Edwin Oyaro Ondieki

TENEMENT HOUSING IN NAIROBI
The Case of Lucky Summer (Pipeline) Settlement-Embakasi
Edwin Oyaro Ondieki

Tenement Housing in Nairobi
The Case of Lucky Summer (Pipeline)
Settlement-Embakasi
DEDICATION

To my late father, Chrisantus Ondieki Mokua

For my children, nephews and nieces
Tenement Housing in Nairobi
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ACRONYMS

CCN  City Council of Nairobi
KMS  Kenya Metrological Services
LSWA  Lucky Summer Welfare Association
NCA  National Construction Authority
NCST  National Council for Science and Technology
NW&SC  Nairobi Water and Sewerage Company
PES  People- Environment Studies
PPP  Public Private Partnership
RCMRD  Regional Centre for Mapping of Resources for Development
UNCHS  United Nations Centre for Human Settlements
UNEP  United Nations environment Programme
UNON  United Nations Office in Nairobi
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ABSTRACT

Urban expansion has happened fast in Nairobi in the past 50 years and with it uncontrolled housing developments that are inadequate, unsatisfactory and regarded by observers as a major challenge to politicians and built-environment professionals. One such housing type is the tenement, which is a high-rise block consisting of single-room dwellings with shared facilities. This study seeks to create an understanding of this housing type as a contribution to knowledge and policy using empirical research approach in a single case. As a housing study, its approach is multidisciplinary and utilizes perspectives of people-environment studies (PES) with a focus on the quality of housing and domestic life of households. The study was conducted in Lucky Summer settlement in Embakasi, Nairobi.

The study used historical, quantitative and qualitative methodologies for data collection that included historical reviews of materials, household survey, observations, interviews and measurements of building parameters while samples were purposefully selected. The study was a cross-sectional survey whose temporal range of data collection was carried out between 2012 and 2014 but the scope of the study subject, Lucky Summer settlement, is the period between 1997 and 2014. The main actors were tenants, landlords, contractors and caretakers. They provided primary data for the research.

The research established that living in single-room accommodation has a colonial legacy that has pervaded time due to factors of politicizations of land administration, commercialization of housing and lack of state involvement in public housing provision. Tenements were found to be a profitable investment, which is unparalleled by other housing types and as such are favoured by those developers that are risk averse. This is achievable because of non-observance of building regulations such as those on development density, which has been exceeded many times over with multiple dwelling units. The designs of these tenements do not conform to spatial and physiological comfort criteria established in law and other normative practices and moreover, they are not constructed to established building standards thus raising concerns of safety, health
and privacy to households. Lucky Summer also lacks social amenities such as open spaces, health facilities and schools. Services such drainage, garbage collection and roads are inadequate. The built environment professionals play little or no role in these developments while regulatory agencies have abdicated their administrative mandate on housing development.

Tenements are a popular choice for a section of households within the low-income sector that afford its level of rent and who regard it as superior to housing in the slums. Households have adopted innovative ways to utilize their scarce space and limited amenities. They routinely make adjustments in the way they carry out their domestic activities in their rooms and common spaces and also use amenities and services, to meet their needs. This was shown from activities such as food preparation, sleeping arrangements, entertainment, washing and cleaning, storage and utilization of water, among others. Spatial needs of the children are not catered for in the tenements and settlement. Findings on household mobility show that a majority moved houses at least once in two years but they do not move outside the tenement typology. This is an indication that households frequently felt dissatisfied with their specific tenements however, because their economic status remained the same, they shifted to similar housing within the settlement or elsewhere.

This study concludes that the issues of tenement housing could be redressed at three levels; policy, administrative action and improvement to existing housing. The first level should focus on policy and legislative issues such as reviewing the urban physical planning policy to address housing needs of the low-income population, reviewing housing policies and building laws to conform to social, economic and political realities of the urban context and re-examining socio-economic policies with a view to supporting the low-income groups to access housing. Second is administrative intervention to ensure compliance and to effect policies and third, is the application of improvement measures to existing tenements such as remodelling.
CHAPTER 1: INTRODUCTION

1.1.0 CHALLENGE

Urban expansion is occurring fast and is uncontrolled to a large extent in the global South. Accommodation of people in the middle and low-income bracket in a city like Nairobi has for a long time been both inadequate and unsatisfactory, and is regarded by many observers as a major challenge for politicians and built environment professionals. This is more severe in the low-income ranks, which constitute 60-70% of the city’s population that is inadequately housed in poorly conceived settlements. Most in this cadre live in single-room dwellings, which is the predominant form of housing. One such type of housing is the tenements; high-rise housing blocks with small dwelling units, normally one room each. They are built to minimal standards that are outside the regulatory framework. It is the phenomenon of this tenement housing and its future development that forms the background for this study.

The past few years have seen tremendous growth in tenement housing across many settlements in Nairobi. This has transformed the form and organization of existing housing in some settlements into tenements or seen new ones created as greenfield developments. Although the growth of tenements as a housing option is gaining dominance in the low-income sections of the city, the research community and government authorities have paid relatively little attention to its organization and impact. The living conditions of the increasing number of households residing in the tenement settlements and the social and physical environment they represent are largely ignored by the authorities.

This thesis is presented as a housing study, which means that it is based on a multidiscipline approach in terms of theory and method of research. The objective is to search for characteristics related specifically to tenement housing to contribute to housing knowledge and policy. It was considered appropriate to choose tenement housing as a topic for study, especially in the context of Nairobi, based on its magnitude and the fact that it represents a relatively unexplored research area.

The interest in undertaking a housing study started in 2003, when I settled in the South
Embakasi area of Nairobi. Embakasi is an extensive settlement and industrial area located to the southeast of the city centre. At the time, there was not much building activity in the southern part of Embakasi where I lived. A lot of private land lay idle, with the few private residences and high-rise housing blocks greatly dispersed, particularly in the areas close to Nairobi’s Jomo Kenyatta International Airport.

Soon after that, building activity picked up. Housing, commercial and industrial developments were put up on previously empty lots. Housing developments were particularly vibrant and ranged from bungalows, maisonettes, apartments and tenements to an informal settlement close to the river. A number of these housing projects were developed by corporate entities such as the National Social Security Fund (NSSF), cooperatives and real estate companies, while others were built by individuals. A number of these houses were put up for sale or rental purposes. Many houses built by individuals were for owner occupation.

My attention was drawn to the building activity in the areas whose building type was predominantly tenements, illustrated in figure 1.01. The skyline of that section changed rapidly as the height and concentration of the tenement blocks increased. In trying to understand this housing development I reviewed housing literature on tenements in Nairobi and made inquiries from built environment colleagues and I noted that Lucky Summer development was not unique, only its development paradigm was different from many others of similar tenement typology.

Lucky Summer can be considered a paradigmatic case (Flyvbjerg, 2011) and was
selected because this study considered this development type as new and possibly representative of a future trend in tenement housing. It is developed on legally owned land, which is unplanned, unserviced and occupies a large area whose building densities are high. There are other types of tenement growth patterns in Nairobi city such as the transformations of site-and-service housing schemes in Mathare North, Kayore and Dandora and those of encroachments on popular settlements (slums) in Mathare, Kibera and Mukuru. However these were not considered to be happening at the magnitude and rate of Lucky Summer.

1.2.0 BACKGROUND AND CONTEXT OF HOUSING STUDY

There is both historical and contemporary knowledge on the studies of housing for low-income urban population across the world. From a worldwide perspective, studies on housing that date back to the industrial revolution had public health and planning as a core concern upon which early housing studies was conducted. Such studies were the precursors of public health policies and building laws that have subsequently guided urban human settlements up to the contemporary time. There is much knowledge in this area. The writings of Engels (2009), Benevolo (1971), Ashton (1997) and the Public Health Act of England and Wales of 1848, among others, demonstrate this. Further, the American housing experience, such as tenement housing in New York and immigrant
housing mainly in the East Coast cities, adds to the appreciation of health concerns in housing relevant to the Nairobi case of contemporary time. Day (1999), Plunz (1990) and others made much contribution to the literature on housing for the working class of that era.

From a global perspective too, social policy and its technical and social components has preoccupied housing research for a long time. This includes normative criteria for housing such as building standards, and physiological and psychological comfort. Housing affordability and social support are the other areas. Substantial research on housing in Europe and America has concentrated a lot on these areas. There is substantial literature on housing policy in contemporary times from writers such as Harloe (1995), Clapham (2012a), Kemeny (1992) and others. Substantive research was also carried out during the modernist period in architecture, mainly by German researchers, on housing standards. These pioneered the normative criteria for housing design that has been widely adopted (Tafuri & Dal Co, 1979; Rowe, 1993).

The available knowledge on housing in the low-income sector within the context of developing countries has largely been propagated by UN Habitat, the World Bank and other multilateral and bilateral agencies. Most of those studies have focused on housing in popular settlements within the urban context. The aim was to identify the problems associated with urban settlements and develop intervention strategies that were meant to improve the plight of the residents (UNCHS, 2008; UNCHS, 2003; UNCHS, 2010; World Bank, 2006). In Kenya, many studies on popular settlements have been carried out by these agencies but the findings and interventions have borne no tangible results, which raises questions on the effectiveness of the study approaches and resultant intervention strategies (Syagga et al., 2002). The nature of knowledge generated has not contributed to housing policy mainly because the policy formulators view it as not meeting the country’s housing aspirations, which are stuck in the middle-class housing mind-set as is evident in the Housing Policy of Kenya (Republic of Kenya, 2004).

Housing research from Nairobi and other African cities reveals that commercialization of low-income housing has led to informalization of housing supply. Studies carried out by academics such as Rakodi (1995), Payne (1989), Amis (1987), Shihembetsa (1989), Syagga et al (2002), Wells (2001, 2007), and Kamau and Gitau (2004), among others, have expounded on the issues of land and informal housing supply in urban settlements. A number of these studies focus on socio-economic-political approaches. These approaches are valid because within their disciplinary engagements, they have interrogated the issues to great depth. For example, Kamau and Gitau show how political and economic interest of the elites that managed the City of
Nairobi created conditions for the proliferation of unauthorized land supply leading to commercialization of low-income housing, which led to the exclusion of a large segment of the middle-income from the formal urban development process. While these contributions have enriched housing knowledge, they have not had much impact on policy implementation. The continuing housing practices, more specifically in Nairobi, will attest to that status. It is probable that these studies have not appealed appropriately to the political class and other interest groups to levels that will necessitate change.

The studies by Wells (2001; 2007) on construction practices in Nairobi were based on economic perspectives. He noted that housing in Nairobi had increasingly been commercialized by the private sector and its process of supply greatly informalized. Wells and Huchzermeyer have discussed the commercial interests and informal processes through which housing is supplied for the low-income population across the city of Nairobi. The studies by Wells review the informalities inherent in the construction sector while Huchzermeyer, using political-economic and human rights perspectives, focuses on the emergence of the tenement market at the low and middle-income levels. These two give broad overviews of the issues that underpin commercialization of low-income housing. Further, Huchzermeyer (2011) has to a limited extent delved into the social life of tenants living in tenements. The scope of these studies is broad; it cuts across other income categories and is generic for Nairobi. These authors acknowledge the need for more inquiry into the issues discussed to deepen the understanding (Huchzermeyer, 2011).

The method used in housing studies in Kenya utilizes data from the national housing and population census that is carried out every ten years by the Kenya National Bureau of Statistics (KNBS). They also use data from the Department of Housing. Usually, these bodies carry out research nationwide. They lack specificity and are not in-depth enough to account for unique and localized situations, such as those in populous settlements in urban centres. Such data alone cannot be appropriate in formulating housing policies that have a broad view. There is a need to seek and incorporate other additional methods in housing studies.

Building standards and specifically those of housing in Kenya are an adaptation of the old British standards. The colonial standards birthed the building by-laws of 1968 (Republic of Kenya, 1968) that are still in operation. This is despite the significant human development changes that have occurred since then. Elsewhere, studies on the changing space-use trends in housing continually take place and new standards are developed (Heywood, 2004; Gallent, 2010) and the case of Britain is cited. On the contrary, there has not been a similar effort in Nairobi, where space in dwellings and for
common facilities is increasingly reducing as is experienced in housing in low-income settlements such as tenements. There is abundant knowledge on the subject of space standardization from which lessons can be drawn such as Carmona (2010), Gallent (2010), Rowe (1993) and the Parker Morris Standard of 1961.

From the foregoing discussion, it can be discerned that there are numerous challenges in the low-income housing sector in Nairobi and the growth of tenement is further exacerbating the problem for a search of solutions to adequate housing. I, therefore, decided that there was a need to undertake research on tenement housing as a contribution to knowledge and possibly to policy.

1.3.0 RESEARCH AIMS AND OBJECTIVES

The aim of this study is to understand the phenomenon of tenement housing and its purpose twofold; it seeks knowledge and endeavours to contribute to policy. First, it is knowledge-seeking in the sense that growth of tenements as a housing solution for low-income households in Nairobi is not well understood, and second, it could be a contribution to the ongoing discourse on low-income housing and the revision of building laws. Therefore, the questions of this study are: How can we understand tenement housing and what are the features that could be investigated to explain the phenomenon? How may we investigate these features? These are the main questions that this research tries to answer.

Accordingly, the objective of the study is:

To investigate the phenomenon of tenement housing in Nairobi using Lucky Summer Settlement in Embakasi as a case study. The specific objectives are:

1. To trace the origins of the single-room dwelling practice and review the growth of tenement housing in Nairobi.
2. To evaluate the quality of tenements and the settlement of Lucky Summer.
3. To explore the socioeconomic characteristics and domestic practices of households in Lucky Summer Settlement.
4. To analyse the people-environment interaction factors that have influenced the growth of tenement housing and suggest interventions.

Consequently, the research questions are:

1. When did the practice of single-room dwelling begin in Nairobi and how has it transformed into tenement housing?
2. What is the quality of this tenement housing and settlement?
3. What are the socioeconomic characteristics of households and how do they conduct their domestic practices?
4. How can the interaction of factors of quality of housing and domestic life explain the phenomenon of tenement housing and contribute to housing knowledge and policy?

1.4.0 STUDY APPROACH

Lucky Summer is a low-income tenement settlement that presents to the housing discourse a number of issues such as social and behavioural, economic and political as well as built environment factors. These issues have an influence on the social life of tenants and quality of housing. An approach that seeks a broad overview of the phenomenon of tenement housing would essentially take into consideration many factors presented by these issues.

Several approaches have been used in housing studies, including those based on traditional disciplines such as psychology/behavioural studies, cultural studies, sociology, geography, economics, political science - and those that are multidisciplinary like planning, architecture and people-environment studies. Clapham (2012a), Lawrence (1987), Moore (2004) and others explain that there are many arguments on the pros and cons of these approaches but there is a general acceptance among housing studies scholars on the benefits of shared knowledge from the various disciplines and professions and even from lay people in multidisciplinary, interdisciplinary or transdisciplinary contexts. Such approaches, they argue, provide a broad understanding of people and the built environment under which they operate.

This research adopts people-environment studies (PES) approach because it emphasizes multidisciplinarity and proposes a framework for the understanding of the interaction of people and built-environment phenomenon. Such an approach to housing studies is supported by scholars such as Roderick Lawrence, Gary Moore, Amos Rapoport and Irwin Altman, among others. Lawrence (2012) avers that in its nature, PES simultaneously applies broad integrated perspectives of architectural, behavioural, cultural, economic, social, physical and political factors to develop a comprehensive understanding of people and their housing. A detailed discussion of the PES approach is in chapter two.

1.5.0 SIGNIFICANCE OF THE STUDY

This study draws its significance from the recognition of the housing challenges in the low-income sector and the concern of the rise in popularity of the tenement solution, which is considered by the political class and built environment professional as inappropriate. It is therefore necessary to understand the significance of this housing type as it will make a contribution to housing knowledge and also inform housing
policy. Currently, there is no substantive literature on tenement housing despite its contribution towards meeting housing needs of a substantial category of the low-income population. This study is therefore supposed to fill this knowledge gap and inform policy. An overview of the structure and status of housing supply in Nairobi further emphasizes the significance of this study.

1.5.1 Context of tenements within the structure of housing in Nairobi

Housing accommodation in Nairobi takes two forms; owner occupied and rental housing. The former is acquired through self-build, mortgage or cash purchase. The latter consists of three categories; private sector rental housing, county housing, and staff quarters of public or private sector institutions. Statistics from KNBS indicate that more than 85% of the city’s residents live in rental housing (KNBS, 2009). Figure 1.02 illustrates the distribution by household tenure in Nairobi and nationally. Figure 1.03 is a flowchart of housing types in Nairobi while figure 1.04-1.09 illustrates the various types of housing in Nairobi.

![Figure 1.02: Distribution of households by tenure status as a percentage. (Source: KNBS, 2009)](source)

Single-room dwellings are at the lowest level of the housing supply chain. There are many types of these dwellings, with one type built of temporary materials\(^1\). such as carton/cardboard, polythene, tin and iron sheets, mud and pole walls with tin or iron

\(^1\)Temporary materials are either single, a mixture or a combination of materials and their workmanship falls outside that defined in the Kenya building by-laws of 1968, which make reference to British Standards (BS).
Tenement Housing in Nairobi

Figure 1.03: Housing types chart. (Source: Author, 2014)

sheet roofing. Such housing is illustrated in figure 1.09 a-d. The other types of single-room dwellings are built of permanent materials such as concrete and stone blocks, as shown in figure 1.08a and b. All these houses are mainly in settlements often referred to as slums, popular settlements, informal settlements or shanties. This study adopts the word popular settlements in reference to such settlements but occasionally, the term, slum, is used for emphasis. The morphology of single-room housing varies depending on factors such as the building materials used, the nature of landownership and the location of the settlement within the urban context. Where a household lives depends mainly on the level of household income among other considerations (Syagga et al, 2002). The lifestyles of the people across the various settlements vary, they are not homogenous, and that is the case within the settlements themselves (ibid).

The categories of single-room accommodation built of concrete and stone are many. They are supplied by the private sector for rental purposes. The focus of this study is the single-room dwelling tenement because it is the most popular and fastest growing form of accommodation in the low-income category. There are other categories of tenements as outlined in figure 1.03.
Figures 1.04-1.09: Various housing types in Nairobi for different income groups.

Figure 1.04a & b: Upper class housing - townhouse in Muthaiga North and Four-Way Junction apartments. (Source: Author, 2013)
Figure 1.05a & b: Middle-income flats in Hazina and Jamhuri estates in Nairobi. (Source: Author, 2013)
Figure 1.06a & b: Middle-income maisonettes at Bellevue Estate and Phenom Park in Nairobi. (Source: Author, 2013)
Figure 1.07a & b: Middle-income self-build houses mainly for owner occupation in Syokimau and Utawala on the outskirts of Nairobi. (Source: Author, 2013)
Figure 1.08a &b: Tenement housing in; a- Lucky Summer (Pipeline) and, b- Mathare North. (Source: Author, 2013)
Figure 1.09a to d: Popular settlement houses in Mukuru kwa Njenga and Kibera: a & b are constructed with iron sheets and timber off-cuts, respectively, c is built of iron sheets with a concrete floor, while d- is constructed using mud and wooden pole walling. (Source: Author, 2013)
1.5.2 Status of housing for low-income groups in Nairobi

Nairobi is rapidly urbanizing but this growth is unaccompanied by an adequate supply of housing, particularly for the low-income category (KNBS, 2009). Economic indicators from the economic survey of 2012 (KNBS, 2012) show that this group is increasing pressure on housing due to the increase of immigrants in the city, a majority of whom are poor and seeking employment opportunities. Huchzermeyer (2011) pointed out that increasingly, many households, mainly from this category, are seeking accommodation in popular settlements and tenements. Studies have indicated that single-room occupancy is the predominant form of dwelling in these settlements (Syagga et al., 2002; World Bank, 2006; Tylor and Maithya, 2007). Studies from the Kenya Demographics and Health Survey (KDHS) of 2010 estimated that between 60 and 70 percent of the population of Nairobi in the low-income demographic occupies such accommodation (KNBS, 2010). While a majority live in popular settlements, a growing number of households are accommodated in tenements and this trend is projected to rise, considering the increased demand for housing due to population growth and the increased value of land (Huchzermeyer, 2011).

1.6.0 SCOPE OF THE STUDY

The subject of study is limited to single-room dwellings and covers one tenement settlement but reference is made to others. Geographically, the scope of the study could find application in similar settlements in Nairobi and other urban centres across the country and probably beyond. The study is also limited to the study of the quality of tenement housing and domestic life of tenants viewed from a multidisciplinary perspective as advanced in people-environment studies and with an architectural bias. The actors are tenants, landlords, caretakers and builders, who provided primary data for this research.

In terms of its theoretical scope, the study adopts the people-environment studies (PES) approach. It does not test theories but only uses them as theoretical methodological guidelines in the research process. Since it does not test theories, the study employs descriptive and explanatory strategies using mixed method research. Purposeful sampling was used in all aspects of the study. Finally, this is a cross-sectional survey whose temporal range of data, including field research, was carried out between 2012 and 2014 but the scope of the study subject, Lucky Summer settlement, is the period between 1997 and 2014.
1.7.0 STUDY AREA

This study is based in Nairobi, Kenya. Nairobi is the largest metropolis in the country, with a population estimated at 3.5 million. Estimates from the national census of 2009 show that Nairobi accommodates a quarter of Kenya’s urban households (KNBS, 2009). Table 1.01 gives a comparative illustration of households and number of dwelling units in the country and Nairobi. Nairobi is a large metropolis compared to others in the country in terms of urban formation that has created a serious housing shortage, particularly in the low-income segment.

Nairobi has, therefore, been chosen as the area of study because as the largest metropolis, it experiences the highest household formation, with much more demand for housing than any other urban centre in Kenya. It probably represents the worst-case scenario for housing, whose lessons can be significant for policy formulation.

The settlement studied, Lucky Summer, is popularly known as ‘Pipeline’ because of its proximity to Kenya Pipeline Estate, the earliest housing development located to the west of Lucky Summer. It is located in Embakasi South Division, Embakasi District. It is to the southeast of the city centre and apart from hosting large industrial and service enterprises, it is a settlement with an extensive housing sprawl as illustrated in figure 1.01. Lucky Summer has transformed into a populous tenement housing settlement. Its rate of growth is unmatched by other similar settlements. It has a formal landlord-welfare association that does not shy away from public scrutiny. All developments have been carried out through the initiative of the private sector, starting from land subdivision to provision of infrastructure and services.

<table>
<thead>
<tr>
<th></th>
<th>Dwelling Units</th>
<th>Households</th>
<th>Habitable Rooms</th>
<th>Population</th>
<th>Persons per Room</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>KENYA</strong></td>
<td>15,390,410</td>
<td>8,767,954</td>
<td>23,396,005</td>
<td>38,412,088</td>
<td>1.64</td>
</tr>
<tr>
<td>Rural</td>
<td>10,621,370</td>
<td>5,429,236</td>
<td>16,110,418</td>
<td>26,388,518</td>
<td>1.64</td>
</tr>
<tr>
<td>Urban</td>
<td>4,769,040</td>
<td>3,338,718</td>
<td>7,285,587</td>
<td>12,023,570</td>
<td>1.65</td>
</tr>
<tr>
<td><strong>NAIROBI</strong></td>
<td>1,229,183</td>
<td>985,016</td>
<td>1,741,017</td>
<td>3,109,861</td>
<td>1.79</td>
</tr>
</tbody>
</table>

Table 1.01: Households by number of dwellings in 2009. (Source: KNBS, 2009)
Figure 1.10: Lucky Summer and the neighbourhood. (Source: RCMRD, 2014)
1.8.0 DEFINITIONS OF CONCEPTS AND TERMS

The study uses concepts and terms, which have been grouped into four namely; built environment, tenement, and quality of housing and household, dwelling and domestic life.

1.6.1 Built environment

The concept ‘built environment’ refers to the human-made surroundings that provide the setting for human activity, ranging in scale from buildings and green spaces to neighbourhoods and cities (Moore, 1979; Lawrence, 1987; Rapoport, 2005; Roof and Oleru, 2008). It includes its supporting infrastructure such as roads, drainage, power supply, water, garbage management and other services. The built environment is a material, spatial and cultural product of human labour that combines physical elements and energy in forms for living, working and playing. Roof and Oleru (2008) have defined the built environment as “the man-made space in which people live, work, and recreate on a day-to-day basis.” Further, they state, the “built environment encompasses places and spaces created or modified by people, including buildings, parks, and transportation systems”.

It can be inferred from Lawrence (2012) that the term ‘built environment’ is typically used to describe the interdisciplinary field that addresses the design, construction, management, and use of these man-made surroundings as an interrelated whole as well as their relationship to human activities over time. The built environment is not regarded a traditional profession or academic discipline in its own right. Instead, it draws upon areas such as economics, law, public policy, public health, management, geography, design, technology, and environmental sustainability. The field of public health partly describes the built environment as building or renovating areas in an effort to improve the community’s well-being through construction of aesthetic, health improved, and environmentally improved landscapes and living structures (Aboelata, 2004). This study broadly adopts this understanding in the discussions on built environment but limits its extent to the case study areas.

1.6.2 The tenement

‘Tenement’ is a European and American conceptualization of high-rise housing that accommodated mainly poor immigrants to industrializing cities of these two regions. The etymology of the word denotes a dwelling of poor living conditions. The word ‘tenement’, therefore, conjures up negative connotations. Some key words used in the definition of ‘tenement’ drawn from the Oxford English Dictionary (OED, 2009), Huchzeremayer (2011), Day (1999), Plunz (1990) and Bauman (2000) among others are “apartment”, “multiple-occupancy building”, “rental occupancy”, “rundown”,

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“overcrowded”, “poor neighbourhood”, “downtown”, “lower income”, “unregulated” and “unplanned”. These and other adjectives describe the housing situation from the social and physical perspectives. In the western world, the word ‘tenement’ would mostly describe the aftermath condition(s) of the physical character of a house or housing scheme that was probably well-conceived in terms of design and planning but due to changes in circumstances such as poverty, crime, economic meltdowns, joblessness, increased population, government policy and other conditions became rundown. This could mean that a well-conceived housing scheme of apartments which over time is neglected and rundown and subsequently occupied by poor tenants is described as a tenement neighbourhood or district.

However, Bauman notes that during the industrial revolution, tenements were built purposely to accommodate huge numbers of migrant workers that were required by industry (Bauman, 2000). They were, therefore, planned and regulated. The New York Tenement House Act of 1867 supports this assertion (Plunz, 1990). Friedrich Engels, in his book, Conditions of the Working Class in England - 1844 (Engles, 2009) faulted the planning and implementation of this housing, which he noted was not only poor, but was also the cause of serious health challenges. Most of that housing was demolished to give way to schemes that were better planned.

On the contrary, in Nairobi, what might be described as tenement is housing that is most likely unplanned and unregulated (Huchzermeyer, 2011). The unplanned and unregulated housing in many parts of Nairobi, which is built for rental purposes and targets low and middle-income households, attains tenement status from inception. The manner in which this housing is built - without regard to planning and building regulations, with lack of infrastructure and amenities, and in densely populated neighbourhoods - would have it regarded as tenement. The word ‘tenement’ as used in this study means high-rise housing for the low-income market that is built outside the regulatory framework. In Kenya, these are also referred to as flats, which is too generic as it refers to all high-rise residential blocks mainly within the low and middle-income housing categories. The tenements under review are those that offer single-room dwellings only. Lucky Summer Settlement in Embakasi, Nairobi, is mainly comprised of such tenements.

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2The New York Tenement Housing Act of 1867 defined a tenement as follows: “Any house, building, or portion thereof, which is rented, leased, let or hired out to be occupied or so occupied, as the home or residence of more than three families living independently of one another and doing their own cooking upon the premises, or by more than two families upon a floor, so living and cooking and having common right to the halls, stairways, yards, water closets, or privies, or some of them.”
1.6.3 Quality of housing

The understanding of quality of housing is adapted from Lawrence’s (1987) conceptualization. He views housing quality as a relativist term that refers to sets of interrelated constituents and processes that concern the material conditions of residential environments, social relationships of users and developers, economic conditions and ecological consequences of the use of natural resources. This extends the understanding beyond the traditional perspective that considered housing quality as a measure that satisfied a set of established standards. Details on the quality of housing are discussed in chapter two. This study has considered these perspectives in the discussion of quality.

1.6.4 Household, dwelling and domestic life

The term ‘household’ in this study refers to one or more people who live together in a rented dwelling in the tenement. The term ‘tenant(s)’ is also used interchangeably with ‘household(s)’. This study has adopted the word ‘dwelling’ to describe the single-room abode of the households and not the word ‘house’ or ‘housing’. The discourse on the concepts ‘dwelling’ and ‘housing’ were reviewed and the understanding described by Guido Frascescato finds primacy in this study. Frascescato averred that a dwelling allows the household to carry out domestic activities or functions, including perceptual, affective and symbolic processes that may not necessarily be related to action (Frascescato, 1993). It affords the tenants an opportunity to think and reflect. All these factors constitute domestic life. Lawrence (2012) offered suggestions on how domestic lifestyle can be evaluated. To understand it in a broad manner, he outlined the following requirements:

- A study of social norms and conventions as well as personal preferences. These are transmitted in the layout, furnishing and use of domestic space.
- An understanding of cultural, social and psychological variables. This involves the analysis of domestic processes, including the cultivation of the private domestic domain, the residential biography of individuals and households and residential satisfaction (Clark, 1996).
- An evaluation of economic and political factors that influence the availability and affordability of housing.

This study does not cover the entire scope of these principles but utilizes their understanding in the collection and analysis of data. This is evident in the study’s findings and evaluation section.
1.9.0 ORGANIZATION OF THE MONOGRAPH

This study is organized into seven chapters. The following is a brief outline.

Chapter 1: Introduction. This chapter introduces the study subject, reviews the background and context of housing study and states the research aims and objectives. It also introduces the research approach, the study’s significance, scope and the study area and finally defines concepts and terms and the organization of the monograph.

Chapter 2: Literature review. This chapter contextualizes tenements within the housing discourse through a review of housing challenges, interventions and study approaches. It starts from the period of industrial revolution to the modernist era in Europe and America and also the Africa and Kenya contexts. Further, it discusses emergent themes and approaches used in contemporary housing studies and introduces People-Environment studies (PES). Finally, it develops a PES conceptual framework for the study of tenement housing in Nairobi.

Chapter 3: Research method. This chapter details the research methodology that guided the study. It explains the methodological strategies, including sampling, data collection, strategies of data collection and data analysis.

Chapter 4: Housing transformations in Nairobi: from the peripheral shack to the tenement. The chapter reviews transformations in housing provision in the low-income sector in Nairobi in pre and post-independent Kenya and explores the growth of tenement housing.

Chapter 5. Setting: The chapter is divided into two parts. Part I contextualizes the study through an overview of Nairobi and Embakasi areas. Part II reviews Lucky Summer settlement by tracing its origins and growth to the present time through an evaluation of its physical and social structures and reviews its transformations to the current time.

Chapter 6. Housing quality: The chapter is divided into two parts. Part I is an evaluation of the quality of the tenements and Part II is a discussion of emerging issues and suggested interventions to improve the quality of the built environment.

Chapter 7: Domestic life: The chapter is divided into two parts. Part I is a socioeconomic study of households and part II is an evaluation of domestic practices of tenants.

Chapter 8: Conclusion and recommendations. This chapter is organized in three parts; conclusions, recommendations and suggestions on further research.
CHAPTER 2: LITERATURE REVIEW

This chapter is a continuation of the discussion in chapter one on background and context of housing study. It starts with an overview of the status of housing within the socioeconomic and political development context of the period of the industrial revolution through to the late modernist era in Europe and America. It reviews housing challenges, approaches and strategies of access to housing in developing countries. Further, this chapter discusses the status of contemporary housing studies by exploring emergent themes and study approaches. It makes an argument for the use of people-environment studies (PES) approach and reviews its concepts and attributes that are used in housing studies. Finally, it draws a conceptual framework for the study of tenement housing.

2.1.0 A HISTORICAL OVERVIEW OF HOUSING: EUROPE & AMERICA

The discourse of tenements that were a product of speculation resulting from a shortage in housing in the rapidly industrializing cities of Europe and America, is part of the history of mass housing for the working class. The reversal of this mode of housing production was a consequence of the socioeconomic, political and technological development in these regions. Available housing knowledge about this class dates back to the beginning of the industrial revolution. The historical and social context in Europe and America in that period can be divided into three. The period 1850 to that ending with WW1; the period between the two wars; and the period after the WW2.

The first is the early period of the industrial revolution, the period from mid-19th century to WW1, was characterised by increased growth in industrialization and urbanization, speculation in housing supply, poor housing conditions for workers, particularly between 1850 and 1900, and a rise in activism for housing reform (Rowe, 1993; Benevolo, 1971). The greater attention then was public health due to the concern over the spread of diseases resulting mainly from poor sanitation in housing settlements (Ashton, 1997; Engels, 2009; Benevolo, 1971). This was because proper building guidelines and planning had not been developed. Over time, as these writers have noted, conditions gradually improved with the enactment of legislations that aimed to control
the spread of epidemics in urban settlements through improvements of the physical environment. The earliest example was the Public Health Act of 1848 of England and Wales that gave conditions and guidelines for water supply, sewerage, drainage and cleansing, among other environmental health issues. Similar legislations were enacted in other countries and this had a great impact on urban areas. It is in light of these housing challenges and interventions that this thesis makes reference to tenement housing which was a dominant feature in the industrializing and fast growing cities of Europe and America in the 19th and 20th century. The case of New York of the period 1850 to 1900 was selected because its characteristics and debates offer significant lessons for the discourse of the Nairobi case.

The second is the period between the two wars, regarded as the second industrial revolution. Socially, this period was characterised by unsustainable social and economic disparities in cities that saw the adaptation of a social agenda in access-to-housing (Harloe, 1995). This was a significant paradigm shift, whose practice has continued in various forms, to contemporary period in developed countries. This brought about gradual improvement in conditions of living through better planning and housing for the working class. Technologically, it was characterized by significant changes in housing production pioneered mainly by Germany architects. It marked the advent of the modernist movement in architecture and one significant characteristic of the period was the development of a universal criterion for housing quality. Physiological comfort standards were developed and psychological and social criteria for housing adopted. Under this criterion, the concept of ‘minimum standard’ for housing became widespread in Europe (Rowe, 1993). There is significant literature from that period, mainly from Germany, that documents various analytical studies on domestic space use (Manum, 2006). These studies developed the criteria for efficient use of domestic space, leading to the normative standardizations that dominated spatial organization and production of housing components that were the precursors of mass housing.

The third is the post Second World War period, which was referred to as the late modernist era (Tafuri & Dal Co, 1979). It was characterised by increased growth and efficiency of industrial production processes due to better management and organizational structures in many spheres of human endeavour. Ideologically, in the housing sector, a rational approach to architecture was adopted and standardisation and mass production of components became a common practice (Rowe, 1993). The urban landscapes in Europe and American significantly changed its character due to large-scale reconstructions and extensive urban expansion and housing developments. Progress made in housing development before the war pressed on with increased high-rise residential towers, particularly in America, drastically changing the domestic landscape of many cities in terms of patterns of dwelling density and spatial
distribution. In this period, architects and planners together with government agencies experimented on mega housing projects, with some developed as integrated projects, which was possible because of advancements in modern production and management techniques (Rowe, 1993). However, reviewers of this period, such as Jane Jacobs (1964), note that some of the urban development experimentations were not a success. Mega housing projects - such as the 1961 Robert Taylor Homes in Chicago and the 1955 Pruitt-Igoe housing in St. Louis, Missouri, both in the USA, and the 1960-65 Conjunto Urbano Nonoalco Tlatelolco apartment complex in Mexico City, Mexico - that characterized that period failed to meet the aspiration for which they were built and were either demolished and/or extensively remodelled. Therefore, the modernist theory attracted great criticism that has informed much of the contemporary housing theory and practice mainly in the developed world.

2.2.0 OVERVIEW OF HOUSING IN AFRICA

The post WW2 period witnessed significant changes in the social, economic and political landscape of many African countries. A number of those that were colonies gained independence. There was much expectation for development and a number of governments, fascinated by modernist era urbanism in Europe and America, embarked on massive urban projects that drastically changed the urban landscapes through increased provisions for industrial, commercial and residential activities. Rural-urban migration increased and although job opportunities increased, they did not match the demand. In any case, most migrants had no work expertise and did menial work, which was limited due to high demand (Misra, 1992). Consequently, there was increased poverty in the cities. Political and economic commentators have noted that population growth, changes in economic paradigms and political factors greatly impacted on the development of many countries, which impacted on the urbanization agenda. Table 2.01 illustrates the effects of these changes in urban development in the third world. Urban areas experienced shortages of employment opportunities and housing, among other services. In response to rapid urbanization, new shelter strategies, either officially sanctioned by governments or spontaneous ones by the masses, determined access to housing. These were, mass-housings, self-help building practices, ideas of community participation in design and decision-making, ‘ad-hoc’ architecture, squatter settlements, self-governing local systems, and, housing speculation by the private sector. This, therefore, became the common human settlement characteristic of developing countries (Abram, 1964; Turner & Fichter, 1972; Turner, 1976).

The discourse on low-income housing in Kenya and Africa highlighted in chapter one shows how the various strategies applied in seeking sustainable urban housing solutions and the approaches used have had little success. Most of these were based on
Tenement Housing in Nairobi

Table 2.01: Summary of global paradigm shifts. (Source: Anyamba, 2006)

<table>
<thead>
<tr>
<th>PERIOD</th>
<th>DOMINANT ORTHODOXY</th>
<th>GEOPOLITICAL TRENDS</th>
<th>STRATEGY FOR URBANIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>Modernization Theory with a strong Western bias.</td>
<td>Emergence of newly independent countries and the Cold War.</td>
<td>Import substitution strategy.</td>
</tr>
<tr>
<td>1970s</td>
<td>Growth and Redistribution Theory, plus Basic Needs Theory.</td>
<td>Cold War, oil shock and the emergence of the Debt Crisis.</td>
<td>Focus on site and service schemes, self-help projects, core housing, etc.</td>
</tr>
<tr>
<td>1980s</td>
<td>Emergence of the Neo-liberal Theory.</td>
<td>Full-blown Debt Crisis and severe economic decline in developing countries.</td>
<td>Problems of affordability at the fore, Tacit acceptance of informal settlements. Relaxing of laws.</td>
</tr>
<tr>
<td>1990s</td>
<td>Neo-liberal Theory as the driving orthodoxy. Emphasis on Enablement and Good Governance.</td>
<td>End of Cold War. Increased emphasis on democratization based on Western models.</td>
<td>Cities increasingly seen as engines of economic growth. Restrictive building and land-use standards increasingly phased out.</td>
</tr>
<tr>
<td>2000s</td>
<td>Sustainable Livelihoods Theory. Focus on poverty eradication.</td>
<td>USA as the dominant super power. Increasing urban poverty.</td>
<td>Privatisation. Focus on private/public sector partnerships.</td>
</tr>
</tbody>
</table>

Socioeconomic approaches, which could not be sustained due to increased demand for housing in urban areas and changes in global economic paradigms. This shifted focus to approaches based on neoliberal economic principles, which led to failure in offering a housing solution to the urban poor. It can be argued that economic approaches cannot be a panacea for housing problems in context of weak economies, which pose the question as to whether such an understanding could make a case for other approaches that push the limits beyond economics. The challenge, of course, is how this can be done within an entrenched neoliberal economic environment. There are certainly no easy solutions and housing research would not provide these without experimentation. Probably, the solution lies with Hamdi’s (1991) proposition that every state and city endeavours, in their own ways, to seek homemade solutions to their unique housing challenges. This, he noted, is because there cannot be a generic solution to urban housing challenges.

