PERI-URBANIZATION IN A GLOBALIZING WORLD: A RETROSPECTIVE EVALUATION OF THE COMPLEXITIES OF GEOSPATIAL URBAN GROWTH AND PLANNING IN THE NAIROBI METROPOLITAN REGION, KENYA

A Dissertation

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by

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Authorization to Submit Dissertation

This dissertation of Samuel Ndegeah, submitted for the degree of Doctor of Philosophy with a Major in Geography and titled "Peri-urbanization in a globalizing world: a retrospective evaluation of the complexities of geospatial urban growth and planning in the Nairobi Metropolitan Region, Kenya," has been reviewed in final form. Permission, as indicated by the signatures and dates given below, is now granted to submit final copies to the College of Graduate Studies for approval.

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Abstract

Urbanization in Sub-Saharan Africa is inevitable. However, Western theories of the urban spatial structure have not adequately explained the patterns and processes of urbanization in the region. Remote Sensing and Geographic Information Systems techniques capture the patterns of change, but not the underlying institutional structures driving peri-urban growth through time and across space. The study uses a combination of extensive literature review, quantitative and qualitative data, and remote sensing and GIS techniques to identify and account for the past and current geophysical and societal structures influencing the spatial patterns of land use and cover change, and development in the Nairobi Metropolitan Region. The study found that the region's spatial patterns show uneven temporal and directional variations as a result of many forces that combine in a complex and often subtle ways. The patterns are a result of the conjuncture of the customary, colonial, statutory, socio-political and economic processes. Indeed, Kenya's and Nairobi's development and urbanization are intertwined. The two are like conjoined twins; always together and hard to separate. There are three distinct phases of change. The colonial period, before 1963, that was characterized by segregation and restrictive colonial policies in land access and use. The national phase (1963 – 1980), dominated by a series of policy documents and economies of scale and agglomeration. More recently the global phase, after 1980, influenced by a new set of structures driven by increased globalization and the changing political economy. The peri-urban growth bears the inscription of the societal processes particularly about land access and use. The many years of colonial policies – many reinforced since political independence – have developed the peri-urban societies and production systems. The study also found that there is an increasing emphasis on the application of legal property rights and a lack of recognition of the persistence of customary land tenure in peri-urban land use planning. The emphasis on using a one-size-fits-all approach to development planning questions the conventional wisdom that these rights are the cornerstone of successful socio-economic development. It has led to increased peri-urban land use conflicts and informality and intensified environmental degradation. The approach cannot easily be generalized to areas operating in different socio-economic, political and ecological contexts. Because statutory regulations (rules in the form) often differ from what happens on the ground (rules in use).

Curriculum Vitae

A journey of a thousand miles, a Chinese saying goes, begins with a single step. In writing this dissertation, the journey epitomizes this wise Chinese saying. Indeed, “You won't realize the distance you've walked until you take a look around and realize how far you've been.” ~ Anonymous. This dissertation is partly influenced by my professional experience while I worked as a Physical Planner with the Ministry of Lands and Settlement, Kenya. The experience is aptly captured by Nobel laureate Muhammad Yunus, who lamented that "While people were dying of hunger in the streets, I was teaching elegant theories of economics." He left the university to start the Grameen Bank. Just as Yunus, I realized that whereas urbanization in Sub-Saharan Africa is inevitable, the area has been implementing many plans that do not take into account the region's socio-economic, cultural, epistemic and environmental dynamics. “Man cannot discover new oceans unless he has the courage to lose sight of the shore."~ Andrew Gide. I quit the government service and moved to the U.S. “To live is to see and to travel sometimes speeds up the process.” As a new migrant, I wanted to use my experience and education. I agonized over the program to pursue, geography or planning, and settled for a Ph.D. in geography at UI – a many years of endeavor – because it provided me an opportunity to mesh both geography and planning. Accordingly, I transformed my academic training and professional experiences into this dissertation.

I am a broadly trained geographer, a professional urban and regional planner, and an experienced teacher and faculty. I hold double M.A. degrees in Geography, and Urban and Regional Planning, and a B.A. degree in Geography and Political Science from the University of Nairobi, Kenya. I am a member of the American Association of Geographers, Africa Specialty Group. Have several years of teaching experience in University and High School environments both in the U.S.A. and Kenya. The experience is mostly with undergraduates in mid-sized liberal arts and large State schools, namely University of Nairobi; University of Idaho; Elon University; and Mount Holyoke College. My future research is to develop multi-disciplinary projects for analyzing the state of underdevelopment in Sub-Saharan Africa. “There is no security in life, only opportunity.” ~ Mark Twain.

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During the final year of writing, defense, and graduation, the Consortium for Faculty Diversity Dissertation Fellowship, through Mount Holyoke College (MHC), provided me an indispensable life-changing support. In the same breath, I am grateful to faculty members at MHC, who supported my award of the fellowship and subsequent mentorship. They include Dr. Lauret Savoy, Professor of Environmental Studies. Dr. Steven R. Dunn, Professor of Geology. Dr. Michelle J. Markley, Associate Professor of Geology, and Dr. Becky Wai-Ling Packard, Associate Dean of Faculty and Professor of Psychology and Education.

In Kenya, a number of institutions and individuals were very supportive. These include the Department of Physical Planning; the UoN's Departments of Geography and Environmental Studies, and Urban and Regional Planning, and Jomo Kenyatta Memorial Library. I would like to recognize individuals whose support behind the scene enabled me go through my research successfully. Special thanks to the Local Government officials who assisted towards this study but who sought to remain anonymous. My Research and Technical Assistants: Beatrice Ndung'u, Miriam Muthoni Maina, and Jane Muriuki of DURP, UoN. Elijah M. Ndung'u, a Ph.D. Student at Alpen Adria University-Klagenfurt, Austria. Moreover, David Ongo, GIS and RS Analyst at Regional Centre for Mapping of Resources for Development, Nairobi. Thanks to John (M.D.) and Lisa Russell (Lake Tapps, WA) for facilitating my initial travel and subsequent support in the U.S. that made me ease through the potentially lonely life. Many thanks, to Gaylen and Mary Margaret Wood (Moscow, Idaho), for running errands with me, across and around the Palouse. Much inexpressible appreciation to my landlady, Cheri Vasek, your kindness is treasured. I would like to acknowledge Dr. Peter K. Njuguna, we have come from far. Drs. Priscilla W. Kariuki and R.A. Obudho of the Departments of Psychology and Urban and Regional Planning, respectively at UoN, deserve special mention for being instrumental in encouraging me to pursue doctoral studies. To my family for their never-ending support, I could not have done it without you! To all other people not mentioned but their contribution is significant, they know who they are. Thanks to you! However, the interpretations and perspectives contained in the dissertation are mine. The reader should address any complaints to me for any controversial or bizarre claims. I am wholly responsible for any misinformation, grammatical and typographical errors, and any other distortions of facts and figures in this dissertation.

Dedication

This dissertation is dedicated,

To the memory of my late father, *Mzee* Augustine M. Ndegeya, the central force that steered me through school, although he could neither read nor write, and who passed on whilst I was pursuing my doctoral studies. His love, encouragements, and aspirations for my success in academic and in particular his comparison of an educational book and a pen with our traditional regalia of a spear and a shield, respectively, live on. Even though, *Mzee* could not wait to see the outcome of his sacrifices, it is gratifying to note that they were not in vain. For molding and giving unwavering support to me, I dedicate this work to you.

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List of Abbreviations and Acronyms

AAK	Architectural Association of Kenya
CBS	Central Bureau of Statistics (rebranded to KNBS in 2006)
CCN	City Council of Nairobi
CDF	Constituency Development Fund
DFRD	District Focus for Rural Development
DURP	Department of Urban and Regional Planning
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GIS	Geographic Information Systems
HNWIs	High Net Worth Individuals
KDHS	Kenya Demographic and Health Survey
KNBS	Kenya National Bureau of Statistics (established in 2006, to replace CBS)
KShs.	Kenya Shillings
LULC	Land Use and Land Cover
NLP	National Land Policy
NMR	Nairobi Metropolitan Region
PDPs	Part Development Plans
PUAs	Peri-Urban Areas
PUSs	Peri-Urban Settlements
Saccos	Savings and Credit Co-operative Societies
SSA	Sub-Saharan Africa
UI	University of Idaho
UNEP	United Nations Environment Programme
UoN	University of Nairobi
WST	World Systems Theory

Note: the exchange rates of Kenyan Shillings (KShs.) per U.S. dollar keep fluctuating: 86.23 (2011.); 79.233 (2010); 77.352 (2009); 68.358 [77.71] (2008); 68.309 [62.68] (2007); 72.101 [69.40] (2006); 77.3 (2004); 76.1 (2003); 78 (2000). *Source*: KNBS 2012; and CIA World Fact book 2012. I used the exchange rate of KShs. 85 per U.S. dollar.

CHAPTER ONE

THE ISSUE: PERI-URBANIZATION AS A CONTEXT OF COMPLEXITIES

"If we could first know where we are, and whither we are tending, we could better judge what to do, and how to do it." ~ Abraham Lincoln

1.0 Introduction

Urban settlements have existed since the days of ancient Egypt and Mesopotamia. However, most of the world's major cities and almost all mega-cities are effectively less than half a century old (Clark, 2006, p.109). The patterns of urbanization, urban structure and growth changed fundamentally in the twentieth century (Dezzani and Chase-Dunn, 2010, p.1). Urban growth rates show no signs of slowing, especially when viewed at a global scale (Biswas and Chanda, 2013, p.1). In 1950, one-third of the world population lived in urban areas (United Nations, 2008). By 2009, the number of people worldwide living in urban areas (3.42 billion) had surpassed the number living in rural areas (3.41 billion) (United Nations, 2010, p.2). Urbanization trends indicate that cities will continue to expand until approximately 85 percent of the world's population lives in the cities (Kates, 2006; LeGates, 2006:1; United Nations, 2005). By 2050, the urban population is expected to account for 6 billion out of a total 9 billion people. Almost all of the future growth in the world population will be in the urban areas of the Global South (United Nations, 2008) (See Figure 1).

Cities have changed from small isolated population centers to large, interconnected economic, physical, and environmental features (Biswas and Chanda, 2013, p.1). In 1800, of all the world's cities, only London and Beijing had populations of one million. Moreover, even in 1900, only Great Britain could be called an urbanized society. By 1960, all industrialized countries were urbanized, and there were 111 cities with more than a million residents. Today the number is over 300, nearly triple what it was fifty years ago. The number of megacities is also increasing in number. There were five such cities in 1975, fourteen in 1995, and there will likely be 26 by 2015 (Motley, 2009).

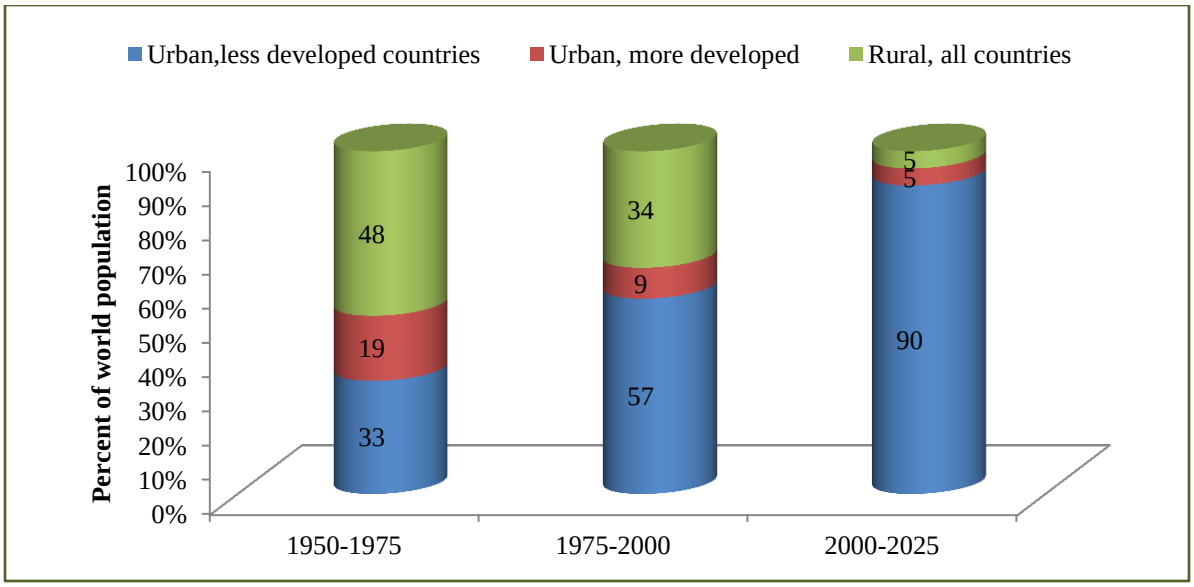


Figure 1: World population growth, 1950 – 2025

Source: Population Reference Bureau, (2010)

According to projections, most of the expansion will happen in the peri-urban areas (henceforth PUAs) (World Bank, 2007). In China, for example, PUAs alone are expected to grow by approximately 250 million people over the next three decades (Webster, 2004). The growth is replicated in many developing countries, where the growth of cities is dynamic, diverse and disordered – and increasingly space-intensive (UNPF, 2007, p.48).

Sub-Saharan Africa (henceforth, SSA) is an area of particular concern. It is the least developed and urbanized area in the world, with 39 percent of its people living in the cities, and also the most rapidly urbanizing (UN-Habitat, 2009, p.25; Cohen, 2006, p.76; Aryeetey-Attoh, 1997, p.196). During the 1950s, only 11 percent of the region's population lived in urban areas, but increased to 35 percent in 2005. By 2030 and 2050, the area will be 48, and 60 percent urbanized, respectively. Urban growth rates have been equally high, averaging over 5 percent between 1955 and 1970, and currently at 3.3 percent. While it is projected to decline in the years ahead, it will remain high (UN-Habitat, 2009, pp.25-26). The settlement patterns show tremendous differences between countries and regions.

In 2011, Eastern Africa remained the world's least urbanized sub-region, with only 23 percent of the population living in towns, compared to 57 and 44 percent in Southern Africa

and Western Africa, respectively. However, with its average annual urban growth of 5.35 percent over the 2010-20 decade, it is by far the world's most rapidly urbanizing region (UN-Habitat, 2014, p.146). There is a variation among the countries. Tanzania has the highest urbanization level, with 25 percent of its population in urban areas, followed by Kenya and Rwanda with 21 percent and Uganda with 13 percent. Burundi is the least urbanized with nearly 90 percent of the population living in rural areas (UNPF, 2007).

The settlement patterns in the region are being transformed most radically through the combined effects of urban population increase and redistribution (Clark, 2006, p.58). Behind these demographic facts lie complex variations in settlement patterns, livelihoods, belief systems, and access to health care (Rowntree et al., 2012, p.239). The region's cities exhibit high levels of poverty and inequality and fast growth of slums and informal settlements (UN-Habitat, 2014, p.11). New spatial urban configurations have emerged and continue to come through the increasing physical and functional interconnection of metropolitan cores and the peri-urban settlements (UN-Habitat, 2014, p.23). While the central cities are increasingly getting trapped in myriad problems, the situation could get worse as the cities continue to expand horizontally. Kombe examined the trends in land use transformation in the PUAs of Dar-es-Salaam, Tanzania, and aptly captures the situation:

> What emerges is hopeless simply because the emerging land development pattern neither complies with the conventional city form and spatial orderliness nor reflects planners' visions about our cities of tomorrow. The urban growth process and its outcomes can be read as a sub-Saharan reality. Depicting urbanization with neither a sound economic base nor the institutional capacity to regulate it or to provide essential infrastructure services (Kombe, 2005, p.128).

More often than not, peri-urban land issues are addressed in terms of technical and legal issues (Nkwae, 2006, p.19). My study looks beyond these and analyzes Nairobi's peri-urban growth from socio-cultural, economic, political, epistemic, and environmental perspectives, and land use policy implications. Rather than attempt to cover all the dimensions, the research focuses on three land tenure systems. That is, customary, colonial, and statutory, which have been in existence and/or created in the last one century. The method used is the system analysis. It integrates theories, methodologies, and concepts from many disciplines

(Nkwae, 2006), and the institutional approach, which explicitly acknowledges that the statutory regulations often differ from what happens on the ground. The analysis is like a three-legged stool, a triad, a triangle, or a Venn diagram as shown in Figure 2.

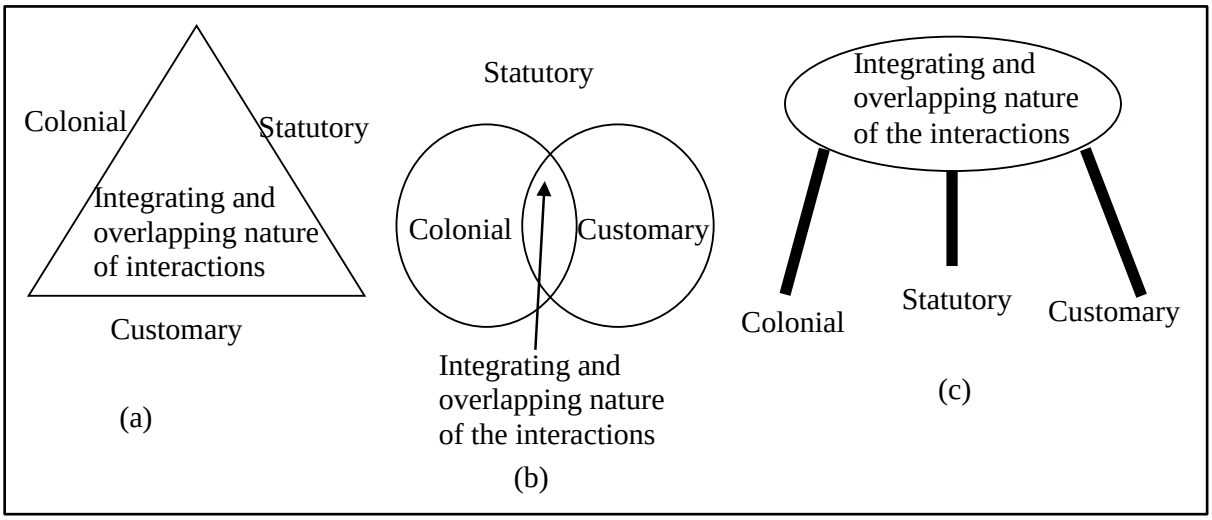


Figure 2: Envisaged relationship among the dominant land tenure systems

Source: Adapted and modified from Figure 1.1: Concept of legal pluralism (Nkwae, 2006, p.12)

The study sought to provide a theoretical and empirical argument as to "how the many forces interact and converge to shape outcomes and governance and institutional form" (Bostic, 2009, p.3). A study of this nature cannot and need not be exhaustive because the PUSs are dynamic. The framework within which these settlements occur can be established with reasonable certainty.

1.1 Statement of the Problem

Kenya in the 20th century has undergone a radical change; from colonization, independence, urbanization, and development. The City of Nairobi (henceforth, CoN) has gone through a similar transformation. In 1899, it was just one among unremarkable constellations of tiny hamlets that grew as a colonial outpost around the railroad. The site was also an ideal halfway spot to Uganda. Geography, the high altitude (1,795 meters above sea level), and mild climate made it conducive for European settlement and commerce, thereby underpinning its emerging role as a political and administrative center (more details about the

location, founding, early history and spatial growth of the CoN in Section 1.5). A century later, Nairobi rose into a primate city and leading financial, diplomatic and information hub. The city's spatial and demographic growth especially in the last three decades has been one of the most phenomenal in SSA.

Whereas the administrative limits remained as they were in 1963, the increasing urbanization process has led to urban and metropolitan concentrations extending beyond the administrative boundaries of the original city (UN-Habitat, 2003a). For a city whose urban rim could be ascertained to be 690 km^2 (428.76 square miles) in 1963, today it is hard to give its precise extent. Expanding cities impact the surrounding areas in many ways, by altering the natural resource base and converting land to new uses. The transformation represents probably the most important factor in shaping PUAs, posing a significant challenge to land use planning and management (Gregory, 2005, p.8; Hassel and Lathrop, 2003, pp.172-173). This has led to the emergence of an unprecedented number of PUSs, often characterized by intermix of non-conforming land uses coupled with inadequate services (Kirigwi, 2008, p.19). The settlements have created many environmental forms of degradation, land use conflicts and disharmonies including haphazard patterns of development that are not compatible with each other (CCN, 2007a, p.3; Situma, 1992, p.169).

When two different communities come into prolonged and active contact, the rate and nature of change in both is changed to the extent that entirely new patterns come up. The weaker of the two is bound to be more adversely affected, and the bigger the gaps, the more detrimental are the consequences. It is also true that when two different cultures come into prolonged contact, the rate and character of change in both is severely affected. To the extent that entirely new systems and patterns emerge (Rodney, 1972). More often than not, communities are blamed rather than analyzing the underlying processes that produce these conditions. It is necessary to focus on the processes rather than the "fixed states" in order to understand the nature and operation of the system (Iaquinta and Drescher, 2000/2, p.10).

Whereas there is an extensive literature on the spatial interactions of cities and suburbs, there is little on the role of institutional structures shaping the peri-urban systems. My study's

assumption is that Kenya's and Nairobi's development and urbanization are intertwined. The two are like conjoined twins; always together and hard to separate. The trajectory continues to be shaped by the conjuncture of pre-colonial, colonial, and post-colonial socio-political and economic processes (Ndege, 2009, p.1).

1.2 Research Questions

The study seeks to identify and analyze historical and current institutional structures (socio-cultural, economic, political, epistemic and environmental) that influence patterns of land use and change in the peri-urban environments of Nairobi. To achieve this goal, this study addresses five questions within the ecumenical complex as follows:

(a) How and where has the land-use/cover in the Nairobi Metropolitan Region changed during the past four decades, 1970 – 2010?
(b) What are the impacts of the city of Nairobi economies of agglomeration and proximity on the peri-urban structural growth and characteristics?
(c) How do the colonial and customary land tenure systems inform the current statutory land use laws and development processes, and subsequent conditioning of the spatial structure, trends and patterns at the peri-urban area?
(d) What are the nature, relationship and effectiveness of institutions that administer and regulate land use and development processes in the Nairobi Metropolitan Region?
(e) Are there appropriate measures, strategies and policies that can be drawn and adopted to guide land use and management, and what are the chances of success?

1.3 Research Objectives

The study seeks to develop and amplify a spatial theory of peri-urban growth. The theory sheds light on the third world metropolitan growth process, which is operational and, above all, is helpful to policymakers in both policy design and evaluation. To answer the research questions, a number of specific objectives were met:

(a) Examine the spatial patterns and features of the peri-urban settlements.
(b) Analyze the decadal population dynamics of in the Nairobi Metropolitan Region.

(c) Examine the City of Nairobi economies of scale, agglomeration and proximity on the peri-urban structural growth and features.
(d) Identify and enhance understanding of the institutional structures that generate decisions about peri-urban land administration and development processes.
(e) In the context of objectives (a), (b), (c) and (d) examine policy measures in place. And recommend alternative strategies, policy options and reforms to better control and direct peri-urban land use and human settlement patterns.

1.4 Conceptual Framework

Urbanization has a long history, dating back close to 6,000 years ago when humankind first established urban-based civilizations capable of creating wealth in surplus of resources needed for human survival (Weatherby et al., 2010, p.63). It is, however, not until the later part of the twentieth century that many urban studies came up. Davies observes that, in most of these studies, two trends have become apparent since the 1970s. First is the gradual replacement of the aggravated mechanistic models by the use of investigation of the behavior of the person in a spatial context. This entails a change in the level of resolution so that the way a person perceives the environment and acts in relation to that perception, becomes the building block towards the larger scale interpretation of the physical environment. The second trend looks towards the abandonment of systematic research. Davies suggests three components in any conceptual model of urban geography, namely the elements, perspectives, and systems of urbanism. The components are interrelated but can be isolated for the purpose of the study. The elements make up the urban complex. The perspectives are used to view the elements. The systems of urbanism emerge, to which the elements are part or applied (Davies, 1970, pp.5-14). When assembled, the scheme can be outlined as shown in Figure 3.

Recent urbanization trends have led to the emergence of complex societies. To explain the complexity, a broad range of approaches are available (Clark, 2006, p.6). Since PUAs are part of the world-economy system – “a complex of cultures” (Wallerstein, 1984, pp.14) - an analytical framework that explicitly addresses complexity is necessary. This allows for the disaggregation of society or the system as a whole into a number of subsystems, and then for the detailed analysis of the interactions among the subsystems (Renfrew, 1984, p.310).

Political Ecology provided a robust toolkit to tackle this complexity (Robbins, 2004, p.42; Campbell et al., 2000, p.346). Its fundamental theoretical proposition is that changes and developments in cultures are brought about by complex interactions of the societal components (Renfrew, 1984, p.310). System analysis is used to describe the interactions. The study integrates concepts and theories across disciplines (Nkwae, 2006) and embraces multiple dimensions, hierarchies, stakeholders and perspectives (Olson et al., p. 2004).

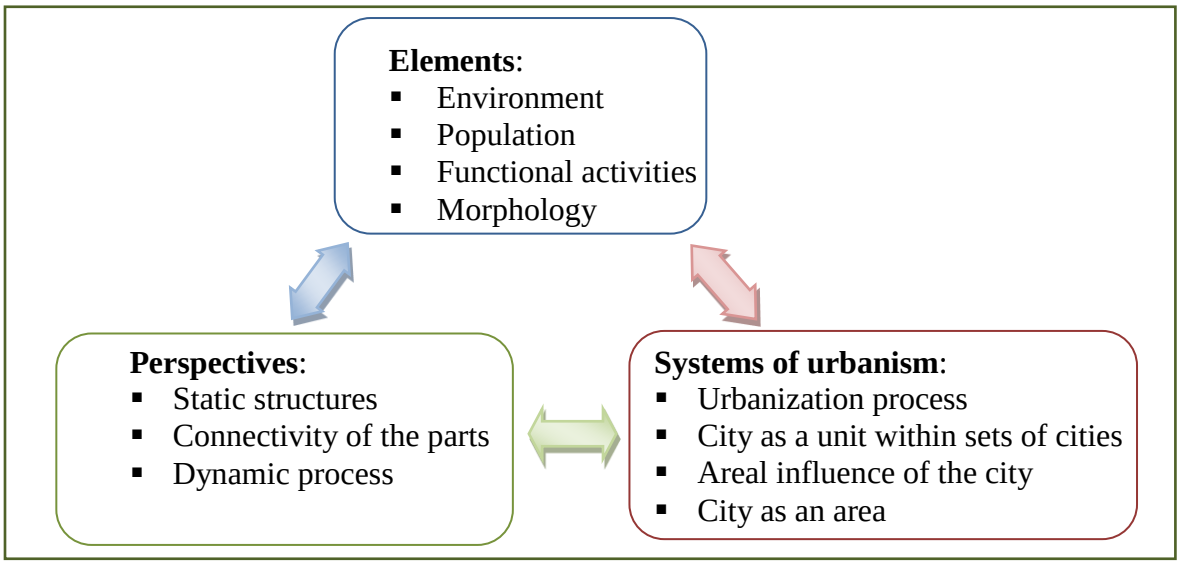


Figure 3: The broad features of urbanism

Source: Author's constructs based on (Davies, 1970)

A political ecology analysis demonstrates that PUAs have a multiplicity of economic, social and cultural, political, population, environmental, technological developments, and that globalization pressures are cyclically intertwined (Robbins, 2004, p.130). None of these pressures serves a singular role but cut across spatial and functional boundaries, resulting in a complex and diverse land use pattern, and in which different interactions are possible as outlined in Figure 4. The methodological demands of explicating and confirming many of these links are high, and beyond the scope of the study. Population as a variable does not strictly rank as a subsystem within the framework described here, not representing a class of activity, but a parameter relevant to the description of the system. Population density, age distribution, and genetic factors, among others, are critical. However, it is convenient for the

present discussion to restrict the actual size of the population and to ignore all other demographic factors (Renfrew, 1984, pp.310-312).

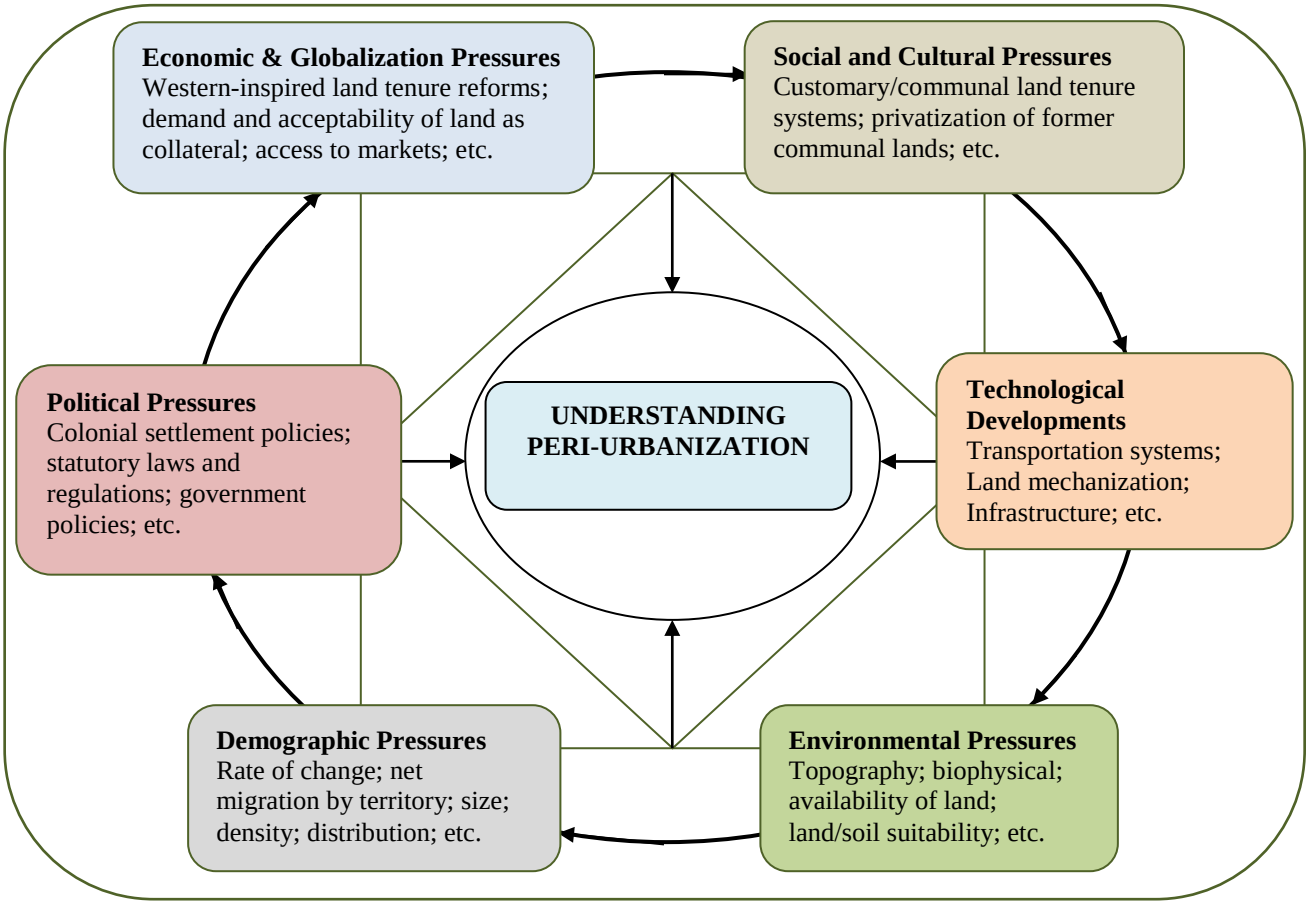


Figure 4: The envisaged linkages between the societal and biophysical systems

Source: Adopted and modified from Figure 2.6 Nkwae, (2006, p.44) and Fig. 9.22 Potter et al., (2008, p.418)

1.5 The Study Area: City of Nairobi and Metropolitan Region

1.5.1 The challenge of specifying appropriate geographic scale

A city's impact area is the region larger than the peri-urban zone and smaller than the hinterland (Mushi, 2003, p.52). The area within the city's jurisdictional boundary has little to do with the metropolitan area. In some cases, it is minuscule in comparison with the size of the metropolitan area. The official area of the municipality is, therefore, not a very precise measure (Angel et al., 2005). The range of the city is a dynamic phenomenon; it changes over time. However, the jurisdictional boundary of the city cannot frequently be changed

owing to administrative complexities. Delineating the natural boundary or extent of the city is a very difficult task, because urban to rural transact shows a gradient (Bhatta, 2012, p.21).

There are different methods to delineate a city's impact area/region and peri-urban zones, each with inherent difficulties (Mushi, 2003, p.52). The traditional physical delineation is characterized by two clearly differentiated approaches. First, delimitation based upon physical or morphological criteria, where the continuous built-up area comprises the primary mechanisms for the delineation. On the other hand, delimitation based upon functional or economic criteria, the emphasis is placed upon the existing relations and flows throughout the urbanized territory (Roca et al., 2004). The analysis considering the administrative boundaries is rather easier. The problem is blindness to the actual shape of the city. Another better method may be to create buffered areas using the city's natural boundary; the boundary to construct the buffer is rather unclear. Population density is also another option, but remote sensing (RS) data are incapable to convey such information. Therefore, in consideration of using RS data, physical or morphological criteria are the preferred method to determine the logical extent of the city (Bhatta, 2012, pp.22-23).

As for ways of delimiting the boundaries of the area, most can be grouped into three categories: homogeneity, nodality, and programming (Richardson, 1973, pp.6–8). According to homogeneity criteria, areas adhere together to form a part if they are considered homogeneous in respect to some essential elements, economic, or social and political. For the economists, an appropriate methodological approach for dealing with homogenous areas is treating them as non-spatial and handling them within the framework of inter-regional macroeconomics. The nodality concept of regions emphasizes intra-regional spatial differentiation by recognizing that population and economic activities will not be scattered uniformly over an area but concentrated in or around particular foci of activity, i.e. cities and towns. The urban centers of the area will be inter-dependent, and the degree of the inter-dependence measured by reference to flows of people, factors, goods, and services, or communications. The programming or planning criteria defines regions in terms of administrative and political areas. The disadvantage is that the administrative boundaries may be inconsistent with regional boundaries derived from economic criteria, and if this is the

Figure 5: Kenya's physical features and location of the City of Nairobi

case, policy decisions for the area may be abortive or ineffective. The solution is to bring about administrative boundary changes in the political spatial structure that result in closer conformity to meaningful economic areas, but the feasibility of this is in considerable doubt. Peri-urban Nairobi is regarded to be the area within 20 km radius surrounding the Central Business District (CBD) (Republic of Kenya, 1992), which no longer makes sense. The set of regions may vary according to the objectives of the inquiry. It is apparent to be more practical rather than idealistic, particularly from the point of view of empirical research. Besides the analyses of the NMR demographic characteristics which used the geographic framework of the Counties (See Section 4.3.3), the NMR boundaries, as created in 2008 (See Figure 6), guided the spatial frame on which geo-referencing and delimiting of the PUA was based. It allowed a comparison of the extent of urban growth under different socio-economic, institutional and physical conditions. The criterion guided data collection and ensured a link between policy formulation and the units of policy implementation (Ngau and Kumssa, 2004, p.119). It is a more practical approach to defining the Nairobi impact region than the Von Thunen's concentric bands would have been. The Von Thunen model illustrates the relationship between urban land and rural hinterland patterning, market value and cost, and transport costs as a function of distance to market (Dezzani and Chase-Dunn, 2010, p.4).

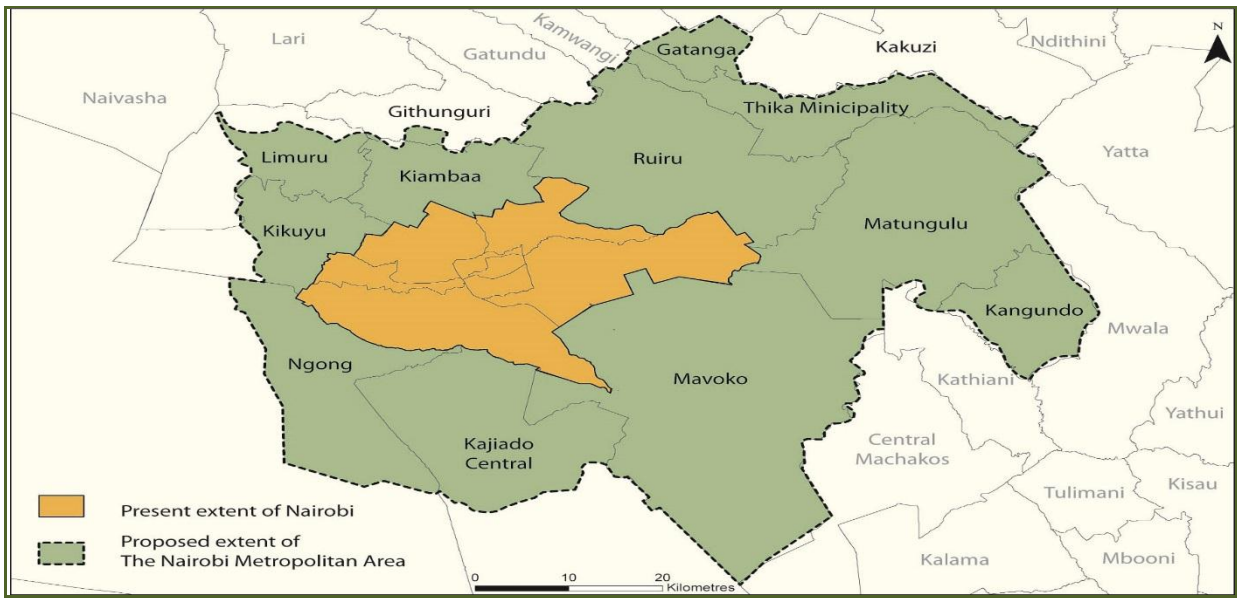


Figure 6: City of Nairobi and the proposed Nairobi Metropolitan Region

Source: UNEP, (2009, p.157)

1.5.2 The geophysical characteristics

The CoN and Nairobi Metropolitan Region (henceforth NMR), respectively (Figures 5 and 6) encompasses a broad range of climatic and ecological regions, resulting in a variety of land cover types. Nairobi's early landscape was a mosaic of open grassland. With some montane closed forest and moist woodland swampy areas; the increasing population has modified the vegetation (CCN, 2007a, p.3). The differences in area, population, land management techniques, topography, climate, and land cover of the eco-regions reflect the diversity of the area. The vegetation varies from the temperate forests to the grasslands and shrub lands while the climatic regimes, roughly mirrored in the pattern of vegetation, differ between the alternating hot and dry season to the wet season. The influence of altitude and soil led to the occurrence of seasonal vegetation types like montane forests, and evergreen bush land found in higher areas. The savannah vegetation is predominant in the Eastern region, Nairobi National Park (henceforth NNP) and Embakasi Plains. While the cold and humid high areas between Thika and Ngong roads have a mix of natural and substantial exotic vegetation. The overall vegetation type of the CoN is a result of elevation, geology, soils, climate and human influence (Wayumba, 2001, p.3).

1.5.3 Early history and spatial patterns: aggregation around the CBD

The story of the City of Nairobi is as old as the coastal caravans of the 19th century; which set off into the hinterland in search of merchandise such as slaves, ivory or other choice pickings. The caravans passed through Ngongo Bagas (Ngong), an open land used by the Kikuyu, Kamba, and Maasai as a market area and also acted as a replenishing point for the caravans. In 1890, the Imperial British East Africa Company (IBEACo.) followed the caravans and set up a station in Dagoretti – the place of the ‘great market’ (*tha-guriti* in Kikuyu). The availability of fresh water and supplies from Dagoretti market made the *enkare-nyrobi* (the Maasai name for swamp) chosen as one of its campsites. Interestingly Nairobi Railway station is referred to as “Kikuyu station” in the early documents (Muthuma, 2013).

The CoN owes its origin and growth to the construction of the Kenya-Railway that was from Mombasa to Kisumu between 1896 and 1901 (K’Akumu and Olima, 2007, p.90). On 24th

May 1899, the railhead reached a place known by the Maasai as *Nakusontelon*, i.e. "the beginning of all beauty." *Nakusontelon* bisected by a stream, known as *Euaso Nairobi* (a place of cold waters) in Maasai language. The name eventually adopted for modern Nairobi (Wayumba, 2001, p.3). Nairobi became an accidental city. First, by the dint of the railway line getting stuck here in 1896 – 1899 while the British waited for the requisite funds. And the Indian coolies[1] set up businesses, trade depots and little houses as the waiting wore on. Secondly, after the British realized the Indians had created a town bustling more than hitherto capital of Masaku (present-day Machakos) they relocated their administrative arm to Nairobi at the turn of the century. Nairobi has, since then, not only developed as the largest concentration of urban population in Kenya, but also as the social and economic hub of the whole country and beyond (Republic of Kenya, 1978, p.37). Moreover, it hosts about 25 percent of Kenya's urban population (UNCHS, 2001 cited in CCN, 2007a, p.1).

Nairobi's spatial growth can be traced with the early spatial patterns showing growth and aggregation around the CBD (See Figure 7), after the location of the railway headquarters in 1899 (K'Akumu and Olima, 2007, p.90; Olima, 2001, p.2; Situma 1992, p.167). By 1900, Nairobi had become a flourishing place with the settlements consisting mainly of the railway buildings and separate residential quarters for Europeans and Indians (Morgan, 1967, p.102). The same year, the colonial government published the Nairobi Municipal Committee regulations, which defined the urban center as "the area within a radius of 2.4 km from the offices of the sub-commissioner of the then Ukamba Province" (Morgan, 1967, p.102). By 1906, a year before Nairobi became Kenya's capital; the township covered 11.27 km^2 (7 square miles) with about 11,000 residents (Obudho, 1988). By 1909, much of the spatial structure of Nairobi, especially the road network in the CBD was already established (K'Akumu and Olima, 2007, p.91). In 1927, the boundary was extended to cover 48.27 km^2 (30 square miles) (K'Akumu and Olima, 2007, p.91; Situma, 1992, p.168). In 1948, the limit was reviewed again. From 1948 to the time of Kenya's independence in 1963, the boundary remained the same, with minor additions and excisions. In 1963, the city covered an area of 696.1 km^2 (432.63 square miles) (CCN, 2007a, p.1; CCN, 2007b, p.156).

[1]Indentured laborers, especially Goans, recruited to build the Kenya-Uganda railway (Sowell, 1996).

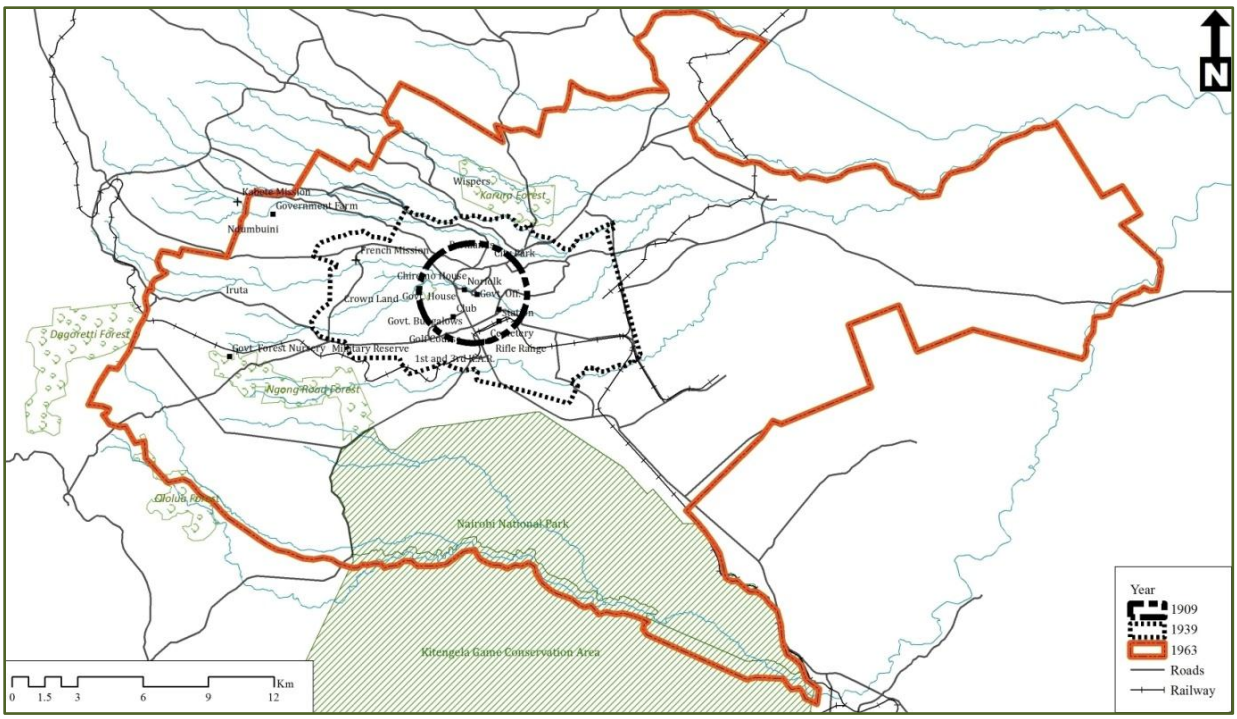


Figure 7: Chronological boundary changes of the City of Nairobi, 1909 – 1963

Source: Modified from Moss, (2006, p.79); Obudho and Aduwo, (1992, p.53); White et al., (1948, p.10)

During the colonial period, Africans were discouraged from living in the towns except temporarily while they were in employment. Up to early 1960s, they were not allowed to live in north and west areas except as domestic servants. Africans and Indians were restricted to the plains east and south of the railway line; areas where non-porous black cotton soils that were prone to floods are prevalent. The Europeans resided north and west of the railway; areas located at higher altitude with fertile, volcanic red soils, less likely to be swampy during the rains. As a result, unplanned African estates developed a few kilometers from the leafy suburbs strictly designed for residential purposes (Achola, 2001, p.122). Areas demarcated as "'native locations" (K'Akumu and Olima, 2007, p.92). The locations were at the edge of the city limits and got incorporated into the city wherever the city boundaries were extended, yet they were not planned. Nairobi's initial plan was along racial lines.

1.5.4 The 1948 Nairobi Master Plan

Up to early 1940s, Nairobi was left to grow at the hand of chance; developing under forces of racial segregation (Opiyo, 2009, p.6). The preparation procedure, scope, content, and

approval procedures of the first plan, *The 1948 Nairobi Master Plan*, followed the 1947 Town and Country Planning Act of Britain. The 1948 plan was for general physical, economic and social development of Nairobi for 20 years. It incorporated zoning of racial segregation (Kimani and Musungu, 2010, p.2). The plan was rigid, developed by the colonialists to suit their needs, and when the population was less than 100,000 people. The plan, although with limitations, was a seminal approach to proper organization of the fledgling urban center.

1.5.5 The 1973 Nairobi Metropolitan Growth Strategy

A significant step towards planning of Nairobi took place in 1973 when the *Nairobi Urban Study Group* recommended an improvement on the colonial document, the 1948 master plan. The strategy came up with several plans. Policies related to major aspects of development; broad physical structure with compatible systems and structures; and guidelines for the expansion of Nairobi. The approach sought to protect the fertile agricultural land in Kiambu County from any alternative development. It instead encouraged industrial and residential development in the semi-arid areas of Kajiado and Machakos Counties (Opiyo, 2009, p.6). The plan also gave the development directions of land use and transport system for the CoN up to the year 2000; along concrete corridors of Nairobi-Thika, Nairobi-Athi River, and Nairobi-Ngong-Ongata Rongai. The plan was however ignored and never implemented until it expired in the year 2000. Since then, there has been no other physical development plan for the city. Nairobi is no exception, because although most of the country's big towns have physical development plans, none is followed. The National Trust for Historic Preservation, a US agency that tabulates historical facts about cities, shows there is no urban center in Kenya that is planned from inception. Most of the development proposals have taken place outside any formal policy and development control, resulting among others in haphazard patterns of development and incompatible mix of activities (CCN, 2007a, p.3).

Kuala Lumpur in Malaysia, which borrowed from the 1973 master plan, is now the pride of South East Asia, yet Nairobi is in a rut with rundown infrastructure and an albatross of informal settlements. The scenario is not unique for Nairobi alone. There is the plan of Mogadishu, Somalia, drawn up between 1928 and 1930 and last updated between 1944 and

1948. The plan for Banjul, Gambia, developed in 1943, and was used until the late 1970s. The 1944 plan for Accra, last updated in 1957 and still in force. Lastly, there is the plan for Lusaka that was drawn up in 1968, and the master plan for Abuja, Nigeria, developed in the 1970s, and currently being implemented. The assumptions guiding the plans is the assumptions that it is only a matter of time before African countries "catch up" economically and culturally with the West (UN-Habitat, 2009, pp.55-56).

1.5.6 The "Nairobi Metro 2030: A World Class African Metropolis"

The plan, developed in 2008, is part of a national agenda known as "Kenya Vision 2030." (www.nairobimetro.go.ke). It attempts to redesign, modernize and expand the CoN to include the bordering three counties of Kajiado, Kiambu, and Machakos. The NMR seeks to apply five levels of settlements. Level 1 Regional Center is the highest order of economic and social infrastructure, and administrative functions. Level 2 Sub-Regional Centers are to have administrative functions/county headquarters, a major commercial center, intermediate level and technical training centers, and intermediate hospitals. Level 3 Priority Towns are proposed new towns meant to decongest the CoN. Level 4 Growth Centers are to be intermediary towns expected to provide linkages between smaller towns and the sub-regional centers. Level 5 Basic Villages are to be all the other remaining rural settlements.

1.5.7 Integrated Urban Development Master Plan for the City of Nairobi

The initiative aims at bringing together stakeholders from relevant ministries and the public, with the aim of preparing the fourth Master plan for the CoN. The goal is to zone the city to respond to issues absent in the "mystic master plan" of 1973 to accommodate demand for high-density development. Although the plan is still in its infancy, it nonetheless is a decisive step. Curiously, one of the plan's objectives is the "regularization of the existing unauthorized development". The plan, if implemented, will give guidelines for densities and urban centers to be promoted and provide a tool to manage the city.

