involved. It emphasizes that slums are part of the larger economy in a capitalist system and their growth and development are dependent on the larger city. Understanding slum transformations helps us to appreciate drivers/pressures and other influences on the informal housing provision.

### 1.7 Definition of working terms

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The following key terms have been defined to give regularity and consistency in this thesis:

#### **Slum/Informal settlement**

In this study a slum refers to a condition of urban living characterized by tenure insecurity, high population densities, poor access to infrastructure & services, water supply and sewerage, low and unstable income levels, poor and temporary housing, poor health and sanitation and a socially excluded community categorized as low cast (OXFAM, 2006). The UN-Habitat refers to slums as a densely populated urban area, identical to substandard housing and squalor and is not recognized by the authorities as a rightful part of the city (UN-Habitat, 2007), thus categorized as informal settlements.

#### **Housing Markets**

This refers to the general market of houses being purchased and sold between buyers and sellers either directly by owners or indirectly through brokers. It refers to the performance of the demand and supply of housing. The measurement of such performance is done using real estate economics, specifically housing economics.

#### **Real estate economics/Housing economics**

This is an attempt to describe, explain, and predict patterns of prices, supply, and demand of housing.

## **Gentrification**

In this research, the term gentrification refers to a transformation phenomenon where run-down urban areas are upgraded by a higher-income class of residents, mostly resulting in the displacement of the low-income residents. It is a general term that alludes to the arrival of wealthier people in an existing urban space thus causing an increase in rent and property values, increased cases of evictions and changes in the area's character and culture.

**Gentrifiers** refer to the incoming population that eventually leads to the displacement of the residing population. The gentrifiers cause the eventual change of the area undergoing gentrification

### 1.8 Scope of the Study

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#### 1.8.1 Subject Scope

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The research focuses on the transformation taking place within Nairobi's slum settlements as indicated by the emerging housing typologies within. It tries to examine the general physical and socio-economic transformations that are occurring in the slum. It also hopes to conceptualize and quantify the nature of the change. The main aim is to identify implications of any changes on future slum upgrading interventions and the general provision of low cost housing for the low-income residents of the city.

#### 1.8.2 Spatial Scope

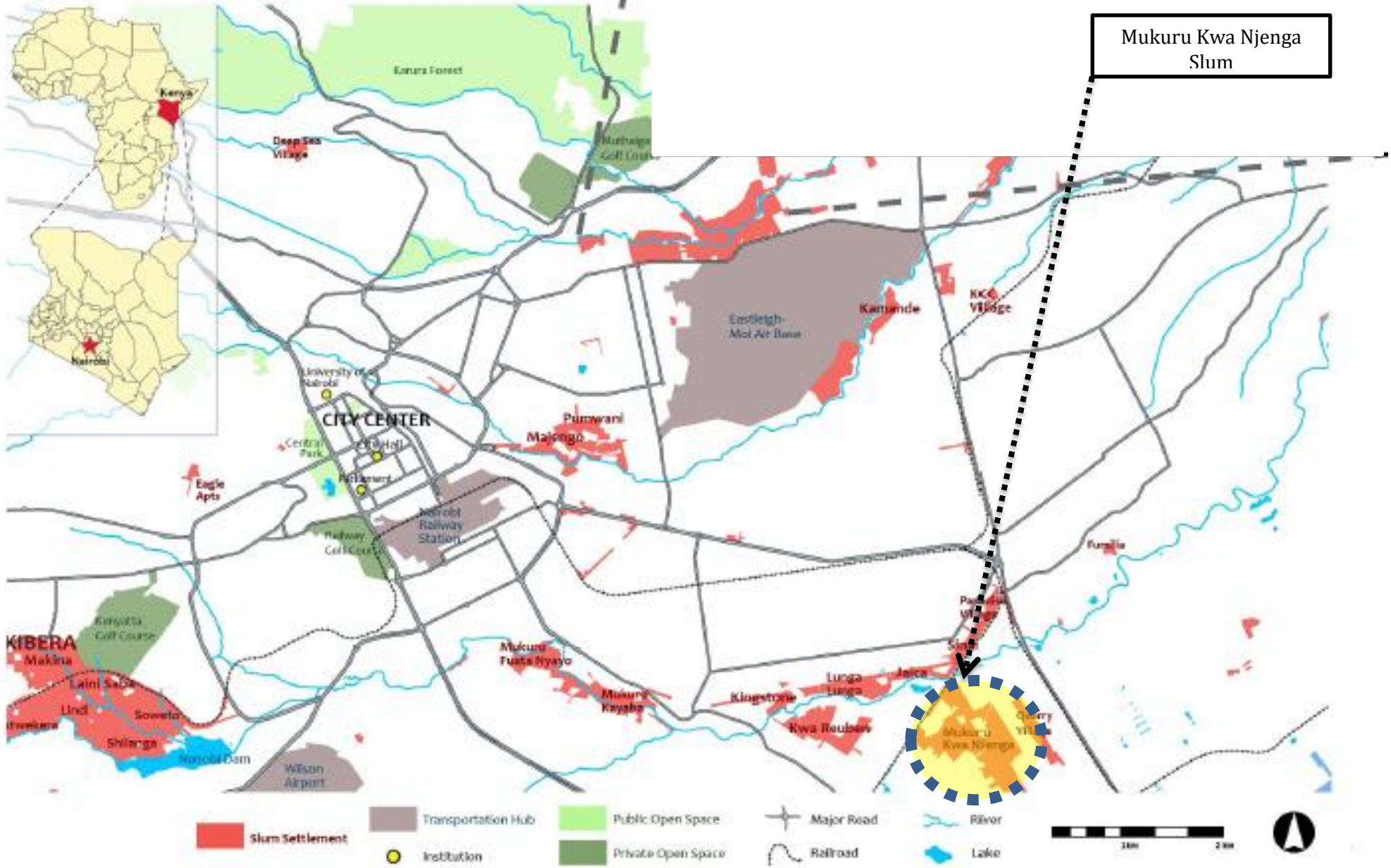
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The case study area, Mukuru Kwa Njenga was carefully selected considering its state of land tenure and its proximity to the Nairobi CBD. It is located at a 20-30 minutes' drive from the CBD and occupies a total acreage of 264 acres that is tilted under 6 different private owners. It is also home to approximately 67,000 persons (KNBS, 2009) and was started in 1958. The slum is surrounded by three major roads: Mombasa Road on the Southern Side, Outering Road on the North Eastern side and Airport North Road on the South Eastern side. The land it occupies is quite prime considering the adjacent developments: There are high-income and middle-income residential apartments and estates such as Imara Daima and Fedha Estate, High-end business parks and shopping

malls like Sameer Business Park, ultra-modern restaurants like Ole-Sereni and Panari Sky lounge with the Jomo Kenyatta international airport in a 2kms proximity.

The study is organized into five chapters. Chapter one contains background information about the study problem, research objectives and questions. Chapter two discusses available literature, making comparison and drawing conclusions. Chapter three study methodology, data analysis, interpretation and presentations of findings in chapter four, chapter five and chapter six give summary of findings and conclusion.

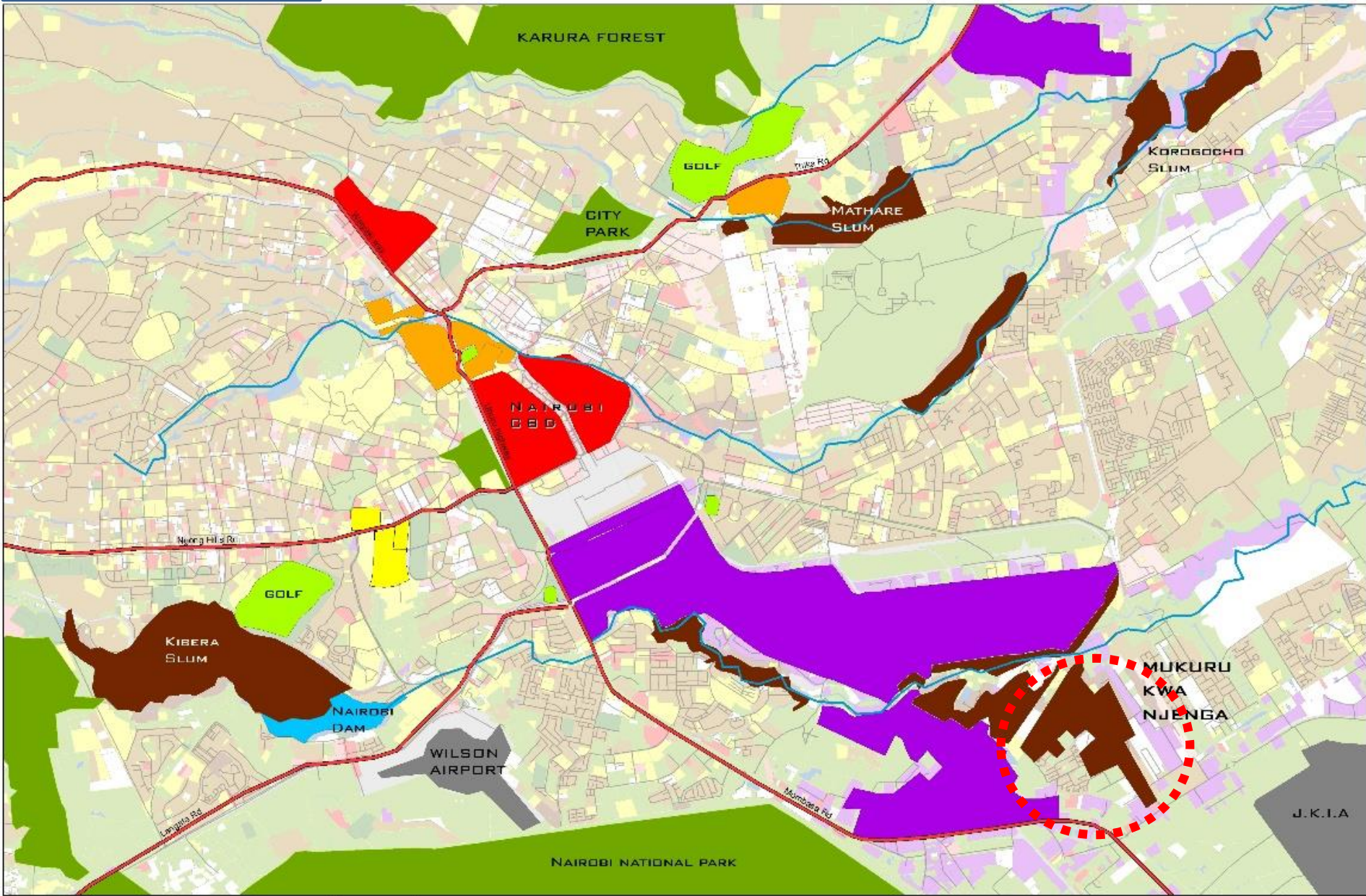
Location of the study area



Map 1: National and regional context of the study area  
source: MuST



Location context



Map 2: Location context of the study area  
source: Author

## CHAPTER TWO: LITERATURE REVIEW

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### 2.1 Overview

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This section tries to conceptualize housing markets and the theories of urbanization and housing. It also appreciates the juxtaposition of informality and formality in the provision of urban housing. It reviews various urban housing delivery mechanisms, their pros and cons and their implications on slum growth and development. With such understanding, the thin line between formal housing and informal housing provision can be unraveled to facilitate the recommendations of modern planning approaches to slums in an emerging economy.

### 2.2 Conceptualizing Housing Markets

---

In the principles of economics, models of the urban housing markets have been divided into two broad classes: microeconomic models of the behavior of households and firms in demanding and supplying units of housing, and general equilibrium models of urban spatial structure (Wingo, 1961). Both are related considering their planning implications. The latter models would be classified as to have relation to the general growth and development of a city while the former would be looking at the response of stakeholders to the changes in supply and demand of housing. In Mahlon Straszheim's book 'An Economic Analysis of the Urban Housing Market', he argues that housing markets are comprised of the spatial distribution of land uses, the demand for land, the transport system, and how decisions regarding housing demand and supply are made, the spatial variation in population densities, rent gradients, and land utilization are resultant.

#### **Microeconomic theories**

The microeconomic models of household behavior have been used over the years to describe both the demand and supply sides of the housing market. They generally address the questions of how much land or housing do households wish to consume and what are the locations. Wingo and Alonso theories first expressed that a household's choice on amount of land and its location was based on the tradeoff



between cheaper rents and a longer work trip, with reference to an assumed fixed employment center.

Alonso's model was one of utility maximization subject to a budget constraint, with land, all other good and distance to the city center included in the utility function. The budget function depended on a household's income, the price of all other goods, the land rent gradient, and the transport cost. For example, changes in the transport surface or rent gradient will change land consumption and influence location. Increases in land prices or transport costs reduce the consumption of land and result in the household's locating closer to the city center (Alonso, 1964).

Muth argues that housing is produced by a competitive industry, with firms altering factor proportions (land/non-land inputs) in response to factor prices. Housing prices are assumed exogenous. Under these assumptions, the spatial variation in land prices reflects competition by housing suppliers for the available land; spatial equilibrium in the land market requires that land rents vary in such a way that profits in the production of housing are everywhere zero. The spatial variation in land rents will therefore reflect the spatial variation in housing prices and the role of land in the housing production function-the terms under which land and non-land factors can be substituted in the production of housing (Muth, 1969).

### **General equilibrium theories**

Microeconomic models of households' and firms' decisions seem to have served as the beginning point for general equilibrium models of urban spatial structure. In essence, the latter models describe the urban land market, explaining rent gradients, population density gradients, and factor proportions in the provision of housing throughout the city.

From researches done earlier, the structure of existing general equilibrium models of urban spatial structure can be easily summarized. Their basic character is not unlike the early microeconomic models: they are closed, comparative static in nature, with no specification of the adjustment processes by which the urban area transforms itself from one state to another. Space is described in one dimension, distance to the center

(Robert, 1972). In the simplest versions, all employment is assumed to be located in the center, with residential locations surrounding it. Households desire a location as close to the center as possible; competition by households for space results in rents which decline from the city center. The shape of the rent surface will be determined by the nature of the transport system (which determines the costs of accessibility to the city center) and demands by households for space.

The level and shape of the land rent surface affects the amount of land consumed by households at different locations, and hence residential density (persons/ area) is likely to decline as distance to the center increases. In these models, a greater concentration of jobs in the center increases the costs of commuting from any given distance to the center, and hence raises the level of central-city rents. An improved transport system reduces the slope of rent gradients and leads to a more dispersed urban form (Beckam, 1969). According to Blackburn, the latter is generally regarded as an instrumental factor in explaining postwar decentralization e.g. World War 1, struggle for independence, when employing such models (Blackburn, 1971).

### 2.3 Nairobi's Zonal Approach to Housing Markets

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According to the Nairobi City Development Ordinances and Zones document by the Department of City Planning, Nairobi's approach is one of disaggregating the housing market into many submarkets, delineated by characteristics of the land available and its location. The urban area is divided into zones, in such a way as to create as much within-zone homogeneity in the class composition and housing stock as possible i.e. upper, middle and low – income residential clusters. Different kinds of housing will be available in different submarkets (CCN, 2008). Some geographic submarkets may contain few or no units of a particular type e.g. in Nairobi City downtown areas where land rents are quite high, there is very little single-family home ownership built recently on large lots. The zones do not necessarily have regular shapes. Separate estimates are made of the structure of prices and occupants' incomes within each geographic submarket.

These zones are also used to provide planning guidelines that every property developer in this City requires in setting up any form of development – be it residential,

commercial, industrial, institutional or religious. With the continued high rate of urbanization, the City Council of Nairobi has a duty to use planning controls to ensure that development is allowed only where it is needed, while ensuring that the character and amenity of the area are not adversely affected.

#### 2.4 Urban Renewal

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Urban renewal has been classified by most research as a program of land redevelopment in areas of moderate to high density urban land use. Its modern incarnation began in the late 19th century in developed nations and experienced an intense phase in the late 1940s – under the preface of reconstruction. The process has had a major impact on many urban landscapes, and has played an important role in the history and demographics of cities around the world.

Urban renewal involves the relocation of businesses, the demolition of structures, the relocation of people, and the use of eminent domain (government purchase of property for public purpose) as a legal instrument to take private property for city-initiated development projects. This process is also carried out in rural areas, referred to as village renewal, though may not be exactly the same in practice (Chigbu. E, 2012). In some cases, renewal may result in urban sprawl and less congestion when areas of cities receive infrastructure improvement especially on connectivity (Lobbia J. A, 1999). Urban renewal has been seen by proponents as an economic engine and a reform mechanism, and by critics as a mechanism for control. It may enhance existing communities, and in some cases result in the demolition of neighborhoods.

According to Chigbu (2012) many cities link the revitalization and rehabilitation of the central business district and gentrification of residential neighborhoods to earlier urban renewal programs. Over time, urban renewal evolved into a policy based intervention that is less on destruction and more on renovation and investment, and today is an integral part of many local governments, often combined with private partnerships. The process of urbanization and economic growth are strongly correlated. Some arguments claim that cities provide concentrations of services and infrastructure, labor, skills, entrepreneurship and markets. Accordingly, they are key generators of economic

activity, thus supporting the development of national economies, and achieving national and regional growth and development goals (Jacobs 1984).

## 2.5 Gentrification

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The term 'gentrification' was coined in 1964 by a British sociologist – Ruth Glass – when referring to the alterations she observed in the social structure and housing markets in certain areas of inner London. Glass observed; "One by one, many of the working class quarters have been invaded by the middle class - upper and lower ... Once this process of 'gentrification' starts in a district it goes on rapidly until all or most of the working class occupiers are displaced and the whole social character of the district is changed" (Glass, 1964).

Early definitions of gentrification, like that of Glass, tended to focus on the residential housing market and the rehabilitation of existing properties. However, since then the definition has widened to include vacant land – usually in prior industrial use – and newly built designer neighborhoods, as well as neighborhoods of working-class housing. Smith's (2002: cited by Atkinson and Bridge, 2005) more recent work has argued that gentrification has broadened once again to become a new form of neo-liberal urban policy. Where the original definition focused on the middle-class rehabilitating their dwelling; more recent discussions have included new-build developments, often beside water or in other notable locations in the city.

Initially confined to western cities, gentrification has spread globally. Evidence of neighborhood alteration and colonization illustrated by an increasing concentration of the middle class can be found across the world; including cities in Africa such as Nairobi, Lagos, Cape Town and Asia such as Shanghai, Mumbai and Dubai. (Atkinson and Bridge, 2005).

Gentrification is a general term referring to the arrival of wealthier people in an existing urban district, a related increase in rents and property values, and changes in the district's character and culture. The term is often used negatively, suggesting the displacement of poor communities by rich outsiders. But the effects of gentrification are complex and

contradictory, and its real impact varies. Many aspects of the gentrification process are desirable; reduced crime, new investment in buildings and infrastructure, and increased economic activity in the neighborhoods. Unfortunately, the benefits of these changes are often enjoyed disproportionately by the new arrivals, while the established residents find themselves economically and socially marginalized.

Gentrification has been the cause of painful conflict in many cities, often along social class and economic fault lines. Neighborhood change is often viewed as a miscarriage of social justice, in which wealthy newcomers are congratulated for "improving" a neighborhood who's poor, minority residents are displaced by skyrocketing rents and economic change. There may be no clear-cut technical definition of gentrification, but it can be characterized by several changes:

**Demographics:** An increase in middle income, a decline in the proportion of low income, and a reduction in household size, as low-income families are replaced by young singles and couples.