In Nairobi, the tenement typology is becoming a prominent feature in the low-income housing sector and it is changing the urban landscape of settlements. Huchzermeyor (2011) has reviewed this housing and notes that its residential density is probably the highest in Africa. Though there are tenements in other African cities such as Dar es
Salaam, Ibidjan, Côte d’Ivoire, Lagos and Ibadan, these are of a much smaller scale and their morphology is different to that of Nairobi (bid). For example, Kariakoo in Dar es Salaam, transformed without regulations, in the 1980s and 90s, from traditional low-rise housing into a high-rise residential and commercial district (Moshi, 2009). It resulted in congested and poorly designed houses that could be comparable to some of Nairobi’s tenements. Tenements are private sector investments that are characterized by maximum exploitation of urban space to achieve the highest number of dwellings. While the tenements of Nairobi are undesirable when considered from a quality of housing perspective, Huchzermeyer came across some pragmatic arguments that support them. Tenement settlements are lucrative business hubs and ameliorated the housing shortage and were thus considered a pragmatic solution. However, as noted, other issues arise such the regulatory breakdown and corruption. The definition of

2.30 STATUS OF CONTEMPORARY HOUSING STUDIES

Housing Studies as a finite study discipline is relatively new, having been established in the 1970s (Clapham, 2012a). Before that period, studies in housing were situated within specific academic disciplines. Clapham notes that from the 1970s onwards, housing became a subject in its own right. This was because there was increased interest, mainly by governments in European countries and America, in research on the housing policy process. This was due to the realization that housing had become a complex political and socio-economic issue that required both professional and academic inputs for housing policy development. This became the precursor of the field of Housing Studies. Clapham (2012a) points out that although many academics delved into the field from their own disciplinary bases, their version of housing research predominantly focused on the specific discipline. Others saw themselves as housing specialists who often drew from a range of disciplines to analyse housing phenomena. Their studies covered issues from broad perspectives and were thus more persuasive in policy formulation.

Clapham goes on to point out that although there are no university departments devoted entirely to housing studies, a number of research centres were established with housing as their primary focus and in this way, the development of a housing field of research became institutionalized. In Britain, for example, the Housing Studies Association was formed to organize dialogue between housing academics and policy makers. The European Network for Housing Research soon followed, with the Asia Pacific Network for Housing Research close behind (Clapham, 2012a). This trend extended to other parts of the world, with countries setting up similar institutions.

There is abundant housing literature and its review reveals a number of study themes that have kept recurring. This study has identified at least six themes:
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tenement by Huchzermeyer covers housing for both the low and middle-income with a scope that covers several settlements that have different characteristics. The findings are, therefore, generic and form a suitable basis from which to start a discourse on tenements in Nairobi.

- **Housing Market**: This focuses on demand and supply, political ideology, fiscal policies and consumer behaviour. Economists such as Kenneth Gibb, Christine Whitehead and Michael Ball have made contributions to this theme. Economic theory and many of its variances have been used in housing studies and these have influenced housing supply. Economic theory, therefore, has been the most central perspective in housing research, particularly in contemporary time under a neoliberal economic environment.

- **Social Policy**: This is focused on those aspects of the economy, society and policy that are necessary for people’s existence and the means by which they can be provided. Housing is a fundamental component of social policy. Michael Harloe, David Clapham, Jim Kemeny, Bo Bengtsson and other academics have made great contributions to the understanding of social policy in housing and its transformation over time.

- **Social and psychological aspects of housing**: These include residential mobility, housing preferences, social segregation (including class, poverty, disability, drug addiction, mental health, minorities and homelessness among others), children, youth and the elderly. This theme has had much contribution from many disciplines within the social sciences, such as psychology, sociology, geography, cultural studies and other. Some of the major contributions to these studies have been made by academics such as Amos Rapoport, Gary Moore, Susan Kent, Roderick Lawrence, David Clapham, Irwin Altman and Jim Kemeny.

- **Quality of housing**: This refers to house sizes, space and specification, technology and neighbourhoods. The discourse on quality of housing is extensive and many academics from fields such as engineering, architecture, social sciences and environment sciences have contributed to it. It is also an institutional and professional issue. Much research on housing quality in contemporary times has been carried out as institutional assignments funded by state agencies and trustees. Some of the notable writers on housing quality include, Nick Gallent, Carmona Matthew, Julienne Hanson, Ken Bartlett and others.

- **Housing and the environment agenda**: This focuses on environmental quality, energy saving, carbon reduction and housing production processes. This theme focuses on technological development and innovation. It is, therefore, within the
realms of material science, engineering, environment science and design, but its
critical reviews are mainly from the social sciences. Some of the contributions
made to this housing studies theme are from academics such as Heather Lovell,
Michael Lynch and Judy Wajcman.

• Critical theory: There is a substantial body of work in housing research that has
attempted to introduce theoretical thinking in contemporary housing studies.
For example, Jim Kemeny, David Clapham, Chris Allen, Judy Lawson, Annette
Hastings, Stuart Lowe, Peter Somerville, Peter King and others have undertaken
critical reviews of housing through the application of social theory.

It can be observed that this categorization is a creation of academic disciplines or
institutional requirements. For example, social policy is an institutional requirement.
Essentially, though, the issues overarch across themes. No one issue can be properly
comprehended without reviewing variables that are dominant in the other categories.
This makes the studies of housing complex and justifies study approaches that embrace
the incorporation of insights from a broad cross section of disciplines, professions and
practices (Clapham, 2012a). In view of this understanding, it is apparent that a broad
approach to housing research is based on a multidisciplinary perspective. Accordingly,
this study adopted a People-Environment Studies (PES) approach. The proceeding
section discusses PES and its application to the study of housing.
2.4.0 PEOPLE-ENVIRONMENT STUDIES (PES) APPROACH

The International Association of People-Environment Studies (IAPS) explains that People-Environment Studies (PES) is a multidisciplinary approach to the study of the relationship between people and their immediate environment. IAPS adds that it uses theoretical and applied knowledge from various disciplines and professional practices. Gary Moore (1979), who popularized an equivalent of PES that he referred to as Environment-Behaviour Studies (EBS), affirms that this field has two main components; the environment, which comprises aspects of the built environment, and the human behaviour element that is understood from the disciplines of humanities and social sciences. According to Moore (2004) and Lawrence (1987), the interest in the people’s interaction with the environment started in the 1960s with the architectural psychology movement.

In the 1960s, a group of architects and psychologists carried out joint studies that were meant to identify how people perceive and use their immediate surroundings in terms of their personal traits and the physical fabric of buildings. These studies were carried out at the micro scale of habitable rooms, buildings and neighbourhoods and their contribution labelled architectural psychology (Lawrence, 1987). Moore (1979) notes that a number of terms have been used to describe the relation of humans to the environment, including social ecology, environmental psychology, behavioural architecture and human factor or programming. Though Moore (1979) argues that EBS is the more encompassing designation, a review of the literature such as from Lawrence

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1Professor Gary T. Moore is a pioneer researcher and founder of the field of environment-behaviour studies. He has made significant contributions to the understanding of the relationships between environment, behaviour and society, including environmental cognition, children youth and environments, ageing and the environment, post-occupancy evaluation and environment-behaviour theory. He is widely published and is an author of several books? such as: Emerging Methods in Environmental Design and Planning (1970), Environmental Knowing (1976), Designing Environments for Handicapped Children (1979), Environmental Design Research Directions (1985), and the four-volume series, Advances in Environment, Behaviour & Design (between 1987-97).

2Professor Roderick Lawrence is a researcher and member of the International Association of People-Environment Studies (IAPS). He is a prominent proponent of People Environment studies (PES) from where he has made significant contribution to the understanding of people to environment relationships. His approach to research is interdisciplinary and transdisciplinary from which he has dealt with complex environmental issues such as human ecology, sustainable development, participatory approaches for land-use planning, and health and quality of life in cities. He is extensively published and is an author of several books, alone or jointly with others. These include: Housing, Dwellings and Homes-Design Theory, Research and Practice (1987), Better Understanding Our Cities (1997), Sustaining Human Settlement - A challenge for the new millennium (2000), People-environment studies (In- (?) The Sage Handbook of Housing Studies (2012), Requalifying the Built Environment - Challenges and Responses (2012), Understanding Environmental Quality Through Quality of Life (QOL) Studies (2014), Rethinking Habitat - Give meaning to housing (2014).
(1987, 2012) indicates that the goals and objectives of PES and EBS are similar; they both acknowledge multidisciplinary and multi-professional involvement in their fields. This research adopts ‘people-environment studies’ to denote all the other equivalent terms or expressions.

2.4.1 PES as melting pot for disciplinary and practice knowledge

PES emerged from two sets of complementary concerns; one in the professional disciplines of the built environment such as architecture and planning, and the other in the social and behavioural sciences such as anthropology, sociology, psychology, political sciences and economics (Lawrence, 1987; Lang, 1987). Moore (2004) explains that studies in the people to environment nexus grew in part from the concern that these disciplines were not paying sufficiently serious attention to behavioural factors; individual perceptions and preferences, group norms and dynamics, and cultural values and expectations in the planning and design of the human environment. He further notes that whenever the word ‘environment’ was used within social and behavioural science studies, its meaning did not include the physical, planned and designed environment.

Moore (2004) observes that from the social and behavioural sciences perspective, studying the people-built environment relations grew from the concern that while much was known about individual, group and cultural processes, perception, cognition, preferences, values, attitudes, social norms, semantic structures and cultural differences, little was known about the relationship of these social understandings to the physical environment. He further notes that whenever the word ‘environment’ was used within social and behavioural science studies, its meaning did not include the physical, planned and designed environment.

In many of their works, academics such as Arias (1993), Rapoport (2005) and others aver that within the housing discourse, the findings of theoretical and empirical research have been instrumental in promoting broader interdisciplinary interpretations of several subjects in housing research, including *home, dwelling, housing, housing demand, housing quality, residential mobility and housing preferences*. Whereas some of these subjects continue to be studied narrowly within their academic and professional disciplines, it is argued that the contribution of people-environment studies is complementary to them (Lawrence, 2012). The enlarged interpretation of housing quality is an example of the integration of knowledge from several disciplines (ibid). This is discussed in detail further on in this study.

New knowledge concepts have been proposed within PES that are meant to integrate the knowledge in the various disciplines to deepen the understanding of people to environment relations. Concepts of “new knowledge production” such as interdisciplinarity, transdisciplinarity (Gibbons et al., 1994) and transcendence (Lawrence, 2012) are starting to be used in expanding the scope of people-environment
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and transdisciplinarity are complementary rather than mutually exclusive knowledge
concepts. Gibbons adds that it is important to stress this principle because without
specialised disciplinary studies, there would be no in-depth knowledge and data.
Proponents of PES believe that the achievement of transdisciplinarity will ultimately
lead to comprehensive knowledge of the people-built environment relationship. They
aver that this will involve bringing together, and the transcendence, of individual
disciplines with the aim of using the common approaches concept (Lawrence, 2012;
Gibbons et al., 1994; Nowotny, 2004).

This thinking is, however, not wholly supported. Gibb argues that while the
multidisciplinary view is consistent with housing studies in a broad view of analysis, the
different disciplines and perspectives are better suited to addressing specific questions
(Gibb, 2009). Guy and Henneberry (2000) and Watkins (2008) support that argument,
noting that there is no need for seeking an integrative inter-disciplinary approach
because of the danger of losing disciplinary focus. Lawrence, however, concedes that
while the dominant mode of housing research and housing policy has undoubtedly been
disciplinary contributions, there is still too little cross-disciplinary collaboration.

2.4.2 PES perspectives on quality of housing and domestic life

The discourse on quality of housing extends to the rest of the surrounding built
environment. According to Lawrence (2012), quality of housing is a fundamental aspect
of the PES approach to housing studies and its conceptualization has been substantially
broadened under PES. He has conceptualised housing quality as a relativist term that
refers to sets of interrelated constituents and processes that concern not only the material
conditions of residential environments, but also social relationships (such as landlord
and tenant rights and obligations), economic conditions (especially affordability in
terms of household budgets) and ecological consequences (including the use of natural
resources). This means that commonly used environmental health or other statutory

\[\text{New knowledge modes are concepts that are being promoted by researchers such as Michael}
\text{Gibbon 1994 and Helga Nowotny, 2004. Among these concepts are interdisciplinarity and}
\text{transdisciplinarity. According to them, these concepts are additional to multidisciplinarity and}
\text{cross-disciplinarity. Interdisciplinarity is considered a means to share disciplinary knowledge}
\text{in order to create new concepts and theories, create a product, or solve specific problems. In}
\text{contrast, transdisciplinarity is considered a fusion of disciplinary knowledge with the know-how}
\text{of lay-people that creates a new hybrid that is different from any specific constituent part. They}
\text{assert that transdisciplinarity is not a process that follows automatically from the bringing togeth-
\text{er of people from different disciplines or professions, but requires an ingredient that some have}
\text{called ‘transcendence’. It also implies the giving up of sovereignty over knowledge, the genera-
\text{tion of new insight and knowledge by collaboration, and the capacity to consider the know-how of}
\text{professionals and lay-people on equal terms.}
\]
yardsticks of housing quality give only a static and partial picture that is not related to the different and changing goals of individuals (Lawrence, 2012). This, however, does not discredit these measures but argues for consideration and inclusion of many more parameters for a broader understanding of housing quality.

Further, Lawrence (2012) observes that many published housing research studies evaluate residential environments from the residents’ perspective. Traditionally, he avers, these studies were commonly conducted using sociological and psycho-physiological models of aesthetics, ergonomics and human comfort. He goes on to point out that the objective of the majority of these contributions has been to make design professionals accountable for what he refers to as the ‘anonymous users’, and that the way of undertaking such a research was by formulating a checklist or guidelines about ‘user needs’. Such contributions, especially the studies by architects and urban designers, evaluate housing environments largely in terms of aesthetic and functional parameters.

Lawrence goes on to observe that this kind of approach has recurred consistently during the last four decades. It reflects an underlying belief of many professional designers and social scientists who, here he quotes Michelson (1980), maintain that there is an empirically based ability to create and/or modify the design of residential environment(s) to provide for greater residential satisfaction. An underlying assumption of this interpretation is that there is a law-like, mechanistic relationship between the degree of satisfaction with the built environment and its physical configuration, which is studied in terms of aesthetic response, functional efficiency, human behaviour and stress. He notes further that Michelson relates this custom to the approach of those academics, professional designers and social scientists who maintain that if “user needs” are identified, they can serve as guidelines for architectural design.

Research carried out in this manner is not necessarily uninformative, but it gives little or no consideration of “the conflicting values and goals of different groups of people (for example, building owners, administrative officials, residents and professional designers). Moreover, ecological factors related to the costs of consuming resources and energy-saving measures have commonly been ignored, although these were debated publicly from the 1970s.” (Lawrence, 2012). Lawrence rejects the premise that once user needs are known and provided for through design, then residents will be satisfied. He notes that this kind of interpretation assumes a direct relationship between the physical features of residential environments and residents’ satisfaction, selection and use. According to Michelson (1980), there is no law which prescribes the interaction between how satisfied people are with their residence or whether they will move elsewhere. He argues for the application of a contextual analysis. He further explains
that the relativity of an individual’s evaluation of the quantitative and qualitative characteristics of residential environments should be acknowledged in housing research.

Lawrence (1987) adds that in view of advances in the building and environmental sciences since the 1970s, which have identified relationships between global environmental issues and building construction practices, housing quality can no longer be narrowly defined in terms of aesthetics, ergonomics or space standards. Today, it is necessary to consider housing quality in relation to environmental quality using an integrative perspective that not only includes economic, material, social and psychological factors, but also ecological and political ones. This reorientation can identify those basic principles underlying the means and measures that can enable and sustain a quality of housing that is acceptable to individuals, households and social groups.

Lawrence (2012) has identified three main classes of contributions of quality of housing that recur frequently within the housing discourse. He avers that the concepts, means and measures of quality of housing have, however, had little consensus. These three classes of contributions are:

1. **Those approaches that focus on the point of view of the individual, be it that of an architect, a building contractor, a housing administrator, or a resident. Through this approach, people are meant to evaluate a specific residential environment using one or more sociological and/or psychological research methods.**

2. **Research about the material/quantifiable characteristics of housing, especially in terms of the external appearance of residential buildings and functional, technical and construction components. Calculations of net habitable floor area per person and of acoustic and thermal insulation provided by internal and external walls are commonly included. These approaches often ignore the fact that ergonomic, technical and physical standards of housing are dependent on cultural values, social conventions and individual preferences, which may vary over time.**

3. **Studies of the supply of housing (annual construction output), of the cost of new residential buildings, of the rationale, and outcomes of housing construction grants to public authorities and private firms, and of housing subsidies and allowances to households.**

Lawrence explains that, “Each of these approaches examines a number of factors related to housing quality. However, it is rare for contributions to address or define a broad, integrated definition of housing quality, which accounts for the three simultaneous sets of approaches. There appears to be no methodological reasons for this lack of integration. Nonetheless, academics, professionals and politicians have created
conceptual and institutional barriers that hinder advances. There is an urgent need for an integrated definition of housing quality in which sets of architectural, demographic, economic, ecological and political factors are explicitly integrated.”

2.4.3 PES fields of knowledge for the study of tenements

The understanding of any phenomenon within the scope of PES requires that relevant factors that influence the subject matter are identified. To effectively discuss the phenomenon of tenements, a number of factors from various disciplines and practices have been selected for detailed discussion. The factors - variables and attributes from within the subjects of psychology, sociological and spatial, economics, political science and the built environment factors from planning and architecture are reviewed and their contribution to understanding the phenomenon of tenements highlighted.

a) Environment behaviour information in the built environment

In order to understand the relationship of people to the built environment, three concepts; environment behaviour, user group and setting, were reviewed. Within the fields of the built environment, architectural psychologist Irwan Altman suggested a way in which environment behaviour information can be consolidated and he divided this into three main components; environment behaviour phenomena, user groups and settings (Altman, 1976). Figure 2.01 gives an illustration of what constitutes each component.

i) Behaviour phenomena (privacy and crowding)

Privacy is an interpersonal, group or institutional control mechanism that paces and regulates interaction with others. It is an important aspect of environment behaviour in relation to everyday physical environment. Physical design factors affect the degree to which interpersonal interaction can be controlled and maintain a balance between privacy and community (Moore, 1979).

Social interaction and communication are the opposite of privacy. Serge Chermayeff and Christopher Alexander, in their 1965 book, Community and Privacy, developed a scheme of six realms of community and privacy:- individual private areas, family or small-group private areas, large-group private areas, large-group public areas, urban semi-public areas, and lastly, urban public areas (Chermayeff & Alexander, 1965). Insights of this scheme were used in interviews and observations to explain privacy and crowding in respect to tenants’ domestic life in and outside the tenements.

Moore (1979) explains that the concept of crowding goes hand in hand with that of privacy. Crowding is defined as a psychological or an environment-behaviour concept, which refers to the experience of being hemmed in, blocked, or frustrated.
by the presence of too many people. It may result from high density, density being a mathematical measure of the number of people per unit of space. It is a function of perceived density, and this perception is subject to the effects of mood, personality and physical context.

Altman (1976) has advanced a model linking privacy, personal space, territoriality and crowding. Regarding crowding as a result of failure to achieve desired levels of privacy, he argues that defending personal space and showing territorial behaviour are two mechanisms people use to achieve the desired levels of privacy in crowded situations. In this way, they avoid undue stress. As suggested above, other physical factors result in crowding, and they could be looked at in similar ways. People also use other coping mechanisms, like devising staggered schedules, avoiding crowded areas, and creating
sound or sight barriers. Observation is, therefore, an important tool in the study of behaviour.

**ii) User group**

Households are the unit of analysis in this study and constitute the user group. Social research has shown that households have different characteristics and as such, they are affected in different ways by the built environment. This study considered children an important component of the user group. Considerable information now exists about children and the environment. Children are more vulnerable in environments like the one presented by tenement housing. As children develop, the impact of living in such a settlement has far more impact in shaping character than among adults. The understanding of child development and behaviour developed by psychologists such as Jean Piaget and others are considered significant in discourses concerning the interaction of children and the environment. Piaget argues that children develop from an interaction between inner drives and external environmental conditions and suggests that development is a product of the child’s active commerce with the environment; that is, being able to actively manipulate the environment and see the results of these manipulations. Cognitive development, for example, progresses from concrete understandings of things to abstract understandings, and this developmental process is facilitated if the young child can actively explore and experiment with the environment.

At a very general level, both of these insights of Piaget have had profound impacts on the design of the physical environment and the preservation of wild, rough and natural environments (Moore, 2002).

Moore (1979) discusses findings from studies that were carried out in crowded households. For example, it was found that seven-year-olds in crowded households in apartment housing across cities of the USA were nine months behind in reading age. It was also established that once such households moved to less crowded housing, children and parents experienced decreased interpersonal tension, the number of illnesses dropped, and children attended school more regularly. Similar observations were made in studies carried out in London in 2004 (Carmona, 2010). Yet another finding concerning high-rise versus low-rise housing of the same density in a number of countries found that considerably fewer children from high-rises play outside or even in hallways and balconies (ibid). In high-rise buildings, the most frequent users of outdoor space are those children living on the lowest three or four floors; children living on higher floors are often not permitted to go outdoors except with strict supervision. Such understanding formed the basis of observation of the behaviour of children in the settlement.
### iii) Setting

Setting as a concept in behavioural sciences is very broad and includes all scales from the room scale to the region, the nation, and the world. Moore (1979) notes that developments within environment-behaviour studies have seen a focus on behavioural studies and criteria for different building types; for example, residential environments for children, housing for the elderly and residential areas and neighbourhoods for different socio-cultural groups. He further notes that the unique feature of this orientation to behavioural concerns in architecture is the broad focus on all of the behavioural, social and cultural factors that need to be considered in the design of different building types.

Amos Rapoport (2005) has discussed setting in a manner that relates to that under this study from an architecture-culture studies dimension using an activities perspective. Though the studies of Rapoport on the subject of settings are very detailed and mainly focussed on rural communities that are culturally homogeneous, the understanding of the processes of evaluating activities in settings is nonetheless relevant for other sets of communities. The focus of this study is activities of households in a series of spaces as settings, starting from the dwelling room, to the tenement, where there are several common spaces and utilities, and finally the surrounding settlement. It does not get into the detail advanced by Rapoport but limits it to common and general activities that were observed by the researcher and described by tenants and which were considered sufficient to describe domestic life in the tenement.

### b) Sociological and spatial parameters

The sociological and spatial perspectives used in housing studies have endeavoured to create an understanding of the distribution of people in settlements, mainly within the urban context (Butler and Hamnett, 2012). They have tended to establish or answer the question, “who lives (confirm) where”. Urban scholars and writers such as Robson (1975), Parks et al (1925), Hoyt (1939), Alonzo (1964), Harvey (1973), Bourdieu (1984), and Savage (2005) show that cities are divided socially and spatially into a mosaic of social groups and residential areas differentiated by social class, income, race, ethnicity and religion.

A number of theories that are based on economic and social perspectives such as Alonso’s “structure of land values”, the Chicago school’s “historic theory”, Savage’s concepts of “elective belonging” and “geo-demographic approaches” were developed out of the studies of various urban dynamics. Urban socioeconomic and spatial perspectives, commonly referred to as urban geographies, is an important dimension of the PES approach to studies on the interaction of people and the built environment. The
critical questions that the approaches seek to address is the question on why people live where they do within the urban context, for which answers are sought through reviews of housing choice and constraint, preferences and issues of structural and social divisions. Tenement housing as an urban phenomenon falls within the context of study that utilizes the knowledge and methodologies espoused in these theories. Commonly used research methods in the fields of socioeconomic and spatial studies are historical reviews, demographic studies, interviews and observations.

c) Commercialization of housing

The issue of commercialization of housing as a factor of economics is sufficiently understood because there is significant contribution in this area (Whitehead, 2012) however, it has infallibly been from the market perspective, where housing has mainly been conceptualized as a good or commodity that is governed by the rules of demand and supply. Economics is probably the most important dimension in the discourse on quality of housing and is, therefore, central in the PES approach to housing studies. This research did not attempt to engage in detailed economic discussions because the competence for that is elsewhere. It only drew upon its understanding to explain the influence of commercialization of housing such as profiteering in a market of unmet demand, savings from building construction and the affordability of housing by households. It further explains the connection between these three dimensions as influences on the growth of tenement housing. This discourse is within a neoliberal economic context, where there is minimal intervention by the state in housing supply.

Common economic methodologies used in housing research are basic and applied research together with descriptive and analytical analysis. This study used basic and descriptive methods using information derived from demographic studies, interviews, observations and secondary data.

d) Land administration and conflict of interests

The subject of land administration is historical and in earlier times it was concerned with taxation but its scope is expanded to include issues of land tenure, land valuation, land use and information management systems. Land administration is intrinsically linked with politics as it deals with two intricately connected issues of conflict among diverse interests over scarce land resources and power and control over people and land resources (Bennett et al, 2008). Political processes of conflicts of interest over land shapes the nature of the rules that govern land administration. The discussion on tenement housing is reviewed from a perspective of the conflicts of interest in land ownership and use. Such a study is carried out through historical reviews of land tenure literature, interviews and observation.
e)  *Built environment - planning*

The concept - built environment, discussed in chapter one, is operationalized through the attributes of planning and architecture. Planning and specifically *physical planning* is a significant component of the built environment and is used in the discussions of this study. Physical planning in the urban context is concerned with issues such as general pattern of land-use, topography, urban design (built forms and aesthetics), the design of streets, transportation systems, infrastructure, utilities, open space, density, vegetation and all other physical facilities which are necessary or desirable to promote economic progress, comfort, convenience, and the general welfare. These planning issues are in perpetual flux and raise perennial questions that require continuous redress. These include the forces that shape physical development, the evolving urban form, possible and desirable physical futures, the impacts of development, and institutional means for guiding urban growth (Pivo et al., 1990). The scope of planning as a discipline and practice is extensive and this study limits its review to the case settlement. It also uses the planning statutes to leverage on the planning discussions. Common methods used in studies on physical planning include geo-demographic and land-use studies using surveys, observations and interviews.

f)  *Built environment- architecture*

The other component of the built environment are attributes of architecture. *Architecture* is understood as both a discipline and a product. It deals with design and construction, which is the application of knowledge from various disciplines and intuition, and which, through a construction process, lead to the realization of a physical edifice or building (Lang, 1987). Moore (1979) notes that architecture, since Vitruvius’ time, has been expressed in terms of firmness, commodity and delight, whose values in contemporary time are technology, function and aesthetic. He further describes architecture as a process that he refers to as a synthetic one that utilizes the knowledge of engineering (sciences and technology), the social science and the arts to create a building or structure. The discipline and practice of architecture is, therefore, multidisciplinary. Accordingly, the architecture of the tenement requires to be reviewed qualitatively (viewed from the social sciences) and quantitatively from a built environment perspective (viewed from science and technology).

Further, in evaluating tenements under this study, the post-occupancy principle is used (Lawrence, 1987). It involves the observation of a housing project during its use either at a precise time or over an extended period. Despres and Piche (1995) assert that repeated observation of occupied housing over a period can enable those responsible for it to test assumptions about the interrelations of the residents and the domestic environment. An empirical evaluation of such a building would use research tools such
as checklists for observational records, interview schedules and questionnaires. Other tools would include architectural checklists, standards and specifications, designs/drawings, sketches and pictures (Groat and Wang, 2013; Zeisel, 1997).

i) Space standards as criteria for evaluation of quality of housing

The discourse on space standards in housing has had a long history but it crystallized during the modernist period, when a need for standardization and mass production housing became possible due to advancement in industrial production systems as mentioned earlier. Therefore, a lot of literature exists from that period and it has been the precursor of further investigations into space standards in contemporary time. In Britain, for example, and indeed many other countries, studies have been commissioned to establish a criterion for spatial requirements for households of various categories. Findings have shown that where this was done, those spatial standards became the “minimum standards” that both the governments and the private sector used as a measure for adequate space in housing provision, particularly within the low and middle-income category (Carmona, 2010). Comparative studies of space provision across countries indicate that space standards are different and there is no common criterion for its establishment (Gallent, 2010).

Spatial studies for housing in Britain, which are also partly adapted in the Kenyan building by-laws (Republic of Kenya, 1968), are used as a reference in this study. Findings such as the Parker Morris standards of 1961 and the University College London’s research sponsored by the Commission for Architecture and the Built Environment (CABE) titled, “Space standards: the benefits” of 2010 (Carmona, 2010) and others, provide important perspectives of the criteria for space provision.

The Parker Morris standards of 1961 were a result of comprehensive research on internal domestic space requirements. Its concern was space usability and it developed a criterion for optimum spatial requirements for households. Unfortunately, both the state and the private sector adopted these as minimum standards for housing provision. This was against Parker Morris’ intentions that required they be considered as the minimum requirement for dwelling functionality. This highlighted the danger of providing standards and the tendency to use it as a rule. There is contestation about the pros and cons of space standardization in housing. There is, however, a general understanding that space requirements are contextual and each situation should be considered from a merit perspectives and not generalization.

There were many discussions from the Parker Morris Standards and they became a basis for further research in housing standards. One such research was the CABE study, which illuminated social concerns that are a product of space such as moral and
health, family function and wellbeing, community and privacy, dwelling usability, and
neighbourhood. Further, the report delves into the significance of ‘adequate space’ and
its relationship to general health and wellbeing, family life and children, productivity,
adaptability and antisocial behaviour. Adequate space however, is a concept in
contention because it has many meanings, including contextual ones. It is thus used
carefully. This study reviews domestic space in tenements through some of these
concerns.

ii) Analysis of housing using case studies

Ali Guney (2008) describes a procedure for architectural analysis of buildings and
structures, among other processes that have been highlighted in this study. He points
out the importance of analysing architectural precedents and the need to use such
knowledge for the synthetic process. He concludes that, ultimately, the purpose is to
influence improvements in “assembling or putting together” new or future architectural
“objects” through precedent processes. It is for this reason that apart from analyses of
empirical data collected from the case studies, tenements as a housing solution in New
York in the 17th and 18th centuries are reviewed. Reference is made to the writings
of Plunz (1990), A history of housing in New York City, Day (1999), Urban castles -
Tenement Housing and Landlord Activism in New York City 1890-1941 and Dolkart

The New York case was chosen for review because there are many similarities between
the practice and organization of tenement housing in New York in the 19th century
and Nairobi in the 21st century. The lessons from the processes that led to the eventual
abolition of tenement housing in New York could provide insights to understanding the
phenomenon of tenement housing in Nairobi. The desire of the state and interest groups
to have residents live in adequate and decent housing was achieved through negotiations
with real estate investors, and legislative changes that led to architectural changes to
floor plan layouts and land amalgamations.

g) Summary for PES framework for tenement housing study

The focused knowledge that is used in this study is drawn from five theme areas from
which specific factors-variables have been extracted. These are summarized below:

- Psychological factors related to space use: Privacy, crowding, setting and activities.
- Sociological and spatial characteristics: Demographics and spatial distribution,
  choices and preferences, settings and mobility.
- Economics of housing: Commercialization, supply and demand, savings, and
  affordability.
• Political: Interests and land administration practices and statutes.
• Built environment factors of planning and architecture: Technical and spatial specifications and standards.

Further, table 2.02 summarizes the variables and study instruments featured in the literature in this study.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Study instruments</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Privacy</td>
<td>Direct observation of household activities, semi structured interviews</td>
<td>Descriptive</td>
</tr>
<tr>
<td>Crowding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Settings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>User group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household demographics</td>
<td>Demographic survey through structured interviews, questionnaires and direct observation</td>
<td>Statistical analysis and comparative evaluation</td>
</tr>
<tr>
<td>Affordability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choices and preferences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic activities</td>
<td>Semi-structured interviews and observations</td>
<td>Descriptive using empirical and secondary data</td>
</tr>
<tr>
<td>Commercialization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Savings</td>
<td>Semi-structured interviews</td>
<td>Descriptive evaluation</td>
</tr>
<tr>
<td>Interests</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land administration statutes and practices</td>
<td>Semi-structured interviews</td>
<td>Descriptive evaluation</td>
</tr>
<tr>
<td>Planning</td>
<td>Observation (direct observation and measurement of building parameters) and semi structured interviews and historical data reviews</td>
<td>Descriptive evaluation using technical/ science and spatial norms. Review of cases</td>
</tr>
<tr>
<td>Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2.02: Summary of variables and research instruments

2.4.0 PES CONCEPTUAL FRAMEWORK FOR THE STUDY

The proposed conceptual framework for this study illustrated in figure 2.02 is a relational one that links the factors (variables) of the social environment and those of the built environment with its disciplinary theories and practices to develop new knowledge and practices in the built environment, which feeds back to theory and practice.
2.6 SUMMARY

This chapter has attempted to discuss housing through a review of the challenges, intervention strategies and approaches to housing studies from the period of the industrial revolution to contemporary time. As noted, there is a bias to housing literature based on European and American experiences, hence, its influence on housing theory and practice. This is a housing study, and, following in its research tradition, is multidisciplinary. The adoption of the People-Environment Studies (PES) approach as a basis for this study does not only conform to that tradition but also allows for integration of multiple disciplinary and practice factors for broad understanding of tenement housing in Nairobi. Literature review has shown that both the built environment and social environment parameters are interrelated and interdependent, which means that the housing phenomenon under study, required a synthesis of these disparate factors. In this way, it will answer the objectives of the study. These factors have been reviewed in this chapter and their relevance and application in this study is explained. Finally, a PES conceptual framework to study tenement housing has been drawn forming a basis upon which a research design is developed in the next chapter to operationalize the study.
CHAPTER 3: RESEARCH METHOD

This chapter details the research methodology that guided the study. Thomas Schwandt (2007) explains that research methodology is a process of how we seek out new knowledge; the principles of our inquiry and how the inquiry should proceed. This chapter, therefore, explains the approach and method used in case selection, sampling, data collection and data analysis. It was carried out in two phases. Phase 1 was an exploratory study that attempted to do as follows: (i) to explore the transformation of the single-room dwelling house type to tenement in Nairobi that was a response to question one. (ii) a demographic of households to explore their socioeconomic characteristics and activities as part of the response to question three. Phase 2 was a detailed study that sought the following: (i) a detailed understanding of the lifestyle of household’s in response to part of question three. (ii) to evaluate the quality of tenements and the settlement in response to question two.

3.1.0 RESEARCH DESIGN

In undertaking this study, literature on research methods by academics such as Creswell (2007, 2009, 2012, 2014), Yin (1994, 2003), Bryman (2004, 2012), Flyvbjerg (2011) and Groat and Wang (2002) was reviewed and it provided guidelines on how to proceed. Creswell explains that conducting research involves a systematic process of data collection, data analysis and report writing (Creswell, 2014). In addition, Yin (1994) explains that it is a “blueprint” of research that seeks to answer four problems: What questions to study, what data is relevant, what data to collect and how to analyze the results. Bryman (2012) adds that research design is a framework for the collection and analysis of data. Thus, it helps the researcher to organize ideas in a way that there will be good flow (ibid).

Further, in seeking a research design strategy, a case study approach was selected and the argument by Flyvbjerg (2011) about the significance of case study as a valid research method that produces concrete, context-specific knowledge supported such a selection. The study used empirical research principles that utilized both quantitative and qualitative data collection strategies in the case of settlement based on the social
and built environment factors of PES discussed in chapter two. These approaches to data collection are used in tandem in anticipation that the overall strength of the study is greater than either of the two approaches (Creswell & Clark, 2011).

### 3.1.1 Case study design

A “case study” according to Yin’s (2003) explanation is “an empirical inquiry that investigates a contemporary phenomenon in depth and within its real life context.” He notes that it has a strong descriptive purpose. Groat and Wang (2013) support Yin’s descriptions, they, however, indicate that the word ‘contemporary’ needs to be replaced by ‘setting’ and explain that this definition would accommodate the inclusion of historic phenomena and both historical and contemporary settings as potential foci of case studies. However, Flyvbjerg (2011) notes that trying to derive a definition of “case study” that is acceptable across academic disciplines is contentious and avers that it should be left as simply explained in the Merriam-Webster dictionary which defines it as “an intensive analysis of an individual unit (as a person or community) stressing developmental factors in relation to the environment.” Yin’s and the Merriam-Webster dictionary definitions are not in contradiction.

Johansson (2012) has developed a framework that recommends combining different methods in studying a case that requires various methodologies of data collection. He groups these into four categories: Historical - source criticism and analysis of documents and artefacts; Qualitative- participant observation and in-depth interviews; Survey - structured interviews, statistical analysis and questionnaires; and quasi-experiment - observation. This study utilized these methodologies as appropriate and in that regard, the design for data collection relied on historical, qualitative and quantitative methodologies as stipulated by Johansson (2012) for case study research.

Lucky Summer was considered a paradigmatic case (Flyvbjerg, 2011), i.e. it highlights more general characteristics of tenement housing that is developing in the manner discussed in chapter one. The settlement covers a large area and its physical character; the tenements, services and infrastructure, are generally similar across the settlement. It was considered unnecessary to conduct studies in all the tenements when selection of a few would provide sufficient data to explain the phenomenon. Consequently four tenements were selected for the study.

### 3.1.2 Access to case study site

It is challenging to gain access to areas characterized by informal organizational structures for research purposes because there is usually suspicion about the intentions of such an undertaking. Government permission alone will not guarantee the freedom to undertaken a research task. Sometime in 2012, just before I commenced studies at
AHO, I made inquiries within my local building network in Eastlands, Nairobi, on how I could access Lucky Summer settlement. I learnt that it had an active association, Lucky Summer Welfare Association (LSWA), to which I needed introduction. I was introduced to a respected landlord who was convinced about the intentions of my study and consequently invited me to attend a meeting of the association where I was introduced and given an opportunity to explain my study. The landlords promised to give the necessary support.