1.6 Land Tenure Systems in Kenya: An Empirical Assessment

In traditional economic theory, land is one of the factors of production, alongside capital, labor, and entrepreneurship. All over the world, land has always been a close, emotive and vital resource. Many societies have found it necessary to develop individual and institutional devices for the management of land because of its unique features. There is no single conceptual framework drawn up to help understanding of the various roles played by land under conditions of growth and change. The role of land in SSA cannot be gainsaid and has remained a central issue in formulating development policies. For most of the region, besides land being the most crucial factor of production, it defines the social, economic and political fabric of the society. The land question remains the single most contentious issue both in rural and urban areas (Wanjala, 2005, p.1). Land to a large extent is the cause of political, legal and armed conflicts throughout Kenya's history. As perhaps befits a national obsession, land is also one of the most documented subjects in the social science literature associated with the country. Almost all aspects of land have been scrutinized (Bassett, 2001).
Land tenure connotes a systematic land holding that embodies legal, contractual and communal arrangements under which individuals, families or social groups hold land and natural resources (Quan, 2008, p.5; Waiganjo and Ngugi, 2001, p.2; Payne, 2001, p.416; Olima and Obala, 1999). There are three main types of land tenure systems in Kenya, namely: customary; formal or statutory; and non-formal de facto land tenure categories.

1.6.1 Customary land tenure

Customary land tenure evolved mainly from agricultural societies, where there was little competition for land. Land alone had no economic value, but survival depended upon careful use of the land to ensure ecological balance (Payne, 2001, p.416). In Kenya, customary land tenure defines all lands in the rural areas under the Counties. The land is not registered in person or group titles, but held by a given community and governed by the customary land laws (Olima and Obala, 1999, p.116). Land use decisions involve exclusively oral agreements, vague demarcations of plots, the juxtaposition of primary and secondary rights on the same piece of land, and the inequality of legal subjects (Wehrmann, 2008, pp.78-79).

1.6.2 Formal or statutory land tenures

Formal or statutory land tenure is relatively new in SSA. It was introduced by the colonialists as Crown land on which leases were given to white settlers. Crown land, where existent, turned into State land after independence, leaving the newly emerging independent states with an extensive State land – in theory. Some countries followed the capitalist way (e.g. Kenya and South Africa) of disposing of the land of private property. Others went through a period of communism (Tanzania) giving priority to state property, and others went back to their roots tolerating customary tenure in rural areas (Senegal) (Wehrmann, 2008, pp.78-79). There are three types of formal or statutory land tenures in Kenya, namely private land or freehold, trust land, and public tenure.

Private land or freehold tenure

Private land, also known as freehold tenure, is an imported concept in SSA. The system allows an almost unrestricted use and transfer of land (Payne, 2001, p.417). In Kenya, land held privately in freehold or leasehold tenure after registration and issue of titles. In practice, there are conditional freeholds, which limit the use of the land for agricultural or ranching purposes only. Leasehold tenure is an interest in land for a definite term of years. It is granted by the government or a freeholder, subject to the payment of a fee or rent, and subject to certain conditions (Waiganjo and Ngugi, 2001, p.4; Republic of Kenya, 1992, p.18).

Trust land

Before Kenya's independence in 1963, Trust Land also known as the Native Lands Unit or Native Reserves or Special Areas that remained under the African communal ownership, and therefore under customary laws and rights. After Independence, the areas became trust lands. Belonging to the local ethnic groups, families and individuals according to the applicable African customary law, and whose ownership is vested in the Local governments to hold in trust for local communities. Trust land is now diminishing as a result of land reforms such as land adjudication and registration programs (Republic of Kenya, 2004; 1992, pp.17-18).

Public tenure

It is the land owned by the State that includes unutilized or an unalienated government land reserved for future use by the Government or available to the general public for various purposes. Such land, once reserved, is allotted and is not available for use or occupation by another person/body (Republic of Kenya, 1992, pp.17-18).

1.6.3 Non-formal *de facto* tenure categories

The non-formal de facto categories are where land is acquired, occupied and used without permission of its owner(s), whether a public body or a private person (Olima and Obala, 1999, p.117). The categories either work through individuals or groups that replicate familiar elements of customary systems and thus inspire confidence among those obtaining land (Durand-Lasserve, 2011). There are two broad categories, illegal and semi-legal land acquisitions. The former include regularized and unregularized squatting, unauthorized subdivisions on legally owned land, and various forms of unofficial rental arrangements. The latter characterized by land transactions against payment with an unauthorized development of the land (Wehrmann, 2008, pp.79-80). The transition to criminal land distribution methods is fluid and is solely dependent on the legitimacy. Some include protection fees and involve violence if not paid. Others include misuse of power and position where state officials illegally sell state land, influential people grabbing land, or traditional authorities selling-out clan land (Wehrmann, 2008, p.80). These categories started as a response to the inability of the formal allocation systems or commercial markets and represent the most common urban tenure types in many countries (Payne, 2001, pp.418-419).

1.7 Nairobi Metropolitan Region: The Traditional Land Tenure Systems

The British colonial administration created Kenya through lumping together scores of hitherto independent ethnic groups. The groups existed into major clusters based on anthropological origins and historic settlement pattern (Ochieng, 1985, pp.7-8). The *Bantus* are a “hybrid community” with different culture and various dialects. They presently form the largest group of Kenya's population. Other examples include the Abaluhya of Western Kenya; the Kikuyu of Central Kenya; the Embu, Meru and Kamba of Eastern parts of Kenya;

the Abagusii and Kuria found in the Nyanza region; and the Mijikenda, Pokomo, and Taita of the Coastal region. The *Nilotes* was a mixed group referred to as the Nile Valley peoples, who originated in the Nile Valley. In Kenya, they are divided into three groups that speak dialects related Nilotic languages: the River Lake Nilotes, which include the Luo; the Plain Nilotes, which includes the Maasai, Iteso, and Turkana; and the Highland Nilotes, who are represented predominantly by the Kalenjin-speaking clusters of the Rift Valley. The *Cushites* are a broadly homogeneous group, in language and culture. They spread over a large part of Northeastern Kenya, Ethiopia, and Somalia.

Finke (2003) and other scholars of Kenyan history believe there were thriving trade relations among the Kikuyu, Maasai and Akamba, which was "shattered" by the British colonialists. Over the years, the Kikuyu were moving southwards, from the Mount Kenya area, towards the Athi plains, the home to the pastoral Maasai and the Kamba to the southeast. According to Finke (2003), the Kikuyu had been profoundly affected by calamities. They had withdrawn from the very lands that British explorers described as "empty" and ripe for colonial settlement; that included parts of Nairobi, Kiambu, Thika, and Ruiru. Some evidence suggests that the site along Nairobi River was a trading point for the Kiambu Kikuyu and Kaputiei Maasai women (Anyamba, 2005, p.1). Other proof of Kikuyu settlement is the names of the rivers and streams: Gitathuru, Mathare, Mutoini, Karura, Mutundu, Rui Ruaka, and Thigiri. From 1900, the British colonial administration took possession of the *enkare-nyrobi* (the place of cool waters, in the Maasai language). The ownership transferred from the Maasai, Kikuyu, and Kamba to the Kenya-Uganda Railway without any legal transaction, verbal or written.

Before colonial intervention, ethnic identity was a generalized idea – diffuse, open-ended, relaxed, and mutually beneficial. Boundaries between African ethnic groups were flexible; although there were areas of ongoing contestation, but these were often ill-defined or undefined (Sheppard et al., 2009, p.357). Trade, intermarriages, and limited and intermittent warfare characterized inter-ethnic interactions. Colonialism gave new shape, meaning and direction to the communities' inherent dynamism (Ndege, 2009, p.2).

The British divided Kenyan territory along ethnic lines into seven provinces and the Nairobi area. Each area was further divided into administrative districts often according to ethnic groups and subgroups. The post-colonial government further consolidated this ethnic-political structure by aligning administrative districts and parliamentary constituencies with ethnic boundaries. According to Oucho (2002), ethnicity is the fulcrum of administrative boundaries, constituencies and development pattern in Kenya (Alwy and Schech, 2004, p.267). After the promulgation of Kenya's new constitution on August 27th, 2010, provinces were abolished and replaced by 47 Counties (See Figure 8).

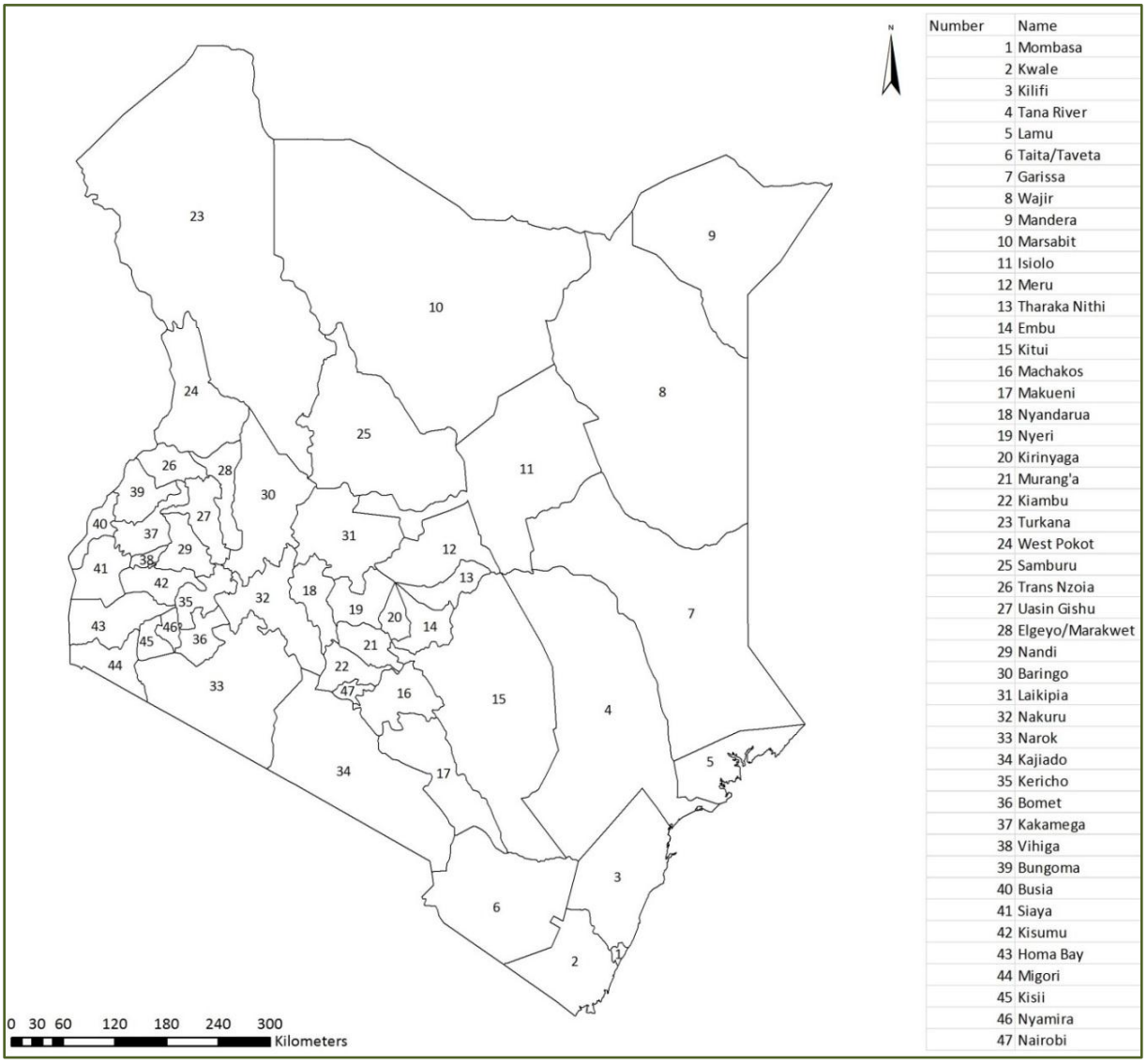


Figure 8: The new administrative counties in Kenya as from August 2010

Source: Author

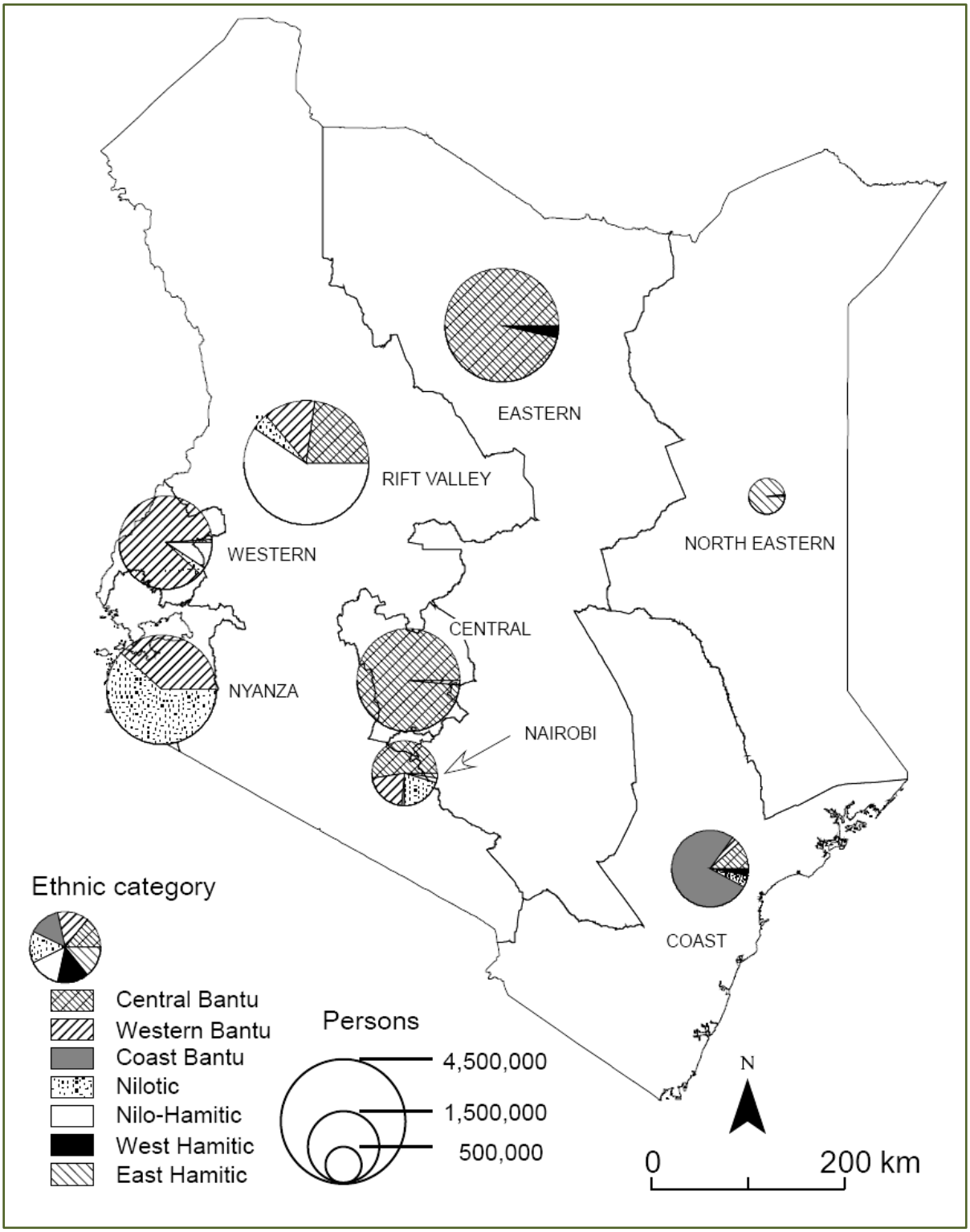


Figure 9: Distribution of major ethnic groups by (the now defunct) provinces

Source: Ngigi, (2007. p.36)

Although Kenya is multi-ethnic, ethnic agglomeration characterizes the population. It is only some parts of the Rift Valley and Coastal regions, and Nairobi, that show higher levels of ethnic mixing (Ngigi, 2007, pp.34-35) (See Figure 9). The ethnic composition of CoN is diverse and multi-racial. The Kikuyu ethnic group makes up 32 percent of the city's population, the Luo 18 percent, the Luhya 16 percent, and the Kamba 13 percent. The Maasai, the original inhabitants of the city, constitute less than 1 percent (Oxfam, 2009, p.8).

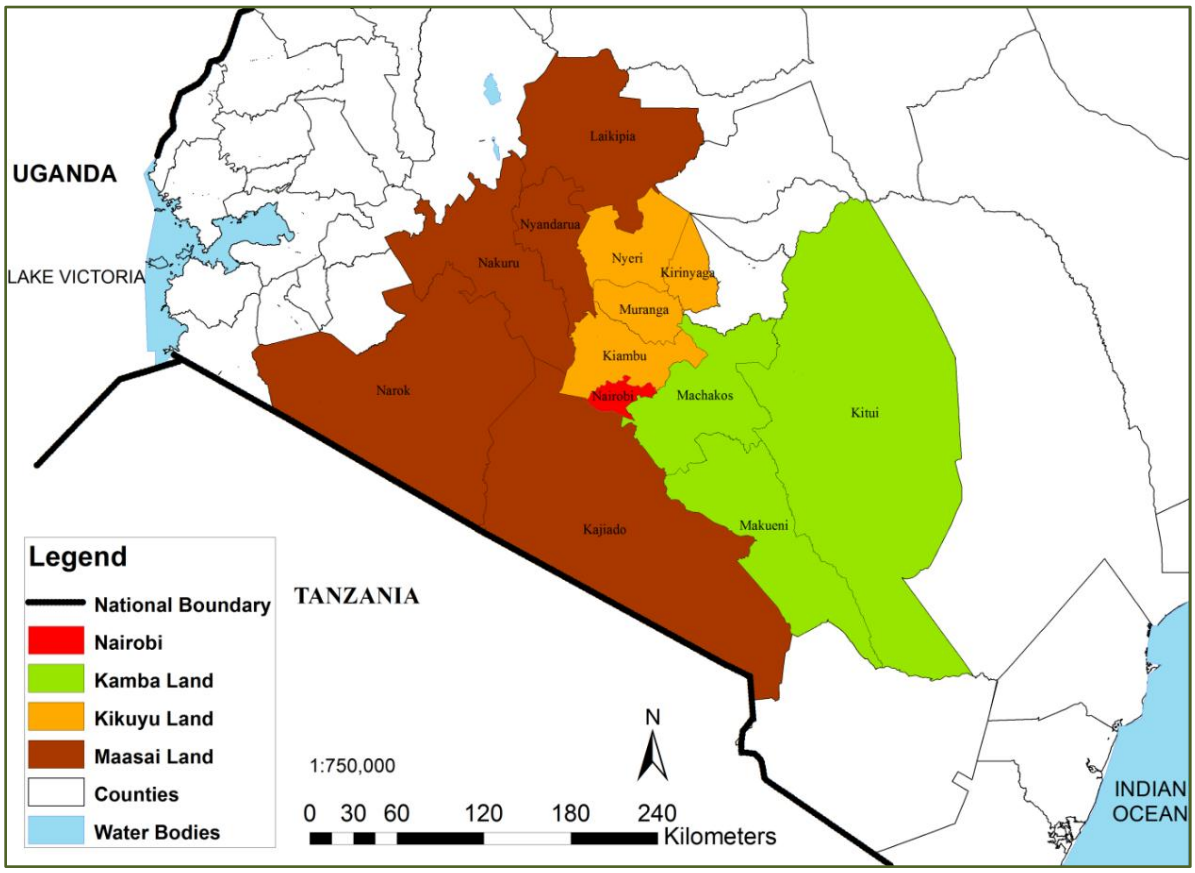


Figure 10: The traditional tribal lands bordering the city of Nairobi

Source: Author

In addition to historical and statistical data, there is a need to understand the physiographic understanding of the study area because topographic features, climate, and other natural resources can limit or encourage urban growth and change (Biswas and Chanda, 2013, p.1). The NMR covers three Commons, the Southern Metro (The Maasai land), Eastern Metro (The Ukambani area) and Northern Metro (The Kikuyu land) (See Figure 10). The selection is guided by two rules. The first is to represent contrasting colonial and post-independence

political histories, in the belief that this would provide differing patterns of governance at the local level. The second is that the cases selected could be plausibly regarded as representing “"local”" – in the sense of non-central – governance (Woodhouse, 2003, p.1706).

1.7.1 Southern Metro (Maasai land)

Southern Metro covers most of the Kaputiei Plains, in Kajiado County. The general topography is characterized by plains and occasional volcanic hills and valleys (Republic of Kenya, 1990, pp.5-6). The drainage is controlled by the pre-volcanic high ground along the edge of the Rift Valley. Most of the drainages are seasonal rivers and streams, which fall into five principal drainage basins: Upper Athi, Middle Athi, Tsavo, and Rift Valley catchments, and the Lake Amboseli Basin. Geologically, the County consists of four geological regions: Alluvium, Quaternary Volcanic, Tertiary Volcanic, and Basement System, which is sometimes called the Mozambique Belt (Republic of Kenya, 1990, pp.12-13).

The region has a bimodal rainfall pattern. The short rains fall between October and December, and the long rains between March and May. The annual rainfalls are strongly influenced by altitude. The soils are not well suited for crop production; this explains the predominance of pastoralism. The predominant vegetation is open grassland with scattered trees and the semi-desert vegetation (Republic of Kenya, 1990, pp.18-21).

The Maasai occupied most of the western side of Kenya, at the time of European arrival in the mid-19th century. Most of the land owned communally. The Maasai have been subjected to multiple land use and tenure system iterations. Land use in the area has consequently been a controversial policy issue over the past century (Borwein, 2013, p.75). Starting with the 1904 agreement with the British, the Maasai ceded much of their best grazing land to European farmers and were relegated to separate reservations (Rutten, 2009, pp.1-5).

The evolution of land ownership in the Maasai area can be divided into five major periods. The arrival of Europeans, and the setting up of Maasai reserves, 1890-1920; the period of neglect, 1921-1944; grazing scheme experiments, 1945-1963; the setting up of group ranches, 1964-1980; and the dissolution of group ranches and the individualization of land

ownership (Rutten, 2009, pp.1-5). The latter have led to individual land tenure and have resulted in land sales in the fertile areas to people from other parts of the country, thus pushing the Maasai pastoralists to drier areas (Republic of Kenya, 2005a, p.10). The current ethnic composition in the Kajiado County is diverse; the Maasai is a bare majority. Figure 11 shows how group ranches and land privatization has decreased the mobility of land users and inhibited access to landscape heterogeneity in Kajiado County (Borwein, 2013, p.77). Downward arrows indicate the diverse set of drivers that have reduced the extent of land use mobility of land users and access to landscape heterogeneity. Upward arrows indicate drivers that reconnect land fragments, restoring the broad-scale access to heterogeneous resources (Hobbs et al., 2008, p.782).

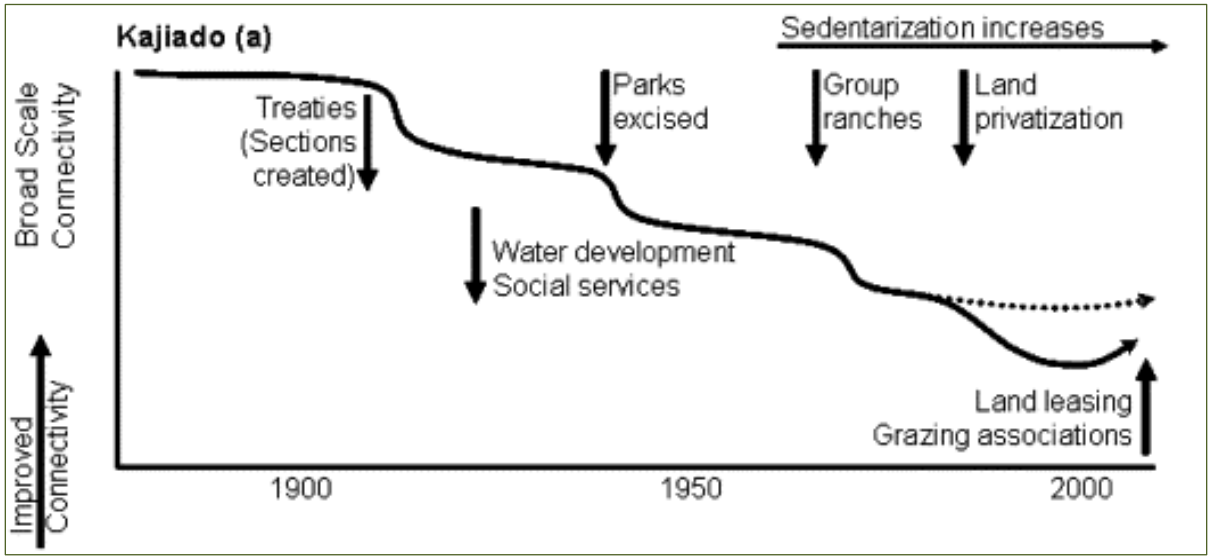


Figure 11: Historical patterns of land fragmentation in the Maasai land

Source: Hobbs et al., (2008, p.782).

1.7.2 Eastern Metro (Ukambani area)

The Ukambani area is predominantly semi-arid. It becomes progressively lower and drier to the east (Rocheleau et al., 1997). Only the highest altitude regions, primarily in Machakos County, have sufficient reliable rainfall to support regular agricultural harvests without irrigation (Bernard, Campbell and Thorn, 1989) (Rocheleau et al., 1995, p.1039). The soils are largely of metamorphic parent material and the rainfall regimes that contribute to their formation (Barber et al., 1981; Ojany and Ogendo, 1973). The soils are of low fertility, and

highly erodible (Barber et al., 1981). The most widespread vegetation type is the semi-arid deciduous thicket and bush land. In the dry areas, thorn bush grades into semi-desert vegetation (Ojany and Ogendo, 1973; Owako, 1971) (See Photo 1). The hills were originally forested. But most of the "desirable" agricultural land had been cleared by the beginning of the colonial period (Owako, 1971; Silberfein, 1989). The clearance left patches and corridors of forest along ranges, rivers, ravines, and hilltops (Rocheleau et al. 1995, p.1039).

Photo 1: Ukambani: relatively flat, with occasional hills and little vegetation

Source: Author

Ukambani is the traditional home of the Akamba or Wakamba, a Bantu-speaking people. The Akamba, who were hunters at the time, came from south of Mt Kilimanjaro around 1600 A.D. At first, they confined themselves in the Mbooni Hills, in present-day Machakos County (Lambert, 1947a, b) (Rocheleau et al., 1997). They later dispersed, reaching Kitui and Makueni in the 18th century (Bernard et al., 1981, p.383). At first, they turned to agriculture (Lambert, 1947a; Owako, 1971). Then, overcrowding forced them into the traditional land-use system of integrating highland agriculture with lowland cattle-grazing (Lambert, 1947a, b) (Rocheleau et al., 1997). An important underlying element in the traditional Wakamba spatial and ecological system was symbiosis between hills and plains. *Misyi* (homesteads) in the hills were dependent upon herds in the *weu* (large tracts of unoccupied areas) and vice versa. In the hills where rainfall was more abundant and reliable, pastoral activities were combined with crop agriculture in a system of shifting cultivation (Bernard et al., 1981, p.384). The aim of the traditional land-tenure system was to spread risk

and ensure group survival. The system was equitable, flexible, and geared to the community as a whole (Wamalwa, 1989), and was well-adapted to the vagaries of the physical environment (Rocheleau et al., 1997). The colonial intervention broke the Akamba's interdependence of plains and hills in Machakos in the 1930s and Kitui in the 1940s and 1950s, leading to the disintegration of their traditional spatial and ecological order (Bernard et al., 1981, p.385). Today, the Akamba's are mostly contained within the limits of Machakos, Kitui, and Makueni Counties. It is, however, only Machakos County that borders Nairobi, and covers an area of 5,952.9 km^2 (KNBS, 2010).

1.7.3 Northern Metro (Kikuyu land)

Initially, most of the Kikuyu inhabit three administrative Counties: Nyeri, Kiambu, and Murang'a, which is traditionally considered to be the Kikuyu's ancestral home. They make up the country's largest tribal group (Ochieng, 1985, pp.33-35). Kiambu County is the only one that forms part of peri-urban Nairobi; it borders CoN to the south. The County has agriculturally rich red volcanic soils and forms part of the Central Kenyan Highlands, formerly the White Highlands (Basweti et al., 2001, p.2). The soils are good for dairy and sheep production, horticultural and food products and cash crops, mainly coffee and tea. The soils are also used in greenhouses and for laying the foundation for tarmac roads (Photo 2).

Photo 2: Red volcanic soil used in greenhouse farms and building tarmac road

Source: Author

1.8 Significance of the Study

PUAs and settlements are ignored as a particular area in urbanization studies (World Bank, 2007). "Urban research" and "rural and regional research" prevail over "peri-urban research" (Allen, 2003; Stren, 1994). Urban specialists avoid the word "rural." Even though in many urban centers, the whole employment base and prosperity is a combination of demand for goods and services from rural producers and populations, and the value added that is from local crops (Satterthwaite, 2003, p.5). Kammeier observes that:

> Most urban researchers and policy makers have been so fascinated and preoccupied with the challenges of metropolitan cities that the lower ranges of urban settlements have been overlooked and often misunderstood. On the other hand, rural planners and researchers have traditionally focused on village-level studies and agricultural regions, but within those, the role of small and medium-sized towns has become a somewhat neglected subject (Kammeier, 2002).

The continuous process of transformation of the PUAs has made it difficult to establish their boundaries (Hite, 1998; Rakodi, 1998). The process depends on the combination of a number of factors, including the socio-economic, political, cultural, historical and geographical characteristics of the region. In the recent past, distance and time have collapsed as people, goods, and information have moved between the urban and rural areas, making studies on urban growth more complex. Consequently, the traditional distinction between urban and rural areas has become blurred. The challenge is to develop an analytical framework that represents the present-day spatial realities (Mbiba and Huchzermeyer, 2002).

Many studies on human settlement systems tend to be based on a simplistic dichotomous view of urban and rural areas (Hugo et al., 2001, p.3). The municipal governments concentrate on urban areas, paying little or no attention to peri-urban and rural areas; the counterparts in the countryside see urban areas, in the same way. In urban studies, the analysis of the center (urban core) and the periphery (rural area) would be consistent with thinking in most studies. Strict social dichotomies are usually difficult to obtain; the alternative may be a continuum, but a trichotomy may be useful (Nkwae, 2006, p.11; Galtaung, 1971, p.104).

Urban growth often transcends administrative boundaries (Angel et al., 2005, p.51; McGranahan et al., 2004, pp.18-19; Zsilincsar, 2003, p.43; Fox, 1992, p.39; Andrews 1942, p.170). This presents obstacles to peri-urban land use planning and management (Allen, 2003, p.146). In addition, many government policies regarding PUAs and the surrounding agricultural areas conceive of peri-urban spaces as territories subordinate to the needs of the urban area (Torres-Lima and Rodrı´guez-Sa´nchez, 2006, p.11). Yet the ecological, social and economic functions performed by and in the PUAs affect both the city and the countryside (Allen, 2003, p.135). In most developed countries, increases in household incomes, urban subdivision codes, infrastructure investment patterns, open space undervaluation, and commuting underpricing, translate into the expansion on the PUAs (World Bank, 2007). The nature of peri-urban transformations in SSA is contentious. There are conflicts between those competing for entitlements to land and the inequality in the powers and resources of those competing. The results are contradictions and distortions in the physical development requiring an explanation and causes exposed (Mbiba and Huchzermeyer, 2002, p.122).

Policymakers need accurate urban growth information in order to monitor how peri-urban land is being used and assess future demands. The information is usually gathered by looking at spatial and temporal variations in urban growth and causative factors like population growth and density, and density of development (Jat et al., 2008, pp.1-3). Policymakers must understand the drivers of peri-urban expansion in order to formulate policies that promote economic growth and urban development (Olson et al., 2004; Hassel and Lathrop, 2003, p.160; Seto and Kaufmann, 2003, p.107; Zsilincsar, 2003, p.54). There is a need to conceptualize and also contextualize urban growth because placing current trends and patterns in historical and spatial context gives greater meaning and expands our view (Flint and Taylor, 2007, p.3). A city's spatial structure is always evolving. The city authorities need to follow the spatial patterns of development and take regulatory remedial action if this trend contradicts the city's objectives (Bertaud and Malpezzi, 2003, p.4). My study is invaluable to policymakers and local governments because it provides a paradigm shift about how and why the PUA is developing the way it is, getting past the stereotypical "encroachment" view.

The world's regions, countries, cities, and economies have become increasingly intertwined, which has given rise to many analytic and predictive models in geographic analysis. Research has increasingly laid emphasis on simulating the system for predictive purposes rather than identifying the major components of the processes operating and changing the system (Drewett, 1969, p.271). The failure of models in the run-up to the 2008 financial crises was because "economists, as a group, mistook beauty, clad in impressive-looking mathematics, for truth" (Krugman, 2009). Most economists ignored the limitations of human rationality and focused more on mathematical techniques and the construction of empirically uncontrolled formal models that do not adequately engage with the complexities of the real world. While mathematical modeling is essential, real-world substance should prevail over mathematical technique.

According to Marshall (2009), a systematic prediction requires a model that approximates reality. Many models provide little information about the system. A growing body of theory and evidence suggests that making accurate predictions about events is inherently impossible. This becomes further complicated by the fact that humans increasingly affect their environment in profound ways. Many models assume simple linear relationships between variables. There are many reasons in the real world that variables often react in a complex, unpredictable and nonlinear way, particularly where extreme events are concerned. An even more fundamental spanner of many models is the need to find a way to capture the behavior of a volatile and unpredictable element – the humans. It also suggests a practical solution to mitigate the dangers is to have detailed scenario-planning by imaginative analysts who do not cling too tightly to mathematical models of reality. Economists and political scientists have long worked on the assumption that people behave in a rational way that can be modeled and predicted; an assumption invalidated after the global meltdown of the 2007-2009.

The complexity of the urban system is usually an impediment, which is enhanced even more in African cities, where many factors increase the unpredictability of the urban system. There are enormous difficulties in obtaining reliable data on urban growth, and significant errors made in the past with projections in developing country cities such as Mexico City and Lagos (Cohen, 2004). Because of these complex factors, development predictions of cities meet a

high level of uncertainty and, therefore, require the use of innovative tools (Mundia and Murayama, 2010, p.260). The use of postcolonial methodological approaches is needed to illuminate how daily realities create and influence the city; even if it does not necessarily fit into the structure as understood through the Western urban theory (Robinson, 2002). Postcolonial urban scholars theorize cities to consider conditions in different regional contexts (Roy, 2006, 2011; Immerwahr, 2007; McFarlane, 2010; Simone, 2010). A postcolonial approach allows questioning the visible physical structure of cities. Rather than seeing cities for how they fail, there is a need to approach them for the various relations and practices that constitute how they work (McLees, 2013, pp.283-284).

The debate is usually on whether Western standards are applicable or not to the African situation; rather my study does not intend to go down the same path. The pitfalls in most research on urbanization in Africa are they tend to view and analyze Africa from a European perspective, especially using the three different descriptive and prominent classical theories of Burgess, (1925); Hoyt, (1939); and Harris and Ulman, (1964). This is a perspective that has not shed much light on the nature of the urbanization process in this part of the world (Sanders, 1992). This study addresses the "real-world substance" by examining the interaction of the various institutional structures and their role in the peri-urbanization process. The major flaw in traditional social science research is that it is not specific enough. Situated research is the "new mainstream" and should be recognized as the gold standard. There is a need to find a way to repair this imbalance in the world of research. While generalization-oriented research is relevant, it is in no way more useful than situated studies that don't make a claim for generalizations, especially when the world is constantly changing and is developing. Studies that delve into the details and are rich with description are equally relevant (Shulman, 2013).

Literature on PUAs and urban growth is diverse and multi-disciplinary. Peri-urban research has remained descriptive, with little attempt to theorize the underlying contradictions, antagonisms and conflicts that may arise (Mbiba and Huchzermeyer, 2002, p.114). Most research focuses on the developed countries. There is limited literature about SSA because urban research is usually piecemeal, often according to the professional interest and

preferences of the respective researchers (Wayumba, 2001, p. 2). It does not adequately address the underlying spatial structures, systems and processes of urban growth. An essential task for geographers is to investigate and understand the structural relationships that give rise to processes that in turn are responsible for creating observed urban patterns (Clark, 2006, p.6). This study draws attention to the processes of transformation; that have intensified in the context of globalization (Mbiba and Huchzermeyer, 2002, p.114).

Most studies on urbanization in Nairobi focus on processes and activities within the city. Mundia and Aniya, (2006) analyze the LULC changes dynamics for the CoN. Most of the changes have occurred as a result of interactions of a number of environmental as well as demographic and socio-economic effects (Mundia and Aniya, 2006, pp.106-107). Ayonga, (2008) took a different view and used land tenure cluster approach. He included the government land tenure in Ngong and Athi River Towns, the freehold land tenure clusters formerly African rural areas located in Ngong, Kajiado and Katani, Machakos, and the cooperative/company land tenure (Ayonga, 2008, p.15). He however covered two land tenures traditionally belonging to the Akamba and Maasai and did not cover the Kikuyu land, which my study has included.

1.9 Structure of the Dissertation

The dissertation has five chapters, each containing sections, and subsections. Chapter one gives an introduction to the issue of peri-urbanization, the statement of the problem, the research questions, and research objectives. It also has the conceptual framework, a detailed description of the study area. And finally, the significance of the study completes the chapter. Chapter two has a review of the empirical theories and studies on the urban land use, to help build a theoretical foundation and place the research into perspective. The first part has a discussion on the concepts of urban growth and peri-urban area, and approaches and models of urban spatial structure and land use that provide a framework for the interpretation of urban growth. The next part has a discussion on the processes and patterns of urban development in SSA using the World Systems Theory. The last section seeks to account for Kenya's contemporary urbanization through the various spatial and development policies and strategies tried through time and across space. Chapter three details the research approach,

methods and procedures used to answer the research questions. The conceptual and methodological approach comes first, followed by a discussion of the analytical techniques.

Chapter four seeks to account and explain NMR's contemporary peri-urbanization as a consequence of globalization, economies of scale and agglomeration, and population dynamics and processes through time and space. The Chapter begins with an analysis of peri-urban growth patterns using remote sensing imageries. It is followed by a discussion of the role of globalization, economies of scale and agglomeration on the growth of the NMR. Using local realities of select case studies of changing land access and use, it has a discussion on the role of the existing land tenure systems and its effects on the nature of peri-urban development. It also details some key determinants of land use development in peri-urban Nairobi, namely the developments of highways; the growth of middle class; and the role of laissez-faire system. The chapter also has a discussion on the role of the formal institutions and how their inability to operate has created a lacuna which has led to the growth of the predatory informal institutions in land use and administration. The chapter concludes with an analysis of the inherent gaps in the current and proposed policies, institutional, and legal systems. The final Chapter five presents conclusions and recommendations and ends by highlighting some areas for future research.

CHAPTER TWO

URBANIZATION IN SUB-SAHARAN AFRICA AND KENYA: CONCEPTS, THEORIES, PROCESSES, POLICIES AND EMERGING PATTERNS

"If you want to know the road ahead, ask those coming back." ~ Anonymous

2.0 Introduction

This chapter reviews the empirical concepts, theories and studies on urban land use to build a theoretical foundation and place the research into perspective. The first part of the chapter has a discussion on urban growth and approaches, urban spatial structure land use, and peri-urban studies that provide a framework for interpretation of urban growth in the Sub-Saharan Africa. The later part of the chapter seeks to account for Kenya's contemporary development through the various spatial and development policies and strategies tried through time and across space. The chapter provides the platform and set the stage for investigating the research questions and objectives outlined in Chapter One.

2.1 The Concept of Urban Growth

In most literature, urban growth is more often described using archetypes such as scattered, leapfrog, strip or ribbon, or continuous low-density developments. The descriptions fall short of a working definition because growth is a matter of degree and has multiple dimensions (Ewing, 2008, pp.519-521). In the urban studies parlance, the term growth rate refers to the intervals increase in the size of urban areas; a measure that is anthropometric. The spatial increase in the size of urban areas is urban sprawl and does not define the growth rate (K'Akumu, 2007, pp.222-223). In *The Containment of Urban England*, Peter Hall explains that urbanization, or urban growth can have at least two basic meanings:

> On the one hand, we can talk of urban growth in a physical sense. This is perhaps the more elementary and obvious meaning. It refers to the use of the land for urban purposes, begging for a moment the question of how to define an urban purpose. On the other hand, we can talk of urban growth in a *functional* sense. This focuses on people rather than on land or physical structures. It refers to the activities of the people (economic, social and cultural) and seeks to determine whether in any area these are urban in character or not (Hall et al., 1973, p.118 in Watson, 1993, p.2).

Urban growth, the absolute growth of urban areas and populations, should not be confused with urbanization that record the percentage of the total population of a nation or region found in towns and cities (Potter et al., 2008, p.391). Urbanization is the sum of four types of growth: spontaneous urban growth that leads to the development of urban settlements in undeveloped areas; diffusive growth that permits isolated settlements joined with new urban spreading centers; organic growth that promotes the expansion of established urban settlements to the surroundings; and road influenced growth that promotes the urbanization along transportation network (Yang and Lo, 2003, p.469). There is a complex interplay of forces in the public and private sectors, as well as at the personal, local, national, and transnational levels that influence and drive urban growth across space and time (Olson, et. al., 2004; Schneider et al., 2003, p.9). There are many causes and catalysts of urban growth. Bhatta, (2010, pp.18-27) details twenty-five that are identified in many urban studies.

2.2 What is a Peri-Urban Area?

There is conflicting conceptualization of what peri-urban is or should be, and also conflicting views on the nature of the processes taking place there (Koti, 2004). Therefore, many terms synonymous to PUAs have developed: the rural-urban fringe, sub-urban areas, suburbs, urban periphery, edge city, urban stretch/sprawl, or bordering villages and more recently, extended metropolitan regions (Saxena, 2008; Butterworth et al., 2007, p.11). These words convey meanings of being less significant, incidental to principal activities, the outer edge, fringe to the main, spillover, or over flown. The complexities and ambiguities of the term peri-urban make it not easily explicable (Butterworth et al., 2007, p.11). Whatever definition, it cannot eliminate some degree of arbitrariness (OECD, 1979: 10).

PUA is an area of transition from being predominantly rural to acquiring urban features (Butterworth et al., 2007, p.11; Wehrwein, 1942, p.217). Rakodi uses a definition that stresses the relationship between the urban and immediate rural areas being the result of a process over time. The area shifts over time as the city expands and splits between the numbers of different administrative areas (Rakodi, 1998, p.3). PUA is the "[l]and lying between urban areas and countryside with its own separate and frequently unique characteristics" (Countryside Agency, 2004, p.7). For economists, PUA "Is the frontier in

space where the returns to land from traditional and conventional urban land uses are roughly equal to the returns from traditional and customary rural land uses" (Hite, 1998, p.3). Other definitions take a more urban-centric view, usually, associated with geographical distance, where PUA start just beyond the contiguous built-up urban area (Webster, 2002; Chicoine, 1981). The U.S. Census Bureau considers PUAs to consist of contiguous territory with a density of at least 1,000 persons per square mile (U.S. Census Bureau, 1995).

PUAs are complex areas being the intersections of a broad range of policy issues related to population growth, urban development, environmental protection, and natural resource management (Bunker and Houston, 2003, p.316). There is a link between agricultural productivity and urbanization, in that improved agricultural productivity complements, rather than hinders urban growth (Spence et al., 2009). In SSA, the classification of urban environments is not uniform. Physical borders, population size, geographic limits associated with administrative responsibilities or governance define urban areas (Silimperi, 1995). In Botswana, urban areas are agglomerations of 5,000 or more inhabitants, with the majority depending on non-agricultural activities. In Ethiopia, localities of 2,000 or more people are classified as urban. Moreover, in Malawi all townships, town planning areas, and all district centers are defined as urban (Phillips, 1993).

Studies on PUAs reveal a number of persistent issues and challenges while raising new ones. The various layers of expectation prevailing in the PUAs also pose serious difficulties for policy-makers (Bunker and Houston, 2003, p.316), for urbanization theory, and for development policy. Whatever the descriptions and definitions, conceptually, PUAs relate to the growth of cities immediately outside the designated urbanizable limits (Saxena, 2008).

2.3 Why Spatial Structure Matters?

Urban spatial structure is a generalized description of the distribution of urban phenomena in geographic space (Horton and Reynolds, 1971, p.36). The spatial structure is deeply studied in the context of the New Urban Economics (NUE) models with the contribution in the past being the monocentric model (Alonso, 1964; Muth, 1969; Mills, 1967; Richardson, 1977; Brueckner, 1987). Recently, spatial structure has been undergoing a process of

suburbanization, producing more open models in which monocentrism, polycentrism, and dispersion spatial equilibria occur depending on the intensity of the centripetal and centrifugal forces that come into play (Garcia-López, 2010, p.120).

Urban spatial structure is very complex. The complexity often makes analysis difficult, and produces *fortiori* arguments to try to relate urban policy to city shape. Thus, the evolution of urban form is often not monitored. Consequently, the significant inefficiencies due to a weak spatial structure are often ignored until it is too late. A deficient spatial structure increases the length of the city infrastructure network and, therefore, capital and operating costs (Bertaud and Malpezzi, 2003, pp.3-4). Geographers, historians, and economists have developed models of urban structure and patterning. They incorporate population, location/movement, and the location of economic activity to be able to explain rationally and predict urban spatial growth, and to allocate resources (Dezzani and Chase-Dunn, 2010, p.4). The result is the existence of many methods of analyzing "urban structures." These include the traditional geographers' method of the central-place theory; the Lowry model and derivatives; and economic approaches (Wilson and Bennett, 1985, pp.320-334).

2.4 Central Place Theory

The central place theory (1933) is the basis of the traditional comprehensive geographers' approaches. The theory was to explain the spatial distribution of human settlements. The ordering of settlements based on the number and level of the services they provide produces hierarchies, often complicated because market areas of different order settlements overlap. The central place theory can be replaced by a discrete zone dynamic extended Lowry model as the basis of a more powerful approach (Wilson and Bennett, 1985, p.320).

2.5 Lowry Model and its Derivatives

Lowry's (1964) *Model of Metropolis* explains the urban land-use transport feedback cycle in an operational model (Wegener, 2004, p.4). The model consists of residential, and service and retail employment location models nested into each other. The model has successfully formed the basis of many other models because it captures some of the essential

interdependencies between activities within cities. The model's main features are likely to be present in almost any model (Wilson and Bennett, 1985, pp.322-329). The Lowry model stimulated a large number of increasingly complex modeling approaches that includes the work by Goldner, (1971); Echenique, (1985); Geraldes et al., (1978); Putman, (1983, 1991); Mackett, (1983); and Boyce et al., (1981). From these efforts, a wide range of approaches used to model urban land use and transport have evolved (Wegener, 2004, p.4), commonly referred to as Lowry model derivatives.

2.6 Economic Approaches

Most of these approaches are concerned with residential location. They, however, also took note of the relevance of the theory of the firm as well as the theory of consumers' behavior in the micro-level underpinning. Ideally, sound economic theories of agricultural land use and industrial and residential location all need integration; that is yet to be achieved (Wilson and Bennett, 1985, p.330).

2.7 Spatial Interaction Activity Models

The Spatial Interaction Activity is an economic model which has dispersion added to take account of market imperfections. The central feature, compared to most economic approaches or central-place theory, is a shift from the continuous space to a discrete zoning system. Spatial structure is then represented by presence or absence in a zone or by the size of the activity in the area. In this sense, it can do everything that central-place theory does, but it is also free to generate more complex patterns (Wilson and Bennett, 1985, p.333).

2.8 Classical Theories of Urban Land Use

Most theoretical constructs on PUA structural patterns and growth that have evolved are primarily in the context of North American cities. They draw from the three different descriptive and prominent classical theories of Burgess, (1925), Hoyt, (1939), and Harris and Ulman, (1964) (Figure 12). These models generalize the patterns of urban land use found in early industrial cities, in the United States. E.W. Burgess (1925) articulated the concentric

zone model in Chicago and noted that as a city grows, it expands radically around the CBD to form a series of concentric circles. The model's operating mechanism is the growth and radial expansion of the city. The model is based on the ecological principle of invasion and succession and, therefore, was designed as both a statement of function zonation and urban growth (Murdie, 1971). The Hoyt, (1939) sectoral theory central argument is that different socio-economic groups tend to live in different areas, well distinct sectors, instead of occupying entire rings around the CBD.

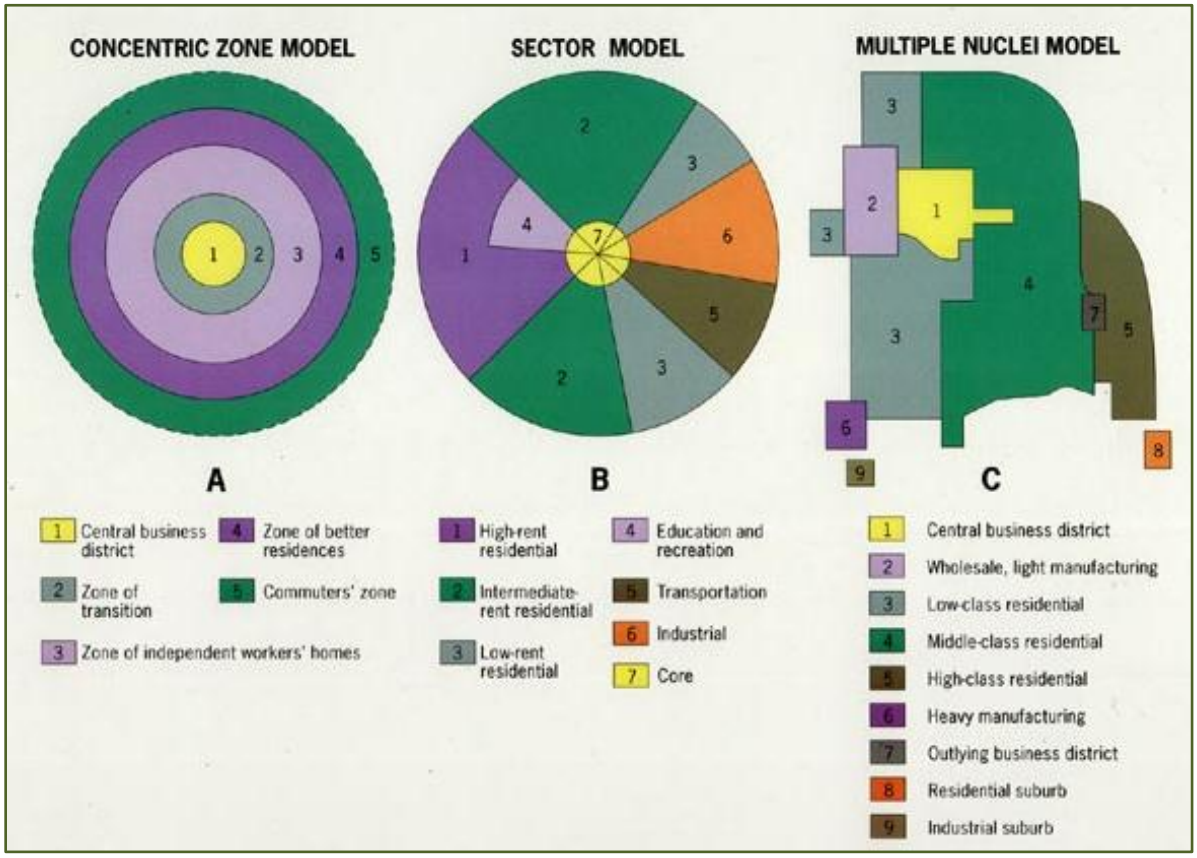


Figure 12: Classical generalizations of the internal structure of cities

Source: John Wiley & Sons Inc.