**Real Estate Markets:** Large increases in rents and home prices, increases in the number of evictions, conversion of rental units to ownership (condos) and new development of luxury housing.

**Land Use:** A decline in industrial uses, an increase in office or multimedia uses, the development of roof-spaces and high-end housing, retail, and restaurants.

**Culture and Character:** New ideas about what is desirable and attractive, including standards (either informal or legal) for architecture, landscaping, public behavior, noise, and nuisance.

## 2.6 Policy Context

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### 2.6.1 Urban planning laws

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#### **The Constitution of Kenya (2010)**

The Constitution of Kenya (2010) is the current law of the land.

With regard to land, the constitution provides that Land in Kenya shall be held, used and managed in a manner that is equitable, efficient, productive and sustainable, and in accordance with the following principles of equitable access to land; security of land rights; sustainable and productive management of land resources; transparent and cost effective administration of land; sound conservation and protection of ecologically sensitive areas; elimination of gender discrimination in law, customs and practices related to land and property in land; and encouragement of communities to settle land disputes through recognized local community initiatives consistent with this Constitution.

### **County Government Act 2012**

The County Government Act 2012, which essentially defines the roles and management of “a county government”, was newly stipulated to replace the former Local Government Act Cap 265. The Act aims at giving effect to chapter 11 (Devolution) of the Constitution of Kenya (GoK) 2010, and more specifically to provide for the county government powers, functions and responsibilities in the delivery of services and for connected purposes. After the county government is in place, the administration of Kenya has two pillars, namely “National Government” and “County Government” at local level. The County Government Act 2012 is composed of fifteen parts and states the management of county government from assembly, executive, public service, citizen participation, to county planning. Among them, Parts VIII and IX provide fundamental principles regarding the citizen participations and public communication and access to information, respectively.

Some key elements of the County Government Act 2012 in regard to the urban management are summarized below:

**104.** (1) a county government shall plan for the county and no public funds shall be appropriated outside a planning framework developed by the county executive committee and approved by the county assembly - This means that the county government must have a master plan to receive funds from the national government for project implementation.

**107.** (1) to guide, harmonize and facilitate development within each county there shall be the following plans: county integrated development plan; county sectorial plans; county spatial plan; and the cities and urban areas plans as provided for under the Urban Areas and Cities Act.

### **Urban Areas and Cities Act, 2011**

The Urban Areas and Cities Act, 2011 is effective for urban areas and cities. The objective and purpose of the Act is to establish a legislative framework for: a classification of areas as urban areas or cities, Governance and management of urban areas and cities, Participation by the residents in the governance of the urban areas and cities and other matters for the attainment of the objectives. Since Nairobi City County is categorized as an urban area, formulation of the Nairobi Master Plan has to follow this Act, which specifies that the integrated development planning shall be the basis for: The preparation of environmental management plans, the preparation of valuation rolls for property taxation, provision of physical and social infrastructure and transportation, preparation of annual strategic plans for a city or municipality, disaster preparedness and response, overall delivery of service including provision of water, electricity, health, telecommunications and solid waste management, and preparation of a geographic information system for a city and municipality

### **Physical Planning Act Cap 286, 1996 (revised in 2010)**

Physical Planning Act Cap 286, 1996 (revised in 2010) provides for preparation and implementation of physical development plans and for connected purposes. In regard to urban development management this Act is a base for physical planning and development control (building construction permit and land development permit). Since Physical Planning Act was in effect before the new Constitution was in effect, new law, namely, “Spatial Planning Act” is under preparation. Physical Planning Act is expected to be repealed after the Spatial Planning Act comes to effect. Some key elements of the Physical Planning Act 1996, in regard to urban management are summarized below. Two types of plans are specified in the Act as shown below. Regional physical development plan is prepared for the administrative unit within local authority.

Local physical development plan is prepared for a functional purpose such a plan includes zoning policy for 20 zones in Nairobi or redevelopment of railway city.

### **National Land Commission Act, 2012**

This Act makes provision as to the functions and power of the National Land Commission, qualification and procedures for appointments to the Commission, and gives effect to the objects and principles of devolved government in land management and administration. The object and purpose of this Act is to provide:

- i) for the management and administration of land in accordance with the principles of land policy set out in Article 60 of the Constitution and the national land policy;
- ii) for the operations, powers, responsibilities and additional functions of the Commission pursuant to Article 67 (3) of the Constitution;
- iii) a legal framework for the identification and appointment of the chairperson, members and the secretary of the Commission pursuant to Article 250 (2) and (12) of the Constitution; and
- iv) for a linkage between the Commission, county governments and other institutions dealing with land and land related resources.

### **Environment Management and Coordination Act, 1999**

This Act describes the legal and institutional framework of environment management. General principles of the Act are that every person in Kenya is entitled to a clean and healthy environment and has the duty to safeguard and enhance the environment. The entitlement to a clean and healthy environment includes the access by any person in Kenya to the various public elements or segments of the environment for recreational, educational, health, spiritual and cultural purposes.

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#### 2.7.2 Planning regulations

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### **Building Code, 1968**

In addition to Physical Planning Act, “Building Code 1968” is used for development permission of building construction. Since the existing building code is outdated, a new building code is under preparation. A new building code, namely “Planning and



Building Regulations”, is under preparation and to be approved by the Ministry of Lands, Housing and Urban Development. A main change in the building code is to include the outdoor advertisement, painting and aspects of urban design”.

### **Development permit**

Regarding development control, there are mainly three types of permit: construction permit, certificate of occupancy, and development permit, all of which are executed under the Physical Planning Act. Development permit is required for the land development which requires change in use of land, which is responsibility of Policy Implementation Section of Nairobi City County. Construction permit is for building construction for which Development Control Section of Nairobi City County is responsible. Certificate of occupancy is issued when the building construction is completed and is ready for use, which is under the responsibility of the Enforcement Section of Nairobi city county. These permits are conducted separately but there is a plan to combine under the new master plan to be prepared.

- i) Change of use: change in the use of land
- ii) Extension of use: adding other use to the land (20% of the total land)
- iii) Amalgamation: combination of the plot or use of land
- iv) Subdivision: separating the use of the land

### **Construction permit**

Development Control Section of City Planning Department is executing construction permit. Even though building construction permit is required for all building construction, most buildings are constructed without permit. It is said that 70 % (or more) of construction is without permit in the east part of the city where houses for low income household are dominant. The rate is lower (40%~50%) in the Upper Hills area where houses for high income household exist. The cause of the illegal construction can be summarized as follows:

- i) Slow permit process: Between 2004 and 2006, since permit process was slow (2 to 3 month), the number of applications was low. After the process was improved, the number of application has increased.

- ii) People do not know the rule or requirement: people are not even aware of that permit is required for construction.
- iii) Incentive to cut the cost of construction: In order to receive permit, buildings have to meet building codes in terms of materials and safety, which imposes additional cost for the developer. In order to reduce the cost of construction, developers have incentive not to apply for permit.
- iv) Outdated land use policy: Since urban master plan has not been updated, land use and zoning policy is also outdated and not matching the development needs. Many areas where urbanization and commercialization are progressing are still designated as low rise residential area. This makes developer to avoid permit. As a result, many residential areas are converted to commercial use without permit.

### **Certificate of occupancy**

“Certificate of Occupancy (Certificate of Compliance)” is required after the completion of construction, issuance of which is under the responsibility of Enforcement Section. A main task of the Enforcement Section is monitoring and inspection of construction by checking the construction following the instruction by the construction permit. Developer is also responsible to report the progress of construction to the city but it hardly happens for the same reasons as for construction permit. Monitoring and inspection part of the process is considered weak and need improvement.

Nairobi City has a right to demolish illegal building but demolition hardly happens because of a financial and security reason. For some cases, developers may organize demonstration to protest demolition.

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### **2.7.3 Environment laws**

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The Environment Management and Co-ordination Act (EMCA) of 1999, and the Environment Impact Assessment (EIA) and Audit Regulations that followed in 2003, are the core environmental frameworks in Kenya. Based on these laws and regulations, relevant rules such as a series of environmental criteria were developed. Besides, County Government Act of 2012 plays an important role for public participation and information

disclosure regarding any activities of county planning processes. Outlines of major environmental laws and regulations are described as follows:

**Environment Management and Coordination Act (EMCA), No. 8 of 1999**

This Act consists of 13 parts. The importance of nationwide environmental planning is described in Part IV and methods of protection and conservation of the environment are specified in Part V. The enactment of EMCA in 1999 was a milestone in promoting the sustainable environmental management in Kenya. This Act provides for the harmonization of about 77 sectoral statutes. EMCA provides an institutional framework and procedures for the environmental management, including provisions for conflict resolution.

## 2.8 Conceptual Framework

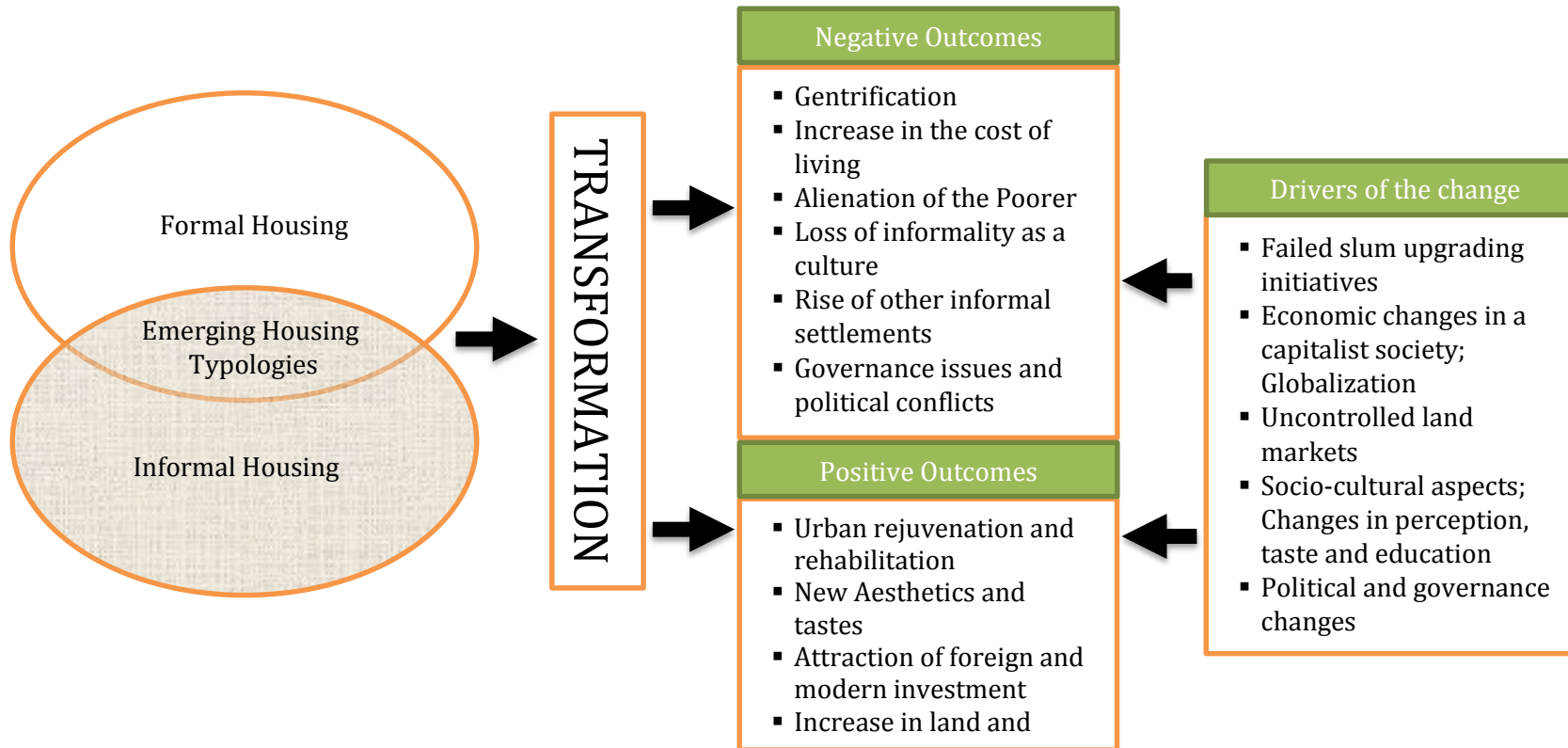


Figure 1: Conceptual framework

Source: author

## 2.9 Data needs matrix

Table 1: Data needs matrix

Objectives	Data needs	Specific data	Sources of Data	Data collection methods	Data presentation
1. Outline the existing and emerging housing typologies in Mukuru kwa Njenga settlement.	<ul style="list-style-type: none"> <li>▪ Housing market trends in Nairobi for the past decade (2003 – 2013)</li> <li>▪ The emerging types of housing in and around Mukuru kwa Njenga informal settlements.</li> </ul>	<ul style="list-style-type: none"> <li>-Housing market trends</li> <li>-Population census data</li> </ul>	<ul style="list-style-type: none"> <li>▪ KNBS (Kenya National Bureau of statistics)</li> <li>▪ Other real estate investors and housing agencies</li> </ul>	<ul style="list-style-type: none"> <li>▪ Literature review</li> <li>▪ Key informant interviews</li> </ul>	<ul style="list-style-type: none"> <li>▪ Charts</li> <li>▪ Frequency tables</li> <li>▪ Maps</li> <li>▪ Photographs</li> </ul>
2. Identify the key actors and drivers of the change.	<ul style="list-style-type: none"> <li>▪ Outline of the key drivers to the emerging housing typologies.</li> <li>▪ Key drivers to changes on informal housing markets.</li> </ul>	-Nairobi Housing statistics	<ul style="list-style-type: none"> <li>▪ KNBS</li> <li>▪ Private real-estate investors</li> </ul>	<ul style="list-style-type: none"> <li>▪ Literature review</li> <li>▪ Key informant interviews</li> </ul>	<ul style="list-style-type: none"> <li>▪ Charts</li> <li>▪ Frequency tables</li> <li>▪ Maps</li> </ul>

			<ul style="list-style-type: none"> <li>▪ Housing agencies e.g. NHC</li> </ul>		
<p>3. Assessing the implications of such changes on the growth and development of Mukuru kwa Njenga settlement.</p>	<ul style="list-style-type: none"> <li>▪ An assessment of the socio-economic implications in slums.</li> <li>▪ An assessment of the physical and environmental implications in slums.</li> <li>▪ An assessment on the physical and planning implications.</li> </ul>	<p>-Population and demographic data -GIS and physical survey data</p>	<ul style="list-style-type: none"> <li>▪ Field visit</li> <li>▪ Survey of Kenya</li> <li>▪ Aerial Imagery</li> </ul>	<ul style="list-style-type: none"> <li>▪ Questionnaires</li> <li>▪ Mapping</li> </ul>	<ul style="list-style-type: none"> <li>▪ Charts</li> <li>▪ Frequency tables</li> <li>▪ Maps</li> <li>▪ Photographs</li> </ul>
<p>4. Give recommendations on the future planning interventions on slum upgrading and provision of low cost housing.</p>	<ul style="list-style-type: none"> <li>▪ Applicatory information on the research findings.</li> <li>▪ Provide recommendations for future low cost housing provision.</li> </ul>	<p>-Study findings -Theoretical background</p>	<ul style="list-style-type: none"> <li>▪ Field work</li> <li>▪ Literature review</li> </ul>	<ul style="list-style-type: none"> <li>▪ Literature review</li> <li>▪ Field data collection</li> </ul>	<ul style="list-style-type: none"> <li>▪ Charts</li> <li>▪ Frequency tables</li> <li>▪ Maps</li> <li>▪ Reports</li> </ul>

## CHAPTER THREE: RESEARCH METHODOLOGY

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### 3.1 Overview

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This chapter outlines the methodology that was used to achieve the study's objectives. It defines the design that was adopted and the population targeted. It articulates how the appropriate sample was selected and the treatment that was given so as to collect the required data. Finally, this section gives the data analysis approach and its subsequent presentation, outlining the ethical considerations in the process.

### 3.2 Research Design

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The research design adopted for this study was based on a case study of an existing slum. This study sought to identify the emerging housing typologies in the past decade in Mukuru kwa Njenga slum. Both primary and secondary data collection approaches were used to appropriately collect data that informed conclusions of the study based on the research questions. The research design is represented below;

Table 2: research design

<b>Framing the study</b>	- Defining the problem
	- Research questions and objectives
	- Identifying the case study area
	- Providing the research methodology
<b>Data Collection</b>	- Literature Review
	- Case area field data collection
	- Key informant interview schedules
<b>Data Analysis</b>	- Spatial data analysis
	- Qualitative data analysis
	- Quantitative data analysis
	- Presentation of findings
<b>Implications and conclusions</b>	- Outline implications of research findings
	- Give conclusions and planning recommendations for future low-cost housing provision

### 3.3 Target Population

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This study targeted Mukuru Kwa Njenga population. To access the affected population, a quick mapping survey was done to identify the areas where most transformation has occurred. Three groups were targeted by the study: The residents of the new/upcoming structures, the residents of the old structures and the residents of the adjacent neighbourhoods.

The sampling method used was a purposive random sampling. This was the most convenient method based on the fact that the slum area is quite uneven (lacks homogeneity) in character. Also considering the fact that getting a response would be difficult especially from residents of the neighbouring estates.

### 3.4 Sample Size

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The sampling varied depending on the target population at a given point. But purposive random sampling was the main form of sampling. The idea was to categorize the study area into sizeable grids that allowed for random selection of households to interview.

To bring out the changes within the informal settlement, the sampling, data collection and analysis was guided by a set of variables, which contained sub-units of analysis. Four sub-units of analysis were developed. The first was physical and housing changes, where the focus was on tenure, tenancy rates, adequacy of space, building materials, maintenance works and rent values. Secondly, the level and standard of infrastructure services (water and sanitation, electricity and transportation). Emphasis was on aspects of pricing, availability, reliability, type of service (formal or informal) and standard of service. The third sub-unit of analysis was socio-economic, which entailed understanding economic activities, household incomes, and social networks (migration and movement, social grouping and affiliations). Finally, the character of the built form was analysed to understand densities, conformity to city planning regulations, spatial organisation, space appropriation and its dynamics and land-use patterns. These sub-units of analysis aided in the identification of the relevant data sources for the study, as well as the sort of data collection tools to utilise.



### 3.5 Data Collection Methods and Instruments

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Data was collected using primary and secondary sources. Primary data collection will encompass various methods:

i) Direct observation

Direct observation involved a field survey. Through viewing of the existing scenario, conclusions were made. The researcher examined the development of the sites and compared it to the rest of the slum. Photographs were taken to document the observations made. Additionally, the researcher observed infrastructural developments in the area to determine whether there had been any adjustments suggesting increased development. Also observed was the existing social dynamics within the area facing much change. This field survey was necessary in determining the extent to which gentrification had occurred in the study area and the effect of increased development in the provision of essential services and infrastructure, economically and socially.

ii) Oral interviews and open discussions

The key informants in this approach were the former tenants, the current tenants, the neighbouring community, the land owners and the developers on the site. Informal discussions were conducted with these parties to evaluate the difference in views on how what had changed within the settlement with the emergence of the new housing typologies. Other important interviews included the approach of the City Council of Nairobi, the physical planning office and the County Government to get their views on any recent events and future plans for the sites. Nairobi City County planning authorities, were a critical source of information regarding previous development tendencies in the region. The authorities provided information on the challenges encountered and the opportunities created by the emerging housing developments t.