Preliminary preparations for research started in May 2013 and a month later, actual fieldwork commenced. Statutory permission from the National Commission for Science, Technology and Innovation (NACOSTI) was sought and granted, but as it was processed, I spent time with my informants, familiarizing myself with the settlement. I was guided on a few transect walks in the settlement and neighbourhood and introduced to a number of players, such as security guards and personnel in charge of infrastructure development and maintenance. I also had an opportunity to visit a few tenements where I informally interviewed tenants and made preliminary observations. The preliminary information gathered and observations made convinced me that Lucky Summer had characteristics that made it stand out as a pioneering post site-and-service settlement, representing a different approach to housing delivery for the low-income areas in Nairobi, and that it was a valid study area.

### 3.1.3 Mapping

Fieldwork started by mapping out the entire settlement using block plans and survey maps acquired from Survey of Kenya together with aerial maps from the Regional Centre for Mapping of Resources for Development (RCMRD) in Nairobi. Further, transect walks were undertaken to confirm the extent of tenement developments and a record of tenement typology through photography and sketches was collected and evaluated. Six landlords, some of whom own multiple tenements, agreed to have research conducted on their tenements thus providing an opportunity choice from a sizeable sample.

### 3.2.0 SAMPLING

Babbie (1992) explains that sampling is the process of selecting units (such as people and groups) from a population of interest so that by studying the sample the results can be fairly generalized to the population from which it was selected. Selection of a sampling method depends on a number of factors, including the study design, the nature of the population and information, the availability of sampling frames, time and costs (Babbie, 1992). Sampling methods are covered widely in research methods literature. The sampling strategy used in this study was purposeful sampling but some
stratification was used in selecting households. According to Oliver (2006), purposeful sampling is a non-probability sampling method used in qualitative research in which decisions concerning the participants or sites to be included in the sample are taken by the researcher based upon a variety of criteria. For participants, this could include the capacity and willingness to participate in the research, and for sites, whether they have the attributes sought in the research. Further, Oliver (2006) asserts that purposeful sampling offers a researcher the opportunity to make decisions about the individual participants who would most likely contribute appropriate data, both in terms of relevance and depth. Gall et al (2007) adds that the goal is to select cases that are likely to be information rich with respect to the purpose of the study while Braun and Clarke (2013) conclude that it is a typical approach to sampling whose aim is to generate insight and in-depth understanding of the topic of interest. Accordingly, considering the resources, time and nature of the population, purposeful sampling formed the basis for selection of tenement as well as landlords, contractors and key informants. However, households were sampled through a stratification process explained further in the study. The individual household was taken as the unit of sampling.

3.2.1 Phase 1 – Exploratory study

Phase 1 was carried out over a period of three months and responded to objectives of this study as follows. (i) answered the first question of the study; tracing the origins of the single-room dwelling practice and review of the growth of tenement housing in Nairobi was explored through secondary and primary data sources. It involved a review of historical data from library archives and book references. Primary data was gathered through unstructured interviews and observation of existing old iron sheet houses and tenements to supplement secondary data. A summary of research instruments, respondents and tools is indicated in table 3.02. (ii) question three, which sought to explore the socioeconomic characteristics and domestic practices of households, was carried out through a household survey that involved the use of a questionnaire (appendix 1) that was administered to respondents from households.

a) Population

Lucky Summer settlement is demarcated into 522 plots with a majority developed with single-room dwelling tenements that was estimated at more than 30,000 households. An assumption was made that households that lived in single-room dwellings in Lucky Summer shared some common defining characteristics (Creswell, 2014), as such, a small number was sampled as a case. Using purposeful sampling, four tenements were selected as explained in 3.2.1b. The four had 376 households, which constituted the population.
b) Sampling of tenements

Four tenements were purposefully sampled as cases for the study based on the following criteria.

- The landlords of these tenements are active members of Lucky Summer Welfare Association (LSWA), the organization that manages the affairs of the settlement. When their permission was sought to carry out research on their tenements, they readily accepted.
- The four tenements to which I had access, apart from being closely similar in typology and size, were representative of a typical fully built tenement in the settlement.
- The tenements are located in four administratively distinct areas in the narrow settlement. These are referred to as sector one to four by the LSWA.
- The tenements were built at different times between 1997 and 2012 and provided a broad scope to investigate design and construction changes over the period.

The four tenements were classified as A, B, C and D, as shown in figure 3.01. The numbers of single rental rooms in tenement A to D were 84, 84, 110 and 98, respectively. The specific characteristics of the tenements are discussed further on in the study.

c) Sampling for household survey

Sample selection for respondents was through a stratified strategy that involved about 50% of households in four tenements. This was presumed to be a significant number that would be representative of the population. The questionnaire was conducted to two hundred (200) households comprising fifty (50) from each tenement. It targeted at least six households on every floor from a sample of 12 or 14 households. Guided by the caretaker of the tenement, a request for interview was made to the household head or spouse present in the dwelling during the fieldwork period. The questionnaire was conducted to responsive households, at least six on each floor. The exercise continued over a period of seven days when the targeted number was achieved. Whenever a couple was present, a request was made to interview the spouse who spent more time in the tenement. It was presumed that this was the one who engaged most in domestic life in the tenement.

3.2.2 Phase 2 – Detailed study

Phase 2 was intended for two purposes: (i) to gain in-depth understanding of domestic lifestyle of households as a follow up on findings of the survey in phase 1. It involved selecting and interviewing 30 respondents from households that had participated in the study in Phase 1. (ii) to evaluate the quality of tenements and neighbourhood was
Figure 3.01: Location of selected tenements in the settlement. (Source: Adaptation by author from survey of Kenya maps, 2014)
conducted through interviewing landlords, contractors and key informants using semi-structured question format and also through direct observation and measurement of tenement parameters.

**a) Sampling of households for semi-structured interviews**

Respondents for semi-structured interviews were purposefully selected using a stratified criterion from 30 households out of 200 that had taken part in the phase 1 study. One respondent out of a possible six or seven was selected from each floor. The total number of floors with single-room dwellings across the four tenements was 30. The caretaker assisted in the selection of respondents who were presumed knowledgeable and willing to participate in the interview. The purpose of these interviews was to allow the respondents describe their experience through their domestic activities and opinion on their living circumstances in the tenement. The interviews were also meant to clarify some of the issues noted in phase 1 of the study.

**b) Identification of landlords and contractors**

Seven landlords and three contractors were purposefully selected and semi-structured interviews conducted. Three of the seven landlords were owners of the case tenements, while one of the three contractors built one of the tenements. These are the ones that had accepted to be interviewed and who, according to the key informants, were knowledgeable enough to make a meaningful contribution to the study.

**c) Identification of key informants**

For the purposes of counterchecking the information (triangulation) from the tenant interviews, semi-structured interviews were conducted on seven tenement caretakers, three managers and two medical caregivers. Four caretakers were from the tenements under study. The others were purposefully selected through introductions by the researcher’s informants; the three tenement managers.

Caretakers reside in the tenements; they occupy one dwelling room just like the tenants. Apart from their housekeeping role, their domestic experience can be presumed to be similar to that of other households. However, their caretaking role allows them to mingle with tenants freely across the entire tenement, a fact that gives them broad insights of the tenants’ domestic lifestyle. Tenement managers are equally well-versed with the domestic life of households and have a good grasp of the development dynamics of the settlement. Some landlords have many blocks of tenements, so they are compelled to hire managers/supervisors who run the housing business on their behalf and are tasked with responsibilities such as supervising caretakers, managing rent collection and security. The contribution of tenement managers was significant in this study.
3.3.0 DATA COLLECTION

Primary data on household’s socioeconomic characteristics and domestic life was collected through household survey and interviews. Information from key informants together with the researcher’s observations collated this information. Findings from the landlords and contractors together with observations, which included measurements of tenement parameters among other information sources, gave insights into the physical quality of tenements and the settlement. This process was carried out as explained below.

3.3.1 Household survey (questionnaires)

The household survey was conducted to answer question three and was carried out during exploratory study in phase 1 and it involved conducting questionnaires. Burns (2000) explains that a questionnaire is one form of a structured interview. It follows a standardized interview guide for surveys whose objectives involve quantitative analysis. The method presumes that the researcher knows all possible outcomes of the answers to the questions. In this case, all respondents answered the questionnaire, appendix 1, which made it possible for statistical manipulation (ibid). In this study, questionnaires were administered to respondents on a face-to-face basis in households. The study broadly covered all the areas of household characteristics, including domestic activities. It provided background information, which was used to prepare a list of questions for the semi-structured interviews and observations for the detailed study in phase 2.

The questionnaires were developed by the researcher from a number of knowledge sources. Literature review on tenement housing was one source of information. Information from key informants and preliminary interviews with tenants during the preparatory stages of the study was another. Further, observation of tenants as they went about their domestic activities during these early visits also contributed towards preparing the questions.

Once the questionnaire was prepared, consultations were done with the key informants, who made important clarifications and improvements. There were limitations to this method because the full extent of how tenants lived could not be accounted for, as the responses finally showed. There was room for flexibility in answering the questions, with some having the answer option labelled “other” to allow respondents to include responses that were not captured. Some questions focused on the tenants’ opinion and were open-ended because the researcher did not have any prediction of the answers.

Four assistants helped with data collection during the first phase of the study. These were students of the Department of Sociology at the University of Nairobi selected through reference. Three belonged to the predominant ethnic community living in
the settlement and were fluent in the language of tenants. This assisted in translating some of the questions to the local dialect to respondents who sought clarification. The student assistants were taken through pre-survey training where the study instrument was discussed, a pre-test conducted in one tenement to check instrument efficacy and necessary revisions made before the study was conducted. Each interview assistant was allocated a tenement and the researcher closely supervised and participated in the interview sessions, alternating between the four tenements throughout the interview period. The researcher’s participation ensured that issues that arose were clarified. Accompanying the interviewers was also the tenement caretaker who conducted initial introductions to the respondents in their dwellings and this made the tenants feel confident that the exercise had official sanction from the landlord. This was an important aspect because tenants would not ordinarily entertain strangers, more so those asking intrusive questions. A conducive environment for interview was thus created. The caretaker chose to stay on for the interview or leave depending on his judgement of the demeanour of the respondent. Most times, the caretaker waited in the corridor as the researchers carried on with the interviews.

**a) Pre-test of the structured interview questions**

Before conducting questionnaire interviews, a pre-test of the questions was carried out to uncover any defects in the questions. This was conducted in 12 households in a tenement that was considered typical. Based on the nature of their responses, some parts of the questions were adjusted and modified in order to obtain proper information from the respondents.

**3.3.2 Semi-structured interviews**

Semi-structured interviews were conducted during a detailed study in phase 2 as response to the questions set out in objectives two and three. Four different sets of open-ended question guides were prepared to cover households (appendix 2), landlords (appendix 3), contractors (appendix 4) and tenement caretaker’s (appendix 5).

Following the preliminary analysis of data from the household survey in phase 1, a question guide of open-ended questions that sought to deepen the understanding of the socio-economic characteristics and domestic life of households was prepared. This permitted greater flexibility than was possible with the questionnaire and at the same time improved the validity of the respondents’ perception of reality, which was freely expressed. Participants had the opportunity to use their own language to describe their reality but at the same time conform to the focus of the study.

Semi-structured interviews were conducted on landlords and contractors to evaluate the quality of tenements from both the building process and utility perspective. They
were also conducted on key informants; tenement caretakers and managers and medical caregivers. The purpose of key informant interviews was to get information about tenants and/or landlords, not about the informants themselves. According to Payne and Payne (2004), key informants are those whose social positions in a research setting give them specialist knowledge about other people, processes or happenings that is more extensive, detailed or privileged than ordinary people, and who are, therefore, particularly valuable sources of information to a researcher, not least in the early stages of a project. Tenement managers and caretakers are in this position. They are knowledgeable about the tenants’ domestic life, landlords and development processes in the settlement.

3.3.3 Observation

The term ‘observation’ is usually associated with the sense of sight but it has been extended, mainly by ethnographers, to include all the senses (Whitehead, 2005). Observation is a core data-gathering tool in the social sciences and it has many variances. Material on various types of observation in the social sciences is covered in the writings of Gall et al (203, 2007), Maxwell (2005), Bryman (2004), Burns (2000) and others. This research adopted direct observation.

Many days were spent in the case study areas and much first-hand knowledge of tenement housing gained through observation of activities such as those of tenants as they carried out domestic activities in common spaces and occasionally in the dwelling units. Ongoing constructions, maintenance status of the tenements, the quantity and quality of provisions of common services, garbage disposal, and the state of infrastructure. An observation guide, appendix 6, was used and it was recorded through note taking, sketches and photographs. A cell phone camera was used because it raised minimal suspicion. Initially, the use of a formal camera raised eyebrows and caused distraction.

3.3.4 Measurements of tenement parameters

Actual architectural and human comfort measurements were carried out and documented. These included human comfort measurements such as air circulation, temperature, relative humidity and lighting, planning, and architectural measurements such as building coverage and ratio, floor plan layouts, services and safety features. A checklist for measurement was drawn and the necessary equipment sourced for the purpose.
3.3.5 Summary of sources of information

The sources of information used to answer the questions of the study are summarized in Table 3.01.

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>INSTRUMENTS</th>
<th>RESPONDENTS/SOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective 1</strong></td>
<td>• Literature review of archival and historical materials on housing in Nairobi.</td>
<td>• University of Nairobi library services</td>
</tr>
<tr>
<td><strong>Objective 1</strong></td>
<td>• Current housing material</td>
<td>• Maps from Survey of Kenya and Regional Centre for Mapping of Resources for Development (RCMRD)</td>
</tr>
<tr>
<td><strong>Objective 1</strong></td>
<td></td>
<td>• Statistical data from KNBS and Knight Frank Real Estate</td>
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<td></td>
<td>Primary data</td>
<td>• Old low-income housing and tenements in selected settlement</td>
</tr>
<tr>
<td></td>
<td>• Observation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Four respondents</td>
</tr>
<tr>
<td><strong>Objective 2</strong></td>
<td>• Observation</td>
<td>• Professor of planning-UoN.</td>
</tr>
<tr>
<td><strong>Objective 2</strong></td>
<td>• Measurements of tenement parameters (building drawings, natural light levels, temperature and humidity)</td>
<td>• Two old landlords.</td>
</tr>
<tr>
<td></td>
<td>• Tenements and settlement</td>
<td>• One resident who has lived in Lucky Summer for many years.</td>
</tr>
<tr>
<td><strong>Objective 2</strong></td>
<td>• Semi-structured interviews</td>
<td>• Two respondents</td>
</tr>
<tr>
<td><strong>Objective 3</strong></td>
<td>• Household survey</td>
<td>• County government planning and housing officer</td>
</tr>
<tr>
<td><strong>Objective 3</strong></td>
<td>• 200 households</td>
<td>• Ministry of Housing officer</td>
</tr>
<tr>
<td><strong>Objective 3</strong></td>
<td>• Semi-structured interviews</td>
<td></td>
</tr>
<tr>
<td><strong>Objective 3</strong></td>
<td>• 30 respondents that took part in the study.</td>
<td></td>
</tr>
<tr>
<td><strong>Objective 3</strong></td>
<td>• Semi-structured interviews</td>
<td>• Seven tenement caretakers</td>
</tr>
<tr>
<td><strong>Objective 3</strong></td>
<td>• Three tenement managers</td>
<td>• Three medical caregivers</td>
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<td></td>
<td>• Two medical caregivers</td>
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</table>

Table 3.01: Summary of sources of information (Source: Author, 2013).
3.4.0 DATA ANALYSIS

Data analysis was carried out using various methods, depending on the nature of data collected and the specific objective of the question. Both qualitative and quantitative analysis methods were used in a mixed method approach. The specific analytical strategies for each objective are discussed below.

Objective one was reviewed through cross-referencing of interviews with literature from historical documents such as those on land reforms and administration and statutes such as planning laws. Observations and secondary sources such as precedent cases were used. This is presented as a descriptive analysis.

Objective two on quality of tenements and neighbourhood was evaluated through data derived from interviews, observations and measurements. Analysis was conducted through; (i) reference to normative criteria for built environment quality based on physiological comfort and spatial standards. (ii) reference to economic and political factors on commercialization of housing and interests in land administration.

Objective three on socioeconomic and domestic practices of households was analysed through evaluation of data derived from the household survey, interviews and observation. This was documented as simple statistical tables, charts, drawings, graphs, diagrams, photographs and summaries of interviews. Analysis was carried out in a number of ways; (i) description of statistical data from the demographic study. This allowed for comparisons. (ii) descriptions of participant observations and tenants’ descriptions of their activities. (iv) reference to socioeconomic and psychological factors described in the literature review.

3.4.1 Triangulation

The findings of this study are a product of a number of research instruments and respondents. The findings were collated during analysis to establish the accurate status of the objectives of this study. This was a form of triangulation and it ensured that the findings and analysis explained the phenomenon of tenements from its two dimensions of quality of housing and domestic life.

3.5.0 SUMMARY

In this chapter, the reasons behind the choices made in the research design have been argued. Justification for using a case study research design and the procedures used in sampling have been outlined. Purposeful sampling has been used in selection of tenements, landlords, contractors and key informants. Additionally, a stratification strategy was used in the selection of households. Further, justification has been made for the choice of data collections tools and the process has been described in
Tenement Housing in Nairobi

detail. Explaining the phenomenon of tenements required the collection of historical, quantitative and qualitative data. Historical material reviews and general housing literature was undertaken to contextualize tenement housing within historical and contemporary framing. Qualitative data was collected through the household survey and measurement of building parameters. The demographic data facilitated simple statistical analyses in the form of frequencies and other summaries that allowed for comparisons. SPSS software was used for that purpose. Measurement of building parameters such as lighting, temperature and relative humidity levels together with as-built drawings of the tenements was carried out. The qualitative data collected was from observations and semi-structured interviews.

The study used theories and practices of the disciplines and professions outlined in chapter two for data analysis. Data collected through the methods discussed and categories of respondents was twofold; one, to directly answer specific questions and two, for triangulation. By comparing and collating information, the questions were satisfactorily attempted as is explicated in the next four chapters on findings and discussions of analyses.
CHAPTER 4: HOUSING TRANSFORMATIONS IN NAIROBI: From the peripheral shack to the tenement

The transformation in the physical character of housing in Nairobi from the shack through to the present tenement in the low-income settlements is a complex housing process that is imbued with political, social and commercial interests that commenced with the colonial administration and was carried over by the post-independent state to the current period. This chapter traces the transformation of housing of the low-income native Kenyan from the peripheral shacks of the early 1920 through to the tenements of today. It reviews the impacts of colonial era policies that promoted the adoption of single-room dwelling, the city’s housing shortage for the low-income group and the subsequent growth of tenements as a housing solution for the burgeoning low-income population. Lastly, analysis of tenement housing in New York in the 19th century was carried out for architectural precedence.

4.1.0 EARLY HOUSING FOR NATIVE KENYANS: (Colonia period: 1900-1963)

The phenomenon of tenement housing in Nairobi cannot be understood without a historical review of how the city evolved and its colonial legacy of segregation. The socioeconomic circumstances under which the natives operated within the urbanizing centre are also significant. Nairobi became an important settlement as from 1898 when the railhead of the British East African Railways Company arrived (Hake, 1977). This milestone increased trade and population, which led the British colonial administration that was already established there to plan the new urban settlement. This settlement was organized into racial zones that provided for the Europeans and Asian only. The native Kenyans were not allotted any section despite the fact that they were the majority. In effect, the natives were not considered a significant urbanizing entity and were, therefore, left to their own devices and settled at the periphery of the new town. Hake observes that it was not until much later, in 1927, that an expanded plan for Nairobi, from 25 km² in 1920 to 77km², that male natives were considered for inclusion. This
early revised physical plan, therefore, allotted the Europeans the biggest chunk of land followed by the Asians and Africans in that order. Though the Africans were the majority, they were allotted the least land towards the east of Nairobi and close to Nairobi River (ibid).

Many native Kenyans that worked in Nairobi lived on the fringes of the city in areas referred to as native settlements. The earliest native settlements were built of wood poles and mud walls with grass thatch roofs. They were in the form of the traditional Kikuyu hut. At that time, the natives could not afford tin and iron sheets, which were a rarity. As consumption in Nairobi increased with the growth of industry and population, tin packaging for industrial and domestic products that was in the form of drums and gallons became a source of tin that was converted into roofing material instead of grass thatch. Gradually, the circular African type hut converted to a rectangular form similar to the current housing in the popular settlements.

The 1948 plan for Nairobi did not extend the city boundaries though it made note of the need for this extension in the future (White et al., 1948). It was not until 1963, after Kenya’s independence, that the area of the city was finally extended to 696km2 and a number of the native settlements encompassed. These settlements were the precursor of informal housing in Nairobi and have been transforming in magnitude and typology since then.
Figure 4.01: Map of Nairobi showing the city boundaries of 1948 and 1963. (Source: White, 1948 and Author, 2014)
4.1.1 Early formal housing for native labour

Writing about early housing developments in Nairobi, Hake (1977) notes that between the 1920s and 1950s, more than two-thirds of Nairobi’s formal housing was provided by employers in settlements close to Industrial Area in Eastlands. This housing was built to accommodate men only and as such, it was in the form of single rooms with detached kitchens and washroom facilities that were shared by a number of rooms (White et al., 1948). Many of these houses belonged to establishments such as East African Railways and Harbours (EARH), the forerunner of Kenya Railways Corporation (KR), and Kenya Ports Authority (KPA); Kenya Bus Services (KBS); British American Tobacco (BAT); and various other industries and government departments (Hake, 1977).

Native domestic servants were housed in servant quarters in the upmarket settlements of Europeans and Asians. Their accommodation consisted of bed space while the toilets and cooking areas were semi-detached and shared by all domestic servants who lived in the compound (ibid). They, too, were not allowed to live with their families in the city. This was in conformity with the colonial government policy on natives (Africans) that only allowed those with employment to gain passage to the city. They were given an identification document by the colonial administration, which they carried around and produced on demand. This document, or kipande, as the natives called it, was given on acquisition of employment in the city and only men were eligible. Women were prohibited from working in Nairobi. Hake points out that women were supposed to be married after they reached puberty, bear children and raise families in the rural villages (Hake, 1977). Nairobi was, therefore, a city of ‘married bachelors’—married men that worked in the city and kept families in their rural villages.

The policy on control of access to the city that allowed mainly male African workers was designed by the colonial administration to manage rural-urban migration. This was because they were not ready to provide the requisite services for an increasing African population. Further, the industrialists and the colonial administration were only interested in labour and had no intention of extending accommodation to workers’ families. Table 4.01 describes the spatial provisions of colonial housing for natives and figure 4.02 pictorially illustrates some of this housing in its present state. Family housing stated to be built after 1940, but the houses were few in number and the Second World War frustrated their construction. It is, therefore, not surprising that the single-room culture prevalent in the low-income echelons persists to date. The broader narrative of the politics of official housing in the city is covered by Andrew Hake in his book, ‘African Metropolis: Nairobi’s Self-help City’ (Hake, 1977).
<table>
<thead>
<tr>
<th>Estate</th>
<th>Year built</th>
<th>House type</th>
<th>Income category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bondeni</td>
<td>1928</td>
<td>Row housing, single rooms</td>
<td>Low</td>
</tr>
<tr>
<td>Kaloloni</td>
<td>1928–1946</td>
<td>1 and 2-storey, 1 and 2-room units</td>
<td>Low</td>
</tr>
<tr>
<td>Gorofani</td>
<td>1928–1950</td>
<td>Walk-ups, 1 and 2-room units</td>
<td>Low</td>
</tr>
<tr>
<td>Landhies Road (Muthurwa)</td>
<td>1929</td>
<td>Row housing, single rooms</td>
<td>Low</td>
</tr>
<tr>
<td>Shauri-Moyo</td>
<td>1939–46</td>
<td>Row housing, single rooms</td>
<td>Low</td>
</tr>
<tr>
<td>Ziwaani</td>
<td>1941</td>
<td>Row housing, 2 rooms and kitchen</td>
<td>Low</td>
</tr>
<tr>
<td>Starehe</td>
<td>1942</td>
<td>Row housing, 2 rooms and kitchen</td>
<td>Low</td>
</tr>
<tr>
<td>Jevanjee</td>
<td>1945</td>
<td>Row housing, 1 and 2-room units</td>
<td>Low</td>
</tr>
<tr>
<td>Ngara</td>
<td>1945–1958</td>
<td>Flats, 1 and 2 bedrooms</td>
<td>Middle</td>
</tr>
<tr>
<td>Mbotela</td>
<td>1950–1952</td>
<td>Row housing, single rooms</td>
<td>Low</td>
</tr>
<tr>
<td>Bahati</td>
<td>1951</td>
<td>Row housing, single rooms</td>
<td>Low</td>
</tr>
<tr>
<td>Ofafa-I</td>
<td>1953</td>
<td>Row housing, single rooms</td>
<td>Low</td>
</tr>
<tr>
<td>Pangani</td>
<td>1955</td>
<td>Maisonettes, 3-bedroom units</td>
<td>Middle</td>
</tr>
<tr>
<td>Maringo</td>
<td>1956</td>
<td>1 and 2-storey, 2 rooms, kitchen, WC</td>
<td>Low</td>
</tr>
<tr>
<td>Embakasi</td>
<td>1958</td>
<td>Row housing, 2 rooms, kitchen, WC</td>
<td>Low</td>
</tr>
<tr>
<td>Dagoretti</td>
<td>1960</td>
<td>Single units, 2 bedrooms</td>
<td>Low</td>
</tr>
<tr>
<td>Kariobangi North</td>
<td>1960</td>
<td>Row housing, 2 rooms, kitchen, WC</td>
<td>Low</td>
</tr>
<tr>
<td>Jerusalem</td>
<td>1960</td>
<td>1 and 2-storey, 1 and 2 bedrooms</td>
<td>Low</td>
</tr>
<tr>
<td>Jericho/Lumumba</td>
<td>1961</td>
<td>1 and 2-storey, 1 and 2 bedrooms</td>
<td>Low</td>
</tr>
</tbody>
</table>

Table 4.01: Colonial housing estates in Nairobi. (Source: Makachia, 2011)
Tenement Housing in Nairobi
4.1.2 Sanctioned temporary housing in Nairobi

The colonial administration in Nairobi allowed natives to construct temporary housing as from the 1920s on the east side of Nairobi River where they were allotted land. These are the current Muthurwa, Pumwani and Pangani areas (ibid). This was because the administration could not fund a housing programme for the natives, whose population growth in the new urban centre was growing tremendously. Allowing
natives, mainly from the coastal region, to construct temporary housing to accommodate their families and a few males tenants in the extra rooms was the colonial strategy to increase housing for the natives. These are the earliest recorded rental accommodations in Nairobi. They were in the form of a Swahili\textsuperscript{4} square house with a courtyard at the centre and accommodated upward of four rooms with a possibility of extension (Hirst, 1994). Figure 4.03 and 4.04 show illustrations of Swahili house similar to the ones built in Nairobi in the 1920s.

The Swahili houses were built of wood poles and mud. This type of construction was a temporary intervention that would give way to permanent housing (Hirst 1994, Hake 1977). In the inner core area called Majengo, many of these structures are existence to date though the rest of the neighbourhood had its temporary houses demolished and permanent ones put up by the Municipal Council of Nairobi (ibid). Private sector housing built of concrete and stone is not reported in the history of early Nairobi. It was after the mid-1960s, when Africans were allowed to own land by the independence government that such housing came up.

\textbf{Figure 4.03}: Swahili-type houses built in Majengo in the 1920s, which have been extended and also acquired corrugated iron sheet roofing. (Source: Author, 2015)

\textsuperscript{4}The Swahili culture evolved from the interactions of Arab traders and coastal Bantu African ethnicities. Unlike the curvilinear dwelling forms with conical roofs common amongst the continental Bantus, the Swahili-type (and coastal Bantu) house is rectilinear (Makachia, 2011).
Figure 4.04: Schematic drawing of a Swahili House similar to those built in Majengo and Pumwani. (Source: Author, 2014 from interpretations of Hake, 1977)
4.2.0 LOW-RISE HOUSING TO TENEMENTS:
(Post-Independence Period - 1963 to Present)

Formal private rental housing was first built of stone and concrete in Nairobi in the 1960s (Hake, 1977). At independence in 1963, the government adopted liberal land policies, which opened up the opportunity for Africans to freely own property and reside within the city and make a living without inhibitions (Amis, 1987).

Suddenly, rural to urban migration picked up and many people moved to Nairobi in search of employment and business opportunities. This sudden burst exacerbated the accommodation problem. The housing sector was not prepared and thus the few informal settlements available became overcrowded as happened in Mathare Valley (Amis, 1987).

To discourage the growth of slums, the Government of Kenya demolished slums within the city several times. This containment and slum clearance effort was the global orthodoxy of the 1960s. But this did not solve the housing problem because no sooner had the demolitions been carried out than others sprung up in the neighbourhood or elsewhere in the city. This was because there was no strategy of housing those evicted. Slum clearance as a slum elimination policy failed, leading to the change in policy.

Three strategies were tried. One was encouraging the private sector to invest in rental housing through land allocations by the City Council of Nairobi; two, commencement of an exercise of ‘site and service’ schemes and, three, government involvement in housing provision (Shihembetsa, 1989).

Mathare Valley, about 5km from the city centre to the north, was one of the earliest settlements in Nairobi. It was greatly affected by the slum clearance policy but although its area decreased due to land annexation for private development, it has survived to date. Residents of this settlement, which was already experiencing overcrowding, were among the first to take advantage of the policy on land allocation. They organized themselves into cooperative societies and bought land within and in adjacent areas to develop roomed housing for members and also for rental purposes. The demand for housing persisted in Mathare, and in an effort to satisfy it, the cooperatives started to construct multi-storey roomed housing that was two to three storeys high in the early 1980s (Huchzeremeyer, 2007). This later increased to five storeys and beyond in the 1990s. It is noted that this trend was copied by neighbouring residential areas, most significantly by the private sector developers of the Mathare North site and service scheme area and Huruma Estate. This marked the advent of private sector multi-storey accommodation for the low-income sector that was to spread throughout the low-income settlements of Nairobi’s Eastlands and beyond (ibid).
4.3.0 THREE GROWTH CATEGORIES OF TENEMENT SETTLEMENTS

There are three ways in which tenement expansion is taking place. First is through the transformation of former site and service schemes that are gradually being replaced with high-rise housing in the form of tenements. Second is through encroachment of popular settlements, where tenements that began at their periphery are gradually replacing the impermanent low-rise housing, and third is on new sites that were zoned for medium density housing but have been converted into high density housing sites.

4.3.1 Site and service schemes and their transformation to tenement settlements

The introduction of the site and service schemes was one of the strategies the government adopted to respond to housing demand when slum clearance and other housing strategies failed to provide sufficient housing for the burgeoning city population. The site and service schemes were associated with the World Bank and USAID (Shihembetsa, 1989). However, the earliest site and service scheme commenced in 1964 in Kariobangi, Nairobi, and was initiated by the government together with the Nairobi City Council. Its intention was to move squatters who had settled close to the city centre to the city’s outskirts. The squatters were settled near Pumwani in a settlement that was considered unhealthy, dangerous and unsightly in the capital of the newly independent state (Weisner, 1976).

The nature of housing that was considered for this first site and service scheme was actually temporary housing with wattle and mud walls and corrugated iron sheet roofs on a planned site with minimal infrastructure. The land parcels were allocated to beneficiaries without down payment but the owners were supposed to pay annual rates to the council (Weisner, 1976). According to Shihembetsa (1989), this was followed by Urban Project 1, which was developed for Dandora area with financing from the World Bank. Its construction commenced in 1976, with the target of developing core dwelling units in 6,000 plots. The intention of this scheme was to assist the low-income cadres to acquire housing through a soft loan system. It was organized in a manner where the scheme area was provided with infrastructure (road network, electricity, water and sewer system) and divided into four types of plots with areas of 100, 120, 140 and 160 square metres. These were then allocated to deserving persons that constituted the low-income group. The allottees were each given a plot with a fully built wet core that consisted of a toilet, shower, store and a small room located to the rear of the plot that was 6.3 metres wide. They were also provided with building plans and expected to construct rooms around a courtyard for personal use and to rent out the surplus.

Further, Shihembetsa points out that the original allottees did not take full advantage of this assistance because most were poor and had no capacity to fully develop their plots.
Many of these sold out to rich entrepreneurs who in time overdeveloped these plots by building multi-storey flats like those in figure 4.06. A similar scheme, Urban Project II, was started in Mathare North in 1983 and, probably because of its proximity to the city and the high demand for accommodation, the allottees also quickly sold out to rich entrepreneurs who converted them to rental flats. A good idea was, therefore, hijacked to create a completely different housing development paradigm (Amis, 1987).

It can be concluded that rental income from the low-income sector made good investment sense. This could explain why the private sector recorded increased interest in investing in housing, either through directly purchasing land from allottees or seeking, on their own, allotment from the City Council of Nairobi which in the early 1970s to 1980s owned much of the land in the city (Shihembetsa, 1989). The transformation of low-rise housing into high-rises that began in Mathare in the late 1970s gradually spread through Kariobangi, Dandora (figure 4.05), Mathare North (figure 4.06), Huruma (figure 4.07), Umoja II (figure 4.08) and Kayole (figure 4.09), and later on to most of the city’s low-income settlements.

Figure 4.05: Dandora Site and Service Scheme: original low-rise housing transforming into high-rise dwellings. (Source: Author, 2014)
Figure 4.06: Mathare North, Nairobi. (Source: Author, 2013)

Figure 4.07: Huruma. (Source: Author, 2013)
Figure 4.08: Umoja II Site and Service Scheme with high-rise housing infill. (Source: Author, 2014)

Figure 4.09: Kayole. (Source: Author, 2014)
The gradual transformation of these site and service low-rise housing developments into tenements has involved a process where the original housing is demolished or structurally reinforced to take on more floors. The tenements have developed from a framework that offered basic services and infrastructure. The roads, sewer system, water supply, garbage collection, health facilities and schools are provided by the city’s county government, which took over from the city council.

4.3.2 Transformation of popular settlements (*slums*) to tenements

This category of tenements is developing at the periphery of popular settlements and gradually replacing them, as has been observed in Kibera (figure 4.10), parts of Huruma (figure 4.11) and Mathare. The periphery of Kibera does not only have many tenements, but the government through its Kenya Slum Upgrading Programme (KESUP) is carrying out a slum upgrading programme that aims to develop decent high-rise housing with dwellings that can accommodate one, two or three households that share a kitchen and washroom facilities at an ‘affordable cost’.

Figure 4.10: Tenement housing encroaching into Kibera from its periphery.
(Source: Author, 2014)
4.3.3 Greenfield tenement settlements

This category comprises new sites, such as the tenement development in a number of sites in Embakasi, including Lucky Summer, popularly known as ‘Pipeline’, illustrated in figure 4.12, and Mainge, in figure 4.13. These developments are the direct initiative of developers on land that is not serviced. This was mainly as a result of fiscal policy changes effected by the government after the World Bank and IMF imposed structural adjustment policies (SAP) as part of its neoliberal policies in the 1980s. Thereafter, there has been little government input in infrastructure development in settlements. These tenement settlements are almost wholly being developed by the private sector. Provision of services is the responsibility of the landlords and sometimes tenants, who organize themselves to undertake some of the tasks. Indeed, they do not have the organizational and financial capacity of government and as such there are limitations to the extent to which they can operate. Therefore, there are no proper roads, and some areas have no sewer line so effluent flows in open drains to the nearest river. It is observed that these tenements are at various levels of completion. This is because incremental building is one of the ways construction is carried out.
Figure 4.12: Lucky Summer. (Source: Author, 2012)

Figure 4.13: New tenement developments at Kwa Mainge. (Source: Author, 2013)
4.4.0 CHARACTERISTICS OF TENEMENTS

Tenement settlements bear certain common characteristics although they are located in different locations within the city. They accommodate many people comparative to the space they occupy and are therefore crowded. They are huge commercial hubs because the population they accommodate provides the requisite market for both services and goods. Infrastructure and social amenities are poor, and finally, the morphology of tenements, including design and construction, bears similarities.

4.4.1 Crowding

Tenements and the settlements they have created are crowded because they have violated the planning and building laws. The majority of tenements offer single-room accommodation; a few offer more options. They are an overdevelopment on plots, some of which were planned to accommodate single to a few family dwellings. The plot coverage and development ratios have been exceeded many times over.

The streets in the tenement districts appear to be very narrow because of a number of factors. One, the breadth of the roads was premised on a specific development density, but this has been exceeded many times over due to an increased numbers of dwellings, creating congestion. Two, the tenements have not observed the building setback requirement; the frontage abuts the plot boundary, with balconies extending towards the road. Third, the rooms fronting the road are mainly used as business premises, thus making the road a commercial street. Fourth, there are many businesses carried out on makeshift stands, or spread out on the walkways, forcing the pedestrians to walk on the road where they jostle for spaces with cars, handcarts and motorcycles. Figures 4.14 and 4.15 illustrate the street hustles in Huruma and Lucky Summer.

The overcrowding that finds expression in the streets extends to individual tenements. As noted, the tenements are overdeveloped; the many rooms per floor mean that they accommodate many households, thus creating high levels of crowding. Household size for single-room dwellings from the population and housing census of 2009 for Nairobi is estimated at more than 3.1 persons (KNBS, 2009). The findings by Huchzermeier (2007) on human density in Huruma Settlement are a case in point. According to Kenya’s physical planning guide as explained in the Handbook of Planning 2008 (Republic of Kenya, 2008), low-income settlements should accommodate 133 dwelling units per hectare, which translates to 426 persons per hectare when using the household size of 3.2 persons indicated in the 1999 population census for Nairobi. However, Huchzermeier estimated that there were 1,638 dwelling units or 5,248 people per hectare. This exceeded the government-recommended density by far.
4.4.2 Centres of commerce
Tenement settlements are significant commercial hubs. The huge population makes economic ventures viable. Settlements like Kariobangi, Kayole and Dandora have become huge commercial and residential districts that also boast vibrant cottage industries, locally referred to as “jua kali”, and small industrial developments. Commercialization of the street is now a common phenomenon in most low-income settlements in Nairobi.

Figure 4.14: Street market in Huruma. (Source: Author, 2012)

Figure 4.15: Businesses along the street in Pipeline Estate. (Source: Author, 2012)
4.4.3 Quality of services
Tenement settlements have poor standards of services in terms of infrastructure and social amenities. Even when the government provides these, they are not properly maintained. Garbage is not regularly collected, roads are poorly maintained and the drainage is clogged because residents dump waste in it. Water supply is irregular, forcing residents to rely on water vendors whose water quality cannot be guaranteed. Tenement settlements, therefore, have poor standards of hygiene as illustrated in figure 4.16 a, b, c and d. Moreover, occupancy of more than one person in a room measures about 10m² that also serves as a living, sleeping and food preparation space, among other domestic activities, presents a host of social and health problems associated with infectious diseases and stress.
Tenement Housing in Nairobi
4.5.0 MORPHOLOGY OF TENEMENTS OF NAIROBI

Tenements are multi-storey residential blocks, some as high as nine floors. They are constructed using concrete and stone but are not serviced by an elevator; vertical movement is via a staircase. In a number of tenements, the staircases are narrow, dark and poorly constructed, with uneven risers and treads. Narrow stairs in tenements present a challenge while carrying furniture upstairs, forcing residents to hoist it over the balcony railing using a rope in an intricate balancing process that is not only dangerous but sometimes leads to damage.