The Harris and Ullman, (1945) multiple nuclei model observed the development of the nuclei of a pre-existing agglomeration. That latter becomes a development node such as location of industry in the suburb or a transit village (Adesina, 2007, p.5). The basic notion of the model is that the urban area concentrates around several nuclei rather than a single core. The model

is an amalgam of Burgess and Hoyt's model with the addition of many nucleuses; there are many nuclei in the city (Murdie, 1974 cited in Aribigbola, 2007, p.4).

2.9 World Systems Theory and its Application in Understanding SSA Urbanization

2.9.1 The World Systems Theory

World systems theory (henceforth WST) was developed by Wallerstein, (1974, 1979), who outlined a research agenda that world-systems are the basic unit of social analysis. Neither nomothetic nor idiographic epistemologies permit useful analysis of social reality, and the existing disciplinary boundaries within the social sciences no longer make any intellectual sense (Wallerstein, 2000). WST arose as a critique of the modes of study in social science that dominated the world from the late 19th century to around 1970 (Goldfrank, 2000). It was a reaction to modernization theories (Koti, 2004, p.25). For Wallerstein, there is an objective world, which can quantitatively be understood, but it is, no matter for how long it has existed, a product of history (Goldfrank, 2000). Table 1 summarizes the features of the world system.

Table 1: Characteristics of the World Systems Theory

Characteristics	World-Systems Theory
Units of analysis	The world-economy
Time-frame considered	Centuries, beginning with world-empires
Origin of social change	Economic systems
Basic model of social change	Dialectic
Main determinant of social change	Contradictions within economic systems
Defining Feature of a Population	Shared position in the economic hierarchy
Main determinant of population size and density	Means of production
Role of population in social change	Serves as a proxy for distortions in economies

Source: Adopted and modified from Anthony, (2009, p.79)

Wallerstein, (1974) argues that there existed early on in human history, agriculturally based societies (i.e. disintegrated mini systems) as "self-contained" entities as shown in Figure 13. Some of the mini systems prospered, over time, gaining advantages in military and transportation technologies. These advancements allowed some systems to establish

dominance over other mini systems. According to Wallerstein, this was the first step toward establishing a world-system (Anthony, 2009, pp.40-41).

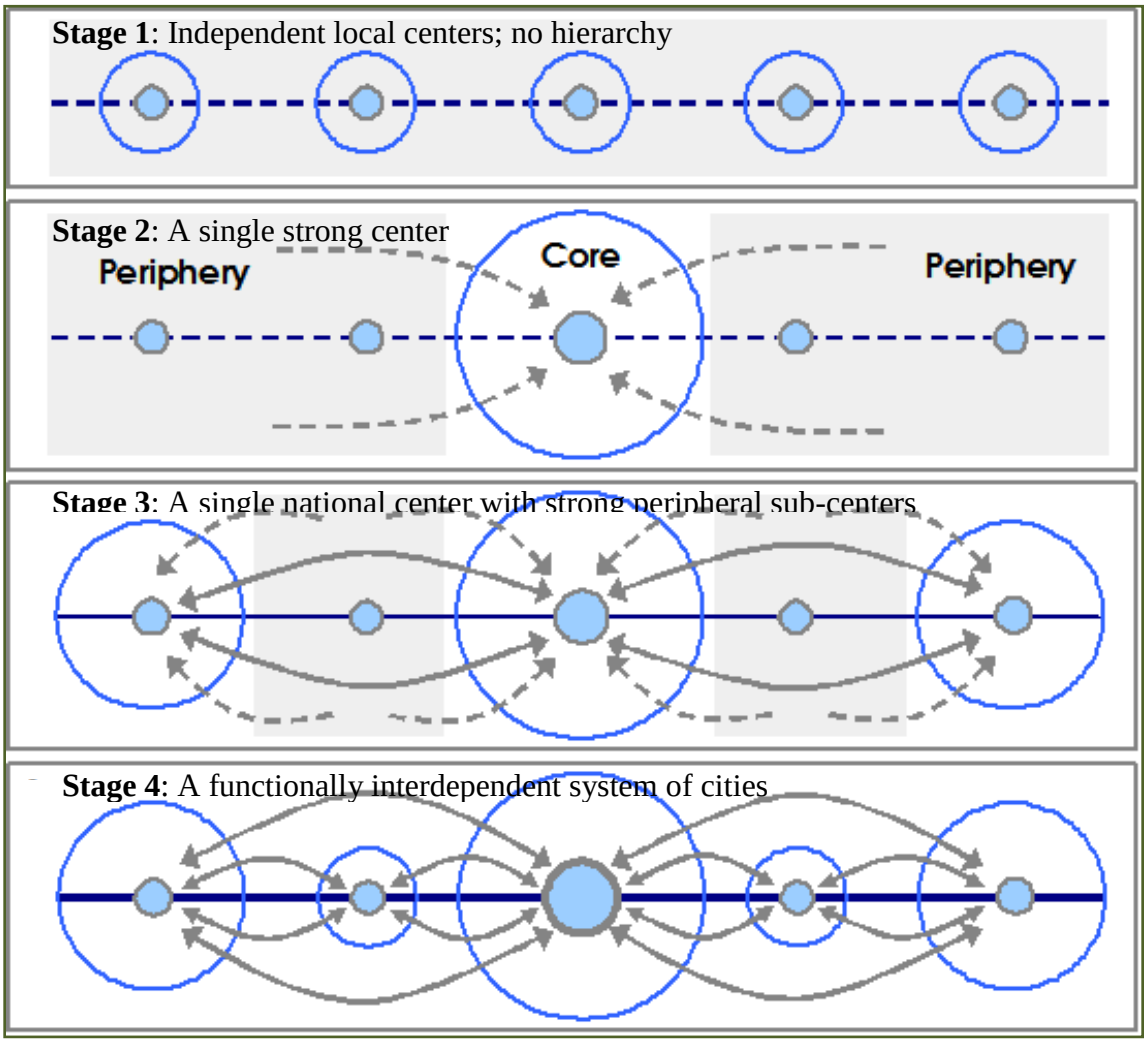


Figure 13: An overview of the core-periphery model

Source: Adopted and modified from Friedman (1966) in Potter at al., (2008, p.98)

WST is used to analyze socio-economic systems at the global, regional and local levels. Cities and urbanization were explicitly linked to WST. There is a systematic unevenness in urban patterns that resulted from the relations between core, periphery and semi-periphery (Roberts, 2003, p.2). According to WST, cities grew within the core, semi-periphery, and the periphery to serve the interests of the center. In the periphery (Africa), cities grew as administrative centers for colonial authorities and then retained that role as centers for multinational corporations and foreign investments.

Despite compelling appeal, WST suffers some shortcomings. Research on migration patterns in China shows that urbanization is taking place in parts of the periphery for reasons that are mostly unconnected with the emergence of the world economy (Goldstein, 1990). According to Goldstein, urban growth and urbanization in China are principally a consequence of domestic economic and social circumstances, mainly due to rural to urban migration (Goldstein, 1990 cited in Clark, 2006, p.107). When the WST is applied to the African urbanization, the blame tends to cast on the world market. This is oblivious to the underlying class struggles within the urban scene, corrupt regimes, and poor planning (Koti, 2004, p.25). Despite these shortcomings, WST formed a useful toolkit in explaining the underlying historical context of economic development and peri-urban growth in SSA.

2.9.2 The processes and patterns of urban development in SSA

While all nations have experienced development, the rate differed from continent to continent. Moreover, even within each continent different parts increased command over nature at various rates (Rotimi, 2013). The African societies developed independently until they were taken over either directly or indirectly by the capitalist powers. When European capitalism came into contact with the indigenous African cultures, the latter was virtually exterminated, and whichever survived emerged in a different form (Rodney, 1972). Urbanization in the SSA falls into three major epochs.

Pre-colonial urbanization, before 1895

Contrary to popular belief, the existence of urban centers pre-dated the colonial era in Africa. Urbanization appeared in SSA some 3,000 years ago in present-day Sudan. However, the most remarkable example of indigenous urban settlements occurred between the 10th and 19th centuries A.D and served a variety of social, economic, and political functions. They tended to be structured “organically” around the palace and shrine as primary focal points (Stock, 2004, pp.241-243). The centers constituted a crucial part of politically sophisticated and well-organized pre-colonial African kingdoms (Njoh, 2006, p.19). In Eastern Africa, the occurrence was along some 1,500 km of the coast between Mogadishu in Somalia and Sofala in Mozambique. Some of these cities, such as Kilwa, Mombasa, and Mogadishu have been occupied continuously while others were abandoned at various stages.

Although many early African cities exist today, only as architectural ruins, some have survived into the 21st century (Stock, 2004, pp.241-243). Much of African history, and many traditions, customs, and artifacts got destroyed during colonialism, and many misconceptions about African cultures and institutions arose and became entrenched (Aryeetey-Attoh, 1997, p.182). For example, the inland areas of Kenya, before the scramble and partition of Africa in the 1880s, comprised a web of subsistence economies. Between cattlemen and cultivators, there was a symbiotic exchange of commodities and intermittent adjustment of populations. Three decades later, the economic and political structures of the region had been subject to profound transformation, under the sway of the state apparatus linking them to the capitalist world economy (Lonsdale and Berman, 1979, pp.494-5 cited in Potter at al., 2008, p.65).

Colonial era urbanization, 1895-1960

Whereas urbanization in the sub-Saharan region began many centuries ago, most of the urban areas in the area are rooted in the colonial period. When Europeans arrived for the first time in the late 15th century, they found cities in many parts of Africa, mainly along the coast. In other areas, there was no urban development, even where conditions seemed to favor urbanization. The Europeans established isolated points along the coast with the intention of securing and providing refueling stations for ships en route to India. Fortifications built at many of these sites led to small settlements. Some of the cities established by Africans were rejected by the new colonial rulers, or were bypassed by the new transportation routes and, therefore, declined into obscurity (Stock, 2004, pp.244-245).

Post-colonial urbanization, from 1960 to present

Although most African societies remain predominantly rural, cities have grown explosively, especially in the three decades since independence, in the 1960s (Stock, 2004, p.254). The current rates of urbanization are close to those of Western cities at the end of the nineteenth century (Auclair, 2005, p.26). The population of some cities is set to increase by up to 85 percent in the next 15 years. The most populous city, Cairo, is estimated to grow by 23 percent to 13.5 million people. By 2025, it will be passed by Lagos (15.8 million) and Kinshasa (15 million). During the same period, Nairobi's population will have increased by approximately 80 percent (UNPF, 2011).

2.9.3 Discernible patterns and challenges

Sub-Saharan Africa has always been and remains an area where population is distributed widely and in small settlements (Clark, 2006, p.23). The shape, structure, and built environment of African cities are a function of history. They are the result of melding over many centuries of indigenous African, Arabic/Muslim, and European influences (Stock, 2004, p.241). As compared to North American cities, which display a combination of concentric, sectoral, and multi-nuclear patterns, the physical structure of contemporary SSA cities exhibits a blend of indigenous and colonial imprints (Aryeetey-Attoh, 1997, p.186). African cities like Harare, Zimbabwe; Lusaka, Zambia; and Nairobi, Kenya were developed primarily for European settlement and became replicas of cities in Europe (ibid. p.191). Thus, standard North American theories of urban development and models of urban form must be used with caution in the African context (Stock, 2004, p.241). Nairobi, for example, in the early stages of colonial development, catered specifically to Europeans. The other races, Asians and Africans were segregated on the basis of occupation and residence. Nairobi was never considered a permanent home for Africans (Aryeetey-Attoh, 1997, p.191).

Although urbanization has been a feature of the twentieth century in most of Africa, the continent has had a long history of urban development (Stock, 2004, p.241). Several significant patterns are discernible. First, the distribution of urban places is extremely uneven over the continent. Secondly, earlier views that the region did not have a history of urbanization, before the colonial era as tested by the requirements of western analytical models, have lost validity. The views are couched in European ethnocentric approaches to the history of Africa. Thirdly, the colonial period created settlements to the detriment of historic centers of trade and civilization. Fourthly, African primate cities and major urban agglomerations constitute socioeconomic cores; the relationship between these cities and the periphery or hinterland is parasitic. Lastly, the overall difference in the rates and level of urbanization in SSA is due to a number of factors: the geographic scale; the physical difference and distribution of resources in the country; historical factors; the stage of development of any given country; and the degree of external dependence.

The forecast for African cities is not only grim, but downright depressing. While cities in North Africa are performing better on a number of development indicators, SSA has not only the highest levels of urban poverty in the world but is also experiencing rising economic disparities (UN-Habitat, 2008a). Unlike other parts of the world, where urban transition is linked to industrialization and greater economic opportunities, urbanization in SSA appears to have become decoupled from economic development (UN-Habitat, 2009, p.26; Cohen, 2006, p.77; Wekwete and Sesay, 2001, p.62). Between one-third and two-thirds of the urban population in East African experience at least one shelter deprivation (such as lack of sanitation or water). In 2005, six out of every ten urban residents in the region were slum-dwellers – almost double the proportion for the rest of the developing world. Indeed, 69 percent of all households in Addis Ababa and 65 percent in Dares es Salaam are slum dwellers, while about 50 percent of Nairobi's population is experiencing one or more shelter deprivation. The process of urbanization in Eastern Africa is a poverty-driven economic survival strategy (UN-Habitat, 2008a).

Urbanization is also taking place within the context of poor agricultural performance, increasing unemployment, financially weak municipal governments, poor governance and the absence of coherent urban planning policy (UN-Habitat, 2009, p.26). There is also the predominance of smaller cities, low population density, a high prevalence of circular or repeat migration, and links to HIV/AIDS. In recent years, many cities have lost their traditional health and social advantages over rural counterparts (UNPF, 2007, p.12). Another crucial difference is the lack of sufficient political will or decisive planning and reforms, all within the context of persisting poor management hampered by conflicts (Auclair, 2005, p.26). The impoverishment of urban life has become one of the most conspicuous challenges facing the region. In many places, another significant influence on urbanization is the movement of people uprooted by drought, famine, ethnic conflicts, civil strife and war (UNPF, 2007, p.12). While the bulk of the population will have moved to the cities by 2025, the economies will still be dependent on primary activities, in particular, agriculture (Wekwete and Sesay, 2001, p.62).

Urbanization and economic growth go together. No country has ever reached middle-income status without significant population shift into cities. Urbanization is necessary to sustain (though not necessarily to drive) economic growth in developing countries (Annez and Buckley, 2009, p.1). Could rapid urbanization be the key to the economic growth in Africa while being among the major planning challenges in the continent? Whereas the concern over the rapid urban growth and rising population should not be ignored, it was a similar growth in Western Europe in the 18th and 19th centuries that brought about the Industrial Revolution. Before then, when the population was low and scattered in many small enclaves, the region faced many developmental challenges. Interestingly, with today's plummeting birth rates, Western Europe is facing many challenges. The same scenario occurred in China, which has so far remained one of the world's fastest-growing economies (Turok and Mcgranahan, 2013, p.466).

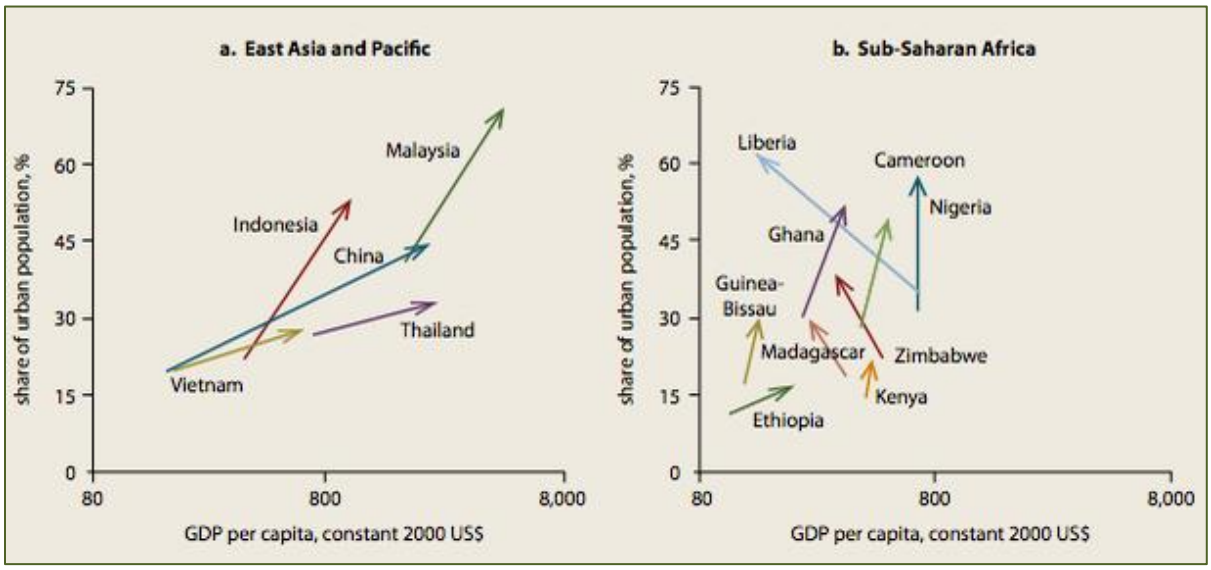


Figure 14: Rural-urban migration in SSA does not always bring economic growth

Source: Figure 1.4 World Bank, (2012, p.53).

Urbanization, usually, leads to higher economic growth. While moving from farms to cities works for developing countries in Asia, it does not apply to Africa (World Bank, 2012, pp.52-53) (Figure 14). For example, urbanization in Kenya has been without growth. In 1960, the level of urbanization in Kenya was low, at just 7 percent. Currently, urbanization remains small. Per capita income has stagnated. Urbanization has apparently not been pulled

by productive industrialization in Kenya; other factors are at work. Several African countries have experienced this phenomenon, which is otherwise rare (Annez and Buckley, 2009, p.6).

Urbanization levels are intimately associated with better lives. Many countries, notably China, are actively pursuing pro-urban policies and strategies to lift millions of people out of poverty. The biggest challenge of urbanization in SSA is not about the rate of urbanization, but the lack of appropriate planning and growth management tools to take advantage of the urban growth (Gantsho, 2008, p.13). Despite problems associated with cities, they will continue to attract more people. They are the only places where people have a real chance of escaping poverty. According to The World Bank, there is a clear and robust relationship between urbanization and per capita income in almost all countries (World Bank, 2008).

2.10 Regional Development and Urban Decentralization in Kenya: A Retrospective Analysis

The history of Kenya is examined in the context of urbanization issues, although a wider examination of history would provide even more ground information about the subject. Hopefully, the interested readers will become familiar with African and Kenyan history through an adequate literature.

2.10.1 Pre-colonial era, before 1895: traditional and periodic markets

Urban settlements, trading centers and small colonies of population of Arab origin existed along the Kenyan coast long before the beginning of colonization. Inside Kenya, the traditional markets were important nucleation points. In some areas, they formed a spatial system consisting of a hierarchy of markets, dealing with internal trade (Republic of Kenya, 1978, pp.32). Although there were a few contact periodic markets, the majority of the present-day markets were established in response to the penetration of the interior by alien traders (Obudho, 1976, pp.554-555). The spatial influence of the periodic markets remained at the ethnic level in all the inland areas except for the Kamba and Swahili traders who expanded the markets' trade beyond their ethnic environment. Most of the early periodic markets were not fixed spatially, although some took place under a specified tree.

2.10.2 Colonial era, 1895 – 1963: spatial organization of colonial development

The majority of the existing urban centers in Kenya originated during the colonial era. The growth reflects the colonial pattern of the economy (Mamdani, 1996; Kitching, 1980; Wolff, 1974; and Wrigley, 1965). Indeed, the "overall colonial legacy cast its shadow over the emergent African state system to a degree unique among the major world regions" (Young, 1995, p.24). Africa's development is hard to explain or understand without unraveling the continent's colonial experience (Ndege, 2009, p.2). Whereas the interior parts of Kenya were not urbanized until the colonial period, the current urban pattern predominantly reflects the development of British colonization and trade, rather than the traditional African population and agricultural pattern (Muganzi and Obudho, 1986, p.236). According to Kimani and Taylor, (1973), the pattern of settlements in Kenya was strongly influenced by events that took place during the colonial period. "[…] prior to the establishment of the British and German colonial administrators in 1890's, no towns existed in East Africa beyond those founded on the coast by the Arab, Persian, and the Indian traders" (Njuguna, 1986, p.6).

The period between 1895 and1963 was an important transition time in Kenya; many developments occurred in African social, economic and political life. In 1896, the British started building a railway from Mombasa to Lake Victoria, a rail that would shape Kenya's destiny over the next 60 years and beyond (Ochieng, 1985, pp.102-104). The line called the Uganda Railway because the British constructed it was to secure Uganda. Whereas Kenya was an afterthought to provide access to the sea, the rail, however, became the backbone on which Kenya sprouted from and also chose a new capital for the country. The building of the railway was a very expensive venture. The only solution was to allow Europeans to settle in the Kenya Highlands, later popularly known and the White Highlands, to the point of making the rail viable. The railway, which had been built to ease communication with Uganda and help combat the slave trade, was now being used to justify white settlement (Ochieng, 1985, pp.102-104). There is an intertwining between the country's history and the rail.

The spatial organization of the colonial development pattern closely followed the railway line (Republic of Kenya, 1978, p.32). Most of the urban areas (such as Nairobi and Nakuru) that developed during the colonial period lay within the White Highlands, and most served by rail

(Sheppard et al., 2009, pp.372-373). The expansion of rail branches to the White Highlands led to the establishment of towns such as Thika, Fort Hall (now Murang'a), Nyeri and Thomson's Falls (now Nyahururu) (Republic of Kenya, 1978, p.32). Figure 15 depicts major settlements within the former White Highlands overlaid on the rail and road network. The entire infrastructure was linked to the railway. Roads built but only as feeder roads to the railway. Schools, hospitals, and towns mushroomed. What emerged in the last 100 years or so was an intense concentration of political and administrative power, wealth, and population along the line or, at most, within 150 kilometers of the railway. Except Garissa, all other provincial headquarters were either on the rail line or within 40 kilometers of it and 80 percent of the population and an even larger proportion of the nation's wealth (Maina, 2013). By 1969, there were 13 urban areas served by the railway in the former White Highlands and only two (Nyeri and Kericho) not served. On the other hand, six of the eight urban areas in African lands were not served by rail. The exceptions are Kisumu, the terminus of the Kenya-Uganda Railway, and Fort Hall (Sheppard et al., 2009, pp.372-373).

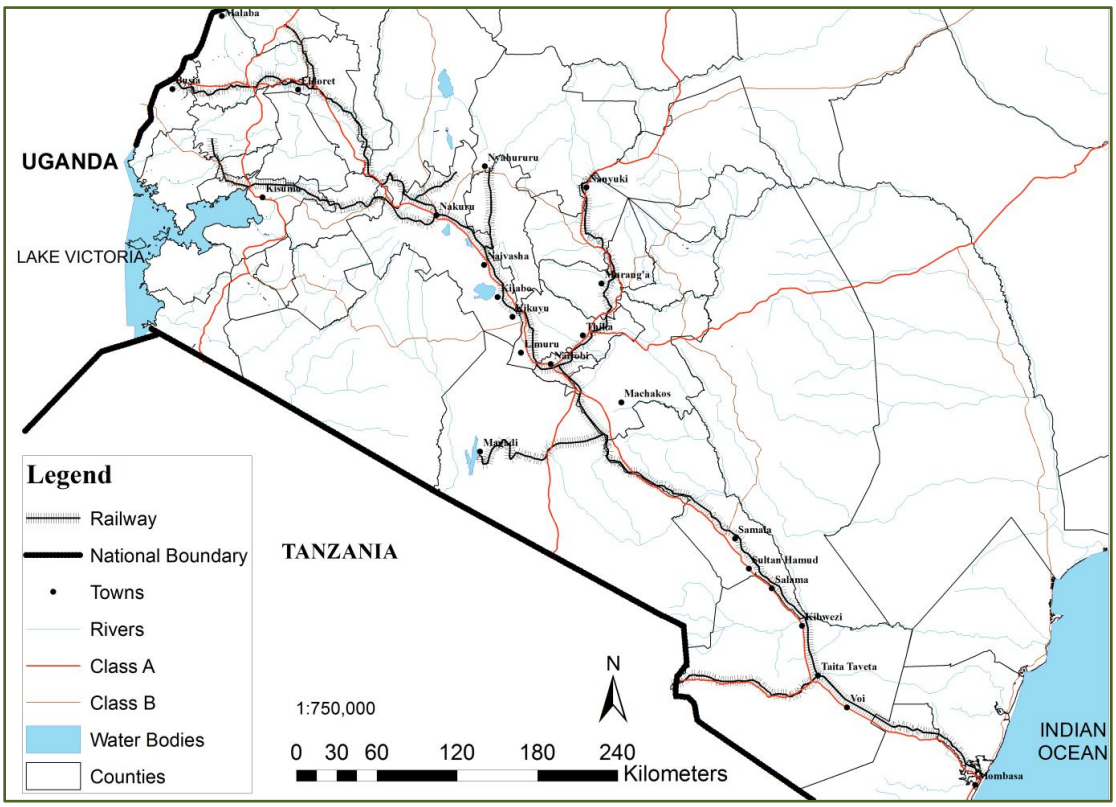


Figure 15: Kenya-Uganda Railway: an essential element of development and urbanization

Source: Author

During the entire colonial period, a series of restrictive laws, orders, ordinances, and commissions on which to govern the colony were passed and enacted. The legal restrictions on land holding had an influence on the development of indigenous settlements. Under the colonial regime, Africans had rights only to land guaranteed in the "Native reserves." The Europeans could only own land in the "Scheduled areas." Therefore, the capital investment and the commercial enterprise of the European community was mainly channeled and concentrated into the urban areas in the "Scheduled areas." The other principal attraction for commercial settlement was the colonial government administration structure that centered on a settlement. The administrative centers thus provided a network of settlements in which commerce could be located (Republic of Kenya, 1978, p.32).

From 1897, the Commissioner for the Protectorate, using the Land Acquisition Act of India (1894), appropriated all lands on the mainland located within one mile on either side of the Kenya-Uganda railway wherever finally built. Except in the Kikuyu country where Francis Hall arranged for compensation, the land was treated as worthless and not compensated (Syagga, 2006, p.294). The East African Land Order in Council of 1901 defined "Crown Land" as "All public land that which is not private." Private property included land occupied by African villages (Ochieng, 1985, p.107). In 1902, The Crown Lands Ordinance was enacted. It provided that a vacant land or any land left by a native could be sold or leased to Europeans. For the coastal belt, separate legislation, the Land Titles Ordinance, was passed in 1908. It allowed those with claims to title to present them to the Land Registration Court, stipulating that all land for which no claim or claims for a certificate of ownership shall be deemed to be "Crown land" (Syagga, 2006, p.295).

As a result of the Ordinance, in 1904 "empty" land was surveyed and alienated south of Agikuyu (Ochieng, 1985, p.107). The colonial white settlers began to move into these territories, effectively creating barriers that separated the different societies, which hitherto had interacted freely. This was the case, for example, with the Thika region between the Kikuyu and Akamba people or in the Limuru area between the Kikuyu and Maasai. Other groups such as the Maasai moved from high potential to low potential areas (Wamicha and Mwanje, 2000, p.20). In 1901, there were only thirteen European settlers, but by the end of

1904, they had some 220, 000 acres of land. Between 1905 and 1914, nearly 5 million acres of land were taken from Kenya Africans. It went on, and on, until about half the land in Kenya that was worth cultivating was in the hands of the Whites (Ochieng, 1985, p.105).

Through the Crown Lands Ordinance of 1915, all land in Kenya was declared "Crown Land" (Republic of Kenya, 1992, p.17). Land leases were increased from 99 years to 999 years (Sheppard et al., 2009, p.371). The Ordinance allowed a land registration scheme for settlers. Most importantly, "Crown Land" became land held and reserved for Africans and could thus be turned off their land at the government's pleasure (Ochieng, 1985, p.107). In 1921, the rule was adopted that all land, regardless of native tenure. The 1922 Land Tenure Commission said: "Every land to which the agricultural development of the country could be extended should be earmarked and made available for tenure alienation" (Sheppard et al., 2009, p.371). In 1924, the Land Commission set the boundaries of African reserves (Ochieng, 1985, p.107). By the Native Land Trust Ordinance of 1930, it was decreed that African Reserves be for "The use and benefit of the natives of the colony forever." Alternatively, at least until the 1932 Kakamega Gold Rush when such a law became inconvenient (Ochieng, 1985, pp.107-108). In 1932, the Carter Commission fixed the boundaries of the White Highlands (Ochieng, 1985, p.108). Land consolidation and adjudication, began in 1954-55 in Central Kenya, created a new category of land apart from the two already mentioned, Government and Trust Lands (Republic of Kenya, 1992, p.17).

The colonial government established the R.J.M. Swynnerton Commission in 1954 that came up with the Swynnerton's Report on "How to Intensify the Development of African Agriculture in Kenya." The Report, also known as the Swynnerton Plan, advocated individual land tenure and the intensification of African agriculture, especially the cash crop production. This was to be achieved through the displacement of indigenous land tenure systems, and replacing them with the system of entrenched private property rights, along the lines of the English land law (Kimani and Musungu, 2010,p.2; Ndaskoi, 2006, pp.8-9; Wamicha and Mwanje, 2000, p.21). The deliberate encouragement of European settlement and commercial agriculture in Kenya attracted a settler community that towards the end of the colonial rule in 1960 numbered around 61,000 (Arnold, 1974, p.54; Hazlewood, 1979,

p.4). Of these, only less than a thousand held more than eight million acres of the nation's best land. With the colonial government's help, they tried to resist a guerrilla campaign, known as Mau rebellion. The issue of land redistribution was high on the agenda.

Kenya's colonial land policy was segregationist. While not widely stated, the desired land tenure pattern was that which prevailed in Britain. The colonial approach claimed that all land belonged to the Crown – that is the State. Except the Maasai land, which belonged to the community, the pastoral lands were split into tribal areas whose customary usage received priority, but ownership was not conceded. Some land was allocated exclusively to whites, but so too did agricultural-based communities have "reserves" set aside for them where land tenure was mediated through knowledgeable elders.

2.10.3 Post-independence era, after 1963: challenge of rural-urban migration

During the colonial period, moving from rural areas to Nairobi required a permit. What followed, after independence, was uncontrollable rural-urban migration. Both the public and private sectors agreed to increase employment in exchange for unions agreeing to keep the then current wage levels. Although the unemployment fell, the envisaged decline in both the rural-urban migration and urban unemployment was never made (Fields, 2007). Instead, the movement continued with results including growth of the informal economic sector and settlements. In light of these events, Harris and Todaro, (1970) formulated a model to explain the paradox – the solution to urban unemployment would not be through the creation of urban employment. Todaro's migration model describes how a potential migrant takes into account wage differentials, by anticipating higher wage levels in urban areas compared to low rural wages in the agricultural sector. The increasing problems of the scattered nature of rural settlements and the unbalanced urban system formed the basis of the post-independence Kenya's national development policies (Muganzi and Obudho, 1986, p.236).

The government followed the Harris and Todaro precepts by putting into place a series of policy documents to address urban, rural, and regional development. These policy frameworks include five-year development plans, sessional papers, and policy pronouncements. Between these policy documents, there has been a myriad of policy

frameworks focused on economy-wide policies and specific sectors such as agriculture, industry, and banking, among others. The policies have generated a multiplicity of both centripetal and centrifugal socio-economic and political forces that have determined the patterns of urbanization in Kenya over the years. Kenya's urban system has evolved as a result of the economic and urban policies (Olima and Obala, 1999, p.113). The policies are associated with different time periods, objectives, philosophies, implementation strategies, macroeconomic conditions, and outcomes (Evans, 1989).

2.10.3.1 The rural development strategy

Rural development, usually, does not seek population retention alone, rather it is more directed toward improving rural welfare (Beauchemin and Schoumaker, 2005, p.1131). The rural development strategy focuses on farm and off-farm employment generation, infrastructure development, access to credit for small farmers, delivery of health-care services, educational improvement and land reform, among others. The motivation is to improve the quality of life and increasing incomes in rural areas to reduce the propensity for out-migration (Rhoda, 1983). The policies have stimulated urban growth by enhancing the attractiveness of towns and cities at the expense of rural areas. Such policies are creating "backwash urbanization" by destroying the vigor of rural areas and suffocating the cities with the burden of the human causalities this process produces (Clark, 2006, p.106-107).

2.10.3.2 Growth center strategy/approach

The choice of the growth centers leans heavily on the idea of the Central Place Theory, which posits that man tries to organize activities over geographic space in an efficient manner (Njuguna, 1986, p.10). The growth center approach involves the selection of a limited number of urban centers with resource attributes that have the potential to develop. The assumption is that once these centers receive sufficient levels of investment, they will generate the necessary “trickle-down effect” (Aryeetey-Attoh, 1997, p.216). The growth centers provide, or are likely to provide, a range of cultural, social, employment, trade, and service functions for themselves and their associated hinterlands (Kimani and Taylor, 1973,

In Njuguna, 1986, p.2). In SSA, the growth center strategy has been tried in Kenya and Ghana (Ndebele, 1979, pp.22-23).

In Kenya, the Working Committee Report of 1972 recommended, among other things, a growth center approach to urban development. It focused on the development of secondary towns with a view to easing congestion in the central cities, especially Nairobi, Mombasa, and Kisumu. Growth centers were first mentioned in the Second Development Plan (1970-74). Seven towns were selected to receive priority in infrastructure, namely Nakuru, Kisumu, Thika, Eldoret, Kakamega, Nyeri, and Embu. In the Third Plan (1974-78) two centers, Kitale and Meru were added to the list, and the expansion of the growth centers was explicitly linked to discouraging the growth of Nairobi and Mombasa. The choice of the growth centers is on individual merits rather than whether or not they cohered to form a national spatial strategy (Richardson, 1980, p.p109-111). The growth centers strategy identified four types of designated growth centers in Kenya, urban, rural, market and local centers in descending order of importance and size (Njuguna, 1986, p.2).

The idea of developing the so-called secondary towns to reduce the pressure from the CoN seems not to have worked (Otiso, 2005). It instead induced problems of deprivation and polarization by pursuing policies of selected growth; particularly in small non-key settlements and also in the favored growth settlements (Cloke, 1983, p.42). The major problem face by the 1972-2000 Nairobi Development Strategy was the lack of political goodwill, enforcement of development control, and implementation of the proposals (Opiyo, 2009, p.7). Experiences from Latin America and Africa have proved difficult to achieve success, especially because of the failure of the expected "trickle-down effects." These have been replaced by adverse "backwash effects" that have maintained or even increased inequality between urban and rural areas (Adell, 1999, p.9).

2.10.3.3 Sessional papers

There are a series of sessional policy papers which directly or indirectly have shaped urban and regional development in Kenya. The *Sessional Paper No. 10 of 1965 on African*

Socialism and its Application to Planning in Kenya was important because it spelled out the need to correct development imbalances created by earlier policies; recognize the role of urban, regional, local and rural levels of development in the national economy; and decentralize and redistribute development and planning. Based on the policy, comprehensive five-year development plans to address development needs in all sectors and regions since 1966 have since been prepared (Kimani and Musungu, 2010, p.2). This was the first national development policy that ensured the country's wealth would remain in the productive areas, which included the former White Highlands and those covered by early registration under the Swynnerton Plan (Syagga, 2006, p.302). The *Sessional Paper No. 1 of 1986 on Economic Management for Renewed Growth* policy paper observed that there had been no major review of land policy since independence, in terms of land tenure. It was the second major economic policy document in independent Kenya that reemphasized that agriculture remains the leading sector in stimulating growth and job creation. The government was, therefore, to appoint a commission in early 1986 "To review the land tenure laws and practices of the country and to recommend legislation that will bring the law into conformity with Kenya's development needs" (Republic of Kenya, 1986, p.90). No such appointment took place until *The Njonjo*[2] *Commission of Inquiry into Land Law systems* formed in 1999 and presented its Report in 2002 (Syagga, 2006, p.303). The *Sessional Paper no. 3 of 2004 on National Housing Policy* recognizes the absence of comprehensive land use management plans. It aims at facilitating the formulation of comprehensive plans in land administration for sustainable housing development in the future among others (Kimani and Musungu, 2010, p.4).The *Sessional Paper no. 3 of 2009 on National Land Policy* seeks to provide an overall framework and defines the required key measures to address critical issues of land administration, land use planning, restitution of historical injustices, environmental degradation, conflict resolution, proliferation of informal settlements, outdated legal framework, institutional framework, and information management (Kimani and Musungu, 2010, pp.3-4).

[2] Named after the former Kenya's Attorney General, Charles Njonjo, who chaired it

2.10.3.4 Strategy papers

The strategy papers are equally important in shaping Kenya's urban and regional development. The most important is the *Human Settlement Strategy for Urban and Rural Development of 1978* which was written to develop a coherent system of human settlements, and to provide a framework for the management of future urban growth and the location of physical developments in urban and rural areas. The program emphasized the service and growth of center policies. The former sought to improve the quality of life through the provision of essential services in urban centers. The latter focused on selected cities to stimulate development in the hinterland and reduce rural-urban migration into the larger cities such as Nairobi (Kimani and Musungu, 2010, p.2). *The Rural Trade and Production Centers Program of 1986* was initiated to create centers that would act as growth poles for the regions to catalyze development of their hinterlands and as well as act as dispersion mechanisms to de-concentrate development from the main towns (Kimani and Musungu, 2010, p.3). *The Economic Recovery Strategy for Wealth and Employment Creation policy of 2003* identified the policy actions necessary to spur economic recovery and rapid economic growth. These included measures to enhance revenue collection, expenditure restructuring and a monetary policy that supports the achievement of economic growth without putting price stability into jeopardy; strengthening of institutions of governance; rehabilitation and expansion of physical infrastructure in particular roads, railway and telecommunications; and investment in human capital, especially of the poor (Kimani and Musungu, 2010, p.3). The *Poverty Reduction Strategy Paper 2001-2004* reported that many communities identified landlessness as a primary underlying cause of poverty. It concluded that the inadequacy of land policies has adversely affected agricultural production (Syagga 2006, pp.303-304). The paper aimed at Kenya achieving greater progress in industrialization by 2020 and reducing poverty by half by 2015. It was used as the basis or input to the *Economic Recovery Strategy for Wealth and Employment Creation 2003-2007*.

2.10.3.5 National development plans, 1964-1983 period

The 1964-1970 Plan was the first national development plan. It embraced much of the land management practice started in 1955 by the Swynnerton Plan. In order for land to fulfill its

role in a modern economy, the Plan emphasized legal land registration, thereby becoming a marketable and taxable asset as well as suitable security (Syagga, 2006, p.304). The *Second Plan (1970-74)* Kenya committed to giving priority to rural development (Richardson, 1980, p.97). The spatial goals dominated the *Third Plan (1974-78)* and *Fourth Plan (1979-83*). The plan was to slow down the rate of Nairobi's growth and of minimizing out-migration from rural regions (Richardson, 1980, p.98). During the 1963-1978 periods of development plans, emphases were on rural development (Wamicha and Mwanje, 2000, p.23). *The 1994-1996 Plan* recognized that, in the previous development plans, land policy was treated as a mere framework over which other development activities was undertaken. No specific implementation proposals reflected in the plans, and it observed that an independent land commission was proposed since 1970s, but none was set up (Republic of Kenya, 1994, p.107). The result was poor land policy and management, which called for the establishment of such a commission to review land tenure laws and practices (Syagga, 2006, p.304).

2.10.3.6 District Focus for Rural Development

The now defunct, District Focus for Rural Development (DFRD) policy, launched in 1983, aimed at decentralizing development planning from the national to district level (Kithiia and Dowling, 2010, p.468; Chitere and Ireri, 2004, p.1; Kisare, 1999, p.6). Every district must prepare a five-year District Development Plans (DDPs) with input from local stakeholders. The plan must maintain linkage with the overall National Development Plans (NDPs), vision documents and other plans. The DDPs was never fully integrated into the NDPs as initially intended because both plans were prepared concurrently at different levels with limited consultations and liaison. The DFRD did not provide sufficient institutional nor statutory structure for the operationalization of district-based, self-sustainable development process (Kithiia and Dowling, 2010, p.468; Wamicha and Mwanje, 2000, p.39). The policy did not deter the ever increasing rural-urban migration, despite taking up enormous state resources.

2.10.3.7 Constituency Development Fund

After the failure to implement the DFRD, the State development policy shifted from the District to the Constituency. The change led to the enactment of the Constituencies

Development Fund Act of 2003 that provides for the establishment of the Constituencies Development Fund (CDF) (www.cdf.go.ke). The CDF stipulates that at least 2.5 percent of government revenue be allocated to the fund that is geared towards the alleviation of poverty and promotion of local development (ibid. 2009, p.3). According to the Kenya National Taxpayers Association, appropriations to the fund have increased from KShs. 1.3 billion ($15.3 million) in the 2003/04 fiscal year to KShs. 17 billion ($200 million) in the 2011/12 financial year (www.nta.or.ke). The implementation faces several challenges. There are repeated accusation of abuse of funds, patronage due to excessive powers of the MP, unfinished projects, lack of technical capacity, poor planning and a litany of other weaknesses that threaten to undermine the very success of the fund (TISA, 2009, p.3). Funds from the CDF are often confused with funds from other State programs expended at the constituency level. The fund is only capable of starting small projects such as building classrooms, dispensaries, drilling wells, and cattle dips. It is incapable of carrying out large projects like tarmacking roads or exploiting natural wealth. As a result, rural development remains arrested (Mwalulu, 2010, p.14). In January 2013, Parliament enacted the CDF Act 2013, hence repealing CDF Act 2003 as amended in 2007.

2.10.3.8 Local Authority Transfer Fund

The Local Authority Transfer Fund (LATF) was established in 1999 through the LATF Act No. 8 of 1998. It aims to improve service delivery and financial management of the local governments. The latter were to receive LATF in part based on their adherence to a participatory process. LATF contains 5 percent of the annual national income tax collection. At least 7 percent of the total fund is divided equally between all the local governments; 60 percent is expended according to the local governments' relative population size. The balance is shared out based on the relative urban population densities (www.tisa.or.ke).

2.10.3.9 Local Authority Service Delivery Action Plan

The closest Kenya came to decentralization is the Local Authority Service Delivery Action Plan (LASDAP) in 2002. The LASDAP is a three-year program that details social and infrastructural activities and programs (www.tisa.or.ke).To date, the goals of LASDAP have

not been met. A 2008 study by the Legal Resources Foundation set out a series of challenges facing LASDAP. First, there has been limited support because few people know about the process. Secondly, budget documents and other information are supposed to be made public, but are not. Finally, although plans developed through LASDAP, they often bear little resemblance to actual budgets or spending.

2.10.3.10 Land commissions and parliamentary committees

Kenya has had no clearly defined national land policy. The government used the Select Land Commissions to deal with the land issue. During the pre-colonial era, besides the Agricultural Commission of 1929, there was the 1932 Kenya Land Commission that recommended native lands classified under four classes: The Native Lands; Native Reserves; Native Leasehold Areas; and Native occupation in areas (Watkins, 1934, pp.207-208). Several committees were established, after independence, the most prominent being *The Njonjo Commission of Inquiry into Land Law systems* formed in 1999, and The Report published in November 2002. Among the main recommendations was a call for a National Land Policy and the National Land Commission for better management and administration of land (Syagga, 2006, p.307). There is also *The Ndung'u Commission Report,*[3] written in 2003 and Report submitted in 2004. The recommendations were not implemented because of lack of political will. In most cases, the commissions have been nothing short of a smokescreen used by politicians to appease the public. The commissions were never constitutionally established. The recommendations were, therefore, hard to achieve because there was no legal framework for them (Syagga, 2006, p.307).

2.10.3.11 Kenya Vision 2030

The Kenya Vision 2030 was developed at the expiry of the Economic Recovery Strategy for Wealth and Employment Creation policy of 2003 (Kimani and Musungu, 2010, p.3). The Vision is anchored on three fundamental social, economic and political pillars. In the social

[3]A Government of Kenya Report by the Commission of Inquiry into the Illegal/Irregular Allocation of Public Land referred throughout as "The Ndung'u Commission Report," named after a Nairobi lawyer, Paul Ndung'u, who chaired it.

pillar, Kenya is to achieve a just and cohesive society enjoying equitable social development in a clean and safe environment. In the economic pillar, Kenya maintains a sustained economic growth rate of 10 percent per annum over the next 25 years. In the political pillar, Kenya establishes an issue-based, people-oriented, results-oriented, and accountable democratic political system (Made et al., 2009; Thaxton, 2007, p.2). Despite all this, Kenya lacks a spatial framework for implementation of the Vision 2030 since it has no National Spatial Plan (Kimani and Musungu, 2010, p.3). The Vision envisages legal and administrative reforms to meet the future demands of housing and urbanization. The implementation is through a series of five-year medium term rolling plans, with the first being the 2008-2012 plan.

2.10.3.12 The National Land Policy

Land policy is a set of rules, regulations, laws and strategies adopted by governments to govern land tenure, holding, access, occupation, distribution; resource utilization; land related planning processes; and the settlement and management of land disputes and conflicts (Quan, 2008, p.5; Aribigbola, 2007, p.8). In Kenya, the goal of a uniform national system was pursued across both colonial and independence eras. It was, however, the latter period that saw the National Land Policy (henceforth NLP) come into existence.

The NLP was the culmination of extensive consultations with an array of stakeholders, beginning in 2004 and concluded on December 3, 2009, when Parliament endorsed the Sessional Paper No. 3 of 2009 on the NLP. It significantly influenced the constitutional provisions in the “Land and Environment” Chapter in Kenya's new constitution, promulgated in August 2010 (Mwathane, 2011, pp.9-10). The new constitutional and legal regime gives particular attention to land matters and has thus revolutionized the management of land in Kenya. The repealed 1963 Constitution did not treat land as an issue of legal significance lumping land together with other categories of property, notwithstanding its vital importance and sensitivity to most Kenyans. The NLP among others seeks to limit access to land by foreigners and non-citizens and recommends that a standard leasehold term for land owned by foreigners should not exceed 99 years. The age-old tradition of fragmentation of land due to population growth and demand for land thereby transforming some of the country's most

productive areas into un-economical sizes is being addressed through the new NLP. The NLP calls for all sub-divisions tied to land use sizes specified by different ecological zones. The creation of a National Lands Commission is exclusively mandated to administer all public land, which was hitherto done by the Commissioner of Lands.

The central thrust of both colonial and independent land policy has been turning the diverse cultural traditions into national land laws that enshrine private property. The policy provides a framework for dealing with issues of security of tenure, land ownership, environmental conservation, and land use and development. The long-term advantages of uniform national land tenure system are self-evident, but land is so emotive that little pressure is used to change the traditional custom. The policy options in the NLP may not be a panacea for all land problems. An analytical perspective that takes into account the poor, minorities, marginalized and historically disadvantaged is necessary for addressing the land question.

2.11 Kenya's Spatial and Development Policies and Strategies: Which Way Forward?

An increasing number of less developed countries have adopted some form of rural-urban policy, often referred to as the National Urban Development Strategy (NUDS). Increasingly, the policy instruments conventionally employed in the NUDS, such as investments in physical infrastructure and industrial location incentives, among others, are largely ineffective in altering the larger patterns of urban growth. Rather, it has been the national economic policies, which exert a far more powerful impact on rural-urban migration and the spatial distribution of growth among urban centers, which have had the most influence. Scholars have consequently urged that greater attention be paid to the spatial implications of sector policies for economic development in designing national strategies for urban development (Alonso, 1972; Richardson, 1980; Renaud, 1981; Hamer, 1985). The outcome, frequently, is that sector policies tend to be either inconsistent with national urban policies or even in direct conflict. It exacerbates the very problems that NUDS are intended to ameliorate (Evans, 1989, pp.253-254).

Kenya's spatial and development policies and strategies and the subsequent patterns are mostly a legacy of the colonialism (Richardson, 1980, p.99). After independence, the laws

and policies on land continued with the colonial approach. Private property was regarded as the best method of landholding. There was little attention to customary land holdings, yet communities continued to own land through communal arrangements. In essence, the country got a dual tenure arrangement, one recognized by the law and another existing despite the law. As a result, Kenya's development policies are highly conflicting. As much as the successive post-independence governments have urged people to "*Rudi mashambani*" (go back to rural areas), rural development has never been a government priority. The governments have treated rural development as part of political favors dished out to "well behaved" locals or rural areas of prominent people.

The mode operandi in planning focuses on "economic planning," releasing national development plans every five years, irrespective of whether the previous ones have been successfully implemented or not. For a long time, spatial planning has been treated casually and relegated to the back seat in the national development. A system harmonizing the conflicting approaches and contributing to more sustainable urban planning, growth and management, in a complex regional context, is necessary. Both economic and spatial planning have to move in tandem, with the latter acting as an anchor to support the socio-economic activities. Many of the policies tried have either been changed or abandoned altogether. Current initiatives are paying attention to local conditions, involvement of local actors and creation of flexible institutions.

Government policies to encourage or discourage urbanization can affect the character of urbanization, whether or not they influence the rate of urbanization (Turok and McGranahan, 2013, p.479). Kenya's rapid urban expansion and accelerated growth, after political independence, has mainly been the result of the post-independence development policies (CBS, 1988, pp.1-2). The policies sought to counter the growth of the CoN. Though the policies slowed the rates of urban population growth in 1980s (See Figure 16), they inadvertently encouraged the growth of the NMR.