Furthermore, secondary data was collected from existing literature. Both the published and unpublished literature sources were reviewed to promote the understanding of housing, housing trends and informal housing typologies. Thus, these secondary data sources

included development plans, land registry records, land maps, planning standards, various acts of parliament, the Building Code and Nairobi City County by-laws and valuation rolls and laws. They also included reports that had been done on informal settlements and housing typology trends especially on causes and outcomes. Other important sources were relevant books and journals.

### 3.6 Data Cleaning and Editing Procedures

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In order to keep the respondents within the topic and relevant issues, the use of closed-ended questions was necessary. Open-ended questions were only be used to provide the researcher with additional information on the questions being asked as indicated by Mugenda and Mugenda (2003). The responses were edited to fit within the objectives of the study.

### 3.7 Data Inputting

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There was clear data collection framework prepared, accompanied by an elaborate and comprehensive analytical framework. With the help of research assistants, the research encompassed interviews with selected respondents. These research assistants were also provided with community guides to support the field survey. The data that was collected through these interviews was fed into specific software such as Statistical Package for Social Sciences (SPSS) and Geographic information system software such as ArcGIS Desktop for analysis.

### 3.8 Data Analysis

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The research objectives guided the overall analytical framework of this study. The literature review and the research design helped define the analytical framework. In each case, as described in the previous section, there were sub-units of analysis. The aim was to identify consistency across units, but within each case by making sense of transformations and their relations.

The SPSS 20 will be used to analyse the obtained data. Both qualitative (descriptive) and quantitative (statistical) methods will be used in analysing the collected data. The ArcGIS Desktop 10.1 will be used for spatial data analysis and production of required analytical and thematic maps.

### 3.9 Data Presentation

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Various methods will be used to present the collected findings. First, diagrams and graphical representations will be used so as to make the audience understand the content of the material easily in addition to enhancing the appearance of the presentation as argued by Mugenda and Mugenda (2003). Those that will be used in this research include pie charts, bar charts, percentage bar charts and line graphs. Secondly, frequency tables will be used to enable the researcher to summarise data and present it in a tabular form for easy comparison and analysis. From these will be derived frequency distribution using bar graphs for easier interpretation of the collected data. Measures of central tendency will also be used to determine the mean, median and modes of the collected data. Maps, sketches and photographs will also be used to well bring out the current scenarios on the ground.

### 3.10 Ethical Implications

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According to McNamara (1994), there are five ethical issues that should be put into consideration when conducting a research study: voluntary participation, safety of participants, anonymity and confidentiality with a clear purpose of the survey, sponsorship, analysis and reporting. These will be considered in carrying out this study.

#### a) Voluntary participation

This study will recruit informants on a voluntary basis with no coercive approaches being employed. Even though this could have a negative implication on the response rate and possibly introduce biased feedback, the researcher will observe the free will of the prospective respondents. To further delimit this shortcoming, the researcher will fully

disclose the purpose of this study and offer any assistance needed in giving feedback so as to encourage a higher rate of participation.

b) Safety of participants

I will ensure that the research assistants are not exposed to any risk or health hazard when assisting in the field study. Additionally, I will keep off questions that cause embarrassment and discomfort among the respondents and other participants.

c) Anonymity and confidentiality

The respondents' identities will be protected to the best of my ability. As such, there will be no provision for identification of the respondent on the interview guides. No form of identity that could jeopardise the anonymity and confidentiality of the participants will be captured. There will be a cover letter that will indicate the researcher's intention of respecting the respondent's anonymity and confidentiality.

d) Purpose of the survey and sponsorship

All the prospective respondents will be informed of the purpose of the study and the organisation that will be sponsoring the research. The purpose of the study will be captured in the introduction letter. This introduction letter will also indicate that the results will be used in a thesis as a partial fulfilment of the requirements of a Master's degree.

e) Analysis and reporting

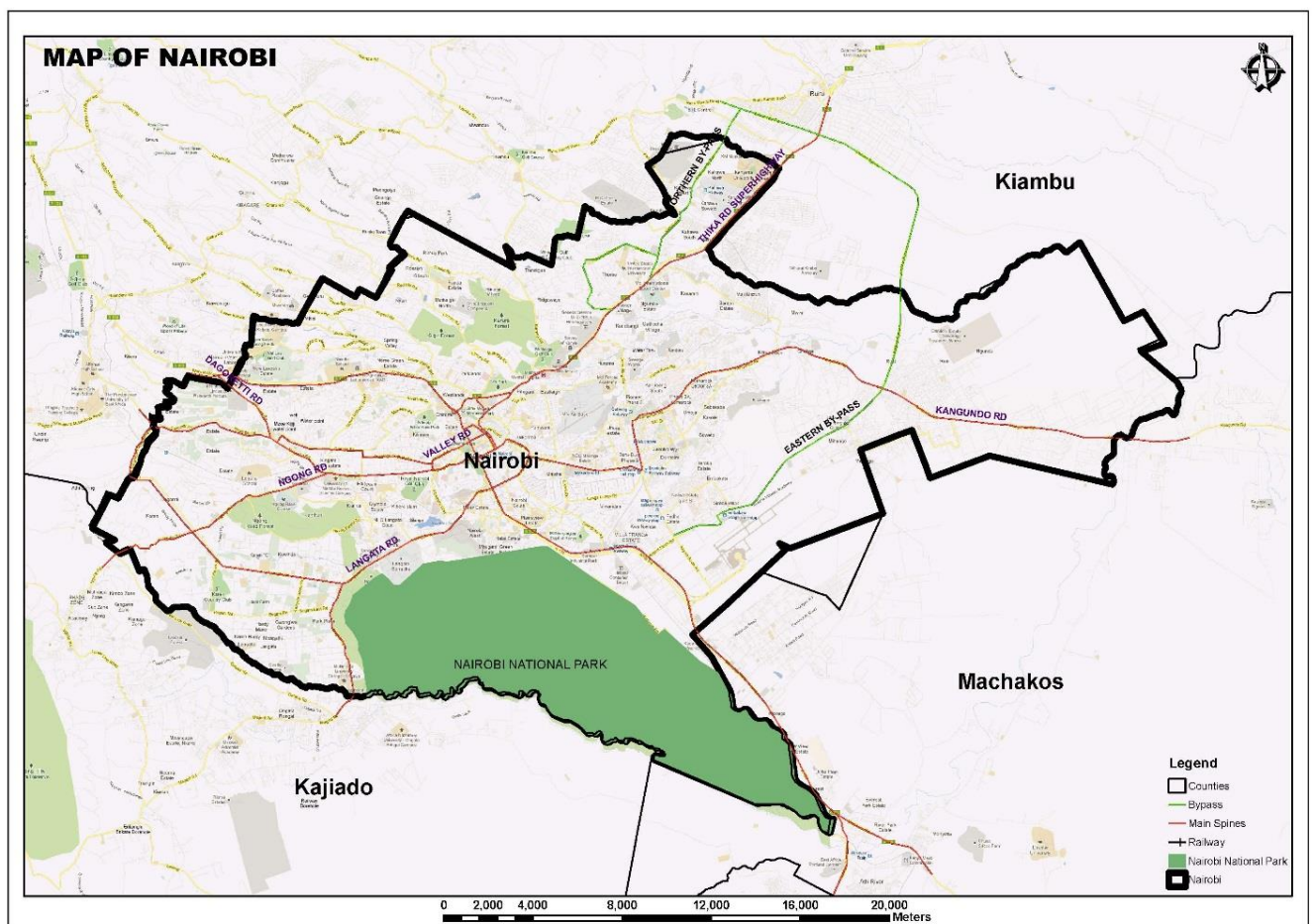
The research will seek to accurately report on both the methods and results from the survey. The weaknesses and problems experienced in the course of the research will also be pointed out, just as would the positive results from the study.

## CHAPTER FOUR: THE URBAN CONTEXT – NAIROBI

### 4.1 Overview

This chapter provides an understanding of Nairobi by providing background to Nairobi's housing delivery mechanisms and its informal housing sector that mostly cover the slum settlements. In discussing these; the city's economy, planning and urban management, and its socio-political dynamics, the research identifies them as the underlying factors shaping contemporary informal housing provision. This will help understand the existence of the slums as part of the larger Nairobi's housing market.

The map below gives a layout of Nairobi.



Map 3: Map of Nairobi county

source: author

## 4.2 The growing city

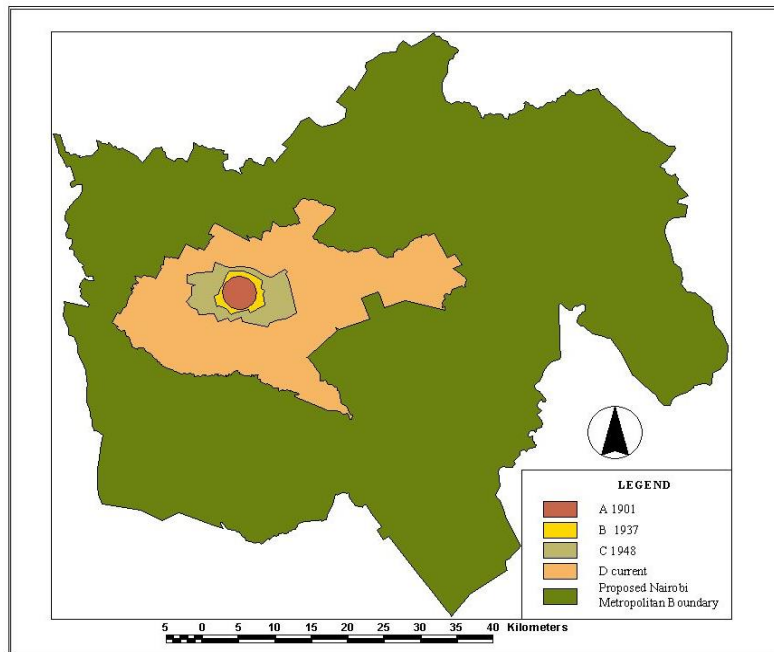
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Nairobi has been a product of Kenya's colonization. It has grown to become Kenya's capital and a regional economic hub, which produces a 60% Gross Domestic Product of Kenya's economy (GoK, 2011). Nairobi County has had many changes over the past 78 years since it was chartered as a Municipality by the Queen of Britain. It has grown and become East Africa's economic growth hub that can't be compared to its predecessor in the year 1920 when it was just a base for government business. Unfortunately, with all these growth and development, it has had little or no pragmatic planning. In 1948, the British had prepared a master plan that was focused on laying out Nairobi as a British protectorate (L.W.Thornton, 1948). It was only in 1973 that attempts were placed on developing the Nairobi Metropolitan Growth Strategy for the period 1973-2000. Due to the lack of adequate planning and urban management, Nairobi has turned into an informal city (UN Habitat, 2008; Gulyani et al).

Nairobi came into existence due to the railway line that was built by in May 1899 from Mombasa to Kisumu (Syagga et al, 2001). After World War I Nairobi became increasingly a base for business for government. The plain lands where Nairobi lies were known as a 'no-man's land'. There were no inhabitants except the nomads who from time to time built their manyattas on the higher ground, better known to them as 'the place of cool waters'.

The Nairobi Municipal regulations were published on the 16<sup>th</sup> of April, 1900, the regulations defined the town of Nairobi as the area comprised within a radius of one-mile-and-a-half from the present CBD center (See map 4). On 24<sup>th</sup> of July a five man committee met in the sub commissioner's office to tackle the problem of the town ranging from:- a myriad of bazaars, no street lighting, unplanned shops going up daily, no proper streets, no conservancy, no refuse collection, no police and no money. In 1903 the use of the railway as a medium of exporting produce as well as importing equipment became noticeable, and there was some talk of finding permanent markets in South Africa. Nairobi started growing

apace and new people arrived with every ship that docked at Mombasa (L.W.Thornton, 1948).



Map 4: Growth of Nairobi

source: GOK

Nairobi continued to flourish as there was an impressive array of commerce and growth of the Bazaar; as hotels, banks and trading centers were established. National Bank of India was the first to be established, then came Heubner & Company. Shortly after 1920, Africa started facing its first housing problems due to the limited wartime resources after

World War 1 in 1914. Ziwani was a municipal housing experiment; Starehe, a government staff housing ventures and Kaloleni, the latest of the African village locations that was started with the assistance of the government. The increasingly popularity of the motor car led to growing interest in motorist and a traffic control by the policemen in 1926. In July 1946, the first African councilors, Muchohi Gikonyo and Khamisi took their seats. It was as thee Mayor remarked an historic occasion in East African local government. It was in 1950 that Nairobi was declared a city by the then Governor under the Royal charter (NCC, 2013).

It was until after independence that Nairobi's growth grew drastically. Before 1963, movement of Africans was restricted and access to urban housing was controlled. Between 1970 and 2008 the population increased form 1.52 million to 3.2 million people (UN Habitat, 2008). As indicated earlier, the current population is approximately 4 million with a growth rate of 4.8% per annum (GoK, 2011). Due to the laissez faire attitude in a free market system, the rapid growth of Nairobi created a large socio-economic disparity between the high-income residents and the low-income residents. The high income resided in the high end

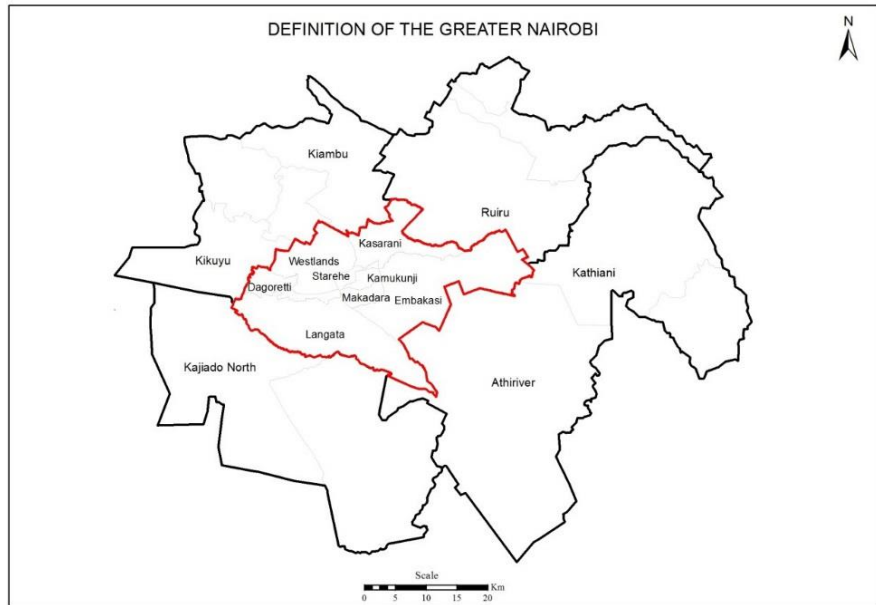
up market neighbourhoods whereas the majority low-income resided in the city's low income slum settlements (Mitullah, 2010, Huchzemeyer, 2011). Informal land and housing markets were further propelled by Structural Adjustment Programs engineered by the World Bank to liberalize Kenya's economy, including the delivery of public services (Baraka, 2013).

Much of Eastlands comprised of the colonially designated Africans reserves that later transformed to low-income housing zones and the white and Asian enclaves became the middle and upper- class zones (Westlands). To accommodate the rising middle class, several zones within Westlands are undergoing densification (Mwaura, 2006). Likewise, the former Asian reserves mainly Pangani, Ngara and Parklands (Medard, 2010), which are now a walking distance from the CBD, are undergoing a 'market-driven' gentrification. Government recently completed developing middle class apartments in Ngara-for civil servants (GoK, 2013). Exceptionally shack settlements exist in Westlands (e.g. Kibera, Kangemi), and also tenement areas (e.g. Dagoretti, Kawangware, Kangemi). The tenements in this section are mostly influenced by city's growth towards adjacent rural and agricultural hinterland (Gatabaki-Kamau & Gitau, 2004).

With the new devolved Government system, efforts have been directed towards developing an urban master plan that is aimed at accelerating sound and sustainable development of Nairobi County for the period 2015 - 2030. This is the requirement as enshrined in the Kenyan Constitution 2010, under the County Governments Act 2012 and the Urban Areas and Cities Act 2011. This master plan will aim at improving transport networks, water supply and sewerage, solid waste management, housing and the living environment of Nairobi. Nairobi City County and the Japan International Co-operation Agency (JICA) have been in the process of developing this Integrated Urban Development Master Plan (NIUPLAN) and are at the public consultation phase.



Urbanization of Nairobi City County is expanding outside the city boundary and the condition of the surrounding area has to be considered. The greater Nairobi is set at about 20 km from the City by the Nairobi Metropolitan department (GoK, 2009). The following figure and table show the coverage of the Greater Nairobi area. (Map of Greater Nairobi)



Map 5: Map of greater Nairobi

source: GOK

#### 4.3 Trends of Housing markets in Nairobi

The Kenya National Bureau of Statistics (KNBS) in 2010 projected Nairobi's demand for housing at 400,000 households, against a national delivery of only 6,000 affordable units for the low income. As per the UN-Habitat, Nairobi delivers only 30,000 units annually and mostly for the middle and upper- class (UN Habitat, 2010). By the end of 2011 to mid-2013, this housing and property market in Kenya grew by 48.5% (NHC, 2013).

After independence, the National Housing Corporation (NHC) was established, and the then City Council of Nairobi (CCN) continued with social housing. These initiatives were not sustained because while the City Council of Nairobi social housing collapsed, the NHC focus shifted to middle and upper class housing (Syagga et al, 2001). Capitalism through market liberalization and the strained financial and technical capacity of the two entities are connected to this phenomenon.

The current market price for a cheap low-income residential unit in Nairobi lies at least Kshs. 2 million (NHC, 2013). Such a cost is unrealistic to the majority low income population who cannot accumulate such savings. The Ministry of Housing on the other hand has concentrated on civil servants' housing classified as for the middle class e.g. Umoja, Ngara civil servant housing, Nyayo estate, Buru Buru, Komarock and Tassia (Medard, 2010).

Over time, there developed a huge housing gap for the low income majority in Nairobi. This unsatisfied demand provided the seedbed for current profitable rental housing market- both formally and informally. Home ownership in Nairobi is only rated at 16 % (NHC, 2010). The urban poor, having little capital to invest in housing have been compelled to reside mainly in slums and dense high-rise buildings. Notably, these settlements accommodate about 60% of Nairobi's population, with over 90% of this residents being tenants of private landlords (Huchzermeyer, 2011; Gulyani & Talukdar, 2008).

The main hindrances to adequate housing markets can be categorized into limited affordability by the majority-low income population and a section of the middle class, uncontrolled and distorted housing markets (Baraka, 2013). Formal lending institutions; banks and housing finance institutions are expensive. These high costs of housing have partly been increased by the government's limited capacity to provide developable land, which compels the private sector to assume this role and eventually increasing costs of development by about 35% of unit cost (HassConsult, 2013). Furthermore, the strict regulations on housing, through the building code have contributed to the increased cost of production (Huchzermeyer, 2011; Syagga et al, 2001). These impediments within the formal supply have consequently produced the informal housing markets, as the alternative.