Maximizing on space to achieve as many dwelling rooms as possible is one of the most conspicuous characteristics of tenements. Room sizes range from seven to fourteen square metres (Huchzermeier, 2011) and the layout does not provide for natural lighting and cross ventilation. Almost all rooms, with the exception of those fronting the street,
Tenement Housing in Nairobi

do not receive sunlight and instead use artificial lighting throughout. Households share communal facilities in tenements. Several households share the few showers and water closets provided on each floor. It is not uncommon for ten households to share one water closet and a shower. The clotheslines that are fixed on the front balconies are also shared amongst the households that dwell on each floor.

The quality of workmanship and finishes in tenements is mostly poor and inappropriate. The floor finish is mainly cement screed, which is unsuitable for the large population in the tenements. The corridor floor surfaces and the edges of the stairs easily wear out. Handrails and balustrades on balconies, stairs and voids are poorly constructed and maintained in many tenements. They have been reported to cause injury and even death, most of the casualties being children.

4.6.0 COMPARISON OF TRANSFORMATION OF TENEMENT HOUSING IN NEW YORK AND NAIROBI

Housing in site and service schemes has experienced a gradual transformation in typology from low-rise housing development to high-rise tenement housing. It has undergone a process where original houses are demolished or structurally reinforced to accommodate more floors. An example to illustrate this is housing in Mathare North. The Mathare North scheme plots measure 7.5m by 17m (25 by 56 feet) and the site planning allowed a three-metre setback from the road because this was a low-income housing development. Figure 4.18 shows the initial core house for a family consisting of three rooms, toilet facilities and a cooking space by the front door. There was space left in the rear to allow for future extension for either family occupation or rental purposes. Over a short period of time and with the increased demand for housing, many households built rooms in the rear of their plots, most of which they rented out. Figure 4.19 illustrates the extension. This extension was only on ground level.

The changes in development in Mathare North, and generally within the site and service settlements in Nairobi, can be contrasted with those in New York between 1830 and 1867. In this period, much transformation happened in the housing that mainly housed immigrant workers from Europe. These were mostly the poor people that moved to the USA in search of better opportunities and could not afford decent housing.

It has been noted by writers such as Plunz (1990), Day (1999) and Dolkart (2010) that tenement housing was in existence in New York from the beginning of the 19th century but was not a dominant phenomenon until the middle of the century. Figure 4.19a, b and c shows an illustration of the tenement transformation up to the middle of the century. Worth noting are the changes in room sizes and plot coverage between 1830 and 1850. Rooms became bigger in number but smaller in size and the compounds congested.
Plunz notes that around 1850, the housing situation changed as New York was flooded with immigrants from Europe. This large number of people increased housing demand and the private sector speculators built tenements that were more compact and offered more living spaces to meet the demand. They accommodated more than 18 households on five floors, with each dwelling having three or four rooms. Each floor had four dwellings, with the outermost room being the only one with a window fronting the street or back yard. These tenements were referred to as ‘railroad tenements’. Figure 4.20 shows an illustration of the layout.

Figure 4.17: Original core house in Mathare North. (Source: Author, 2014)

Figure 4.18: Core house extended horizontally by four rooms to the rear. (Source: Author, 2014)
In his writings on New York tenements, Dolkart (2010) reasserts the remarks of Ernest Flagg, a tenement reformer and architect, that “the greatest evil which ever befell New York City was the division of the blocks into lots of 25 x 100 feet”. This was in reaction to the inflexible nature of the size of the plot that could not accord the designer an opportunity to provide meaningful layouts for tenements. Opposition to tenements continued because activists and health practitioners suspected that the deteriorating health of tenants was a consequence of lack of lighting and ventilation. Unfortunately, at that time, the germ theory had not developed well enough to provide proof of those assertions and at one time, the appeal was turned down by New York State courts.
Changes in tenement typology

Over time, and as demand for low-income housing increased in Nairobi and rental housing became a lucrative business, the poorer original owners of Mathare North houses were bought out and these new owners together with the original owners that were wealthy enough started the gradual process of transforming their houses from low-rise to high-rise. Some demolished the original houses and built high-rise tenements while others structurally reinforced the original buildings and built upwards. Figure 4.21 illustrates the common layout in the settlement as they currently stand.

A review of the plan layout and on site observation indicates that this housing is not fit for decent occupation. The original core unit had one water closet and shower together with a cooking area, and although it was later extended by four rooms in the rear, the total number of rooms sharing these amenities was seven. In the vertical
extension, the number of rooms has increased to ten and the shower and water closets are accommodated on the balcony, which extends to the main road. The rooms are not lit because all the windows open into the corridor. The narrow void hardly brings in any light because the neighbouring tenement wall is flash on it. It is apparent that the landlords know that the void amounts to little as a source of natural light and ventilation once the neighbouring property is developed. The void acts as a rubbish chute because once cleaning is carried out in the splash areas, residents throw food waste across it, making its ground floor area a dumping receptor.
Figure 4.21: Layout plans of the ground and typical floors of the common typology of tenements. Notice that the front yard has been converted into rooms. The only consistent element is the light-well/void. The surface area has, however, been reduced a little with the introduction of a common splash area on the upper levels. (Source: Author, 2014)

Figure 4.22: Tenements of Mathare North. Some of the developers have provided for a fall back of a few metres to allow for balconies to the rear. The distance between adjacent balconies is very short; residents could cross over from one tenement to another. Note the light voids at the side. It is completely dark in those tenements where the neighbouring property is fully developed. (Source: Author, 2013)
The transformation in housing from low-rise to tenement in Mathare North made housing conditions worse. Tenements as a housing solution in Nairobi are, therefore, taking a negative trajectory. On the contrary, in New York, between 1867 and 1900, there were efforts to improve the tenements and a new plan, the *dumbbell layout*, illustrated in figure 4.22, was introduced. This was after much opposition to the earlier layouts that were unacceptable. The changes in the housing law governing tenements, first in 1867 and then revisions of 1879, made these changes possible.

![Dumbbell tenement evolution](image)

**Figure 4.23: a & b- Dumbbell tenement evolution from 1867 to 1879 and 1879 to 1900.**
(Source: Author enhanced drawing from Plunz, 1990)

Plunz (1990) argues that the dumbbell tenement was a pragmatic compromise between the strong commercial interest of landlords and the political class, and the architect was the pawn who provided a design solution that did not really work. In the proposed design solution, the law required that there be a window in every room to improve lighting and ventilation but it did not change the plot sizes (Dolkart, 2010; Plunz, 1990). A revision of layout to conform to the revised law was less than satisfactory. There were four dwellings that measured less than 3.4metres in width on each floor. The outer rooms, fronting the street and back yard, measured approximately 3.4 x 4m, followed by two and sometimes three inner rooms that served as kitchen and bedroom(s).
Figure 4.24a, b & c: a- Airshaft of a dumbbell tenement (Source: National Archives), b-
Lower Eastside Tenement Museum (source: http://www.glenwoodnyc.com/), c- Airing of
clothes at the front and rear of tenements. (Source: New York Municipal archives)
Although all the rooms were provided with windows, they faced out into narrow light shafts as illustrated in figure 4.24. The tenements were recessed in the middle, giving them a dumbbell shape, hence the name. The recessed section accommodated the staircase and water closets that were shared amongst the households. Dolkart notes that tenants complained that the light shafts in the middle were very narrow and provided no privacy between dwellings. They allowed no light unless on the top floor, and ventilation was insufficient. The room adjoining the shafts became smelly and noisy whenever the windows were open because 20 families utilized these shafts for ventilation and lighting. He further indicates that people threw garbage through the windows into the shafts and there was no way of cleaning unless through a window of one of the rooms on the first floor. The light shafts also served as a flue, which exacerbated fires during a breakout. The ventilation and lighting scenario described bears great similarity to a number of tenements in settlements of Nairobi.

4.7.0 LESSONS FROM NEW YORK ON TENEMENT REFORMS

Literature on the housing discourse of that period shows that the failure of the dumbbell tenement to meet the aspirations of decent accommodation and intensified activism led to a further change of building laws in 1901. There was a realization that in order to create livable housing for the working people, a different housing type that was better ventilated and naturally lit would be required. A new building law to achieve that objective was enacted after findings of a commission of the New York legislature undertook comprehensive studies. Apart from identifying the problems brought about by the designs of the dumbbell-type tenements, they sought architectural submissions of possible alternative configurations using several plots such as the winning entry illustrated in figure 4.25.

Upon these submissions, new design guidelines were established and these formed the basis of the new Tenement Housing Act 1901. The new laws increased the minimum standards of housing. They outlawed 25-foot (7.6m) wide plots and forced the amalgamation of these into big chunks of land where comprehensive housing was built. Plunz notes that housing commentators of the time agreed that the new law was a success because it finally brought sanity to the low-income housing sector and provided an acceptable balance between real estate interest, the architectural profession and the building bureaucracy. The structures set up under the new law ultimately made it enforceable. This law marked a significant milestone, both as a housing design guide and in city planning, and it has had great influence in the United States and elsewhere. The new law ensured that all rooms had windows that opened outwards to the streets or inwards to a courtyard and there was cross ventilation and sunlight. Tenements had open stairs and guaranteed running water. Fire safety measures were enhanced and properly
incorporated in the designs. The courtyards were designed to serve as playground for children among other uses. The plot coverage was limited to 70%.

Figure 4.25: Prize winning plan on four plots in the 1899 competition. Key: L – Living room, K – Kitchen and C – Bedroom. (Source: Author-enhanced drawing from Plunz, 1990)
Changes to tenement housing laws created an opportunity for new entrants into the housing sector, both for profit and for social good. Housing ideas from Europe, particularly France, were experimented with as model houses by American architects that had trained there. Philanthropists in New York, whose main concern was a good living environment for the low-income earners, tried these new housing styles. The precedent set by model housing became widely accepted by many more groups and specifically the workers’ unions who, through their cooperatives, built many such tenements for their members. Government housing, which followed the 1930 depression in the USA, was to follow this trend. It is noted that the government was never directly involved in housing provision before that time and that tenement housing was provided by speculators from the private sector.

The tenement discourse and improvements in the housing conditions of New York in the late 19th century can find resonance in the Nairobi context in the 21st century. Inevitably, and following the enactment of the new Kenyan Constitution of 2010 (Republic of Kenya, 2010a), which makes access to adequate housing a right, it will be necessary for the political class to enact housing legislation similar to that of New York. The time, socioeconomic and political contexts are different but the housing conditions bear close similarities.

The greater interest of tenement housing in both New York in the 19th century was commercial speculation or profit, as has been the case in Nairobi in the 20th-21st century. While New York’s legislature intervened, after a lot of activism, to balance the commercial interest of real estate with public good at the turn of the century, Nairobi’s tenement culture of commercialization persists.

New York developed a framework, through legislation, that brought control to the planning and building of tenements and enforced the law. In Kenya, the Physical Planning Act 2010 (Republic of Kenya, 2010) and the zoning regimes adopted by the city of Nairobi do not provide a description or make intentions on high density housing clear. There are no prescriptive regulations similar to those set out for medium and low-density housing. In effect, to the housing bureaucracy, ‘high density’ is a slum. This is observed in the zoning plan that highlights existing slums as high-density areas. There are no spatial planning strategies for the expansion of such areas to accommodate the increased population in the low-income category.

The housing policy and physical planning law of Kenya is formulated and enacted from an upper and middle-class income disposition. In Nairobi, for example, housing densification of medium density neighbourhoods that are meant for one dwelling family units could allow for multiple family dwellings with plot coverage of 50% and a maximum development ratio of 200%. Approval for housing development under
such conditions on individual plots would allow for four floor levels, three for dwelling units with the ground floor used as parking. Such housing is ‘formal’ and would commonly be occupied by the middle-income households. Such approval is, however granted without regard to common neighbourhood facilities that should guarantee a holistic lifestyle for households. That notwithstanding, it forms the basis for housing development within the formal housing setup. All other housing, mainly for low-income households, is built outside the legal structure and constitutes the informal city, which exists only as slums.

It is imperative that the prevailing policy and planning system changes because of the prevailing housing realities. A framework that recognises the high-rise housing reality of tenements for the low-income demographic will need to be legislated so that high density housing is provided for in physical plans, which should of necessity embrace an integrated neighbourhood planning approach.

There are benefits that can accrue from such an intervention. The formal real estate sector and other benefactors such as the National Social Security Fund (NSSF) have not ventured into investment in housing for the low-income group for good reasons. One of these is the lack of a housing policy and legislation that offers guidelines on how low-income households will access such housing. According to the government’s legal notice 115 of 2008, low-income households are regarded as those with a gross monthly income of less that Sh 35,000 (USD 440 in 2008). It is this category of households that the government intended to benefit in the provision of tax subsidies in the legal notice. The conditions of the tax rebate were not attractive to developers and none ventured into the provision of the housing type envisioned by the government in the legal notice. This was one example of policy failure in identifying common ground benefitting government bureaucracy, developers and the low-income groups. Housing policy is therefore a grey area and as long as it remains as such, investment in this area, as exemplified in New York after 1901 when real estate investors, philanthropists and workers cooperatives got involved in housing provision, will not happen in Nairobi.

Further, the argument by the economist De Soto (2000), who has worked extensively with governments in South America and Tanzania, that tremendous growth can be achieved when informal systems are recognized as centres of growth and are brought within the formal realm could be a case for consideration within the tenement housing sector in Nairobi. From this perspective, it can be inferred that a solution for housing in the informal sectors, such as tenement housing, can be realized when landlords are involved in policy formulation. Such a strategy could give them recognition as legal entities in housing investment and decisions made could be implemented with minimal opposition.
CHAPTER 5: SETTING

This chapter is divided into two parts. Part I contextualizes Lucky Summer settlement in Nairobi County and Embakasi District through an overview of its historical and geopolitical developments. Part II reviews Lucky Summer by tracing its origins and growth through an evaluation of its physical and socioeconomic structures and reviews its transformations up to the present time.

5.1.0 PART I: CONTEXTUALIZATION

Lucky Summer is in Embakasi District of Nairobi County. Nairobi City is the administrative and commercial capital of the Republic of Kenya and the seat of the County Government of Nairobi. It is situated close to the equator and occupies an area of 696km$^2$. It borders three counties; Kiambu to the north, Machakos to the southeast and Kajiado to the southwest. The city is named after the Nairobi River. Its population in 2015 is estimated at 4.5 million. It is the largest city in Kenya. Figure 5.01 illustrates the extent of Nairobi and the location of Lucky Summer settlement.

The city of Nairobi is an important social and commercial hub for not only the eastern region of Africa but also the continent in general. It hosts many international organization and businesses, including the United Nations Environment Programme (UNEP), UN-Habitat and other United Nations (UN) offices such as those coordinating the UN's activities in Africa and the Middle East. Its GDP is 45% of the country and it employs 43% of Kenyan urban workers. While Nairobi has many accolades, more than 60% of its population is poor and living in popular settlements that occupy a paltry 1.62% of the total land area of the city as partly expressed in the foreground of figure 5.02 (UN-HABITAT, 2006). Settlements such as Lucky Summer fall in this category.
Figure 5.01: Lucky Summer settlement in the context of Nairobi County. (Source: Author, 2014)
5.1.1 History of Nairobi

The British founded Nairobi in 1899 as a rail depot on the railway linking Mombasa to Uganda. It grew rapidly to replace Mombasa as the capital of the British East African Protectorate in 1907 when it became the administrative, commercial, tourism and transport hub of the region (White et al., 1948; Hake, 1977). Between 1912 and 1914, Nairobi was hit by plague that expropriated the Indian bazaar and forced the colonial administration to effect far-reaching sanitation measures. In 1919, Nairobi was elevated to a municipality and the following year, 1920, it became the headquarters of the Kenya Colony. In 1927, the boundary of the city was extended to 77km² from its initial
Tenement Housing in Nairobi

25km². Nairobi experienced tremendous growth in the years that followed and in 1948, a new master plan was implemented. Thereafter, in 1950, it was granted city status.

In 1963, Kenya got its independence with Nairobi as the capital. The city boundary was further extended to 696km². To manage sustained urban growth, a 25-year master plan - the Nairobi Metropolitan Growth Strategy of 1973 - was published but was never implemented as envisioned. Since its lapse in 1998, no comprehensive master plan has been developed.

In 2010, Kenya enacted a new constitution replacing the independence one of 1963. The new constitution unveiled a new two-tier governance structure with a national government and county governments. There are 47 county governments and Nairobi is one of them. Nairobi County has 17 constituencies represented by elected members of parliament (MPs) who sit in the National Assembly and 85 Wards represented by elected Members of the County Assembly (MCAs). The executive arm of the county is run by an elected governor and executive officers appointed by the governor and approved by the county assembly, which is the legislature. Lucky Summer Settlement is part of Pipeline Ward of Embakasi South Constituency.

5.1.2 The climate of Nairobi

The climate of Nairobi formed the basis upon which tenement design and physiological comfort in Lucky Summer is discussed. Nairobi is about 1,660m above sea level and has a tropical highland climate with two seasons; wet and dry. According to the Kenya Metrological Services (KMS), the city’s coldest months are the June/July season when the temperature can drop to 11°C while the warmest months are from December to March, when temperatures average 28°C in the mid afternoon and the sky is least overcast. The mean temperature for this period is 24°C. There are two rainy seasons in a year, with a mean annual rainfall ranging between 850 and 1050 mm. The timing of sunrise and sunset varies little throughout the year, due to Nairobi’s close proximity to the equator. The mean monthly relative humidity varies between 36% and 55% (KMS, 2014).

5.1.3 Neighbourhood of Lucky Summer: Embakasi

Lucky Summer is within south Embakasi region. This is an area that is bound between Outering Road, North Airport Road, Enterprise Road and Lunga Lunga Road in Industrial Area. During the colonial era, this area was demarcated as scheduled land; land annexed from natives to be used for farming. It was allocated to two entities; a farmer of European decent named Reuben to the north of the railway line, and to an Italian company called Villa Franca to the south. Lucky Summer occupies a parcel of land that was carved out of the Villa Franca farm and is located to the southeast. This
section of the city lies within a geographic region referred to as Kapiti Plains; it is a flat landscape with poorly draining black cotton soils that become water logged during the two annual rainy seasons.

Soon after independence in 1963, the government extended the boundary of the city to 696km² from the original 77km². Most of the extension was towards the east and south of the city centre because these areas were mainly large tracts of farmland owned by very few people. The purpose of the extension was to bring more land within the city’s jurisdiction for purposes of urban planning for the ballooning population mostly settled at the periphery of the old city boundary. Most of the land in the extended sections was acquired by the government through the law of compulsory acquisition.

Of interest to this thesis is the part of the compulsorily acquired land that came to be called Lucky Summer. Sometime in the late 1960s and early 1970s, the government took possession of sisal farms that bordered Nairobi’s Industrial Area to the south and owned by Villa Franca. The intention was to expand the Industrial Area to attract investment and to directly invest in industrialization by setting up strategic industries run by state corporations. Another aim was to plan for other urban developments. Over the years, this focus was lost. While there are a number of government establishments in the area, none is involved in industrial production. The private sector has, however, invested heavily in terms of industrial development and housing, on both the Reuben and Villa Franca sides, as indicated in figure 5.03.

A large part in the centre and to the east of the area was hived off for housing development by the private sector while squatters have encroached on the rest, though it is legally owned by speculators. Initially, the squatters occupied the riparian, the railway line reserve, electricity and oil pipeline way-leaves, but due to increased population, they spread out to occupy private land that lay idle in the neighbourhood. This has seen the creation of popular settlements like Viwandani, Mukuru kwa Reuben and Mukuru kwa Njenga.
Figure 5.03: Land use in the larger Embakasi South area. (Source: Author, 2014)
Figure 5.04: Land use within the neighbourhood of Lucky Summer. (Source: Author, 2014)
5.2.0 PART II: LUCKY SUMMER SETTLEMENT

The narrative of Lucky Summer settlement, as revealed by two of its early owners during fieldwork, began in 1974. A group of friends collaborated and purchased a parcel of land known as LR. No. 7101/1Embakasi-Machakos District that measured approximately 19 hectares. It was bought from a seller to whom it had been allotted for purposes of industrial and urban development by the government. According to one director, the original owner did not sell the land in good faith because he did not disclose the full details of the title. The title of the bigger block of land, known as Villa Franca, had been delineated by the colonial administration as agricultural land.

The government did not change land use in the title deed documentation during compulsory acquisition because the legal processes for doing so had not been undertaken. According to Prof Ngau of the Department of Urban and Regional Planning at the University of Nairobi, after the government acquired the land, it was supposed to be planned for before redistribution as provided for by the physical planning law. He avers this was not done and the subdivisions were done arbitrarily by surveyors and allocated at the discretion of the then minister of Lands. It would appear, from the discussions with the directors, that it was through such an allocation that the seller from whom they got the land had acquired it. The company’s intention was to subdivide the land into smaller parcels and sell it at a profit to speculators. Unknown to them though, the land was still registered as agricultural land. It took several years of negotiations with the government bureaucracy to effect user changes and overcome this challenge.

Meanwhile, and in contravention of the land law, the company subdivided the 19-hectare land parcel into smaller parcels, measuring approximately 0.024 hectares, and sold them to members of the public through advertisements and informal links. The parcels were sold as shareholding through a share certificate that was equivalent to one plot. A plot sold for Sh3,250 (approximately US dollars 361 exchanging at Sh9 to a dollar in 1981), a price that was considered high at the time and was paid in instalments over a long period of time.

A number of shareholders developed their plots by putting up housing structures that were built of corrugated iron sheets and poles. No permanent structures were built for fear that the government would demolish them because the development control matter had not been resolved. From the interviews, the directors indicated that in 1989, there was reprieve when the then president of Kenya, Mr. Daniel Moi, directed the Ministry of Lands to allow for the regularization of mutations of large land holdings, especially those within urban areas. They took advantage of the decree and submitted their proposed subdivision plan to the ministry, upon which title deeds were issued with a
disclaimer that they were to be utilized for single domestic dwellings. The 99-year lease for that land consequently commenced in 1989 and it was registered as Nairobi Block 113.

5.2.1 Politicization of land administration

The land on which Lucky Summer stands was a product of political interference in land administration. While this study has no intention of dwelling deeply on the subject, it points out the consequences of the repealed Government Land Act, Cap 280 of 1948. This act gave the Kenyan president immense power on matters to do with government land, but these powers were not used responsibly. The discourse on land administration in Kenya is replete with examples of the abuse of these powers.

Much land was not only allocated to undeserving individuals for speculative purposes but was also allocated based on political patronage. Many planning challenges faced in urban areas such as Nairobi have their origins in such allocations. Lucky Summer is a case in point.

The regularization of land subdivision in Lucky Summer and issuance of titles came against a backdrop of disagreements between the City Council of Nairobi (CCN), the predecessor of the County Government of Nairobi, and the Lands ministry. The CCN had required that a comprehensive land use plan be submitted to it for approval before titles were issued but the ministry issued titles without reference to the requirements of the city authorities due to political involvement. It was a case of two government departments working at cross-purpose.

The changes to Kenya’s constitution of 2010 (Republic of Kenya, 2010) and the subsequent changes to land laws that created the National Land Commission (NLC) were meant to address some of these abuses by centralizing land administration.

5.2.2 Characteristics of housing

The initial housing in Lucky Summer consisted of 3m by 3m dwellings arranged in two rows of about eight units on either side along the length of the plot and facing each other across a central yard that was 3m wide. The yard stretched across the entire length of the plot. In total, each plot had about 15 single dwelling rooms with two pit latrines and a shower cubicle occupying the space equivalent to one dwelling room. Figure 5.05 illustrates the early iron sheet and pole house. Very few of these structures, illustrated in figures 5.06 and 5.07, are still standing in the settlement, most having been replaced by single-room dwelling high-rise blocks.

Inquiries about the genesis of the tenement typology from the interviews conducted with more elderly landlords gathered that, in literal sense, it started with the conversion of
a corrugated iron sheet house into a stone and concrete one and then the placement of a floor above it and aligning the room partition walls from the ground level upwards. Enabling access to the upper rooms meant losing one room per floor to provide a staircase. A walkway was introduced as a projection or cantilever that runs along the entire length of the upper floors.

The central courtyard that provided sufficient lighting when the building had only one level then narrowed because the walkway partially covered the courtyard in wider plots and eliminated it all together in narrower ones. With increased floors, the tenements became dark on the lower floor levels, even in the wider plots. The landlords said Lucky Summer plots were wide, allowing for light wells, unlike similar housing in other settlements where the plots were narrower and had only a central corridor with rooms on either side but no light wells. They gave examples of settlements with narrow plot widths as Mathare North, Huruma and Baba Dogo, and indicated that some of their group members owned tenements there, too. The feeling amongst the landlords was that the layout of Lucky Summer tenements was much better.

Figure 5.05: Iron sheet and timber pole houses that marked early housing in Lucky Summer. Some are still in existence. (Source: Author, 2014)
Figure 5.06: Old houses on the northern side of Lucky Summer. They are gradually being pulled down to give way to tenements. (Source: Author, 2014)
5.2.3 Status of infrastructure in Lucky Summer

Although this settlement has seen tremendous development since 1990, there has been little government assistance in the development of infrastructural services. These services include roads and footpaths, surface drainage, sewer systems, electricity, water and garbage management. These services are provided directly by individual landlords or through Lucky Summer Welfare Association. As was observed, some are not of high standards.

a) Roads and surface drainage

The road network within the settlement has been developed by Lucky Summer Welfare Association (LSWA) to murram\(^6\) standards and can be used by motor vehicles in all weather conditions. However, surface drainage along the road is poor because it is not constructed using permanent materials; soil was simply scooped out so whenever it rains or a heavy truck drives close to the edges, the road is damaged and the murram that comes off fills the drainage thus requiring regular scooping. Figures 5.08 and 5.09 illustrate the road and drainage condition.

\(^6\)A murram road is made of hardcore that is compressed by a roller to stabilize it. It usually wears out under heavy rainfall.
Figure 5.08: The road network in and around Lucky Summer Settlement (Source: RCMRD and author manipulation of satellite photo, 2014)
b) Sewer system
The sewer line that serves the settlement was laid in 2012 by the association at a cost of Sh65 million. Initially, individual tenements relied on conservancy tanks that occupied the underground space in the middle of the plot and which had to be drained frequently at high costs. Some mischievous landlords who did not want to incur the expenses of hiring exhauister service pumped their effluent into the open drain that ran along the main arterial road, causing a permanent stench in the settlement. This has drastically reduced although there is still a stench in the settlement emanating from the same drain because some residents dump waste in it.

c) Electricity
Electrical power is supplied to the settlement from an overhead distribution network of lines as illustrated in figure 5.10. They are dangerously close to the balconies of tenements. This is because the tenement developments have encroached on the service wayleave. Tenants said that on some occasions, building materials from constructions in the settlement fell on the live lines, causing short-circuiting that created panic because it emitted sparks and loud bangs.
Figure 5.10: Power service lines are very close to the balconies because the tenement setback was not observed. (Source: Author, 2013)

Figure 5.11: Common electricity meter boxes in tenements. (Source: Author, 2013)
Electricity blackouts are a common phenomenon across the city of Nairobi. According to informants, Lucky Summer is no exception. In addition, the power company frequently switches off the electricity during the day to carry out repairs and to install new connections in the settlement or in the neighbourhood. This is frequent because of the number of new developments. On such occasions, tenants indicated they use candles and to a less extent paraffin lanterns to light up their homes. During the day, tenants spend their time on the balconies or the street. The tenements are also very quiet during a blackout or switch off.

There are two ways in which electricity is supplied to the dwellings, according to informants. Older tenements have a central switchboard with a power meter on the ground floor. Electricity is supplied throughout the building via minor switch controllers installed either on each floor or within the main switch box. Each of these has a circuit breaker that is set to very low current and will ordinarily trip anytime a high power rated gadget is connected. The purpose of this is to regulate power output to only the function of lighting and running entertainment gadgets. This control is deemed necessary because rent is inclusive of electricity. The system has its advantages and limitations. A respondent, a married female and mother of two, commenting on the meter issue said, “Electricity is inclusive of rent and if they separate the meters it means we incur that cost and yet rent will not be reduced. Other tenements where the separation has been done have not had their rents reduced”. However, a single female living with a sister, indicating how disappointing the system can be, said, “Blackouts happen all the time here and there is nothing we can do about it but when the cause is one of us we all get very disappointed. The landlord should provide each dwelling unit with its own metered connection”.

The centrally connected dwellings have a common problem of regular tripping of electricity when high power rated gadgets are used, leaving an entire floor in darkness. Interviews in two of the four tenements that have not separated electricity meters revealed this to be the case. Whenever it happens, only the caretaker can restore the power because he kept the keys to the meter box. Usually, he will do this after reprimanding the offending tenant. As punishment, the caretaker will take his time before resetting the connection, particularly if the offending tenant does not come forth, which is usually the case. This then creates disputes amongst the tenants in efforts to reveal the offender.

In the second alternative, which is mainly seen in new tenements, each dwelling unit has a prepaid meter installed in the main switchboard box on the ground floor. Tenants have access to their meter, where they recharge or pre-pay using Kenya Power tokens sold in the estate kiosks. This has given tenants freedom in the way they use their power, and a
number of them use it conservatively. It has also allowed them to undertake production of goods and services, some for commercial purposes, unhindered. Another advantage is that it has lessened conflict between tenants and caretakers.

d) Water supply
Water reticulation in the settlement was also done by the association at a cost of Sh17.5 million. Unfortunately, the water is insufficient and its rationing schedule unreliable. Whenever it flows, it does not have enough pressure to reach the entire settlement. As a result, residents regularly purchase water from vendors who are located in strategic places in the settlement, as shown in figure 5.12.

Figure 5.12: Water vending. (Source: Author 2013)

i) Water collection and storage
A walk into this settlement quickly makes it obvious that there are water supply challenges. The high number of hand-carts being pulled up and down the main arterial road or waiting by the road loaded with jerricans of water is a great giveaway of this problem. Lucky Summer experience water shortages that sometimes last for long periods according to informants and tenant respondents. In Nairobi, water is supplied by the Nairobi Water and Sewerage Company (NWSC). It is rationed and supplied in accordance to a schedule. According to some landlords, the scheduling of supply
has been politicized and favours certain areas perceived as more important, to the disadvantage of low-income settlements. There is also interference of water supply by the water vendor cartels that profit from water sales. These facts compound the water supply challenge for the popular settlements and Lucky Summer is no exception. Discussions with key informants revealed that many tenements have underground water reservoirs. These are made of stone and concrete and occupy part of the central space that is used as a corridor on the ground floor. The other section is occupied by a conservancy tank. Water from the NWSC and sometimes from water bowser is stored there and later pumped to overhead storage tanks. Other tenements only have overhead storage tanks. They use pumps to get the water up there because the water pressure in the NWSC line is usually low. The four tenements under study have huge overhead tanks where water is directly boosted from the NWSC water supply pipe whenever it flows.

From observations and interviews, water from the overhead tanks is supplied to the tenants by the tenement caretaker on a prearranged schedule but they can draw it at their own pleasure from a tap downstairs if and when water keeps flowing from the NWSC pipes after the overhead tanks are full. In many tenements, a hosepipe, which is connected to the overhead tank, is used to distribute water on a floor-by-floor basis. In the newer tenements, distribution is done via a tap installed on each floor, controlled by the caretaker using valves connected to outlet pipes of the storage tank on the roof.

e) Garbage management
Lucky Summer has 12 garbage collection points such as those illustrated in figure 5.13 a and b. They are square cubicles made of stone, 1.2m high with a concrete floor. They were designed that way because the initial intention was that garbage would be scooped by workers onto trucks, but the increased population in the settlement made it impossible to use human labour. A wheel loader was used instead and this necessitated that one section of the cubicle be demolished to allow access. Over time, and with the challenges of manoeuvrability, most of the walls were damaged and toppled in most garbage collection points. In some of the sites, there is no boundary to demarcate the dumping area so the rubbish spreads endlessly until the garbage collector comes to collect it. Whenever there is a delay, the mounds rise and become a big nuisance.
Figure 5.13a & b: Garbage disposal sites in the settlement. (Source: Author 2013)
5.2.4 Reflections on services in Lucky Summer

Services provision in urban settlements across progressive countries is done by the state. Installation of services, especially technical ones such as sewer systems, water reticulation, surface drainage and roads, is a prerequisite of government. Services require heavy capital investment and cannot be directly catered for by a taxpaying public. Being in charge of the provision of essential services provides the state, through various agencies, the opportunity to manage, monitor and evaluate urban development. As noted in the study, services, or infrastructure to be specific, in Lucky Summer has been put up by landlords. This was achieved through individual contributions.

The landlords’ welfare association, with the approval of the membership, made consultations and got cost estimates for the sewer line, surface drainage, road works and garbage cubicles. They split this amongst all the plots in the settlement and asked members to make contributions. These works were carried out at different periods. To cut costs, the landlords engaged labour-only contracts and work specifications were much lower than those that can be done by the state. Only the sewer line was installed to proper engineering specifications.

One of the landlords that resides in the settlement was appointed works officer. For a long time, he has overseen construction of civil works on behalf of the association. This way, they have been able to cut down on costs substantially. The downside of such a strategy and low construction standards for civil works is that the structures are not able to sustain heavy usage, as is the case in the settlement. The road and surface drainage channels are damaged frequently, more so during the rainy season, and require frequent repairs and patched-ups.

This should not be the situation in an environment where huge numbers of people live. The state needs to take responsibility in the provision of services and let developers focus on providing housing. This will be one way of enhancing the quality of the built environment. Ensuring services that are up to engineering standards and ensures they work and are used effectively.

5.2.5 Economic activities

Lucky Summer Settlement is more than a residential area; it is also a major commercial centre with many economic activities, as illustrated in figure 5.14, which are a means of livelihood to many families in and outside the settlement. It was revealed from interviews that a number of residents run businesses in the settlement on both a full-time and part-time basis. Some of the part-time businesses are carried out in the evening until late at night to earn extra money. This would explain why there is enhanced business activity and congestion in the evenings when most residents are returning home from
work. Some of the businesses are formal while others are informally run. The formal ones are mostly carried out in premises located on the ground floor and a few on the first floor of tenements. Informal ones are carried out on the sides of the street in many types of makeshift structures and from the ground where merchandise is spread out on cloth or some other material.

Businesses run in formal premises include schools and kindergartens, medical clinics/ surgeries, pharmacies, supermarkets, butcheries, bars and night clubs, restaurants, wines and spirits outlets, salons, tailoring and dressmaking, furniture outlets, furniture workshops, electronics and electric gadget outlets, electronics repair, hardware shops, metal works and welding.

The more informal businesses include selling cooked food, green groceries (vegetables and fruits), charcoal, second-hand clothes and shoes, and music and film CDs and DVDs; maize roasting; water vending; and repair services for bicycles and motorbikes.

Preparation, cooking and selling of food along the main spine road is one of the predominant businesses. At many points along the spine road and mainly at junctions, food is prepared, cooked and sold in the open. These foods include githeri, muthokoi, beans, meat stew, chapati, mandazi, matumbo, mutura and various soups from cow and goat heads and hooves, among other foods. Buyers of these foods are discouraged from consuming it on site by the fact that there is limited sitting space, so food is packed and consumed elsewhere. Most food vendors use charcoal braziers (jiko) and firewood stoves in makeshift kitchens that are covered with umbrellas while others cook under the open sky.

The people that consume these foods are residents and those working on construction sites around and beyond the settlement. Other workers doing business within the neighbourhood also buy it, mainly at lunchtime. There are very few formal restaurants along the main road because this business is not profitable in this area. Most people prefer buying food from vendors, where it is much cheaper. This was revealed during informal discussion with the food vendors.
Tenement Housing in Nairobi
Tenement Housing in Nairobi
Figure 5.14a to h: Illustrates some of the economic activities carried out in the settlement. (Source: Author, 2013)
5.2.6 The government’s role in settlement development

Due to periodic collapse of buildings in Nairobi, the former City Council of Nairobi, and currently the County Government of Nairobi, maintained the threat of demolishing housing that does not meet the requirements of building laws. Despite that, no tenements that have ever been demolished, even when some collapse in Lucky Summer or elsewhere. The closest these threats came to being realized was when a tenement under construction in the neighbourhood collapsed, causing fatalities and injury to a number of construction workers.

However, a team of building inspectors and police officers sent to identify and earmark tenements for demolition could not get access to the settlement. The outcry that followed from local politicians and other interest groups raised so much tension that confrontations were sure to ensue. In Nairobi, these are sometimes bloody, so the exercise was called off by the government and the status quo maintained.

To forestall future threats, the landlords of Lucky Summer Welfare Association initiated negotiations with the county government with a view to getting a lasting solution to tenement development. In the initial stages of the negotiations, the city government pointed out that there were two issues at stake; urban planning and architecture. These, they noted would be handled sequentially, starting with the urban planning, which required the landlords’ collective approach. Architectural and engineering issues were to be handled by individual landlords. They were to meet the following condition to fulfil the first part:

- The construction of a sewer line to connect to all the tenements,
- Water reticulation in the settlement.
- Upgrading of the main arterial road to semi-all-weather status.
- Construction of surface drainage.
- Carrying out a topographic survey of the settlement and submitting it to the council for approval.
- Applying for change of user status of their plots from single dwelling to multiple dwelling.

These conditions have been fulfilled except the one on ‘change of land use’, which was in progress as of February 2014. When this process is completed and approvals given, the landlords will then be allowed to submit as-built drawings of their existing structures together with structural engineering drawings for consideration on tenement-by-tenement basis.

Lucky Summer has not benefited from the Constituency Development Fund, whose patron is the Member of Parliament (MP). Findings showed that the role played by the
MP and Ward Representative, also known as MCA (Member of the County Assembly), in terms of development of physical facilities was insignificant. It was clear that landlords carried on with their business without regard to these two officials.

The District Officer (DO) and chiefs represent the central government. These officers discharge the mandate of the national executive at the local level in Embakasi. According to the administrative structures of the city, they play no role in the physical development of the settlement. The mandate for that is with the County Government of Nairobi. Interviews with the chiefs indicated that they only dealt with administrative issues affecting tenants and landlords, and also security within the settlement. They added that they worked closely with Lucky Summer Welfare Association in ensuring that there was order. The administration offices are located about a kilometre to the west of the settlement.
CHAPTER 6: QUALITY OF HOUSING

The chapter is divided into two parts. Part I is an evaluation of the factors and processes that impact on the quality of the tenement while Part II is a discussion of emerging issues and suggested interventions to improve the quality and environment of housing.