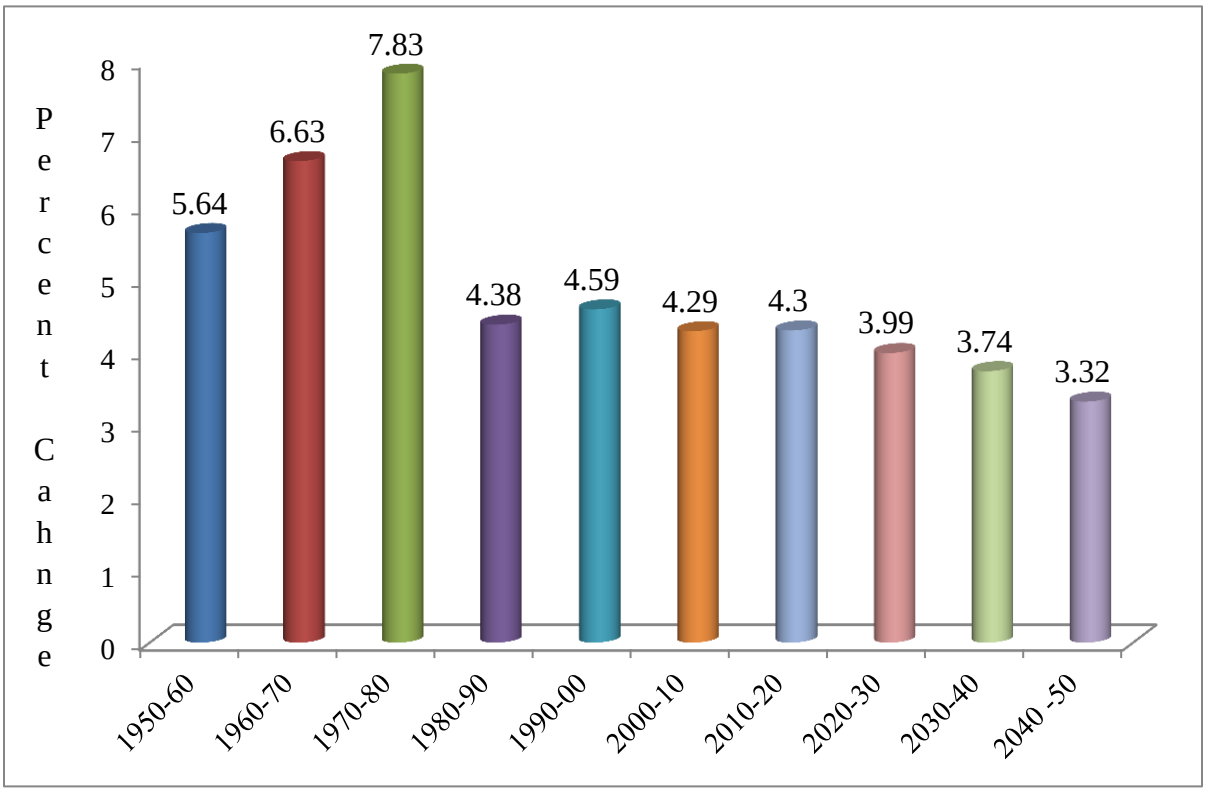


Figure 16: Kenya's decade average rate of change in urban population, 1950 – 2050

Source: UN-Habitat, (2014, p.149)

2.12 Kenya's Population Dynamics and Characteristics in the Aggregate

Whereas the concentration of the urban population into large cities occurs in all parts of the world, it is a pattern that is independent of region, length of urban history and level of economic or urban development. Not only is the urban population concentration in a small number of countries, but, in many of these countries, there is a disproportionate concentration in a limited number of cities. The population distribution among cities of different size has significant geographical implications (Clark, 2006, pp.28-30). A nation's population and geographical distribution are critical influences on the socio-economic and physical environment (Newton et al., 2001, p.13). The following sections seek to account for Kenya's contemporary peri-urbanization as a consequence of the population dynamics, and development and urbanization policies, through time and space.

2.12.1 Population density and distribution

The average population density was approximately 37 persons per km^2 in the 1989 census (Republic of Kenya, 2000, p.6). It reached 49 people per km^2 in 1999 (World Resources Institute et al., 2007, p.15). The latest estimate puts the density at 56 persons per km^2 (KNBS 2010), with only 17.5 percent of Kenya's land suitable for cultivation, population densities vary considerably. In 1989, areas with large proportions of arable land in Western, Central, and Nyanza, the density was over 230 persons per km^2. In the dry North Eastern region, the average density was only three persons per km^2 (Republic of Kenya 2000:6). According to the 1999 census, among the Kenya's eight administrative regions, Nairobi had the highest density of over 3,000 people per km^2. The next was Western (400), Nyanza (350) and Central (280) provinces. The other provinces had densities of below 40 persons per square kilometer with North Eastern region having the lowest density with eight people km^2 (Ngigi, 2007, p.32). To date, the density trend has remained relatively the same (See Figure 17).

Kenya's population distribution pattern follows the country's physical and climatic conditions. High-density areas are characterized by reliable rainy seasons, arable agricultural lands, and cool to warm and humid temperatures, which are conducive to human settlement. The dry areas with harsh climatic conditions, the settlements, are mainly characterized by low-density nomadic and pastoral lifestyle (Ngigi, 2007, p.32). There are other factors affecting population distribution as well (Republic of Kenya, 2000, p.6; 1978, p.8). An increase in altitude, in general, places the limit of average human settlement at about 2,700 meters above sea level. The soil fertility, as in the case of the agriculturally productive volcanic highlands attracts more people, thus higher densities. The presence of tsetse flies, which transmits *trypanosomiasis*, especially to cattle, limits livestock farming and thus population settlements on nearly a quarter of Kenya's total surface area. In the settled agricultural areas, population densities still bear the marks of the colonial heritage. A large part of the rural population is in areas that made the "African Reserves," thus higher densities. In contrast, areas that were once reserved almost exclusively for Europeans, the "Scheduled Areas," are still characterized by low population densities. Finally, "man-made" factors, such as settlement schemes, irrigation projects, and cities, reflect the most recent phase of Kenya's socio-economic development, and have higher population densities.

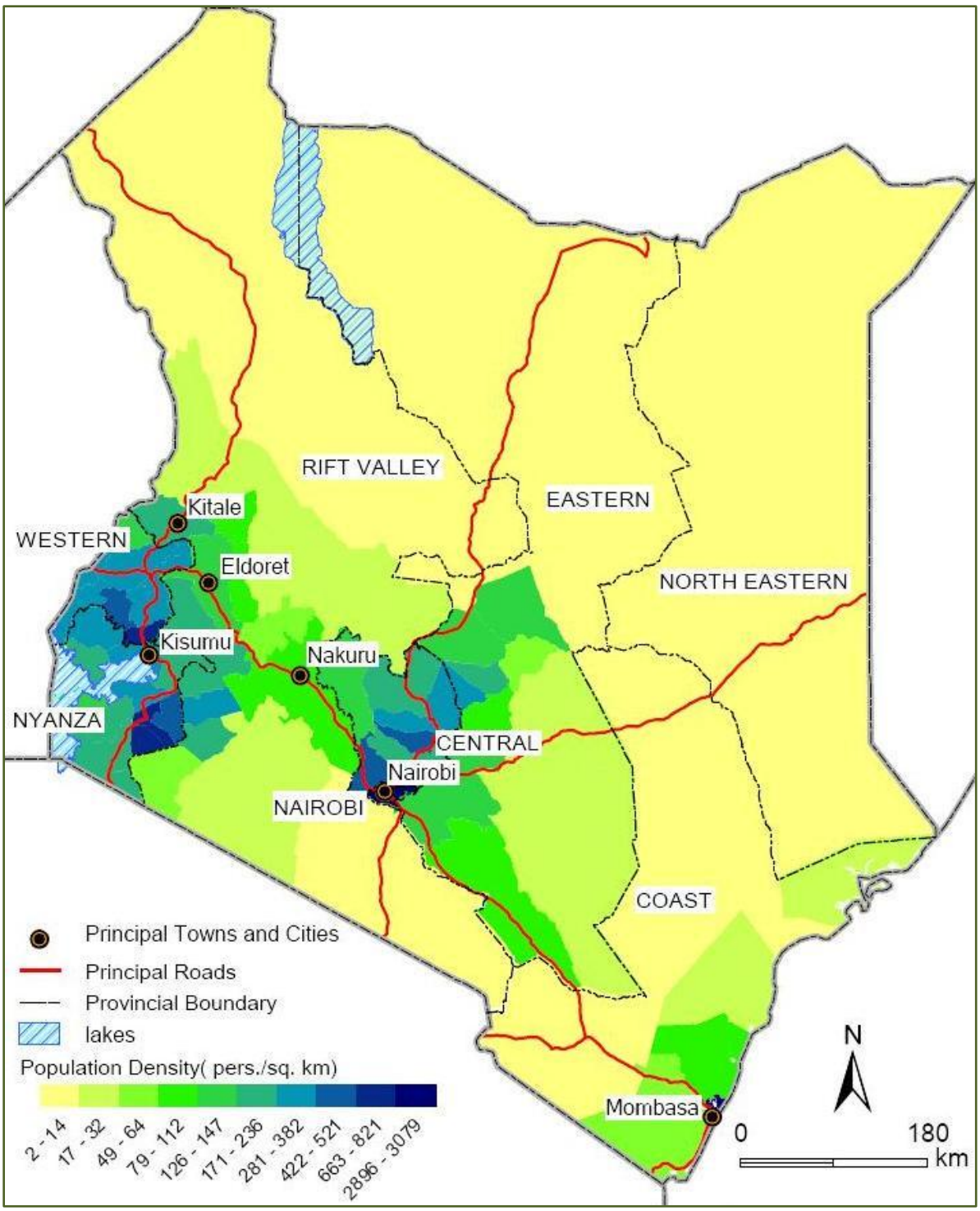


Figure 17 : Kenya: population density and spatial distribution

Source: Ngigi, (2007, p.33)

2.12.2 A time series analyses

Kenya has three clusters of demographic data (Ojakaa, 2008, p.81). The first cluster constitutes the population censuses conducted in 1948 (first conventional population census in Kenya), 1962 and 1969. At the 1948 census, ages were recorded only in broad classes. In the 1962 and 1969 censuses, detailed information was obtained from samples of the population. The main questions were on ethnicity and gender (Brass and Jolly, 1993, p.14). The second cluster includes the 1979 population census, and several demographic surveys carried out at about the same period, which is the Kenya Fertility Survey of 1977/78, and the Kenya Contraceptive Survey of 1984. The third phase represents the entry of the Kenya Demographic and Health Survey backed up by population censuses conducted decennially, the most recent of which were the 1989, 1999, and 2009 censuses. Besides the 1948 census carried out on February 25, the other censuses were carried out on August 24.

Kenya's population, at the time of independence in 1963, was 8.6 million, increased from 10.9 million in 1969 and 15.3 million in 1979. Between 1989 and 1999, the population grew from 21.4 million to 28.7 million, respectively (CBS, 2001). By the 2009 census (Figure 18), the population rose to 38.7 million, with a natural increase of 2.8 percent (KNBS, 2010). In 2011, there were 41.6 million people, nearly a million more than the 40.9 million in 2010 (UNPF, 2011). The projections indicate the population will be 51.3 million in 2025, and reach 65.2 million in 2050 (PRB, 2010, p.6) if the growth rate remains constant.

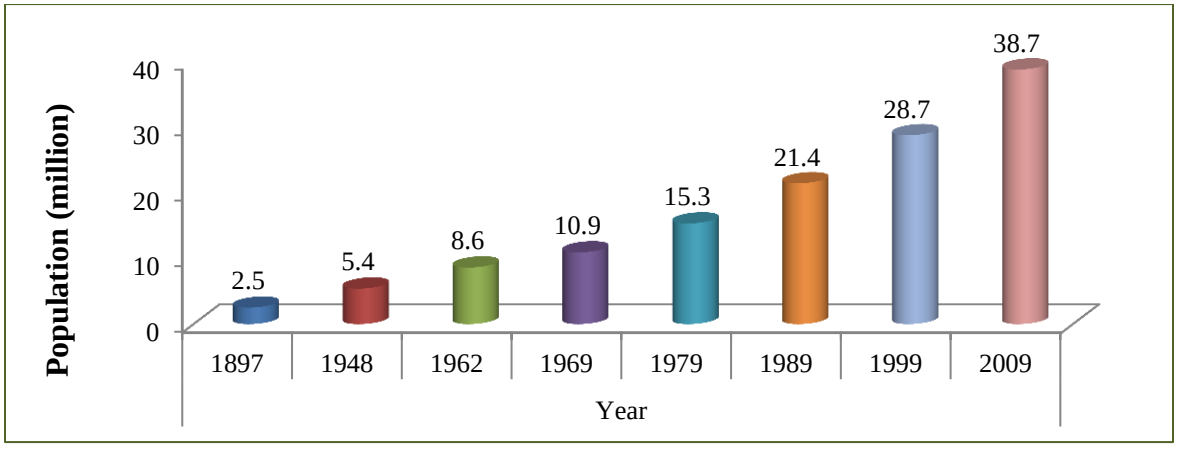


Figure 18: Kenya: population size, 1897 – 2009

Source: KNBS, (2010)

A time series analysis of census results shows that Kenya's demographic trends fall into two phases. The first phase shows natural rate of increase accelerated from 2.5 percent in 1948 to 3.0, 3.3, and 3.8 percent in 1962, 1969 and 1979, respectively (Muganzi and Obudho, 1986, p.238). By the late '70s and 80s, Kenya's fertility rate was among the highest in the world at eight children a woman. Concerted efforts by the Government and other players in reproductive health stabilized these high rates in the early 90's. The second period shows that Kenya's rate of population growth declined from 3.8 percent in 1979 to 3.3 percent in 1989 and was at 2.6 percent by 2009. The fertility rate fell to 4.6 in 2010 (KNBS 2010). Table 2 gives a snapshot of selected demographic variables in Kenya from 1948 through 2009.

Table 2: Kenya: selected demographic variables, 1948 – 2009

Variables	1948	1962	1969	1979	1989	1999	2009
Pop. (millions)	5,406	8,636	10, 943	15,327	21,397	28,700	38,600
Density (pop./km^2)	-	-	19.0	27.0	37.0	49.0	56
Percent Urban	-	-	9.9	15.1	18.1	19.4	22
CBR	c. 40	c. 48	50.0	54.0	48.0	41.3	31.93
CDR	c. 25	c. 20	17.0	14.0	11.0	11.7	7.26
Inter-censal Growth Rate	2.5	3.34	3.38	3.8	3.4	2.9	2.6
TFR	5.5	7.0	7.6	7.8	6.7	5.0	3.98
Infant mortality rate			119	88	66	77.3	59
Life expectancy at birth			50	54	60	56.6	57

Sources: Compiled from Brass and Jolly, (1993) Tables 2-2 to 2-5; CBS, (2001); CBS et al., (2004) Table 1-1; KNBS, (2010); CIA World Fact book, (2010); and Population Reference Bureau, (2010)

2.12.3 An unbalanced urban system: towards primacy

Rapid urbanization in Africa has been accompanied by urban primacy (Aryeetey-Attoh, 1997, p.201). Primacy is the relationship in size between the largest city in the country or a region, and other cities in the same country or region. The primate city is the largest city within the relationship (UN-Habitat 2009. p.30). In other words, the population of the second-largest city should be one-half the size of the largest city, and the population of the fourth-largest city should be one-quarter the size of the largest city. The assumption is that countries that closely conform to the rank-size regulation, usually, have a well-integrated system of cities (Aryeetey-Attoh, 1997, p.201). Primacy typically reflects the degree to

which a city dominates the rest of the nation, in terms not only of population, but all types of economic resources, such as jobs and investments funds (Abrahamson, 2004, p.71).

There is no single explanation for urban primacy. The origins in developing countries are more likely to be multi-causal, and associated with colonialism (Clark, 2006, pp.35-36). In SSA, most of the primate cities evolved as former colonial administrative centers. They remain as enclaves of modern development since there has been little effort to extend the polarized colonial infrastructure (Aryeetey-Attoh, 1997, p.202). Secondly, primate cities are major outlets. The products generated are dependent on export economies; being the points of linkage between interior producing regions and external overseas markets. Thirdly, it may be created from within by the collapse or decline of the rural economy; the largest city growing at the expense of the smallest. Finally, it may be a social consequence of the transition to the economy from subsistence to capitalist production (Clark, 2006, pp.35-36). Despite enormous size and challenges, they represent a significant social and economic achievement. They contribute disproportionately to national economic growth and social transformation by providing economies of scale and proximity that allow industry and commerce to flourish. They also offer locations for services and facilities that require large population thresholds and major markets to operate efficiently (Clark, 2006, p.30).

Table 3: Urbanization trends in Kenya and Nairobi, 1948 – 2009

Urban population / Year	**1948**	**1962**	**1969**	**1979**	**1989****	**1999**	**2009**
Total urban centres	17	34	48	91	139	194	215
Total urban population (000s)	285	671	1,080	2,309	3,877	9,900	12,500
% of Total Population	5.2	7.8	9.9	15.1	18.1	19.4	22.18
Nairobi population (000s)	119	227	506	828	1325	2083	3138
Nairobi Growth rate (%)	---	4.6	12.2	4.9	4.7	4.5	3.8
Nairobi as % of total urban population	41.7	33.8	47.0	35.7	34.1	38.4	25.1

Source: Compiled from Owuor and Mbatia, (2011, p.33); KNBS, (2010, pp.194–197); UN-Habitat, (2007, p.1); and CBS, (1999). **The data is controversial because it is thought was underestimated in regions that were not politically friendly to the government of the day.

Urbanization as an element of Kenya's development is comparatively recent. The number of towns is relatively few, and most are small in size compared with urban centers in many other parts of the world (Republic of Kenya, 1978, p.34). The population dynamics can be visualized by looking at the number of urban centers in different size groups over space and time. An urban center is a settlement with a minimum population of 2000 people (UN-Habitat, 2007, p.1). At the date of the first Kenya population census in 1948, there were 17 towns. By 1962 population census, the number of towns had doubled to 34. The number increased to 48 in 1969, 91 in 1979, 139 in 1989, and 194 in 1999 to 215 in 2009 (KNBS, 2010, pp.194–197; UN-Habitat, 2007, p.1; CBS, 2001; Malombe, 1997; Muganzi and Obudho, 1986, pp.238-239). Table 3 shows the numbers of urban centers in Kenya the proportion of Nairobi's population from 1948 through 2009.

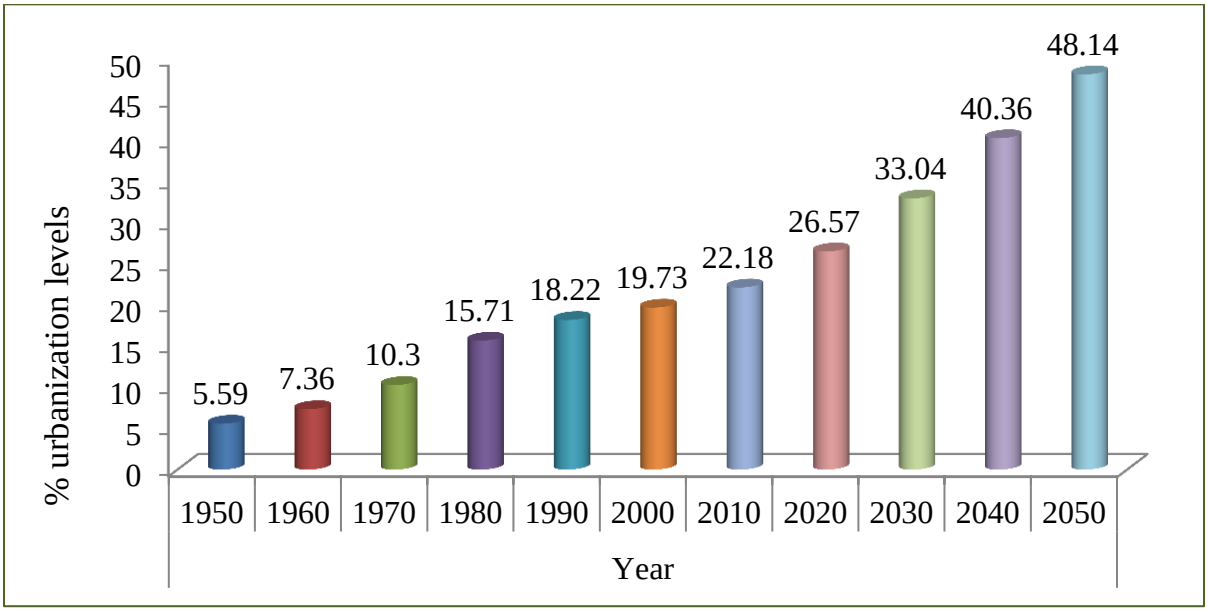


Figure 19: Decadal urbanization levels in Kenya, 1950 – 2050

Sources: United Nation, (2010)

In 1948, during Kenya's first population census, the urban population was proportionately small (5.2 percent of the total). It was also disproportionately concentrated in Nairobi and Mombasa (83 percent of the total urban population) (Muganzi and Obudho, 1986, p.235). The urban population increased from 7.36 percent in 1960, reaching 22.18 percent in 2009 (KNBS, 2010). By 2050, the urban population is projected will be almost 50 percent, in line

with global trends (United Nations, 2010) (See Figure 19). The five largest cities, Nairobi, Mombasa, Kisumu, Nakuru, and Eldoret, account for a third of the urban population (Otiso and Owusu, 2008, p.147; Koti, 2000, p.11). While regions display less disparity in urban population distributions, there is dominance of a few cities. Mombasa city is the dominant urban center in the Coast region with 74 percent of urban population (Ngigi, 2007, p.35). Nairobi still harbors the largest share of the country's urban population, as the total urban population of Kenya continues to grow. Between 1948 and 2009, Nairobi's share of the country's urban population increased from 5.2 to 32.4 percent. In 2009, the city had an estimated 3.1 million inhabitants (Pravettoni, 2011).

CHAPTER THREE

RESEARCH METHODOLOGY: AN INTEGRATIVE APPROACH FOR URBAN SPATIAL STRUCTURES AND DEVELOPMENT

"To achieve great things, two things are needed; a plan, and not quite enough time."
~ Leonard Bernstein

3.0 Introduction

This chapter elaborates on the research set-up and strategy, units of research and analysis, and the methods of data collection. It endeavors to give a picture of the research methods used in the study. The interdisciplinary nature of urbanization led to information gathered from different sources and disciplines and use of a different methodology to tackle each of the research questions. The approach is important because primary data were obtained through qualitative methods while quantifiable data were from mainly secondary sources (Owusu, 2005, p.48). More importantly, the chapter details the context within which data gathering took place and some factors that influenced the structuring of the research findings.

3.1 Integrated Approach to Peri-Urban Studies

Studying the urban world is an ambitious research agenda. No one discipline can claim to monopolize urban studies since urban questions and problems cut across many of the traditional divisions of academic inquiry. Equally, no single methodology predominates in urban analysis, for the interdisciplinary nature and complexities of urban issues necessitate the adoption of a broad variety of methods. Progress in urban research requires the fusion of insights derived from a number of subject areas, as each approaches the study of urban settlements in a distinctive way. It is not surprising to find the task of analysis and explanation occupies an army of specialists drawn from a broad range of fields in the social and environmental sciences (Clark, 2006, p.5).

There is yet no consensus on the causes of urban development because the factors that drive and shape the development are complexly interwoven (Whiteland and Morton, 2004). Therefore, there is no proven methodology to measure urban expansion (Delgado et al., 2004, p.550). Urban development is a result of three socio-spatial processes: the economic

changes, the social processes, and the integrated urban processes that arise from the construction of the necessary material supports to carry out the first two (Delgado et al., 2004, p.550). Urban development can be ascribed to different locations, social and economic conditions, geophysical characteristics and local policy factors (Liu et al. 2005:453). Urban expansion is a result of the interaction three broad phenomena. The physical constraints of geography and environment, the demand for land by households and firms, and policy constraints governing land use and spatial interactions in the city (Angel et al. 2005:76). It is, therefore, important to incorporate each and evaluate its relative contribution. The research methodology involved three progressive phases that, although they proceed mostly in sequence, feedback into one another.

3.2 First Phase: Literature Review and Content Analysis

3.2.1 Archival research

The initial stage involved the review and analysis of existing and available literature highlighting the strengths and gaps in the research. Literature research was done to gain a clearer perspective and deeper understanding of the research problem presented in Chapter One. It also informed the preparation of field research especially by identifying key informants, responsible for various aspects of policy and planning. Whereas this was the first phase, the review was continuous from the time of writing the research proposal through data analysis and the writing of the dissertation. Most of the literature review was done through archival research and content analysis. The two were not used exclusively, nor were they used independently of one other. Instead, they were used simultaneously and collectively to address the research questions (Koti, 2004, p.102).

The archival research formed the most valuable toolkit for reconstructing the context and complete retrospective record of events and policy framework that has produced Kenya's urban landscapes. The primary sources are textbooks, articles, conference proceedings and Journals from the University of Nairobi’s Jomo Kenyatta Memorial Library, the University of Idaho Library, the Elon University Belk Library, and the Mount Holyoke College Library, Information, and Technology Services (LITS). In addition, other sources included technical,

consultancy, and state statistics and reports, and land policies and Acts. These were available from government departments, local governments, Kenya National Archives, and the UN-Habitat, Gigiri, Kenya. Substantial data was available from the archives of the Kenya's daily and weekly newspapers, namely *Daily Nation*, *Business Daily*, *The EastAfrican*, and *The Standard.* The sources complemented published studies and Internet sources and provided both the quantitative data and theoretical framework within which to examine the research problem (Olima and K'Akumu, 1999). The information was modified to analyzable data for the purposes of the study. Due acknowledgments made where the secondary sources used.

3.2.2 Content analysis

The dissertation employs content analysis to develop linkages emerging from the qualitative data collected from the field work with the archival research for a better and deeper understanding of peri-urbanization patterns and processes. Content analysis involves the systematic reexamination of all texts used to address questions of the researcher's interest (Koti, 2004, p.101). In this case, a lot of records, publications, maps, newspaper and journal articles, and magazines were reviewed and analyzed.

3.3 Second Phase: In-Situ Research

The phase involved fieldwork and included three phases. The first were visits to the various institutions dealing with land use and management. Secondly were visits in different PUAs based on the three predominant NMR Commons, the Southern Metro (The Maasai land), Eastern Metro (The Ukambani area) and Northern Metro (The Kikuyu land). Thirdly were visits to the 15 local governments in the NMR. The visits involved direct observation and surveys, and meeting the key stakeholders within the local governments and officials of the central government. The field visits, administering of the questionnaires and interview guides, focus group and informal discussions, and participant observation were conducted in the summer months of 2011, 2012 and 2013. The costs of conducting a field study while undertaking teaching responsibilities were prohibitive. Prior experience working with the Ministry of Lands and Settlements enhanced the field research, and made it easy to access the necessary data, and subsequently to write the dissertation.

3.3.1 Qualitative data and analysis

The qualitative style “constructs social reality and cultural meaning; focus on interactive processes and events; is authentic; the values are present and explicit; is situationally constrained; focus on a few cases/subjects; analyses themes; and the researcher is involved" (Newman, 1997, p.14). The choice of the qualitative methods is necessitated by the nature of the research questions, which seek to examine underlying social structures and processes (Dwyer and Limb, 2001 cited in Koti 2004, pp.89-90).

3.3.1.1 Individual Interviews

There are three types of interviewing: structured, unstructured, and semi-structured. Structured interviewing tends to follow a predetermined and standardized list of carefully worded questions, which are asked in the same way and the same order for all informants (Koti, 2004, p.93). Unstructured interviewing, also known as interview guides, involves a general plan that the interviewer uses to ask questions which in turn leads the respondent to volunteer information. Semi-structured interviewing has some degree of predetermined order but still ensures flexibility in the way issues are addressed by the informant (Dunn, 2000 cited in Koti, 2004, p.93). The questions asked in semi-structured interviews tend to be content focused and deal with issues or areas the researcher sees as relevant to the research question. The interviewing, according to Dunn (2000) “…is organized around ordered but flexible questioning” (Dunn, 2000, p.61 cited in Koti, 2004, p.93). Qualitative data were collected and analyzed through the Interview Guide for Key Informants (See Appendix C) and Interview/Focus Group Discussion and Transcript (See Appendix E and F), respectively.

The use of questionnaires and interview schedules provides the most effective way of understanding of complex and dynamic outcomes (Payne et al., 2008, p. V). The design drew from the previous studies and depended on the availability of data, and where appropriate information did not exist, key informant interviews were used. The interviews focused on views, opinions and experiences regarding the possible effect of existing land tenure on peri-urban land development. Interviews were recorded using field notes while direct field observations recorded using a digital camera. The synthesizing process of the qualitative data

used content analysis to derive patterns and themes from the interview responses. Interview responses were analyzed through exploration and assessment of the different issues that emerged, indicating the most important topics addressed.

3.3.1.2 Participant Observation

Participant observation is relevant to this study to establish the current institutional structures, actors and agents in spatial decision-making framework in the peri-urban area. Furthermore, the continued population movement into the PUA has led to social and spatial differentiation, producing a complex social environment. To document these aspects requires experience in the group (Koti, 2004, pp.99-100).

3.3.2 Quantitative data and analysis

The quantitative style of research and analysis "measures objective facts; focus on variables; reliability is key; is value free; is independent of context; focuses on many cases/subjects; analyses statistics and the researcher is detached" (Newman, 1997, p.14). The Kenya's demographic data that is available since 1948 is hailed as reasonably reliable compared to other SSA countries (Brass and Jolly, 1993; Henin et al., 1982). The bulk of the study's statistical information was from the KNBS, which provided the population and housing census, economic survey, and the statistical abstracts. Other sources included: Global Statistics (www.geohive.com); Population Statistics (www.populstat.info); City Population (www.citypopulation.de); and The UN PRB. The sources have the benefits of ready accessibility, constant updates and ease of use (Short and Pinet-Peralta, 2009, p.1249). The analysis of the demographic and population characteristics is through statistical analysis of the data set. The variables included consist of one dependent variable, three control variables, and a set of three groups of explanatory variables: the patterns of growth, spatial characteristics, and demographic characteristics. The analysis started with a descriptive analysis, followed by a correlation analysis. It finished with the production of linear regressions to estimate the significance and magnitude of the relationship between the different explanatory variables and the patterns of growth.

3.3.3 Triangulation of qualitative and quantitative data

The study used socio-cultural, economic, political, and demographic data that are primarily qualitative to evaluate, reinforce, and/or interpret quantitative data. The data was gathered and the research questions explained through quantitative and qualitative techniques, followed by a triangulation of both methods. The process not only uses independent qualitative and quantitative methods to measure different things, but also to offset the weaknesses inherent to each process (Creswell, 2003). The aim is to confirm, compare, corroborate, and cross-validate quantitative results with qualitative findings (Creswell, 2003; Creswell and Clark, 2007, p.65). The quantitative and qualitative findings are integrated to better understand the functional structural and cultural configurations in the PUAs. The two data sets were analyzed separately and integrated using multiple sources of evidence such as archival searches, written documents, and interviews.

3.4 Third Phase: Evaluation and Analysis

The final stage was the analysis and interpretation of demographic data, geophysical variables, and policies on urban land use data gathered from archival work and field interviews. The data collected was analyzed and evaluated to compose a consistent crossing with the theoretical framework developed previously (Barbizan, 2011, p.10). The phase involved selection of key institutions and case studies for a deeper and detailed analysis.

3.4.1 Institutional selection and analysis

The institutions, their making and impacts are highly complex processes. A range of historical factors, hidden agendas, personal politics, chance events and international influences, among other factors, often combine to make any particular institutional issue complex to analyze. There are no simple rules, models, or methods that provide a universal guide in analyzing institutions. It is, therefore, the researcher's discretion to identify various ways to use and combine to meet the particular study goal(s) (Pasteur, 2001, p.5). Shankland, (2000, p.17) however gives four considerations to take into account: (a). Start from the existing ones; (b). Policy formulation and implementation; (c). Policy disaggregation; and (d). Take into account the sectorial nature of most policies.

The outcome of policy or institutional analysis may illustrate the need for interventions, highlight and address critical policy areas, or policy linkages previously underdeveloped. It could also improve policy – making processes, develop mechanisms for the policy implementation, or strengthen organizational capacity for policy implementation (Pasteur, 2001, p.1). To achieve this, three elements of institutions that can be used are formal, informal, or social institutions, and levels of compliance or enforcement (North, 1990, p.3). I used these criteria and the results presented in Chapter Four section 4.4 the institutional structures of land use management in Kenya: the making and unmaking of institutions.

3.4.2 Case study selection and analysis

The NMR is complex, large, and has 23 urban centers and about 620 rural settlements dispersed throughout the region. Due to this, case studies on select PUCs of changing patterns of peri-urban land access and use were conducted. The analysis is presented in Chapter Four section 4.3.4. The survey and analysis of the discussion with key informants used the Interview Guide for Key Informants (See Appendix C); focus group discussions used the Check List of Items for Focus Group Discussions (See Appendix E); and Interview/Focus Group Discussion Transcript (See Appendix F) were conducted based on specific sectors.

3.5 Remote Sensing and Geographic Information Systems: Data and Analysis

Mapping urban spatial patterns provides a "picture" of where the growth is occurring and helps identify the environmental and natural resources threatened by such growth (Jensen, 2006; Robbins, 2004, pp. 92-93; Sudhira et al., 2004, p.30). The impacts of urbanization on the landscape are used to model urban growth and land use change under alternative growth scenarios (Biswas and Chanda, 2013, p.1). The physical expressions and patterns of urban growth can be detected, mapped and analyzed using RS data and GIS techniques (Bhatta, 2012, p.14; Jat et al., 2007; Sudhira et al., 2004; Yang and Lo, 2003). The analysis of urban growth from RS data, as a pattern and process, shows how the urban landscape is changing through time. It also shows any discrepancy in the observed and expected growth and any spatial or temporal disparity in growth (Bhatta, 2012, p.14).

3.5.1 Remote Sensing

Land cover and land use, though interrelated, are not identical. Land cover observation does not automatically mean land use. Land cover can stand alone, but land use, in general, cannot and must be inferred from land cover and patterns. Since land use depends largely on the land characteristics, there is a close relationship between land-use and cover. Land use can be observed on the surface of the earth whereas land cover relates to the manner in which the biophysical assets are used by humans (Jansen and Di Gregorio, 2003, p.131-135).

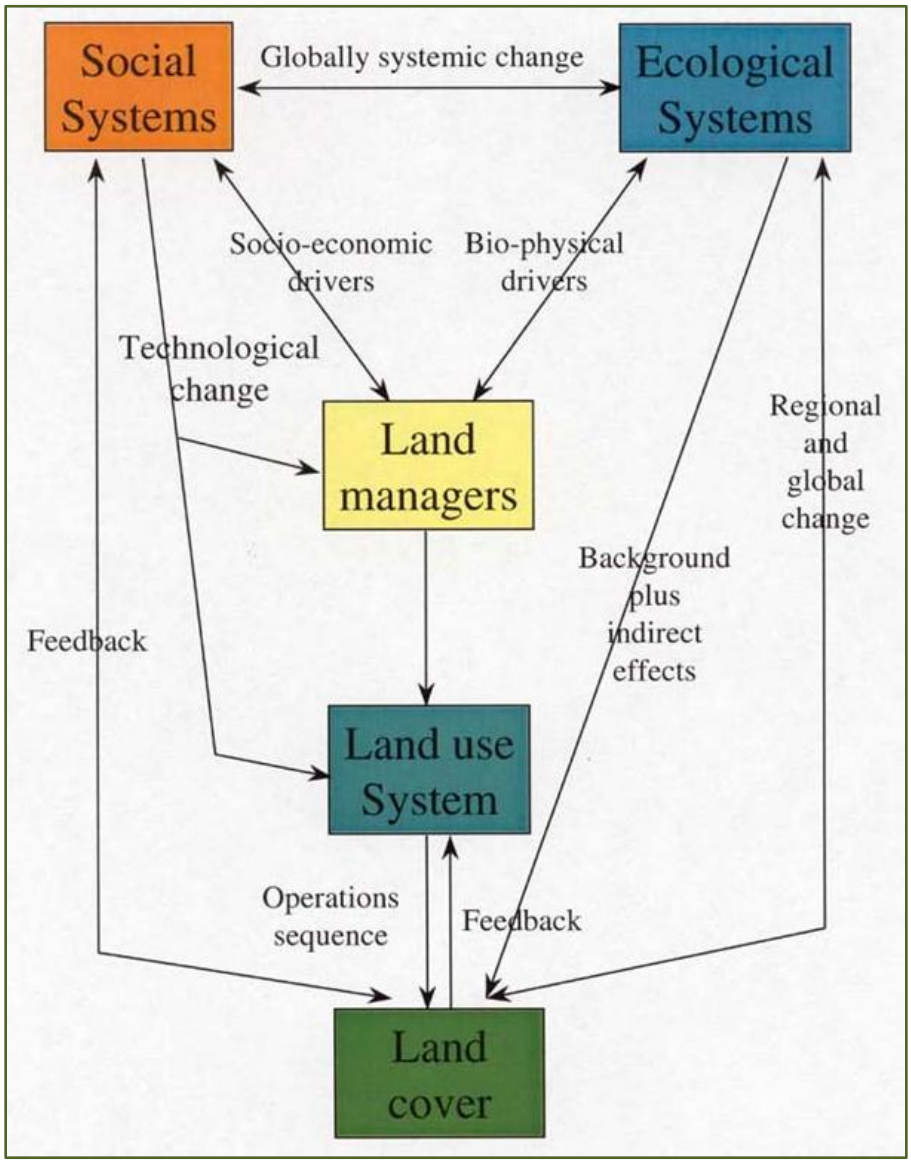


Figure 20: The relationship among various drivers of land use cover system

Source: Turner et al., (1995, p.35)

The twin categories of drivers of LULC change are the biophysical and the socio-economic drivers. The former include characteristics and processes of the natural environment; while the latter comprise demographic, social, economic, political and institutional factors and processes. The biophysical drivers do not usually cause land use change directly. They mostly create land-cover change that, in turn, influences the land use decisions of landowners/managers. The land use changes result in land cover changes, which in turn feedback to land use decisions, causing new rounds of land use change (Turner et al., 1995 cited in Briassoulis, 2000). The relationship is shown in Figure 20.

3.5.2 Geographic Information Systems

The study used spatial interpolation and overlay analysis. Spatial interpolation was used to convert data from point observations to contiguous areas so as to enable spatial pattern comparison with other spatial entities (Fotheringham et al., 2004; Clarke, 2001). The spatial analysis comparing the historical satellite imagery with the new ones was used to determine any subtle, dramatic, or particularly significant changes in the land use/change cover over space and time (Jensen, 2006, p.130). The knowledge about the temporal and spatial dynamics of phenomena allows the development of predictive models. Overlay analysis or spatial join is useful in integrating spatial data with attribute data (information about each map feature).The administrative boundaries (GIS) data layers were acquired and used for scene clipping and landmark identification.

Georeferencing of the GIS data, reconciling ancillary local governments data with digital GIS data, and ground trothing using aerial photographs and satellite images are all part of the GIS activities. The initial GIS work was marked by scanning of topographic map sheets, georeferencing the raster data and vectorizing this data to extract the required layers of information (Koti, 2004, p.92).The GIS is used to analyze Landsat imagery data for time series change detection in land-use, -cover, and -change in decadal steps (Figures 22 in Chapter Four). To analyze this information, GIS overlays, buffering various kinds of data, as well as distance and area calculations are some of the GIS activities (ibid. p. 92).

3.6 Limitations of my Study

There was the lack of enough financial resources to facilitate the collection of primary data - most of which was obtained while teaching – and the challenges were enormous and second nature. Secondary sources formed a substantial amount of data. The sources are not subordinate to the primary sources. The study used Scott's four criteria to assess the quality (in Mohammed 2004:3-4): to check whether the information gathered is genuine and of the unquestionable origin; to verify whether the information is credible and free from error and distortion, to find out whether the data source and information is representative; and to check whether the meaning of the evidence collected is clear and comprehensible. My knowledge of the study area, having lived there while studying and working, most of the issues addressed were more or less apparent.

Kenya's data collection mechanism focuses on the national level statistics; sometimes this data has not been localized. The country lags behind in collecting and distributing data on the leading indicators. For example, agricultural census that would provide extensive data on land size and land holding is nonexistent. The other challenge is the high cost of collecting data. Despite the challenges, even where available, lack of coordination among various government agencies often means data released to the public is scant. The vulnerability of the PUA is that it encompasses multiple, sometimes overlapping administrative jurisdictions each with different structures, laws, and regulations, which significantly influenced data collection, analysis, and the interpretation processes. The required information was not available, and where available, reliability was questionable.

One of the most challenging methodological issues in assessing the impacts of a particular policy is the question of attribution (Payne et al., 2008, p. V). In this case, what are the extents to which changes in the PUAs attributed to particular policy or policies?

CHAPTER FOUR

THE SPATIALITY OF PERI-URBAN DEVELOPMENT IN THE NAIROBI METROPOLITAN REGION: LAND USE AND COVER CHANGE, GLOBALIZATION, ECONOMIES OF AGGLOMERATION, AND THE CHANGING POLITICAL ECONOMY

"We live in a moment of history where change is so speeded up that we begin to see the present only when it is already disappearing." ~ R.D. Laing

4.0 Introduction

Does land tenure system affect the nature and rate of peri-urban development? The chapter looks at the role and agents of existing land tenure systems on peri-urban development. A retrospective analysis LULC change in NMR during the1970–2010 period is first followed by the analyses of local realities of select case studies of changing land access and use. A discussion of Kenya's post-independence formal land use planning and management systems, and the challenges they face, follows. The discussion seeks to account for how the lacuna in the systems has led to the informalization of land use, and how the authorities have reacted to it. The next section looks at the determinants of land use. Among these are the role of the highways, middle class, laissez faire and commodification of land. The last part provides a critical analysis of the gaps and weaknesses in the current and proposed policy, institutional, and legal systems.

4.1 Nairobi Metropolitan Region: Retrospective Land Use and Cover Change, 1970–2010

The current research primary goal is not modeling urban growth per see, but rather focuses on the analysis of urban growth from RS data. Therefore, the documentation of urban growth using RS data is limited. The study uses RS to analyze the spatial component of urban development through tracking of built-up areas in the NMR. The reason is to gain a better perspective of the spatial make-up of urban expansion (Martin et al., 2007, p.148). The goal is to map the LULC change and explain the changes in the NMR. By using multi-temporal remotely sensed data, some "historically" targeted at 1970 and "recently" targeted at the year 2010. An independent process is used to quantify the changes and dynamics in six broad land-cover classes (discussed in more detail later) from 1970 to 2010: forests, cropland,

savannah grassland, settlements, wetlands, and other lands. The integration of RS and GIS provides more effective functional, spatial, and temporal information potential that cannot be achieved by each alone (Hung and Yasuoka, 2000, p.2).

4.1.1 Datasets and image pre-processing

Due to cloud cover, images were not used for all the target dates of 1970 and 2010. The constant cloud cover is a major problem hindering the use of RS data in tropical regions. Clouds increase land cover types that have high spectral reflectance. They also reduce the land cover classes on the image. Clouds need to be eliminated from the image to improve the misclassification of land cover classes. Close inspection of the pixel values of the different bands showed that band four could be used to differentiate between cloud and other land cover types adequately (Omo-Irabo and Odunyemi, 2007, p.3).

Table 4: The multi-temporal remote sensing imageries used

Spacecraft ID	Sensor ID	Resolution	Scene ID/Path & Row	Acquisition date	Years
LANDSAT 2	MSS	60 m	Path 180 Row 061	Jan. 24, 1976	1970
LANDSAT 5	TM	30 m	Path 168 Row 061	Dec.17, 1984	1980
LANDSAT 5	TM	30 m	Path 168 Row 061	Feb. 25, 1987	1990
LANDSAT 7	ETM	30 m	Path 168 Row 061	Feb. 21, 2000	2000
ALOS	AVNIR-2	10 m	ALAV2A271063620	Feb. 25, 2011	2010

Source: Author

Various satellite imageries were used to provide temporal LULC information for Nairobi and environs. The imageries obtained were MSS (1970), TM (1980, 1990), ETM (2000), and AVNIR-2 (2010). Since ALOS AVNIR-2 have a smaller swath width of 70km (at Nadir) than the other satellite imageries, it was, therefore, necessary to combine/mosaic many images (Table 4). The images selected were for the months of January and February. The months that have many days cloud-free as possible and correspond as closely as possible to the decadal Kenyan censuses, 1969, 1979, 1989, 1999 and 2009. The images obtained from the Regional Centre for Mapping of Resources for Development (www.rcmrd.org) for the scene Path 180 Row 061 and Path 168 Row 061 for Landsat MSS and Landsat TMs sensors, respectively. The other images were georeferenced and projected to the Universal

Transverse Mercator (UTM) projection system (zone 37S). This was done using the rectified image of the year 2010, and corresponding to the world geodetic system (Arc 1960) datum using Arc Map (ArcGIS 10) (Njoroge et al., 2011, p.874). The ancillary data such as land use maps were used to improve the post classification procedures (Hung and Yasuoka, 2000, p.5). Both ArcGIS (ESRI) 9.2 and ERDAS Imagine 9.2 software were used to derive LULC classification in a multi-temporal approach.

4.1.2 Land use and the cover change classification system

Before the extraction of any thematic information from RS data, a land cover classification system is developed to obtain the classes of interest (Omo-Irabo and Odunyemi, 2007, p.3). Many authors (Yang and Lo, 2003; Mundia and Aniya, 2006) have conducted LULC classification using unsupervised ISODATA classification algorithm (Omo-Irabo and Odunyemi, 2007, p.1). The classification performed producing 16 classes that were interpreted and grouped into "paved" and "non-paved" ground cover types. Although the classification was capable of separating many land cover types, given the objectives of the study, the analysis consolidated the 16 classes into six land-cover categories. These are forests, cropland, grassland, settlements, wetlands, and other lands (Table 5). The variety in vegetation makes it difficult to find a suitable method for capturing all land cover changes in an unbiased way (Brink and Eva, 2009, p.502).

Table 5: Land use and cover classification scheme

Land use/cover types	Description
Settlements	Residential and commercial services, industrial, transportation and communication utilities
Grasslands	Dense and moderate grass, low-lying scrub and bushes
Croplands	Crop fields, fallow lands, and vegetable lands
Forests	Deciduous and conifer forest, mixed forests, shrubs and others
Wetlands	Rivers, lakes, dams, ponds and reservoirs, marshy lands, swamps
Other lands	Rocky outcrops, exposed soils and lands, quarries, and areas of active excavation

Source: Author

The aggregation into more general land-use categories significantly increased the accuracy of image classification, making classified images more consistent with existing land use plans.

Dry season scenes are used since they have fewer cloud covers permitting a better distinction between forested, agricultural and urban or built-up land covers (Hung and Yasuoka, 2000, p.5). Spatial analysis shows the number of contiguous PUAs, among others, captured and analyzed to show any subtle, significant or dramatic LULC change. The false color composite, consisting of the electromagnetic band combination of 4-3-2, was used for each year to determine the class groups (Martin et al., 2007, pp.151-152). Accuracy check was done using Google Earth while the 2010 file used as a master classification against the Landsat images of 2000, 1990, 1980, and 1970. The resulting LULC types were based upon The Africover Project 2002 that developed the initial and final legends for Kenya. In the study area, only a subset of the classes in the country legend occurs (Jansen and Di Gregorio, 2003, p.133). The method was determined by the spatial resolution of the satellite imagery and the classification system used (Jansen and Di Gregorio, 2003, p.131). Moreover, this was corroborated by my knowledge of the local area, fieldwork, and interviews.

Table 6: Transitional matrix of land use and cover conversion, 1970 – 2010

Land cover classes / Year	1970	1980	1990	2000	2010
			Hectares		
Croplands	50784.74	112243.82	176857.35	162948.34	190005.43
Forestlands	19054.55	16542.68	18057.98	20876.76	20221.93
Grasslands	354552.84	294862.73	225920.67	210264.58	154635.8
Settlements	10230.77	10719.35	13105.08	37438.12	67368.19
Wetlands	314.33	568.65	530.68	1513.81	1486.05
Other lands	-----	-----	465.47	1895.62	1219.83
TOTAL	434937.23	434937.23	434937.23	434937.23	434937.23

Source: Author

Preliminary examination of the classified images revealed a broad range of spectral confusion among LULC types. Spectral confusion arises where several land cover types have similar spectral response, posing a major problem of classification inaccuracy (Yang and Lo, 2003). The confusion is more discernable in the MSS images than in TM and ETM+ and also in urban/built-up and transitional areas than in other LULC types (Mundia and Aniya, 2006, p.102). A close inspection of the classes, with the aid of vegetation and land use maps, and local knowledge is executed to highlight areas of misclassified land cover (Omo-Irabo and Odunyemi, 2007, p.3). Once recoded, a post-classification matrix process is used to produce

final maps merging and comparing the recoded images, allowing for analysis of LULC changes over the 40-year period (See Table 6).

4.1.3 Analysis of land use and cover changes in the NMR

Using the formula for calculating LULC shown in Figure 21, there is an unprecedented change in the NMR during the 40 years (1970–2010) analyses period (Tables 7 and 8). In 1970, the area occupied by grasslands was the most dominant, taking 81.5 percent of total LULC while the area under settlements was a mere 2.35 percent. By 2010, the area under settlements had increased to 15.49 percent. The built-up area increased significantly after 1990; a direct bearing on the Kenya's first multiparty general elections held on 29 December 1992. Politicians, in search of voters, forcefully settled "voters" on both unused public and vacant private lands. Ruai area, for example, has some of Nairobi's most convoluted land divisions with many cases of double allocations, and squatter-dumping by politicians into private properties. The increase in the built-up area takes place at the expense of grasslands, which reduced by 56.39 percent, between 1970 and 2010; most of the natural landscapes around Nairobi are a mosaic of open grassland. The built-up and croplands increased substantially in the area by 558.49 per cent and 274.14 per cent, respectively.

$$\text{Percentage LULC} = \left(\frac{\text{Area}_{\text{final year}} - \text{Area}_{\text{initial year}}}{\text{Area}_{\text{initial year}}} \right) \times 100$$

Figure 21: Formula for calculating Land Use and Cover Change

The considerable increase in croplands is because they go hand in hand with settlements. In areas previously unoccupied, people began growing crops. The wooded areas decreased between the year 1970 and 1980 and then increased significantly from 1990 to 2000. The increase attributed to increased efforts to plant more trees and to protect the green spaces. More settlements and subsequent human activities led to a rise in previously existing LULC. For example, earlier covered lands and areas got exposed and quarries and areas of active excavation came into being.