The 2004 Kenya's housing policy is yet to produce tangible impact (Huchzermeyer, 2011). Perhaps the current constitution (promulgated in 2010), which stipulates housing as a basic right: "Accessible and adequate housing, and to reasonable standards of

sanitation”, as reads its article 43(1) (b) (GoK, 2011), will transform housing policy. However, this will demand efficient institutions and sound urban planning regimes in place. Alarming, the new governance system inherits a CCN characterized by inefficiencies, corruption and political patronage (Huchezermeier, 2011; Mitullah, 2010; Katumanga 2010), and which may take some time to reform.

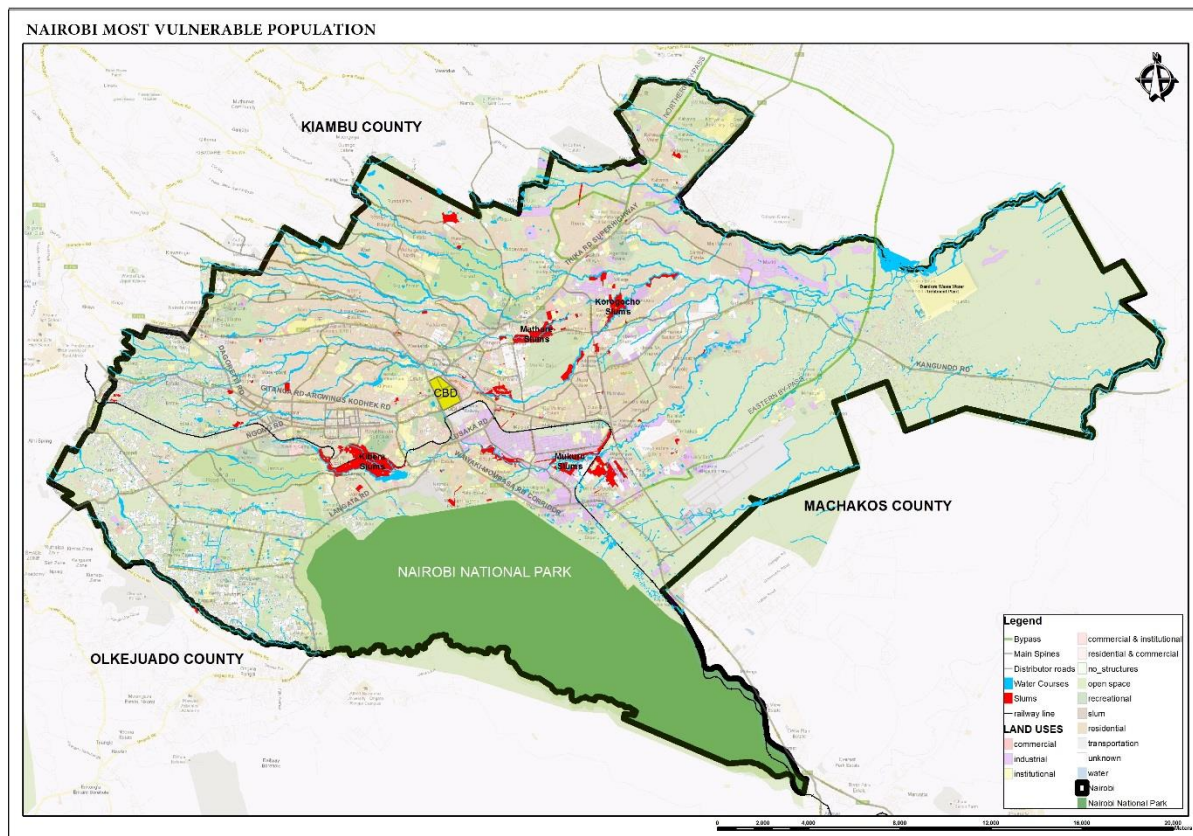
Meanwhile, Nairobi’s real estate property market is a leading destination for up-market investments. Recently there was a proposal by the Nairobi City County to build more than 80,000 new homes in the Eastlands, due east of Nairobi city Centre, as part of a major urban renewal programme. The housing units are to be built for resale in a \$500 million public private partnership, overseen by Nairobi County government. The private investors will also be offered the land at subsidized rates. Older housing estates such as Bahati, Mbotela, Ziwani, Makongeni, Kaloleni, Jericho and Shauri Moyo are marked for demolition and will be replaced with modern high-rise developments. The finished project is expected to accommodate 650,000 people, with 20 per cent of buildings being designated for social housing. The scheme's design is being carried out by the county government and the University of Nairobi. (Standard Media, 2013)

Bahati, Mbotela, Ziwani, Makongeni, Kaloleni, Jericho and Shauri Moyo fall under zone 8 of the Nairobi City Development Ordinances and Zones. They largely constitute old City Council housing that are ripe for high-rise high density redevelopment. The total Eastlands area covers some 800 hectares and the Nairobi City County (NCC) holds it in trust. Currently in policy, the area has been classified as a special scheduled area for NCC site and service schemes and low-income housing projects. (2. NCC, 2011)

Knight Frank a prime private investor in real estate, ranked Nairobi first for housing investment opportunities in Africa and sixth globally (Knight Frank, 2013). This is the paradox embedded in Nairobi’s housing market. In the foreseeable future, the informal housing markets most likely will continue dominating low-cost housing.

#### 4.4 The informal settlements in Nairobi

Nairobi's shack settlements mostly exist in Eastlands (see map 6) and mostly occupy contested land, with residents lacking legal ownership of the land and living in constant fear of evictions. Partly, this has contributed to the former CCN (City Council of Nairobi) and the privatized utility companies to neglect servicing the settlements (Gulyani et al, 2009). Surprisingly, this housing is cheap per se; studies indicate that the rent charged is exorbitant and unmatched with money value (Gulyani, 2008). The



Map 6: Map of slums in Nairobi

source: IFRA, 2005

implication has been escalating slum conditions especially in Africa (UN Habitat, 2010). Eastlands is the dominant low-income residential area. This section has most slum settlements, with some of Nairobi's largest slums located here Mukuru, Mathare-Huruma, Korogocho and Dandora-Mailu saba (excluding Kibera and Kangemi). Poverty levels and marginalization in these settlements is high (See map 6 above). Moreover most of the tenement housing (e.g. Pipeline, Kasarani, Githurai, Huruma and Mathare North) are

located in Eastlands (Huchzermeyer, 2011; 2008). But the section also has pockets of lower-middle income housing e.g. Nyayo Estate, South C, Buru Buru, Komarock, Taj- Embakasi, Imara Daima, Fedha, Tumaini, and Tassia (Medard, 2010).

#### 4.5 Case Study Context – Mukuru Kwa Njenga

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This section gives an analysis of the existing conditions of the case study area.

##### 4.5.1 History of Mukuru slum belt

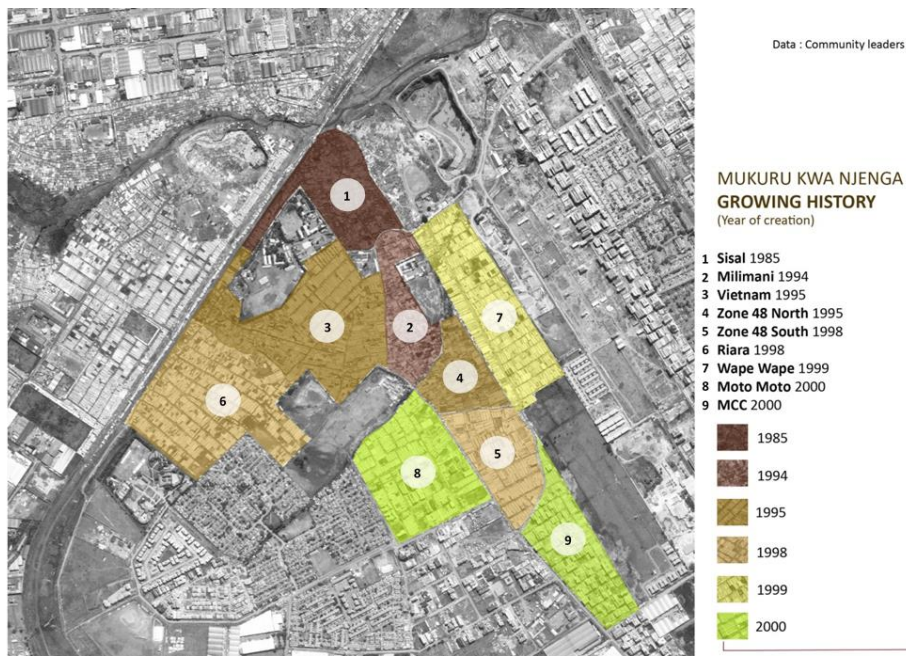
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‘Mukuru’ means valley or dip in Kikuyu. The place was an old quarry where most stones that built the factories were excavated. Huge gigantic holes the sizes of manmade dams were exposed which later became death traps to children and laborers working in the neighboring factories, and a breeding ground for mosquitoes during the rainy seasons. The city council condemned the land as unfit for any permanent construction and converted it into a dumping site for garbage from the city. When the holes were filled with garbage, poor people who were scavenging in the dumpsite started building houses made of wood, cartons and iron sheets. Poverty led to many joining them and a slum finally came to existence named ‘Mukuru’ or garbage site.

Mukuru Kwa Njenga is one of the slums that make up the larger Mukuru, and is home to over 66,505 people [according to the KNBS 2009 Census]. It is located about 10 kilometers from the city center. It is sub divided into eight villages (zones) and located in the middle of the main industrial area of the city. As the slum was becoming bigger, the area was harder to control. To solve this problem different villages were created in 2002 as a way of providing security, pointing leaders in each village in order to have control over the on goings in the area. The villages are as follows: Sisal, Milimani, Vietnam, Riara, Moto Moto, Wape Wape, Zone 48 and MCC. Most of the inhabitants are immigrants from rural areas looking for job opportunities.

Mukuru Kwa Njenga slum began in 1958. The land was then a farm owned by Reuben, (a white settler). His farm laborers lived there. The settlement was started by a worker called Munyao after being banished by Reuben from the farm for having stolen some livestock.

After Reuben passed on, the Government and other private individuals took over the large farm, leading to the current Mukuru Kwa Njenga and Mukuru Kwa Reuben sections. Later on Munyao was joined by Mzee Njenga (a youth then) and together they started building rental structures leading to the settlement. The local administration later came in through the chiefs, who were in charge of allocating people plots at a fee in hand with the chairmen of the area.



Map 7: Mukuru kwa Njenga growing history

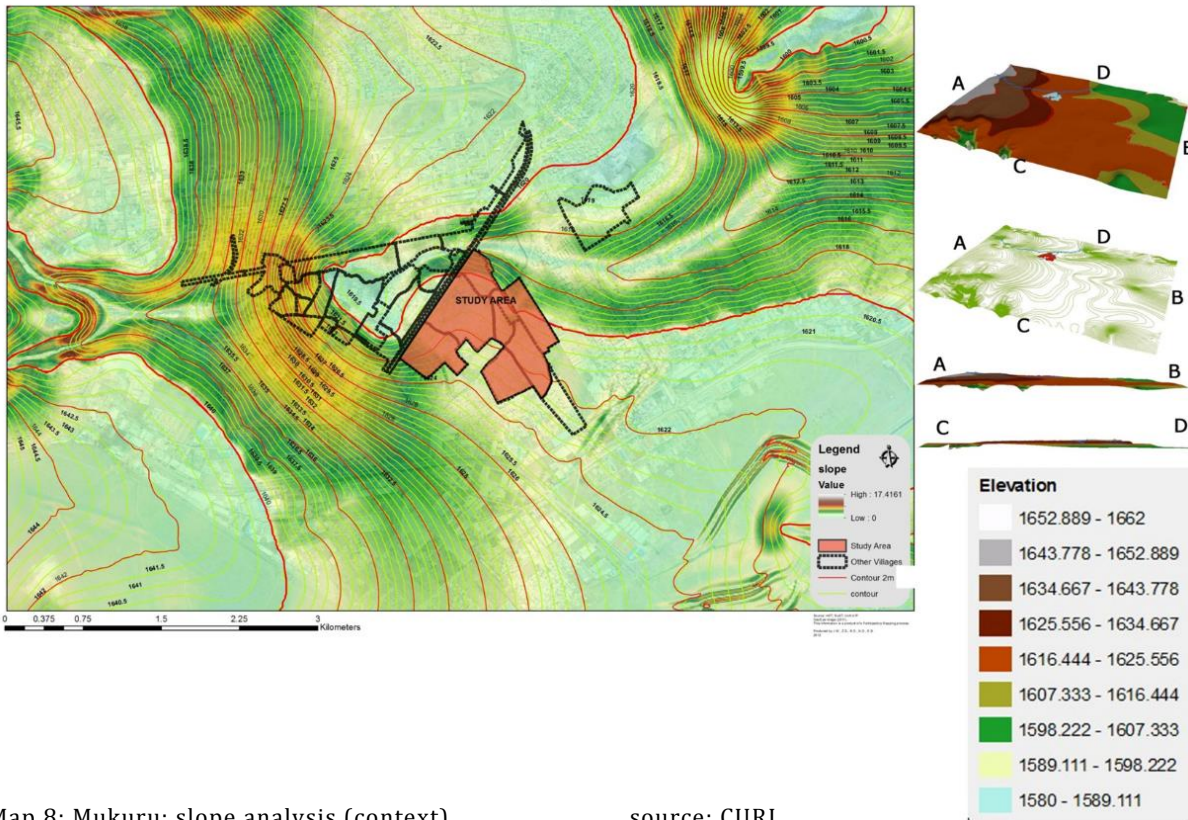
source: CURI

#### 4.5.2 Topography and Slope Analysis

The study area is generally flat with a few gentle slopes in Milimani, Riara, Wapewape and Sisal. The lowest contour within the study area rises to about 1618.5m in Sisal and the highest contour rises to about 1623.5m in Riara and Motomoto. There is a general smooth slope towards the stream water line that passes through Mukuru Kwa Njenga, a reason why most of the areas remain flooded during the raining season around the stream water.



MUKURU: SLOPE ANALYSIS (Context)



Map 8: Mukuru: slope analysis (context)

source: CURI

### 4.5.3 Population

Population in Mukuru Kwa Njenga is one of the most controversial points of the secondary data collected. If we analyze the population per village (based on the 2009 Census) we find out that Wape Wape is the densest village with 330 persons/acre, surprisingly followed by MCC despite being an upgraded area. Milimani and Sisal are also close, with densities between 300-320 persons/acre. Riara is the less congested area, according to the inhabitant's testimonies due to the regular flooding that affects the village every raining season.

VILLAGE	POPULATION	HOUSEHOLDS	AREA (EXCLUDING LARGE FACILITIES km <sup>2</sup> // acres)	POPULATION DENSITY (pers km <sup>2</sup> // pers acre)	HOUSEHOLDS DENSITY Households per 100m <sup>2</sup>
SISAL	6791	2490	0.0920 / 22.73	73815 / 299	2.7
MILIMANI	4752	1697	0.0622 / 15.37	76399 / 309	2.7
VIETNAM	14979	5430	0.2171/ 53.64	68996 / 279	2.5
RIARA	8551	3172	0.1932 / 47.74	44260 / 179	1.6
WAPE WAPE	11631	4665	0.1418 / 35.04	82024 / 332	3.3
ZONE 48	10901	3686	0.1507 /37.24	72336 / 293	2.4
MOTO MOTO	8900	3195	0.1405 / 34.72	63345 / 256	2.3
MCC	8294	3054	0.1049 / 25.92	79066 / 320	2.9
TOTAL	74799	27389	1.1024 / 272.40	67851 / 275	2.6
TOTAL WITHOUT MCC	66505	24335	0.9975 / 246.47	66672 / 270	2.5

Table 3: population in Mukuru kwa Njenga source: MuST, 2011

#### 4.5.4 Social and Political Structure

##### **Governance and institutional framework**

There are two leadership structures in Mukuru Kwa Njenga:

- Administrative Structure
- Political Structure.

##### **Political Structure**

The study area is located in Kwa Njenga ward which is part of the Embakasi constituency. The political structure is part of the legislature. It comprises of a councilor who leads a ward and a Member of Parliament who heads a constituency. The two are elected by the public after every 5 years in a National General Election.

The political system has a lesser influence on the people and is less active and deals less directly with the people of the settlement as compared to the administrative system.



## **Administrative Structure**

This is under the local government, but is soon to be phased out through the implementation of the current Kenyan Constitution. The administrative offices are representatives of the office of the president. Mukuru is under on Chief heading the location and two sub-chiefs for the sub-locations. The area is then divided into 8 zones which are headed by chairmen who are assisted by a chairlady and a youth leader. The entire Mukuru Kwa Njenga was originally headed by one Chairman i.e. Mzee Njenga, up to the area was divided into the 8 villages so as to reduce the extents of an area for the ease of management. The Chairmen and his committee have the most direct contact with the community.

The Chairman used to be appointed by the Chief. From 2000, the Chairman, Chairlady and Youth Leader are elected by the public. Additional members that form a committee that heads a zone are selected by the chairman. The job is volunteer work, there is no salary. Funds that are used to run the office may be from monthly/weekly contributions of member of the committee.

## **Role of the Chairman/Chairlady/Youth Leader**

**Unofficial Land Authority:** The Chairman controls all land issuance and use.

- Supervises transfer of ownership for structures.
- Issues land e.g. Earlier Mzee Njenga used to issue land to new settlers coming into the area. Currently the chairman may issue land to community groups for the construction of toilet blocks social halls etc.
- Control land use, designating certain areas for specific activities

Conflict resolution: Resolving disputes among community members. The cases may be domestic issues and land conflicts. Where there may be a conflict of interest if an issue is resolved by a certain chairman, one from another village is called upon to resolve the issue. Maintenance of 'plans': Certain zones have a spatial organization in the case of roads and drainage. The chairman and his committee ensure that the standards, rules and regulations set in a certain village are met and maintained. E.g. ensuring plots create proper channels to drain out water, guaranteeing that plot and structure owners

do not encroach areas designated as roads/paths etc.

Management of security: The chairman, chairlady and youth leader head matters related to security and leading activities of community policing.

Mobilization and Sensitization of the community: When matters need to be addressed to the community or when the community need matters addressed, the chairman and his committee take the lead. They take part in activities such as enumeration for the national census. The chairmen of all eight zones work together assisting each other and making decisions together.

### **Culture and ethnicity**

The dominant tribe in Mukuru Kwa Njenga is the Akamba followed by the Kisii. According to the community leaders, there are no major divisions in the area based on tribal differences. Mukuru Kwa Njenga is relatively united as compared to other informal settlements in the city. Certain activities in the settlement are dominated by a certain ethnic group; for instance, water is supplied mainly by the Kisii whereas as electricity is by the Kikuyu. Ethnic groups influence the pattern of settlement. Individuals are attracted to areas whereby there are more people from the ethnic group they are from. Certain practices that are mainly practiced by a certain tribe or a certain group of people influences the choice of the area of residence. For example Muslims are found closer to mosques, individuals who use certain drugs such as miraa, alcohol, illicit brew etc. locate in areas where there is supply and company of the same. For instance Zone 48 has a higher population of Muslim youth due to the presence of miraa and a mosque. Milimani was infamous for illicit brew, its drinkers and sex workers. In some cases, ethnic groups influence the design of the structures and the layout within the house hold. For example, the Somalis construct larger rooms 15 feet by 15 feet and not the conventional 10ft by 10ft. Some provide cooking space and an area to hang laundry within the plot which is also used as area for relaxation.