6.1.0 PART I: THE QUALITY OF THE TENEMENT

This section evaluates the physical and human comfort characteristics of the tenements, the building process and the implications of building economics on quality. The evaluations and discussions adopt the normative criteria on physiological comfort and space standards. The architectural analysis criteria developed by Guney (2008) and discussed in chapter two is partially used. These characteristics are discussed under the headings physical planning, tenement morphology, housing precedence, quality of construction, lighting and ventilation, and cost saving in construction.

6.1.1 Physical planning of Lucky Summer

Lucky Summer is zoned in the Nairobi Urban Plan as a medium-density residential area. Under the physical planning law, it is supposed to cede between 26% and 36% of its developed land for recreation, community facilities and roads. In reality, however, it is a high density settlement that should have ceded between 40% and 60% of its land for these facilities (Republic of Kenya, 2008). This was not done and currently, there are 522 plots that are privately owned with most developed with tenements. Initially there were 484, with a few large parcels reserved for recreation and communal facilities. These open fields were, however, subdivided and sold off as private land and most have tenements built on them.

There are 58 corner plots, labelled ‘A’ in figure 6.01a. They measure approximately 16 metres by 25 metres and have two or more road frontages. The edge plots, labelled ‘B’, are 58 and have a constrained facade that has either 6 or 9 metres of road frontage that lies along the longer side of the plot. A number of these plots measure about 9.7 metres in width and 30 metres long. The rest, 406, are the regular plots, labelled ‘C’, which measure 9.7 metres by 26 metres, with the shorter length as road frontage. Some of the
land parcels within this classification have small variations in depth and width that arose out of survey pragmatics but the tenement configuration and typology follows the same principles as the others in the settlement.

Figure 6.01a & b: a- Land parcel demarcations and b- the satellite image of current development. (Source: Department of Survey and RCMRD, Kenya, 2013.

The extent of development observed based on a transect walk, photographs and the assumption that a *fully developed* plot has a tenement built to eight levels is estimated at about 65% in 2014. A number of tenements are built incrementally and are at various levels of completion while there are a number of plots, mainly to the northern side that still have the old corrugated iron sheet housing. The landlords have a general agreement that they build eight levels though some buildings have nine. Given this understanding, all tenements below the nine-floor level could be extended. The settlement appears crowded not only in terms of tall tenements but also from the business activities along the streets, heaps of garbage and dirt, construction activities and number of people in the streets. Once fully developed, considering the building activity, Lucky Summer is going to be extremely dense in the near future.

Potentially, a corner plot can accommodate 224 rooms when fully developed (to eight levels) while the edge plots can have 136 rooms and the regular plots 112 rooms. This is assuming room sizes of 3x3 square metres. A fully developed Lucky Summer settlement would have approximately 66,352 single room dwellings in a 19.6 hectare settlement. Even if this will be reduced by, say, a quarter to cater for those tenements that have larger rooms as the new trends would suggest, the mean occupancy per
dwellings of 2.4 (chapter 7) will result in a population density of more than 6,000 persons per hectare. This would potentially make the settlement one of the densest places in the city and beyond.

The footprint of the tenements on the plots is 100%. The satellite image in figure 6.01b illustrates the coverage. The fenestrations of most dwelling rooms face inwards, towards a central corridor that runs the entire length of the tenement and is lit by a series of light-wells. Only the dwelling rooms with street frontage have outward-facing fenestrations. A differing layout has been discredited by landlords as being ineffective and is, therefore, rarely built. It is considered ineffective because the room layout is outward facing - towards the neighbouring plots and with a balcony running all around the tenement. This type of tenement was initially built when neighbourhood plots had not been developed so there was no concern that the neighbours would develop their plots without regard to the room layout of the tenements already built.

The neighbourhood plots were later developed with the inward-facing designs, with their backs flush or abutting the plot boundaries. This left the dwelling rooms of outward-facing layout tenements dark because the space they had left between their balconies and the plot boundary was very small. Findings from the interviews with contractors and landlords revealed that they adopted inward-facing layouts because they offered tenements independence. If outward-facing tenements stood next to each other, their balconies would be too close. This would bring about conflict in areas like security, privacy and waste management. Little light would permeate through the abutting façade, leaving the rooms dark. Figure 6.02a and b illustrates the layouts and a section impression to explain regular plot composition.
The floor layouts commonly used for the three types of plots are illustrated in figure 6.03. A few variations to these layouts were observed in some tenements but they were mainly on the position of the stairs and toilets. These two functions are fitted into the space of two rooms and have little effect on the overall organization of the tenement.

The number of room per floor on the regular plot is 12 to 15 while that of the edge plots is between 15 and 17 rooms. Many newer tenements have bigger and fewer rooms while the older ones have smaller but many rooms. Room sizes have a width range of 2.7m to 3.6m and a depth range of 3.0m to 3.3m. Rooms in the regular and edge plots tend to be bigger because the two rows of rooms allow for wider rooms and an equally...
Figure 6.02a & b: a - Floor plan layouts and b - Section. (Source: Author, 2014)

wide central corridor unlike in the corner plots, where there are four rows of rooms. To achieve the four rows, the designers reduced the room sizes to between 2.8m to 3.2m wide by 2.8m deep in internal dimensions. The rows of dwellings that front the next plot, especially when it is developed, are dark. The middle block in figure 6.02a illustrates such layouts.
Figure 6.03: Typical floor layouts for the various plot sizes. (Source: Author, 2014)
6.1.2 The morphology of tenements

The criteria for sampling tenements, households and respondents are discussed in chapter three. The four tenements selected are classified as A, B, C, and D and they are all built on plots measuring 26m by 9.7m. The numbers of single dwelling rooms of tenements are 84, 84, 110 and 98, respectively.

a) Tenement A

The tenement, illustrated in figure 6.04, was built in 1997 and has eight levels. The ground floor, which is referred to as the first level in this study, is a thoroughfare, with all the rooms having been converted into shops after the landlord acquired the plot at the rear and developed another tenement that fronts another road. One way of accessing the other tenement is through this thoroughfare. The second to seventh levels have 14 single dwelling rooms and one double room each, adding up to 15 dwelling rooms per floor. The single rooms are 84 in total. The eighth level has bed-sitters (self-contained rooms with a small kitchenette and bathroom facilities). It was purpose built and accommodated the landlord’s employees for a time but the employees have since been moved elsewhere and the rooms are now rented out. These dwelling units were not included in this study.

Measurements
The balcony is 1,000mm deep and the corridor 900mm wide. The light-wells are 1,500mm wide and are four in number, with two each measuring 1,700mm and 3,800mm long. The double panel window measures, 900mm x 900mm with a single opening. The stair is a double winder with a width of 700mm and 14 steps. Its risers and treads are uneven. Risers range from 100mm to 320mm. The ceiling height in the rooms is 2,200mm.
Figure 6.04: Plans and photograph of tenement A. (Source: Author, 2013)

**Finishes**

Floor finishes for all spaces is cement screed except for the washroom section. The workmanship is good except for the staircase, where risers and treads are not evenly distributed. To protect the edges of the steps, there is a mild steel angle on the edges between the tread and riser. Ceramic tiles are used on the walls and floors of the water closet and shower cubicles as well as in the splash area.

**b) Tenement B**

Tenement B, illustrated in figure 6.05, took eight months to build. It was completed in February 2012. This tenement has eight levels. The first level is a thoroughfare with shops that are purpose built. It leads to another thoroughfare in a rear building in the adjacent settlement. There is a narrow space of about 1,500mm separating the two buildings at the rear. The second to eighth levels have 12 single dwelling rooms of equal size, making the total 84. Being one of the latest developments, it is progressive in a number of aspects. It has a flat roof, which can easily be used to air laundry. The
rooms are much larger than in other tenements, it has separated electricity usage, and all rooms are connected to satellite TV.

**Measurements**

There are 12 units per floor, each measuring about 3,350 x 3,400mm. The ceiling height is 2,150mm. The tenement has three light-wells, one measuring 1,050mm wide and 2,400mm long, and the other two measuring 1,050mm by 5,000mm. The corridor is 1,050mm wide and stretches the entire length of the tenement, and the balcony measures the same in depth and runs along the entire road frontage.

The depth of the exposed beam underside is between 150mm and 200mm. The stairs are the half-landing type of seven steps per flight and have a width of 1.2m. Treads are uniform at 350mm and risers range between 100mm and 210mm. The steps are gentle and spacious. The windows are 1200mm high by 1200mm wide, with two opening panels. The doors are 1,950mm high and 850mm wide and are made of steel.

**Finishes**

Floor finishes for all spaces is cement screed except for the washroom section. The
Figure 6.05: Plans and photograph of tenement B. (Source: Author, 2013)
workmanship is good except for the staircase, where risers and treads are not evenly distributed. To protect the edges of the steps, there is a mild steel angle on the edges between the tread and riser. Ceramic tiles are used on the walls and floors of the water closet and shower cubicles as well as in the splash area.

c) Tenement C
Tenement C, illustrated in figure 6.06, was built on an incremental basis and took 12 years to complete. It has nine levels. The eighth and ninth were completed in 2012. The first level has two shops fronting the road, six single rooms and the landlord’s quarters to the rear. The second to ninth levels have 13 single and one double dwelling rooms per floor. In total, there are 110 single rooms. The corridors are 1.0m wide, all doors are made of timber and windows are steel casement. The windows of the first three floor levels are much bigger than the rest, measuring 1.2m wide and 900mm high, with two opening panels. On the upper floor, they are reduced to 900mm by 900mm with a single opening panel.

Measurements
The first level has features that are missing on the upper floors. The door heights are 1,750mm while the headroom to the stair is 1,600mm. There are two concrete ring beams; one above the door frames and another that is cast together with the second level floor slab, which was cast after one stone course of walling. As such, the rooms on the first level floor have much higher headroom. The landlord says he initially constructed an iron sheet roof after completing the first level because he could not afford a reinforced concrete slab.

The stair is a half landing type with a width of 1,000mm and risers and treads that are unevenly distributed, with ranges of between 100 to 200 mm and 220 to 240 mm. The steps per flight are between eight and eleven, although the ceiling height does not differ so much on the upper floors. The average height is 2,300mm.

Finishes
The entire tenement floor including the stairs is finished with a cement screed. The floor slope along the common corridor/balcony is uneven as is evident from the water pools. The difference in workmanship and fittings across the floors is easily noticeable and can be attributed to the challenges of incremental construction resulting from differing skills of crafts people as illustrated in figure 6.07 and 6.08.
Tenement Housing in Nairobi

GROUND FLOOR PLAN

TYPICAL FLOOR PLAN
Figure 6.06: Plans and photograph of tenement C. (Source: Author, 2013)
Figure 6.07: State of tenement on lower and earlier floors. (Source: Author, 2013)

Figure 6.08: State of the tenement on higher and later floors. (Source: Author, 2013)
Maintenance
The floor surface on the lower floors was observed to be wearing out and the doors to the wet areas were damaged. The splash areas were not in use and its water points were plugged. The edges of the steps of the stairs were worn out. The tenement had a new coat of paint that the landlord attributes to the upper floor, which had just been completed when the study began.

d) Tenement D
Tenement D, illustrated in figure 6.09, was completed in 2010. It has one frontage of 9,500mm to a side street. The first level has two shops fronting the road and 12 single rooms. The second to the eighth levels each have 14 single dwelling rooms of equal size numbering 98 in total. The ninth level has six rooms that are meant to accommodate the landlord’s workers. The survey was carried out in the rooms from the first to the eighth level, which constituted 110 dwelling units.

The rooms measure approximately 2,900m by 3,000mm. The ceiling height is 2,300mm. The balcony and the corridors are 1,000mm deep. There are three light-wells that measure 1,300mm deep by 4,000mm wide. The stair is a half landing type with a width of 1,400mm and uniform risers and treads measuring 150mm and 300mm. It has 17 steps between levels. Windows are glazed steel casement and measure 900mm by 900mm. They have one opening panel. The tenement has steel doors, framed with mild steel rectangular tubes and steel sheet to create a panel door.

Finishes
Floor finish is cement screed for the dwelling rooms, and terrazzo for the stairs, corridors and toilets. The workmanship is generally good and the stair treads and risers are evenly distributed.

Maintenance
The building is substantially new, but the shower rooms are dirty because the wall finish is plaster and paint and the water has made it deteriorate. The paintwork in the rooms is fading.
Figure 6.09: Plans and photograph of tenement D. (Source: Author, 2013)
### 6.1.3 Comparative analysis of tenement morphology

<table>
<thead>
<tr>
<th></th>
<th>Tenement A</th>
<th>Tenement B</th>
<th>Tenement C</th>
<th>Tenement D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year constructed</strong></td>
<td>1997</td>
<td>2012</td>
<td>2000 to 2012</td>
<td>2010</td>
</tr>
<tr>
<td><strong>Construction process</strong></td>
<td>Constructed in one go.</td>
<td>Constructed in one go.</td>
<td>Incremental construction</td>
<td>Constructed in one go.</td>
</tr>
<tr>
<td><strong>No. of floors</strong></td>
<td>8 levels</td>
<td>8 levels</td>
<td>9 levels</td>
<td>9 levels</td>
</tr>
<tr>
<td><strong>No. of rooms and size</strong></td>
<td>84 single rooms, 14 on each floor. Each floor has one double room dwelling. <em>Size: 9.45m²</em></td>
<td>84 rooms <em>Size: 11.4m²</em></td>
<td>110 single rooms, 8 double rooms. <em>Size ranges from 7.2 m² to 10.6m²</em></td>
<td>98 single rooms. 9th level has 6 rooms only. <em>Size: 9 m²</em></td>
</tr>
<tr>
<td><strong>Rooms on ground floor</strong></td>
<td>All 15 are business premises and the corridor a thoroughfare to the rear settlement.</td>
<td>All 12 are business premises and the corridor a thoroughfare to the rear settlement.</td>
<td>Two rooms fronting the roads are business premises. The rest are dwellings.</td>
<td>Two rooms fronting the roads are business premises. The rest are dwellings.</td>
</tr>
<tr>
<td><strong>Sizes of windows</strong></td>
<td>900x900mm double-panel steel casement with one opening panel.</td>
<td>1.2x1.2 m three-panel steel casement with two opening panels.</td>
<td>1.2m x 900mm on lower levels and 900x900mm on upper levels. All have three panels with two opening.</td>
<td>900x900mm double-panel steel casement with one opening panel.</td>
</tr>
<tr>
<td><strong>Light wells</strong></td>
<td>1.5 m wide. Four of different lengths.</td>
<td>1.05m wide. Three of uniform lengths.</td>
<td>1.2m wide, four in different lengths.</td>
<td>1.3m wide, three with uniform length of 4m.</td>
</tr>
<tr>
<td><strong>Floor finishes</strong></td>
<td>Cement screed throughout.</td>
<td>Cement screed in rooms and ceramic tiles for toilets.</td>
<td>Cement screed throughout.</td>
<td>Terrazzo in all common areas. Rooms are cement screed.</td>
</tr>
<tr>
<td><strong>Room height</strong></td>
<td>2.2m</td>
<td>2.15m</td>
<td>2.3m</td>
<td>2.3m</td>
</tr>
<tr>
<td><strong>Facades</strong></td>
<td>Open balcony with steel balustrades.</td>
<td>Framed balcony with steel balustrades.</td>
<td>Open balcony with steel balustrades.</td>
<td>Open balcony with steel balustrades.</td>
</tr>
</tbody>
</table>
Table 6.01: Comparison of tenement morphology. (Source: Author, 2015)

The tenement typology is generally similar but an analysis of its morphology reveals differences. A review of the various common elements of construction as indicated in table 6.01 shows these differences. The table shows that over the years, workmanship has continually improved. Later tenements are better built and the stairs are a good example. It also shows that tenements that are built at once, from start to completion, have relatively uniform room sizes and fixtures/components. Tenement C, which was built over 12 years in an incremental process, has many differences between various floors. The room sizes across all the tenements are different, though mostly with small margins.

Rooms on the ground floor were transformed from residential to commercial in tenement A, but B was built with the understanding that the ground floor rooms would be used as business premises. This was because there was an opportunity to create an access route on the rear side, creating a thoroughfare to the settlement on the western side.

It could appear that the level of security and privacy of these two tenements is much lower than in the other two with one entry but survey findings showed there was no difference. The caretakers explained that once the businesses closed at about 9.00pm, the rear gate was closed. Thereafter, entry into the tenement was controlled.

Tenements do not necessarily have the same number and/or size of light-wells. These vary in terms of numbers and dimensions. The earliest two have four light-wells each whose openings have different measurements, as illustrated in the plan layouts of figures 6.04 and 6.05. The newer two have three light-wells of uniform measurements in each as illustrated in the plan layouts of figure 6.06 and 6.09. Where the light-wells were much narrower, like in tenement B, the rooms were much deeper.
The difference in ceiling height between tenements was relatively small, with a maximum of 100mm. This could be attributed to the horizontal mortar joints of the stone-wall and floor screeds because the number of stone courses per floor is nine across the tenements.

Three of the tenements have pitched roofs with iron sheets; only tenement B has a flat concrete roof. There was a general understanding among landlords that they build eight levels. However, it was observed that once a slab was cast at that level, the temptation to add more rooms for additional income and thereafter construct a pitched roof was overbearing amongst some landlords. This might be the explanation for a number of tenements having additional dwellings in the roof area.

The position of the staircases in the four tenements is different, as are the sizes and finishes of the stairs. The newer two, B and D, have generous staircases. The width is substantial and the treads and risers follow recommended anthropometric measurements. The finishes to the stairs show an appreciation of wear and tear. One has a terrazzo finishing with non-slip layer while the other has a mild steel angle acting as the stair nose. The earlier two tenements have a cement screed finishing that is wearing out. The stair width is also narrow, and in tenement A seems like an afterthought.

Tenement A and B have their toilets located at the rear end while C and D have them close to the centre of each floor. The ones at the rear are slightly better lit and ventilated. This is because the rear wall is not flush with the neighbouring property. Toilets in tenements C and D do not receive natural lighting and are ventilated through the light-wells.

A significant shortcoming of these tenements, and all others in the settlement, is that they do not have fire escape routes. They are served by only one staircase. Provision of fire escape staircases, as a precaution measure, is not considered important. The landlords explained that there had never been a fire so the fire escape was not necessary. However, from a design perspective and fire safety in particular, a fire would have very severe consequences to the residents, and because tenements abut each other, such a fire could easily spread and engulf a large neighbourhood.

\[a\] Comparison of plan layouts of New York and Lucky Summer tenements

The current status of tenements of Lucky Summer can be compared to that of New York before 1867, as discussed in chapter four. Lighting and ventilation in both is poor, making the quality of the living space low. In the New York case, the rooms fronting the street and backyard were well lit and ventilated, while in Nairobi, this is the case only in the rooms fronting the street. The difference between these two types of housing is that the railroad tenement’s circulation was centralized around a staircase and lobbies.
serving four dwellings on each floor. On the contrary, dwellings in the tenements of Lucky Summer are served by long corridors that run the entire length of the blocks on each floor. This is because the circulation serves many dwelling units, normally 12 to 14. Although the New York tenements were considered unsuitable for habitation, they were built in accordance with the interpretation of the building laws of the time. On the contrary, the Lucky Summer tenements are unregulated.

Individual dwellings in the railroad tenements did not have washrooms. These were located on the ground floor in the backyard. Dolkart (2010) writes that although there was water and a sewer drainage system along the street, tenements were not allowed to connect to the sewer line, and as such, there was no water connection to dwelling units in the railroad tenements. The wet core was on the ground floor in the backyard and an owner’s representative flushed these perhaps once a day. This was probably because they used a conservancy tank and had to control wastewater inflow. The practice in Lucky Summer today is very similar. Though there are washrooms on every floor, they have no mechanical flushing systems and all tenements used conservancy tanks until 2011, when they connected to a sewer system. The conditions in Lucky Summer are, therefore, as unhygienic as they were in New York in the 1850s.

6.1.4 Quality of construction of tenements

There are two systems of building tenements. First, there are those that are built from start to end before tenants move in. These belong to landlords that have sufficient cash flow. Second, there are those that are built incrementally, over a long period. These belong to landlords that do not have sufficient funds to complete the whole structure at once. Incremental construction is done while tenants are in residence on the completed lower floors. The construction procedures are the same in these two systems.

a) Walling and building structure

The tenement is a semi-concrete framed structure that is built concurrent with stone walling. In this type of construction, the tenement structural system is a combination of reinforced concrete frame and load bearing walls. The structural system is not a conventional framed structure as defined in manuals of reinforced concrete design. Walling is done using Nairobi stone, which is marketed as machine cut dimension stone (K’Akumu, 2010). The foundation of the tenement comprises the column footings and strip concrete for walling. Walling stonework is erected to the required level.

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6 These are manuals developed by engineers at an institutional level that provide detailed information to guide engineering practitioners in undertaking designs that conform to local or national construction laws or codes. These are usually country-specific and take into account local
while leaving the column spaces, which are later cast in between the stonework walls after reinforcements have been fixed and timber formwork placed to be flush with the wall surface. The width of the columns is the same as that of the dimension stone. The column formwork would take three to four days after casting before it was removed and the formwork for the concrete slab assembled.

There are two ways formwork is procured and assembled. The main components of formwork are pallets and supporting props illustrated in figure 6.10b. The landlords who build all the time have their own pallets and props, which they reuse. Those that build once in a while hire formwork from vendors. Formwork pallets and props are available for hire for durations of 30 days. They are usually installed by labour gangs specialized in erecting formwork. Once the formwork is fixed and the slab bed aligned, it is covered with polythene and re-bars laid. The polythene is used for two reasons; to stop concrete from flowing out because the joints of the pallets are not always tight, and to create a smooth slab underside that will not require plasterwork. Figure 6.10a is an illustration of this. Once the re-bars are laid and electricity conduit and plumbing accessories fixed, concrete is cast. Specialist gangs carry out concreting and it is usually a single day job. If the floor area is large, more gangs are used to ensure that concreting is completed in one day.

Contractors informed me that they waited 21 days before they removed the supporting formwork. Twenty-one days is the minimum prescribed duration for concrete to attain optimum strength when it is made of ordinary portland cement, as is the case in Kenya. In the past years, some landlords that wanted to complete the construction of their tenement fast bought two or sometimes three sets of formwork and this enabled them to continuously cast slabs one after another without observing the 21-day mandatory curing period. The assumption was that if formwork was left in place as construction continued, it would supplement the concrete’s strength. Not all that followed this procedure were lucky, however, because a few buildings collapsed and some even caused fatalities. I was informed that contractors and concreting specialist gangs prevailed upon landlords to abandon that construction procedure. They now wait for 21 days, after which they remove the formwork and reuse it to support the next slab. However, in the meantime, they construct the walls and cast the columns for the next floor as they wait for the concrete to attain its optimum strength.

conditions and available materials.

7Building stone quarried in the outskirts of Nairobi. It is obtained as a finished product from stone mills done to a specific size, squared to dimensions each way and to specific thickness (K’Akumu, 2010).
It was observed that the external walls of tenements that face neighbouring properties have poorly done mortar joints in the stone work and the beams and column are not aligned, with some having awkward projections. Some developers do a good job of filling in the mortar joints and plastering the beams and columns to create a fair faced surface even though it will end up being covered by the development on the next plot. The walling to the façade and along the corridor is completed with horizontal key along the mortar joints. The beams and columns facing the central corridor and the street façade are plastered and painted.

The floor to ceiling height in the tenements under study ranges between 2.15 and 2.3 metres. These are low heights for a dwelling space that serves many domestic purposes. The room ceiling is very low and one gets a feeling of being squashed, especially when
one is used to higher ceiling heights of regulated dwellings. According to Kenya’s building code (Republic of Kenya, 1968), the minimum permissible height for habitable space is 2.4 metres, though the building practice in upland regions like Nairobi has adopted 2.7m heights. The low room height is achieved by leaving out one stone course. Instead of using nine courses, the developers use eight courses. Further room height is reduced by using a beam depth of 300mm, which is inclusive of the 150mm-deep concrete slab. Good structural practice provides for a minimum beam of 450mm so that the exposed beam is 300mm. In the tenements, it is 150mm deep. This was observed from the formwork marking on beams and actual measurements from ongoing constructions in the settlement. The reduction of the beam takes away 150mm from the floor-to-ceiling height of the tenements.

The building practice described shows that the framing system does not follow the prescribed engineering practice for framed concrete structures of the nature of the tenements. When the structural integrity of the structure was pursued with the contractors, they said that in actual sense, tenements are not framed structures as defined in construction manuals but a composite of two systems; load bearing walling and
framed structure. All walls except the toilet one originate in the foundation and are vertically aligned to the roof level. The room spans are also short, making a tenement a strong structure. It is not possible for this study to be categorical about the structural integrity of the tenements because that would require an elaborate structural analysis.

b) Quality of workmanship

Observations on workmanship based on my experience as an architect show that a number of areas such as the floors, stairs, balustrades and rails are poorly executed. There are numerous examples of these and figure 6.11a and b illustrate the challenges of constructing a staircase to good standards. Discussions on workmanship with the contractors showed that the shortcomings were inevitable in tenement construction. Out of the interviews, two positions that contributed to poor workmanship emerged; one was the mode of supervision and the other the skills of craftspeople.

The contractors averred that the landlords conducted inspection of construction, a role most of them had no competence in. A number of landlords concurred with this assertion but pointed out that there were good reasons why it was important for them to closely supervise the building works, one of them being to ensure cost saving. Being supervisor and direct financier brought about conflict of interest. What happens when the landlord inspects a piece of complete work and finds that it is not carried out to his satisfaction? Does he order it demolished and carted away?

Keeping in mind that the task of purchasing materials is the landlords’ direct responsibility, it is unlikely that a demolition will be ordered unless it is structurally defective and may lead to accidents or structural failure. This was pointed out as the dilemma of supervision. Pursued further to explain why they should condone poor workmanship in the first place, the contractors said they used foremen to supervise because they had many ongoing contracts, sometimes in sites that were far apart, and could not spend much time on any one of them. They pointed out that many of the foremen’s levels of competence, together with that of the craftspeople, was low and as such output was compromised. Further follow up on this issue with the landlords revealed that they were averse to using highly skilled personnel because this increased building costs. In any case, one landlord argued that tenement construction was simple and straightforward. It was well understood by local craftspeople. The landlords also revealed that since this kind of housing was not for the rich, it did not require high levels of precision and, therefore, there was no need to expend unnecessary financial resources on high-end crafts people.

According to one contractor, the craftspeople that looked for work in such settlements were those that were not well experienced and could accept low payment as they used
the opportunity to hone their skills. He put it thus: “Fundi do their apprenticeship in constructions of this nature and thereafter go to work for better paying contractors.”

c) Maintenance of tenements

Maintenance is an important factor in the quality of housing but it was observed as not being given much consideration in the running of the tenements. This was also noted across other tenements in the settlement. It was evident that maintenance was only carried out in those areas that portended danger to the tenants. Landlords do not appreciate regular and periodic maintenance as a concept of keeping housing in good condition. Interviews with caretakers revealed that only what broke down was repaired, otherwise there was no maintenance strategy. As a selling strategy, however, landlords maintain a good external coat of paint. This is only meant to appeal to prospective tenants. Figure 6.12a and b give an illustration of the state of maintenance in older tenements.

There is a joke in Kenya that maintenance, periodic or regular, is not carried out because the ‘maintenance’ concept is alien to the cultures of the country. Its closest equivalent

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*Fundi is a Swahili word that means ‘technician’ or ‘crafts person’.*
in the construct of indigenous languages is ‘repair’. This implies that unless something is
damaged or breaks down, it is not maintained or repaired properly. This view bear some
truth as observations of the state of infrastructure and buildings, whether privately
managed or public owned, would bear witness. The dictionary defines maintenance
as “the work of keeping something in proper condition; upkeep”. In building and
infrastructure terms, this would imply that maintenance is the action taken to prevent
a component from failing or to repair normal component degradation experienced
because of use to keep it in proper working condition. Observations from the field
survey of both the tenements and infrastructure services within the settlement show
that little maintenance is undertaken. Within the tenements, a number of components
were observed to be damaged, including; floor surfaces that were worn out in corridors,
bathrooms and the dwelling rooms; broken treads and risers of stairs; disintegrating
bathroom doors due to prolonged contact with water; and rusting steel doors and
windows, mainly on the inner sides.

The maintenance of common services and areas was not good either. Some garbage
collection cubicles were damaged while others were completely flattened. The surface
drainage channel that runs the length of the settlement was not well maintained and as
such, the flow of effluent was disrupted. This created ponds along the channel, resulting
in a bad small. A few developments had stalled after site excavation and these had
formed pools and turned into dumping areas. This created breeding grounds for rodents,
mosquitoes and other disease-causing vectors.

Tenants, caretaker and landlords also attested to the state of poor maintenance at both the
tenement and neighbourhood level. Landlords argued that they were limited in their
capacity to effectively manage the maintenance of the settlement. They however insisted
that their tenements were in an acceptable state and that any investment in maintenance
would lead to increasing rent, which they were reluctant to do.

d) Quality and types of building finishes

The quality and types of finishes for the dwellings rooms, balconies, corridors, stairs,
water closets, showers and the roofs was evaluated and discussed as follows.

i) Dwelling rooms

The surfaces to the room walls are plastered and painted. The paintwork appeared faded
in all the rooms we had opportunity to enter. Probably, two coats of emulsion paint had
been applied and either its quality was poor or it was applied before the plaster had
sufficiency cured. The room ceiling, which is the underside of the upper floor slab
as is the practice, is not plastered but follows the profile of the formwork. It is mainly
smooth because of the plastic underlay that is used on the bed of formwork during
Figure 6.12a to d: Illustrates the state of maintenance in tenements. (Source: Author, 2013)
concreting as illustrated in figure 6.10a.

The plastic covering is removed together with the formwork and the underside is wire brushed and painted white in colour. All other underside surfaces of the balconies, corridor and stairs across all tenements are painted white. Floors of dwelling rooms are all finished with cement screed. All rooms in the tenements under study and across the settlement have wooden rails that measure 25mm by 50mm in sections that run across the entire room at height of 2.1 metres. According to the landlords, this is the practice in the settlement. The rail serves many purposes such as hanging pictures, tying strings that support the partition curtain, hanging clothes and as storage for household items. According to landlords, this is necessary because without it, tenants damage the wall by nailing into it, a practice they have prohibited.

**ii) Balconies, corridors and stairs**

The balconies and corridors are finished with a steel balustrade and handrail. The balustrades are supported by 100mm high mass concrete kink along the edges of the slab or up-stand walling that is formed and decorated in various ways to give a unique character to the façade of the tenement. Some tenements have a full stall instead of metal balustrades. Figure 6.13 illustrates the finishing of balconies of tenement A to D while figure 6.14 illustrates a variety of other finishes in the settlement.

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**Figure 6.13: Balconies of tenements A, B, C and D** (Source: Author, 2013)
Figure 6.14a to d: Other balcony finish types. (Source: Author, 2013)
iii) Water closets and shower rooms

In two tenements under study, the toilets and showers have their floors finished in cement screed and the walls are plastered and painted though the wall paint has peeled off almost completely on the lower half of the walls. The floor and wall finishes in the newer tenements are in ceramic tiles while the fourth tenement uses terrazzo for the toilet floor and plaster and paint for the walls, figure 6.15b. None of the four tenements has shower fixtures. They are not necessary because there is never sufficient water. The shower is a bare cubicle where tenants take a bath from personal basins. The water closets are fitted with squatting type bowls and have no water cistern for reasons of insufficient water supply. When water is a rarity, a water cistern that uses anything between nine and 13 litres of water is a costly waste. The solution utilized in the tenements is much more effective because the water used to splash the water closet is less than five litres, equivalent to the capacity of the modified five-litre cooking oil plastic containers like the one in the water drum in figure 6.15a. Taking a shower from a basin saves water too.

![Figure 6.15a & b: a- Water drum and bucket used to flush the toilet and b- water closet without flushing cistern. (Source: Author, 2013)](image)

iv) Roofing

The roofs are finished with either a pitched roof of corrugated iron sheets (such as figure 6.16a) or a flat concrete slab (figure 6.16b). A section of the roof areas next to the staircase have a concrete slab on which is constructed an open structure to accommodate water storage tanks. In tenement B, the entire roof area is a slab with a parapet wall. The roof floor area is large-more than two thirds of the plot area-and yet tenants do not
have access. Because of limited space in the tenements and the surrounding, the roof areas could be utilized to serve many purposes including drying of clothes, communal gatherings and play areas for children, and this could be achieved with minimal modification.

Figure 6.16a & b: Roofs of tenements. (Source: Author, 2014)
6.1.5 Lighting and ventilation

Natural lighting and ventilation in the tenements was investigated through observation of the characteristics of the openings; doors, windows, vents and voids. It was also carried out through measurements of the levels of natural lighting, temperature and relative humidity in various spaces in the tenements.

a) Doors, windows and vents

The doors of new tenements are made of mild steel sections and sheets that are fabricated into various forms. Some door shutters are fully covered with sheet panels while others have sheet panels on the lower half of the door while the upper section is glazed. Many door openings have a vent on the permanently fixed panels between the two top rails of the door frame. These two rails have a 150mm to 200mm distance between them. The vents are configured in various ways and have a mosquito wire mesh welded in. The doors are locked using a barrel bolt that closes on the inside with the use of a padlock as illustrated in figure 6.17.

This is reached through an opening on the steel panel that is crafted to only allow one hand access to the barrel bolt on the upper side. The access opening has a curved plate welded on the inner side and directly opposite the access opening to block direct views to the room and also to make it difficult for an intruder to tamper with the padlock.

Older tenements used timber doors and ordinary ironmongery. A barrel bolt that takes a padlock is used for locking the doors. Tenement A and the lower floors of tenement C have wooden doors. The newer tenements, B and D, have steel doors.

Figure 6.17a & b: Steel door locking system; a is the inner side and b is the external side. (Source: Author, 2013)
All windows in the tenements are made of mild steel sections and are glazed. The window openings are of various sizes and the ones in newer tenements are larger. In the tenements studied, B has windows measuring 1.2 x 1.2m with double leaf openings and fixed panes on the lower end of the leafs. The windows are much larger than those in older tenements that are 0.75m wide by 0.9 m high with one leaf opening. The newer blocks such as tenement D, though with as many rooms as the older tenements, have slightly larger windows, 0.9 x 0.9m with double leaf openings. Figure 6.18 illustrates window sizes.

![Figure 6.18: Common sizes of steel casement windows used in tenements.](Source: Author, 2014)

In the new tenements, room vents are permanent fixtures on the windows and doors. In a number of tenements, the door shutter does not stretch all the way to the top rail as explained earlier. This allows a permanent vent to be fabricated and welded into the top panel of the door opening. The older tenements and a number of new ones use a 100mm diameter PVC pipe piece as a permanent vent. Its length is equivalent to the width of the beam and it is cast in the beams during concreting to allow for a through hole. Usually, a wire mesh is attached to the inner and outer ends of the vent pipe when the beams are plastered. The wire mesh usually disintegrates after a short time, leaving the opening bare because it is not galvanized. In tenement C, households use folded paper to cover the vent holes because the mesh wire has disintegrated, exposing them to the menace of insects and rodents. This defeats the purpose of the ventilation system.

The significance of fenestrations and vents as factors of lighting and air circulation in the tenements is an important issue. As observed, only a few dwelling rooms receive adequate lighting and air circulation while a majority do not receive any natural lighting and ventilation is poor because they are located deep inside the tenement structure. Having large or small windows does not make any significant difference on the amount of lighting these latter rooms receive. It can be likened to expecting high water pressure
output from a big diameter pipe that receives water from a small diameter one. As was observed and from the interviews, the curtains on windows and doors are always drawn for reasons of privacy. This is because the doors and windows face the corridor, which is a thoroughfare and a place to do household chores. The only dwelling rooms that could receive sufficient lighting if the curtains were not drawn are those on the topmost floor and the level just below it, as well as those with openings facing the main roads. This means that artificial lighting is switched on throughout when the dwellings are in use. Opening the curtains is out of the question unless one does not mind being pried on.

There are health concerns when habitable space is not well lit and ventilation is poor. A lot of knowledge has been developed on lighting and air circulation in dwellings, leading to continuous improvements of design guidelines for habitable spaces. This study notes that tenements have not observed the design criteria for lighting and ventilation and takes cognizance of the developers’ overriding reasons for the omissions. The question this scenario raises is this: At what point is a balance achieved between effecting sufficient lighting and ventilation in dwellings and providing affordable dwelling space? This makes the discourse on lighting and ventilation in the tenements one of the central design and policy issues that needs to be understood.

b) Natural day lighting: Tenants’ opinion

During the survey, the opinion of tenants was sought about the level of natural lighting in various spaces within the tenement. The lighting chart, figure 6.19, illustrates that opinion. A scale of 1 to 5 (very good to very poor) was used to do the rating. The data based on the perceptions of tenants about natural lighting may point out that they did not appreciate the significance of the situation. It could be speculated that having lived here or in similar housing that was not well lit for long periods, the question of lighting, whether from natural or artificial sources, did not matter. Most of the responses were contrary to observation but held true to the tenants. This presents a challenge on how we are supposed to understand lighting from the tenant’s perspective and how this information can be useful in designing low-income housing. Alternatively, is it that design for lighting should strictly follow scientifically established building methodologies only?

c) Measurements of natural lighting

Lighting studies on natural and artificial lighting have established that various levels of illuminations are optimal for various human functions (Brown, 2001). In domestic houses, it is recommended that for general purpose lighting, illumination level should be between 300 to 500 lux. Task lighting should be much higher. Figure 6.20 illustrates
the section and plan layout of tenement D, in which lighting measurements were carried out, while figure 6.21a and b is a pictorial presentation of the light-well taken both from the uppermost floor and the ground level.

Measurement of lighting was carried out in two tenements, A and D, because the neighbourhood is fully developed. The status of natural lighting will not change, unlike for tenements B and C, which enjoyed better natural lighting because neighbouring plots were not fully developed during the time of the study. In the long term, this could change.

A lux metre was used to take illumination measurements between noon and one o’clock at the end of January 2014. January and February are the hottest months in Nairobi and they are the least overcast (KMS, 2014). Measurements were done with a clear sky and electricity lights were turned off. The measurements were taken at four points on every floor – at the centre of the central void; at the window sill on the corridors; at the washroom lobby area; and at the first landing of the first flight of the stairs on each floor.

Illumination in void area: The two uppermost levels in the two tenements recorded
more than 500 lux. The third level from the top recorded less than 400 lux, and this
dropped gradually to 170 lux for tenement A at first floor level (ground) while tenement
D dropped to 22 lux. This could be explained by the fact that tenement A, a much older
building, had a much wider light-well than tenement D. In addition, the management of
tenement A did not allow the light-wells to be used for drying laundry like was the case
in tenement D.