Table 7: Percent land use and cover classes, 1970 – 2010

Land use/cover / Year	1970	1980	1990	2000	2010
	Percent land use/cover classes				
Croplands	11.68%	25.81%	40.66%	37.46%	43.69%
Forestlands	4.38%	3.803%	4.15%	4.80%	4.65%
Grasslands	81.52%	67.79%	51.94%	48.34%	35.55%
Settlements	2.35%	2.46%	3.01%	8.61%	15.49%
Wetlands	0.07%	0.13%	0.12%	0.35%	0.34%
Other lands	-----	-----	0.11%	0.44%	0.28%
Total	100	100	100	100	100

Source: Author

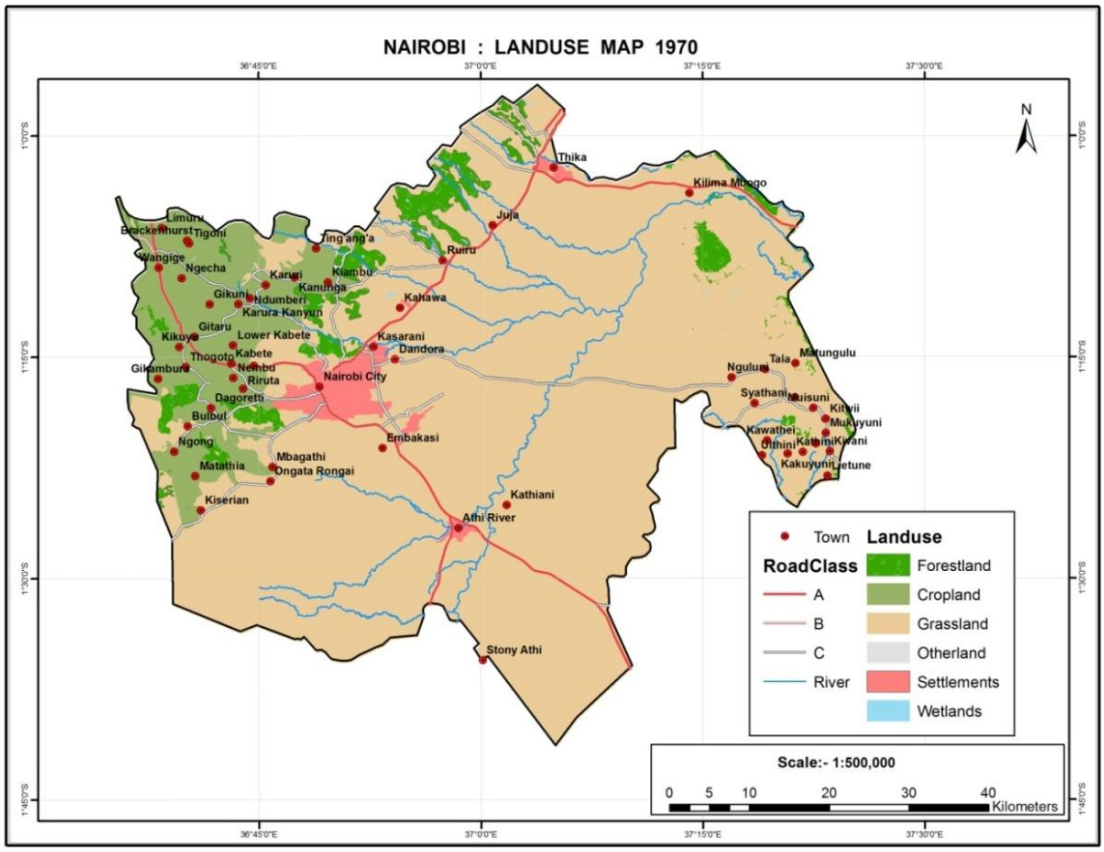
Table 8: Decadal trends in land use and cover changes, 1970 – 2010

Land use/cover / Year	1970-1980	1980-1990	1990-2000	2000-2010	1970-2010
	Percent Change				
Croplands	121.02%	57.57%	7.86%*	16.60%	274.14%
Forestlands	13.18%	9.16%	15.61%	3.14%*	6.13%
Grasslands	16.84%*	23.38%*	6.93%*	26.46%*	56.39%*
Settlements	4.78%	22.26%	185.26%	79.95%	558.49%
Wetlands	80.91%	6.68%*	185.26%	1.83%*	372.77%
Other lands	-----	-----	307.25%	35.65%*	162.06%

Source: Author

* The figures reflect decreases

The CoN spatial patterns of growth show uneven temporal and directional changes. The directional change can be attributed to a number of factors including the ad hoc nature of planning, development of land use plan over time, and land speculation. The urban growth of the CoN shows some features of the sector model of urban spatial structure. The growth shows the typical characteristic pattern of star-shaped growth where development has grown along the main transport routes radiating from the city center (Mundia and Aniya, 2006, p.104). As the creation and expansion of many urbanized corridors and other developed regions continue further from the central urban core, the landscape is changed; as thousands of acres of forests and agricultural land developed for urban land uses. These urban growth and patterns are visible in the LULC classification maps produced from the satellite images, and displayed for 1970, 1980, 1990, 2000 and 2010 (See Figures 22).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Gitaru
Kikuya
Lower Kabete
Kasarani
Dandora
Thogoto
Kabete
Gikambura
Nembu
Riruta
Nairobi City
Dagoretti
Bulbul
Ngong
Embakasi
Matathia
Mbagathi
Ongata Rongai
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Kathiani
Athi River
Stony Athi
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Marungulu
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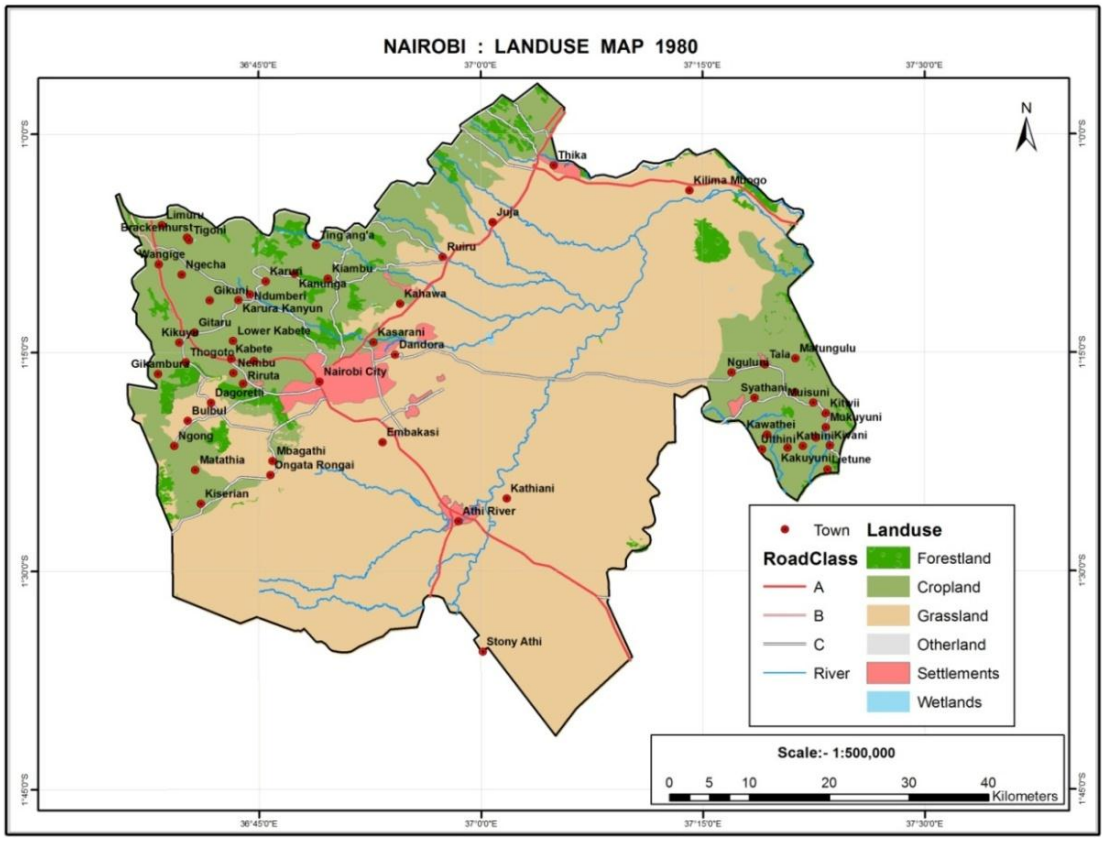
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Kathiani
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Otherland
Settlements
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Scale:- 1:500,000
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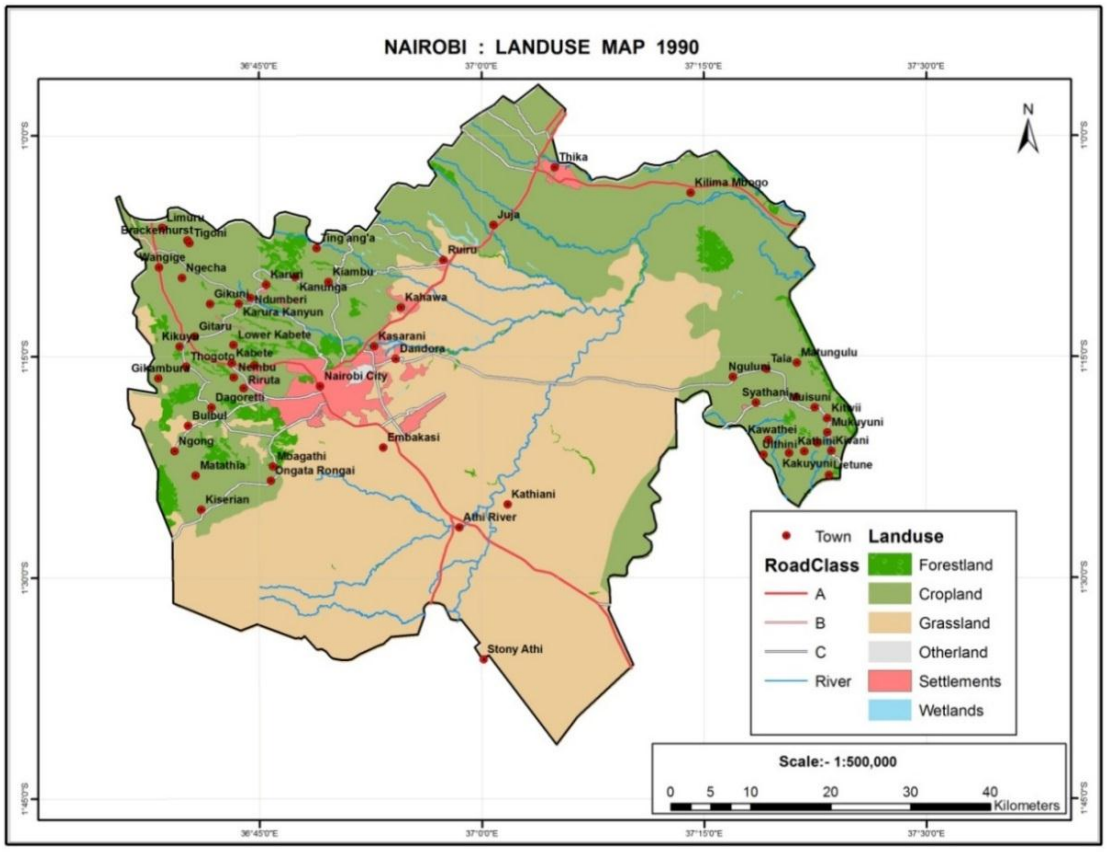
Kilometers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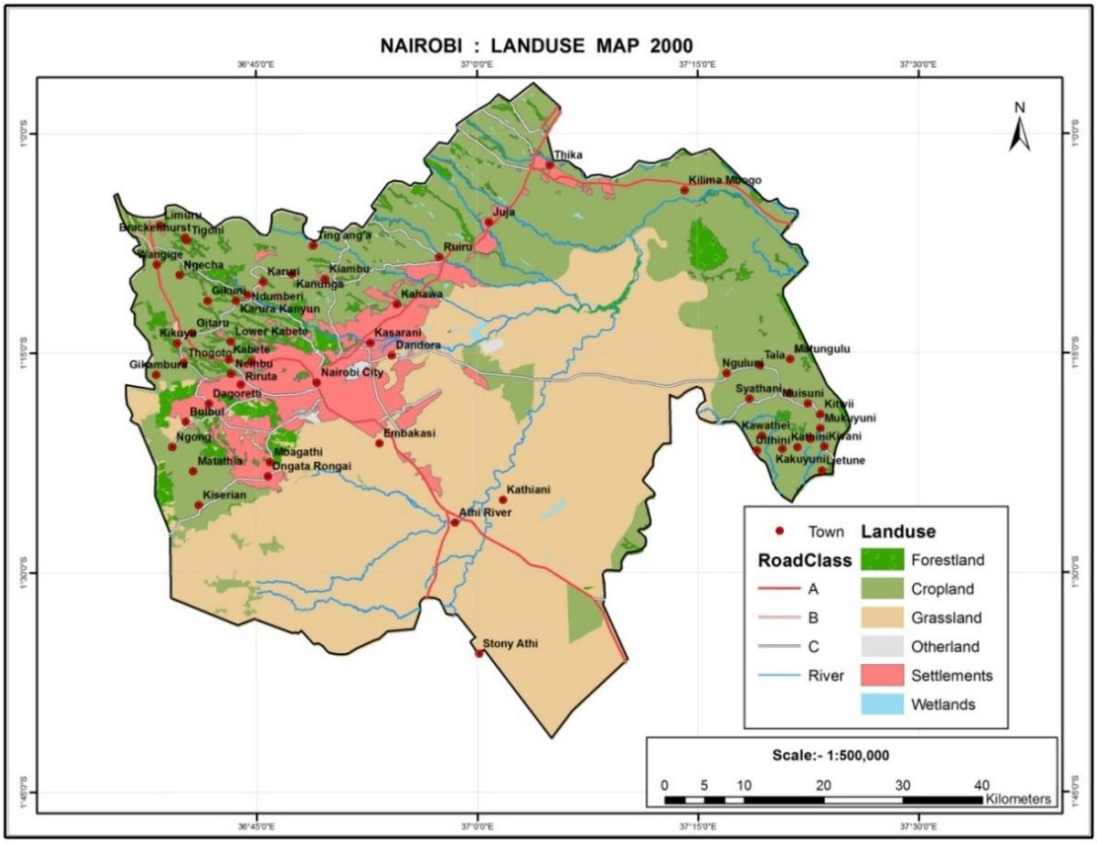
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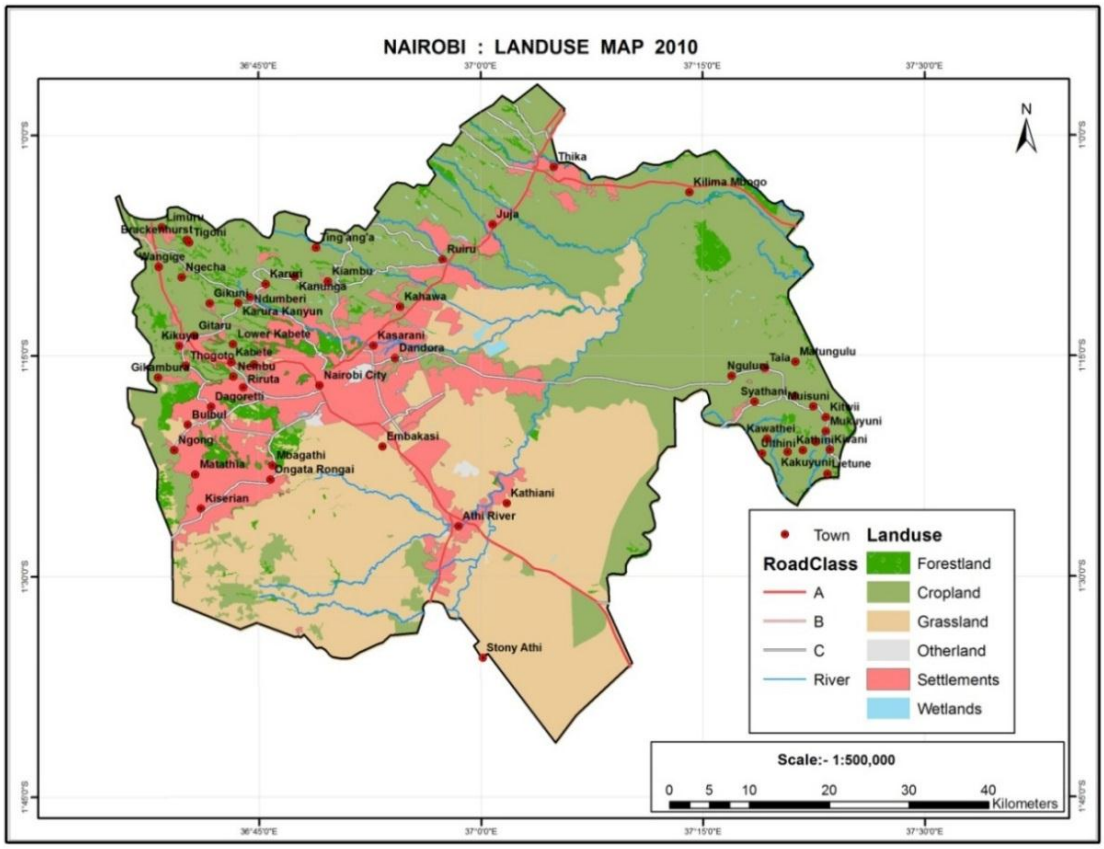

Figures 22: Retrospective land use and cover classification for NMR, 1970 – 2010

Source: Author

4.1.4 The spatial patterns of development in NMR

Most of the growth took place in transportation corridors along the major highways, especially Mombasa Road and Thika Superhighway. The rate of encroachment of urban areas to other land uses is quite rapid with discontinuous patches of urban development characterizing the growth (Mundia and Aniya, 2006, p.104). The uneven urban land development in different parts of the area and is closely related to the differences in land tenure. The LULC changes for the NMR have occurred as a result of interactions of a number of environmental as well as demographic and socio-economic forces. These include rapid economic growth; a high rate of urban population growth; and geophysical factors such as hills, valleys, and plains (Mundia and Aniya, 2006, pp.106-107). For a complete analysis, future studies should include fieldwork, use of aerial photography, and more detailed LULC types (Martin et al., 2007, p.154).

The primary objectives of urban research are still to understand the evolution of urban systems, and addressing questions regarding changes in the spatiotemporal patterns of intra- and inter-urban form. RS, although challenged by the spatial and spectral heterogeneity of urban environments, is a suitable source of reliable information on the multiple facets of the urban environment (Jensen and Cowen, 1999; Herold et al., 2003; Donney et al., 2001). Urban RS, despite proven advantages, has remained "blind to pattern and process" (Longley, 2002). The spatial and temporal detail provided by RS platforms are yet to be broadly applied for the purposes of developing understanding, representation, and modeling of the fundamental characteristics of spatial processes (Herold et al., 2005, p.1).

Although increasingly accurate and precise in spatial terms, RS images of urban areas reveal rather little about urban lifestyles unless supplemented by socioeconomic data. There is no single urban "way of life." There is a need for better and more generalized understanding of lifestyles. These may help understanding how individual cities evolve and change within systems of cities. Urban planning and a whole host of urban model applications require much more accurate data than RS has so far been able to deliver. Moreover, although there are good examples of urban RS interpretation and have enough long time series in many places going back to the 1970s, for instance, the quality of this data has continually improved. The change makes good time series analysis tricky. Further, such imagery is still more appropriate in situations where fast analysis of rapid urban growth is needed, for example, in the exploding cities in developing countries (Besussi et al., 2010, pp.28-29).

RS data is useful for analyzing the pattern and process of urbanization rather than causes or consequences. The RS data are not enough to explain the causes or results in many instances (Bhatta, 2010, p.17). RS and GIS capture the patterns of development and not the underlying processes. It is equally important to look at the socio-economic and institutional backdrop against which the land use changes have taken place. The spatial pattern of LULC reflects underlying human activities on the ecology of the urban environment. The growth of cities is affected by geophysical, economic, and institutional constraints (Liu et al., 2005, pp.450-451). It is also influenced by other factors such as the institutional and cultural setting, the legal attributes of land (e.g., land tenure) and the wider socio-economic environment (Jansen

and Di Gregorio, 2003, pp.131-135), as well as the globalization process. The next part of the chapter discusses these in much more detail.

4.2 Nairobi Metropolitan Region: Globalization and the Changing Political Economy

4.2.1 The emergence of global and sub-global systems

If current patterns of urban concentration persist, the developing world is expected to experience the development of mega-urban regions as major components of urban systems. The first wave of globalization led to the creation of large primate cities dominating the urban hierarchies of their countries. Cities like Rio de Janeiro, Mexico City, Jakarta or Nairobi are not only primate cities but also administrative centers and conduits for the flows of raw materials for the developing world. The current phase of globalization in developing countries is the second after the one represented by the incorporation into the colonial system. The urban results are of the same importance though (Adell, 1999, pp.19-20).

When analyzing the complex interactions between the global and the local, there is a need to escape from the idea of the global steamroller when constructing new regions, which is the general ideology underpinning globalization discourses. The globalization process has led to an inevitable increase in urbanization and emergence of global and sub-global systems of highly associated cities (Adell, 1999, p.19). The link is hierarchical (Figure 23). The global cities are connected to one another at a worldwide scale and also to the respective national capitals, which establish links to the lower tiers in the hierarchy of central places (Schmidt-Kallert, 2005, p.9). Every urban settlement, regardless of the position in a particular urban hierarchy, exerts an influence on the immediate area beyond the boundary. It, therefore, has to be analyzed in an integral manner with the adjacent area (Kazungu et al., 2011, p.1).

Agglomeration economies, the economic production systems that benefit from co-location, are vital forces explaining the growth of cities in time and place (Besussi et al., 2010, p.14). Economies of scale offer both efficiency and consumption benefits to urban economies and also reduce transaction costs. In developing countries, poor infrastructural services tend to exaggerate the advantages of cities over the countryside. Location benefits can thus be even

more valuable there than in developed countries. As developing countries seek to compete in increasingly integrated world markets, even static benefits conferred by cities help firms penetrate export markets. The empirical evidence on the presence of agglomeration economies in developed countries is strong. As in developed countries, evidence of localization economies in developing countries is somewhat stronger than for urbanization economies (Annez and Buckley, 2009, pp.13-15).

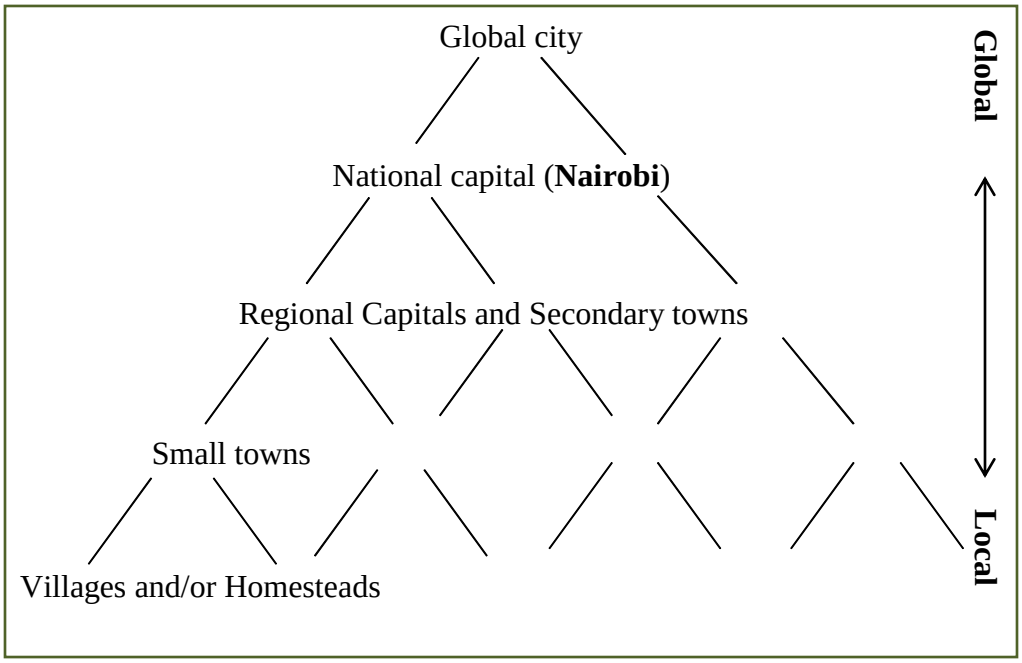

Figure 23: Hierarchical networks of world's settlements

Source: Adopted and modified from Schmidt-Kallert, (2005, p.9)

The role of the periphery, within the expanded world economy, is to produce low-cost manufactured goods and agricultural products and act as markets for the products of the developed countries. Cities, especially national capitals and those with major ports or international airports, offer significant benefits for developed world capital, affording broad access to cheap labor and domestic markets. The new global economic order is principally responsible for the recent rapid urbanization of the periphery (Clark, 2006, pp.102-103).

4.2.2 Globalization, economies of scale and agglomeration

Kenya's economy, like others in the global south, is trapped by the social and economic strategy of the world economic system. The colonial development model created a new system, where the rich and poor have two separate and unequal systems. Nairobi's economy of scale and agglomeration are explained by analyzing its role in the capitalist world-economy. An economy that "… is a historical, social system and all historic structures continuously evolve" (Wallerstein, 1984, p.14). Nairobi as a primate city, though small by world standards, plays a dominant role in a core/periphery relation. In a highly dualistic economy, with exclusive benefits of attracting significant secondary, tertiary and quaternary functions (Richardson, 1980, p.103). The causes of agglomeration in Nairobi are partly historical and partly economic. Once the colonial administration chose to center most activities in Nairobi, other activities became attracted to the capital city. Moreover, the favorable climate conditions, especially for Europeans, made the location in or around the capital city even more desirable (Republic of Kenya, 1978, p.37). Further investment and economic expansion are in turn promoted; the process becomes self-reinforcing. Social scientists can interpret human history and project where social forces are heading. However, the reality of the world is too complex and offers too many alternative solutions at minor and major turning points (Wallerstein, 1984, p.11).

The argument often put across by the political elites about Kenya's sovereignty is disingenuous. Kenya has never been independent of Western influence – it is a near-perfect neo-colonial state, inextricably tied to Western interests and capital. There is an intertwining between Kenya's and the World's economies. As a consequence of colonialism and Kenya adopting the capitalist model, the institutional structures are held hostage by a system set up by colonialists. In 2011, Kenya exported goods worth KShs. 152 billion (23 percent of its total exports) to the West, compared to KShs. 3.8 billion to China and KShs. 9.8 billion to India (Kagwanja, 2013, p.26). China is, however, increasingly becoming Kenya's largest source of FDI and the second largest trade partner. China's trade volume with Kenya rose to $2.84 billion in 2012, more than 20 times that in 1992. China's cumulative investment in Kenya had topped $474 million by June 2013 (Guangyuan, 2013). By the end of 2013, the bilateral trade volume reached $3.27 billion while the contracted direct investment from

China to Kenya reached $537 million (Xianfa, 2014, p.13). By 2012, five of the top ten taxpaying companies in Kenya were British. Besides Kenya's strategic geopolitical position, Nairobi is increasingly becoming the Africa preferred choice for multinational corporations; due to the geographical location, infrastructural and human resources (Omwenga, 2012).

Photo 3: The entrance to the EPZ in Athi River town

Source: Author

The policy behind the establishment of Export Processing Zones (EPZs) (Photo 3) has been in place since the 1990s when Kenya emphasized raising the level of exports and foreign exchange. The current plan is to grow and spread out EPZs across the country, and change EPZs into Special Economic Zones (SEZs), and Free Trade Areas (FTAs) to increase foreign direct investments, industrialization, and boost exports. The SEZs are a geographic region governed by economic and trade laws more liberal than those governing traditional businesses. The SEZs typically provide manufacturing and industrial firms with more targeted fiscal, financial, regulatory and business incentives. They also have the infrastructure and an investment promotion agency to expedite approvals and offer follow-up services to investors. Similar zones have been in emerging industrial powerhouses like China and Malaysia. Kenya could seek to replicate the same model. Industries set up in the proposed SEZs will have full access to national and regional markets, unlike industries in the EPZs, which can sell only 20 per cent of products locally.

The current pace of growth and spatial structure of Nairobi's peri-urban is but, the logical outcome of the world economic system. The commodity markets, which determine prices for the Kenyan products and the ever-decreasing margins that drive decisions, are set on global markets. As Kenya is increasingly getting linked to the global markets and as pressure on local resources increases, habitat loss is accelerated. An analysis of a wide-ranging and historical perspective in Kenya reveals a dichotomous existence of an economic "center" and "periphery," at both the national level and within cities (Wakhungu et al., 2008, p. 1). Nairobi as a primate city with exclusive advantages is attracting important secondary, tertiary and quaternary functions, and plays a dominant role in a core/periphery relation in an extremely dualistic economy. Profits rather than the public good threaten the balance between private developments and protection of the environment. The model has held sway for centuries. It explains why there has been a spike in business expansion, foreign direct investment, job creation economic growth and globalization. The intensification of commoditized relations within both the core and the periphery of the capitalist system is an important process, which has consequences for the ability of capitalism to reproduce (Chase-Dunn, 1998, p.30). The center-periphery metaphor reflects the geography of the country to some extent, with the far North and Northeast enjoying little in the way of development or security. However, even Nairobi, the center of political power, encompasses numerous informal settlements and other low-income areas that depict peripheral characteristics (Wakhungu et al., 2008, p.5).

While the HDI in Nairobi is closer to Brazil and China, the North-Eastern area, the least developed region in Kenya, has levels comparable to the urban areas in Mali and Niger in rural areas. Of the 47 Counties in Kenya, only five counties are more than 50 percent urban. The majority has at least 80 percent of populations residing in rural areas. The second richest is Nairobi County whose 22.5 people in every 100 are classified poor. Kajiado County, with 89.4 percent of people classified as rich, has displaced Kiambu County that was rated the most affluent County in the country for decades. Kajiado's riches are in areas in the vicinity of Nairobi, namely Kitengela, Isinya, Ongata Rongai, and Ngong town. The interior is just like any other marginalized areas of the country. While Kenya is urbanizing rapidly, much faster than the overall population growth rate, most counties are still predominantly rural

(Republic of Kenya, 2011a). According to UNDP, there are enormous disparities and deprivations in Kenya's Multi-Dimensional Poverty Index within the country. The arid and semi-arid Counties are at the bottom end of poverty (UNDP, 2010).

Nairobi as the capital of Kenya and the seat of the national government generates over 45 percent of the national GDP. It provides employment for 25 percent of Kenyans overall and 43 percent of the country's urban workers (Oxfam, 2009, p.12). According to the KNBS 2009 Census, Nairobi had a total population of 3.1 million or 8.1 percent of the country's population. Yet it accounts for about 52 percent of Kenya's GDP (Hendriks, 2010, p.63). Nairobi is not only the major repository of the intellectual wealth of Kenya, but also the engine for the national and regional economic growth. Indeed, the fulcrum around which the Kenya's economy turns. As Nairobi's economy goes, so goes Kenya's. Apparently, in regard to the correlation between population and proportion of GDP, Nairobi's case does not appear to be the norm in the lopsidedness. Globally, urban areas are engines of economic growth and account for approximately 70 percent of the country's GDP. Urbanization is a major development issue, as a significant percentage of the people will soon be living in urban areas. Is this disparity between Nairobi's population and the share of national GDP sustainable? Is this the standard trend about other cities in Africa and around the world?

The urban concentration of international investment-led economic activity is high across much of the periphery. Abidjan, the capital of Ivory Coast, has 15 percent of the national population but accounts for more than 70 percent of all financial and commercial transactions in the country. Lagos, with 5 percent of Nigeria's population, accounts for 57 percent of the total value added in manufacturing and has 40 percent of the nation's highly skilled (Clark, 2006, pp.103-104). According to a UN study, Beijing accounts for 1.2 percent of the country's population but 3.1 percent of its GDP (Odipo, 2010). Johannesburg accounts for 6.3 percent of the South African population and 15 percent of GDP. The City of Seoul accounts for one-quarter of the South Korean population but 48.6 percent of GDP, while Brussels accounts for 10 percent of Belgium's population and 44.4 percent of GDP. Just Sydney, among the world's larger cities, approaches equilibrium in this respect. The city's population and share of GDP rounds off at about 24 percent of the national totals (Odipo,

2010). The IMF estimates of Kenya's GDP as of 2012 stood at $41.117 billion (www.imf.org). If Nairobi is 52 percent of Kenya's GDP, the city's GDP is, therefore, US$21.381 billion. Is there some ideal level at which these percentages should fall in sustainable cities, particularly those in the developing world? If such a level exists, how can it be established and what role can urban or national spatial planning play in pushing this process forward?

Table 9: Commercial Banks Branches by County, December 2012

	Number of Branches		
County/Year	**2011**	**2012**	**Increase**
Nairobi City	465	518	53
Kiambu	50	59	9
Kajiado	28	31	3
Machakos	17	18	1
Nairobi Metro Region	560	626	66
Kenya	**1,161**	**1,272**	**111**

Source: Central Bank of Kenya, (2013, p.80)

There is a close correlation between the Commercial Banks branch network and the government data on wealth distribution (Table 9). Nairobi, where 52 percent of the country's economic activities are, is home to 518 branches or 40.7 percent of the country's total branch network. Of the 518 branches in Nairobi, 53 were opened in 2012. Mombasa is with 108 branches while Kiambu, Nakuru, Meru, and Uasin Gishu Counties have 59, 57, 38, and 38, respectively. Major Banks seem to locate where there is a significant client. The scenario explains why most of the 111 new branches (65 percent) were set up in Nairobi, Mombasa and Kiambu Counties in 2012 (Central Bank of Kenya, 2013).

Table 10 shows the distribution of the Forex Bureaus within major cities and towns in Kenya as at 31st December 2012. The distribution is similar to that of the Commercial Banks.

Table 10: Distribution of operating Forex Bureaus

No.	City / Town	Number of Bureaus	Percent of Total
1	Nairobi	95	84.8
2	Mombasa	9	8.0
3	Malindi	1	0.9
4	Nakuru	2	1.8
5	Kisumu	2	1.8
6	Eldoret	2	1.8
7	Namanga	1	0.9
	Total	**112**	**100%**

Source: Central Bank of Kenya, (2013, p.11)

Table 11: Knight Frank Prime International Residential Index results

Location	Country/Area	Rank	2011 Price Change	Rank	2012Price Change
Nairobi	**Kenya**	**1**	**+25.0%**	**11**	**+10%**
Kenyan Coast	Kenya	2	+20.0%	-	-
Miami	United States	3	+19.1%	4	+19.5%
Bali	Indonesia	4	+15.0%	2	+20.0%
Jakarta	Indonesia	5	+14.3%	1	+38.1%
London	United Kingdom	6	+12.1%	16	+8.7%
Vancouver	Canada	7	+10.4%	66	-7.9%
Moscow	Russia	8	+9.8%	44	-2.3%
Toronto	Canada	9	+8.5%	22	+4.3%
Beijing	China	10	+8.1%	26	+2.3%
Tel Aviv	Israel	11	+8.1%	23	+3.7%
Bangkok	Thailand	12	+6.1%	14	+9.4%
Kiev	Ukraine	13	+5.4%	-	-
Hong Kong	China	14	+4.6%	16	+8.7%
Auckland	New Zealand	15	+4.5%	7	+12.7%
St Petersburg	Russia	16	+4.0%	19	+7.2%
New York (Manhattan)	United States	17	+3.1%	42	-1.4%
Zurich	Switzerland	18	+3.0%	45	-2.5%
Meribel	France (Alps)	19	+3.0%	62	-5.6%
Los Angeles	United States	20	+2.5%	8	+12.5%

Source: Compiled from The World Report, (2012, p.29; 2013, p.29)

A study of 71 world cities by the *Knight Frank Prime Global Cities Index* in 2011 showed Nairobi had the highest increase in property prices of 25 percent increase in the world. Kenya's coastal cities followed with a 20 percent increase. A similar 2012 study of 80 cities Index showed Nairobi at rank 11, although it ranked lower than in the 2011 Index, and had a price change of 10 percent increase in the world as shown in Table 11. The Index for the second quarter of 2012 showed that between June 2011 and June 2012, Nairobi's high-end property market recorded a 21.8 percent price increase; a decrease from the previous year though. The growth can in part be attributed to the country's rapid economic development, which is attracting domestic and foreign private equity; remittances flowing from Kenya's increasingly affluent Diaspora; and demand from the expatriate community. The greatest demand and consequently high rents are in the northern suburbs close to UNEP, the U.S. Embassy, foreign missions and high-end NGOs. Nairobi's status as a diplomatic hub, a global and regional headquarters, for many international governmental and non-governmental organizations, will continue to promote peri-urban growth; albeit with distorting effects on market prices (UN-Habitat, 2014, p.146). The Real Estate developers are tapping into this market by putting up housing developments in those popular destinations.

There is also an increase in people owning second homes outside Nairobi; the need has been for those just about to retire or retirees. Business people and young professionals are also increasingly buying into such projects. According to *The Mortgage Company, March 2012 Report*, growth in the Kenya's middle class is supporting growth in the number of second home ownerships. According to *The World Wealth Report 2012*, the market for second homes has been augmented by the employment, education, and change in lifestyle.

According to a study by the Economist Intelligence Unit (EIU) of the global competitiveness of cities, if Nairobi maintains its projected growth of 5.2 percent, it will be among the 40 fastest-growing cities in the world by 2016. It will also be the fastest growing urban economies in the world, in the coming decade. The study considered 120 cities around the world; cities that represent 29 percent of the global economy with a combined GDP of $20.2 trillion. According to EIU, competitiveness is a city's ability to attract capital, business, talent, and visitors; measured based on 31 categories. Nairobi beat some of the world's

largest cities in the developed countries (EIU, 2012). According to another study, MasterCard Global Destination Cities Index, Nairobi in 2012 was ranked as the fourth most popular destination in Africa. The study projected Nairobi to receive 1.8 million visitors in 2012 with the potential of injecting Sh126 billion (US$1.482 billion) into the city's economy. It also projected 10 percent increase in visitor numbers and a 16.7 percent increase in visitor spending over the 2011 Index results. The Index is a measure of understanding the global economy and the dynamic flow of commerce across the world. The Index ranks 132 global cities using total international visitor arrivals and the cross-border spending by these visitors in the destination cities. While cities in Europe and the U.S. ranked highly on the Index, the high growth figures of African destination cities suggest their continued importance in the global economy (Hedrick-Wong, 2012).

Investment flows into Africa and cities are projected to rise in the medium term. Returns on investment in Africa between 2004 and 2008 were higher than anywhere else on the globe (Pieterse, 2011, p.309 cited in UN-Habitat, 2014, p.40). By 2020, growth in Africa is expected to create markets of sufficient size and spending power to attract multinational companies (MNCs). Indeed, many MNCs have entered Africa in expectation of this boom, and more are expected to follow. The key attraction for MNCs is to forge new customer bases is the global significance of the large consumer markets (UN-Habitat, 2014, p.40).

Nairobi is among the African cities with the highest population of high-net-worth individuals (henceforth HNWIs) – those with US$ 1 million or more in investable assets. The 2013 ranking by *The World Wealth Report* indicates Nairobi is growing at a very fast rate. The leading countries with the super-rich are South Africa (48,000), Egypt (23,000), and Nigeria (15,900). Kenya has 8,400 HNWIs, with Nairobi accounting for 60 percent of the country's HNWIs. The number of HNWIs in Nairobi is expected to increase to over 8,000 by 2020. The trend follows the growth of Africa's super-rich. Statistics shows that the region's segment of HNWIs grew by 9.9 per cent in 2012, the second-highest in the world after North America, and above the global average of 9.2 percent. Another Report by Euro Monitor International, the wealthiest class in African countries is set to increase significantly in the period, with the rich or high-income class category, projected to rise 28 percent by 2020.

According to Research and Market (2014), compared to other cities in Kenya, Nairobi is home to three out of every four HNWIs followed by Mombasa and Kisumu. Out of the 8,300 HNWIs in Kenya, 6,200 live in Nairobi (Table 12). Nairobi has been the primary beneficiary of the 10-year old booming construction industry. The host to one of Africa's most developed Stock Market, the Nairobi Stock Exchange. It is also the country's financial hub and home to major industries, financial services, and building materials some of the key investment attractions to the HNWIs.

Table 12: Top Kenyan Cities for HNWIs Millionaires, 2013

Ranked by HNWIs	Number of HNWIs 2013	Percent
Nairobi	6,200	74.7
Mombasa	900	10.8
Kisumu	200	2.4
Nakuru	100	1.2
Eldoret	100	1.2
Machakos	100	1.2
Others	700	8.4
TOTAL	8,300	100

Source: New World Wealth, (2014)

While the previously stated has addressed urbanization and agglomeration, measuring the relationship between urbanization and growth can be hard. It is hard to disentangle and measure the effects of agglomeration because of complexity and feedback effects. A series of studies involving correlations between some measure of agglomeration and economic development have found that no relationship exists. The present understanding of the dynamics of agglomeration and the power of the cause – effect mechanisms remains limited, despite considerable theoretical development (Turok and Mcgranahan, 2013, pp.469-470). The main theories of agglomeration have weaknesses because they "… embody crude conceptions of geography and history" (Garretson and Martin, 2010 cited in Turok and Mcgranahan, 2013, p.470). They are also unable to explain differences in the power and nature of agglomeration effects in different places and points in time. According to Glaeser, there is no one formula toward urban eminence and the sources of success are often highly nation-specific (Glaeser, 2011 cited in Turok and Mcgranahan, 2013, p.470). Although there have been no studies of agglomeration in Africa, there have been attempts to measure the

link between African urbanization and development, and also comparisons with other continents. Many of the findings have been contradictory; some studies have found no relationship between urbanization and development in Africa while others have found some form of connection (Turok and Mcgranahan, 2013, p.474).

4.2.3 The growth of the middle class

There is no single, universal definition of the term "middle class." Although it varies from country to country, it ideally represents almost the same class of people. In Africa, the middle class is comprised of individuals with annual income exceeding $3,900 in purchasing power parity terms. Alternatively, they are those with daily per capita expenditure of between $2 and $4, and those with daily per capita expenditures between $6 and $10 (AfDB, 2011, p.2). Empirical evidence has shown the African middle class has been growing. The continent's middle class reached 34.3 percent of the population in 2010, up from 26.2 per cent in 1980 (AfDB, 2011 cited in Arvanitis, 2013, p.2). The British American Asset Management projects the middle class in SSA to be 626 million by 2020 and 1.232 billion by 2030 (www.british-american.co.ke). In the last one decade, Kenya's GDP doubled from $15 billion to $35 billion, creating a bubbling middle class; among the fastest growing in the region and stood at 44.9 percent of the total population in 2010 (AfDB, 2011, p.5). Kenya had the largest shift of population from low to middle class of any nation in the period spanning 2004 and 2009 (Muigai, 2012). A burgeoning middle class, culturally Eurocentric, presents the biggest market for real estate investors. Real estate businesses have thrived.

Over the years, the cost of land and houses in upmarket Nairobi estates has been out of reach of the upper and middle class younger generation. The major road constructions around Nairobi and lack of serviced land within Nairobi have sent prices of the few available houses and properties high, making the middle-class keen on owning homes unable to. They have no option but to own land where it is affordable, has large parcels, and within commuting distance to Nairobi, that is, in the PUA. The low-income group remains behind in slums. In 2011, there was over 1 million out of the city population of 3.2 million lived in slums (Arvanitis, 2013, p.4). A survey by Consumer Insight indicates that the number of families owning homes in the city has dropped from 30 percent in 2005 to about 12 percent in 2009

(www.ciafrica.com). The middle class is buying fertile agricultural land in the PUAs and holding it for speculative purposes, pushing prices higher. In Kenya, about 53 percent of the land owned by the middle class is not under cultivation (Okwemba, 2014).

4.2.4 Laissez faire system and commodification of land

Many African countries have undergone significant economic and political transformations in the last five decades (Wekwete and Sesay, 2001, p.62). The government's role has changed from one where the State influenced the allocation of resources and determined market prices to where market prices and resource allocation are determined by market forces. The extent to which access to land and labor is mediated through market exchange reflects historical conditions of market integration (Woodhouse, 2003, p.1710). In Africa, land became a commodity during colonization, and it has remained so in many regions. The commodification ultimately leads to creating structures. The colonialists imported institutions to deal with this property; quite different from those regulating access to, and use of, common property (Wehrmann, 2008, p.76). The institutions have no access to their maintenance and reproduction except by pursuing an active policy of maximizing the accumulation of capital (Wallerstein, 1984, p.19).

At the 1962 Lancaster House conference negotiations for Kenya's political independence, the UK Government pressured Kenya to accept "A willing buyer, willing seller" approach (Wakhungu et al. 2008, p.2). The Kenyan government, although opted for a mixed economic system as its chief mode of land tenure, production, appropriation, exchange, and consumption, the laissez-faire have increasingly become the dominant method of land delivery. The method of land acquisition is open and free land markets allow outsiders to own land within communities. Many paid for the land; while others continue to make annual payments to the Government for the land allocated. Since Kenya's general election of 1992, especially in the Rift Valley region, a pattern emerged where such people continue to suffer regular displacements and dispossession of their land rights.

The questions are: was Kenya, as a country with many different types of land tenure systems ready to subscribe to the dogma of the free land market as a policy? Alternatively would

Kenya, wish to regulate its land market, leaving buying and selling to proceed only within communities? Probably not, because the forces of capitalism are far too powerful and entrenched in the political, economic, and social systems that govern. According to De Soto, capitalism triumphed in the West and sputtered in the rest of the world because of the integration of the assets in West into one formal representational system. Before that, information about assets was far less accessible and was atomized, dispersed, and not available to any one agent at any given moment. Every developed nation at one time went through the transformation from predominantly informal, extralegal ownership to a formal, unified legal property system (De Soto, 2000). These values underpinned all the policy moves that eventually yielded rapid economic growth. However, the constraints on market forces imposed in one region, state, or industry are often one of the most important driving forces in the expansion of commodification to new areas. The commercialization and regulation interact in a spiral that drives a number of long-run trends visible in the world-system (Chase-Dunn, 1998, pp.35-36). The consequences can inadvertently create new methods of land use and access. Some examples in Kenya are discussed below.

4.2.4.1 Land grabbing

There are several ways of acquiring land in Kenya: registration; allocation; inheritance; purchase; gift; public auction; compulsory acquisition; and adverse possession. The latter states that if anyone occupies a piece of land uninterrupted and without the consent of the owner for 12 years, apart from government land, it becomes theirs, if they apply to the High Court. The law is provided for in section 38 of the Limitation of Actions Act. A law inherited from England that was derived from a common law theory – the "Lockean" theory of property – that recognizes that land title may be lost or abandoned. English philosopher John Locke adopted, systematized, and rationalized the theory from Norse and Germanic tribal law. The English embraced it as a way of redistributing property. The question is what is so magical about 12 years? The concept of property ownership in many communities in SSA is eternal and, therefore, contrary to this view.

Commodification of land has led to "land grabbing" sometimes referred to as illegally allocated or acquired land. Land grabbing is not a recent phenomenon and does not appear to

be ending soon. Starting with The Crown Land Ordinance, first crafted in 1902, modified in 1915 and lastly in 1940s. In 1940s, a new system came into being where land was allotted through direct grants. The governor and commissioner of lands had a direct say on who got the land on behalf of the queen or king of England.

The post-independence governments used the same colonial system. At independence in 1963, the new government adopted the colonial land laws under a new name – the Government Lands Act. A few cosmetic changes were made; the most significant being was replacing "Governor" with "President." The rationale for giving the President sweeping powers over the land was a noble one in the beginning. It was to give him more maneuvers where the direct allocation was in the public interest, and the routine procedures would have been cumbersome. Later the President's power to allocate "land was no longer viewed as belonging to the people of Kenya in the sovereign and corporate entity but as open space to be dished out to the "politically correct" individuals for their personal enrichment," notes *The Ndung'u Commission Report.* It was pilfered in the final days of the Moi regime (1978 – 2002). The system gradually lost its relevance. Crooks and cartels entered the fray. A parallel system of land allocation came into being. A new phenomenon, "Land grabbing," became the order of the day. The phrase signifies a total breakdown of law and order in regard to land administration. Wherever land parcel is for the acquisition, through whichever means, legal or illegal, formal or informal, the chronology of subsequent events is predictable. People call upon their social networks and family relations to acquire the land.

4.2.4.2 Land hoarding and speculation

In Kenya, most of the people who invest in land pride themselves in owning it rather than in using it. They retain the land with the expectation of selling it for a premium in the future. What is the rationale? At present, Kenyans, who are most likely to buy land, are those who already own it. Moreover, more often than not, they let it lie idle for years, yet they would, in the long-term, reap greater rewards by making use of it. The real value of the property is not so much in its ownership as many Kenyans has been socialized to believe but in using it.

Kenya's real estate market is very lucrative. Based on historical performance trends, the sector outperformed most other major economic pillars such as capital markets and tourism in the last decade. As investments returns go, real estate is among the top four alongside stocks, mobile phone services, and cars. Real estate provides a more predictable return to an investor, as compared to other forms of investment, since rent is not likely to change frequently. There is also a fast growing population snapping up every available residential property. Almost every inch of peri-urban land has a structure or one planned for it. Therefore, any forward-looking entrepreneurs take any opportunity to snap up land in PUAs and wait for an assured future sale. The now prime real estate, Kahawa Sukari Estate along Thika Superhighway belonged to a prominent family.

The real estate market can have two groups: the speculators who buy land and wait for it to gain value. The other type is the investor who adds value to the land by developing it. The consequences have led to unrealistic land prices in the PUAs. Were the speculators to sell land, there would be such an enormous glut that would lead to land selling prices going down, significantly reshaping the peri-urban growth and development.

Until recently, cheap land in peri-urban Nairobi was to be found in inaccessible areas and those with black cotton soil. The upgrading of Thika Road to a Superhighway and the construction of both the Eastern and Northern Bypasses has opened up these areas. The result has been an increase in the cost of land and also opened up the area to property speculators. The several major infrastructure projects planned or already undertaken have the potential to raise property prices significantly and attract land speculators. Any signs of the possibility of a new project are followed by significant acquisitions of land in and around the area as investors take a position on the economic benefits expected from new development. The government's aim when developing roads, and public infrastructure is to make more land available for housing with the hope that prices will go down. Instead, land prices have continued to rise faster due to speculative land buying and hoarding. The action sets the stage for future social conflict when land is bought cheaply and monopolized by wealthy, well-informed outsiders. The investment strategy is wrong for the country because it draws capital from productive economic activities and transfers to unproductive assets. It also distorts

property pricing, reduces agricultural production as land is acquired and kept fallow, and marginalizes rural communities.