#### **4.5.6 Land and Ownership System**

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Majority of the informal settlement inhabitants are tenants and do not own the land. The settlements are usually located on lands that people deem not utilized such as undeveloped private land, way leaves, riparian reserves, road/rail reserves, unutilized public land and undeveloped land of private owners. Mukuru Kwa Njenga residents inhabit a combination of undeveloped private land, inhabitable quarry land and reserves on railway, power lines and riparian areas. Around 14% of the settlement has been developed on reserves.

## Land use and ownership

### Land use

A larger portion of Mukuru Kwa Njenga's surrounding is industrial with a few pockets of residential areas to the south of the settlement and the eastern side. Imara Daima is located to the South and Quarry Village to the East. A big area to the northwest of the settlement is an informal settlement on an area designated for industrial i.e. Mukuru kwa Reuben.

Accurate data on the area is not available, but it can be approximated from aerial images and through available information on the zoning of Nairobi and the Structure Plan of 1982.

Within Mukuru kwa Njenga, there is a mixed usage of land

Table 4: land use of the holders with thr title

Percentage of Land	Use
50%	Industrial
24%	Formal facilities
5%	Residential Owners
21%	Unknown

Source: CURI, 2012

As shown on the table above 50% of the land is owned by industry enterprises such as Orbit chemical, Steel Works Ltd or KPLG, and 24% is land has been designated to facilities and utilities. Motomoto is made up of numerous parcels of land individually owned for residential use and makes up the 5% of residential land in the parcel of land the settlement covers. The remaining 21% ownership remains unknown, i.e. Vietnam and part of Motomoto.

### Ownership structure

The dynamics of ownership in Mukuru Kwa Njenga are complex, as the owners of the

structures in the settlement are not usually the owners of the land. The insecurity in tenure is the main reason as to why the structures are constructed with temporary materials. Land transactions are made informally i.e. without the involvement of an official body that governs matters related to land.

The inhabitants of the settlement all rent the spaces they utilize except for the minority percentage who own structures within Mukuru Kwa Njenga. The three main components that make up the structure of ownership are:

**Land Owners:** These are the holders of the title deeds for the area. Their inability to develop the land results in squatting from various individuals.

**Structure owners:** These are individuals who only own the structures in the settlement but not the land. There are three types of structure owners:

- **Initial squatters** of the land- the first settlers who squat on the land, either for the individual use or commercial purposes.
- **Inheritors** of squatters- the offspring/relatives of the initial settlers of the land.
- **Buyers** from structure owners- these are individuals who buy structures from initial squatters or the inheritors.

They may also be called landlords. In Mukuru kwa Njenga most of the structure owners live within the slum and they play an active role when it comes to activities that concern matters affecting land. Unlike other informal settlements, Mukuru kwa Njenga's structure owners are less of cartels and more of individuals seeking income from renting out of rooms. In the particular case of Motomoto, the structure owners are the land owners too.

**Tenants:** They rent rooms that have already been constructed. Though they have a large stake in the area they have no ownership or control over land issues in Mukuru.

Under tenants, there is a smaller category of **subtenants** who are sublet the spaces within which other individuals have rented.

### **Predominant land ownership**

A larger parcel of the land in Mukuru Kwa Njenga is owned by Chandaria/Orbit Chemical Industries. Sisal, Milimani, 48 and MCC is also claimed to be owned by Orbit Chemicals one of Chandaria's enterprises. Riara settles on a parcel of land with a single title deed. The

holder of the title deed is School Equipment Production Unit (SEPU). Under the Ministry of Education. Moto Moto is split into numerous small parcels. They were allotted to individuals during Moi's era in the 1990's. Part of it was given to members of the military and another to a women's group so as to enable them sustain themselves. Wape wape is claimed to be owned by Embakasi developers LTD and Chandaria's Industries.

Ownership of the land on which Vietnam rests on is unknown. Though there is a section on the lower southern side claimed to be owned by Joseph Kamotho, a prominent Kenyan politician.

#### 4.5.7 Housing

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##### 4.5.7.1 Housing Typologies

The most common housing typologies in Mukuru kwa Njenga are low-lying non-permanent structures characterized by iron sheet walls & roofs and concrete floors. In other cases, Stone, mud, mesh and wood are also used for construction. Most of the houses are organized into communal living whereby each plot has a range of 6-12 single rooms (average of 10 rooms). The communal housing organization is preferred for safety and security reasons as well as proper utilization of space.

The vertical orientation of iron sheet structures goes up to a maximum of 1 storey so as



Plate 1: photo of low lying iron dwellings  
Source: Author

to avoid the structure from collapsing and thereby risking the safety of the tenants, but for the stone structures (permanent) it can go as high as 4 storey.

Low lying iron sheet dwellings are predominant in every village except in Motomoto A (Southern part). Sisal and Milimani have some of these structures rising up to 1 floor because they are more congested. Zone 48, Milimani, and Sisal

have traces of wood structures and only Sisal has some mud structures.

#### 4.5.7.2 Household Designs

The typical layout of a structure in Mukuru Kwa Njenga is two rows of 5-12 rooms with a corridor separating the two lines of rooms. Most of the plots have toilets within the structure while others do not. In the more congested villages, as Sisal, Milimani and part of Vietnam and 48, most of the toilets remain outside the structures.

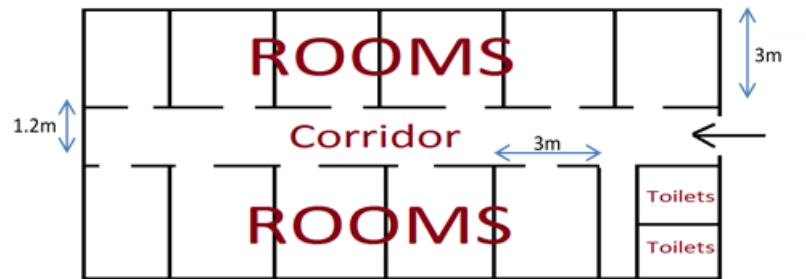


Figure 2: Mukuru kwa Njenga two row corridor housing style

Source: Author

#### Components of a structure

##### Corridor

The corridor is the only access to the rooms in the structure. 88% of the respondents claimed to have corridors within their structure.

It is multi-functional, serving as

- An access- as passage to the rooms.
- Laundry area- for hanging and washing clothes.
- Cooking area- especially in cases where charcoal is used in the mode of cooking.
- Leisure area/ play area- adults use corridors as an area for relaxing and children as a playground.
- Drainage- the drainage for most structures runs through the plot corridor and empties into drains located outside the plot

##### Toilets

Structures with toilets on the plot have them located on an end, either closest or furthest from the entrance, but always accessible to the manual exhausters. Structures without a toilet have a closed space designated for taking a bath whose drain leads out to external drainage systems.

## Rooms

The rooms are mainly 10 feet by 10 feet (3x3 meters), with some exceptions having 10 feet by 12 feet (3x3.60 meters) or up to 15 feet by 15 feet (4.5x4.5m). Rooms are arranged to maximize on space so as to cater to all activities that are to take place within the space i.e. sleeping, cooking and relaxation. Inhabitants opt to partition room by the use of a curtain so as to separate spaces and create privacy.

### 4.5.7.3 Household Heads

#### Number of People per Household

According to the households interviewed more than 50% of the households have between 2 and 3 people, being 3 persons per household the predominant scenario.

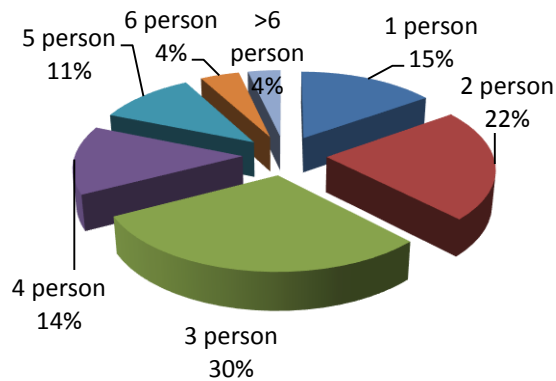


Figure 3: Number of people per household Source: author

According to questionnaires administered during a field survey majority of the heads of households in the settlement are male, 77% compared to the 23% of women. From the chart 7.2 it can be noted that villages with a slightly lower income tend to have an increase in the percentage of females heading the households.

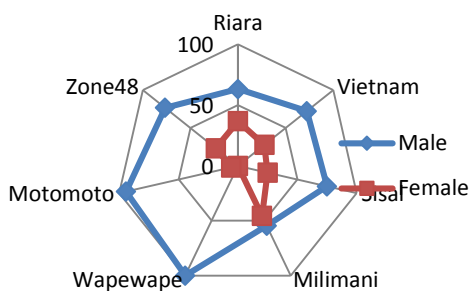


Figure 4: Household head of respondent per village Source: author

#### 4.5.7.4 Household Expenditure

On average, the amount of money an individual or a family spends on a monthly basis ranges from 5000 to 7200 Kenyan Shillings. But, as it can be appreciate on the table below, Sisal and Zone 48 spend the least per month at a rate of 5000-6000 Kenya Shillings, whereas Milimani and Wapewape spend the most in a month at an average of 8700. This expenditure entails basic needs such as food, clothing, water, electricity among other petty things. 14.5% of the slum dwellers in Mukuru Kwa Njenga spend an average of 6,000 Kenya Shillings (20 people out of the 138 people interviewed) per month followed by 13.8% of the slum dwellers who spend 9,000 (19 people out of 138 people), 12.3% of the slum dwellers spend 3000 (17 people out of the 138 people) and lastly 10.9% of the slum dwellers spend an average of 15000 (15 people out of the 138 people) Kenya Shillings per month.

Table 5: average individual monthly expenditure

<b>Village</b>	<b>Average Individual Monthly Expenditure</b>
<b>Wape wape</b>	<b>7200</b>
<b>Moto moto</b>	<b>5000</b>
<b>48</b>	<b>3,500</b>
<b>Sisal</b>	<b>3,875</b>
<b>Milimani</b>	<b>9,300</b>
<b>Riara</b>	<b>1,500</b>
<b>Vietnam</b>	<b>2,500</b>
<b>Mukuru Kwa Njenga average</b>	<b>4696.43</b>

Source: author

The table above is an illustration of the average individual monthly expenditure across the 7 villages. An individual in Riara Village spends an average of 1,500 Kenya Shillings per month.



In regards to expenditure on rent, 27.54% of the slum residents spend 1500 Kenya shillings on rent out of the 138 people interviewed. The cheapest rent paid is 700 Kenya Shillings in Sisal Village, near the railway line. The main reason is the location in a poor condition and apartheid area where insecurity is high. Whereas the most expensive rent among the people interviewed is 8,000 Kenya Shillings in a 3 bed roomed house with toilet and shop at the front, located in Milimani. Houses located in a major in Wape Wape, Sisal, Milimani and 48 Villages cost more compared to houses that are found in the middle of a village. The main reason is because the houses are easily accessible and most of them have shops at the front where the families run their business.

### Household Cooking Fuel Expenditure per Day and month

In regards to the cooking fuel that is used, 90% of the respondents in the 7 villages rely on Charcoal and Kerosene for cooking. Very small margins of the people interviewed depend on gas, electricity or firewood for cooking.

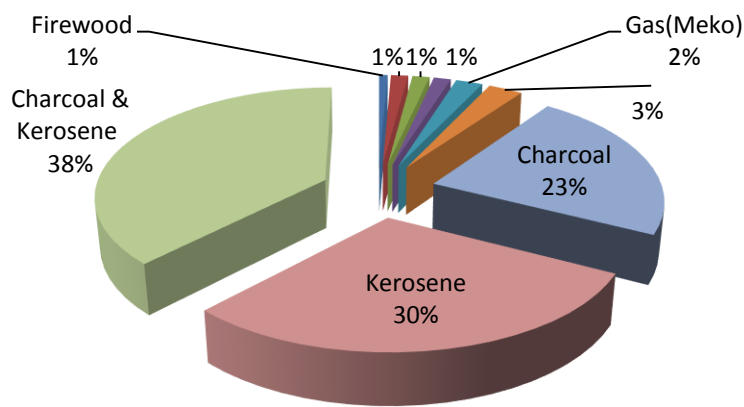


Figure 5: household cooking fuel expenditure source: author

Firewood is mostly used in the businesses like chips stands, restaurants or hotels. 26.8% of the 138 households interviewed spend between 40 and 50 Ksh per day. The least amount of money spent in a day is 10 Shillings whereas the higher amount is 150 Kenya Shillings. Majority of households interviewed, or 14.5% of the respondents spend

1500 Kenya Shillings per month. The least amount of money spent in a month is 600 Kenya Shillings whereas the highest is 4500 Kenya Shillings.

## 4.6 Infrastructure

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### 4.6.1 Accessibility and Mobility

Walking is the major mode of movement used in Mukuru Kwa Njenga, and few people also uses bicycle as a cheap mode of transport. There is a motorcycle terminus near the AL-Hudaa Mosque (Sisal Mosque) whereby the motorcycles are used occasionally. The residents also access bus terminals for movement outside the slum. In the South they use the bus terminals in front of AA (route 33) and Maziwa Stage in Imara Daima, while in the North they use the Quarry Stage, Kobil/hillocks (enterprise rd.) and in Sinai (Lunga Lunga rd.). The Kenya-Uganda Railway passes between Kwa Njenga and Kwa Reuben and actually separates the two slums.

The main entry/exit points are through Mombasa road and North Airport road from the South (MCC and Moto Moto), and Outering road from the North (Sisal). The residents also use small informal footpaths along and across the railway to access the Industrial Area for work. In Riara, there is another major access path as shown on Map 8.1.

The major and minor spines within each village outline the different urban layouts in the study area. These major and minor spines are also the routes of movement and the flow rate varies with the condition of the road. The poor road networks are non-motorable and they have a low flow rate due to accessibility problems mostly caused by solid waste and mud. These poor roads attract less business and therefore they are neglected for improvement and maintenance. The major spines are more accessible and they attract a higher flow rate. Therefore businesses sprout along these corridors becoming an economic hub.

### 4.6.2 Water

Water in the area is sourced from three points; Imara Daima, the Cereal Board area (through Sinai) and Emba-villa. Water supply is a service provided between the

formality and the informality. Nawasco is currently providing proper water pipes in the main streets, but still not working. Just a few in the south part of Moto Moto are already in function.

However, Nawasco seems to provide water to one of these three points; Imara Daima. If it is legal or not is still under wraps. It seems to be an arrangement between Nawasco and the groups and individuals who manage the water supply in Mukuru Kwa Njenga. The company pipes the water up to two major points; Riara and Motomoto. From these two points, commonly referred by the residents as “chambers”, water is supplied to the other villages with the exception of some parts of Sisal (i.e. the Northern part) which gets the water from the Cereal Board area.

According to the testimonies of Tema Tema self Help Group in Riara (a water group) and some individuals managing water in Moto Moto, individuals or Groups can apply to Nawasco to own a meter for a fair fee. Then, Nawasco provides water to the chambers where the meters are located and the owner pays for the water consumed monthly. The water pipes from the meter to the points of consumption will be provided by de owner that can now pump water to different points.



Plate 2: illegal water connection source: author

The fee paid per jericán to Nawasco is 3ksh (20 liters of water), and the price they normally sell it to the people is 5Ksh the jericán. This means that Mukuru population may be paying a higher price for water than the public fee. The Emba –Villa and Sinai water source are got through more clear illegal methods. Water is tapped from the main water pipe and it supplies for part of Motomoto and Sisal respectively

Water is usually consumed from water points and water kiosks that are distributed throughout the villages. The water points are owned by individuals whereas the water kiosks are owned by groups. Most of them, 97% according to the respondents, are located outside the plot, and just a 3% are inside, generally linked to the permanent structures. The main group managing the business are the Kisii.

Water pumps are used to pump the water from the chambers or tanks for storage up to the point of destination and consumption. There are individuals that have a business in water storage, so when there is water shortage they sell the water up to four times more than usually. In the rainy seasons rain water is commonly collected in basins, so the water business is not always a source of income.

### Water quality

In Mukuru kwa Njenga, most of the residents complain of inadequate water availability and bad quality of water supply as appraised in the charts below:

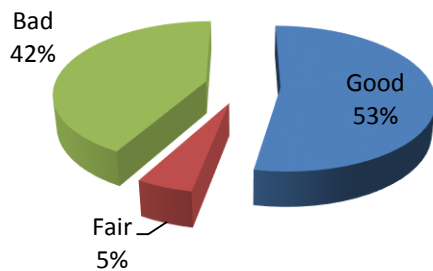


Figure 6: water quality as per respondents

Source: author



Polluted water point in vietnam

Plate 3: polluted water point  
source: author

### Water Quality as per respondents

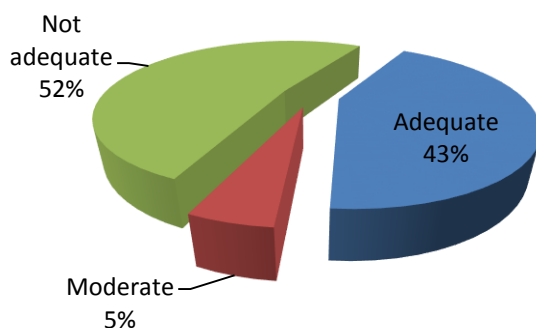


Figure 7: Water availability as per Respondents

Source: Author

### Water availability as per respondents

The service informally provided in hand with the high pollution affects to the quality of water. It is common to see water pipes passing through open sewage lines or under the solid waste in the streets. The residents of the study area purchase water on average at ksh.5 per 2oliter jerry-can. However, in times of water shortage the price can shoot up to ksh.20 per 2oliter jerry-can.

### 4.6.3 Electricity

In Mukuru Kwa Njenga, majority of the people have access to electricity as illustrated by the following diagram alongside;

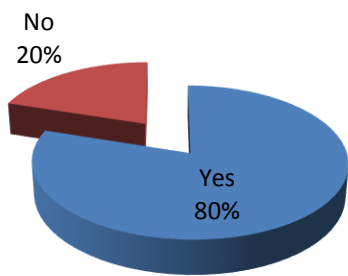


Figure 8: households

With electricity as per respondent source: author

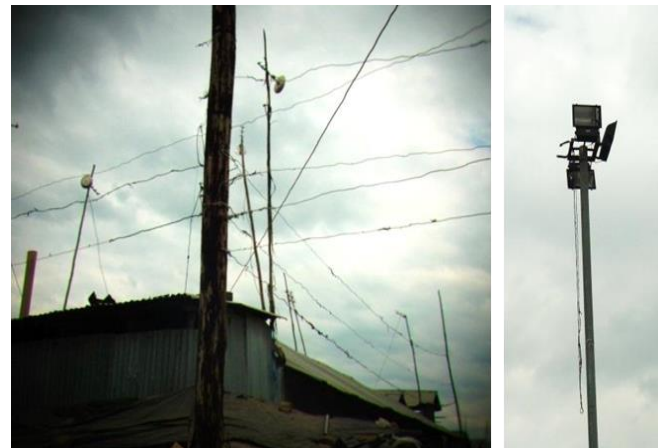


Plate 4: electricity connections in Mukuru kwa Njenga source: author

The pie-chart describes the electricity supply per village according to the respondents interviewed. The most prevalent method used to acquire and distribute electricity is the “*Sambaza*” method, whereby residents tap electricity directly from the electricity service lines. A few of the residents use direct connection from KPLC and this is mostly in Motomoto. The *sambaza* method is very dangerous and has caused accidents like electrical fires or electrocution over the years.