Illumination at the window in the corridor: This was recorded right opposite the light-
well. At the top level floor, the reading was more than 500 lux in both tenements. This
dropped to less than 450 lux on the next level below for both. There was a gradual drop
of readings for all subsequent floors. In tenement A, the reading fell to below 10 lux
for the first and second levels while tenement D recorded no reading for the same floor
levels.

Illumination in the washroom lobby and middle landing of the staircase: These two
areas had little difference in recordings. On the top level, they both measured slightly
more than 400 lux. There was a drastic drop on the level below it, which recorded 50
lux and below. Less than 10 lux was recorded on the first to the third levels from the
ground for tenement A, while the six bottom floor levels of Tenement D could not pick
any reading.

It is evident from the measurements and observations that light-wells are not of the
right dimensions to serve the purpose they are purported to serve. The breadth and
width are too small to allow meaningful light beyond the second level from the top. The
assumptions and arguments made by contractors and landlords are the light-wells and
enlarged windows in dwellings are sufficient to allow sufficient light are superfluous.
The reality, of course, is that this is not the case and the general collective remedy has
been to artificially light the corridors and washrooms of the first four floor levels, where
electric lights are kept on throughout. In that respect, they recognize that light-wells are
not effective.
Figure 6.20: Floor layout and section along the light-well. (Source: Author, 2014)
Figure 6.21a & b: Light-wells in tenements; a- from the upper floor level downward, and b- from the ground floor. (Source: Author, 2013)
d) Temperature in dwelling rooms
Measurement of temperature and relative humidity of selected rooms in all the four tenements was carried out using loggers, which had a combination of a hygrometer and a thermometer. Measurements were done over a duration of 24 hours in each room. One room was selected from each floor on a convenience sampling basis and the number of occupants recorded.

The mean temperature in selected dwelling rooms of tenements B, C and D was noted to be slightly more than 26°C. Tenement A’s dwelling rooms recorded 24°C. From the data, it can be concluded that households in tenements B, C and D live with some level of discomfort because the temperature range in their dwellings was found to be in the upper limits of the recommended comfort zone, 21°C - 27°C (KMS, 2014), while the rooms of tenement A could be considered comfortable.

The temperature across the rooms was high and there was no strong correlation between temperature and number of occupants in a dwelling. There are many variables in individual dwelling rooms that could account for the observation e.g. water stored in the room, cooking duration, amount of furniture etc. Equally, there was no strong correlation between temperature and level of dwelling room except for those on the uppermost floors, where the high temperature recorded could be attributed to heat gain from the roof.

e) Relative Humidity (RH %) of dwelling rooms
Findings of mean RH for rooms in tenements A recorded 61%, B and C 56%, and D 46%. The comfort level for Nairobi is between 41% and 61% (KMS, 2014). Apart from rooms in tenement A that consistently recorded humidity close to the upper limit of the comfort zone, rooms in other tenements had a wide spread of humidity recordings and most times they were within the comfort zone.

f) Ventilation
The survey on the opinion of tenants about air circulation was a little problematic. It needed clarification almost across all the surveyed households. It was explained that it was the ability of the tenement to freely allow air to circulate in and out, leaving rooms fresh. It was also explained that odour from dirt in the tenement could not diminish air circulation qualities. With this explanation, a number of respondents were able to appreciate that their dwelling units had air circulation challenges though a number insisted that air circulation in their dwelling rooms was good, sometimes even better than in the corridors from which the units drew their air supply. It was appreciated that judgement on air circulation of a space can be distorted by bad smells.
Figure 6.22 gives a summary of the tenants’ perceptions of air circulation in various spaces in the tenement. A scale of 1 to 5 (very good to very poor) was used to do the rating.

Figure 6.22: Charts for rating air circulation in the main spaces of the tenement. (Source: Author, 2014)

g) Air circulation in and around the tenements

Air circulation in the tenements follows a stack effect that is facilitated by the light-wells on the ground level and on all floor level frontages. These are 2.4 to 3.0-metre openings that allow air and sometimes wind blasts from the road into the tenements. Wind flow within the settlement is channelled along the main arterial 15m wide road that runs in a north-westerly direction.

The tenements along either side of the road are more than 20m high, which is more than the width of the road, thus creating the wind channel effect. This study will not delve into the details of wind channelling but it does note that this phenomenon will have a big impact on the settlement when it is fully developed. Channelling would normally create thermal discomfort through temperature reduction. The findings on temperature for tenement A, which had the lowest recording for temperature, could have been as a result of the channelling effect and also because, apart from being a corner house, its corridor on the ground level opens up to two roads running parallel to each other. Such
a configuration together with the light-wells could be creating conditions for the stack effect. The illustrations of layouts of tenements A, B, C and D in Figure 6.23 show how air/wind circulate in and around the tenements.

The light-wells and stairwell are supposed to function as ventilation stacks. The effectiveness of these in regard to room cooling/temperature, as noted from the data collected, is not optimal. There are ways in which the stack effect can be enhanced to improve cooling, especially during the day. Typically, the stairwell is either placed...
in the space of the second row rooms as in figure 6.24 or in the last row to the rear. Literature on ventilation of buildings whose typology is similar to that of the tenements indicates that to have an effective stack effect, intermediate voids or roof openings need to be covered in a manner that does not allow air to be channelled through them.

This allows one specific channel to be identified and enhanced through design to act as chimney. For tenements, the most effective channel would be the stairwell. The layout illustrated in figure 6.24 is not a good alternative because being at the front and close to the air inflow frontage compromises the stack effect. The layout of figure 6.25 is a better alternative as it allows air to flow through the spaces towards the rear, where it will is channelled upwards through thermal buoyancy as illustrated in figure 6.26.

For this system to be effective, the rooftop structure that protects the staircase from the elements will need to be constructed with materials with fast heat gain, such as iron sheeting, with openings at the top end. This will create a solar chimney effect, as illustrated in figure 6.26.

The challenge of developing a ventilation solution for the tenement is their orientation and close build up. Orientation conforms to plot layouts. There was no consideration of the solar effect and as such, it will be challenging to provide a single ventilation solution to cover all tenements effectively. In case there will be a policy that will allow the tenement settlement to stay on into the future, a comprehensive study would be required to develop ventilation solution(s) both at individual tenement level and across the settlement.
Figure 6.24: Axonometric view indicating circulation routes and stack effect in the tenement. (Source: Author, 2014)
Figure 6.25: Axonometric view indicating circulation routes and stack effect in the tenement of another typology. (Source: Author, 2014)

Figure 6.26: Solar thermal chimney. (Source: Riain & Kolokotroni, 2000)
6.1.6 Cost saving in tenement construction

According to some landlords, building a tenement on the regular plot that measures 26x9.7 metres to the eighth level cost about Sh20 million in 2013. One contractor, who also owns a tenement, gave slightly lower estimates. He put the cost at Sh18 million and added that it had gradually increased from Sh15 million five years earlier. When this pricing was discussed with quantity surveyors, they decreed that it was impossible to deliver a building of the magnitude of a tenement at that cost.

From sketches, they estimated the built-up area as approximately 1,900 square metres. When this was divided by the landlords' cost estimates, the cost of construction per square metre was approximately Sh10,500. Quantity surveyors said this was impossible because the cost of construction in the low cost sector was estimated at Sh25,000 per square metre, giving a building cost estimate of Sh47 million. They concluded that the contractors and landlords had not revealed the true estimates. According to them, the landlords did not keep accurate records and could therefore not be relied upon to provide true accounts or their buildings were substandard. According to the building economists, there could be no other explanation. A cost difference that is more than double is huge and some explanation was necessary. This was found from the landlords and contractors description of how they build.

a) Evasion of statutory processes as a cost saving measure

One contractor admitted, “I am in business but I guarantee that the tenements I build are structurally safe. I, however, do not follow regulations because doing so will never achieve affordable housing. As long as I get construction contracts, I will build, but I will never take shortcuts on the structural integrity of the building.” This contractor owns a tenement in Lucky Summer and holds a diploma in one of the building trades from a recognized polytechnic in the country. The assertion that he cannot deliver affordable housing if regulations are followed speaks volumes. What is it that is wrong with formal systems so that they cannot deliver affordable housing?

Many landlords do not engage themselves with issues of seeking government approval to undertake building construction. The common practice for many of them is to hire a contractor on the basis that he holds influence over the inspectorate of the buildings section at County Hall so that construction can be undertaken undisturbed. Landlords who have many tenements or those who are powerful within government administrative structures receive no threats from building inspectors and their constructions go on smoothly.

Once a contractor is brought on board, he seeks the services of a draughtsman to provide a drawing for the new tenement. This service involves a cut-and-paste job that
is titled with the information of the new developer. Inquiries about the acquisition of drawings indicated that contractors and landlords in the settlement had a network of draughtsmen who offered building design services. The contractor then starts construction. Information gathered indicated that government building inspectors rarely visit the settlement to enforce compliance of building regulations. This process cuts out building consultants and payment of statutory fees to the government. Such savings lower construction costs.

**b) Cost saving measures during construction**

The procedures of construction, whether it is constructing an entire tenement at once or a few floors at a time, are the same. According to one contractor, tenement construction has become very specialized. Once hired on a labour contract basis, the contractor assembles a team comprised mainly of masons and casual labourers whose work is limited to the construction of walls and columns. All other major works, such as erection of formwork, concreting and plaster, are carried out by specialist labour gangs that deliver work faster and are cost effective.

Instead of using the services of contractors, some landlords hire construction foremen who they pay weekly or monthly wages at an agreed rate. The foreman is then resident on site and supervises work on their behalf. In this scenario, the landlord acts as contractor. This practice is not uncommon, especially among landlords who are not in formal employment and have time to run a construction.

The labour gangs are specialized in work such as concreting, formwork assembly, steel reinforcement laying, electrical wiring, plumbing, plastering and painting. They have team leaders who seek and negotiate for work. It was revealed that there is little negotiation on pricing because that element is fixed seasonally and its prevailing rates are common knowledge. To appreciate the operation of this pricing mechanism, one contractor asked a landlord to make a payment for a specialized piece job using a higher rate than the prevailing one. Through regular landlord consultations, the landlord discovered that he had made a higher payment. The ‘overpayment’ was deducted from the contractor’s next payment certificate with a reprimand.

In a labour contract, building materials are purchased by the client or his agents. The contractors provide a schedule of the material they need and it is supplied as required. The contractors said a good aspect of the labour contract is that they never worry about the security of materials and how it is sourced. It also removes the burden of doubt directed at them by landlords who are suspicious of their intentions. All the contractors do is ensure that the building materials supplied meet quality standards.

From the aforesaid, and information from interviews, construction labour within Lucky
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Summer and the neighbouring settlements is closely monitored and any adjustments broadly shared among the landlords. They closely supervise their work to ensure that payments made for labour are accounted for through work output and manage purchase of materials. Most important of all, they share information about almost everything construction. They are, therefore, very knowledgeable about the changes that take place in the building sector from purchase of materials to cost effective ways of doing construction and low interest rate financiers. This form of surveillance ensures that there is no wastage of resources and partly explains why construction costs are lower in tenement housing.

One of the most expensive components in a tenement construction is electrical wiring. According to the landlords, the new system they are adapting of metering all the rooms separately is very costly but necessary. All wiring starts and terminates in the central metre box that is installed next to the main entrance. One landlord had this to say: “Can you imagine the amount of wiring that goes into wiring more than 100 rooms? I cannot afford to buy wires locally so I import directly from China. Imports are much cheaper.” Landlords do not spend much on plumbing services for the toilets because these are

The reduction of floor to ceiling height provides another opportunity to make savings. Achieving a minimum height of 2.4 metres requires the use of nine stone courses but the tenement developments use eight courses. In a standard reinforced structure, beams on a simple structure are 450mm deep. Formwork for beams in formal housing uses boards that are 150mm wide and three are used to achieve 450mm. Observations of the structures in Lucky Summer revealed that two boards are used, achieving a beam depth of 300mm. This construction strategy saves on the quantities of concrete, plaster, rebars and paint used. According to one contractor, the savings made in terms of building materials, from the first level to the seventh level, translates to quantities that would construct an extra floor. It might not be by coincidence, then, that tenements are built to the eighth level. It could be simply a matter of economics.

Significant savings are also made in the finishes of tenements. A number of tenements have cement screed floors and the walls are plastered and painted. To explain the importance of simple finishes, one landlord informed me that having had the experience of building a tenement and appreciating the level of returns accruing, he opted to sell a plot he owned in a nearby area whose development was more controlled. There, developers mainly build two-bedroom apartments with good finishes. When he sold off his plot, he raised enough funds to purchase a second plot in Lucky Summer and build a two-storey structure before borrowing to complete it to eight levels. He said that returns on investment for the tenements were higher than that of formal two-bedroom
developments. He attributed this to the finishes and the demand for dwelling space.

Common tenement finishes are cement screed for the floors, plaster and paint for the walls and simple balustrade and rails for the balconies, corridors and stairs. There are changes in the new tenements but these are not fundamentally significant because the areas they cover are not much and costs may not be too high notwithstanding the long-term benefits to the landlords. Overall, the level of finishes is low-cost and it constitutes a saving on building cost.
6.2.0 PART II: EMERGING HOUSING QUALITY ISSUES AND INTERVENTIONS

The findings of this chapter show that the parameters under consideration such as physical planning, tenement design, construction processes, commercialization and cost saving during construction are interrelated and impact on the quality of tenements. This section discusses these factors and suggests possible interventions to address housing quality.

6.2.1 Lighting and ventilation as a physical planning and design concern

The land subdivision practice in Kenya and specifically in urban areas is carried out with the assumption that plots will accommodate single-family dwellings. Proper planning for housing is normally carried out in comprehensive housing developments that involve big chunks of land and where developers are intent on selling the properties. In Lucky Summer, land titling indicates that the subdivision is intended to accommodate single households dwelling in accordance with the city’s urban plan that zoned the area as medium density housing. It is no wonder that the measurements of the road network in Lucky Summer conforms to that standard (Republic of Kenya, 2010).

Unfortunately, the intentions of planning and the reality are not in tandem as the tenement developments in the settlement affirm. Development densification that is limited to plot lots has layout design challenges in respect to lighting and ventilation. Evidence from the densifications in New York that created tenements and the present day conditions in Nairobi expresses that challenge. Environment sciences that focus on lighting and ventilation in buildings have established the measures and criteria for lighting and ventilation in various building contexts (Brown, 2001). Recasting this understanding to the lighting and ventilation status of tenements in Lucky Summer and other tenement settlements would require that that the tenements are demolished and the settlement re-planed. Half-hearted measures might not achieve the optimum criteria for quality living. To densify a settlement would require a renegotiation of urban plans and creation of a new policy on building guidelines for low-income households. The impediment to such an approach would be the existing regime of land sizes and ownership and the costly compensation that would ensue.

a) Thoughts on improving ventilation / air circulation in tenements

Within the scope of the current tenement developments and the nature of their layout, tenement heights and planning present serious challenges. We could rightfully assume that whoever first introduced the light-wells had good intentions for designs that were two to three levels. However, the extended reality of the tenement does not allow for effective stack effect across the settlement, leave alone in any one building. There are
scientifically established design parameters that need to be met to enjoy the benefits of stack effect within buildings (Brown, 2001). Contextual issues of building orientation, neighbourhood developments and their implication on sun-lighting and air flow were not considerations in the architecture of the tenements. The buildings are oriented in accordance with a cartographer’s interpretation of the most efficient and cost effective demarcation of land.

So, what needs to be done to ameliorate the micro climatic conditions of the tenements and settlement now and possibly in the future? In the short term, probable remodelling or alteration scenarios might need to be considered. Instead, the target should be mainly to improve air circulation in the tenements, which is critical to the health of the residents. The first proposal is alterations that create wind catchers and thermal chimney systems that could utilize the staircases and light wells discussed earlier. The second is enhancing room ventilation by providing more enhanced vent systems at both the bottom and upper ends of the wall fronting the light-wells. Third is utilizing the roof space for laundry drying and other common activities to free the light-wells and balconies of laundry and other items that obstruct airflow. Studies to establish interventions can be carried out to establish the best ways this could be done depending on specific contexts of tenements.

In the long term, however, tenement building using the current layouts must be stopped through a framework of mutual agreements that will accommodate the commercial interests of real estate and the state seeking suitable housing for residents.

6.2.2 Land administration impact on quality of tenements

Factors of land administration such as land ownership, physical planning and plot/land sizes have implications on the quality of housing and services. This study reviews these factor and suggests that meaningful administartion actions could reverse the status of housing and infrastructure.

a) Housing

Landlords of tenements have differing financial capacities; some are major developers owning many tenements within Lucky Summer and elsewhere, while others are minor landlords owning one or two tenements that were built over a long period. For the latter category, investment in tenements is a kind of retirement plan. The plots on which these landlords have built tenements are not necessarily adjacent to each other. This is because many current landlords purchased the plots from land sellers or for original allottees who had one or two plots that were randomly located across the settlement. This, as some informants noted, worked well for landlords who wanted to remain anonymous. A number of these, especially those in government employment, have plots registered
in the names of their family members. Such concealment has certain advantages for landlords, such as tax avoidance and concealment of illegal earnings.

Amalgamation of land to carry out a comprehensive housing development would be a challenge in such circumstances. Moreover, even if amalgamation was to be undertaken, under what incentive framework would it be done to gain acceptance in the litigious Kenyan society when the existing structure is already considered beneficial enough? In New York, the Tenement Housing Act of 1901 forced amalgamation of plots by making housing untenable on only one parcel (Plunz, 1990). Under this law, landlords who owned one or a few tenements were bought out by larger real-estate establishments and non-profitable organizations, which amalgamated the land for more comprehensive housing developments. A scenario like this could happen in Nairobi if a policy with requisite incentives for housing investment for low-income households is enacted. Such a policy might not favour small-scale investors like those who build incrementally over long periods, but that should be the least of worries as they could invest elsewhere.

Mixing households of various characteristics within a housing scheme as is the case in Lucky Summer is detrimental to some households, more so to those with children. Living in a single room, as a principle, has no problems, particularly if it has enough space and services. The challenge is for a family that lives in such a dwelling. Progressive countries, particularly those in the west, have developed housing categorization systems that precisely describe the characteristics of households and the type of dwelling they should occupy. It can be argued that due to Kenya’s socioeconomic status, such conditions cannot be enforced, but the social cost of doing otherwise will be dire for the future of the country, as is explained in chapter seven.

There is a need to review the housing policy together with other socioeconomic policies to effect changes that will allow households to live in housing that promotes family values. Such policies take into account household characteristics.

An example where such categorization has been effected is the city of London. In the revamped housing supplementary planning guidelines, the city has developed a comprehensive framework that seeks to create an attractive place to live through a number of integrated strategies. It seeks to widen housing choice through incorporation of various household characteristics in planning, implementing strategies to create affordable housing, and developing plans and designs that are flexible to changing requirements of households over time (Mayor of London, 2012). These strategies have much significance to the middle and low-income households and more so to those that rely on state support. The categorization of housing ensures that this group gets access to suitable housing.

The Kenyan building code of 1968 and housing policy of 2004 do not have an explicit
Tenement Housing in Nairobi

policy on housing categorization and the County of Nairobi and its predecessor, City Council of Nairobi, have not developed a housing strategy despite housing a significant population of Kenyans. The housing policy and building by-laws assume a basic standard for a family dwelling and provides minimum area for the same. In a categorization framework such as that of London, tenement housing like the kind found in Lucky Summer would be classified as ‘adults only housing’ and occupancy possibly limited to two. The fact that the area is close to an industrial zone can make a case for such classification. The London example, therefore, can benefit the rewriting and legislation of housing policy and laws.

b) Infrastructure services

Physical planning decisions have implications on costs of infrastructure and consequently on development. Land subdivision for development purposes, such as in Lucky Summer, is carried out by land surveyors, usually without much thought about its meaning to greater city physical planning. It is in actual sense an economically pragmatic exercise that seeks to achieve a maximum possible number of plots from a land parcel. Other planning factors are secondary. The system does not place infrastructure planning at its core, a factor that leads to increased costs when these services are planned for later. Urban planning that is carried out to fit into existing land subdivision structures has proved to be very costly in Nairobi. It leads to expensive compensation for land acquisition and way-leave access permission. Such planning approaches eventually lead to increased costs of living, which has an impact on the cost of housing. There is a need for more holistic planning that makes it mandatory to bring all other sectors on board. Such a planning strategy would prevent future pitfalls.

Plans for land use as provided by the physical planning law (Republic of Kenya, 2010) and the housing policy of Kenya (Republic of Kenya, 2004) do not offer an implementable strategy to provide low-income housing in a formal manner under the prevailing socioeconomic circumstances. Land demarcations such as those in Nairobi can only deliver housing for middle-income groups under a formal setting. The effort by the government in 2008 to provide tax incentives to investors to develop low-income housing of a minimum plinth area of 30m² came a cropper because the sale price and the minimum number of dwellings that were to be built to access the tax instruments was fixed (Laws-of-Kenya, 2008).

According to investors, such an arrangement would not realize any profit because it does not take into account the cost of land and infrastructural services. The government had no serviced land to allot them. Therefore, a meaningful solution to tackling Nairobi’s low-income housing challenge may have to start at the urban physical
planning level where zones for low-income housing investment can be identified and demarcated into big land chunks. This will allow for more comprehensive planning. There are contemporary examples from which Nairobi can draw lessons, and South Africa is one of them. Strategies for planning and design of human settlements, in a context close to that of Nairobi, are outlined in that country’s ‘Red Book’. These guidelines are a consequence of the human settlement challenge in urban areas of South Africa and are a product of state intervention. The planning and design insights and proposals address planning in a low-income context and highlight steps that could be followed to produce a quality built environment where people could live, work and play (Republic of South Africa, 2000).

6.2.3 Commercial interests and quality of housing

There are no official records that provide information on investment returns from tenement housing. However, some of the landlords interviewed indicated that return on investment (ROI) from tenements took about eight years. One landlord, who is an accountant, averred that, “investment in tenements is a more beneficial risk to take because you derive more from it in the short term and it does not matter what might happen in the distant future”. Real estate rental housing indicators show that investment in housing in the formal sector, which caters mainly for the middle and high-income class, has a minimum return on investment period of 14 years in Nairobi. This is according to Knight Frank, a reputable real estate establishment in Kenya.

This assertion gets support from a business feature in one of Kenya’s daily newspapers headlined ‘Answer to the slum problem’ which puts the payback period on investment on tenements in Lucky Summer at seven years (Daily Nation, 2014). Interviews with researchers from Knight Frank, a real-estate firm, revealed that although they may not have concrete facts about returns on investment in the informal housing sector where Lucky Summer falls, they were aware that returns were more lucrative than in formal housing in the short term. They concurred that the findings of the study were viable and went on to add that the formal sector’s returns on investment took between 14 and 20 years, depending on the category of housing. Middle income took a shorter time than high-income housing because of land values.

It does not come as a surprise that tenement housing and other low-income typologies are more profitable housing investments in the short term. Tenements maximize on the available space to achieve as many rooms as possible and continuous vertical extensions are in conformity with the desire to derive higher profits. A question put to landlords as to whether they could accept a redesigned tenement with fewer rooms and better lighting and air circulation received negative response. According to some of them, a tenement of such a layout would not match existing typologies in rent in the same
neighbourhood. Commercial interest is, therefore, the overriding reason for tenement housing and it disabuses any hopes of achieving quality housing out of the free will of private sector investment without enforcing a strict code of practice, as was the case for tenement housing in New York.

6.2.4 Implications of cutting down on construction costs

The Kenyan media reported the collapse of two tenements, figure 6.27a and b, on December 17th 2014 and January 3rd 2015. These incidents caused fatalities and much property was destroyed. The government set out to take legal action against the developers, contractors, building professionals and building officers of the county government, whom they accused of undermining the building process. This was followed by an order to carry out an audit to establish adherence to the building law for all high-rise residential buildings in the low-income settlements. Whether such threats would deter illegal constructions in these settlements is a matter of conjecture. However, interventions promised after similar incidents before did not stop the construction of high-rise housing that does not follow approved building procedures. Some of these buildings keep collapsing.

The documentation by the Kenyan dailies on collapsed buildings in the past few years is alarming. One of the newspapers carried a comprehensive report on buildings that had collapsed in the past nine years in a chronology of more than 35 buildings (The Standard, 2015). Most of these were high-rise residential building, with the biggest number being in Nairobi and its surroundings. The fatalities reported in 2006 to 2015 were 99, in addition to 346 injuries. There was no follow up to establish the status of the injured; it is not documented whether they succumbed to their injuries or are living with physical disabilities.

Various finding on the structural status of buildings in the city provide very alarming statistics. An article in ‘The Standard’ newspaper of January 28th, 2015, gave findings of studies on the status of high-rise building in Nairobi. One study by Guestworks, a design and engineering firm, says 80% of the buildings are at risk of collapsing should there be an earthquake (The Standard, 2015). A second study, a PhD thesis by one Raul Fuguero of Carnegie Mellon University, shows that three out of four building will be at a risk of collapsing (Daily Nation, 2015). Third, a report by the National Construction Authority (NCA), a government agency, indicated that two out of three building are at a risk of collapse when it made a submission to the parliamentary committee on transport and public works. The NCA report estimates that such an eventuality would take the country back economically by about 15 years (The Standard, 2015).

This study does not vouch for the accuracy and authenticity of these findings because
they were not reviewed to establish the study methodologies. That notwithstanding, these estimates, 80%, 75% and 66%, depict a grim picture of the status of buildings in

Figure 6.27a & b: Collapsed tenements in Nairobi; a - Makongeni, b - Huruma. (Source: The Standard, 2015)
Figure 6.28: Spectators watching rescue efforts after a tenement collapse in the neighbourhood. They are oblivious of the dangers they are exposed to as they stand on the tenement balconies whose structural integrity has been put to question. (Source: The Standard, 2015)
The collapse of these buildings has been blamed on many factors; shoddy construction, profiteering and state officers who have been compromised, among others. It is evident from the discourses in the newspapers and social media that to curb the mess in the construction industry, there must be political goodwill to tame corruption and enforce the law. The social cost of these accidents, to families and the country at large, is high and justifies drastic action from the political class to tame it.

6.2.5 Housing profit and wages dilemma on quality of housing

The processes that have led to the creation of tenements can be understood through a review of the interests at play. The profit interest of landlords is the most dominant. Its fulfilment has given rise to practices such as avoidance of proper design guidelines, undermining construction procedures and political patronage. The question that lingers is how order can be established in the housing sector to guarantee the supply of quality housing. There is abundant housing literature from developed countries that points out progress made in housing research and development over the years (Clapham, 2012a). The contemporary status of housing quality in those countries was achieved because these findings were enacted into building laws that were strictly followed in housing development. This was also made possible because governments were involved in the provision of housing, especially within the middle and low-income categories. Housing subsidy was one of the tools that these governments used to make housing available.

While the lowest paid or those without income in the developed countries enjoy housing subsidies, in Kenya, that is not the case. Renters and buyers are at the mercy of free market vagaries. Low-income earners cannot ably operate in a housing market that is free. To do that, household incomes will need to be increased, which is not a viable solution in the short or medium term. Therefore, because households have limited choices, they can only rent whatever housing suits their budget. Unfortunately, most of the housing is supplied by the private sector operating under free market principles. The struggle to provide affordable housing for the low-income ranks in Nairobi and elsewhere in Kenya is the main reason that explains the illegality in housing production in the low-income sector. It has become a norm that is accepted by renters and tolerated by the state.

Correction of this anomaly lies in the involvement of the state in the provision of housing subsidy, in whatever form, to households in the low-income sector. Such interventions can take the form of subsidized rent through a social welfare system, a monetary policy that supports housing investment in the low-income sector and is attractive to the private sector, and creation of special planning zones for low-income investment, among other pro-poor interventions such as control of land prices. Housing
literature shows that developed countries have tried these strategies in addressing their housing needs with various levels of success (Harloe, 1995).

6.2.6 Implications of commercial activities on the quality of the built environment

Living and working in close proximity in low-income settlements in developing countries has always been a common phenomenon. Populous settlements offer a ready market for goods and services, creating employment and business opportunities. The way the settlements are planned, built and managed can provide guidance to the conduct of business activities and enhance the quality of living. In Lucky Summer, residents are not allowed to conduct business from their dwelling rooms because this will intrude on the privacy of other residents and create security concerns. Business is thus carried out in designated places on the ground level and the first floor in tenements that front the streets. These have external staircases constructed purposely to provide access to the business premises. However, it was revealed during interviews that many tenants engage in informal business in and around the settlement to complement household earnings from formal/regular employment.

As observed, informal businesses carried out along the streets create a walking nightmare for pedestrians. There is no guarantee on the hygiene of food cooked and served in the streets and no safety guarantee for pedestrians from operators of workshops along the streets. These activities devalue the quality of the environment at a neighbourhood level. While the significance of this kind of entrepreneurship to the overall wellbeing of the settlements cannot be understated, there is a need to plan such settlements in a manner that provides opportunity for business and an environment that will also promote growth. This is lacking in the planning and management of such settlements, and supports a need for holistic and integrated planning to create quality living environments.

6.2.7 New materials and building technologies

In an interview with a young landlord who is also a practising accountant, the issues of technology transfer arose. He wondered why the government and academia did not seem interested in engaging developers and importers of new building materials and technologies in a way that would promote the adoption of these materials and technologies in the building sector and possibly reduce costs. He noted that a number of technologies that had been imported into the country had failed to take off because some were hurriedly tried out in model buildings and abandoned just as quickly. There was no opportunity to thoroughly interrogate their effectiveness or failure. Equally, there was no time to establish how these materials and technologies fit within the building policies. He emphasized that the government needed to do more by
creating an investment climate that promoted appropriate technology transfer. Such views challenge the government and research institutions on their role in technology transfer and development.

Indeed, it is true that many building materials and technologies introduced in Kenya have rarely made any difference in the production and cost of housing. Construction in Kenya follows an old system. In Nairobi, the use of reinforced concrete and Nairobi’s dimension stone constitute the main construction system. It is, therefore, a situation of traditional prejudice. Other systems have been received with reluctance and the building laws have not made things any better. The introduction of new technologies and materials encounters legal constraints.

Efforts made to review some of these laws have met bureaucratic barriers and are taking too long to review and enact into new building laws. An example is the revisions to the building by-laws, which is still pending after many years of work. Equally, there is no meaningful research and development going on in government institutions charged with research in building materials and technologies. Institutions that did that in the 1960s to 1980s are lying idle due to lack of funding. The government, therefore, lacks the necessary structures to nurture new technology. As it is now, the country would have to rely on other players from elsewhere for this critical government function.

6.2.8 Legislative interventions

The argument by academia, housing activists and professionals that housing legislation in Kenya is out of touch with the housing reality is, to some extent, true. Housing quality indicators from low-income settlements are full of examples of housing legislation that is violated at many levels, mainly because it is non-responsive to the changing circumstances of housing. It is evident that there have not been tangible innovative ideas and options that could provide a balance between quality housing and affordability for the low-income cadres. A stringent legislative framework alone cannot provide a solution to the housing challenges of low-income earners. It will need to be ameliorated with social intervention.

Lessons from the New York case show a pragmatic approach to drawing of legislations. Building professionals participated, through a competition, in developing a design model from which the criteria for tenement standards was established. In Kenya, the Physical Planning Act 2010 (Republic of Kenya, 2010) and the zoning regimes adopted by the city of Nairobi do not make the intentions about high-density housing clear. There are no prescriptive regulations such as those for medium and low-density housing. What this means in effect is that to the housing bureaucracy, high density means slums, which are considered undesirable and left outside the urban planning
framework. The zoning plan highlights existing slums as high density and does not set aside or provide proposals for the expansion of such housing. The zoning plan for Nairobi and the housing policy of Kenya (2004) reveal a medium-density housing mind-set that can only be stretched to multiple family dwellings. This forms the basis for housing development within the formal housing setup. The informal city, therefore, exists only as slums.

It is imperative that this view of planning is reconsidered because of the prevailing housing realities. A framework that recognises the high-rise housing reality of the tenement type for the low-income demographic will need to be legislated, so that high-density housing is provided for in planning and building regulations and within a framework where the provision of infrastructure and social amenities is included. There are benefits that can accrue from such an intervention. The formal real estate sector and other social welfare organizations such as the National Social Security Fund (NSSF) that have not ventured into investment in housing for the low-income cadre could find reasons to be involved. Developing a housing policy with an appealing outline, both for investment and welfare, in low-income housing would play a significant role in increasing housing supply. A relevant example of such a strategy was in New York, after the 1901 tenement legislation, where individual benefactors and workers cooperatives got involved in housing supply.

A further argument for legislative changes is from De Soto, who has pointed out that tremendous growth can be achieved when informal systems are recognized as centres of growth and are brought into the formal realm. Such moves, he argues, are of greater benefit than when they operate underground (De Soto, 2000). This view should support a strategy that seeks to legalize tenement housing through a framework that does not drastically destabilize housing. For example, one such strategy would decree existing tenement settlements as special planning zones with special regulations that seek their gradual remodelling over a specified period. The government would then invest in infrastructure and social amenities. In any case, the study has established that return on investment (ROI) for such settlements is eight years and setting targets for improvement would not be detrimental to private investment in the medium-term.
CHAPTER 7: DOMESTIC LIFE

This chapter reports the findings and analysis of domestic life. It is divided into two parts. Part I is a socioeconomic study of households that was carried out through a survey and part II is an evaluation of domestic practices of tenants that was carried out through semi-structured interviews and observations of households.

7.1.0 PART I: CHARACTERISTICS OF TENANTS

As noted from the literature review, one of the preferred methods of understanding the socioeconomic and spatial distribution of households and communities is demographic studies. Low (1989) demonstrated in studies on the anthropology of urban areas, that demographic studies were a useful methodology that demonstrated the presence of a relationship-linkage between socio-demographic variables such as age, gender, income, social class, household composition and housing tenure on one hand, and the design, meaning and use of housing on the other. Clapham (2012a) has also observed that demographic studies have been used extensively in social policy, mainly for identifying social problems for redress by the state. In this study, a household survey that sought demographic data and other information was conducted in the first phase of the study to provide background information for detailed study in the second phase.

7.1.1 Age characteristics of households

In the households surveyed, it was found that the majority of adults were less than 30 years old. In this category were 64% of males and 89% of females. Very few registered ages above 40 years. Children constituted 24.9% of the population and most of them, 98%, were below 13 years old, with a majority being toddlers. From these statistics and observations, Lucky Summer settlement predominantly accommodates young households that mostly gradually transition to other forms of housing elsewhere as they grow older. Lucky Summer is also a relatively new settlement compared to other similar and older ones across Nairobi and the component of age characteristics needs to be investigated before more concrete generalizations are made.
7.1.2 Household size
The mean occupancy per dwelling in the tenements surveyed was 2.4. Population distribution was as follows: 75.1% adults, 24.3% children and 0.6% teenage. Households with two or more occupants were 76% while households with children were 41%. The adults in the settlement were generally young and could not have had children of teenage age, as is evident from the statistics. Much older ones were few, and from interviews, many had their families living elsewhere, including their rural homes. The level of occupancy of Lucky Summer compared to other low-income settlements indicates that it is comparatively lower. Table 7.01 shows the findings of other studies for low-income settlements for comparative purposes.

According to the World Bank study of 2006, there were more adults to children in the ratio 66:34 compared to Lucky Summer’s 75:25. Mukuru kwaNjenga had a slightly higher adult to children ratio, 72:28 (Taylor, W. & Maithya, H., 2007). This shows that there were fewer children in the tenement settlement if this is generalized to the whole population. From interviews, a number of single person households, both male and female, indicated they had families that were living mainly in their rural homes or in other urban centres. The common reason given for living separately was that their earnings were not sufficient to support a family in the city so the other members lived in

<table>
<thead>
<tr>
<th>Year</th>
<th>Type of housing</th>
<th>Survey/ study</th>
<th>Occupancy per dwelling</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>Mukuru kwa Njenga - temporary materials</td>
<td>Housing and National Census</td>
<td>2.7</td>
</tr>
<tr>
<td>2003</td>
<td>All urban informal settlements in Nairobi</td>
<td>Kenya Demographic Health Survey (KDHS)</td>
<td>3.5</td>
</tr>
<tr>
<td>2006</td>
<td>88 informal settlements in Nairobi - survey of 1,755 dwellings</td>
<td>World Bank</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Table 7.01: Occupancy in low-income settlements. (Source: Multiple, compiled by author)
the rural areas where they engaged in farming activities to subsidize household income. Others indicated that they were working in Nairobi on temporary basis, some because of work transfers. They did not expect to stay in the city for long, and having established their families elsewhere, they did not see the need to move them to the city.

### 7.1.3 Education level
The level of academic achievement of adults in households surveyed showed that more than 91% of males and 84% of females had high school education and above. Comparatively, the UN-Habitat report, Nairobi Urban Sector Profile of 2006, estimated that about 72% of males and 50% of females in Nairobi had high school education and above, while nationally, the estimate was 31% of males and 28% of females (UNCHS, 2006). Though there is a time gap of about seven years between these two studies, the general indicators of the findings are valid. The level of literacy of adult tenants is higher than Nairobi’s average.

### 7.1.4 Household income
Table 7.02 gives an illustration of income levels of surveyed households. According to the findings, 62.4% earned Sh15,000 and below. The official gazetted minimum wage in Nairobi for 2013 from the Ministry of Labour was Sh9,300. The findings of this study show that almost 85% of households earned wages above the minimum. Rents in Lucky Summer range between Sh2,500 and 4,500, with significantly many tenements renting the single rooms for Sh3,500. The rent paid by households is less than 30% of their gross income. The rule of thumb on the percentage of rent to household income was originated by the United States National Housing Act of 1939. It stated that affordable housing should not rent for more than 30% of household income. This was from the finding that families who used more than 30% of their income on housing were burdened by costs and had difficulty affording necessities such as food, clothing, transportation and medical care. At one time, the amount was adjusted downwards to

<table>
<thead>
<tr>
<th>Earnings in Sh</th>
<th>Percentage</th>
<th>Graph</th>
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<tbody>
<tr>
<td>Less than 10,000</td>
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</tr>
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<td>25,001-30,000</td>
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</tr>
<tr>
<td>More than 30,000</td>
<td>6.5</td>
<td><img src="image6.png" alt="Graph" /></td>
</tr>
</tbody>
</table>

Table 7.02: Household incomes. (Source: Author, 2014)
25% for a short while, but reverted to 30% in 1981. This value was an administrative one adopted by the United States Housing and Urban Development Department for its rental housing program (Schwartz, & Wilson, 2006). Both the private sector and governments in many countries have broadly adopted this criterion.