Globally, various taxes and strategies are used to manage the speculation and reduce excessive property price increases. The most frequently used approach is the application of Capital Gains Tax (CGT). A tax levied on the gain realized on the sale of an asset purchased at a lower price and appreciated without the owner's participation in creating added value. It is 30 percent in Rwanda and applicable to commercial property only. Zambia has a rate of 35 percent, Uganda 30 percent, and Tanzania a rate of 20 percent while South Africa and Nigeria are on par with 10 percent CGT. In the USA, it is 15 percent. New Zealand, like Kenya, does not have CGT and, therefore, land speculators seize all the gains from infrastructure development without paying the tax (Cheruiyot, 2012).

Overall, the capitalist world-economy has been more exploitative and destructive of life and land, for the vast majority of persons within its boundaries than any previous mode of production in world history (Wallerstein, 1984, p.8). It, therefore, cannot survive; it is in the process of being superseded by the ahistorical social system. Predicting is hard because we cannot know how the conjuncture of forces at play will constrain the directions of change (Wallerstein, 1984, p.26). The alternative systems of communism and socialism have not brought about economic “utopia” in countries that have adopted them. Perhaps the solution is a hybrid, a capitalist-cum-socialist system where wealth is used to promote the greater good rather than individual and corporate interests.

4.3 Peri-Urban Development: Effects of Different Land Tenure Systems, Critical Perspectives, Emerging Trajectories and Context

In developing countries, there are often different systems of legislation relating to land and various forms of tenure co-existing in the same country, and, sometimes, even within the same city, or between an urban area and its surroundings (Payne, 2001, p.416; Olima and Obala, 1999, p.114). Land tenure systems have complex interactions with the social, economic, legal, political and environmental spheres (Wakhungu et al., 2008, p.1) and have a profound effect on the physical urban patterns.

A need arises for the examination of how the existing land tenure forms have influenced the urban land development process in Kenya (Olima and Obala, 1999, pp.114-115). Land tenure is presented to illustrate the complexity of interactions among the driving forces that contribute to the dynamics of land use change. There is no systematic study on how land tenure affects the nature of urban development. The following sections analyze select case studies of the patterns of peri-urban land, in different socio-cultural and geographic areas, pointing to the gaps, estimates, and guesswork inherent in any such project. The discussions adhere, for the most part, to the analytic framework developed by Ronald J. Oakerson to collect and analyze information about the management of the commons. The framework identifies four sets of attributes: the physical characteristics of the resource and the technology used to collect it; the institutional arrangements governing decision-making and relationships between users; the resulting patterns of interaction among decision-makers; and the outcomes or consequences (Oakerson, 1992).

4.3.1 The critical planning issue in each of the peri-urban areas

4.3.1.1 Southern Metro: dilemma of wildlife management

Traditionally, the Maasai do not see the land as a capital asset, but something that cannot be claimed ownership of. They have, therefore, in numerous cases been dispossessed of their land. They sell land in the belief that the transaction did not take away their right to the land (Cohen, 2002, p.15). In the southern metro, the question of ethnicity is essential in resolving land tenure disputes after subdivision of the group ranches, consisting of both Maasai and non-Maasai settlers. The current land use structures and patterns of access to resources must integrate these elements (Campbell et al., 2000, p.334). The primary concern in the area is rapid human population growth through immigration leading to land competition with wildlife, as described in the following section.

4.3.1.1.1 Nairobi National Park: an imposition of a political geography over an ecological geography

The Nairobi National Park found in an ecosystem that spreads beyond the legal limits and covers over 20,000 km^2 (12,427.42 square miles) and includes Nguruman, Amboseli, and

Tsavo National Parks. Contrary to logic, ecologists and conservationists drew national parks and reserves around areas where the largest concentration of mammals appeared during the dry season. NNP, which covers 117 km^2 (72.70 square miles), was the first National Park gazetted in East Africa in December 16, 1946 (UNEP, 2009, p.92). It is also the only Park in the world located within a major city. For hundreds of years, it was the terminus of migratory wildlife from Kilimambogo-Oldonyo Sabuk in the north, Amboseli in the south, Narok in the southwest, and Machakos in the east.

The expanding city threatens the park that was hitherto in the outskirts. South of the Park, group ranches sprung up by the 1970s and private land ownership was adopted in the 1980s and 90s. Thus blocking migratory corridors for wildlife (UNEP, 2009, p.93), although the developments are outside the boundaries of the Park. The contention is the ability of the wildlife to move out of the park south to access the rest of the ecosystem. The settlements have permanently enclosed and cut off the Kitengela wildlife dispersal area; an animal migration route to and from the NNP and the Amboseli and Tsavo National Parks, thereby reducing its zoological and botanical diversity, and thus undermining the economic value of the NNP (UN-Habitat, 2006a, p.18). The park represents "The imposition of a political geography over an ecological geography." The regional-scale animal migrations could not be afforded within the restricted confines of the park's boundaries, making the animals vulnerable to periodic droughts and die-offs (Botkin, 1990 cited in Robbins, 2004, p.152).

The two ways of defining a city's growth footprint are the official limits and actual changes in settlement as shown in the series of satellite images (Figures 24 and 25). The color light purple shows intense urban settlement steadily growing between 1976 and 2005 (UNEP 2009, pp.146-147). The importance of boundaries and land use change can be summarized by two observations: First, the borders of NNP have been an effective barrier to land use change within the protected area. Spatial images illustrate the growth of urban Nairobi that abruptly stops precisely where the national park begins (Figure 25). Secondly, the area that became Kenya's first protected area in 1946 doesn't correspond to the most vulnerable places in 2013. As the city has expanded – in terms of its physical footprint and indirect influence – the mismatch has become all the more consequential (Hyman, 2013).

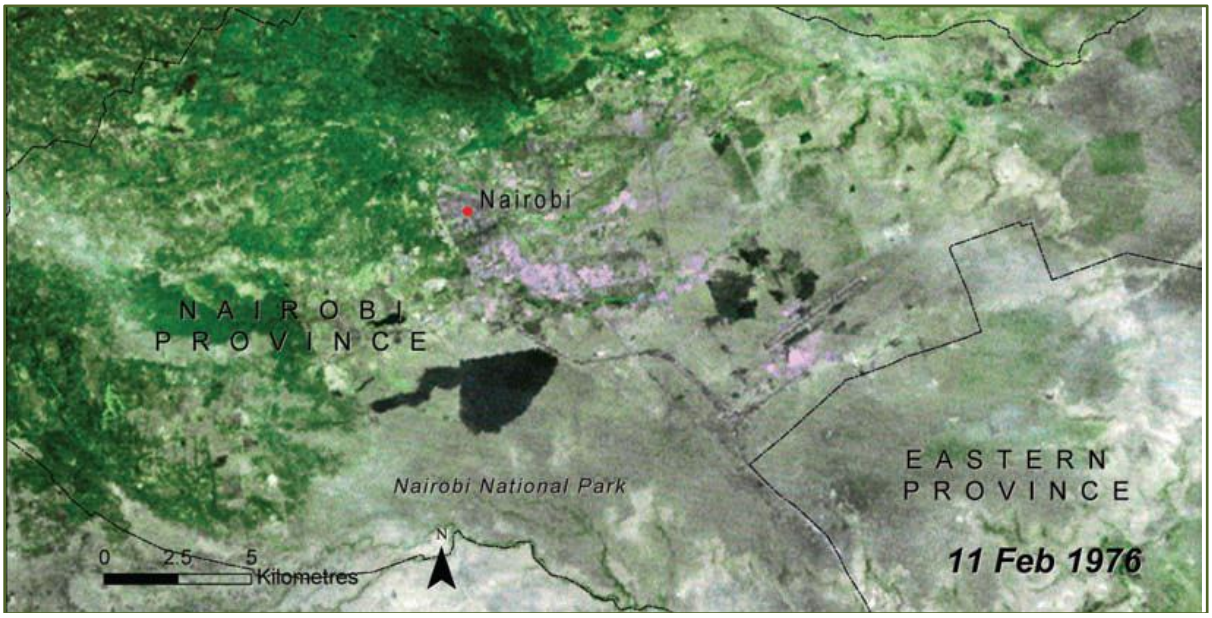

Figure 24: Landsat image showing the extent of the Nairobi Built-up area

Source: UNEP, (2009, p.146)

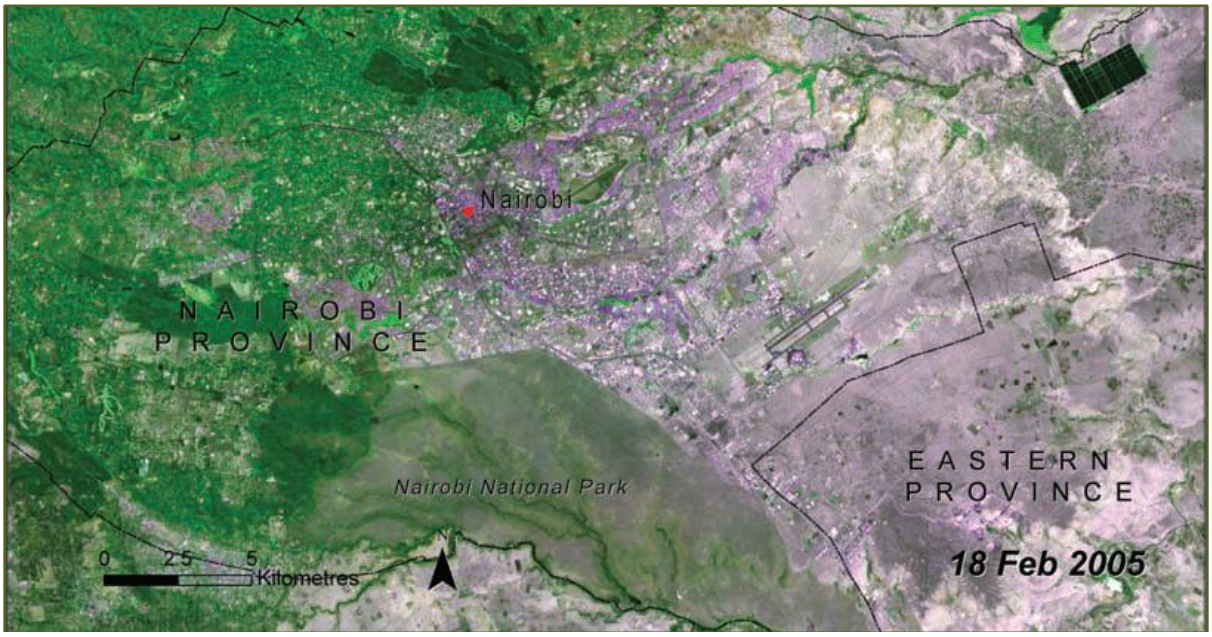

Figure 25: Landsat image showing the impact of NNP on land use

Source: UNEP, (2009, p.147)

The continued settlement around the park forms the biggest threat. To most people, the park is better off settled or farmed. Some have asked why the park should coexist with the Kibera Slum. The economic value of the national parks is never explained to the poor. Coincidentally, both NNP and Kibera slum are tourist attractions, visited by the rich and famous in almost equal numbers. The other view is that national parks are a source of foreign exchange from tourists. A third view is that national parks are water sources. As Abraham Maslow observed that if the only tool one has is a hammer, he sees every problem as a nail. The fact that most Kenyans grew up in rural areas and not affluent makes them see the parks as arable land for farming and that these parks are not for them but the rich. The views reinforced by the fact that the poor hardly derive benefit from these national parks.

Other challenges facing the park include pollution of streams, poaching, livestock invasion by wild animals, and the introduction of invasive species (UNEP, 2009, p.93). Conservationists must work to minimize the adverse effects of urban proximity and maximize the positive results if a protected area is near an urban area. Enforcement of laws and management regulations under conditions of urban proximity requires a level of financial support that many developing countries do not have (McDonald et al., 2009, p.70). The Kenya Wildlife Service and the Wildlife Foundation, a non-governmental organization, have been working with communities in the area to protect the park. They encourage land practices that support conservation. In one program, the two bodies lease land from the Maasai to discourage the subdivision and sale of land. Another scheme, The Predator Program, ensures that the owners of livestock killed by predators are compensated at market price whenever possible.

4.3.1.2 Eastern Metro: fragile environment and degradation

Overall, from the 1930s to the present, the population has risen steadily. The rates of change have been uneven across agro ecological zones. The imposition and subsequent lifting of barriers to movement during the colonial and immediate post-colonial periods influenced population changes through time in the area (Rocheleau et al., 1997). The historical context is relevant to understanding the emergence of population pressure in the area (Bernard et al., 1981, p.385). The high population growth rate has a serious effect on the social and

economic development. The majority of the population lives in the rural villages (Ondiege, 1992). The rural settlement patterns reflect the productive potential of the Agro-ecological zones. The higher potential upland areas are much more densely populated than the dry lowlands (Tiffen, 1991a, b; Campbell, 1990; Bernard et al., 1989; Downing et al., 1989; Lezberg, 1988; Bernard, 1985; Bernard and Thom, 1981).

For most of Ukambani, lack of rainfall and reliable sources of surface water are the primary limiting factors for settlement and agriculture (Owako, 1971). The region is susceptible to erosion due to its climate, soil, and topography. However, compaction and denudation, crop and livestock management practices can exacerbate, prevent, or even reverse land degradation (Rocheleau et al., 1997). If viewed against the limited resources, land has been subjected to a lot of pressures leading to environmental degradation, a major challenge facing the entire Ukambani region (KNBS, 2010; Republic of Kenya, 2005c, pp.5-10).

4.3.1.2.1 Geography of urban proximity: a century of environmental degradation

The Ukambani region faces a multiplicity of environment issues. The region has for a century been at the center of environment/development crisis labeling and intervention in Kenya. The environmental condition has been subject to scrutiny by colonial officials, natural and social scientists, government ministries and the region's inhabitants (Rocheleau et al., 1995, p.1039). Rocheleau at al. (1997; 1995) have a more detailed history and geography of environmental change in the region, from the 1890s to the present.

The variety of crisis narratives suggests something other than a single recurring crisis endemic to the area. Each of them is attributed to the landscape, and society is a successive internal impact of processes that origin – in large part – outside the region. Contradictions and conflicts emerging in the First World, and on a global scale, have continually been "exported" to Kenya. They have instead merged with regional social and ecological systems to give the appearance of a series of local, unidimensional crises. The series of crises experienced, documented, and "named" in the Ukambani region, revolve around an ongoing and multi-faceted encounter with the global restructuring of economies, ecologies, and cultures (Rocheleau et al., 1995, p.1038).

The 100-year plus recorded history of economic and environmental changes in Ukambani puts current concerns and conditions within the larger context. During the period, land use systems changed drastically in response to new markets and property relations, population growth, and large-scale migration and resettlement (Rocheleau et al., 1997). The changes were constructed out of the particular intersection of processes and conditions operating within a broader context, and converge upon the social and environmental landscape of Ukambani (Rocheleau et al., 1997; 1995, p.1040). Many of the conditions seen as intrinsic to the region are results of specific colonial, national, and international policies and interventions. The phenomena also reflect the increasing link between the local production systems with national and foreign forces, which are tied to the continuing transformation of the global economy.

Some of the degradation is irreversible (Rocheleau et al., 1997). One must incorporate various past and present stories of places and peoples before attempting to “solve” their “problems.” All too often, development practitioners enter an area looking for an individual problem, find it, and then design a solution. Such experts are as likely to be part of the problem as they are a part of the solution (Rocheleau et al., 1995, p.1049).

Upon establishing Nairobi, the European settlers found the area endowed with the artisanal dimension stone suitable for building houses (See Photo 4) (K’Akumu et al., 2010, p.96). The presence of other different volcanic rocks, trachyte, phonolite, tuffs, and basanite, has provided cheap and readily available building materials used extensively in the building and construction industry in the CoN (Mundia and Aniya, 2006, p.107). The Ukambani region is also the primary source of the sand used for construction in the city. The most significant land use change in Ukambani region is the "mining" and the quarrying of sand from dry riverbeds and channels (See Photo 5). The uninhibited exploitation has created an unprecedented environmental crisis (See Photo 6). Among others, River Thwake has changed its course as a result of sand harvesting and run through farms below Kathiani urban center.

Photo 4: Constructions using artisanal dimension stone in Nairobi

Source: Author

Photo 5: Sand harvesting at Issuni River, Mbooni

Source: Lillian Mutavi, *Daily Nation* | February 06, 2014.

Photo 6: The effects of sand harvesting in the Ukambani Region

Source: www.ambnairobi.um.dk

In 2009, Poverty Eradication Network (PEN) [4]carried out a baseline study with support from Community Development Trust Fund. The study showed sand harvesting is a thriving business due to the increasing demand in the construction industry in the CoN. PEN observes that approximately 175,484 tons of sand is collected annually in the greater Machakos district. There is very little income derived from sand harvesting that is reinvested back to the local area. The survey showed sand harvesting is a major concern in the larger Ukambani region. The practice of is unsustainable and has caused environmental degradation on the physical landscape. Much of the problem is attributed to lack of an enforceable sand harvesting policy. Of great concern is the failure by the relevant Ministry to gazette sand harvesting guidelines developed by the National Environment Management Agency (NEMA) in collaboration with other lead agencies and stakeholders.

4.3.1.3 Northern Metro: geography of urban proximity and land fragmentation

For decades, Kiambu County was rated the top richest Region in Kenya. However, everything in it betrays the assumption that most of its people are rich (Republic of Kenya, 2011a). Much of the county - especially in Ruiru, Kiambu, Juja, and Limuru areas - is owned by only a few people. Between Runda to Kiambu town, there are Githogoro slums, which harbor thousands of poor families working in the coffee and tea farms. From Kiambu town to

[4] PEN is a Non-Governmental Organization registered in Kenya. Source www.penkenya.org/pages/Sand_Harvesting.vrt

Banana, there are many large coffee farms, but at the middle are thousands of poor families in Ngegu, Turitu, and Kangonya. The vast majority of the population, 1.6 million, in Kiambu County is employees in the tea and coffee farms. They earn as low as Sh130 (U.S. $1.5) a day, despite the prices of the two produces doing well internationally. Poverty in the county stood at 25.4 percent, according to a survey conducted in 2005 by the Kenya Bureau of Statistics. By 2010, 53 percent of the County's population lived below the poverty line (Republic of Kenya, 2011a). The County has in the recent past has changed from tea and coffee plantations to a concrete jungle, with the most of the investors not Kiambu natives. Land fragmentation is the primary challenge facing the county.

There are other factors attracting people to Kiambu County and the subsequent land subdivision. The availability of red volcanic soils; forested landscape; cold climate; proximity to Nairobi; commoditization of land; market forces; hoarding for speculation purpose; peer pressure; inheritance; and temporary occupation licenses used by the local governments and politicians on the trust lands. The area is also a hub of "ultra-modern" real estate parks, multinationals, international organizations and several foreign embassies and the United Nations compound. The Staff for these organizations often take up the apartments and have been the main reason pushing up, not just demand, but prices of houses.

Today, in Kiambu County, it is mainly the older people who tend coffee bushes, maybe still dreaming of the return of the golden years of 1970s, when they earned millions from coffee. In many coffee-zone areas, farmers frustrated by falling prices, high costs of inputs, and official government neglect, have resorted to the uprooting coffee in favor of horticulture and real estate development, something that could not happen before the 1980s because The Coffee Act barred farmers from uprooting coffee bushes. Data from Coffee Research Foundation shows that the annual coffee production in Kenya has fallen from a record 130,000 tons in the 1987/88 season to 54,000 and 50,000 tons in 2009 and 2011 respectively. The areas that are traditional coffee growing in Central Kenya that provided 80 percent of the crop, particularly Kiambu County, have progressively shrunk and replaced by real estate development (www.crf.co.ke). Coffee bushes once uprooted, returning to the coffee farming is a long process because a bush matures fully after seven years. The problem exacerbates

further by the fact that 60 percent of Kenyan coffee production is by smallholders and the rest on estates. Out of the 170,000 hectares under coffee in Kenya, large estates represent 12 percent but produce 40 percent of the harvest, according to the Eastern African Fine Coffees Association (www.eafca.org).

The Land Control Boards operating under the Land Control Act have failed to regulate the land subdivisions. The Boards grant consent to subdivide and transfer land parcels that are uneconomical for agricultural use. The continued land sub-division to subsequent generations has miniaturized land sizes over time as shown in Photo 7; making commercial growing of cash crops virtually uncompetitive. Further sub-division is no longer tenable. It calls for an urgent response. Even with land reforms, the problem will likely remain because the customary practices such as land inheritance mean those qualified to inherit the farmland will almost invariably sub-divide it as shown in Figure 26. An issue that has become problematic and a significant challenge to peri-urban land use and development is the lack of a practical framework and implementation of planning over land dominated by private ownership.

Photo 7: Land fragmentation in Kiambu County

Source: Suleiman Mbatiah/*Daily Nation* Wednesday, May 4, 2011

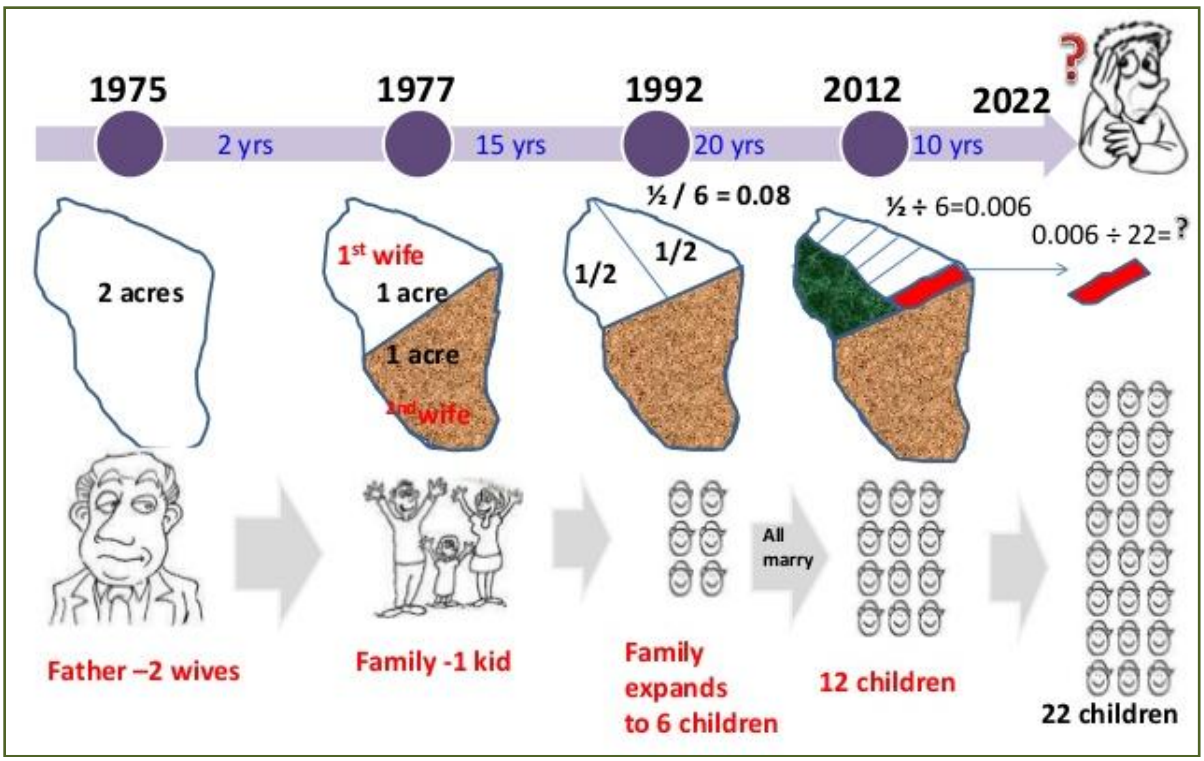

Figure 26: Dilemma of land fragmentation in Kiambu County – an impending tsunami

Source: Adopted from Mwehe, (2014)

A suitable arable land policy, at a minimum, should map the area with the highest agricultural potential and direct large-scale urbanization projects away from such land. It should also consider minimum sizes for commercial viability during subdivision. Even with all the progress, some fertile arable land will still inevitably be given over to urban development. The policy failure to secure the long-term availability of such land represents acquiescence to food insecurity (Republic of Kenya, 2010). There is a need to provide an alternative, possibly implement clustering settlements system. The system will make available more land for other uses. Clustering is a paradigm shift. Tanzania experimented with a similar approach, the Ujamaa village approach, and failed. The model can be improved alongside the clustered settlements as is common in many developed countries.

4.3.2 Peri-urbanization: critical perspectives, patterns and trends

Studies on the development processes have made significant contributions to understanding urban growth and form (Lawson, 2007, p.94). Some studies have directly or indirectly

promoted a host of urban growth policies. These range from growth poles (Richardson and Richardson, 1975; Friedman, 1966), to intermediate size city strategies (Rondinelli, 1983a, b; Hansen, 1981; Hackenberg, 1980; Rondinelli and Ruddle, 1978; Rivkin, 1976). Other studies examine the spatial spread of developmental processes and seek to understand the patterns that emerge. Taafe et al. (1963) examined the degree of internal accessibility through the road networks in Ghana and Nigeria. They postulated that the accessibility is a function of such factors like population level, physical environment, rail competition and level of commercialization (Cliffe and Ord, 1981, p.215). In Sierra Leone, Riddell examines the human geography of modernization and concludes that the modernization is a geographic phenomenon with distinct spatial expression. Its pattern of spread is not a simple contagious process but is strongly influenced and determined by transport systems and the urban administrative hierarchy (Riddell, 1970, p.130). Soja explores the relationships between the spread of modernization and the emergence of the modern Kenyan State. He maps patterns of mobility, networks of social communication, links between cities and participation in national politics to reveal patterns of modernization (Soja, 1968).

The world over, infrastructure development is used as a catalyst and a mechanism for addressing imbalances in territorial development. Settlements have grown phenomenally in the peri-urban Nairobi in the last three decades, mainly along the roads' development arteries. The proactive entrepreneurs make spatial strategic positioning in response to emerging development corridors in demand, leading to increased land acquisition either for speculation or real investment along proposed and/or ongoing infrastructural development. The speculation triggered by the happening within the Government development initiatives especially along the road bypasses, thanks to the existing infrastructure expansion provisions. Indeed, making development decisions is making a decision about local power (Robbins, 2004, p.179). Infrastructure layout has a primary bearing on human and industrial development patterns, whether systematically executed within a structured plan, or as a response to the dynamics of urbanization, more often, otherwise affordable land or properties become inaccessible within a short span of time. In Nairobi, about 70 percent of urban developments are occurring in PUAs and mainly in such areas as the Nairobi-Thika

Superhighway and Mombasa Road corridors (AAK, 2011). The following sections discuss some recent multi-million developments along the corridors.

The Garden City development, worth KSh27 billion (U.S. $317.65 million), with proposed commercial premises, and 500 homes, is likely to send prices skyrocketing in neighboring areas. The Tatu City, the “Africa’s City of the Future,” is a proposed satellite city 40 kilometers North of Nairobi in Kiambu County on a former coffee farm approximately 2470 acres. Other than Buru Estate in Nairobi, Tatu City is the second approved master plan since independence. The difference is that it is Kenya's largest real estate investment and the first privately run city. It is envisaged to promote commercial developments and accommodate 70,000 residents, and 30,000 daily visitors, once completed (UN-Habitat, 2014, p.146).

Another notable mega-housing project coming up is Migaa Estate, set on 775 acres in Kiambu County. In 2009, Suraya Property Group launched Fourways Junction estate, on Kiambu Road. The development, estimated to cost Sh1.5 billion on a 200-acre parcel of land, consists of 788 housing units, a shopping mall, villas, and a clubhouse. Another project in the Juja area is the Oak Valley development, will have a total of 751 units. Thika Greens Ltd, another real estate company, acquired a 1,700-acre parcel of abandoned coffee land situated on the outskirts of Thika town at a cost of KShs. 25 million to construct Thika Greens Golf Estate project, a middle-income residential property. The project will have 10,000 housing units and also include learning institutions, police station, petrol station, playing fields, a five-star hotel and 18-hole golf course among other social amenities.

There are several other new and on-going developments in and around Thika town. Anfield Holdings has a commercial and residential development on a ten-acre site along the Thika-Garissa Highway, the Flame Tree Park, expected to have 364 housing units. Other notable residential and commercial projects are Thika Greens, Buffalo Hills, Juja South, Bahati Ridge, Garden City, Golden Mile Park, Chania Gardens, Castle Park, Leisure Village to mention a few. The choice to develop mega-projects in Kiambu County, include ease of accessibility, the areas' favorable cool weather, and the availability of land from clearing off the coffee plantations (See Photo 8).

Photo 8: A coffee plantation earmarked for housing development, 2013

Source: www.thuoinvestments.com

The prospect of the developments has pushed property prices up in adjacent places. The property value differs mainly according to location, potential use, urban and rural settings. As local governments continue to require higher property rates, it is effectively making large-scale farming operations untenable. The improvement in accessibility has led to an increase in demand for land properties. Residents fear that low-end residential houses in the areas may be replaced by newer, high-end properties. The increase in land prices has made many people and co-operative societies are sold off their land to take advantage of favorable rates. Besides the Nairobi-Thika Superhighway and Mombasa Road highway, the peri-urban Nairobi has three Bypasses. The Northern Bypass (See Photo 9), is a 25 Km long starting from Rwaka Trading center, on the Limuru road to Ruiru and then joins the Eastern Bypass just after Kamiti River. The Eastern Bypass is a 32 Km long bypass that starts from Mombasa road at city Cabanas and passes through Kangundo Road to connect with Ruiru-Kiambu road near Prison Training School. The Southern Bypass (See Photo 10), a 28.6 Km long, is expected to open in 2015, and branches off from Mombasa road on the edge of the NNP to Thogoto in Kiambu County then joins the Nairobi-Nakuru Highway.

Photo 9: A section of the Nairobi Southern Bypass under construction in Karen area

Source: Author

Photo 10: A section of the 25-km Northern Bypass in Nairobi

Source: Author

The development of transport systems are intended to modify natural and social environments to create or enhance the economic well-being and other benefits valued by society. The goal, however, may not be achieved because of unanticipated adverse environmental or social impacts that may reduce desired benefits or, if severe, threaten the sustainability of the project. There are many benefits provided by road expansion or building of new roads (Ajayi et al., 2013, p.4). The construction of road bypasses has occasioned a

property boom in a number of PUAs. However, while the bypasses can overcome some problems of conflict between road use and community welfare, they may create other problems. Communities may lose business from the diversion of traffic. Some activities may "migrate" to the new route, potentially changing existing land use patterns and undermining the objective of greater control of access on the new route (Ajayi et al., 2013, p.5). Although infrastructure and supply are the primary determinants that drive the property market, there are still uncertainties about the drivers of the properties fundamentals. In the last decade, high housing and property prices and robust markets have been attributed to piracy money, remittances from the Diaspora and high demand against small housing supply. The persistent high-interest rates charged by the Banks make borrowing expensive thus contributing to the housing shortage. Previously, the high cost of land acquisition and related compensation to constructing public roads and infrastructure such as roads, schools and hospitals in Nairobi led to developments concentrating within 25-km radius from the CBD.

4.3.3 Population dynamic and demographic characteristics of the NMR

The relationship between population density and demographic processes is quite unclear because there has been a dearth of research in the area. Nevertheless, the degree of population concentration is an important dimension of the settlement structure (Hugo et al., 2001, p.25). Attention to the high-density urban development and the associated demands worldwide has created justifiably renewed attention to population as an important driver for land use changes (Robbins, 2004, p.9). In NMR, population is a major driver of land use change, and current trends point to the continued growth (CCN, 2007b, pp.148-156).

In 1963, the CoN's population was 350,000, although much of the growth was due to a significant boundary extension (Obudho, 1997). The city's population grew from 827,775 in 1979, 1,324,570 in 1989, and 2,143,254 in 1999, and increased to 3,138,369 in 2009 with a density of 45.52 persons per Km^2 as shown in Table 13 (KNBS 2010). Kenya's two urban centers of Nairobi and Mombasa, the second largest, accounted for 70 to 74 of urban population during the 1948, 1962 and 1969 censuses. They however had only about 50.7 percent according to the 1979 population census (Muganzi and Obudho, 1986, pp.239-240). The combined proportionate share dropped to 29 percent in 1999 (UN-Habitat, 2007, p.1).

Table 13: Population growth and density of the City of Nairobi, 1906 – 2009

Year	Area (Ha)	Population	Percent Increase	Density
1906	1,813	11,512	---	6.34
1928	2,537	29,864	159.4	11.77
1931	2,537	47,919	60.5	18.88
1936	2,537	49,600	3.5	20
1944	2,537	108,900	119.6	43
1948	8,315	118,976	9.3	14
1963	68,945	342,764	28.5	5
1969	68,945	509,286	48.6	7
1979	68,945	827,755	62.5	12
1989	68,945	1,324,570	62.6	19
1999	68,945	2,143,254	55.2	31
2009	68,945	3,138,369	68.3	45.52

Source: K'Akumu and Olima, (2007, p.91); KNBS, (2010); and www.citypopulation.de

Individually, Nairobi in 1962 accounted for 33.8 percent of the total urban population while it rose to 47.2 percent in 1969. In 1979, the city had 36 percent of the total urban population (Obudho, 1987, p.39). While, the 1970–74 National Development Plan sought to spread development more evenly among other urban "growth centers", this has not happened. There was a reverse trend. From 1967 to 1971, Nairobi increased the share of the new private construction in urban areas from 78.3 percent of the total to 88.7 percent. Mombasa's share declined from 14.7 percent to 9.8 percent and that of the "other principal towns" from 7.0 percent to only 1.5 percent (Stren, 1975, pp.273-274).

The CoN has continued to grow, leading to the emergence of new settlements in the PUAs, which neither the existing structures of government or current regulatory frameworks can respond to effectively. These sprawling urban peripheries are almost entirely un-serviced and unregulated (UN-Habitat, 2009, p.30). Whereas the city's population grew to 3.1 million in 2009 (See Table 14), the population is much higher during the day, estimated at 7.6 million in 2012, with the bulk living in the NMR. The region's population is projected to increase from 9.0 to 14.3 million in 2017 and 2030, respectively (See Table 15). Kenya is expected to be 61.5 percent urban in 2030, and the NMR will accommodate the bulk of this urban population as shown in Table 15 (Omwenga, 2010, p.3).

Table 14: Nairobi Metropolitan Region: counties, area and population, 2009

Area	County	Area (Km^2)	Population
Core Nairobi	Nairobi	694.9	3,138,369
Northern Metro	Kiambu	2,449.2	1,623,282
Southern Metro	Kajiado	21,292.7	687,312
Eastern Metro	Machakos	5,952.9	1,098,584
TOTAL	**Nairobi Metro**	**30,389.7**	**6,547,547**

Source: KNBS, (2010); www.nairobimetro.go.ke

Table 15: Nairobi Metropolitan Region: projected population (in millions), 2030

Year	1999	2007	2012	2017	2022	2027	2030
Total National Population	28.7	36.3	41.5	47.2	52.9	58.7	62.1
Total Urban Population	5.4	9.0	12.3	16.9	23.1	31.7	38.2
Metropolitan Population	4.8	6.3	7.6	9.0	10.8	12.8	14.3
Urban % of National Population	18.8	24.8	29.6	35.8	43.7	54.0	61.5
NMR % of National Population	16.7	17.4	18.3	19.1	20.2	21.7	22.8
NMR % of Urban Population	88.5	70.3	61.7	53.3	46.3	40.2	37.0

Source: Omwenga, (2010, p.3)

There are 23 urban centers and about 620 rural settlements dispersed throughout the NMR. Kajiado County has the highest number of ten urban centers, ten, but with the lowest urban population, 5.7 percent of the total metropolitan population. It is noteworthy that settlements nearer the CoN have a much higher population density especially in the Northern and Southern Metro as shown in Figure 27. So are the settlements near higher-level administrative centers, such as district and county headquarters, and major highways. On the other hand, the level and rates of urbanization vary across the counties as shown in Figure 28. Nairobi is 100 percent urban, followed by Kiambu, Machakos, and Kajiado, with 68.8, 52, and 41.4 percent levels of urbanization, respectively.

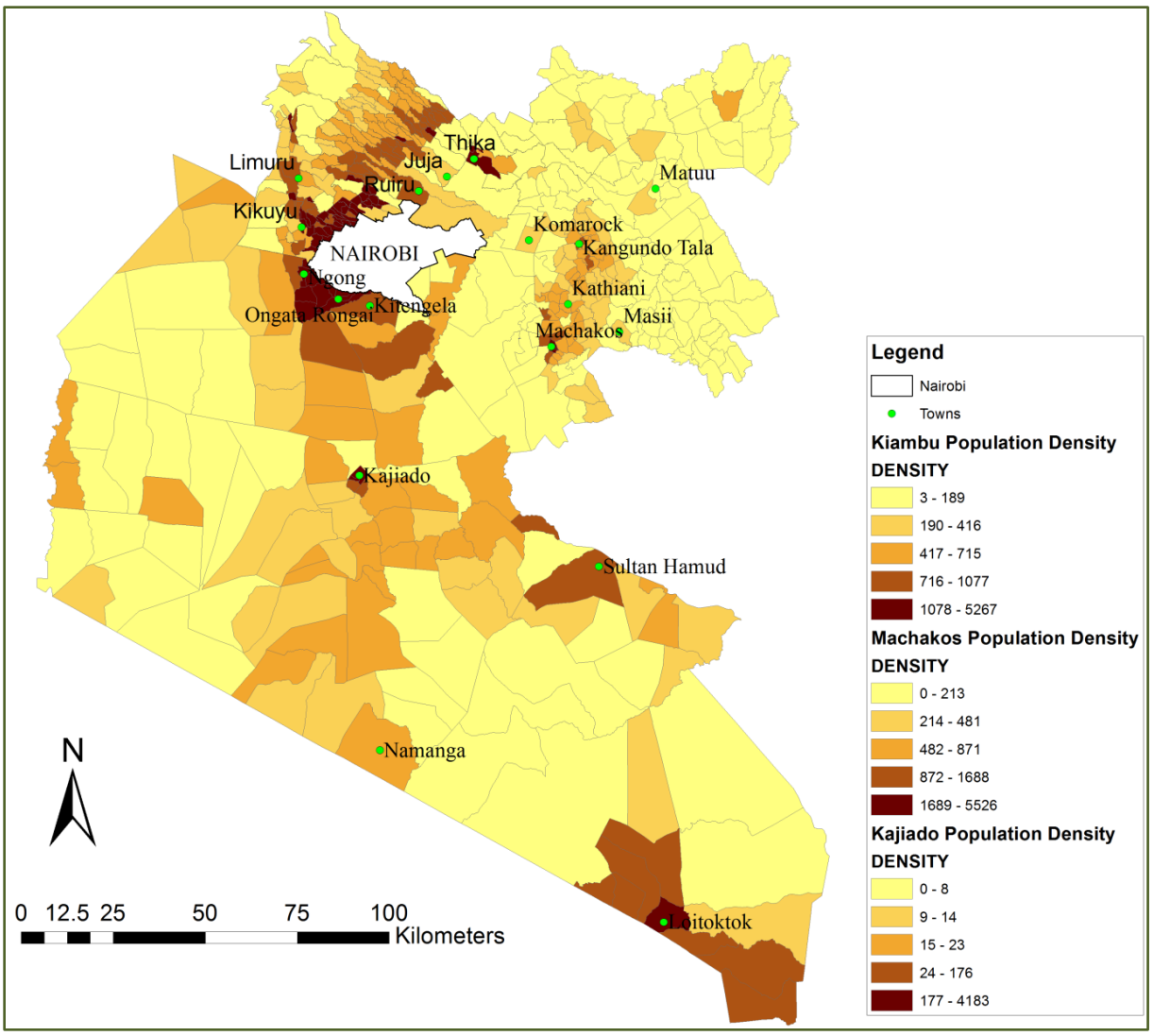

Figure 27: Population density across the NMR

Source: Compiled from the KNBS, (2010) Census data

The Southern Metro, Kajiado County, covers an area of 21,901 km^2. The population concentrations vary across administrative areas with the highest population densities being proximity to the CoN and select urban centers. The County's population grew from 149,005 in 1979, 258,659 in 1989, and 406,054 in 1999, and rose to 687,312 in 2009 (KNBS, 2010). The average population density increased over the years, from four to seven persons per km^2 in 1969 to 1979, and from twelve to nineteen in the 1989 and the 1999 (Republic of Kenya, 2005a, pp.4-5). The density was 31.4 persons km^2 in 2009, a change of 5.4 percent per year from 1999 to 2009 (KNBS, 2010).

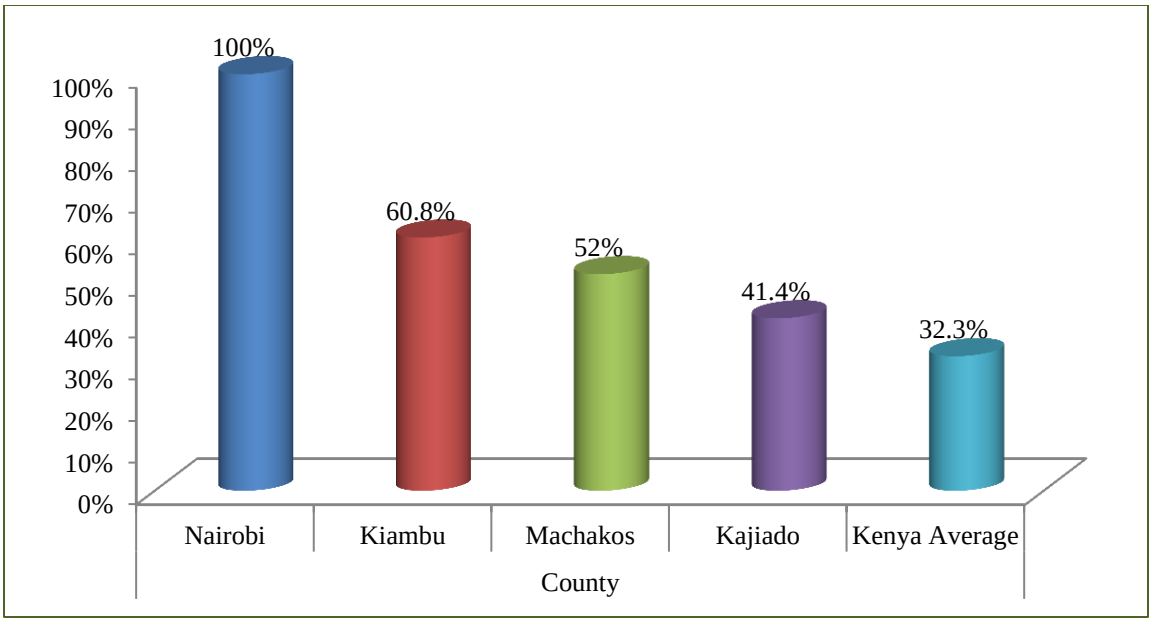

Figure 28: Nairobi Metropolitan Region: percent urbanization levels by County

Source: KNBS, (2010)

In the Eastern Metro, Machakos County, the average population density was 126, 144 and 177 persons per km^2 in 1989, 1999, and 2009 respectively. The population stood at 906,644 in 1999 and rose to 1,098,584 in 2009, growing at the rate of 1.7 percent. The increase attributed to population growth rate and rural-urban migration, especially to towns along the major highways (Republic of Kenya, 2005a). Areas with high agricultural potential have higher population densities than the marginal areas.

In the Northern Metro, Kiambu County, covering an area of 2,543 sq. Km^2 and borders CoN and Kajiado County to the south, Nakuru County to the west, Nyandarua County to the northwest and Machakos to the east. The County is densely populated except for the semi-arid areas of Kikuyu Division. The high population density in most parts of the County has led to land fragmented resulting in a decline, in productivity. The County's population grew from 686,290 in 1979, 914,412 in 1989, and 1,389,723 in 1999, and rose to 1,623,282 in 2009. The population density is 638 people per Km^2 (Republic of Kenya, 2011, p.13; 2005b, pp.3-6; www.citypopulation.de). Kiambu County has an urban population of 60.8 percent. It has many urban centers; the most urbanized counties after Nairobi, Mombasa, and Kisumu.

See Table 16 for more select demographic indicators in each of the NMR Counties as per the 2009 Kenya population and housing census.

Table 16: Nairobi Metropolitan Region Counties: select demographic indicators

Data	Kajiado	Machakos	Kiambu	Kenya[5]
Population	687,312	1,098,584	1,623,282	821,491
Surface area (Km²)	21,901	6,208	2,543	12,368
Density (people per Km²)	31	177	638	66
Poverty rate, based on KIHBS (%)	11.6	59.6	27.2	47.2
Share of urban population (%)	41.4	52.0	60.8	29.9

Source: Republic of Kenya, (2011, pp.10, 13 and 22)

4.3.4 Case studies of changing patterns of peri-urban settlements

There are no universally accepted discernable patterns of peri-urban land development. However, there are several common characteristics pervading the literature that can help understand the occurrence. Some of these include low-density, single-family dwellings; automobile dependency even for a short trip; spiraling growth outward from existing urban centers; leapfrogging patterns of development; strip development; and undefined edge between urban and rural areas (Brody, 2013). A variety of urban forms can be described using a typology based on two continuous dimensions: settlement density (high and low) and physical configuration (ranging from contiguous and compact to scattered and discontiguous). This classification system suggests eight idealized types of urban growth as presented in Table 17 (Besussi et al. 2010, p.19).

There several discernable patterns of development in the peri-urban Nairobi. First, there is the strip or "ribbon" development, residences and commercial properties that follow major transportation arteries from urban cores, but those without direct access remain in rural uses/covers (Brody, 2013; Barnes et al., 2001, p.5). Secondly, there is leapfrog development, a discontinuous pattern with patches of developed areas widely separated from each other. The development is a result of physical geographies such as rugged terrain, mineral lands,

[5] Entries in the 'Kenya' column show County averages.

wetlands or water bodies that may preclude continuous development or make it prohibitively expensive. The development may also be due to restrictive land-use policies in one political jurisdiction, which may lead development to "jump" to an area that is favorable, or that is less able to prevent or control it (Barnes et al., 2001, p.5). Thirdly, there is undefined pattern of developments between urban and rural areas where development extending outward from urban centers tends to blur the division between urban and rural domains. The pattern is often associated with the encroachment of open space and agricultural lands (Brody, 2013).

Table 17: Types of urban growth

Type	High density	Low density
Compact contiguous	Circular or radial using mass transit	Possible but rare?
Linear strip corridor	Corridor development around mass transit	Ribbon development along radial routes
Polynucleated nodal	Urban nodes divided by green belts	Metro regions with new towns
Scattered/discontiguous	Possible but rare?	Metro areas with edge cities

Source: Besussi et al., (2010, p.19).

The following section analyses select PUSs (See Figure 29). In the Southern Metro, Kajiado County, the settlements are Ongata Rongai and Kitengela. The choice is due to proximity to major roads, and represents areas of relatively recent settlements. In the Eastern Metro, Machakos County, Athi River represents an industrial zone, with some manufacturing and processing industries. Indeed, Athi River provided a unique case classified as being a "No-man's land," in regards to traditional land tenure systems. The location could not strictly belong to a particular ethnic group; boundaries between African ethnic groups were flexible (Sheppard et al., 2009, p.357). In the Northern Metro, Kiambu County, Kinoo, and Wangige were selected due to proximity to the Nairobi-Nakuru highway, and predominantly located in the same land tenure system, respectively, for comparison purposes.

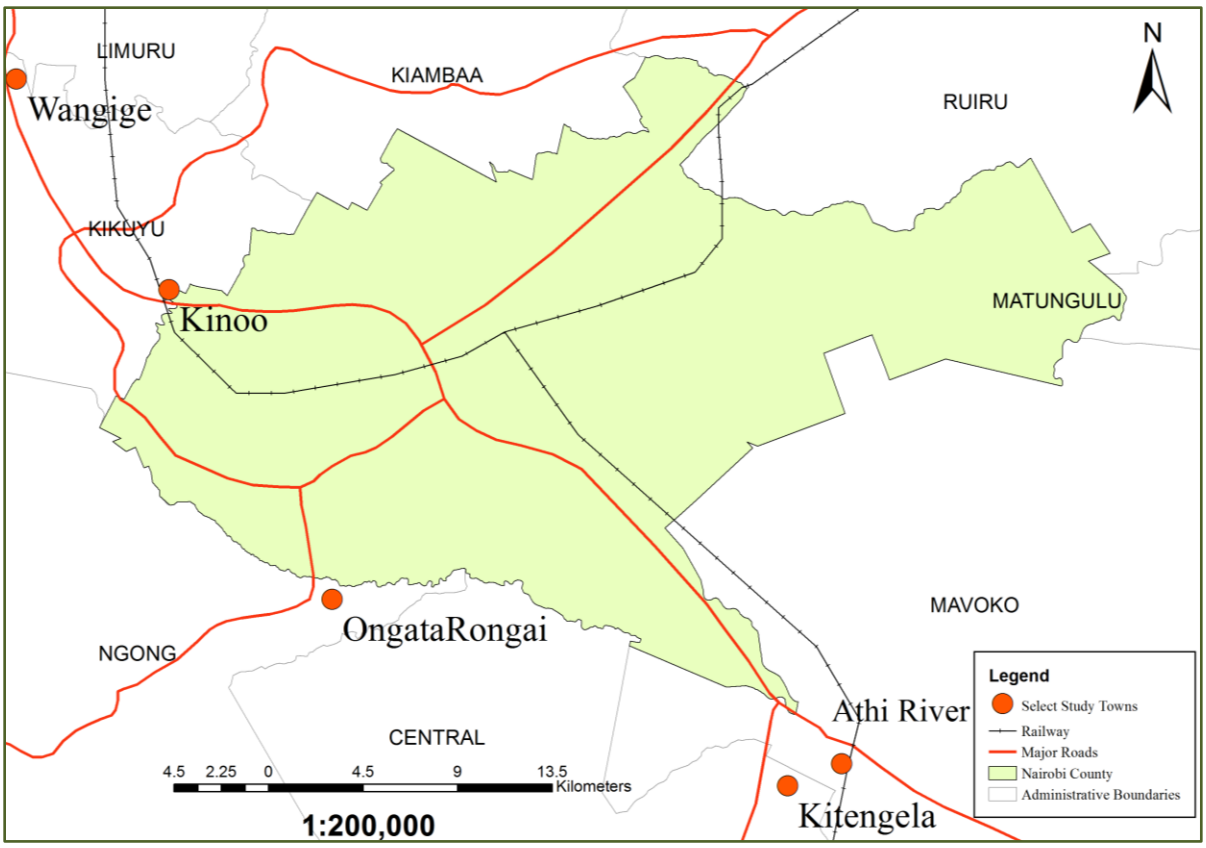

Figure 29: Location of the select case studies in peri-urban Nairobi

Source: Author

4.3.4.1 Ribbon pattern of development: Kitengela and Ongata-Rongai

For a greater part, Kajiado County is covered with wide-open plains. The two significant issues in the county are land and lack of water. The land factor is on two fronts, the migration of the middle class from Nairobi and the mismanagement of group ranches. The result has been Maasai villages being gobbled up by Nairobi's relentless expansion bringing in migrants who have radically changed the demographics and socio-economic structure in the county. The migrants are bringing investment hitherto not available, which is why Kajiado has been ranked Kenya's wealthiest county with just 12 in every 100 people classified as poor (Republic of Kenya, 2011a). The interior of the county has poverty levels as other marginalized areas of the country. The new NLP calls for zoning of the county into the respective land uses and restricts land sub-division in agricultural areas. The challenge is that many of the zones set aside for agriculture have already been sold and subdivided for residential developments. Most of these are in proximity to Nairobi and the urban centers

along the Nairobi-Athi River-Namanga corridor such as Ngong, Ongata Rongai, Kitengela, Isinya, and Kajiado – taking ribbon pattern of development.