The street lights within the study area are only in Sisal and Wape Wape. Three are the spotlights in the whole area, and small streetlights in the road border of Moto Moto with AA zone.

There are two main power lines in the settlement. A 220Kw high voltage line along the railway, and a 66Kw voltage line bordering the east part of Sisal and crossing Zone 48. Under both of them, despite having a reserve of 30 and 15 meters way leave, people has squatter and structures have been built. No methods of clean energy to provide electricity have been ventured into.

#### 4.6.4 Human Waste Management

##### Types of Toilets

The pit latrines are the dominant types of toilets with a few bio-latrines/bio-centers: one in Sisal, two in Vietnam and one in Milimani that currently is not working. Their maintenance is a critical issue for sustainability. Motomoto village has several flush toilets due to the more permanent stone house typologies. Most of the private pit latrines are located within the residential plots in regards to the building policies set by the elders. However, in older villages such as Sisal, parts of Vietnam and Milimani, quite a number of pit latrines are located outside.

Some of the toilets located outside the residential plots are arranged in rows especially in Sisal along the Greenfields wall and also along the railway line under the high transmission electricity lines. The reason for this is due to availability of space that is not suitable for residential purpose.

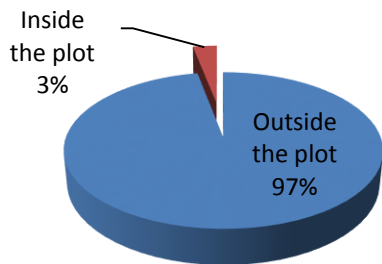


Figure 9: location of toilets used as per respondents  
Source: CURI, 2012



Plate 5: toilets

Source: author

The human waste disposal method commonly used is the manual exhauster (A.K.A the *Ambulance*). The people that provide this service have organized themselves into a group, of about 50, and their point of reach is located near Embakasi Girls High School. According to one source, the strategy is to reduce the waste as opposed to completely



emptying the pit. The reason behind this is influenced by economic reasons, because many cannot afford to completely empty out the toilet.



(left) embakasi girls a.k.a parking (right) two men pushing the manual exhauster through a muddy road in riara.

Plate 6: solid waste management source: author

#### 4.6.5 Solid Waste Management

There are no legally designated dumping sites within the study area, so traces of heaped up wastes are visible everywhere. In the more organized methods, youth groups collect and dispose solid wastes at various specific locations within each village. A minimum monthly fee of ksh 20 is charged for the garbage collection carried out by the youth groups. In other cases the landlord handles the solid waste for his/her plot. Some landlords charge the tenants for this service while others do it for free.

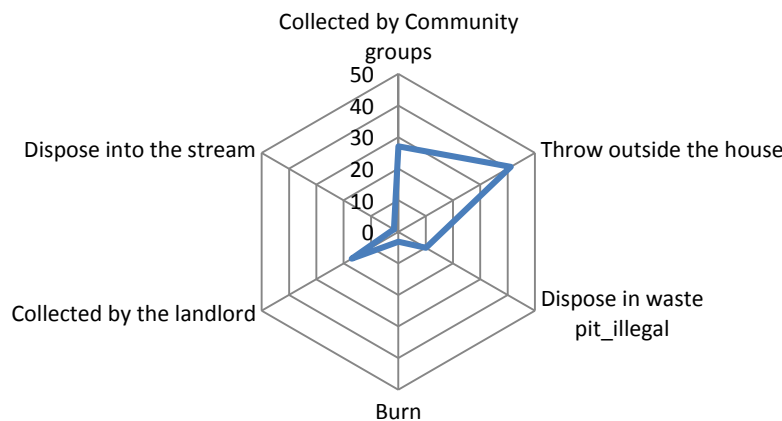


Figure 10: Means of human waste collection Source: curi, 2012

In the non-organized methods, residents just throw their waste outside the plot into the roads or gather the waste and burn it. In rare cases some dispose to the waste pits. The haphazard disposal methods contribute to clogged drainage systems and fouts

smells, being the main reason to diseases like cholera and typhoid. The City Council of Nairobi does not collect the waste in the area.

There are families and waste pickers that sort the main waste that can be sold to the recycling enterprises or just reuse it.

#### **4.6.6 Sewerage**

The sanitation in Mukuru kwa Njenga is already under construction by Nawasco.

The only sewer lines in function so far are in Moto Moto and connecting Our Lady of Nazareth to the main sewer line near Ngong River in Sisal.

In the past there were two main sewer lines crossing the settlement that collapsed ten years ago and have never been repaired. One of them was parallel to the stream that passes through Moto Moto, Milimani, Zone 48 and Wape Wape.

#### **4.6.7 Drainage**

There is few evidence of formal drainage system in Mukuru Kwa Njenga. In the main streets of Zone 48 and Wape Wape and Milimani the drainage is covered with wood sticks and in some cases it is made of concrete. But in most of the area the residents have taken initiative to dig up trenches to serve the purpose, creating streams of open drains many of which are collapsed due to waste. These drains empty into the open sewerage systems in use, the stream water.

### **4.7 Education**

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Mukuru Kwa Njenga has numerous primary schools with about two secondary schools in the settlement. There is a mixture of formal and non-formal schools but most of them are non-formal and privately owned. The three formal schools in the area include Our Lady of Nazareth, Kwa Njenga Primary School and Embakasi Girls. There is an average of 10 schools per village. Pupils in the school range from 20 to over 300 pupils with the exception of Kwa Njenga Primary School which has over 1,000 pupils.

These form the majority of the education providing facilities in the area. There are over 70 private, non-formal education facilities in Mukuru Kwa Njenga. The facilities are



spread all over the settlement. These are more of income generating activities; therefore education provision is a business within the settlement.

Over 85% of the facilities are located on rented spaces that were initially residential rooms. An entrepreneur rents a room and converts it to a class room. With each coming year the school expands with the acquisition of new rooms within the same plot up until



the school becomes complete. Some plots have been found to be in mixed use i.e. residential and education. Teachers are employed in accordance to the size of the school and the number of pupils.

#### 4.8 Health

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The settlement has both formal and informal health services. The two main formal facilities within the settlement include Medical Missionary of Mary Church and Alice Nursing home. The other facilities in the area are mainly chemists and mini-clinics.

The major diseases in the area are sanitary related and respiratory diseases. The inhabitants of the settlement are prone to sanitary related diseases such as diarrhea, amoebiasis, typhoid and malaria, due to poor drainage and waste disposal in the settlement. Respiratory diseases such as TB, asthma, pneumonia may be due to lack of proper ventilation within the structures and the location of a quarry nearby. According to health officials in the area there is an increase in the disease during the rainy season. STDs and STIs are also widespread in the area. Inhabitants of the settlement may also use facilities out of Kwa Njenga such as Mbagathi District hospital, Mareba, Kenyatta National Hospital etc.

#### 4.9 Religious

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The two dominant religions in the area are Christianity and Islam inevitably making churches and mosques to be the major religious facilities found in the area.

Religious facilities are used as areas of worship and areas of meeting, especially the large facilities in the area.



#### 4.10 Social and Community Halls

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There is a shortage of social and community halls in Mukuru Kwa Njenga. Most of the functions and meetings in the area are held in open spaces, churches, people's homes and on the street.

There are a few social halls in the area, most of which have been constructed by youth groups as an income generating activity e.g. Amusha Youth Bio Centre. They are spread out within the settlement and are made of iron sheets except for the Amusha Youth Organization Bio Centre.



Plate 9: A social hall that is owned by CBO  
source: fieldwork

#### 4.11 Open Spaces

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Most open spaces in the settlement are associated with social facilities, mainly education. The choice of their use is dependent on proximity and size/type of activity i.e. activities such as sports games require large open spaces unlike playing ground for children.



Plate 10: children playing on the pipeline field  
source: fieldwork

The main open spaces in the settlement include:

- Vision ground/Greenfields,
- School compounds e.g. Kwa Njenga Primary School, Our Lady of Nazareth Primary School, Chaminade Training Centre, Embakasi Girls
- Pipeline
- Villa Police Post
- The Streets
- Un-built up plots



Plate 11: open space used as dumpsite  
source: fieldwork

Streets serve as multi-functional open spaces. They serve physical social and economic roles. They are used as playing fields, meeting spaces, areas of worship, training ground for activities such as motor bike riding etc. When open spaces are not used regularly solid waste is deposited and they end up turning into dumpsites.



## 4.12 Security

### State of Security

It can generally be classified as relatively fair, according to the respondents in the survey. The percentage of respondents claiming good security and insecurity is relatively equal: 40% claiming insecurity and 35% stating that the security is relatively good. The remaining 20% ranked it as average.

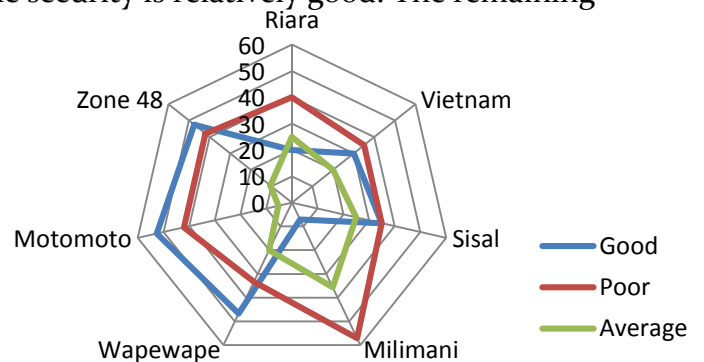
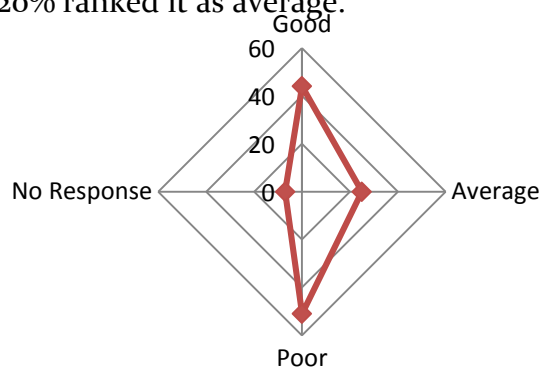


Figure 11: perception of security within villages as per respondent's source: author

However, security of the area varies per village as showcased in chart 8.14.. Motomoto and Wapewape have relatively good perception of security whereas Milimani is considered to be the most insecure zone followed by Riara.

### Perception of Security as per Village

The area adjacent to the railway line is the most insecure because they are located on a boundary of two informal settlements. Consequently, the insecurity results in low rents for the structures within those areas. Insecurity is higher during the night as compared to the day time. This limits activities at night such as movement, businesses and household activities such as going to external toilets at night. Insecurity largely results from the low economic level of the settlement. 49% of those who gave reasons for insecurity in the area attributed it to lack of **employment**. The other main reason being **poverty** in the settlement by 17% of the respondents. Other factors such as:

- Lack of police co-operation
- Lack of street lighting in most of the area
- Inadequate management by the police

- Drug abuse
- Corruption
- The type of structures

#### 4.13 Economic Activities

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The economic activity of Mukuru Kwa Njenga is very diverse and vibrant. Most of the people are employed on the industrial area or just self-employed. The small economy adapted to low income is the predominant economic scape, but there are also few bigger business like supermarkets. In regards to the working areas 79% of the people interviewed work within Mukuru Kwa Njenga whereas 21% of the people work outside the settlement. Wape Wape and Zone 48 have the highest percentages of people working within Mukuru Kwa Njenga between 86% and 93% as per respondents.

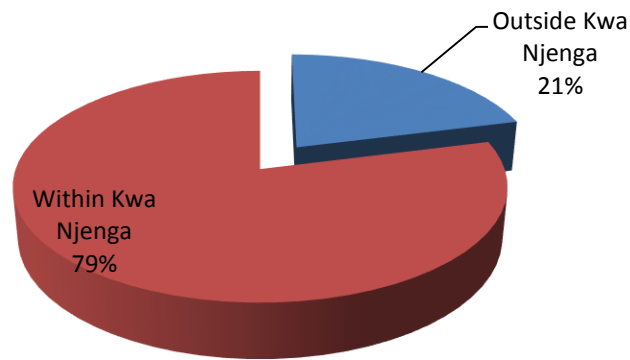


Figure 13: area of work as per respondent  
source: CURI, 2012

#### Industry

Mukuru is located near the industrial area of Nairobi, so many people living in the settlement is employed in different industries, either crossing Ngong River or in the industries bordering the settlement. The industries around Mukuru Kwa Njenga are the Bimji Quarry located near Sisal and the ballast factory bordering Wape Wape. The raw

materials for the ballast factory are sourced within Mukuru Kwa Njenga, offering a lot of employment to the residents of the area. The negative aspects of the industries are the air and noise pollution, main reason for lung diseases among the people working there.

## **Businesses**

Most of the business activities take place along the major corridors since they are motor able and many people can access the businesses easily. Along the secondary streets there are few businesses especially in places like Riara and Milimani. In a village like Riara the area is hardly accessible during the rainy hence many people opt not to locate their business along the secondary streets.

Villages like Wape Wape, Sisal, Zone 48 and Moto Moto have many business activities. The major economic hub is located in Wape Wape Main Street, where around 85% of the front part of the permanent structures are business or business combined with residential. Another economic hub is located along the Railway line in Sisal, where many business activities are taking place just around the Ngong River Bridge. Other villages bordering the railway have not economic activities near the rail line due to the evictions carried out by Kenya Pipeline, especially after the explosion happened in Sinai in 2011. Moreover, Kenya Railways gave a vacation notice to the people who were carrying out businesses in the railway reserve. Currently people in Sisal are carrying out there businesses illegally.

The open spaces are used as recreational, and no businesses are taking place despite the big size some of them have. Most of the businesses located along the main streets are combined with residential use, a factor that increases the rent of the rooms.

The predominant types of business along the roads and secondary streets in Mukuru include the following:

- Grocery/Vegetable vendors
- Bars/Restaurants
- Hotels
- Charcoal vendors

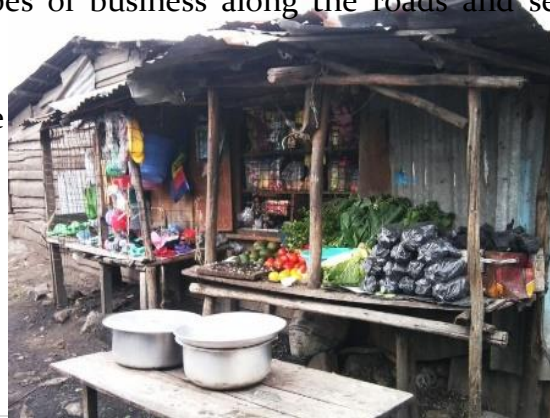


Plate 12: Economic activities in Mukuru

Source: Fieldwork

- Tailors
- Barbershops and Salons
- Kiosks
- Shops

Other businesses along the main and secondary streets include: Butcheries, Kerosene Pumps, Hardware stores, Toilets (Private), Water points, video shops (local cinema), chemists, posho Mill, bicycle repair, cereals retail/wholesale shops, cobblers and renting houses among others. The business carried out along the railway are mainly grocery/vegetable vendors, selling of Mitumba clothes, shoes, building materials or household items. There are types of business like Selling of illicit brews such as changaa and Busaa or selling of bhang that are carried out inside the house.

The sources of goods in general are the Marikiti and Gikomba markets, industries in industrial area, Machakos and the Kisii. Urban agriculture is evident in the village especially in Vietnam and Moto Moto. In Riara it is practiced along the buffer zone which by people of Riara School. There is also livestock keeping (poultry, goats) which are run by individuals. Regarding to gender, there are business mainly carried out by women and other by men. According to observation carried out in the settlement 54% of the businesses are run by women, what shows a gender balance in this field, mainly because most of the men are employed in the industrial area.

#### 4.14 Natural environment and pollution

The study area is generally flat with a few gentle slopes in Milimani, Riara, Wapewape and Sisal with an altitude of between 1618 and 1623 m. The slum lies along Ngong River bordering the north of the settlement at Sisal, and it is one of the extremely polluted points in the area. There



Plate 13: solid waste dumping in the river  
source: fieldwork

is also an open sewer that cuts through the slum, mostly used as an open drainage line that concentrates the untreated waste water from the public toilets, pit latrines along it and manual exhausters directing it into the river. The area also lacks formal solid waste management mechanisms propelling extreme pollution and environmental degradation through solid waste dumping anywhere and anyhow. This environmental degradation and pollution have become a common cause of diseases like diarrhea, typhoid, amoebiosis and cholera. The Nairobi City County has lately started doing some waste collection at least once a month but mostly along major corridors. The only community initiative is seen through some youth groups in Villages that deliver plastic bags and later collect the garbage charging a fee of 20Ksh. Although the expenses prevent many families to take this service, the interviews done show that the villages with organized solid waste collection are less polluted than the ones with no service.



## CHAPTER FIVE: STUDY FINDINGS

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### 5.1 overview

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This Chapter provides a comparative understanding of the various housing typologies. Moreover, the Chapter addresses the research questions, unpacks the study findings and recommends possible interventions towards improving housing provision for the low income tier. Hence, policy intervention to low cost housing by both the private sector and public sector should be streamlined to take to account the socio-economic implications to the slum inhabitants.

### 5.2 Answering the Research Questions

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The dissertation had posed 4 study questions, as addressed in the ensuing discussion.

#### **5.2.1 What are the emerging housing typologies in and around Mukuru kwa Njenga settlement?**

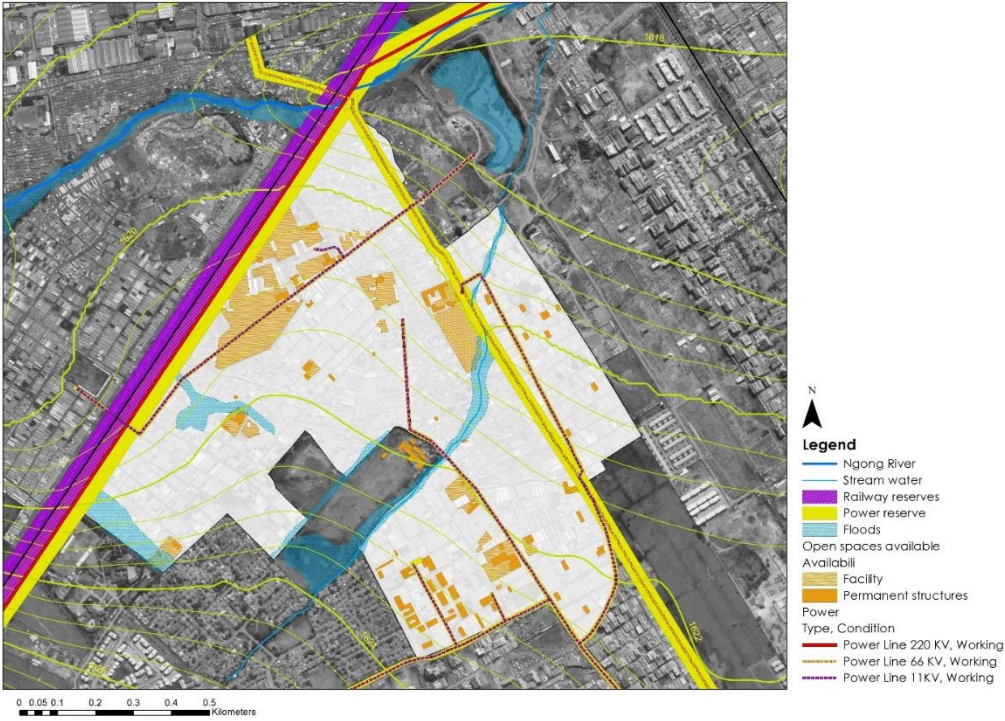
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The emerging housing typologies can be classified into two; housing typologies emerging within the informal settlement and housing typologies emerging in proximity to the settlement.