However, when incomes are low, like in many developing countries, this guideline loses meaning because 30% of income for rent may not provide enough returns for landlords to provide housing with adequate space and amenities. There is a strong correlation between incomes and ‘decent’ housing. According to one UN Habitat report, “A policy guide to rental housing in developing countries- 2011”, notes that:

“If a tenant is to live in decent accommodation, a certain income has to be earned. The unfortunate feature of most cities in developing countries is that too many people earn very low-incomes. In such circumstances rents are simultaneously too low and too high. Landlords do not receive enough to provide adequate accommodation or enough to keep their own families out of poverty. At the same time, tenants earning very low incomes are forced to pay a high proportion of their earnings in rent. The problem lies not in rent levels but with poverty.” (UNCHS, 2011).

7.1.5 Rent for dwellings

The rent charged in 2013 for tenements A, C and D was Sh3,500 while rooms in B cost Sh4,500. Information on rent from the landlords, tenement managers and caretakers about rent across Lucky Summer suggests that rent was between Sh2,500 and 4,500. Inquiries as to why there was a big range determined that tenements differed from each other in various ways and that considerations for rent ceilings depended on these differences. Considerations such as the age of the tenement, size of rooms, cleanliness, management and facilities offered played a role in determining rent.

The lowest rent in the settlement was Sh2,500 a month. The landlord that charged this rate had two tenements that were built on adjacent plots. The other rented for Sh2,800. He attributed the low rent to poor maintenance, which made the tenements look old on the inside. They were built in 1998 and 2003, but due to neglect after the death of his father, who owned the property, they were in a poor state of repair. He pointed out that they had not undergone any maintenance work since they were built and the rooms were small, about 9m². His attempt to match the rent with other tenements in the settlement had failed because it increased the frequency of tenants moving out, forcing him to maintain low rent.

The landlord of tenement B charged Sh4,500 because his tenement provided more facilities than others in the area. His rooms were bigger, 13m², had satellite TV and the
finishes were of superior quality compared to those in other neighbourhood tenements. He noted that the fact that his tenement was always fully occupied was testament that some tenants were ready to pay more for larger space and enhanced services. He said that after having built many tenements in the settlement, he had come to appreciate that the settlement was not homogeneous and as such, his new developments were being improved to take care of this other demographic within the settlement.

These two scenarios represent the lower and upper end of rent in the settlement. The average rent across many tenements was Sh3,500 as at 2013, having gradually increased from Sh3,200 in 2010. According to landlords, whenever there was a rent increase in the tenement, it was effected for all tenants, including those who had lived there for long. Varying rents in the same tenement posed an administrative challenge.

7.1.6 Workplace

Two-thirds of household heads were in employment. More than half of these worked in the service industry, followed by general manufacturing and auto-industry in that order. A third of household heads were self-employed. Hardly anyone worked for the public sector. Lucky Summer is situated about 3km to the northwest of Jomo Kenyatta International Airport, which has a thriving service industry close by. Nairobi’s main industrial area, which is located to the north and west of Lucky Summer, is one to seven kilometres away. It was noted that despite there being a vibrant building industry in and around the settlement, very few respondents worked in it.

Experience from the building industry has shown that both the skilled and unskilled people that work in it are usually not on a monthly salary but earn daily and weekly wages that depend on the ability to secure work on a building site. The constructions are usually not big enough to require many kinds of building tradespersons on a long-term basis, a factor that compels them to move from one site to another in search of a placement. Unskilled labour is hired on a first-come basis, depending on daily site labour needs. As such, there is no guaranteed regular income. Most households residing in Lucky Summer had regular incomes.

A surprise finding, however, was that although the horticulture industry was one of the dominant service sectors around the airport, very few of its workers lived in Luck Summer. Interviewees explained that the sector paid low wages and its employees could not afford the rent in the settlement. It was shown that 84% of household heads who were in formal employment worked in places that were less than 10km away, with a majority working within three kilometres of the settlement. Findings from the interviews showed that those who worked close by went to work on foot or used motorcycle transport, commonly known as ‘bodaboda’. Figure 7.01 indicates the distance to work from tenements.
7.1.7 Schools

Most children of the respondents attended private schools in the settlement. According to respondents, public schools were few and far apart. Three quarters of the children in Lucky Summer, therefore, attended private schools, referred to as ‘academies’, or church-sponsored ones, but the latter were fewer and far apart. The closest public primary school was at Mukuru kwa Njenga, more than a kilometre away from the northern end of the settlement. Respondents noted that the school had enrolled more pupils than its facilities could accommodate comfortably because public schooling was free and it was the only one around. There was no other public school within a radius of 3km of the populous settlement. More about children is discussed further on in this study.

7.1.8 Residential mobility

From the survey, the main reasons given for moving to this settlement was to stay close to the workplace, either in employment or business. The reasons given for living in a specific tenement were many but the most pronounced were guaranteed water supply and a clean environment. Rent was not a major consideration because it was fairly uniform across the tenements.

An interesting finding in the survey analysis was that most households lived in a tenement for one or two years only. In total, about 80% of households moved from
one tenement to another, mainly within the settlement, within two years. Figure 7.02 gives an illustration of the duration households had stayed in their current tenement. Changing dwellings was noted to be a common phenomenon. Both the caretakers and landlords confirmed this during interviews.

A survey finding about where residents lived before moving to the current dwelling showed that 55.5% migrated from another tenement in the settlement and 18% from similar accommodation in another settlement. In total, 73.5% changed tenements horizontally, that is from one single room dwelling to another, either from within or outside the settlement. Some 11% upgraded from temporary housing to more permanent housing in the tenement. Figure 7.03 shows the distribution. This observation was followed up during the interviews. Respondents that had moved within the settlement gave the reasons as insufficient water supply and a dirty living environment in the previous tenements. Others, especially those in tenement B, indicated that they moved there because the building offered additional and better facilities and although the rent was higher, it was worthwhile. The few that had migrated from elsewhere explained that the settlement was close to their workplaces. Another group of respondents said they got tired living in one place for a long time. According to one prominent landlord, tenants had a “migrating disease” and he considered their reasons flimsy, pointing out that a new tenement in the settlement would be reason enough for moving. Sometimes, these new tenements belonged to the same landlords. He pointed out that moving was so common and to ensure that they did not suffer rental loss, landlords were strict on rent payment deadlines.

![Figure 7.02: Duration of stay in tenements. (Source: Author, 2013)](image-url)
where households lived before moving to their current dwelling

<table>
<thead>
<tr>
<th>Where households lived before moving to their current dwelling</th>
<th>Percentage</th>
<th>Graphical presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>In a one-roomed temporary house</td>
<td>11.0</td>
<td></td>
</tr>
<tr>
<td>In another flat in the neighbourhood</td>
<td>55.5</td>
<td></td>
</tr>
<tr>
<td>In a similar flat in another estate in Nairobi</td>
<td>18.0</td>
<td></td>
</tr>
<tr>
<td>In a bigger house in another estate in Nairobi</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>In the rural area</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>In another town</td>
<td>7.5</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>1.0</td>
<td></td>
</tr>
</tbody>
</table>

Figure 7.03: Previous accommodation of households. (Source: Author, 2013)

There was an assumption that there could be a relationship between the durations of stay in a tenement and the floor the household lived on. Using statistical manipulation of survey data using Fishers’ exact test of association, it was concluded that there was no association between the duration of the stay and the floor occupied by the households.

Frequent migration in Lucky Summer was not an isolated phenomenon; it was observed in Mukuru kwa Njenga in the 2007 study, where it was noted thus:

“Over half of households had moved house once or twice in the previous five years, with a good number having moved three times. The most frequently mentioned reasons for leaving their previous house fell into three main categories: Housing, employment and affordability. Poor housing conditions relating to the structural state of the house, amenities, house size and the general environmental and security conditions of the immediate neighbourhoods were cited by 36% of the respondents. Issues relating to employment, particularly distance to workplaces, loss of jobs and downturn in business fortunes, were responsible for the movement of 27% of the respondents. About 12% of the respondents who had moved house reported that they had done so because they could not afford the rental costs of staying in their previous houses, because either the rent had increased or their own economic conditions deteriorated. For the remaining quarter of the respondents who had moved houses, a variety of reasons were cited, including getting married and moving to live with their spouses, seeking independence from their parents/relatives, loss of parents and eviction.” (Taylor & Maithya, 2007).

Moving house within housing studies is broadly discussed under the subject of residential mobility. It seeks an understanding of why households change residences or houses. Studies in housing mobility have been carried out from the perspectives of
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economics and sociological dimensions but these do not fully explain the phenomenon of mobility. The question psychologists are starting to ask is if there are psychological explanations why households keep moving houses. In the case of Lucky Summer, could it mean that occupancy of single rooms does not offer them psychological stability at a personal level and their moving around is a process of trying to establish that stability within an inescapable economic context?

Ordinarily, a household moves houses, finds stability, and lives in the same place for a long time because they form or create social networks that would not allow them to keep moving. It would be presumed that this is the norm. As mentioned, much explanation about residential mobility is drawn from economic and sociological studies. A few psychological studies, such as the one by Shigehiro Oishi (2010) have tried to seek an explanation of this phenomenon.

According to Oishi, residential mobility is associated with the primacy of the personal over the collective self. It is also associated with “duty-free” friendships and group memberships rather than obligatory friendships and group memberships. Overall, residential mobility is associated with lower levels of wellbeing at the individual level of analysis. Finally, it is associated with personal forms of subjective wellbeing (based on self-esteem, the verification of the personal self) as opposed to interpersonal forms of subjective wellbeing (based on social support, the verification of the collective selves). In short, residential mobility is a powerful, parsimonious, explanatory construct in the self, social relationships, and subjective wellbeing and may be key to understanding the future of mind and behavior in the increasingly mobile world (Oishi, 2010).

Some form of explanation can therefore be drawn from the moving phenomenon that is most likely to be based on self-esteem of a dominant household member. Overall, though, it can be adduced that single-room dwelling does not offer psychological stability to a majority of households as the statistics for house mobility suggest.

### 7.1.9 Choice of dwellings

The survey indicated that where a household lived in terms of the floor and specific dwelling unit was a matter of chance. Some 60% of surveyed households said they lived where they did because that was the vacant dwelling unit available when they moved in. Information from tenant respondents and caretaker interviews indicated that vacant rooms were rare. They said that whenever a household moved out, the room was quickly taken up, leaving little opportunity for new tenants to make a choice. This could be one reason why tenants kept moving, probably in search of a better location within tenements. Other respondents said they made choices but from limited options. For example, one tenant said she was given the first opportunity to choose a dwelling that
would suit her from four vacant rooms on different floors. Deciding on one room out of four in a tenement with 98 rooms is still limited.

To test the extent of household behaviour in relation to choices and preferences in Lucky Summer was limited to one housing type. The exercise of choice and preference for households that upgraded (moving from temporary housing to permanent one) and those that moved from similar housing elsewhere was significant. However, moving from one tenement to another within the settlement, as a majority did, was based on psychological factors rather than fundamental economic and sociological principles on which choice and preference are based.
7.2.0 PART II: DOMESTIC PRACTICE

Social factors that feature in housing studies include cultural issues such as those involving preparation and consumption of food, entertainment and raising children (Low (1989), Lawrence (1987)). Socio-psychological factors of privacy, crowding and stress are the others (Moore (1979), Altman & Werner (1985)). The relationships of these factors with the built environment have been investigated widely, within various disciplines, and the knowledge extensively shared. Building practitioners, especially those who deal with design, such as architects, have applied some of this knowledge in their projects. The concepts developed have also been used in the evaluation of the built environment, such as in learning institutions, care centres, offices and buildings where people congregate.

This section of the thesis is a review of the domestic practices of households and their perceptions about the everyday life in the tenements and neighbourhood. This study was carried out through semi-structured interviews to tenant respondents in 30 households spread across all floors of the four tenements and direct observation of activities, which was carried out intermittently over five months. The study identified activities that were routinely carried out for investigation and these became the themes for analysing domestic practices:

- Preparation and consumption of food
- Household’s sleeping arrangements
- Concerns about children
- Household entertainment in dwelling
- Household’s observance of cleanliness, personal hygiene and health
- Adaptability of dwelling space to household needs
- Household’s perception about security and expectation on housing future.

7.2.1 Interlude: An explicating experience with a household

As I conducted interviews in the tenements, the caretakers always accompanied me. They assisted in identifying and introducing potential respondents. After initial niceties, they either stayed on or left, depending on their judgement of the disposition of respondents. Young married women could be a little uneasy being around a male stranger like me.

During one such interview in January 2014, we knocked on a door on the sixth floor in tenement C. The dwelling housed one young man from Samburu County, a region in northern Kenya, who worked as a driver in one of the leading Japanese car dealerships in the city along Mombasa Road. We arrived at around lunch hour and he welcomed us into his dwelling room and asked us to sit on the bed. There was another visitor,
whom he introduced as his cousin from upcountry visiting the city for the first time. He explained that the young man had completed primary school the previous year, 2013, and was waiting to join high school the following month.

His room did not have much furniture; there was a 1.2m-wide bed that occupied space along the wall directly opposite the only door on the right-hand side. There was also a cupboard, about a metre wide and 1.2 metres high, on which was a TV placed close to the window. Right next to it and along the left wall was a coffee table on which there were electronic gadgets, including a DVD player. Below the window there was a 70-litre water drum and between it and the cupboard was a short TV stand on whose shelves the tenant kept food items. There were two four-leg wooden stools, one upon which the respondent sat and the other placed next to the head of the bed on the right-hand sidewall. The gas burner, colloquially called ‘meko’, was centrally placed on a waterproof mat towards the left. It was later moved to a corner.

There were only a few clothes and these were on hangers that rested on a wooden picture rail above the side of the bed. On the floor, he had a carpet pad – a thick blanket-like material used as underlay for a wall-to-wall carpet. I wondered loudly where and why he was using it because as a building practitioner, I knew it was not possible to maintain it as a finishing material. He said it was leftover material salvaged from going to the dump after building extensions to their offices were completed. I did not have to introduce myself because we had previously met in the tenement corridors, where I had been introduced.

We found him preparing lunch for himself and his cousin; he was boiling Irish potatoes. The smell of the food reminded me that I was hungry. After all, I had been conducting interviews throughout the morning. I asked if he could prepare a meal for all of us and offered to provide some money to purchase the foodstuffs. He accepted. I gave him Sh500 (USD 6) for the same. He turned off the cooker and asked what kind of food we wanted, but I indicated that we would eat whatever he chose to prepare. He returned in a very short time with the food and drinks because the shops and vendors were downstairs.

He bought beef, I guess it was a quarter a kilogramme, that was already chopped and wrapped in a polythene bag; a piece of cabbage that was also cut and wrapped the same way; some rice in a transparent polythene bag; and onions and tomatoes. With all these, there was still Sh200 left over.

Our host transferred the potatoes that he had been cooking to a plastic bowl and without washing the ‘sufuria’ (saucepan), put the meat in it. He cut the onions and tomatoes on a chopping board at the central table and added them to the cooking meat. He stirred to
make a uniform mix and when it started to stick, he added some water to make a stew. He covered the ‘sufuria’ with another. After a few minutes of boiling, he added the cabbage to the stew, as well as some of the potatoes he had boiled, and enough water to almost fill the ‘sufuria’.

That bothered me for a moment because I thought the stew was going to be watery. However, I did not comment but continued to observe because it was already a great opportunity for me to partake in the experience of food preparation and consumption in the tenement. Soon after, he used a cup to measure rice. He cleaned the rice in a plastic bowl, then drained the water into a large plastic basin placed next to the wall that was already holding some dirty water. I learnt that since there was no sink in the room, dirty water from cooking was stored this way before it was taken out to be splashed down the water closet in the washrooms. Thereafter, he poured the rice into the boiling mix in the ‘sufuria’ and covered it. At this point, I understood why he had added so much water. After about 20 minutes, he checked whether the food had cooked by scooping a little rice with a spoon and testing it. He covered it for another five or so minutes to simmer. He then put out the flame, slowly stirred the food and announced that it was ready to serve. The cooking took approximately 40 minutes. Figure 7.03 captures a moment in the food preparation.
The young man did not have enough plates for all of us; he served me and the caretaker on the two available plates while he and his cousin used small hotpots. I should say that the meal was tasty and well cooked. I wondered why I cooked a meal of rice, stew and vegetable using three different saucepans when I could just use one.

The cooking was done while sitting. The position was strategic in that everything needed was within arm’s length. There were minimal utensils; enough for the room dweller and an occasional visitor.

All the time we were in the room, the window remained closed and the curtain drawn. The door was left ajar but the door curtain that was hanging on the outer side of the door kept the room visually private. As the food cooked and we engaged in discussions on various topics, we also watched TV. I noted it was satellite transmission and wondered if it was connected from the neighbourhood. The caretaker interjected, saying he had set up a private dish on the roof for a single box transmission but used an innovative system and multiple cables to redistribute to tenants in the tenements at a fee. This was his way of making extra money every month. The downside of the arrangement was that all his subscribers had to watch the same channel at the same time, but somehow they had agreed on a programme schedule where soccer took precedence. He pointed out that they could still switch to local channels, which were free.

This case is an example of efficient utilization of resources in circumstances of scarcity. It showed the need for a tenant who lives in a small single-room dwelling to use it efficiently and run the household in economical ways. The evidence of this was the space use during the cooking, where preparing and serving food were done from one position effectively. The utensils were multipurpose, reducing the need for acquiring a variety of items specifically for cooking, serving and storage purposes. It showed an economical attitude towards the purchase of food and a good understanding of the quantities required for a - meal. The bed was multipurpose, not only for sleeping but for sitting too. Further, this case revealed that a household could be supplied with satellite TV at an affordable cost through an innovative cabling system that satellite signal providers would consider illegal. It is with this kind of insight that the interviews and observation on domestic practices were conducted.

7.2.2 Preparation and consumption of food

Food preparation and consumption is a core activity within the purview of domestic activities and this research pays special attention to it. To effectively discuss it, the subject has been broken down into two components; food preparation and food consumption.
a) Food preparation

Many types of foods consumed in the tenement settlement are prepared by the food and vegetable vendors along the main arterial roads. Respondents and observations revealed that meat, mainly beef and goat, once purchased, is chopped and packaged in polythene bags. Vegetables, too, are washed, cut and packaged in measured portions for sale. Meaty foods are either sold raw or pre-cooked. Vegetables are always sold raw. Further, respondents said there are many other types of foods that are sold when fully cooked such as beef stew or semi-cooked such as fish. Foods that require washing before they are cooked or consumed, such as, fruits, are washed in a washbasin in the dwelling unit or corridor. This, as respondents noted, has become standard practice in the tenements. Direct observations of the activities of food vendors supported the respondents’ claims on food preparation. Other ingredients and additives used in food preparation are sold in small, affordable portions after repacking by retail shop owners.

This observation was confirmed by a respondent who runs a retail shop. This method of selling commodities has been observed in other popular settlements (Musembi and Scott-Villiers, 2014). Musembi and Scott-Villier note, in a research carried out in 2014, that empirical evidence confirms the findings of other studies that show that due to deteriorating economic circumstances, low-income households cut down on food expenditure through measures such as having fewer meals in a day and reducing food varieties. The study notes that in Mathare, a low-income settlement in Nairobi, a sighted significant change was a shift to small portions of ready-cooked roadside foods rather than home-cooked meals, to cut down on fuel costs as well as to match the flow of shrinking daily wages (ibid).

Responding on the subject of food preparation, a married female and mother of one said: “I buy raw food and cook it in my room. I think the cooked food these vendors sell is not hygienic.” A single male who lives alone said, “I buy ready-cooked meat stew and eat it with ugali, which I prepare in my room, but sometimes I eat out altogether. I do that many times.” Such responses indicate the varied preferences and attitudes towards the purchase of pre-cooked food from vendors. Results from the survey indicated that more than two-thirds of households prepared their meals fully in their dwelling units while the rest bought either semi or fully cooked food from vendors. For semi-cooked food, the process would be completed by adapting it to their own taste through frying and additives, while the fully cooked ones would be consumed as a complete meal or in addition to other foods prepared in the dwelling. During the interviews, a number of respondents revealed that although they prepared their meals, most of the raw food was pre-prepared, sometimes as they waited, to a form that they could readily cook.
b) Cooking

Most respondents indicated that they do not cook many varieties of food for one meal. For example, a female respondent living with a younger sister said, “I cannot cook many varieties of food because it will be expensive. It will mean spending a big portion of my wages on food and fuel.” Asked if time was an issue, she said, “After I have come home from work, I have a lot of time.” Many respondents said they would prefer to eat one type of starch and protein and/or vegetables for any given main meal. The main meal in this regard means supper. This is because tenement dwellers normally have a one-burner cooker, either a paraffin wick burner or gas burner. The different parts of a meal are therefore cooked consecutively. Cooking a variety of foods would not only be costly in terms of fuel usage but would also test the patience of the households, in waiting time and discomfort from the amount of heat generated. In these one-room-dwellings, the shorter the time it takes to cook, the better.

The charcoal brazier, locally called ‘jiko’, is used by some households in addition to one or both of the other burners. The ‘jiko’ is used in the corridor, never in the room, for meals that take a long time to cook, making it uneconomical to use paraffin or gas. A married female respondent and mother of one said, “Have you not heard that people that use a jiko in little rooms like mine here die? I would not like to die and so I use it in the corridor, where there is more air.” A number of deaths have been reported by the Kenyan media as having been caused by carbon monoxide poisoning due to the use of ‘jikos’ in poorly ventilated housing. Asked how often she used the ‘jiko’, the respondent said, “Certainly not all the time; I use it to prepare those foods that take long to cook, such as ‘githeri’, and would be uneconomical to cook using gas.”

Efforts to establish which of the two between a wick burner and gas was more economical did not achieve consensus. Probably, the running costs could be the same, but the initial investment in the gas cylinder is higher. However, households agreed on which of the two was cleaner in terms of air pollution. Gas does not cause clothes and other textiles to smell. It also does not irritate the nose as the wicks burner does. Results from the rapid survey shows that paraffin is the most used cooking fuel in the settlement; 62% of households regularly use the wicks burner followed by gas at 33%.

The location within the dwelling where food was prepared and cooked depended on the organization of furniture. A number of households used a small side table placed in a corner or along the wall as a dedicated cooking place while others had to temporarily reorganize the room to provide space for food preparation and cooking. The kitchen items would be stacked away in a corner after cooking to give room for consumption of food and other activities such as sleeping afterwards.
c) Consumption of food

Almost all the households visited had a small central table that was used for preparing and serving food. Many households with more than one resident had meals together, according to the survey. This would probably be explained by the fact that it would be functionally challenging to start a process of meal preparation when other activities, like sleeping, had commenced.

d) Washing up after meals

The survey showed that after meals, utensils and crockery were cleaned in washbasins and wastewater splashed down the water closet. Respondents explained that is was a normal practice. Visits to the tenements in the morning before the caretakers cleaned the common areas revealed food leftovers around the floor drains, an indication that wastewater was poured there, too.

e) Limitations of space for cooking

The survey showed that 63% of respondents were of the opinion that the space available for preparation and cooking of food was insufficient. From observations, the amount of furniture and other household items made the dwellings cramped and inevitably, such households had to reorganize furniture to make room for cooking. Figure 7.04 is an illustration of the space where cooking materials and equipment are kept. When cooking was in progress, the gas or wick burner was moved to a more central position to allow for more flexibility. Respondents whose rooms seemed cramped argued that the furniture in the rooms was not a lot but sufficient to support their household needs. They said the rooms were too small. A married female and mother of two children (seven and nine years old) had this to say on space, “Even you (meaning the researcher) can see that the space in here is not sufficient for a family like mine. You cannot say that there is a specific space for cooking because it is also used for other activities. It is simply not enough. Maybe it is for those that live alone.” On the contrary, households with little furniture seemed to have ample space and cooking was done at a designated corner or location. Further inquiry about fixing a sink to ease cleaning was not received well because, in the respondents’ estimation, the space was small and such a provision could lead to higher rent. Maintaining the status quo was important.

It is evident from this study and from findings such as those of Musembi and Scott-Villier (2014) that food preparation and consumption habits are changing in the low-income settlements. This is happening because of changes in economic and social circumstances. The shift from preparing meals in the dwelling to purchasing cooked food from vendors in the streets is a pragmatic response to these circumstances. This shift in food preparation and consumption within low-income settlements requires a
rethinking of how the cooking space and its organization should be transformed to conform to this new reality. The emissions from cooking within a room that is poorly ventilated and where other domestic activities are carried out, like in Lucky Summer, pose health concerns that need to be addressed. The question that housing professionals and developers need to answer is how this will be incorporated in the layouts of space within the dwellings or tenements to create food preparation and cooking spaces that will enhance the quality of living. There are certainly no easy answers to this question, more so in an ‘informal framework’ like Lucky Summer, but its significance needs to be pointed out nonetheless.

7.2.3 Sleeping arrangements of households
Sleeping arrangements were explained in different ways by various households during the interviews. Households with few members generally indicated that they did not experience any challenges as far as sleeping was concerned. A single man living alone said, “This room is enough for sleeping and also for my other needs. However, if I were to marry and have children, I would move to a bigger house.” A female respondent and mother to a suckling toddler explained that they had no problem with their sleeping arrangement, pointing out, “The three of us share the bed.” Married respondents who had toddlers shared this assertion.
Households that had older children had challenges sharing the room and indicated that it was not socially right for them to live that way. Couples pointed out that privacy was of great concern; the small space limited their intimacy, and at times, it was out rightly embarrassing to discover that their children, who they thought were asleep, were listening in on them. They said that circumstances compelled them to live that way. In explaining their sleeping arrangements, a married female respondent with two children aged seven and nine said, “My husband and I husband sleep on the bed. One child sleeps on the sofa and I spread a mattress on the floor for the other one. The sofa is too narrow for both of them.” She went on to lament about urban living and said, “Sleeping together in one room is not right; it should not happen. We live like this because we cannot afford anything better.” Reminiscing about her childhood in the village, she added, “In the village we had a lot of space. We slept away from our parents’ house and there was a lot of respect. Living in the city is dehumanizing for those of us who cannot afford big houses. Our children are learning things that they should not learn at a young age.”

Respondents from bigger households explained that after their evening meals, they rearranged the furniture to create room for sleeping. The floor was mopped and bedding spread on it. In the morning, the bedding was folded and stored under the bed or in one corner of the room. Households with one child used the sofa as a bed. Commenting on these challenges, a married female respondent and mother of two children said, “When
it is time to sleep, we all sleep. There is no space to do other things. Then when it is time to wake up, we all wake up. The younger child can go on sleeping, but on our bed.”

Figure 7.05 illustrates one of the observed sleeping arrangements. Very few households used double deck beds. This was against expectations because of the thinking that they would be more efficient in space utilization. Respondents that lived as couples explained that these beds were inappropriate because sharing them with other people would interfere with intimate moments. Instead, couples preferred stand-alone beds notwithstanding the fact this made the dwelling room cramped.

The survey findings on tenants’ opinions about the size of the room in respect to sleeping indicated that two-thirds considered it small but within their spending power, while the rest said it was enough. Further analysis revealed an association between household size and the respondents’ opinion on the adequacy of the room. Therefore, the more the household members, the more likely it was that they were of the opinion the dwelling was small.

On physiological comfort, there was concurrence among the respondents that the rooms could be very hot at night. However, the windows had to be kept closed to prevent opportunistic thefts, and to prevent neighbours and passers-by from listening in on private conversations and activities. Thus, privacy and security took precedence over comfort.

Under the building statutes in Kenya and elsewhere, a space of between 9m² and 13m² for households of 2.4 persons, as is the case in Lucky Summer, is considered insufficient as housing. Living in such a small space raises health concerns and has serious socio-cultural consequences, especially for households with children. A number of adults in these households were brought up in the countryside, where certain cultural norms about privacy and personal space were observed. The sharing of a room with their children in the city is, thus, an affront they are forced to live with because their housing options are limited.

The issue of domestic life and general upbringing of children in the settlement was discussed with the local Catholic priest, Father Joseph, whose Tassia Parish jurisdiction includes Lucky Summer. Joseph is an Italian priest who has served in Kenya intermittently for close to 30 years. He served mainly the pastoralist communities in the arid regions of northern Kenya before being reposted to Nairobi in 2012. When the subject of this study was introduced, he asked a question that summarised, largely, the housing question in the low-income settlements such as Lucky Summer: “What kind of society are you creating here? What nature of adults are the children born and brought up here going to be like in the next few years?” He confided that what he had observed
Figure 7.05: Bed space in a single-room dwelling. (Source: Author, 2013)
and been told by parishioners during his pastoral visits to households and Small Christian Community gatherings in the settlement was of great concern. He noted that the degree of moral decay within the settlements was astounding and that children were learning bad habits while very young. He blamed this situation on the nature of housing and settlement planning and wondered why the government was not taking control.

One of the landlords interviewed, a retired teacher who also served as a school counsellor, explained that although he benefited greatly from his housing investment, it saddened him that what he was offering as housing was bad for households with children. He pointed out that in such an environment, where households occupied single rooms, children learnt bad habits from adults engaged in antisocial activities such as prostitution and drug peddling or abuse. He noted that landlords had no control over the kind of tenants that lived in the tenements.

The nature of housing in which children are raised has a profound impact on their character. Various studies by sociologists, anthropologists and psychologists have pointed out these facts. Altman (1985), Saegert (1982) and Moore (2002), among others, enumerate examples. Studies across Europe and America are replete with examples that show how housing projects for low-income households, conceived without much thought to their social impact, failed and were either demolished or deserted. Discussions on these are found in the writings of Jencks (1977), Jacobs (1964), Bristol (1991), Castels (1977) and others. Some of the reasons given for the failure of settlements, or what the western world refers to as ‘neighbourhoods’, is that they attracted antisocial behaviour and many households intent on raising good families moved out. Over time, such a scenario could be replicated in these tenement settlements. Already, older tenement settlements like Kayole and Dandora have started to experience extreme antisocial behaviour. For example, some youths have formed gangs that are involved in criminal activities ranging from robbery to rape, prostitution and extortion. These negative externalities are a consequence of concentrated poverty arising from low incomes and consequently poor quality housing.

7.2.4 Matters of children

Of the households surveyed, 59% had children residing in the dwelling. Of these, 61% had one child. During the preliminary stages of the study, an assumption was created that households with children preferred to live on lower floors of tenements. However, the manipulation of statistical data from the household survey established there was no association between having children and the floor level where households lived. It was found that households, with or without children, lived in any available dwelling on whatever floor of the tenements.
Findings on the age of children indicated that most of them were young and had not reached school-going age, which is commonly around the fourth year. In general, therefore, this was a settlement with children in their formative years. Child psychologist are agreed that the formative years, from birth to about eight years and specifically between birth and the age of two, play a vital role in the formation of intelligence, personality and social behaviour of children. They aver that the greatest risk for young children is a repressive environment that blocks creativity and lacks conditions for healthy physical and mental development.

Garry Moore (1979) highlighted the contribution made by child psychologist Jean Piaget to the understanding of child development from the perspectives of interaction with the environment. Piaget’s pioneering work was the precursor of much research on the growth of children. His theories have found wide application in built environment design, particularly in areas that have a bearing on children, such as kindergartens, schools and parks (Moore, 2002). This study used these insights on recreation, learning, congestion and privacy to evaluate the place of children in the tenements and settlement as perceived by parents and observations of children.

a) Care of children

Married female respondents that were mothers of school-going children appeared concerned about how they were raising their children in the settlement. They were uncomfortable about the lifestyle in the tenement, which they attributed to poverty that was a result of lack of employment and business opportunities. One female respondent, a mother of two, said, “Raising children here is a big challenge. There are no government schools around. The private schools are located in premises that lack facilities such as playing grounds yet they charge high fees. You can also see that there is no provision for children’s activities in the tenements, so they play along the corridors and stairs and also along the main road, which is dangerous.” Another respondent, also a mother of two, commenting on possible influences on the character of children said, “We have all sorts of neighbours and some are involved in undesirable behaviour. Our children see this deviance all the time. How can we nurture them to be different?”

The care of toddlers was a significant issue because many female tenants had young children. Equally, findings from public health research indicate that young children are most susceptible to diseases when living in poor quality built environments (Gulis et al., 2004). Accordingly, this study reviewed, through observations and interviews, how children were taken care of in the tenements because they formed an important component of the households. The health benefits of sunbathing toddlers were discussed but it was established that the four tenements under study had no specific place where
this was done. The mothers had two options; the verandas on upper floors, when the sun
direction was right, or the area outside the tenement. One respondent said, “Initially, I
tried to sit on the balcony for the morning sun but the laundry hung out to dry blocked
the sun. Dripping clothes made matters worse; whenever there was a breeze, water
splashed all over me and the baby. My neighbours advised that I use the open property
in the neighbourhood to sunbathe. I do this every day for about three hours and it is
also a good opportunity to talk to other mothers who do the same.”

It was observed that children played alone along the corridors, balcony, stairs and road.
As observed, there were no parents watching over them as they claimed during the
interview; rather the older children played with and guided the younger ones, but they
occasionally abandoned them for more intense activities. The way they played was
a little unsettling because it seemed dangerous. That there were minimal accidents,
as indicated by parents, was surprising. There was opportunity to talk to the children,
who said they were careful not to hurt themselves. They, however, admitted that they
occasionally slid and fell on the floor or got knocked against walls and balustrades when
playing in the corridors and on the stairs. Their parents administered first aid to treat the
injuries from these incidents. The survey revealed that responsibility for the children
fell on the parents’ shoulder. Landlords never accepted liability.

b) Physical characteristics of private schools in Lucky Summer

It has been noted in the findings that 81.2% of school-going children from households
surveyed attend private schools in Lucky Summer. These schools, locally referred to
as ‘academies’, are located either within the lower floors of tenements, where some
remodelling such as removing or moving partition walls has been done to create
classrooms, or in temporary structures on undeveloped plots. Figure 7.06 illustrates
some of these schools. The size of classrooms is essentially the same, approximately
3m by 6m. The pupils have no proper space in which to play so they use the central
corridor or the roofs of incomplete buildings. Hardly are they allowed to stray onto the
road when they are in school.
Figure 7.06: Schools in Lucky Summer; a- in a partially developed tenement, and b- on an undeveloped plot (Source: Author, 2013)
7.2.5 Entertainment in the dwelling

Investigations on entertainment were limited to electronic gadgets and visitors. It was based on findings of the household survey, in-depth interviews and observations.

a) Audio and visual entertainment

Television sets, as entertainment gadgets, are central to domestic life in the settlement. The level of ownership, at 76% in the four tenements, is evidence of TV’s widespread use relative to other forms of entertainment. Responses of tenants indicated that males, females and children had different preferences in television programmes across the four tenements. One respondent, a married female and mother of one, said, “I watch TV and sometimes DVDs of Christian music. I also watch Mexican and Nigerian soap operas.”

A number of women respondents shared the same views, noting that they shared DVDs. “When I buy a good DVD, I lend it to friends after watching it and in return, I also get to watch theirs.” Another married female and mother of two school-going children said, “My husband likes to watch soccer and news.” Asked if there were conflicts on what they watched, she said there were some, but, “My husband gets his way when it comes to soccer and news and the children, too. After school, they spend a lot of time watching their favourite cartoon channels. My interests are the least served when the whole family is at home.”

The survey revealed that 30.4% of those who own TV sets receive their signal via satellite connection provided by the landlord or private suppliers in the neighbourhood. The remaining 69.6% use personal aerials attached to poles on the roof. The view of tenements at roof level is a spectacle of aerials, as partly illustrated in figure 7.07a. There is a trend in the new tenements where centralized satellite TV is transmitted through a satellite dish similar to the one in figure 7.07b. Only one satellite dish is installed on the roof, thus avoiding the clutter of numerous aerials and the many cables running down the light-wells of the other tenements. According to the landlords, the rent for such dwellings is much higher than those without satellite TV connections but this kind of tenement has become popular. Satellite TV has become popular in Kenya because of the government’s move to comply with the International Telecommunication Union (ITU) switch to digital signal transmission only. This move will compel developers of new tenements and rental housing in general to incorporate TV reception changes because not many tenants can afford personal satellite dishes but would, at minimal cost, benefit from the economies of scale of a centralized one. Even if they could afford individual dishes, the rooftop space would not be enough to accommodate them due to the large household numbers.
Figure 7.10a &b: TV reception systems, aerials and a satellite dish. (Source. Author, 2013)
b) Entertainment of visitors

The small size of tenement abodes does not deter households from entertaining visitors. Respondents said they used the available furniture and space in the dwelling to accommodate guests. This included sitting on the sofa, bed, stools and even on a mat on the floor. They rarely borrowed chairs from their neighbours. Observations of the various rooms visited indicated variances in the quantity and even quality of furniture in the dwellings. Some had as little as a bed, two stools and a small table only, but many other dwellings had a full complement of furniture, including a wall unit with a TV and a set of sofas. Such dwellings were, however, cramped.

The survey revealed that a majority of households have entertained up to six visitors at any one time. This was possible because some sat on the bed, which could easily accommodate four. Practically, the room could accommodate eight persons with little space left for manoeuvring. Depending on the number and kind of visitors entertained, respondents explained that they prepared food either prior to or after their arrival. Mostly, when the numbers were big, they cooked prior to the guests’ arrival to avoid the challenges of manoeuvring in the small space.

c) Household responses to noise nuisance from neighbours

Noise was a nuisance in the tenements and the estate at large. Though there is a rule in the tenements about noise, sources of this kind of nuisance are many, with some coming from outside the tenements. Tenants said they had learnt to live with it, but when it was too much, for example a neighbour playing loud music, they asked the tenement caretaker to intervene. As a practice, they would not reproach the offending tenant as individuals. They feared that such an approach could be considered personal and cause conflicts. Sometimes, there were periodic disturbances due to bereavement in the tenement or prayer functions. These were tolerated. On this subject, a respondent said, “Whenever a neighbour is bereaved, we collectively assist the family, both in material form and in kind. There is usually a lot of activity and we do not consider such occasions a nuisance. It is a calamity and it can happen to any of us. We also celebrate the birth of a child and weddings. Inconveniences caused as a result of these are tolerated.”