Kitengela (See Figure 29) refers to the plains on which the area lies, and with the development of the settlement, the shopping center took the same name. The center is 30 kilometers to the south of Nairobi along the Nairobi-Athi River-Namanga corridor. It borders the NNP on one side and Athi River on the other. The city is fast becoming the place of choice for many Nairobi residents migrating southwards. The growth is evident by the high number of modern houses coming up, right from the main road to remote corners. The roofing material of the houses is also shifting from iron sheets to tiles. Although the land further inland appears idle, the fences around plots prove otherwise; they have owners.

Ongata-Rongai (See Figure 29) is located 20 kilometers south of Nairobi, along the Nairobi-Magadi corridor. It covers 16.5 Km^2 with a population of 40,178, according to the 2009 census. It started as a stone (artisanal dimension) mining area in 1950's, and grew into an urban settlement put up by casual laborers working in the neighboring affluent Karen residential neighborhood in Nairobi. The urban center consists of four distinct functional zones: the Rongai shopping center, a commercial area to the north; Nkoroi, an upper-class area to the south; Kandisi, a semi-rural area to the east; Kware, a slum to the west. Most developments, formal and informal, are concentrated along the Nairobi-Magadi road, and are spreading to the interior (Kazungu et al., 2011, p.2).

4.3.4.2 Proximity to a Highway: the two faces of Kinoo town

Kinoo town (See Figure 29) is a booming urban center along the Nairobi-Nakuru highway, about 20 kilometers west of the CBD. Newer and modern flats and apartments are reminiscent of the area. The rapid construction may excite prospective developers. There are ironies though. Property owners adjacent to the highway are getting better returns because of thriving businesses targeting travelers from Nairobi to the Rift Valley and Western regions. Their counterparts, just a kilometer away into the interior, have many empty premises or charge less. By 2010, owners of quarter-acre plots adjacent to the highway were selling for KSh7 million (U.S. $82,353). The same size, less than a kilometer from the road, could

hardly go for a million shillings (U.S. $11,765). Just like many towns in Kiambu County, the town's expansion is impeded by the land shortage. The center was planned in 1958, during the Kikuyu land demarcation, and it is trapped by the customary land tenure system.

4.3.4.3 A tale of two cities: growth vis-à-vis stagnation

Urbanization is the hallmark of the developed societies; the more advanced a society, the more urbanized. Urbanization can at times be puzzling, defying laws of economics especially in the developing countries, as demonstrated by the following two distinct peri-urban centers, Wangige and Athi River (See Figure 29). Wangige is a small peri-urban center located 15 km Northwest of Nairobi's CBD. According to the 2009 census, Wangige had a population of about 6,000 residents (KNBS 2010). It is in a productive area agriculturally and has the fifth largest fresh produce market in the NMR. While moving from Nairobi's CBD to Wangige, one passes through high-class residential estates. Anyone visiting Wangige for the first time would not believe the area is so near Nairobi. Athi River, on the other hand, is in the Kapiti plains on the Nairobi-Mombasa Highway, about 30 km from Nairobi's CBD. It is much younger, but it far outpaces Wangige in terms of growth. It may be expected Wangige's proximity to Nairobi and next to high-class residential neighborhood should have had a higher impact. It is not the case.

A few decades ago, the expansive area around Athi River was covered with shrubs and grass, owned by various land buying companies and cattle ranchers. Athi River or Mavoko, which is on Government land sold on leasehold title, has changed from agricultural to industrial to mixed-use development over the years. In the 1973 Nairobi Metropolitan Plan, Athi River was a small region covering only 10 km^2 (6.2 square miles). Today, it is swallowed in the larger Mavoko, which covers a whopping 690 km^2 (428.7 square miles), just like the CoN. What happened? The main reason was the government policy that designated the town as an industrial zone in the 1973 Plan and has since become an industrial hub with currently having 82 manufacturing and processing industries. Other factors include the establishment of an Export Processing Zones (EPZs); proximity to the big market for cement in Nairobi; and abundance of pozzolana and gypsum, which are ingredients for cement production are

readily available from the nearby Kajiado, Isinya and Konza; and the improvement of the Mombasa and Namanga roads; among others.

With the high demand for housing in Nairobi, Athi River has become lean-on area; high-end single dwellings and large housing schemes are now a standard feature (Photo 11). Due to the demand, land prices have shot up, some for speculative purposes. The demand has brought many challenges though. There are many unsuspecting people who bought land from fraudsters owned by several governmental bodies and agencies. Some of the affected agencies are the Numerical Machinery Complex; East African Portland Cement Company; National Housing Corporation; National Social Security Fund; Kenya Meat Commission; Meat Training Institute. Irregular land appropriation and acquisition is prevalent; done haphazardly and without the necessary planning, thus the mess characteristic of the construction that is currently there. There are, however, good examples of modern developments such as the Sh30 billion (U.S.$353 million) gated community housing project, undertaken by Iluluwe Development Company on a 1,000 acre piece of land.

Photo 11: A new estate coming up in Athi River town

Source: Author

Wangige, on the other hand, is a representative of most other small urban centers in Kiambu County, centers that have stagnated for decades (See Photo 12). Other examples include Kiawanugu, Karura, Gitaru, Rukubi, Chura, Gitaru, Kinoo, Munyaka, Ndurarua, Kabete, Mwimuto, Kibichiku, Gathiga, Kikuyu, Kinoo, and Riabai, King'eero, Kanyariri, Muthure, Kibiku, Kirangari, Gikuni, Nyathuna, Kabocha, Ngecha, and Mukui, among others. They

straddle twin identities of ethnicity and urban modernity. They are regarded as ethnic villages rather than urban phenomenon the way slums in cities are. They also tend to be ignored and receive little attention because they fall outside of the urban studies development discourse. The small centers growth trajectory is important in understanding the CoN and region.

Photo 12: Typical residential houses in the vicinity of Wangige Shopping Center

Source: Author

Wangige is a homogeneous town where everyone talks the same native language. The land tenure system makes it hard for developers to buy land and put it into better use. Land is owned by families and disposing of it is a legal and social constraint. Buying land in Wangige may be more than having enough money. In Athi River, there are as many property owners from different ethnic communities. What ties them together is not kinship as in Wangige, it is money. Without any social hindrances, anyone with money moves to Athi River. The effects of market forces on land have made Athi River a livelier town.

The economic tale behind Wangige and Athi River can be generalized across Kenya and at the global level. One of the main reasons for the growth and dominance of Nairobi is because the socio-cultural roots are loose; market forces and economic self-interest determine settlements. Nairobi is a swirling vortex that receives the educated, ambitious and the talented from the countryside. They bring ideas enriching the social and economic life of the city. For Wangige, the educated, ambitious, and talented emigrate; setting a vicious cycle and the urban center stagnates further. At the global level, cities such as London, Los Angeles, New York, Toronto, or Tokyo are most diverse. The U.S.'s most vibrant states - New York and California - also happen to be the most diverse, attracting talents and ideas, thus experiencing renewals and vibrancy.

Kenya's urbanization process needs to unlock the potential of her small urban centers by enriching them with a variety. Before the general election in 1992, Kenya was moving more towards the neoliberal global Athi River model. Diversity was becoming more attractive as opposed to the localized Wangige model, conservative and held up by the local land tenure system. If people of Wangige could end the age-old attachment to the land, they could unlock the urban center's potential. As noted elsewhere later in the dissertation, this culture is ending among the younger generation, who are seeing land for what is, a factor of production, and not a social ornament. The generation realizes that better life in a globalized world economy has nothing to do with holding on to land for social reasons. Rather, it is how one can combine the factors of production. People migrate to cities because of existing or new opportunities. In the West, migrants see such opportunities because they have no attachment to ethnic groups. The phenomenal growth of Athi River could be because it is in an area that is traditionally "no-man lands" before the colonial times, unlike Wangige that is at the heartland Kikuyu land. Economically, the Athi River model is superior to the Wangige one. Wangige could change if there is attitudinal change about inheritance and ownership of traditional lands. Otherwise, such urban centers will remain frozen in time and prospects, and the tale of cities, growing and other stagnating, will not end with Athi River and Wangige, respectively. Therefore, the growth and stagnation of many urban centers in SSA is more a function of socio-cultural forces, whose effects far outweigh economic forces.

4.4 The Institutional Structures of Land Use Management in Kenya: The Making and Unmaking of Institutions

4.4.1 Institutions: definition and context

Since human beings live in an uncertain world, they devise institutions to control their environment so as to bring about some certainty (Soysa and Jütting, 2006, p.2). Institutions, as a concept and phenomenon, are difficult to come to grips with. They are diffuse and abstract (Mule, 2001, p.9). Formally, institutions may be described in the form of law, policy, or procedure, or they may emerge informally as norms, standard operating practices, or habits (Polski and Ostrom, 1999, p.3). Hierarchically, institutions extend from the family, the community, the nation, and beyond. Broadly, institutions can be defined as societal norms

(Mule, 2001, p.9). Until relatively recently, policy analysis has often ignored the role of institutions. Past oversight is due, in part, to the inherent difficulty of analyzing them. Conceptually, institutions are highly abstract and frequently invisible elements of the policy environment (Polski and Ostrom, 1999, p.2-3).

European colonial powers affected recent African history through the socio-economic systems and structural socio-philosophies (Muganzi and Obudho, 1986, p.235). The expansion and deepening of commodification have created reactions and stimulated the formation of structures to protect people from market forces, with capitalists organizing systems that limit market forces (Chase-Dunn, 1998, p.36). There are many social institutions of the capitalist world-economy. These include states, classes, "peoples," and households that are created and shaped by the ongoing workings of the world-economy; none of them is primordial (Wallerstein, 1984, p.14). Cities are institutions of economic and social systems in space. Their viability and prosperity depend on the social arrangements and institutions through which they are regulated and managed (Clark, 2006, p.2). There exist different institutions, modern and traditional, and formal and informal in every country (Mule, 2001, p.9). In order to move towards charting a framework for the peri-urban land use management system, a better understanding of the institutional structures in place is necessary. The following sections discuss the main formal and informal institutions in post-independence Kenya shaping the peri-urban environments, the challenges they face, and the resulting consequences. The analysis seeks to account how the lacuna in them has led to the informalization and administration of land use, and how the authorities have reacted to it.

4.4.2 The formal institutions: a charade of repertoires

4.4.2.1 The Local Governments

The structure of local government (also commonly referred to as local authorities) was derived from the Local Government Regulations of 1963, and the subsequent amendments enshrined in the Local Government Act, Cap 265 of the Laws of Kenya (Lumumba, 2004). The Act created the various types of local governments, each with its inherent functions and responsibilities. The Municipal Councils were urban local governments that went beyond the

attributes of a township and to a larger extent the Town Council, and were run by the mayors. The Town Councils were a notch lower than those of the Municipal Council, in terms of physical size and population structure. Lastly, there were County Councils that covered the rural countryside and formed primarily within the district administrative boundaries (Gatatha, 2008, pp.1-4). The arrangement also recognized the cities of Nairobi, Mombasa, and Kisumu as municipalities; their status, duties, and functions, however, were not defined by legislation (Lumumba, 2004).

The Local Government Act provided immense powers to the Minister for Local Government to approve virtually all matters resolved by local governments. The local governments' regulatory and supervisory role were through the application of by-laws, rules and provisions set out through enactment by local governments to govern the activities of the residents (Gatatha, 2008, pp.7-8). The governments had permissive and mandatory functions, which they exercised independently or subject to the approval of the Minister or subject to the compliance with other laws (Lumumba, 2004). They also fused together civic functions (Gatatha, 2008, pp.5-6; Niklasson, 2005, pp.10-11).

The local governments had for a long time been the punching bag for many policy researchers, journalists, politicians, and citizens. It had become easy for writers and commentators to direct cynical, short-sighted and mean-spirited comments on the functions of local governments. Many of the comments were unverified, unjustified and fail to take into account the challenges the governments faced. Nearly all of them faced unique mandates, inertia, and financial challenges. The composite effect of these challenges necessitates my study to analyze on issues surrounding the capability and capacity of local governments. The relationship between elected local government and traditional authorities is critical in the PUAs. The overlaps create tensions between statutory and customary land tenure systems. The potential for conflict is much higher in areas such as in the NMR where the formal boundaries do not reflect social, economic and political realities. Local governance systems and institutional set-up play a significant role in defining the nature of the relationship between urban centers and their surrounding region. It, however, needs to be

situated within the broader context of national and supranational fundamental changes in social and economic structure (Tacoli, 2002, p. vi).

Status of the local authority

There were three types of local governments: town, municipal, and county councils. Each level had different administrative and potential powers, privileges, preferences and autonomy, commensurate to its status in the hierarchy. The factors determined the ease with which the local authority was accessible to resources, facilities, and powers. The ease allowed the local government to undertake functions, and, therefore, the jurisdiction of the authority was to a large extent, closely associated with its status. In this respect, municipalities enjoyed a greater autonomy and privileges politically and administratively. They were allowed to hire technical personnel such as Engineers, Architects, and Physical Planners. They also received preferential consideration in the allocation of business grants and aids, and were allowed to enter into negotiations for loans with lending institutions. On the contrary, town authorities, of a lower status, had little political and administrative powers to access resources; thus limited ability to undertake designated functions.

Legal framework

The Local Government Act Cap 265 Section 166 empowered local governments to prohibit or control the use and development of land and building, in the interests of proper and orderly development of its area (Kimani and Musungu, 2010, p.5). Despite the Physical Planning Act of 1996 placing planning responsibilities with the local governments, they lacked capacity to inspect and implement development plans (Republic of Kenya, 1996). Many did not have planning departments. Even where they have existed, their ability was minuscule with few or no planners and building inspectors (Kimani and Musungu, 2010, p.5). As a result, many urban centers are without a master plan (UN-Habitat, 2006b, p.8). The local governments avoided providing services to the informal settlements. Providing services would give them legitimacy, undermining the local authority's rules and plans, and perhaps preventing them from using the land for its designated purpose (Lumumba, 2004).

Financial stress

Many local governments depended on income derived from property taxation and other service charges. The more lucrative sources, such as income, sales, and business taxes, were for the national government. Because local taxes lack buoyancy, revenue falls behind the growth of the local tax base. The major problem facing the local governments was financing the gap between the available financial resources and expenditure combined with inadequate financial systems. Many local governments relied on the national government allocations, which were often inadequate and irregular in timing. They also lacked the autonomy to establish their tax base and enforcement procedures, and, therefore, could not raise revenue commensurate with their expenditure needs.

Personnel and technical capacity

Though local governments were legally mandated to plan, administer and provide services in their areas of jurisdiction, only 30 percent of urban centers in Kenya are planned. The land use plans were usually prepared at national, regional and local levels on the basis of predetermined goals (Kazungu et al., 2011, p.1). Cities like Mombasa and Kisumu have town planning sections, but these are understaffed and heavily dependent on planners from the Physical Planning Department of the Ministry of Lands and Settlement. Whereas the CoN has been historically understaffed, it is the only local government which has a planning department, with 15 planners compared to the required 60.

The consequence led to continued developments of slums and informal settlements, despite the Physical Planning Act of 1996 empowering the local government to guiding and controlling development in urban areas. The local government countrywide was empowered to vet building plans before developers move to the site. It is not uncommon to see council employees purporting to enforce council by-laws when a casual glance shows that the regulations were long ignored. Confusion in the construction arose and continues when local governments' approves building constructions only to be declared illegal upon completion by the parent ministry.

The proper functioning of the local government system was held hostage by ineptitude and inefficiency. The local governments' decision-making process was polycentric; had many centers of decision-making that were formally independent of each other. Whether these centers functioned independently or instead constituted an interdependent system of relations, is an empirical question in particular cases (Baer and Marando, 2001, p.722).

Under the 2010 constitution, local governments were merged into Counties. The Urban Areas and Cities Act 2011 overhauled all the 175 post-independence local governments. The Act provides for the classification and governance of urban areas and cities. The city must have a minimum population thresh-hold of 500,000 people, between 250,000 and 500,000 inhabitants for a municipality and 10,000 and 250,000 for the town. The Act also establishes three city councils, Nairobi, Mombasa, and Kisumu. More than 40 municipal councils, besides Eldoret and Nakuru towns, have been downgraded. The control of cities and towns is henceforth vested in the County governments.

4.4.2.2 Housing Finance and Institutions

Many institutions, both public and private, are involved in the implementation of housing programs in the Kenya (Obudho and Aduwo, 1989, pp.22-23). Between the 1980s and 1990s there were over 20 housing finance providers. Several commercial banks have also developed mortgage products and are competing directly with the housing finance institutions (Williams, 2005, p.22). The private sector, through the establishment of industries, housing estates, higher education institutions and commercial agricultural entities, is significantly shaping and contributing to the expansion of urban areas (Shuaib, 2009, pp.5-6). The section below has some select cases.

4.4.2.2.1 National Housing Corporation

The National Housing Corporation (NHC) was set up in 1966/67 by the Housing Act Cap 117. The parastatal is a public-owned enterprise with the principal role of developing decent and affordable housing. Over the years, it has facilitated housing development on behalf of local governments. Through an extensive range of housing products, which include rental

units, tenant purchase schemes, site and service, outright sales, rural and peri-urban housing loans, and squatter upgrading projects (www.nhckenya.co.ke).

The production of low-income housing by NHC has been diminishing since the late 1980s, due to many reasons. NHC's slow provision of houses is because it is not entirely mandated by the Housing Act Cap 117 of 1967 to provide housing for the low-income. The latter have brought the NHC problems of high default rates by beneficiaries (especially the local governments). Sometimes, NHC had taken the control of housing estates from local governments when they fail to repay the loan they borrowed to put up those estates. Other problems include lack of land for development; poor governance; economic liberalization; public sector reforms; increased competition from the private sector; stringent bureaucracy; high cost of building materials; and lengthy period of processing title deeds. The challenges limited the NHC from the provision of low-cost housing, leaving the low-income bracket at the mercy of market forces. Faced with such challenges, NHC has entered into partnerships with different players, including private developers to provide houses to the middle-income groups who can afford to repay at market rates. Perhaps NHC needs to invest in properties in line with the trend in the market, and develop reasonably priced homes for high-end markets and to build more housing units each year.

4.4.2.2.2 Savings and Credit Co-operatives Societies (Saccos)

The cooperative movement in Kenya can be traced to 1908, when cooperative production and marketing were established by the European farmers at Lumbwa. However, although traditional forms of cooperatives organized by Africans have been in existence in Kenya since time immemorial, the modern day cooperative societies were founded in the 1930s. However, the Ministry of Cooperative Development was created in 1974 because Saccos offer the best forum for capital mobilization for business and farm acquisition formerly owned by non-citizens (UN-Habitat, 2010, pp.2 and 7). The cooperative sector in Kenya continues to grow and play a significant role in the country’s economy. To date, they have an estimated saving of KShs. 490 billion (U.S., $5,765 million); constituting about 33 percent of national savings. They have a membership of 13 million, and are ranked seventh in the world and number one in Africa in terms of growth (Munene, 2013, p.27; MOCD&M 2011).

A cooperative society is an autonomous association of persons united voluntarily to meet common identified social, economic, cultural needs, and aspirations through a jointly-owned and democratically-controlled enterprise (UN-Habitat, 2010, p.2). There are many types of cooperative societies, although they all work on the same principle, differ on the nature of activities they perform. The different types in Kenya are: consumers'; producers'; marketing; credit; farming; and housing. Within the latter are included: co-ownership societies; limited equity; business equity; equity cooperatives; land only cooperative; and leasing cooperative (UN-Habitat, 2010, pp.33-34). There are many reasons for forming housing cooperatives the acquisition of property such as housing units (Photo 13). The human settlements; resource mobilization; source for external funding; tap economies of scale; provide awareness creation; provide technical assistance, and facilitate the implementation of state development agendas (UN-Habitat, 2010, p.2). Most housing cooperative societies are mainly formed to buy land, develop it and construct houses or flats and allocate the same to members.

Photo 13: An advertisement for residential and commercial plots for sale

Source: www.kamuthi.co.ke

The housing cooperatives fill the void created by the high cost of servicing mortgages that have stalled the housing sector (Arvanitis, 2013, p.3). Across Africa, the ratio of outstanding mortgages to GDP remains tiny. It stands at 10 percent for the entire continent, compared to over 50 percent for Europe and 70 per cent for the United States (Beck et al., 2011, p.144 cited in Arvanitis, 2013, p.7). In Kenya, the mortgage market is the largest in the region yet outstanding mortgages to GDP only stand at 2.5 per cent, far below top performing South Africa and Namibia where outstanding mortgages to GDP stand at 26.4 per cent and 19.6 per cent respectively (World Bank, 2011; CAHF, 2012 cited in Arvanitis, 2013, pp.7-8).

4.4.2.2.3 Investment Companies, and Groups or Chamas

Investment groups, popularly known as Chamas (Kenyan colloquialism for investment groups), are social welfare groups that became visible during the 1980s and 90s, when the Kenya's economy was struggling. Chamas have matured, with some registering as companies and other investment vehicles. Investment groups in Kenya are increasingly becoming powerful investment vehicles the government is looking to tap into for some of the major projects under Vision 2030. There were an estimated 300,000 groups in 2012, which collectively held a combined asset base of at least Ksh300 billion ($3.53 billion) (KAIGNEWS, 2012, July p. 2).

Chamas changed from being the monthly meetings where members discuss their social issues to investment groups with many real estate investments. Many Kenyans form or join investment groups or Chamas to seek the most viable investment vehicle through which to channel their money. In most cases, real estate is at the top of suitable investment options. According to Kenya Association of Investment Groups (www.kaig.org), investment organizations have an enormous potential and important role to play in the country's real estate industry. The KAIG has so far brought together 70 investment groups that led to the formation of the Amalgamated Chama Limited (ACL) or “The Chama of Chamas.” Membership to ACL is optional though. Home Afrika Limited (HAL), an investment group, listed on the Nairobi Securities Exchange, is an example that has left a mark in the real estate industry. It was initially established as a group of five friends with the aim of developing a concept that would deliver housing for the low-income earners. In July 2008, HAL was born

with a total of the 122 members. Today, HAL have several major real estate developments in the peri-urban Nairobi. Among these are the Sh400 million ($4.7 million) property on Ngong Road, the Morningside Office Park; and Migaa, a 774 acre piece of land estimated to be worth Sh11 billion ($129.4 million). There are numerous other such companies (Photo 14).

Photo 14: Celebrating a milestone: land buyers receiving their title deeds

Source: www.thuoinvestments.com

Over the last decade, investments in real estate earned higher returns compared to those at the Nairobi Securities Exchange. According to Stanbic Investments Management Services (one of the largest fund managers in East Africa), and HassConsult (a real estate Company), earnings from the real estate sector were three times more than stock market returns. Wealth from real estate investment grew by 183 percent compared to returns from the equities market that stood at 125 percent. The report also looked at rental yield vis-a-vis interest rate trends based on the 91-day Treasury Bills for the past ten years. Rental yields were 0.9 percent above the 91-day Treasury bill. The report notes that stand-alone houses and townhouses were the key drivers of the capital gains made in the last ten years.

4.4.2.3 Provincial Administration: jack of all trade, and a master of none

The Provincial Administration, represented by local chiefs and district administrators, allocates public or unclaimed private land to private individuals and firms (Syagga et al., 2001, p.78). Usually, a person may approach the area administrator for permission to build a temporary structure on the land in question. This is sometimes in exchange for a token, a monthly cut from the business, or an assured security and protection from interference by local authority's *Askaris* (a Swahili designation used to describe a soldier, police, gendarmerie, and security guards). Quite predictably one thing leads to another. Other people join to set up temporary structures until the area gets fully occupied. The motives behind these allocations are not just landlessness or personal enrichment but political in nature. The allocations, often, increased around the time of elections according to *The Ndung'u Commission Report*. In line with the interest group model, those allocated land were senior civil servants, politicians, and politically connected businessmen. The settlements are informal not only because they have unplanned housing but also because the allocated area has no legal basis. The allocation, however, gives quasi-legal security of tenure and has facilitated the growth of informal settlements in Kenya over the years.

The control of government and trust land is merely symbolic. The planning function is carried out by the central government with no real participation of local governments (Mwangi, 1994). For example, the customary land tenure is entrenched in the Kenyan society and psyche. Under the tenure, land administration is carried by the "Council of village elders." The appointments are, however, made at the behest of the Provincial Administration in conjunction with the Land Control Boards and politicians. It is necessary to have clear policy guidelines to appoint the elders, devoid of political interference and not in conflict with the national government's goals.

The Provincial Administration has been restructured to co-ordinate national government functions through the National Government Co-ordination Act 2013. The system has several levels of administration. These include a County Commissioner for every county, a Deputy County Commissioner every sub-county, an Assistant County Commissioner in charge of every Ward, a Chief for every location, and an Assistant Chief in charge of every sub-

location. The County Government Act 2012 also creates a similar structure that goes to the village level with a council of elders as the lowest body on the ground as shown in Table 18. The new county governments adopted structures from the defunct local governments and are expected to co-exist with a new-look Provincial Administration. The two sets have created conflicts between the elected representatives and the presidential appointments. The system may not be a panacea for the ills facing the institutions of land use and management.

Table 18: The new parallel governance structures at the County level

County Government	National Government
Governor: elected and heads a County.	County Commissioner: in charge a County.
Sub-county Administrator: appointed and leads a Sub-County.	Deputy County Commissioner: in charge of a Sub-County.
Ward Administrator: heads a Ward.	Assistant County Commissioner: at Ward.
Village Administrator: heads a Village.	Chief: in charge of Location.

Source: Author

4.5.3 The informal institutions/sector: entrenching disorder or filling a void?

4.5.3.1 Structure and organization

There is no universal definition of the informal sector (Pedersen, 2003, p.9). To attempt precise definitions would probably be a futile exercise. Rather, definitions of the informal economy have emphasized ways in which formal and informal economies differ (Stock, 2004, pp.257-259). By its very nature informality, whether political or economic, it is hard to measure. In part, this is because people involved in the informal sector are reluctant to draw attention to their evasion of regulation and taxation (UN-Habitat, 2014, p.174).

The term “Informal sector” was coined by Keith Hart at a Sussex Conference on Urban Unemployment in Africa in 1971 on a study he had undertaken in Ghana (Hart, 1973). His paper influenced the International Labour Office (ILO) Kenya Mission present at the meeting. Their ILO 1972 Report initiated the new way of viewing economic activity implicit in the idea of an informal sector (Elkan et al., 1982, p.248). The Report adopted Hart's (1973) criteria for characterizing the informal sector. The term “Informal sector” has been widely

used since the publication of the ILO Report. Among others, the sector is characterized by ease of entry; reliance on indigenous resources; small-scale in operations; family ownership of the enterprise; labor intensive and adaptive technology; skills acquired out of formal school system; and operate on unregistered and competitive markets (ILO, 1972).

Table 19: Attributes of the formal and informal economies

Informal sector	Formal sector
Ease of entry	Difficult entry
Predominantly indigenous inputs	Overseas inputs
Predominantly family property	Corporate property
Small-scale of activity	Large scale of activity
Labor-intensive activity	Capital-intensive activity
Adapted technology	Imported technology
Skills from outside school system	Formally acquired (often expatriate) skills
Unregulated/competitive market	Protected markets (e.g., tariffs, quotas, licenses)

Source: Stock, (2004, p.259)

The informal sector consists of activities that take place outside the formal norms of economic transactions established by the state and formal business practices (Ajayi et al., 2013, p.5; Pedersen, 2003, p.9). Also, that which fly under the radar of government control or attention (Neuwirth, 2011), but which is not explicitly illegal in itself (Ajayi et al., 2013, p.5). The sector varies from country to country and over time. The narrower the definition of the formal sector, the larger the informal sector has tended to be (Pedersen, 2003, p.9). The sector is also called the "Tertiary refuge sector" (Potter et al., 2008, p.391) because the unemployed turn to it when the alternative is hopelessness and despair. Although the contrasts between formal and informal economies are evident, they are part of the total urban economy and are neither as clearly differentiated nor as functionally separate as Table 19 seems to imply.

There are people in the informal sector because the formal economy is not working; has too many rules and regulations that cost too much for people (Neuwirth, 2011). The emergence of an unorganized, unregulated and unregistered informal sector in many urban economies, especially in the developing world cities, is a widespread consequence of contemporary urbanization (Clark, 2006, p.114). The sector is far too large and well established in most

cities to be dismantled (UN-Habitat, 2014, p.119). In 2011, the sector had 1.8 billion people worldwide, with the figure expected to rise to two-thirds by the end of this decade (Neuwirth, 2011). For more detailed analyzes of the informal sector see Jütting and de Laiglesia, (2009).

Table 20: Trends of employment and GDP growth in Kenya, 1986-2008

Year	Total Employment (Millions)	Proportion of Total (%)		Real GDP Growth (%)
		Formal	Informal	
1986	1.537	79.4	20.6	4.8
1987	1.615	78.3	21.7	5.5
1988	1.736	77.5	22.5	4.9
1989	1.796	76.2	23.8	5.1
1990	1.894	74.4	25.6	5.0
1991	2.557	56.4	43.6	4.3
1992	2.753	53.1	46.9	2.3
1993	2.998	49.2	50.8	0.4
1994	3.356	44.9	55.1	3.0
1995	3.859	40.3	59.7	4.8
1996	4.314	37.3	62.7	4.6
1997	4.707	34.9	65.1	2.4
1998	5.100	32.9	67.1	1.8
1999	5.493	30.7	69.3	1.4
2000	5.912	28.7	71.3	0.2
2001	6.367	26.3	73.7	1.2
2002	6.852	24.8	75.2	0.5
2003	7.330	23.6	76.4	2.9
2004	7.999	22.1	77.9	5.1
2005	8.505	21.3	78.7	5.7
2006	8.993	20.7	79.3	6.1
2007	9.479	20.1	79.9	7.1
2008	9.946	19.5	80.5	1.8

Source: Omolo, (2010, p.19)

Until recently, the informal sector has been regarded as a stagnant, un-dynamic sector of the economy that is only marginally productive (Republic of Kenya, 1978, p.29). The informal sector came into focus in Kenya after the publication of the ILO (1972) Report (Pedersen, 2003, p.9). As a result, "Informal sector" studies abounded in the 1970s. Most informal sector studies are heavily weighted toward the urban areas and revealed a disadvantaged

underclass of urban dwellers (Bryceson,1996, pp.104-105), locally referred to as Jua Kali sector covers all semi-organized and unregulated activities (Muraya, 2006, p.128).

The informal sector continues to be the primary source of employment in Kenya, growing apace while the formal sector continues to reduce. Table 20 gives a summary of the formal and informal sector employment and the rate of growth in real GDP in Kenya over the period 1986-2008, while Figure 30 schematizes the changing importance of the formal sector to total employment in Kenya, at the same time. The informal employment rose from 20.6 percent in 1986 up to 80.5 percent in 2008. The data show that employment in Kenya has increasingly become informal. The employment was less than a quarter in 1986 but moved to more than four-fifths of total employment in the country in 2008. Of these figures, Nairobi takes the biggest share. In 2005, Nairobi accounted for nearly a quarter (24 per cent) – 1.5 million people of the total 6.4 million working in the informal economy nationally, up from 1.1 million in 2001. The bulk of the employment in the foreseeable future will continue to be from the informal sector (Oxfam, 2009, pp.11-12).

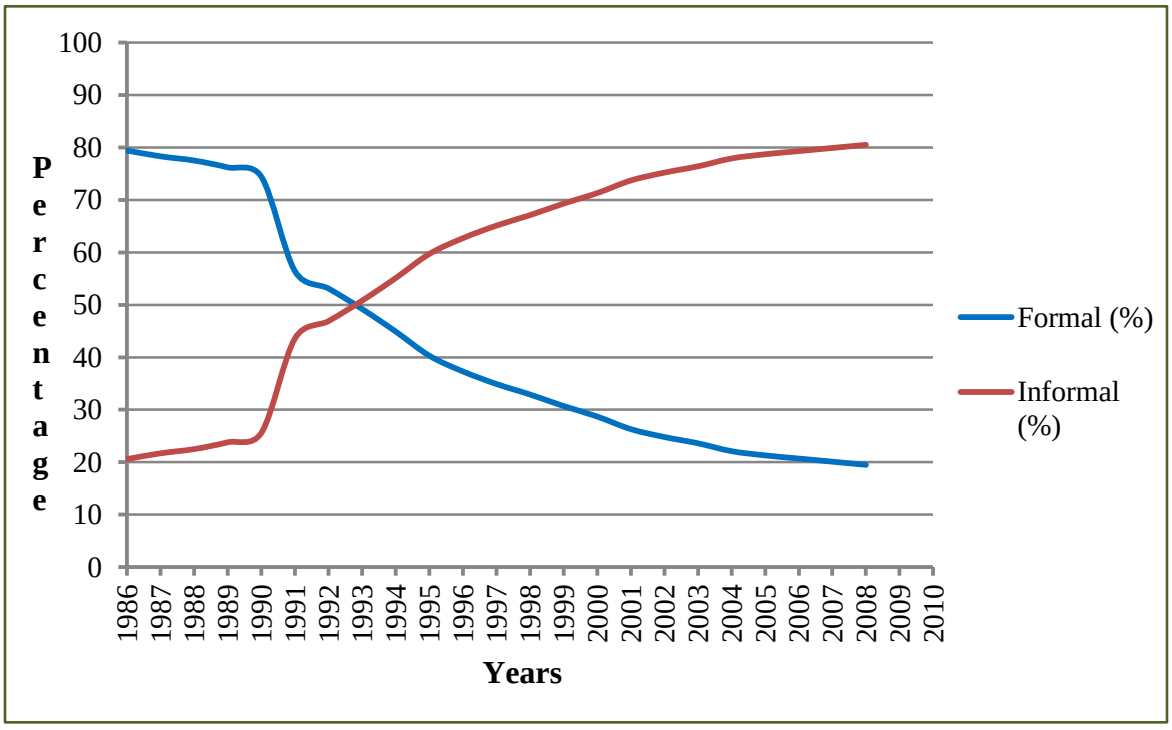

Figure 30: Formal and informal employment patterns in Kenya, 1972 – 2008

Source: Omolo, (2010, p.20)

Synonymous with "Informal," the *Jua Kali* sector is responsible for a good bit of employment and also an important source of Kenya's wealth (Republic of Kenya, 1978, p.29). While attitudes towards the informal sector have been relatively positive, suspicion and harassment have been the order of the day; often seen by governments as illegal and tax evading (Pedersen 2003, p.9). There are other negative associations with the sector that denote questionable qualities that do not last long, and "quick fix"" approaches to problems; ethos that have invaded critical areas of the Kenyan nation. As a phenomenon, the sector's growth should not be celebrated. Informalization has bred indiscipline and disorderliness, in all the sectors of the country.

It is not well understood how the informal sector interacts with the rest of the economy. The interaction depends on the size, structure and efficiency of the formal economy, and the gender, age and education of the labor force expelled from agriculture and the formal economy (Pedersen, 2003, p.9). Informality exists alongside formality, and in large measure supersedes the social function of the formal sector (UN-Habitat, 2014, p.175). The two sectors interact with each and affect outcomes in many ways. First, when the informal institutions are complementary with formal institutions they converge. Second, the informal systems may accommodate the formal ones when they diverge. Third, informal institutions compete with formal ones when the latter are ineffective. Finally, informal institutions can be a substitute for the formal ones when the latter lack effectiveness (Soysa and Jütting, 2006, pp.5-6). Informality is embedded far more deeply in the Kenyan society than are formal systems. Harnessing the forces of informality may be challenging, but if done well it might point to the future of urban governance (UN-Habitat, 2014, p.175).

4.5.3.2 Lacuna in the formal institutions: rise and rein of "Middlemen"

For several decades, the formal sector has played a minimal role in providing quality and affordable housing to a burgeoning population. Indeed, there are about 35,000 new housing units a year but has an annual shortfall of about 150,000 units (KNBS, 2011). The National Housing Policy of 2004 shifted the responsibility of providing housing from the State to the private sector and individuals, but challenges still abound. The result is the proliferation of sprawling settlements with little esthetic value and no supporting infrastructure. The

settlements are not incorporated within the formal structure, giving rise to a conceptual dichotomy between the formal and informal sectors (Adesina, 2007, p.10).

The inability of the formal institutions and real estate agents in the land use administration, planning, and management, has created a lacuna filled by middlemen or the so-called "brokers." Loved and loathed in equal measure, brokers can access government offices facilitating the provision of services. They have become a permanent feature; an important cog in the public service wheel and it is almost impossible to provide government services without them. They are well connected and have a good rapport with senior government officers, some of whom are beneficiaries of their services.

Figure 31: "Reversed roles" of the Departments of the Ministry of Lands and Settlement

Source: *Sunday Nation*, November 27, 2011

At virtually all public offices, there is a public notice warning against brokers and conmen. The 2006-09 Kenya Magistrates and Judges Association Strategic Plan reads in part: "We have suffered a serious discontent between judicial officers and the public, hence leaving a vacuum filled by self-styled court agents and brokers whose dubious activities have contributed to disrupted and intercepted service delivery." Similarly, a network of agents is a permanent feature at the Ministry of Lands that have led to fraud and confusion as depicted in Figure 31. They can access the Ministry's no-go rooms, have deed files – containing copies

of the original titles – and make copies, which they use to produce fake title deeds. There is a bid to computerize the Lands Registry. The technology removes "Extortion toll gates."

Fraudsters have perfected their art by advertising their services, giving an impression of well-established firms. Why is this when there are many genuine real estate professionals? The gap in the formal institutions has led to the emergence of institutions that are predatory. In situations where the institution meant to provide services they stunt take-off, it becomes imperative to find alternative sources. Brokers counter that the lawyers and real estate professional lack localized infrastructure and knowledge about properties. However, brokers increase the costs in real estate because they have an edge due to their experience, networks, and contacts compared to property owners. The fact that many people quickly fall to the ploys of brokers is a clear indication of a serious degradation of the formal institutions.

4.5.3.3 Informality and land use conflicts: a perpetual challenge

The primary concern in peri-urban Nairobi is the faster growth of informal than the formal settlements. Informal settlements are whereby persons or squatters assert property rights to or occupy for the exploitation of land. The land is not registered in their names or is government land or land legally owned by other individuals (Kibwana, 2000, p.110). The term slums or informal settlements are used interchangeably. The authorities view lack of essential services and infrastructure as characteristics of slums (UN-Habitat, 2003b, p.219).

The growth of informal settlements accelerated, especially in Nairobi, after independence in 1963 and the concomitant lifting of the restriction on the movement of the indigenous people to urban areas. Between 1963 and the late 1970s, the policy was to eradicate the settlements. Later, there was a tacit acceptance with the authorities adopting a laissez-faire approach. They did not demolish the settlements, but also made no effort to institute improvements (K'Akumu and Olima, 2007, p.92). Thus, the number of houses in informal settlements rose from an estimated 500 in 1952, to 22,000 in 1972, and multiplied to 111,000 in 1979 (Ngau, 1995) and have continued to proliferate and expand unchecked (Figure 32). The challenge is that only 30 percent of urban centers in Kenya are planned, yet over 50 percent of the urban population lives in unplanned settlements (UN-Habitat, 2008b). Nairobi alone has 160 slums

with three out of every five residents in the informal settlements. Moreover, occupying a paltry 5 percent of the residential land, the slums are home to 60 percent of the city's population (Pamoja Trust, 2009). Recent statistics indicates that only 24 percent of residents in Nairobi's informal settlements with a population of about two million have access to toilet facilities at the household level (KNBS, 2010). The Government has, either out of neglect or unable to deal with this problem, refused to recognize the informal settlements for city planning purposes. There is nowhere in the national budget funds set for development or improvement of any informal settlements. The issue of informal settlements is not addressed in the Nairobi Metro 2030 blueprint; this makes sense considering the settlements are not planned. The government procrastinates, prevaricates and postpones coming up with a long-lasting solution on the informal settlements.

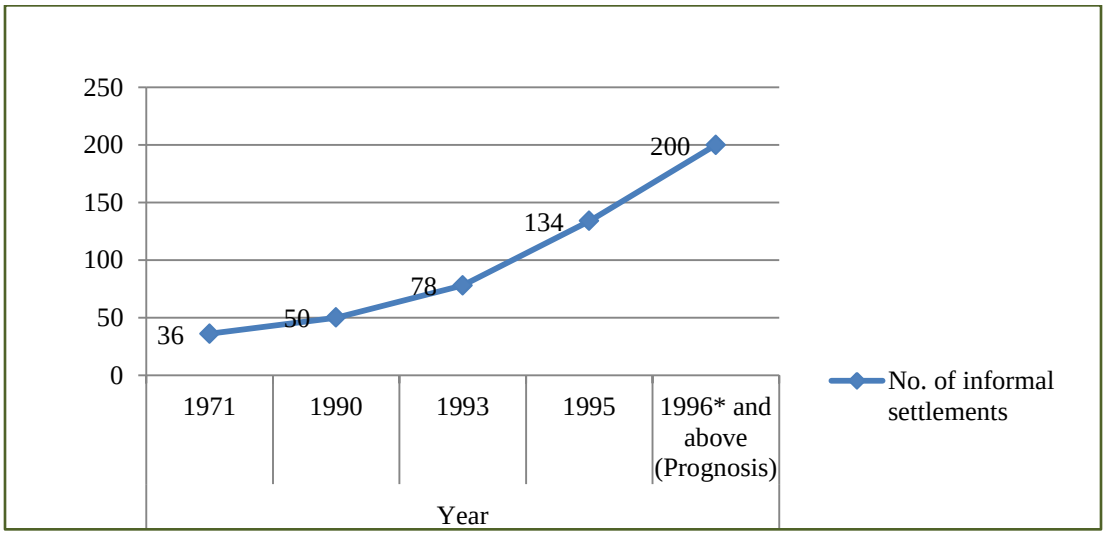

Figure 32: Growth of the informal settlements in Nairobi

Source: Ngau, (1995)

Kenya's urbanization policy put emphasis on the growth of secondary cities. The assumption is that by providing infrastructures such as housing and roads in middle-level towns they would reduce some of the migration pressures from Nairobi and the larger cities (Otiso, 2005). Today, a good number of the so-called secondary cities are also facing the same phenomenon of informatization. Thika town, constructed in the 1960s as an industrial city for Nairobi, has two slums aptly named Kiandutu, meaning jigger in the Kikuyu language, and

Matharau, Swahili for despise. In policy documents, the informal sector is hailed as the growth sector of the economy. The policy makers do not seem to grasp that the informalization of the economy is part of the problem, not the solution. Instead, they should come up with a system seeking to guide or control it if not to eliminate it altogether.

For the first-time visitor, informal settlements look disorganized. They are, however, bustling economies with Millionaires (by Kenya standards) and cartels that control the supply of anything from water, electricity, security, and running illegal businesses. There is a myriad of landlords controlling vast maze of illegal structures where residents pay exorbitant "rent." Owning a rental house in an informal settlement is a very profitable business in Nairobi. Dwellers pay approximately U.S. $31 million in collective rent each year. The rent does not include payments for water, electricity and toilets – typically at higher rates than residents in adjoining middle – class estates, due to corruption and the vast network of middlemen. Unlike in other cities of the world, 92 percent of the slum residents are rent-paying tenants rather than being “squatters” (Gulyani and Talukdar, 2008, p.1921).

The location of squatter settlements is both deliberate and spontaneous. Most are on flood plains, in abandoned quarries, on steep banks of river valleys, and on undesirable vacant land such as next to dump sites (Mundia and Aniya, 2006:106). The areas create land use planning problems like poor accessibility, narrow road reserves, and a high cost of developments, among others. The developers put the parcels to any use, sometimes conflicting ones, and also take all kinds of shapes ribbon-like, hexagonal, trapezium, triangular, among others. The settlements have no open or public service spaces, and where there are, they do not meet the minimum standards as stipulated in the Physical Planning Handbook. The urban centers in the areas are small such that planning and provision of all the required facilities have become impossible. The settlements have issues related to rapid population growth, the increasing role of market forces in the spatial distribution of growth, and multiplicity of their social and spatial structures (Kazungu et al., 2011, p.1).

The type of soil plays an important role in the choice of buying land. The PUA has two types of soils: red soils; and black cotton soils. The former are better drained than black soils,

explaining the reasons land with black cotton soil is relatively cheaper than those with red soil. Typically, the black cotton soil swells when wet and shrinks when dry. These changes tend to make the foundation sink deeper with time, leading to structural damage to a house built on such soil. During the development, one must remove the top black cotton soil and beef up the foundation that leads to an increase in the construction costs. Thus, the land with red soil is preferred to one with black cotton soil.

The over 70 land development related laws create conflicts, abet role overlaps, foster poor coordination, inhibit information sharing, and hinder the development of institutions needed to manage urban growth. Rapid urban growth exerts pressure on administrative and institutional ability to plan for and control development (Kazungu et al., 2011, pp.4-5). Land use planning and related programs and policies ought to have similar goals. They are however in practice formulated by functionally independent agencies with a different focus. Peri-urban spatial plans made at the central Government level are without the full involvement of the implementing local governments. Again, although the local governments make plans to guide development in their respective areas, the various programs are a mismatch in terms of proposals and ignore the other side of the border. State agencies responsible for the development control reprimand those breaking the rules of the game, yet some events took place with their full knowledge, approval and sometimes the supervision. There is a need to reconcile the small picture with the larger picture of urbanization; visualize PUSs being smaller cities connected to the core city and eventually canopied under the umbrella network of functional communication and development system.

4.5.3.4 Peri-urbanization: spontaneity and regularization of the informality

Driving from Nairobi towards the PUAs, practical observations reveal that urban activities and land uses extend beyond the fixed city boundaries. An aerial view of the main PUAs indicates an extensive development of large parcels of land into small ones into residential and commercial developments on land that was formerly under agricultural use. Most of the subdivisions are carried out on an unofficial Part Development Plans (PDPs) for the subject parcels (Figure 33).The PDPs do not take into account the comprehensive regional plans that incorporate impacts from the core of the neighboring city or metropolitan area. Many

subdivisions do not have the requisite land for infrastructure and public utilities. The land uses are mixed and do not lead to complementary advantages that accrue when the wider regional development planning is carried out.

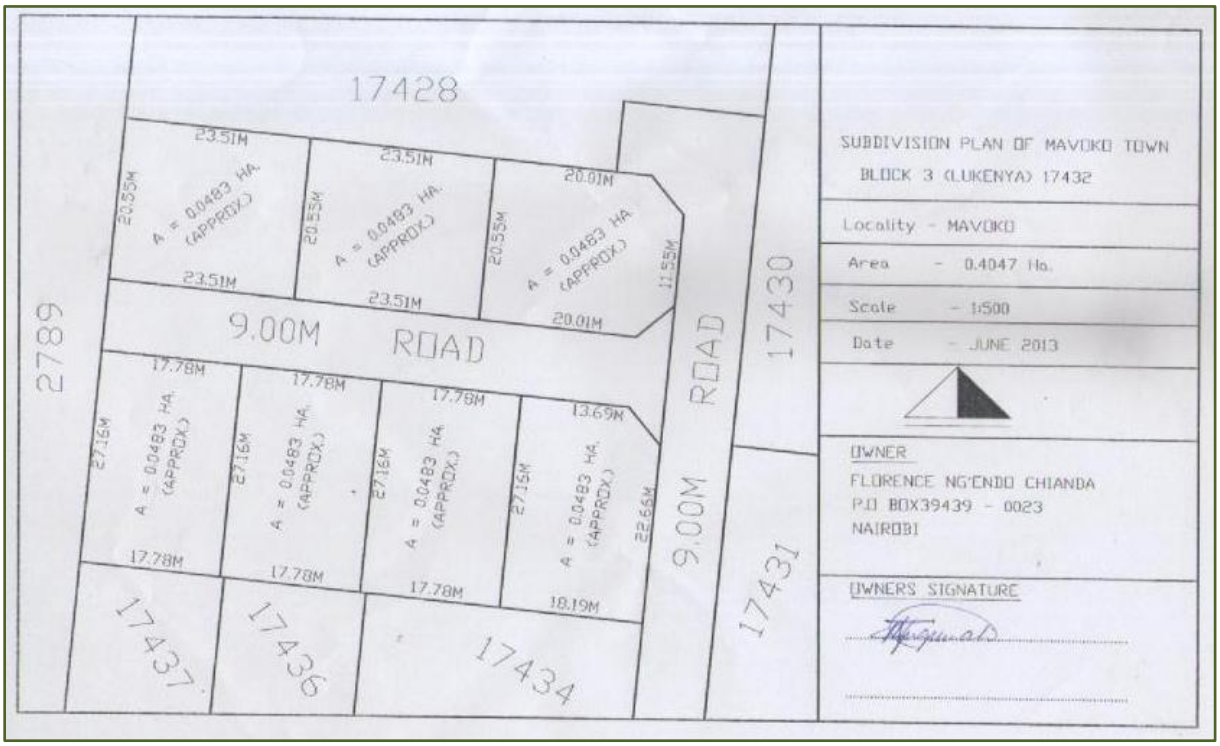

Figure 33: An example of an informal (thus unofficial) subdivision plan

Source: Anonymous

In law, all regions have zoning provisions that guide the minimum land subdivision, depending on what category the land use category it falls. For agricultural land, the Land Control Board gives guidelines whereas, for commercial plots, the local governments are the custodians of zoning regulations. There are cases where the minimum land parcels were initially a quarter of an acre but has been subdivided into many tiny plots. It is now not uncommon to see plots that are as small as 30 by 60 feet, and so on. The minimum lot sizes in urban areas are supposed to be 50 by 100 feet as stipulated in the official *Andrew Ligale Circular of 1976* for areas without a sewer. Despite increases in the vehicular traffic, the roads' width planned during the colonial times is far superior to the current one. It is still not uncommon to find incompatible plots side by side, each duly approved by the relevant government departments. These are everyday occurrences, yet the local governments are

responsible for approving and controlling development according to the relevant regulations. The subdivisions are without community services or infrastructure provision because they have not been regulated by the Council. Future developments will, therefore, not meet all of the needs of the residents, creating a future strain on the local governments to fill the gap.