##### **Housing typologies emerging within the informal settlement**

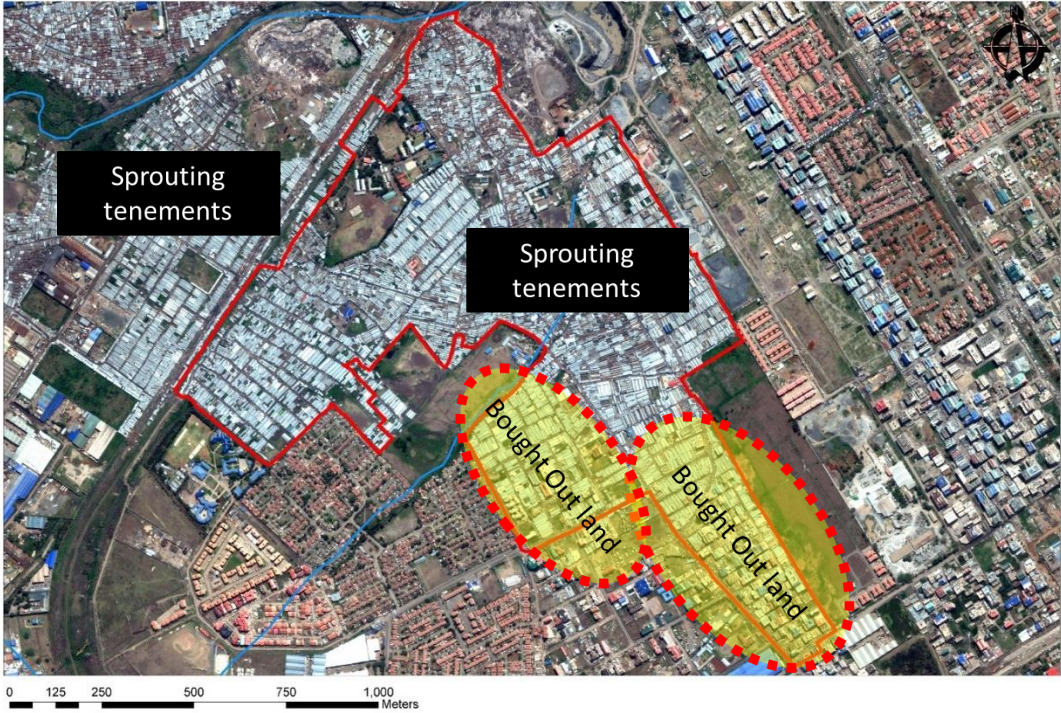
Housing is really changing within Mukuru kwa Njenga. There has been a rapid increase in the number of upcoming storey buildings. Storey buildings take advantage of the vertical dimension rather than fighting for the horizontal dimension. Most of the buildings going one floor up have been recorded since the year 2007. They still are mabati structures and hold the same dangerous conditions as the earlier ground floor only structures.

Some storey structures are coming up as permanent structures. This are mostly found along the major business corridors. From one of the focus group discussions it was clear that the former mabati structure owners have become comfortable with their possession of the land and are now going high-rise and permanent without proper approval. This is also a form of defiance against any eviction threats being pushed for by the real land owners.



Map 9: Mapped out new permanent structures in mukuru kwa njenga  
 source: Author

Mapping out the above scenario gives us the following situation on the ground;



Map 10: An analysis of the changing housing provision  
 Source: Author



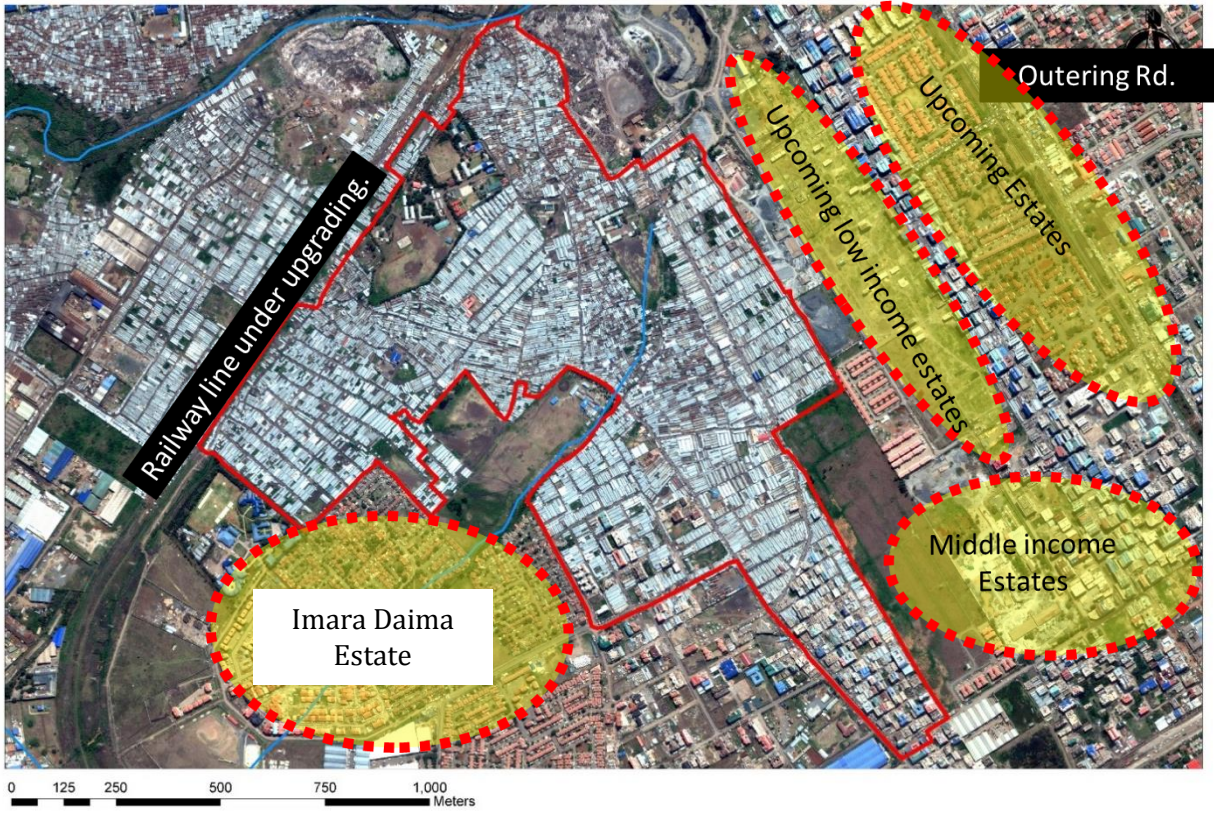


Plate 14: Upcoming typologies in Mukuru kwa Njenga  
Source: Fieldwork

### Housing typologies emerging around the informal settlement

The southern end of Nairobi has recently attracted much development on residential housing. This is due to infrastructure enhancement and the promise of future infrastructure development. This is seen on Mombasa road and the Outering road, also including the airport north road and southern bypass. The region is also at proximity to the CBD and host major industries and warehouses [go-downs] within Nairobi. As shown on the map below the following upcoming residential housing can be highlighted.





Map 11: Map of upcoming housing around Mukuru kwa Njenga  
Source: Author



Plate 15: Images of upcoming typologies  
Source: Author

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### **5.2.2 What are the causes or drivers of such changes on housing typology changes in and around Mukuru kwa Njenga settlement?**

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#### **i) Kenya's growing economy**

Generally, Kenya's economy has had genuine growth over the past decade. It grew by 2.6% in 2009. It experienced a moderate growth of 4.4% in 2011 and 4.2% in 2012 and is expected to reach 4.5% in 2013 and 5.2% in 2014. There has been a boom in tourism, construction and telecommunications. Construction sector registered the highest growth in employment rate. It also grew by 4.8% in 2012 compared to 4.3% in the year 2011 especially in housing and infrastructure development (AFDB, 2013). Cement consumption was recorded to have grown by 21.1% in 2009 and has been increasing ever since (NHC, 2011). This growth in construction industry has been due to Government's on-going expansive road construction and private construction projects. The economic growth has also been attributed to the country's political stability.

#### **ii) Property market trends**

Vision 2030 estimates 200,000 units are required yet only 35,000 are produced. Low-income group shortage is more acute in urban areas where only an estimated 6,000 units are produced annually. Estimated that more than 400,000 households (equivalent to 2 Million people) living in the City of Nairobi alone need modern, decent & affordable housing. People's perception on housing and decent living have also changed to a requisite for modern, architecturally beautiful housing. This could be attributed to a generational change that is more exposed and largely urban.

Although, the demand for low income residential housing in Nairobi outstrips the supply. The middle income market activity is far from optimal with mostly flats built. The moves by mortgage houses to make credit cheaper is enhancing activity in this sector. There is a low level of home ownership leading to larger demand for rental housing. Home ownership within urban areas has been recorded at 16% by the national housing corporation. Surprisingly the situation in the high income residential market sector is quite different. There are many vacant houses and few people seeking either to rent or purchase.



Office space market largely remains a buyers (lessee) market because of the oversupply of space. Out of the CBD offices remain more attractive largely because of the parking and traffic congestion problems.

Demand for housing is high both from local and Kenyans in the Diaspora. This has caused the prices of housing & prime land skyrocketing. Recorded increase is at 16% p.a. for apartments/flats, 28% p.a. for masionettes and Rents -10% p.a. for selected markets.

### **iii) Unpreparedness for the rapid urbanization**

With the high rate of urbanization that is approximately at 4% p. a., the supply for housing has largely been outweighed. There is serious unpreparedness from the government in the provision of serviced land thus leading to poor housing even for the middle income level. This situation is made worse by the inadequate affordable housing and an increase in slums and squatter settlements. This has previously been attributed to the underinvestment in low and middle-cost housing by both the public and private sectors. Private investor has focused on housing for higher and middle (Upper) income groups leaving the low income group to fend for themselves.

The cities are also surviving on outdated building codes that leads to poor development control. This accompanied by slow delivery technologies for housing and inadequate contractor capacity to deliver houses have only made the delivery for housing more haphazard and inadequate.

### **iv) Recent government efforts to give direct housing incentives**

Government recently has had various incentives in place to attract private sector investments in low-income housing:

- Infrastructure development incentives – Employer and Employee incentives:
- Savings Mobilization Incentives:
- Housing Finance Mobilization Incentives:
- Diaspora and Capital Markets Resource Mobilization
- Housing Development Processes and Slum
- Improvement Incentives

- Civil Servants Housing Scheme

All these initiatives have in one way or another enhanced private sector investment in low cost housing and infrastructure development.

**v) Impact of the new constitution**

The establishment of the National Land Commission has streamlined and secured peoples interest on land. This has been a major restructuring that will help in the implementation of the national land policy aimed at equitable distribution and access to land. Among most county governments agendas is to encourage use of acceptable, affordable and reasonable intermediate technologies, building materials, innovations and methods for housing provision.

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**5.2.3 What are the implications of the changes on Mukuru kwa Njenga's growth and development?**

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**Physical implications**

The physical implications of the upcoming typologies are unfathomable. In this research it was identified that the morphology and settlement structure has changed from within and from the periphery.

Emerging vertical structures within the settlement have changed its skyline. Compared to the earlier shack settlements, the vastness into space has been converted into a congested high dense feel. Over 90% of the emerging structures within Mukuru kwa Njenga have gone up 1 to 2 floors (65% for 1 floor and 32% for 2 floors). The aesthetics of the buildings has also changed as domestic human activities have been redirected to upper floors.

Human activities are no longer constrained to the ground; they have acquired an extra level upwards. On major corridors, the ground level is mainly used for shops and kiosks (87% of those living on the ground floor had a shop or a kiosk). The upper floors have been left for domestic uses like washing of clothes, hanging clothes to dry, cooking and in some cases brewing of alcohol to sell.

The emerging typologies in proximity are also high-rise but with over 4 floors. Some like those found in Tumaini Estate go up to 8 floors. All the tenements or apartments in proximity are permanent structures, this includes those in Motomoto and MCC which have been bought out from former shack owners leading to development of tenements. These massive blocks have literally formed a fortress around Mukuru kwa Njenga. From the main roads on Outering road, Mombasa road and Airport north road, Mukuru kwa settlement is not visible.

These blocks have also become huge barriers to the potential growth and spread of the settlement. The settlement is barricaded by huge walls that are electric protected especially in the case of Avenue park estate. Even in the case of no fencing, the high-rise structures have also become part of the barricade.

These apartments and some tenements have in some cases provided for provision of paved roads especially roads directing to their entrances. This is quite clear from Airport north road heading towards Motomoto; that whole stretch got paved back in the year 2010 due to the upcoming residential housing and the shopping malls (see map 12 below). This is not the case for all structures though, as some found within the settlement lack enough space for roads. This is a major challenge especially in Motomoto and MCC, where the highrise structures are so close to each other to a point where one can move from one balcony to another balcony in an adjacent structure. In such cases the roads are not paved and 86% of them were in wet and muddy conditions all through the year even during sunny seasons. This could be accredited to the lack of proper sewer servicing and the eventual dumping of waste water on the road; from balconies and through the windows.

The paved roads have enhanced part of the settlement as they have attracted more space for larger vehicles and better accessibility in general. 76% of these roads had street lighting which enhanced security during the night.





Map 13: Complementary development around Mukuru kwa Njenga (mombasa rd.)  
 Source: Author



## Socio-Economic implications

An analysis of the emerging typologies in proximity of the settlement, gives a glimpse of how Mukuru kwa Njenga economic status has warped over the past decade. 92% of the respondents claimed that buying items from the shops was higher now (2013) compared to the year 2010. This was mostly mapped closer to the edges, next to the upcoming apartments and buildings. Current residents of Motomoto claimed that the rents of the shacks they were living in had also gone up as more highrise structures were coming up. The rent for a shack has gone up by an average kshs. 650 between the year 2010 and the year 2013. From a study done by the Centre for Urban Research and Innovation, the average rent paid for a 3m \* 3m house unit was kshs. 1000 – 1500 per month in 2012. From the findings, the average rent paid on the upcoming tenements at Kshs. 2,500 – 3,500 per month within the settlement. Currently, the study shows the average monthly rent paid for the same 3m\*3m mabati unit at kshs. 1,500 – 2,000 along the main corridors.

Such rental costs cannot be compared to the upcoming apartments at the proximity of the settlement. The data for Tumaini, Tassia, Pipeline, Avenue Park, and Fedha Estates which are situated along Outer Ring Road between Nairobi River and the North Airport Road roundabout, and are part of the greater Embakasi Division was as follows;



Plate 16: Tumaini estate  
Source: Author

**Tumaini Estate** is a rental housing development built in the year 2003 by

Gerishon Kirima, targeting middle income earners. Typical housing in this Estate is four-story apartment blocks with unfurnished two and three bedroom flats going for a monthly rent of about Ksh 18,000 and Ksh 25,000 respectively. There are tarmac access roads within this estate, a perimeter fence around the estate, and ample parking for residents.



**Tassia Phase 1** and **Phase 2** are a site and service residential development that was started in the 1990s and still has some plots open or under construction. The housing consists of a mixture of maisonettes, two-story and three-story apartments with unfurnished two bedroom houses. Although some parts of phase 1 have tarmac access roads, the access roads in phase 2 have murram surfaces and get muddy during the rainy season. The flats go for a monthly rent of between Kshs. 15,000 and Ksh 18,000 per month. **Tassia Phase 3** is a recent residential area, and is largely under development, featuring a mixture of maisonettes and three-story flats with unfurnished two bedroom houses that go for a monthly rent of about Ksh 12,000.

**Pipeline** consists of the Kenya Pipeline Company Staff Quarters, the oldest housing development in the region, as well as the area behind these quarters with a high proliferation of eight-story flats with single rooms and shared toilet facilities. This high-density area, popularly known as plot 10 targets low income workers from Jomo Kenyatta International Airport and the neighboring industries. Monthly rent per room is about Ksh 3,500. Other types of accommodations to be found in this



Plate 17: pipeline estate  
Source: Author

region include temporary mabati structures, constructed entirely with corrugated iron sheets that go for a monthly rent of Ksh 1,500 per room. As is characteristic with most high density areas in Nairobi. It lacks all-weather roads, surface water drainage and sewage infrastructure. The roads and footpaths in the area turn to mud pools during the rainy season, and an unpleasant smell envelops you from the moment you step into the neighborhood.

**Avenue Park 1 and 2** were built in the early 1990s, targeting upper middle income earners as owner occupiers. The standard three bedroom masionette design, tarmac access roads, street lighting, trees and green facades add up to a pleasant environment for living in. The monthly rent is of about Kshs 25,000. The servant's quarters are available for rent for about Ksh 8,000.



Plate 18: Avenue park estate  
Source: Author

**Fedha Estate** was built in the early 1990s by East African Building Society, precursor of the current Ecobank, targeting upper middle income earners as well. The houses consist of a standard four bedroom bungalow design on an eighth of an acre plot, with tarmac access roads, street lighting, trees and shrubs lining the roads. The quiet ambience contrasts sharply with the neighboring Pipeline. The house rent is at about Kshs. 30,000 per month. The servant's quarters go for about Ksh 8,000.



Plate 19: Fedha estate  
Source: Author

**Shopping:** These estates are well served by all the large supermarkets with Tuskys located opposite the Coca Cola plant near Embakasi Village, Nakumatt Embakasi along North Airport Road near City Cabanas, and Uchumi coming up at the Outer Ring Road and North Airport Road roundabout. Other supermarkets include Tumaini at the Pipeline bus stage along Outer Ring Road, and two other similar supermarkets situated inside Plot 10.

With all these developments around Mukuru kwa Njenga the general economy and living standards of the settlement has gone up. The transport cost is high, water and basic services cost is also high. Residents of Mukuru kwa Njenga and the neighbourhood share the same transport facilities i.e Matatu number 33 (Pipeline), Bus number 34. Tassia Phase 2 and Phase 3 residents alight at the Fedha junction, where they can get boda bodas (motorbikes) to their final destination. They also share the Imara Daima train station.

**Hospitals:** The Gertrude's Garden Children's Hospital in Embakasi and the Gertrude's Garden Children's Hospital in Donholm are the main fully equipped common hospitals used by residents of Mukuru and the neighbourhood.

**Police Station** the main police station in the area is the Embakasi Police Station that is found right inside the Mukuru kwa Njenga settlement.

### **Infrastructural implications**

Kwa Njenga had comparatively low level of services, even below minimum standards. Water and sanitation in the shack settlement was highly deficient and hardly were waterborne sanitation services, whilst in tenements, levels of formal water connection were higher, and a waterborne sanitation system was provided in each building. Likewise, electricity services were entirely formal, in tenement buildings whereas the shack settlement relied heavily on informal and inadequate electricity services. Formal services were comparatively cheaper than informal services.

As for Solid waste management services, it was found tenement residents were charged higher, although in both cases the services were offered informally and were inadequate. The higher charging was simply associated with the perception (by waste pickers) that tenements dwellers were comparatively well off, economically (compared to shack dwellers). But to what level do the income levels in both cases contrast?