In the expansive Kasarani and Embakasi regions, covering thousands of acres, hundreds of thousands of people purchased land through the 11 land-buying and building societies. The area is a maze of extensive blocks of high-rise residential houses built in total disregard of planning and public safety regulations. The main challenge is a lack of the provision of infrastructure services, and setting aside of public utility spaces within the land schemes by the property owners before individual lots are sold to eventual buyers. In the Embakasi region, for instance, a 14,000-acre land formerly belonging to the state was surveyed and sold by a land buying firm that former area Member of Parliament Muhuri Muchiri founded in 1975, Embakasi Ranching Company. Though the land-buying company claims to have bought the land from the Settlement Fund Trustees, the mother title is still with the government. There is no evidence of payments made. The lot owners have no title deeds to prove ownership other than the land buying companies' Share Certificates. The various land buying companies are not in a hurry to release the Title documents to individuals because they make money every time that land is bought and sold.

While the County government has no authority to issue title deeds, it is its mandate to ensure proper planning and, in this case, "regularization of developments." Regularization means enabling those occupying the property to own it. City authorities stand to earn millions of shillings from the ownership regularization. To restore order in the expansive Kasarani and Embakasi regions (and pursuant to the provisions of the Physical Planning Act Cap 286, the County Governments Act 2012, the Urban Areas and Cities Act 2011, the Public Health Act 242, EMCA, and the Nairobi City County Government Policy on Regularization of Unauthorized development), the Nairobi County Government should undertake comprehensive regularization of the illegal developments. The lack of documentation means the city authorities cannot determine property ownership for purposes of collecting land

rates. There is a need to work in consultation with landowners and holders of the respective head titles particularly developments in areas owned by land buying companies.

On the policy front, the National government has no clear policy on the regularization process. Since the 1960s, serious concerns were raised over housing provision for low-income groups and the proliferation of slums and informal settlements; various intervention strategies have been applied without much success (Diang'a, 2011). In community upgrading programs, the Government formalizes land tenure rights in squatter settlements by aligning dwellings along organized thoroughfares, installing drains, storm ditches, and amenities such as latrines, piped water, and electricity (Obudho and Aduwo, 1989, p.22). In more recent times, the government, in collaboration with UN-Habitat, is undertaking the Kenya Slum Upgrading Program (KENSUP). The primary objective is to improve the people's livelihoods living and working in slums and informal settlements within the urban areas of Kenya. The program has many components: the preparation of city/town development strategic and land use master plans; the provision and/or improvement of physical and social infrastructure; the improvement of security, environmental and solid waste management; employment/income generation initiatives; HIV/Aids support mechanisms; and shelter development and provision of secure tenure (UN-Habitat, 2008c; Bassett et al., 2003, pp.4-8).

Planning in Kenya, often, lags behind new developments, even by more than a decade. Efforts to formalize the developments have largely been unsuccessful. Planners and legislators place a premium on high standards, yet only a few can be achieved (Wekwete and Sesay, 2001, p.62). Formalization processes often destroy livelihoods and housing, and exacerbating exclusion, marginalization, and poverty (UN-Habitat, 2009, p.31). Meaningful urban development depends to a large extent on the existence of and commitment to the implementation of the laws. The challenge facing many SSA governments is not the passing of legislation but creating an enforcement mechanism (Wekwete and Sesay, 2001, p.62).

4.5 Dilemma of Charting a Sustainable Peri-Urban Framework: Inherent Structural, Institutional, and Social Constraints

4.5.1 Institutional lethargy

Finding suitable land for urban development is not easy, and when available, the price is often beyond the means of many. For those who afford and strive to secure land ownership documents, the process is often lengthy and expensive. There are many types of land ownership documents. The Ministry of Lands and Settlement issues three types. Firstly, a title deed, formerly the "land certificate" or "certificate of freehold title," and shows the right of ownership to freehold property under the Registered Land Act Cap 300.

Figure 34: Does a Title Deed guarantee security of land tenure?

Source: *Sunday Nation*, November 20, 2011

A title deed is the most common land ownership document, yet not enough proof of genuine ownership of land. It has many benefits such as providing evidence of ownership of land and the basis of bank collateral. Does it ensure the security of tenure? See Figure 34. People who bought large tracts of land to erect residential and commercial premises are hesitant because of doubts raised about the validity of land documents in their possession. The risk of

fraudulent land ownership processes is a significant problem in Kenya. In the 1990s, the banking industry held many bad and doubtful debts partly due to lending money against "Suspect" titles. Illegally obtained property, some built on road reserves, got title deeds and later used in banks as security. Banks eventually lost when they tried to sell the properties. Uncertainties over the validity of title deeds threaten the multi-billion shilling real estate sub-sector. It affects not only developers but also money-lending institutions. Any business transactions conducted on the basis of canceled titles are null and void.

Second is the certificate of title, which is a document showing the right of the lease to all Government lands in the former White Highlands. A certificate of title is absolute, indefeasible, and cannot be challenged except on the ground of fraud. A certificate of title does not confer upon any person any right over to any mineral, foreshore or water. Lastly, the certificate of lease is a document showing the right of a lease for property owned by the Government, local authority, or freehold proprietor. A certificate of lease shows the term of the lease and the amount of rent and rates payable annually. It is the most common land ownership document in urban centers.

Other types of land ownership documents are the temporary occupation of land or license. It does not qualify for issuance of a title deed or lease unless it is for a set period exceeding 25 years. On the other hand, the State or Local Authority may issue a letter of allotment for a property to the applicant subject to a formal written acceptance of the conditions gave and the payment of the charges prescribed. However, many people once allocated land do not apply for title deeds or pay the stipulated fees to the state and relevant local authority within a specified time. Since most of the beneficiaries were land speculators with no interest or resources to develop, the plots, land became a currency. As the land became scarce, fake letters of allotment were printed, in cohort with some crooked officials in the Ministry of Lands and Settlement, on genuine government paper and sold to unsuspecting buyers further compounding the already complicated situation.

The institutional processes for delivering the types of land ownership documents, planning and development approvals are far from efficient. They routinely take months to years,

escalating investment costs and slowing or stopping many planned projects and leading to massive losses to developers. A conscious development society continuously seeks to solve its problems by establishing systems and processes outside the existing legislation. One such example is the certificate of ownership, a temporary land ownership documents issued by land buying and/or investment companies to their members as proof of payment of the desired and/or purchased plot. They are not legal under any land law, although accepted in courts for surety purposes. Some unscrupulous people have used the certificates to cheat prospective buyers by forming social groups that illegally invade, occupy and sub-divide unoccupied privately registered land and sell the same to unsuspecting investors.

4.5.2 The dilemma of cross boundary planning: complex institutional arrangements

Urban sprawl – whether suburbanization in North America, peri-urbanization in Africa or metropolitanization in Asia and Latin America – are all products of either inappropriate or ineffective planning regulations (UN-Habitat, 2009, p.31). The challenge for planning is not to prevent urban growth, but devising mechanisms for directing or controlling the timing, rate and location of such growth. However, how do we plan across and between "administrative" boundaries and "functional area" boundaries? Cross-boundary issues are known to arise under many circumstances, including: when an activity crosses or is proposed to pass a local authority boundary; when the effects of any activity or set of activities carried out within any local authority boundary, also apply to another local authority; when people consider the action and its effects, communities or organizations in different terms because of differences in values; and when adverse effects from activities authorized under other legislation (Southland Regional Council, 2001).

At the national level, physical development planning is beset by a complex of institutional arrangements. Although the Department of Physical Planning in the Ministry of Lands and Settlements has the legal mandate of planning, there are other institutions that carry out these activities at different levels in the country. These include the local governments and regional development bodies, among others (Kimani and Musungu, 2010, p.7). The CoN remains contested by three key planning authorities: The Nairobi Metropolitan Development Ministry has the mandate to plan, manage and develop the Nairobi Metropolis. The Director of

Physical Planning at the Ministry of Lands and Settlements has the responsibility of preparing all town and regional plans in the country. The Local governments implement the programs as per the Physical Planning Act, Cap 286, of 1996. The City County of Nairobi has the mandate to prepare plans for the city due to the size of the city and the County's capacity. The Director of City Planning at the City County of Nairobi is still answerable to the Director of Physical Planning. The three players have the legal mandate to plan the city. The situation needs to be rationalized to prevent unnecessary administrative tussles.

The areas that hitherto have been peaceful are increasingly recording high cases of insecurity. Security experts say the problem partly lies with administrative boundaries that left these areas virtually out of the security radar. Some areas nearer the CoN fall under the County command based hundreds of kilometers away. Since people's needs do not recognize administrative boundaries, a mechanism is necessary to allow cities, municipalities, and counties plan across different boundaries to achieve sustainable development. The main preoccupation of the various development and planning agencies in the NMR is to align developments within their jurisdictional boundaries instead of planning. The former is reactive and retrospective while the latter is cooperative, interdependent and proactive. There is a compelling case for cross-boundary planning to allow coordination of planning and integration of developmental priorities across boundaries prospectively against what has taken place over the years, simplistic and retrospective alignment after initial plan.

4.5.3 Intricacies of the persistence of customary land tenure system

The experience of colonial administration continues to characterize the discussion of governance in many African countries. This is through the maintenance of a polarity between the colonial state and customary authority and a corresponding duality between "statutory" and "customary" systems of land tenure. The presence of customary tenure implies a "pre-colonial" status in the statutory tenure introduced by the European colonial administration (Woodhouse, 2003, p.1712). By-and-large, the management of the land tenure is through a system of customary laws. It varies depending on ethnic groups, predominant land use or social practices (World Bank, 2011, p.20; Arvanitis, 2013, p.9). Rights to land arise from many sources. The first settlement, conquest, allocation by state, long occupation or market

transaction. In some cases, these rights are transferable to heirs or can be sold. In others, permission must be sought from the underlying rights-holder (Toulmin, 2008, pp.11-12). How and why customary land tenure systems have persisted, what the reasons for this persistence might be, and what the impacts have been may be beyond the scope of this study. For a more detailed analysis of the customary land tenure systems, see Bassett (2007; 2005).

Despite much legislation, "customary" authorities continue to play a leading role in land relations (Toulmin, 2008, pp.13-14). The Kenyan government has made considerable efforts to tackle the land problem through, e.g. land adjudication and registration, resettlement, and land transfer schemes. The major impediment to a more equitable distribution of land is the tribal exclusiveness, or the unwillingness of one ethnic group to allow members of another ethnic group establish rights over land that they regard as their exclusive domain.

Land in Kenya is the ultimate status symbol to the extent that when one died and buried at the cemetery, mourners quip: he never owned land. The Land is so important that it cause a neighbor to keep shifting farm boundaries even if it is by an inch. Blood brothers shed blood. Millionaires steal public land for which they have no use. Also, the "tribal warriors" invade the next community. In many rural communities, it is almost a taboo to sell the ancestral land. In some areas, land prices are only discussed by the elders and even then, are, usually, secretively, making it more mystical. Any dealing in the non-urban land will have to be consented by the Land Control Board, according to the Registered Land Act Cap 300.

Parents in many places do not allow eligible children full property rights. It is considered a bad omen to "be inherited" when one is still living. Many parents fear being abandoned if they give land to their children. Parents, therefore, cling to land even in their twilight years as financial insurance, despite their lack of modern production skills and the entrepreneurial attitudes necessary to enhance quality and quantity. As well as not understanding the intricacies of the global agribusiness value chains, they socialize their children away from land to "better" lifestyles in the cities. However, due to poor returns, even if the younger generation would have the property rights, few would have the patience to wait for payments for months for their farm produce.

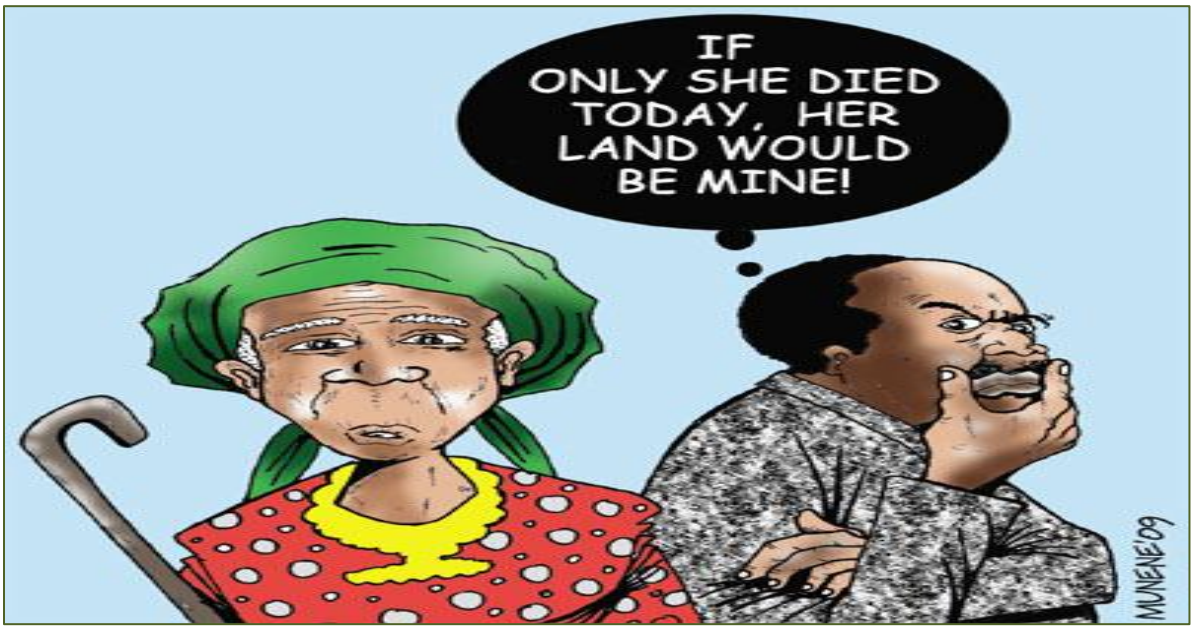

Figure 35: Satirical cartoon

Source: *The Standard* Newspaper, Monday, May 4th, 2009

Most young people, especially those born and brought up in the city, know nothing about their parent's land(s). Most have left land matters to the elderly. They rarely realize some of the intrigues bedeviling the property sector until they get evicted from their family land. When the elders register complaints with the Ministry of Lands and present their cases to the Public Complaints Resolution Committee at the ministry, the youth ends up only as escorts without any significant contribution. The country might end up having a generation that is so ignorant of land matters that could further complicate an already volatile area. The elders hold information about the land so close to their chests due to fear that the young people might eliminate them early to inherit the land (Figure 35). The old people view young persons with much suspicion and mistrust that stop them giving the youth information about details as important as the land. There are many properties, including land, lying unclaimed since those entitled do not even know of the existence. The intricacies of land are becoming a complex issue because the older land-clinging generation is thinning out. The Land is being released though slowly through natural attrition, leaving the more entrepreneurial younger generation to take over, who lease such land or sell it all together.

"Naturally," most Kenyans, rich and poor, will attend the ethnic or regional gathering, as opposed to one of a particular social or economic class. There are more compelling factors that connect these people with members of one social class as opposed to a community. Even in the face of economic hardships, ethnicity remains the only vehicle of purpose and unity. Equally, even though professional groups have particular concerns, the unity is when they push for a healthier pay slip. During the campaign and election time, they all disintegrate and retreat to ethnic cocoons.

In most policy decisions and statutory legislation, ethnicity is often overlooked though its impact is much more powerful than the former. The experiences of George Muiru[6]could help explain this. His parents moving back to Western Kenya was never among the options they considered after their retirement. They bought a piece of land in the peri-urban Nairobi and put up a retirement house, a land traditional exclusively associated with a particular ethnic group. Just after the Kenya's post-election violence in early 2008 all their investment went up in flames. The reason was that they were from the wrong ethnic group in that area. They decided to sell the piece of the toxic "tribal land" and buy a new piece of land. It was almost obvious they choose to purchase land in areas where their ethnic group was a clear majority, or else remain in the town where there are no "ethnic groups." There are many more such cases where people sold their land at throwaway prices from areas where their ethnic groups were victims of the post-elections violence. For now the physical demarcations in these realignments between ethnic groups may not be clear. While Insurance firms have insurance policies, the only protection available is that of staying amidst one's ethnic group or living in an area where the tribal divisions are least felt. The actions are reversing the gains Kenya has taken since independence towards application of laissez-faire policy on land access and use.

The City Council of Nairobi has over the years been unable to find land for a new public cemetery to replace the 150-acre Lang'ata cemetery, which was declared full in 1998. The County identified a new burial ground, a 120-acre piece of land in Machakos County some 46 Km away from Nairobi. However, the land has black cotton soil and is rocky, and it runs

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[6]To maintain anonymity, the name in this excerpt has been changed from the original one.

barely three feet below the ground that is against preferred standards of a communal graveyard. Besides, the transaction was also controversial. The cost of land inflated by the city council officials and also faced frustration by residents' unwillingness to sell their land because of traditional taboos to have their land used as a cemetery. After failing to get offers for suitable land elsewhere, the Nairobi County government has recommended compulsory acquisition of privately-owned land next to the cemetery, a 56 acre parcel of land on Lang'ata Road, adjacent to the cemetery. In Kiambu County, many small-scale farms are littered with graves. The alternative is public cemeteries, but the land was either allocated to the private developers or was never set aside in the first place due to cultural beliefs on how to dispose of the dead.

4.5.4 Land policy and legislative framework: the limits of laws

The Law represents the primary mechanism through which the modern state makes its laws and regulations. It forms the basis on which society is governed, and that continually reflect the norms and values of a given society. A fundamental recognition that laws and legislation are not just technical outputs, but an important part of social and political development of any society (Wekwete and Sesay, 2001, p.62).

In SSA, diffusion of planning ideas occurred mainly through the colonial influence. Many postcolonial governments reinforced and entrenched colonial spatial plans and land management tools, sometimes in even more rigid form than colonial governments (UN-Habitat, 2009, p.55). The orientations in Eastern Africa reflect three elements comprising most urban planning: a master plan, planning and building standards and regulations, and a system to control development (UN-Habitat, 2014, pp.163-164). The direct transplanting of the master planning approach into planning contexts ignores the fact that the majority of Eastern African cities' growth occurs in slums and informal settlements. In such circumstances, master planning may directly contribute to further social – and spatial marginalization or exclusion from the urban fabric (UN-Habitat, 2014, p.11).

In post-independence Kenya, up to the enactment of the Physical Planning Act in 1996, the substantive law on urban planning was contained in two statutes: The Town Planning Act of

1948 and the Land Planning Act of 1948, both being replicas of the Town Planning and Land Planning Acts of Britain. The two statutes could not cope with the local socio-economic and political changes and eventually became redundant. The Department of Physical Planning resulted in operating on a Physical Planning Handbook that provided general planning guidelines. The Handbook was treated primarily as a reference for the preparation and implementation of physical development plans (Republic of Kenya, 1992, p.2).

To address the increasing land use disharmonies and conflicts, over the years, the Kenyan Parliament enacted over 75 Acts to regulate land and land use in both urban and rural areas (Cohen, 2002, p.10). One needs to be a legal genius to wade successfully through the laws. The barrage of legislation creates conflicts and overlaps between the main stakeholders with effects of improper coordination. What is missing is a land-use master plan, compiled on the basis of an inventory of natural resources (or ecological evaluation) and a comprehensive land-use policy and integrated law. Land-use legislation is based on the assumption that land-use types are mutually exclusive. Legislation has thus been formulated mainly in line with the different land uses (Wamicha and Mwanje, 2000, p.37).

Despite the many laws, and continue to be enacted, to guide proper land use and planning, people and the law enforcers remain ignorant about them. Those responsible for policy formulation are, usually, the same one responsible for implementing them. The challenge is coming up with the best ways of separating these. Who is to blame? Is it a dysfunctional system? It is a system in crisis. Studies reveal that the many laws have not been strictly adhered to (Situma, 1992, p.169). In re-assessing the urban planning and development regulations in African cities, UN Habitat (1990) and AAK (2010) outlined many factors that contribute to non-compliance with urban development control regulations. These include restrictive building regulations; laxity in approving plans; restrictive planning laws; inadequate policy implementation; high poverty levels; weak financial position; weak institutional and legal framework; political interference; lack of political will; poor enforcement machinery; high professional fees; lack of awareness of the existence of urban development and planning regulations (Opata et al., 2013, pp.132-136).

A national urban and regional planning authority to avoid duplication of land use planning services is necessary. The continued poor implementation of physical plans has led to urban centers losing their functionality. No town has a particular purpose since most have grown into mixed land uses that would have functioned better if planned from the onset. The haphazard development in Kenyan urban centers is because of poor planning and implementation. Lack of prior integrated planning is evident when different government agencies carry activities at their own time and convenience. Competing interests among government departments have contributed to the failure in urban and regional planning. Many urban centers are growing on outdated and have dysfunctional or poorly implemented plans. The defunct local governments were mandated to enforce building regulations, yet substandard buildings continue to mushroom in many areas. There are many instances where roads after being built, the public service provider digs them up, hence permanently damaging the roads. There are also developments on the Way Leaves and road reserves due to lack of co-ordination between the Ministry of Lands and other public utility providers. Ironically, the Way Leaves Act, which has been in operation since November 12, 1912, provides for a paltry fine of KSh.150 (U.S. $1.76) for illegal constructions on sewer lines.

Some properties have accumulated rates that run into millions of shillings over the years. Most people do not pay rates until they are selling, charging or subdividing the property. Local governments find it hard to recover outstanding rates unless a property is being subdivided or sold. Some property owners do not pay rates, arguing that local governments have failed to provide the requisite services. Unlike services such as electricity or water, whose supplies can be disconnected or terminated if the consumer does not pay up, the payment of land rates depends more on the willingness of the property owner. The seller usually does not have the money to pay the rates and relies on a 10 percent down payment from the buyer. Whereas this is true, it does not stop the local governments from collecting rates because their payment is a legal requirement. It is imperative to review, under the Government Land Act, all urban rents every ten years, something that has not happened since 1988, mainly because most of the policy makers have vested interests in the subject.

There has been increased the growth of the informal settlement on the road and railway reserves, tidal river reservations (riparian reserves), pipelines and power lines, among other areas. During the colonial time, it was illegal to cross through a railway reserve unless at a designated crossing. Today, railway reserves have been invaded and constructed residential houses, schools, places of worship, commercial premises and light industries in disregard of the danger posed by such activities. The different land related Acts such as The Registered Land, The Registration of Titles, and The Land Titles Acts are non-categorical about riparian reserves. Neither have the relevant Acts such as Physical Planning, Agriculture, Water, and the Environmental Management and Coordination addressed themselves to standard widths of riparian reserves. The Survey Act, which governs the demarcation of land for registration, provides that "On all tidal rivers, a reservation of not less than 30 meters in width above the high-water mark, shall be made for State purposes" (www.kenyalaw.org). Most plans prepared for registration of titles do not reflect riparian reserves. There are numerous laws and local authority by-laws designed to protect land set aside for public utility. People supposed to lead the way in protecting the public lands are the ones encouraging encroachment, led by politicians, local administrators, and council officials. It singularly undermines any intended enforcement. It is, therefore, important to appreciate the professional and legal gaps.

Kenya got an opportunity to make extensive land reforms with the attainment of the NLP in 2009 and anchoring its provisions in the Chapter on Land and Environment of the new Constitution and the subsequent enactment of new land laws. However, a casual examination of these laws show glaring inconsistencies with the Constitution, the NLP, applicable international standards, and even with each other and other sectors' laws. The Land Registration Act 2012 is inconsistent with the Constitution. This is in relation to devolution, gender equity, and systems for land registration that would increase the constitutional requirement for resolution of past injustices for minorities, women, and historically marginalized and disadvantaged groups. The Community Land Act 2012 seems modeled on a foreign country's law, with no bearing on the requirements of NLP and Kenya's new Constitution and the NLP. It does not even have any connection with the mandate of the National Land Commission. Similar inconsistencies appear in the other Acts developed under

Article 68: the National Land Commission Act, the Matrimonial Property Act, and the Law of Succession Act. The Land Act 2012 runs contrary to the principles of new governance structure and system. It does not bring out the tenure system or try to come up with legal solutions to the long-standing tenure problems.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

"Mr. Gorbachev, tear down this wall!" ~ Ronald Reagan

5.1 Conclusions

Land in the peri-urban Nairobi has become increasingly very expensive, and market forces have ensured high efficiency in land utilization. The PUAs are fast becoming property hot-spots, thanks to massive housing and property investments, rapid infrastructure development, and an enabling liberal investment conditions. Both intensive land fragmentation and frontier expansion constitute increasingly important features in the landscape of the area.

Commodification of land has led to massive investments in land buying, in the PUAs. Whereas the areas are still classified as "this community's land," their ethnic composition, economy, and social organizations have remarkably changed and influenced land use patterns. Emerging trends regarding private ownership indicate there are many land subdivisions that not brought to the register in a timely fashion (Mwenda, 2001, p.3). The production pressure is driven by the interactions of the population, market, and public intervention resulting from a long history of such interactions (Blaikie and Brookfield, 1987). More often than not, the area is not developed and is held for speculation purposes, making it hard for the respective local government to plan.

The PUA has hundreds of land buying and selling agents and brokers who have created a solid wall of price exaggeration, misinformation, fraud, and delays at the offices of the Ministry of Lands and Settlement. The result has made land buying and selling processes, and transactions complicated, time-consuming, expensive and one of the riskiest ventures in Kenya. Proper urban development, either on paper or the ground, is determined by differing interpretations and applications of policies over time, and even more so, by inconsistencies between policies and planning decisions. These range from flexible interpretations of policy to circumventions, even contravening, of what was laid down in local planning documents. These findings reveal the full range of influences at work in the PUA with many third parties playing a significant part in decision-making processes (Whiteland and Morton, 2004).

The peri-urbanization process is, as a result of broad categories of methods that contribute either acting singly or interacting with them. These include geophysical, historical, economic, political, policy and institutional, social and cultural, and environmental forces. The complex interactions between these processes over the years have altered the peri-urban LULC. The many years of colonial policies and interventions, many of which have been reinforced since independence, modified the PUA societies and their production systems. In the political, policy and institutional arena, there is adherence to the old age traditions, but the new set of structures and systems are emerging, more driven by the increasingly globalized economic structure. Significant social and cultural changes have accompanied economic and institutional ones. The environmental issues related to land use change; those that were common decades ago may have remained, but new and sophisticated ones have arisen as well. The challenge for policy-makers is to consider the complex PUA management in terms of the interactions between biophysical and societal processes. Approaches that adopt simplistic notions of "community" will fail to represent the reality of local conditions in their considerations of policy (Campbell et al., 2000, pp.343-345).

There is an increasing emphasis on the use of the legal property rights. The experience of one-size-fits-all approach questions the orthodox development wisdom that private property is a cornerstone of successful economic development (Borwein, 2013, pp.82-83). The approach cannot easily be generalizable especially to areas operating in different socio-economic, political and ecological contexts. In the peri-urban Nairobi, whereas the approach is expected to guide and control land uses; it has instead ushered in increased informal settlements and intensified environmental degradation. Policies formed on the basis of single perspectives have repeatedly distorted resource use and allocation in a complex, multifaceted landscape with a diversity of actors (Rocheleau et al., 1995, p.1039).

The NMR is increasingly becoming an area of multiple ethnic mixtures making the PUA have complex and evolving land tenure systems. The main characteristic in the PUA is the co-existence of different types of rights, often a combination of statutory and customary rights. In broad terms, statutory rights dominate in urban centers, whereas customary rights are more likely to apply to rural areas. The land use control approaches to regulating the

urban and rural areas separately tend to be ineffective at the PUA where mixed land use develops. The situation explains the conflicts in land use and patterns in peri-urban Nairobi (Ayonga, 2008, pp.14-15) as shown in Figure 36.

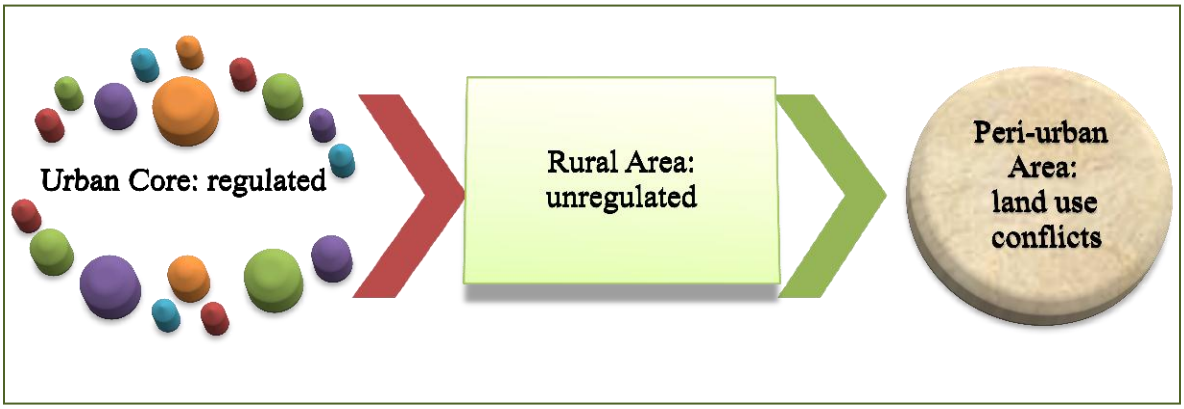

Figure 36: Explaining the land use and conflicts in the peri-urban Nairobi

Source: Author's construct

Land use, natural resources, and environmental issues transcend the legal and geographic reach of existing jurisdictions and organizations. There exists a governance gap created because there is no adequate forum or mechanism within government or through existing entities to address trans-boundary issues. Merely applying scientific or technical knowledge to address social, economic, or environmental concerns cannot close this gap, nor is closing the gap only about managing land more effectively and efficiently. At its core, working across boundaries is a sociopolitical challenge. It is a question of how people can integrate the interests and concerns of multiple jurisdictions, state agencies, and public and private stakeholders, to address land use and other regional issues (McKinney and Johnson, 2009, pp.2-3). More institutions will not solve the peri-urban problems, rather the problem lies more in the failure of the institutions in place. Lack of planning synergy, institutional fragmentation, and lack of multi-agency coordination in NMR have a significant impact on land use planning and infrastructure (Kazungu et al., 2011, p.1).

There is an enormous gap between policy declaration and implementation. Policy measures aimed at the PUA should take into account the area's dynamic characteristics. The principal cause of system failure in SSA is the assumptions that policy development and its supporting

legislation will be enough to ensure a successful outcome of the reforms (Mule, 2001, p.12). All policy situations are governed, for better or worse, by institutional arrangements that are specific to the demands of a particular time, place, and people. Policy reforms that ignore an existing institutional context are doomed to failure (Polski and Ostrom, 1999, p.5). The study demonstrates that there are many externally driven drivers of change in the entire NMR. However, the responses vary from one region to another due to differences in resource endowments, settlement history, and market access.

5.2 Recommendations

5.2.1 Problems and prospects: complexity and multiplicity of laws

Kenyans refer to complex conditions or circumstances as "complex as learning Hebrew." They see land laws, transactions, and processes using this prism. Tackling the land issues has proven to be a very complicated undertaking. So complex is the clichéd "land question" that there is no definitive answer yet, several decades after independence. The law, as it is, creates many loopholes through which individual and the public lose land. The lack of coherent and just land tenure systems compounds the situation. The complexity of the interactions among the driving forces of land use changes calls for rethinking of the existing planning procedures. The laws need review and consolidation to strengthen governance and coordination of the institutions involved in development control activities (AAK, 2011).

Are new layers of laws the answer? New legislation may not provide a panacea for solving the land problem. What is the problem? Is it lack of good laws or a proper ethical, moral value system and patriotic grounding? People fail to obey the law because it does not serve their interest, and those charged with enforcing it do not do so since enforcement does not serve their self-interest either. In many countries in SSA, colonial laws have remained on the statute books long after they ceased to be useful. It is true especially with laws that relate to master plans and development control where areas that are planned have long been taken over by unplanned use (Wekwete and Sesay, 2001, p.62). The country is engaged in a national charade. Kenya has many laws and by-laws that, if enforced, will make urban centers look remarkably different. It has not happened. Rather than invest in more laws, it

may be time to invest in building national moral fiber and value system through extensive sensitization campaign on the importance of the rule of the law. In the meantime, harmonious urbanization could be achieved by suspending or revising outdated urban planning and settlement legislation to align them with the socio-cultural, economic and political realities (United Nations, 2006). As the land-owning hero of Lampedusa's Il Gattopardo says, “We must change everything so that everything remains the same” (Wallerstein, 1984, p.25).

Land reforms can increase growth and support livelihoods through measures such as tenure security and access to land for the poor. Since agriculture is one of the mainstays of the economy, the agrarian reform agenda should seek to create security of land tenure for all, thus providing a basis for land-based economic development. Most planning activities such as setting aside of new urban centers, planning part or the entire center, plot allocation, among others, over the years have been made for political expediency rather than for proper land use planning and management. Weak political and administrative structures coupled with inadequate legal frameworks continually fan urban growth and development violation that range from irregular land transactions to the illegal appropriation of private property. Urban planners, and by extension, political leadership, need find the balance between protecting the fundamental rights of the customary land tenure systems and proper urban growth and development. Planned interventions need to pay attention to the opportunities and threats in particular locations (Mattingly and Gregory, 2006). Sustainable changes should be cognizant of factors such as the traditional or historically defined property rights and uses. It is important to involve local leaders who manage the legitimate uses and access to land, and the arbitration processes available, where necessary.

5.2.2 Spatial planning and development: institutional and policy reform

With more than 80 percent of Kenya's population wholly dependent on land, and the land forming a critical factor of production, a long-lasting solution must be sought. The land question, which has been central to the country's political, social and economic agendas, needs to be comprehensively resolved. There is a need to harmonize all existing and new policies, Sessional papers, strategic plans, rules, and administrative procedures concerning land use and administration. Strategies to address issues of population distribution, migration,

and urbanization, are necessary, as well as reviewing laws relating to land ownership and settlements in urban and rural areas. Moreover, there needs to be a refocusing of the urbanization growth process from major urban centers to medium and smaller towns through balanced urban development programs (Republic of Kenya, 2000, p. 26).

The ability of society to manage its interactions with the environment for desired ends through the application of science, technology, and of social and political power, is limited. The contingencies and constraints upon effecting future conditions are high (Campbell et al., 2000, p.347). A more humble approach is needed that recognizes how uncertain future outcomes are would accept these limitations and seek to facilitate the maintenance of flexibility in future options (Campbell et al., 2000, p.347). It is, therefore, imperative to enact reforms that would lead to the harmonization of all policies, laws and regulations that govern the land sector, transactions, and processes. It has been a major impediment to the planning and building industry. It leads to the under-development of land for farming in rural areas and has contributed to inadequate space for housing projects in urban areas (Kimani and Musungu, 2010).

The legal and regulatory environments within which institutions operate are at the very core of peri-urban development. " … [W]hat is critical is the set of institutions created by social actors … institutions not only shape patterns of land use …, but also influence individuals' relationship to the land …" (Lesorogol, 2005, p.1960). There has been a clamor for a complete overhaul of the land tenure. The best option is to build on what tenure systems already exist by amending the existing laws to align them with prevailing social, cultural, economic and political realities.

All levels of state, civil society, the private sector, and citizens need to support transparent and efficient systems and to develop and implement pro-development policies and regulations. The paradox is that the law gives clear guidelines on land use planning, prohibits the incompatible land use and lays down harsh punishment for offenders. Individuals, families, agencies, and communities have not stopped from going contrary to the laws. Rules typically follow societal norms and public opinion. Laws enacted as a form of social

engineering rarely succeed, although there could be many notable exceptions. Culture and heritage are voluntarily upheld by custodians, not by the imposition of the same culture of visitors. Laws that do not conform to the societal norms are like square pegs in round holes, and most of the time are disobeyed, ignored or conveniently forgotten.

The assumption driving the NLP is that if Kenya were to have a uniform land policy, all the land related conflicts would decrease across regions and ethnic groups. Key to efficient land use requires robust institutional capacity and governance structures for speedy implementation and enforcement of approved plans, policies, and strategies. The root problem of the peri-urban land use conflicts run too deep to be fixed by a uniform NLP. For the majority of urban poor, sophisticated standards of housing and infrastructure based on European models are inappropriate and unaffordable. The facile and partial analysis underestimates the power of customary land tenure to correct and limit what can be achieved; calling for the recognition of the character and strengths of individual PUSs. A new paradigm that stresses flexibility and realism are necessary since the majority of urban residents live in informal and illegal settlements (Wekwete and Sesay, 2001, p.62).

5.2.3 Beyond business as usual: transcending policy inertia

Why do many people in Kenya continue to hold unutilized land for sentimental reasons? The real worth for self and country is when land is put to use for basic needs like food and livestock production, shelter, and manufacturing? Why does the middle class, working and living in urban areas, continue holding the land they do not, and will never use in rural areas? Why does Kenya continue to allow littering high-potential agricultural land with homes and graves instead of clustering homesteads to leave the rest of the land for farming? Is it ethics and values, good governance or something else? The complexity in the land sector has resulted in an enormous mess facilitated by the widespread lack of discipline among land use planners, managers, and real estate professionals.

While the executive and the political classes have to play their respective roles in effective land reforms, the citizenry has a significant role too. They individually need to change their attitudes and methods for effective land reforms. Every individual Kenyan, who takes land

possession as a way of life, is to blame. In traditional African society, such behavior was discouraged by the mythology passed on from elders that the unnecessary accumulation of land and capital is not a way of life. Such homespun wisdom no longer exists in modern society. Mwalimu Julius Nyerere, the first President of Tanzania, once described Kenya as a "man eats man society" because he noticed that Kenyans' love for acquiring wealth through all means possible. Whereas the basic socio-economic structure of society is relatively constant over time, the overall structure is likely to be always changing. The citizenry love for shortcuts and "quick fix" approaches to problems and issues plays a significant role in shaping the peri-urban spatial structure and processes. The phenomenon has led to informalities and land use conflicts. It has bred indiscipline and disorderliness. There is a need to embark on an awareness campaign to the citizenry on the importance of spatial planning, and its associated development control processes.

There is a need for legal reforms in urban governance and adopting a new paradigm of urban management, where people are part of the planning and development process, to facilitate strategic initiatives and action planning approach. There is a need to adopt a more decentralized and participatory approach, from centralized planning. The approach towards planning and development has to change from functional to organizational, from development to sustainable and from technological to managerial. The current approach has not been able to make a dent in the fundamental problems of urbanization.

5.3 Areas for Further Research

There is a myriad of future research projects generated from the research findings and data collected. The suggested future research projects may not be exhaustive. First, there is a need to study cities and towns that have different ecological and socioeconomic settings to draw firmer conclusions about the geospatial growth and planning under different land tenure systems. It is important to conduct a study of the indigenous customary peri-urban landowners to assess how they are responding to their needs. As their family situations evolve and to increasing pressure from speculators seeking to acquire the land for urban development (Bostic, 2009, p.10).

Future research should look at case studies, based on a questionnaire and interview study with developers, attempts to unravel the complex set of decisions that relate to urban development taking place on land that was previously non-urban. The development process is continuously evolving through time and across space, and many decisions are made which pertain to the release of such a plot land. Developers, financiers, builders, estate agents, and planners prepare the land for urban development. The speculator, industrialist, and householder often enter as the final consumer (Drewett, 1969, p.274).

There are many land-buying societies owning thousands of hectares covering the Kasarani and Embakasi regions. The lands have been sold to thousands of people, mainly for residential and commercial use. The societies include Chieko Plot Owners Association; Chieko Housing Company; Muirigo Housing Development; Kamuthi Housing Co-operative Society; Njiru Ageria Development Company; Jemuwa Investments Muchonaririra Company; Jua Kali Settlement Scheme, Kasarani; Mihang'o-Utawala Plot Owners Association; Njiru Githunguri Farmers and Others; Embakasi Ranching Company; and Ngundu Framers. A detailed study focusing on membership, organizational and operational characteristics, challenges and prospects of the land-buying societies should be done.

Since 2010, the Kenyan political system has undergone a radical transformation. Many institutions hitherto present have ceased to exist, others have been transformed and reformed, and new ones have come into existence. Among these are the Provincial Administration and the now-defunct Local Governments. Over the years, many writers, commentators, politicians, among others, have directed many cynical comments at them. By the time of writing this dissertation, the newly devolved system of governance is still at a nascent stage. It would be important to examine their future performance in in land use and management.

The study examines the drivers of land use change in NMR in the past up to 2010; nevertheless a pertinent issue is the projection of the change in the future. Given the ongoing implementation of the new system of governance, devolution, one is persuaded to agree that, in the long run, the economies of scale and agglomeration favoring Nairobi might start falling gradually in favor of the county headquarters.

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APPENDICES

Appendix A

The Office of Research Assurances

"The Office of Research Assurances is part of the University of Idaho's overall effort to ensure the responsible conduct of its research enterprise … The Office was formed in November 2008, with a mission to support research by facilitating and assisting researchers in identifying and maintaining research assurances."

Prior to beginning the study, it was necessary to check if it complied with the University of Idaho protocol requirements. To minimize the impacts of the above limitations, enhance the reliability and validity of the data, careful planning before and after starting the study was done. Since my research did not involve: research projects that involve animals, humans, potentially infectious materials, select Agents and Toxins and recombinant DNA activities, it was not necessary to seek approval from the various University Committees dealing with these respective issues.

Appendix B

Letter of Introduction

University of Idaho
College of Science

Geography Department
Phone: 208 885 6216
Fax: 208 885 2855
geogdept@uidaho.edu
www.cnrhome.uidaho.edu/geography

May 07, 2011

TO WHOM IT MAY CONCERN

REF: SAMUEL NDEGEAH: PhD Candidate, University of Idaho, U.S.A.

This letter serves to verify that Samuel Ndegeah, holder of Kenyan passport and national identification numbers A793102 and 9507641, respectively, is currently a PhD Candidate in good standing at the Department of Geography, University of Idaho, U.S.A.

Mr. Ndegeah is currently undertaking his PhD dissertation research, investigating the "*Peri-urbanization in a globalizing world: a retrospective evaluation of the complexities of geospatial urban growth and planning in the Nairobi Metropolitan Region, Kenya.*" The research is in partial fulfillment of requirements for the award of PhD in Geography degree at this university. The study gains strong support from the Department of Geography as well as the University of Idaho for being at the cutting edge of scholarship and practical contribution to meeting contemporary urban, regional and environmental planning challenges.

Considering the enormous amount of work and data required to successfully conduct this research, Mr. Ndegeah will need as much support as can be afforded him by the relevant authorities both in Kenya and the United States enabling him access to such information as he may need and request. The Department of Geography, University of Idaho, hereby requests and appreciates any such assistance on his behalf.

Please do not hesitate to contact me in case additional information is needed.
Thank you.

Sincerely,

Harley E. Johansen
Professor and Head, Department of Geography
University of Idaho
johansen@uidaho.edu
Phone: (208) 885-6216 Fax: (208) 885-2855
Moscow, ID 83843-3021
U.S.A.

Appendix C

Interview Guide for Key Informants

Interview Introduction:

I am a doctoral candidate in the Department of Geography at the University of Idaho, Moscow, USA. As part of Ph.D. requirements, I am conducting a research titled: *Peri-urbanization in a globalizing world: a retrospective evaluation of the complexities of geospatial urban growth and planning in the Nairobi Metropolitan Region, Kenya*. This interview is to collect data for the study. I have identified you as an important participant for this survey. Your participation is voluntary though. If you do not wish to participate or think the survey is best completed by another person in your organization, please let me know. The information provided is not personalized and will be analyzed and presented so that responses/opinions remain confidential and anonymous. When ready, the dissertation will be presented to the College of Graduate Studies, University of Idaho, USA.

Sincerely Yours,

Samuel Ndegeah, PhD Candidate, Department of Geography, University of Idaho, U.S.A

Note*: The following protocol will be used as an interview guide. Exact questions will be adapted to specific situations presented with during the interview.*

A. **Basic data**		
1.	Name:	
2.	Institution:	
3.	Position/Occupation:	
B. Land use policy and issues		
4.	Which is your area of jurisdiction?	
5.	What are the primary land use issues in your area of jurisdiction?	
6.	What planning activities are being undertaken in the situation you described above?	
7.	How do you see the future of peri-urban land use and environment?	
8.	What would be the ideal land use policy in the peri-urban area?	
9.	How could the ideal land use policy (described above) be achieved?	

C. **Institutional structures**	
10	How important are the socio-cultural land issues in Kenya?
11	What are the prerequisites for development planning and implementation in your area? Are there some regional differences/disparities in these matters, and if so, what are they?
12	What is the role of Local Authority or Authorities in your area of jurisdiction in land use planning and policy formulation? (Discuss of values, prioritizing, setting targets, monitoring, evaluation, and management of the planning process).
13	What is the role of the Provincial Administration in land use planning and policy formulation?
14	What is the role of the different Ministries in land use planning and management?
15	Are there other (important) formal and informal agents/participants in land use planning and policy formulation and implementation?
16	What should be the role of different agents/participants discussed above in land use planning and policy formulation processes?
17	Which are the institutions in charge of development of land use planning, policy, and management in the peri-urban area? Why?
D. Population dynamics and migration	
18	Where are most of the migrants from?
19	What attracts people from other regions to settle in the peri-urban area?
E. Any additional remarks, suggestions or clarification *Follow-up questions will be used to clarify initial responses and gather more data. The responses recorded in* **Appendix D (Interview Protocol**).	
20	You mentioned ……..; please tell me more about it.
21	Could you give me more information about ……..?
22	What did you mean by ……?
23	How would you compare/contrast the issue you mentioned with ……..? <u>Thank you for your time!</u>

Appendix D

Interview Protocol

Project: ……		
Date ……... Time: ……..		
Place of interview …… Interviewer……		
Interviewee ……Designation/Position……		
Question	**Responses**	**Notes/analytical log**

Appendix E

Check List of Items for Focus Group Discussions

	Lead question: List 3 important issues or things of importance to the residents of the area. The responses recorded in ***Appendix F (Interview/Focus Group Discussion Transcript)***				
A.	**Resources**: Things the Local Authority and the residents depend on to generate income.				
B.	**Land: as a resource**: What can you tell me about land in this PUA terms of: …				
C	**Land use conflict**: Disagreement over land use as a result of ownership or use conflict E.g.: residential Vs. Commercial, etc.				
D	**Land use conversion**: Change of use from one purpose (for which the council feels is not as a pressing need) to a prioritized use, as the council deems necessary. For example, change of use from agricultural to residential as a result of population pressure, etc.				
E	**Peri-urbanization**: Growth of peri-urban settlements whose development is largely associated with and often influenced by their location. Peri-urban towns however defy this definition. They might have developed on their own, but their growth influenced, at best, or at worst, annexed by the larger adjacent city.				
F	**Service provision**: By Local Governments and other Central Government agencies such as water, sewer, solid waste disposal, lighting, public toilets, security, postal services, phones, street cleaning, education, health clinics, cemetery, churches, playing fields, entertainment (films), recreational facilities, etc.				
G	**Local community participation**: Involvement in local development through representatives or actual involvement in land use decision-making forums: council meetings, land allocation meetings, planning, residential, etc.				
	Objective	**Purpose**	**Types of data**	**Techniques for analysis**	**Expected results**
	To determine socio-economic dynamics of peri-urban areas	What is the population size, change, rate, etc.?	Population size, distribution, composition, growth, etc.	Graphs, charts, maps, descriptions, tables, etc.	Distribution, rates, trends, projection, impacts, etc.
	To determine land use change and dynamics	What is the land potential, unmet potential, limitations, etc.?	Land use types, characteristics, and other resources, etc.	Land use analysis, classification, etc.	Establish potential and limits for land utilization, etc.

Appendix F

Interview/Focus Group Discussion Transcript

Interview/Discussion Transcript

Date of discussion: _____ Place/Group: _____
Theme: Land use planning and management for the peri-urban Center/area and surrounding

Sub-item/speaker	**Transcribed Text**	**Notes/analytical log**

Appendix G

Questionnaire for the Local Governments

Policy review

Declaration: *The information collected is confidential and is for academic purposes only.*

(1) Is there any zoning ordinance? (a) Yes (b) No

(2) If yes, what are the permissible land uses?

……

(3) If no, what guides land use?

……

(4) Do you have Informal Settlements in your Local Government? □ Yes □ No

(5) If you ticked "Yes", where are the informal settlements are located:

……

(6) What is the local authority's policy on unused land?

……

(7) Are there areas that have experienced land invasions?

……

(8) Is there an existing spatial development policy/framework that covers both rural and urban development?

……

(9) Are there initiatives towards the spatial integration of rural and urban areas to ensure that they complement and support each other?

……

(10) Given the pressure of land for physical development on forested, natural and agriculturally rich land, what is the Council doing to preserve land?

……

(11) The Kenyan Parliament enacted the Physical Planning Act, *Cap 286* in 1996. What steps has the Council taken to ensure compliance with the Act?

……

Thank you for your time!

Appendix H

Policy Prospects for Peri-Urban Area/Lands

Purpose:

To understand the various policies, formal and informal, in place and/or in the pipeline.

Considerations: As an open-ended interview, the questions may not be applied linearly but according to the natural flow of speech and the need; when observed by the interviewer.

(1) What are the current policy issues in your area?

……
……
……

(2) Are there any on-going policy or legislative reforms that should include peri-urban area?

……
……
……

(3) What institution(s) should be responsible for peri-urban area policy?

……
……
……

(4) Does the government have clear, transparent and effective procedures for land use control mechanisms and expropriation?

……
……
……

(5) Does the land law respect the property rights of all and recognize the various forms of land tenure, including inheritance, customary and informal ownership schemes?

……
……
……

(6) Are there clear, fair and transparent land management rules for public and private land? Are they consistently enforced?

……
……
……

Thank you for your time!