The mixed housing typologies in tenements have produced a partially mixed

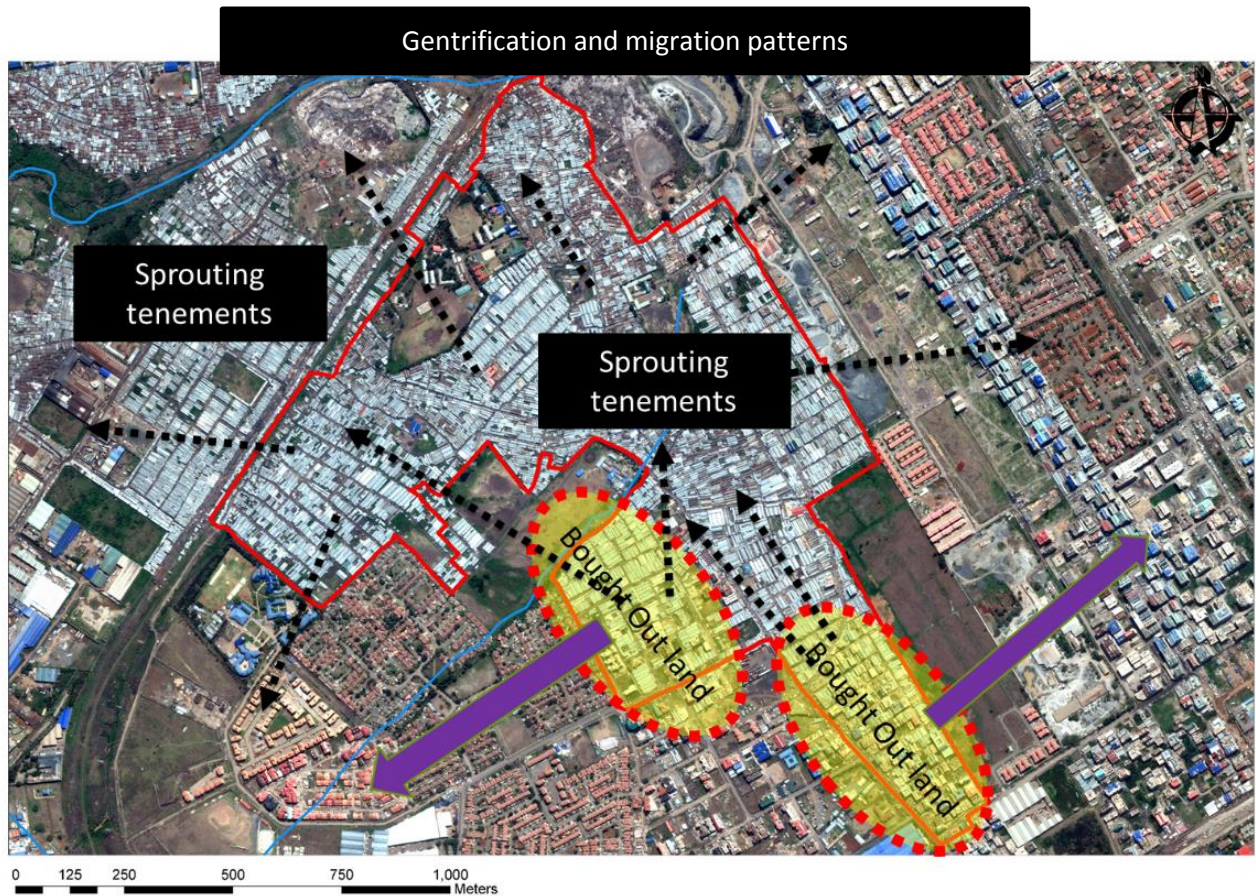
neighborhood. The roomed units were mainly occupied by the low income, whereas bed roomed units were primarily occupied by the lower-middle class. On the other hand, the shack housing typology alluded to a mainly low income settlement. However, detailed categorization is beyond the methodological framework of this study. Regarding social fabrics, the tenement area was found to have weak social cohesion, whereas in kwa Njenga, social cohesion was stronger. The assumption was that the extreme densities in tenements, where frequent contact of tenants is common, would have produced a stronger social cohesion. Contrarily, kwa Njenga residents exhibited more elaborated practices of ‘*commoning*’. kwa Njenga also had a lower tenancy rate per unit compared to Pipeline.

The above comparison is associated with the nature of neighborhoods these markets have produced.

### **Gentrification and migration**

One of the surprising findings that this research uncovered is the slow pushing out of the current residents of Mukuru kwa Njenga by the a slightly higher low income group. Especially in areas of MCC and Motomoto a 72% of the residents claimed that they had moved in into that area from other parts of the country and had a slightly higher income from employment (68% of them were employed, unlike the majority within Mukuru who depend on casual jobs and self-employment). The patterns of migration were mapped out as follows (from within Mukuru and Outside Mukuru):





Map 14: Gentrification and migration patterns in Mukuru kwa Njenga  
source: author

#### 5.2.4 How can the information gotten be used to address future planning and policy interventions on slum upgrading and low-cost housing provision for Nairobi residents?

The Study identified various scenarios on slum development. First, there were extreme cases of emerging high-rise buildings in and around the settlement. High-rise buildings developing within the slum area, are on illegal land acquisition basis. This is land that was under the control of a slum cartel or slum lord who later decided to develop a permanent structure after many years of benefiting from his shack structures. This has been as a result of complacency on the fact that the government seems to have no power in evicting people from slums anymore. Other high-rise permanent structures within the settlement are on the basis of land trading by the slum lords or slum cartels; the slum cartels have developed a real estate market within the slum. As indicated in the previous section, a structure owner

of a shack structure that has 8, 10ft \* 10ft units would amass a monthly income of Kshs. 20,000 of which 8 - 10% goes to the slum cartels who manage the collection of rent.

Secondly, these high-rise buildings are developed with the lack of proper planning and regulatory measures. Taking the case of MCC, an area that was previously shack settlement and now comprised of high-rise flats, over 75% of the structures did not have legal land subdivision and development approval. Even though MCC was legally subdivided and sold out by the previous land owner, the land buyers fail to follow the legal procedures of developing on it.

This can be seen from the poor structural development that defies planning laws and regulations especially on plot ratios, plot coverage, accessibility and infrastructure provision. Over 90% of the structures are over 4 floors, most ranging on 6-8 floors up. This brings out the third point of violation of building standards and planning regulations. Just like the shack structures, the high-rise structures are subdivided into 10ft\*10ft single rooms. These rooms do not have support facilities such as kitchens and sanitary facilities. Moreover, these rooms are up for rent at Kshs. 3,500 to Kshs. 5,000 based on location and proximity to the main roads such as Airport North rd. and Outering rd.

The aesthetics and structural designs of these structures is unsatisfactory to most residents and non-residents. The streets are narrow and dark even during the daytime. This can be attributed to the tall buildings that don't provide for proper ventilation and balconies that hang over the circulation paths. When it rains, these paths get flooded with sewerage; most paths lack drainage facilities and the sewer lines passing alongside them are blocked. In some cases the flooding extents into the buildings, thus rendering some entrances unusable. Most of these streets are also not paved thus making them very muddy after rains or in case of leakage from the sewer lines or water lines.

Lastly, the study identified the serious lack of awareness and information to residents and developers alike on city planning regulations and laws. The inhabitants have little or no clue that certain requirements must be adhered to for the provision of proper living spaces. Although this study alludes to the fact that a majority of the residents in slums are poor



thus trade off comfort for affordable living. The structure owners and developers are driven by the optimization of profit and take advantage of this market (low-income/poor) by providing sub-standard structures that do not cost much.

### 5.3 Conclusion

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For the purposes of this study, the most important recommendation that would best fit the circumstance, would be a complete overhaul of the city planning leadership, governance and enforcement agencies and institutions. Even with the enforcement of the new constitution, most institutions still suffer from the decay of the previous regime, as the personnel that was being used then has been refitted into the new system. Most corruption events and procedural disregard has been retrofitted into a new way of doing things. Taking the case of city planning, the approval process of development is still marred with corruption – where a side payment is given to expedite a developer’s request for approval. A majority of the state workers are still benefitting more from this side payment/side-dishes than the salary they get from office. With such activities still going on within the levers of power and enforcement agencies, it is an impossibility to change the status quo as most private developers have acquitted themselves with such ways of getting things done, giving them the leeway to do whatever they want.

With the ushering in of the County governments, much is expected especially on improving the citizen’s lives. Low-cost housing falls under the main agenda of the new regime. As this research identifies, Nairobi city suffers from extreme urban poverty, which requires addressing especially on the provision of basic human needs; shelter being one of them. Secondly, Shelter should be supported with proper infrastructure such as water, sewer and circulation. All these is based on Kenya’s economic prosperity in a globalized market. The economic prosperity of the citizen of Kenya and the urban residents fully determines their living preferences and conditions.

Indeed, a vibrant regional economy would mean a creation of more opportunities for Nairobi residents. This would also provide higher incomes for the working class. Such

prosperity can only be achieved through means that are beyond the standard governance and privatized development. According to this study, the main conclusion to be made is that informality is here to stay, because the tools and instruments to deal with it are not up to the task. The proposed solution would be for the governing bodies to embrace the privatized low-cost housing and support the developers to achieving higher standards of what they provide to the low-income market.

The emerging housing typologies give a notion that the developers are willing to provide better housing and the response from the market is that residents are willing to pay more for better housing, as long as such housing is providing a mixed used urban development platform. The residents want their homes to be close to their working zones or provide opportunities for self-employment. This study has provided a platform for further study into the existing and emerging housing typologies in a struggling economy. Thus it proposes further study into the housing provision realm especially for the low income tier.

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## APPENDICES

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1: Questionnaire to residents of the new structures

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### QUESTIONNAIRE TO RESIDENTS OF THE NEW STRUCTURES

Date: \_\_\_\_\_ Village: \_\_\_\_\_ Settlement: \_\_\_\_\_

Research Assistant Name: \_\_\_\_\_

House Number: \_\_\_\_\_

Name of respondent: \_\_\_\_\_

#### Household information

1) Household size: Children [0-12] :  Teenagers [14-18]:  Adults  18 and above]:

2) Number of people within the home:

1. Mother	
2. Father	
3. Brothers	
4. Sisters	
5. Grandfather	
6. Grandmother	
7. Uncles	
8. Aunties	
9. Others	

3) Education Level: \*1. None 2. Primary 3. Secondary 4. University

1. Mother	
2. Father	
3. Brothers	
4. Sisters	
5. Grandfather	
6. Grandmother	



**Economic Factors**

4) Employment status : \*1=*employed/salaried* 2=*self-employed* 3=*temporary* 4=*unemployed* 5=*child/elderly*

1. Mother	
2. Father	
3. Brothers	
4. Sisters	
5. Grandfather	
6. Grandmother	

5) Where do you work? \* 1=*Within your zone* 2=*Outside your zone but Within Mukuru neighboring estates Outside Mukuru* 3=*In* 4=*Others (Specify)*

1. Mother	
2. Father	
3. Brothers	
4. Sisters	
5. Grandfather	
6. Grandmother	

6) How much do you spend on the following;

Rent	
Food ( <i>per day</i> )	
Electricity	
Solid waste collection ( <i>specify time</i> )	
Water ( <i>Per zolt Jeri can</i> )	
Toilets ( <i>Per visit</i> )	

**Housing**

- 7) What is the Ownership status? (1) Tenant (2) Landlord.....
- 8) Number of rooms in structure.....
- 9) Which year did you move in into this area? .....
- 10) How much do you pay for rent here? .....
- 11) How much did you pay for rent in the area you used to live in? .....
- 12) Has rent been increased ever since you moved in into this area? (Y/N).....
- 13) From Kshs...../= to Kshs...../=

**Physical Factors**

- 14) What is the construction material for most of the structures coming up in the area you live in right now?  
 Wall ..... Roof ..... Floor .....
- 15) How many storeys are they?.....

**Social Factors**

- 16) What form of recreational and entertainment activities do you engage in?  
 .....  
 .....
- 17) What church do you go to?  
 .....  
 .....
- 18) What Schools do you Kids attend?  
 1. .... located in .....
- 2. .... located in .....
- 3. .... located in .....
- 19) Do you interact with the Residents of the neighboring estates? Y/N .....
- 20) How? .....
- 21) Would you say that they have had a transformative impact to Mukuru Kwa Njenga? Y/N .....
- 22) What type of impact? .....  
 .....

**In your Opinion**

- 1) Would you prefer Mukuru Kwa Njenga upgraded? Y/N.....
- 2) What would be your proposal to upgrading? .....  
 .....
- 3) If no, what would be your proposed intervention? .....  
 .....

2: Questionnaire to residents of the old structures

**QUESTIONNAIRE TO RESIDENTS OF THE OLD STRUCTURES**

Date: \_\_\_\_\_ Village: \_\_\_\_\_ Settlement: \_\_\_\_\_

Research Assistant Name: \_\_\_\_\_

House Number: \_\_\_\_\_

Name of respondent: \_\_\_\_\_

**Household information**

4) Household size: Children [0-12] :  nagers [14-18]:  Ad  8 and above]:

5) Number of people within the home:

1. Mother	
2. Father	
3. Brothers	
4. Sisters	
5. Grandfather	
6. Grandmother	
7. Uncles	
8. Aunties	
9. Others	

6) Education Level: \*1. None 2. Primary 3. Secondary 4. University

1. Mother	
2. Father	
3. Brothers	
4. Sisters	
5. Grandfather	
6. Grandmother	

**Economic Factors**

7) Employment status : \*1=employed/salaried 2=self-employed 3=temporary 4=unemployed 5=child/elderly

1. Mother	
2. Father	
3. Brothers	
4. Sisters	
5. Grandfather	
6. Grandmother	

8) Where do you work? \* 1=Within your zone 2=Outside your zone but Within Mukuru 3= In neighboring estates Outside Mukuru 4=Others (Specify)

1. Mother	
2. Father	
3. Brothers	
4. Sisters	
5. Grandfather	
6. Grandmother	

9) How much do you spend on the following;

Rent	
Food (per day)	
Electricity	
Solid waste collection (specify time)	
Water (Per zolt Jeri can)	
Toilets (Per visit)	

**Housing**

- 10) What is the Ownership status? (1) Tenant (2) Landlord.....
- 11) Number of rooms in structure.....
- 12) Which year did you move in into this area? .....
- 13) How much do you pay for rent here? .....
- 14) How much did you pay for rent in the area you used to live in? .....
- 15) Has rent been increased ever since you moved in into this area? (Y/N).....
- 16) From Kshs...../= to Kshs...../=

**Physical Factors**

- 17) What is the construction material for most of the structures coming up in the area you live in right now?  
Wall ..... Roof ..... Floor .....
- 18) How many storeys are they?.....
- 19) If you got a chance, would you move into the new structures? Y/N.....
- 20) What is preventing you from moving?  
.....

**Social Factors**

- 21) What form of recreational and entertainment activities do you engage in?  
.....  
.....
- 22) What church do you go to?  
.....  
.....
- 23) What Schools do your Kids attend?  
4. .... located in .....
- 5. .... located in .....
- 6. .... located in .....
- 24) Do you interact with the Residents of the neighboring estates? Y/N .....
- 25) How? .....
- 26) Would you say that they have had a transformative impact to Mukuru Kwa Njenga? Y/N .....
- 27) What type of impact? .....

**In your Opinion**

- 28) Would you prefer Mukuru Kwa Njenga upgraded? Y/N.....
- 29) What would be your proposal to upgrading? .....
- 30) If no, what would be your proposed intervention? .....

3: Questionnaire to Residents of the neighbouring estates

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**QUESTIONNAIRE TO RESIDENTS OF NEIGHBOURING ESTATES**

Date: \_\_\_\_\_ Estate name: \_\_\_\_\_

Research Assistant Name: \_\_\_\_\_

House Number: \_\_\_\_\_

Name of respondent: \_\_\_\_\_

**Household information**

31) Household size: Children [0-12] :  nagers [14-18]:  Ad  8 and above]:

32) Number of people within the home:

1. Mother	
2. Father	
3. Brothers	
4. Sisters	
5. Grandfather	
6. Grandmother	
7. Uncles	
8. Aunties	
9. Others	

33) Education Level: \*1. None 2. Primary 3. Secondary 4. University

1. Mother	
2. Father	
3. Brothers	
4. Sisters	
5. Grandfather	
6. Grandmother	

**Economic Factors**

34) Employment status : \*1=employed/salaried 2=self-employed 3=temporary 4=unemployed 5=child/elderly

1. Mother	
2. Father	
3. Brothers	
4. Sisters	
5. Grandfather	
6. Grandmother	

35) Where do you work?

1. Mother	
2. Father	
3. Brothers	
4. Sisters	
5. Grandfather	
6. Grandmother	

36) How much do you spend on the following;

Rent	
Food ( <i>per day</i> )	
Electricity	
Solid waste collection ( <i>specify time</i> )	
Water ( <i>Per 20lt Jeri can</i> )	
Toilets ( <i>Per visit</i> )	

**Housing**

37) What is the Ownership status? (1) Tenant (2) Landlord.....

38) Number of rooms in structure.....

39) Which year did you move in into this area? .....

40) How much do you pay for rent here? .....

41) How much did you pay for rent in the area you used to live in? .....

42) Has rent been increased ever since you moved in into this area? (Y/N).....

(If decreased, indicate)

43) From Kshs...../= to Kshs...../=



**Physical Factors**

- 44) What is the construction material for most of the structures coming up in the area you live in right now?  
Wall ..... Roof ..... Floor .....
- 45) How many storeys are they?.....

**Social Factors**

- 46) What form of recreational and entertainment activities do you engage in?  
.....  
.....
- 47) What church do you go to?  
.....  
.....
- 48) What Schools do the Kids in your household attend?
  - 7. .... located in .....
  - 8. .... located in .....
  - 9. .... located in .....
- 49) Do you interact with the Mukuru Residents? Y/N .....
- 50) How? .....
- 51) Would you say that you have had a transformative impact to Mukuru Slum? Y/N .....
- 52) What type of impact? .....
- 53) Do Mukuru Residents visit your estate? Y/N .....
- 54) For what purpose? .....
- 55) Would you say they have had a positive or negative impact to your estate? P/N .....

**In your Opinion**

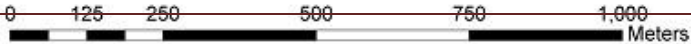
- 56) Would you prefer the Mukuru Slum eradicated completely? Y/N .....
- 57) What would be your proposal to eradicating the slum? .....  
.....
- 58) If no, what would be your proposed intervention? .....





5: Aerial Image of study area: 2012

**MUKURU KWA NJENGA STUDY AREA MAP**





## 6: Research Work Plan

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<i>Activity</i>	<i>Timeframe (weeks)</i>
Proposal presentation	4
Reconnaissance	2
Data collection	4
Data analysis and interpretation	3
Data presentation	3
Final documentation	4
TOTAL	14

## 7: Research Budget

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<i>Item</i>	<i>Description</i>	<i>Unit Cost (KES)</i>	<i>Cost (KES)</i>
Labour (No of days * rate * No. of Assistants)	4 research assistants	10,000.00	40,000.00
Transport			10,000.00
Maps			5,000.00
Hiring equipment	1 camera	500.00	500.00
	1 tape measure	200.00	200.00
Stationery			2,000.00
TOTAL			57,700.00