Interview statistics indicate that 50% of respondents experienced noise disturbance. On the timing of these disturbances, no clear pattern was established, though a few respondents indicated that it was mostly in the early hours of the night until late. Early night was indicated as 8pm onwards while late night was from 11pm to 4am. This was probably because at that time, many of them would be in bed, having switched off their own entertainment gadgets.
7.2.6 Cleanliness, personal hygiene and health of households

The caretaker is responsible for cleaning the general areas. These are the corridors, balcony, stairs and toilets. In the four tenements studied, the caretaker said they cleaned the toilets on a daily basis while the other areas were cleaned on alternate days. This schedule was observed when water flow was regular, which was not always the case. The responsibility of the tenant, in regard to cleaning, is limited to their dwelling unit and the areas that they use when doing laundry. They are also supposed to splash the water closet after use.

a) Showers

Tenements have one shower cubicle per floor serving between 12 and 14 households. According to space standards from architectural texts and Kenya’s building regulations, this is an under-provision. Tenants, however, had a different view. They said the shower was sufficient because they never queued to use it. This was possible because they showered at different times in the course of the day. They averred that the shower was the least of their areas of conflict. A single female who lived with a sister said, “Whenever I want to take a shower, I find the shower room vacant. On the few occasions that I have found it occupied, I have waited for whoever was inside to finish, which only took a few minutes.” She went on to say, “I shower using a half a basin of cold water, as do many tenants here. This means we take the shortest time possible in the shower room. Heating water is a cost we forego to make other aspects of our lives a little bearable. Also, nobody has enough water here and the little we have must be used sparingly.”

b) Water closets

There are two eastern squatting type water closets per floor, all without flushing cisterns. Tenants use a bucket to splash the water closet once they have used it. There are 100-litre water drums placed near the toilet for this specific purpose and they are refilled by the caretaker, illustrated in figure 6.15a. Tenants do not use this water for their individual household chores because it is usually not clean and there is a general agreement on its dedicated use. Respondents explained that sometimes water in the drum runs out and there is none in the reservoir tanks to refill it. When this happens, they are supposed to use water from their own reserves to splash the water closet. It is at this point that the toilet is left dirty because not all tenants have enough water in their reserves. The use of the toilet has become a source of frustration to tenants on many occasions. Commenting on this, one married female and a mother of two children said, “I have young children and they cannot use a toilet that is dirty because I fear they might catch a disease. Therefore, I clean it first before they can use it. Actually,
I am the tenant on this floor who cleans the toilets most.” Others indicated that they had no choice but to use the toilet in its dirty state and leave it worse off because they too had no water to spare. Others said they rarely used these toilets; instead they used the workplace facilities before they left for home. Common in the undertones of respondents was the feeling that using the tenement toilets was a disgusting activity. Because of these challenges, tenants on some floors have an arrangement where, dwellings in each wing share one water closet and keep it locked, with each household having a key.

c) Mouth hygiene

It was observed that tenants brushed their teeth at the trap of the floor drain along the corridors. This was confirmed during the interviews. A married male tenant did not consider using the floor drain for mouth washing a problem. This was a reminder of how brushing of teeth was done in village; while walking about with a toothbrush or an improvised one, usually made of a special stick chewed at one end, dipped in salt and a cup of water, spitting on the grass. Doing the same in a city tenement is a drawback. Further inquiries as to why there were no hand wash basins in the tenements, yet there was ample space for the same, were responded to with the explanation that the sinks would be misused because there was no constant water supply.

d) Laundry activity: Washing and airing

It was observed that tenants did their laundry in the corridor next to their doors. This is because there was no designated place for the same, in addition to the fact that was where the water was stored. Afterwards, they mopped the floor. They said this was a requirement that they all adhered to, for the sake of safety and cleanliness. The laundry was aired on drying lines that were tied to steel members that projected outwards to the street below. The projections were welded to the balustrade of the balcony. The drying lines, made of galvanized steel wire, were fixed by the landlord for communal use, but tenants added their own lines using plastic string. Respondents said that nobody was supposed to personalize clotheslines, but not everyone abided by this arrangement. A married female and mother of two noted, “I wash clothes almost daily because of the children. I have fixed extra drying lines to serve that purpose. Tenants here know that those lines are personal and they never try to use them because that will cause a fight.”
Figure 7.08 a & b: Drying lines on the balcony and in the light-wells. (Source: Author 2013)
There were also drying lines tied to balustrades around the light-wells in tenements C and D. In these buildings, the drying laundry obstructed sunlight penetration to lower floors and also made the ground floor wet. Respondents noted that dripping from upper floors was one of the challenges experienced on lower floors; the water from the drying clothes kept their laundry wet for longer periods and stained it. One intervention that tenants improvised to deal with the dripping water was the use of a clear polythene sheet to cover their laundry as illustrated in figure 7.08a and b. This also protected the drying clothes from dust coming from the road.

Tenants avoided conflicts in the use of drying lines mainly by learning the schedules of their neighbours. A single woman who lives alone said, “I have learnt the laundry schedules of other tenants and do mine when only a few are doing theirs so the lines are free.” Responses seemed to indicate that single person households did their laundry at odd times while families did theirs in the morning. A number of respondents said that they did not mind the dripping. One single man, also commenting on the use of polythene sheets, noted, “At the end of the day, the clothes dry. It never worries me that there is water dripping from above.” There is no denying, particularly to an outsider, that drying laundry in the tenements is unsightly, as figure 7.09a and b.
and d illustrates, and inconveniencing to people who use the ground frontage for business and other activities. As observed, a number of businesses have constructed iron sheet coverings that extend from the second level balconies to prevent dripping water from ruining their merchandise. Eventually, laundry management in high-rise housing will need to be addressed through design. One possible way of dealing with it is to use the roof. Landlords will need to be prevailed upon to cast slabs instead of using pitched roofs and install drying lines on the topmost levels of their buildings. Observation of the rooftops from other tenements showed that there were a number of tenements with flats roofs and such an intervention would not cost much. However, walking to the roof floor to air laundry, and ensuring that items are not stolen, are challenges that will need to be considered.

e) Household’s handling of solid waste

Households dispose of their solid waste in dedicated dumpsites next to the main arterial road of the settlement. These sites are many and close to tenements. It was established from the interviews that households kept their solid waste in polythene bags in their rooms before taking it to the dumpsites. From the explanations given by respondents, waste management seemed well organized in the settlement. Surprisingly though, there was a lot of garbage strewn in the neighbourhood, including on the roadside. It was explained that some tenants threw waste from their balconies, mainly at night when no one was observing them. This waste landed anywhere, including the roadside, neighbourhood properties or even the floors below. Inquiries as to why tenants would dump waste carelessly yet they lived in that environment elicited speculative responses. Some respondents noted that some tenants felt the dumpsites were too far and they did not have the patience to walk there, while others thought it was embarrassing to be seen throwing waste at the dumpsite while smartly dressed.

Emphasizing this position, a female respondent said, “Just imagine you are smartly dressed, going out to work, and then people see you throwing a polythene bag of house waste into the dumpsite on your way out. It is not respectable.” Other respondents said that throwing waste across the balcony was an easy way out because one did not require to move far from the dwelling unit. Yet others insinuated that they were only doing what other tenants had been doing. In justifying this position, one male respondent explained, “Tenants throw their rubbish carelessly; who am I to do it right? What difference can I make? This estate is already very dirty”. The interviews did not provide a dominant position on the tenants’ behaviour regarding waste management upon which a formalized intervention could be pursued. The survey, however, revealed that 50% did not like the system of waste disposal. These preferred a communal waste bin in the tenement.
f) **Households’ handling of liquid waste**

As indicated elsewhere in the study, liquid waste is drained into the water closets or the drains in the floor, such as in figure 7.10. There are no sinks in the dwellings or in the common areas. Three of the studied tenements had a splash platform located close to the toilets area, such as the ones in the background of figure 7.11. However, only one had signs of being used to clean utensils. Tenants revealed that users left these platforms dirty on many occasions because they did not have enough water to clean up properly. They observed that since there was no running water, those who used the splash platform had the double task of bringing in the utensils and water from their rooms, which some considered an unnecessary effort when one could do the cleaning in the room. Interview responses in the other two tenements indicated that the caretaker prohibited the use of the platforms. Instead, it was used as a storage top or lay idle. The water outlets on these platforms were plugged.

In one tenement where there was no splash platform, the landlord explained that he had done away with it in his later tenements. He claimed tenants were irresponsible in the way they used the platform, making it a source of bad odour in his earlier developments.

From the interviews, tenants were unanimous that they would use the wash platform if there was a constant supply of water and the caretaker ensured they cleaned it after use. In a situation where there is little or no water, it would be irrational to expect tenants to use their reserves to maintain the cleanliness of utilities they consider public.

![Figure 7.10: Floor drains into the corridors.](Source: Author, 2013)
Availability of water in the tenements was considered very central to personal and general cleanliness. High standards of hygiene will be elusive as long as a regular water supply regime is not established. The frustration of tenants will equally persist. Any strategies to improve cleanliness will depend on regular water supply. Without water, installation of plumbing fixtures such as sinks and hand wash basins or the use of the splash tops is meaningless. Tenants claimed that such strategies would only increase rent.

Formally, Nairobi is supplied with water through the NWSC, a government agency. Due to loopholes in the supply however, water vendors, who operate in a cartel-like way, draw water from these systems and then sell it in jerricans or water bowsers, to city residents (Huchzermeyer, 2006). This is especially common in low-income settlements. The other way water is supplied is through private and public boreholes that are widespread in Nairobi. Despite all these systems, however, the city’s water supply is insufficient (Eckart, 2012).

To expect that Lucky Summer settlement will receive sufficient water from formal
supply systems in the short run is illogical. Tenement owners need to develop innovative ways, individually and collectively, to provide water for their tenants. Nairobi receives between 850mm and 1,050mm of rainfall per annum. A lot of the water drains into Ngong River. Surface runoff in Lucky Summer would probably be too contaminated to be directed to a common settlement reservoir. This is because sewer waste from some tenements still flows down the open drain, along with a lot of solid waste. However, individual roof areas of tenements provide a large surface that can be used to harvest rainwater that would be directed to underground tanks. Many old tenements have huge underground tanks that served as sewer conservancy tanks before the sewer system was installed in the estate. These tanks currently lie idle but can be cleaned and refurbished to serve as reservoirs. Such water could be used for cleaning purposes. In addition, instead of filling up foundations, which are sometimes very deep, with hard-core, funds could be spent on constructing underground tanks in new tenements to create water reservoirs.

g) Health of households

Respondents from households with children pointed out that their greatest health concern was respiratory diseases. The children had frequent colds and coughs and suffered from breathing difficulties. Other residents noted that both children and adults had frequent malaria attacks, pointing out that there were many mosquitoes in the settlement. It is worth noting that usually, what is suspected to be malaria could be several diseases that present with malarial symptoms. The disease can only be properly tested in a laboratory. In addition, the findings from the medical caregivers gave only an indication of treatments they prescribed to patients and may not reflect the right treatment because estate clinics neither had proper laboratories nor the necessary competence for diagnosis. Apart from tests for malaria and possibly typhoid, the medics treated the other ailments based on explanations from patients and their experience.

Two medical caregivers, a male clinical officer (middle-level medical practitioner) and a female midwife-nurse, who run clinics in the settlement, were interviewed to establish the health status of residents. Most residents depend on these private clinics for their medical care because similar public facilities are not only far away but it takes long to be served. The study sought to establish what kind of ailments were treated and the frequency of their occurrence. It also sought to get an opinion on the causes of the illnesses and what could be done to remedy the situation. The clinical officer had served in the settlement for five years and from his records, the occurrence of diseases was in the following order: Malaria was the most rampant followed by upper and lower respiratory infections (common colds, flu and asthma), amoeba, typhoid fever, urinary tract infections (UTI) and sexually transmitted diseases/ infections (STD/STI). The
midwife-nurse’s records on the frequency of diseases changed the order a little; the most frequent was malaria, followed by amoeba and typhoid, upper and lower respiratory infections, UTIs and fungal infections, in that order.

Both medical caregivers attributed the frequency of malaria to improper disposal of garbage, stagnation of water around the estate and congested and dark dwelling rooms that allowed mosquitoes to hide. Respiratory diseases were attributed to poor ventilation in dwelling rooms and a dusty environment.

They further pointed out that typhoid and amoeba were caused by contamination of food due to the use of unsafe water, poor handling of food and dust. They noted that one of the sources of contamination was dumping of refuse and its subsequent spread by scavengers to the road, where vehicles drove over it and spread it as dust, such as in figure 7.12. In addition, they observed that garbage was spread when surface drainage channels were cleaned and the refuse dumped along the roadside. When the garbage dried up and vehicles drove over it, the resultant dust ended up contaminating food sold along the streets and getting into the tenements.

The midwife-nurse opined that the prevalence of UTIs, especially among women, was related to poor sanitation caused by sharing toilet facilities. She advised women to use disinfectant in their water when they took a bath. She had also treated fungal infections

Figure 7.12: Dumping in undeveloped plots in the Lucky Summer neighbourhood. (Source: Authors, 2013)
in children, which she attributed to humid dwelling rooms.

The closest research that was relevant and could be used to do a comparative analysis for this study was one carried out in 2004 in the neighboring populous settlement of Mukuru (Gulis et al., 2004). This was a cross-sectional study that randomly picked a 5% sample from a population of 16,000 resident patients who visited a university clinic based in the settlement over a two-year period. In the study, Gulis et al., found that the most frequent complaints and treatment were for respiratory-related infections such as virosis, acute respiratory infections, bronchitis and asthma, which constituted about 50% of the complaints. They were followed by gastrointestinal problems such as enteritis, amoeba and typhoid. Cases of malaria were very few at that time, with an incidence of less than 2%. Apart from malaria, it is evident that respiratory and gastrointestinal infections are common across these settlements.

Further, the same study noted that environmental conditions were a major influence on the health status of residents of Mukuru. It recommended reduction in air pollution, supply of clean water and improvement in waste management. The study opined that such an intervention would be a more sustainable solution than simple treatment. There are no known findings of equivalent research in any tenement settlements, and although this study was carried out 10 years earlier in a settlement of a different housing typology, its relevance for the current health status of Lucky Summer can be argued to be valid. This is because these two settlements are in the same neighbourhood, residents live in single-room dwellings, and the household size and composition are not significantly different. Moreover, the conditions of water supply, waste disposal and drainage in Lucky Summer are not very different from those in Mukuru.

7.2.7 Furnishing and storage

It was observed that household goods were organized in a number of ways that allowed effective utility of the dwelling rooms. A review of furniture arrangement, clothes, floor covering and water storage showed how this was differentiated amongst households.

a) Furniture arrangement in dwelling rooms

As part of the survey, sketches of furniture layouts in rooms were made, with special reference to the relative positioning of sleeping and cooking spaces. The purpose was to establish if there was a pattern in furniture arrangement and whether it represented a form of efficient use of space. Five categories of arrangements emerged, which were classified as A, B, C, D and E for the purpose of this study. Category D was the most predominant at 41.7%, and arrangements in category A, B and C had very close frequencies. Table 7.04 and figure 7.13 illustrate these statistics and layouts, respectively. During interviews, respondents were asked to explain why they arranged
<table>
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<th>Percentage</th>
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<td>Category E</td>
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Table 7.04: Frequency for furniture layout. (Source: Author, 2014)

Figure 7.13: Furniture layout in Lucky Summer dwelling rooms. (Source: Author, 2014)
The schematic sketches indicate the relative positions of furniture to imply activities. Not all rooms had the kind of furniture indicated; some had less and others more.

their rooms the way they did. Some indicated that it was the best way they had figured out. Others copied their neighbours’ arrangements, while others wondered whether there was something wrong with their arrangements and sought to know if there was a better way. Whether all these arrangements amounted to efficient use of space can only be left to conjecture.
b) Households’ handling of clothes in the dwellings

Through observation, it was noted that households managed their clothes in a number of ways. Respondents indicated that they kept away the clothes they rarely wore in boxes and suitcases. Clothes that were worn frequently were either hang on a clothesline stretching from one wall to another in the room or on hangers hanging from nails on the picture rail behind the bed space. One respondent, a single woman, when asked why she kept her best clothes in the box, she responded, “If I did not, they would accumulate dust and the smell of paraffin from the wicks burner and yet they are the ones I wear for special occasions.” A single male respondent who works as a driver said, “I wear a uniform on a daily basis so I don’t need many clothes. My nice clothes are kept in a box and regular ones hang on a wall.” Clothes management was a challenge to bigger households and a married female respondent and mother of three expressed as much by saying, “We keep clothes everywhere; on the line, on hangers and in boxes. We also use baskets. I fold and keep the children’s clothes in the basket. They are many and very challenging to manage. If I did not do that, they would be all over the room.” Figure 7.14 illustrate some of the ways clothes are handled in the dwellings.

All dwelling units have a wooden picture rail that runs around the entire room. The landlords revealed that this was necessary to prevent tenants from driving nails into bare walls and destroying plaster work. Many of the clotheslines run parallel to the curtain line on the bedside.

Figure 7.14: Clothes on clotheslines and hangers. (Source: Author, 2013)
c) *Floor covering in the dwelling rooms*

The common floor finish for dwelling rooms was cement screed. Close to two-thirds of the households surveyed had either a carpet or a plastic mat as a floor covering. Respondents said they used carpets and plastic mats to fend off the cold from the floor. They dismissed doubts about the ability of the plastic mat to provide insulation against cold. One married female respondents explained, “We are usually barefoot in the room, and the plastic mat is soft and warm to the feet. It also makes the floor beautiful and easy to mop.” Another one said, “The cement floor is too cold and difficult to clean. That is why we use a plastic mat. It is much warmer and easy to mop.”

![Figure 7.15: Floor cover - plastic mat. (Source: Author, 2013)](source)

Some tenants indicated that they used the covering to hide a poorly finished and sometimes damaged floor. It was observed that most single male households had no such covering. Many of them said the floor was fine as it was, and bothering about the looks of a house was a feminine thing. Other respondents said having a mat or carpet made a fashion statement, as well as making the room look cosy. These coverings did not cover the entire floor of the room but mainly half of it, the sitting side. Figure 7.15 illustrates a floor covering.
d) Domestic water storage

Tenants draw water in jerricans, drums, bottles and other containers and store it in their rooms or in the corridor next to their door, as illustrated in figure 7.16. Water storage along the corridors of these tenements limits movement and can be unsightly. One respondent, a married mother of two, when asked how they lived with so many containers full of water and drums by the door responded, “What choices do we have apart from storing the water in the way you see? I have children and need a lot of water to do laundry, clean, cook, flush the toilets and other activities. Water supply is infrequent and whenever it flows, we make sure we have plenty by collecting it in all these containers.”
According to tenants, drawing and storing water is a mandatory activity because water supply is not guaranteed despite the rationing schedule. Thus, storing water for household chores is a necessity. Single tenants who worked mainly during the day complained that they were often absent when water flowed from the taps, so they relied on water vendors. To counter this, some of them made friends with their neighbours, who drew water for them. A young male respondent admitted, "I am a good-natured person and have developed a rapport with my neighbours, especially the women. Whenever water is distributed during the day and I am away at work, they draw some for me in the containers I keep outside, by the door." When asked how safe these containers in the corridor were, tenants said it was like a taboo to steal a water container. It was likely the only rule that no-one violated. Buying water from vendors is a costly venture. A 20-litre jerrican costs Sh20, and sometimes an equivalent amount is charged to carry it upstairs. When there is a widespread water shortage, the price per jerrican can be as high as Sh40. These prices are exorbitant when compared to the NSWC charges.

Living higher up the tenement presented challenges in the delivery of water. Many
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tenants relied on vendors to carry it upstairs and this cost more. The less the water bought, the cheaper, and so most of the tenants made every effort to draw water when it was distributed. A married female and mother of two living on the seventh floor expressed her frustration thus, “I occasionally buy water from the vendors and pay both for the water and for ferrying it upstairs, or else I carry it myself. It takes a lot of energy.” On whether there were rates for buying and carrying having the water carried upstairs, she said, “These vendors don’t have a fixed charge for anything; the price depends on demand. If demand is high, they charge more. You need to negotiate.” And a single male respondent said, “Buying water is a regular thing here because if you are not at home when water is being distributed, you miss out and the alternative is to buy it from the vendors.”

7.2.8 Households’ perception of security

Most respondents said there was little insecurity in the tenements. Only petty thefts were of concern. A female respondent and mother of two said, “There are only petty thefts here. They steal shoes, especially men’s, when they are left in the corridor. Occasionally, they steal wicks burners if left outside unattended. There are no serious crimes such as house break-ins or violent robberies.” Another respondent, a married female with one child, said, “There is no insecurity here only opportunistic thefts of male’s shoes and trousers from the drying lines. Occasionally, when one leaves the door open as they go to the bathroom, a thieving neighbour might steal a mobile phone or the gas cylinder.” To illustrate how serious the tenants took the theft of shoes, those that invited me to their dwellings insisted that I step into the room in mine, warning that the shoes I wore, safari boots, were popular with men and would be grabbed in a moment if left outside.

Interviews revealed that robberies sometimes happened in the business premises along the settlement street. M-Pesa (Safaricom electronic money transfer) kiosks were the most affected because they transacted in cash.

7.2.9 Household’s expectations about housing future

According to responses from most households, living in Lucky Summer was a challenge arising from their socioeconomic conditions. The study sought to understand what their thoughts were on their housing futures. One of the questions pursued was whether they were willing to move out of the city altogether and settle where housing conditions were probably much better. Some 70% of respondents indicated they would move out of Nairobi to another town if a better job opportunity arose. This response mostly came from those in employment or engaged in small-scale businesses but wishing to get into the formal job market. A couple, both employees said, “We live in the city because of our work. If we got similar or better jobs elsewhere, especially close to our rural home,
we would move there.” A male respondent who is in the car spare-parts business said, “If I got some guarantee that I could do good business within this industry in another town, I would move there. I am not bound to Nairobi.” On the other hand, 25% of the tenants indicated they would not move out of Nairobi. These were all running businesses that they indicated were doing well. An example was a male tenant who ran a retail shop in the settlement. He said, “I left my local town to come here because there was not enough business there. Business is good here now and I do not believe there is another town with this kind of opportunity. I will do business here until I retire.” Another 5% indicated that although they estimated that they were doing well in business, they would shift base if they got better opportunities elsewhere.

The question about the future of their housing in the city elicited various responses. A common response on whether they would move to a bigger house if they earned more was that they would not. Instead, 60% said they would continue to rent similar housing in the near future. They reasoned that they did not have much expectation of making enough money to enable them invest in housing in the city. A single male who works for an events organizing company said, “Unless a miracle happens, I do not see myself saving to buy land and build a family home. Land prices are too high and construction would be even more. I earn so little that I barely afford the basics of life.” However, 15% of respondents had already acquired plots in the outskirts of Nairobi and were intending to build family homes. The rest were categorical that they did not intend to invest in Nairobi. One respondent from northern Kenya was resolute in his response: “You cannot trust land agents in Nairobi because they sell non-existent land. I know people who have lost money to them and that is enough reason not to try. I will, therefore, build and invest in my village and retire there. Meanwhile, I will live in rental housing.” Such a response could be understood from the cultural perspective of some Kenyan communities who are averse to investing anywhere but in their indigenous homes.

7.2.10 Thoughts on domestic life of households

Out of the findings on domestic life in tenements, this study reflected on some key issues such as privacy, efficiency of use of scarce space, cleanliness and health and also on the social cost of living in tenements.

a) Privacy

There are a number of privacy issues that were raised by respondents and observed during the fieldwork. One of the concerns about privacy was intrusion from outsiders, who comprised neighbours and passer-by. Households responded to this by keeping their curtains drawn and he doors and windows closed. As some of the respondents
noted, this created discomfort in the dwellings. It was also observed that drawing the curtains, particularly in those dwellings that were on upper levels or fronting the street, denied them lighting. This, as noted, necessitated the use of artificial lighting throughout.

Privacy in relation to household size was also a concern. Double deck beds, for instance, which from observation could offer efficient use of space, were not popular. Instead, households opted for stand-alone beds. The reality of sharing a space that is hardly 10m2 with a curtain to separate sleeping from living space in a household of more than one is unfortunate. For adults, such as a couple, to share such a space with school-age children is socially abhorrent. The things children learn from living under such conditions could lead them into deviant behaviour.

The Kenyan media has reported and run features on conflicts and antisocial behaviour of the youth attributed to single-room living in Nairobi. One report in *The Nairobian* in May 2014 mentioned a case where a 19-year-old girl assaulted and injured her mother because she was disgusted with the frequent demands that she leaves the dwelling whenever her mother’s boyfriend visited, which was most evenings. A feature in *The Nairobian* of 6th March 2015 pointed at the challenges of households living in single-room housing.

In the feature, interviews with psychologists in Nairobi showed that children who watch or hear their parents making love start experimenting earlier. They pointed out that Nairobi had the highest incidents of sex among teenagers, a problem they said emanated from children sharing single-roomed dwellings with parents who engaged in sex within earshot. They further stated that these conditions of living pushed both the parents and children to psychological anguish. Research findings from popular settlements in Nairobi showed that many children, mainly from households that lived in single-room dwellings, ended up on the streets as urchins while others got into prostitution among other antisocial behaviours in an effort to escape their homes (*The Nairobian*, 2015).

**b) Efficiency in space use**

When living in a small house, there is a tendency to be organized in terms of the conduct of activities and arrangement of household goods. Findings in this chapter have shown how innovative households are in the way they use space to meet their needs. It has shown how living space is transformed into cooking space and thereafter into sleeping space at night for large households, and then again into living space in the day to entertain the household and visitors. This cyclic spatial transformation is
a prerequisite of living in a small dwelling that does not have dedicated spaces for activities. Findings also showed that items, particularly those associated with cooking, are placed within easy reach.

Observation of cooking activities revealed that most of the items required for cooking and washing up, such as ingredients, crockery and utensils, were within reach from a sitting position. One only needed to turn around to serve the meal to the household and also to consume the food after pushing the portable gas cooker or wicks burner into a corner or under some furniture. While the efficiency with which activities are carried out could be attributed to the pragmatics of living in a small space, the ease or flexibility with which it is done is evidence of households being innovative in meeting spatial requirements for their domestic living.

c) Cleanliness and health

Living in tenements of Lucky Summer presents a collective challenge of maintaining high standards of cleanliness. Lack of water is the greatest challenge. Findings show that residents have devised ways of keeping high levels of personal hygiene by using water efficiently at the household and tenement levels. For example, they use just enough water from a basin to take a bath. Instead of using a flushing cistern for the water closet, they use a five-litre bucket. These are some of the measures necessary to utilize water in conditions of scarcity. While this can be praised, the attitude of residents towards household waste management was observed to be poor.

Garbage was disposed of carelessly in the neighbourhood, particularly when no one was watching, for example at night. The toilet was occasionally used without being flushed, either because of lack of water or due to mischief. The challenge that confronts communal living in the tenements, where many households of varied compositions share substantial space and amenities, is how to create an environment where tenants respect and care for others through responsible conduct of their domestic practices. Leaving such a challenge to the good will of the tenants is not good enough; innovative design and service provision interventions could be one way of ensuring cleanliness in the tenements. Such challenges could be tackled through trying model solutions, for example building experimental housing designs.

Further, keeping the tenements and settlement clean is made difficult by the fact that the road is not constructed to bitumen standards and therefore generates a lot of dust. Poor drainage, vacant plots that have become dumping grounds and a waste management system that is unable to cope with waste output contribute to the unsanitary state of the settlement.
The health status of residents is wanting, as indicated by the health caregivers and respondents, and from observations of health parameters reviewed in the study. Poor ventilation and lighting in the dwellings, together with the sanitary status described earlier, has created conditions for disease incubation. As noted in the studies of Gulis et al (2004), a sustainable solution to creating a healthy environment lies in getting a built environmental correction solution. In Lucky Summer, it will entail ensuring that tenements are sufficiently ventilated and naturally lit, making clean and sufficient water available, managing waste in better ways and draining the settlement effectively.

d) Social cost of living in tenement housing

The findings of this study have shown that in many ways, the built environment of Lucky Summer does not support domestic life to a level of quality advocated in the studies and practice of architecture and planning, psychology, sociology and others. Studies in housing have shown, mainly in qualitative terms, that well-planned housing with adequate space promotes the wellbeing of its residents in many spheres of their social life, including morals, health, productivity, family function and community, among others. This is the understanding on which regions and cities are planned and consequently built. Antisocial behaviour, poor health and dysfunctional families are many times a consequence of poorly conceived built environments.

Housing studies are replete with findings of this, especially from America where the government intervened to redress social ills that were brought about by poorly conceived housing schemes (Jacobs, 1964; Bristol, 1991). The findings of this thesis have highlighted, in both qualitative and quantitative ways, the socioeconomic implications of tenement housing to the welfare of residents and the community at large. Many of the issues noted in the findings have not been handled to a level that would quantitatively ascribe figures, but they are nonetheless noted as important and would require further research from competent disciplines to study specific implications of tenements on households in the settlement.
CHAPTER 8: CONCLUSIONS AND RECOMMENDATIONS

This study set out to create an understanding of the phenomenon of tenement housing in Nairobi using Lucky Summer settlement as a case. It was carried out through an investigation of the quality of tenements and domestic life of tenants. This chapter is organized into three parts; conclusions, recommendations and suggestions on areas of further research.

8.1.0 CONCLUSIONS

This study established a number of findings discussed from chapter four to seven. These are summarized into the conclusion in this chapter and organized in the order of the research questions. However, a part of question four on contribution to policy is presented in the recommendations section.

8.1.1 The origin and transformations of single-room dwelling typology

Findings from historical reviews indicate that the colonial administration created Nairobi as a commercial hub to support British industry and not a township for local people. These were apportioned a small part of the city, essentially as labour camps, to support production. Native labour, which was exclusively male, was accommodated in housing that took the form of dormitory rooms that were often shared, with common amenities such as cooking, toilet and shower spaces. The single-room, as official accommodation in Nairobi, can therefore be traced to the period the city was established.

After independence in 1963, land reforms were enacted and these allowed for private land ownership for locals in the city. This created new land administration challenges arising from political and commercial interests as discussed in chapter four and five. Meanwhile, the government did little to provide adequate public housing for the burgeoning urban population. It instead promoted self-build housing such as those in site and service schemes, a number of which were re-developed into multiple dwelling
units, including tenements, for rental purposes. The responsibility for housing supply, as statistics indicate in chapter one, has been left solely to the private sector, a position that has had detrimental consequences in the low-income sector, among them the supply of inadequate and poorly built housing as is evident in tenement settlements such as Lucky Summer.

Findings from Lucky Summer are an example of how political interests in land allocations and administrative ineptitude in the housing development process created a tenement settlement of poorly conceived housing. This is not, however, unique to Lucky Summer because literature on human settlements in Kenya has shown that political interest in land administration, institutional corruption and commercial interests have undermined a search for housing solutions and weakened enforcement of planning and building laws (Kamau & Gitau, 2004; Huchzermeyer, 2011). Expansions in tenement development in settlements discussed in chapter four further show that there are insufficient official strategies to address the housing challenge in the low-income sector. Further, it indicates that institutions responsible for ensuring adherence to planning and building laws do not discharge their mandate. The discussions of this study show that non-compliance with these laws and the abdication of the state in its oversight role is attributed to political interests in matters of land and local support for political leadership. Such interests will not create conditions that will change the state of housing for the better.

8.1.2 Quality of tenements and the neighbourhood

The quality of the tenements and its neighbourhood is a factor of development density, tenement design and construction methods and commercial interest as an underlying factor. This study has shown that investment in tenements is a profitable option, surpassing that of formal housing in the short term. Findings from contractors, landlords and real estate institutions such as Knight Frank, discussed in chapter six, have shown that returns on investment take about eight years while in the formal housing sector, they take more than 14 years. The underlying motivation for investment in tenement housing is its profitability, which is earned mainly because the tenements are built outside development control regulations, meaning that they are overdeveloped and much saving is made from the methods used in construction as noted in chapter six. This has led to the production of poor quality housing.

The development density of tenements in Lucky Summer is high. The medium-density development presupposed in the plot subdivisions under the planning regulations has since been superseded and the area has become a high-density tenement settlement. There is no provision for public amenities such as public schools, formal markets,
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health centres, open spaces and play fields, among other facilities. The Physical Planning Act (Republic of Kenya, 2010) makes provisions for these facilities based on development zone density but this was not adhered to in Lucky Summer. Further, planning guidelines in the Planning Handbook (Republic of Kenya, 2008), recommends a dwelling development density 133 units per hectare for multiple family dwellings. The dwelling envisioned is estimated to have a build-up and circulation area of 75m². This is the guideline for the highest density in urban housing. Using these guidelines to evaluate the housing density of Lucky Summer established that planning laws and the reality of housing development are in contradiction. Lucky Summer covers 19 hectares with 522 plots in three different plot sizes. From the population estimates in chapter six, a fully developed Lucky Summer settlement would have a density projection 26 times more than is provided for in the planning law. While the basis of that planning regulation could be questioned, and indeed, it should, in light of the reality of urban population densities in Kenya, it should not escape notice that the density variance is enormous and requires redress. One way to achieve that is through a policy review of urban residential densities.

The official guide on development ordinances and zones for Nairobi does not give planning guidelines for populous settlements. It is limited to formal settlements, and commercial and industrials areas. Moreover, the failure to implement the Nairobi Master Plan of 1973 provided a leeway for the private sector to determine how to develop urban land that they had acquired and such discretion can be attributed to the developments of Lucky Summer. Physical infrastructure such as roads, sewers and drainage, and services such as schools, health facilities, markets and others, cannot be provided because they are not backed by an urban plan, moreover, the government does not own land in the settlement area because developers set none aside. This explains why the settlement lacks basic facilities that are the preserve of the state. It could also explain the reluctance of the former city council and the current county government and the central government to get involved in the development of the settlement.

As discussed in chapter five, there has been an effort by landlords to have the county government review the planning criteria with a view to accommodating the tenements. In their current physical state and occupancy levels, the tenements fail to meet the basics of housing quality as provided for under planning and building laws. The way city planners handle the requested revisions to physical planning of Lucky Summer, will have consequences on the future of housing unless Lucky Summer is set aside as special planning area and further development stopped. A lasting solution lies in comprehensive planning of the entire neighbourhood and its incorporation in the overall city plan. Such a plan would follow an integrated planning approach that should exploit
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the neighbourhood’s potential, such as the industrial zone close by. This observation further supports a need to review the Planning Act of 2010 in regard to residential densities in view of this urban reality.

The design of tenements does not conform to planning and design principles backed by these disciplines and normative practices. Apart from the small size of the dwelling space comparable to the requirements of most households, the layout of dwelling rooms in relation to other spaces in the tenement, such as other dwelling rooms, corridors and wet core, results in little privacy. Further, the layout does not allow the rooms to benefit from natural environmental factors such as lighting and air circulation, thus limiting physiological comfort.

The housing policy of Kenya (2004) recommends 36m² as the optimum area for a household dwelling. The criteria used is however contentious because it is not based on any established understanding. This provision was contradicted by the government itself in 2008 when it issued a gazette notice, ‘legal notice number 115,’ which proposed a tax relieve offer to developers who built low-income housing with dwellings measuring 30m². That notwithstanding, the households of Lucky Summer live in approximately a third of what the policy prescribes and that should be an issue of concern particularly to households of more than one person. Moreover, chapter four of the Kenyan constitution (Republic of Kenya, 2010a) in the Bill of Rights part 43 (b), gives Kenyan citizens the right to accessible and adequate housing, and to reasonable standards of sanitation. Households in Lucky Summer are, therefore, outside the limits of the constitution.

The construction methods used in building tenements is not in accordance with established technical specifications. Explanations from contractors and observations made by the researcher indicate that the tenement can be described as neither a framed structure nor one that is supported by load bearing walls. The structural system consists of reinforced columns and beams and stone walling integrated to form a monolith. The walls share the load bearing function of the columns; walls can, therefore, not be relocated or removed without the risk of structural failure. From observations, the cross-section sizes of columns and beams together with the sizes of steel reinforcement are undersized when visually compared to other structures of similar magnitude that are built to statutory approval in the neighbourhood. Equally, the dimension stone for walling is untested for structural strength. Thus, its bearing capacity as a structural wall is unknown. This raises concerns about the structural integrity of the tenements.

The factors of tenement design and construction methods have a direct bearing on the physiological comfort and health of households. The measurements of temperature and relative humidity of dwelling rooms showed that they were at the edge or beyond
acceptable limits while natural lighting and air circulation inadequately accounted for in the tenement design. Discussions with local healthcare givers emphasized the inadequacy in design by noting that respiratory diseases were the most common ailment in the tenements, a position that was collated by the tenants through interviews. The tenements as currently designed do not offer physiological comfort and healthy living. Housing studies have shown that there are health and psychological consequences for households that live in housing whose design does not conform to physiological criteria. Such concerns are enough reason to make requisite design interventions to tenements.

8.1.3 Socio-economic characteristics and domestic practice of households

The findings on household size in Lucky Summer established it was 2.4, which is low compared to other settlements with other popular settlements in Nairobi with single-room dwellings that is more than 3. Studies on spatial requirements for households discussed in chapter two would indicate that space provision of 10m² is insufficient for most households and under such a criterion, such housing is considered inadequate for most households even in a context of shared amenities.

Findings show that household heads have basic education but many of them do not have tertiary training and are employed as casual labourers. Affordability of adequate housing has, of course, a direct relationship to household income, which has a correlation to levels of education and training of its member(s). This understanding will explain that a majority of households of Lucky Summer can only afford to live in a single-room dwellings under the prevailing housing rent structures.

This study showed that most households spend less than a third of their income on housing. Demographic findings on income show that monthly rent ranges from a quarter to a third of household income. This falls within the acceptable stipulation of the ratio of rent to wages for affordable living as recommended by some housing institutions and scholars. This rent-to-wage ratio recommendation, however, defines ‘adequate housing’ based on spatial requirements and household size, a criteria that does not apply in Lucky Summer. The conclusion of this finding is that shelter is apportioned a fraction that is not more than a third of household income in the lower-income segment, while the balance covers other basic needs such as food and transport. This finding is in conformity with that established in housing studies for low-income urban populations. To this category of the population, housing choice is not a consideration of quality and quantity of space but rather affordability in relation to other competing needs.

Households make a choice to live in tenements, the other closest option being staying in the populous settlements (slum), where rent could be a half of what they are paying. However, most tenants are of the opinion that tenements offer a superior lifestyle.
Those who had moved from populous settlements such as the nearby Mukuru said they moved because they could afford tenement rent, and in addition, the permanent housing was more secure and much cleaner, among other considerations. It was a case of moving from one populous settlement to another whose quality of housing was considered better. The choice to live in a specific tenement, however, was driven by the availability of a dwelling. Rents were generally uniform and therefore not a consideration.

*Residential mobility* was high. The findings showed that three-quarters of the inhabitants moved house mainly within the same settlement in a period of two years. There was no satisfactory explanation for this behaviour in the socioeconomic circumstances of households or the physical conditions of the tenements. Studies in psychology would suggest that such moves are based on factors of self-esteem. Although this study did not delve into depth on household psychology, it did establish a pattern in residential satisfaction and frequent moving would suggest that a substantial population was not satisfied.

*Tenements offered little privacy to households*, both from external and internal considerations. The layout of dwelling rooms is such that the openings, doors and windows, face each other across the central corridor that is also a thoroughfare. As a result, households keep the windows not only closed but the curtains drawn throughout. Most doors also have curtains that remain drawn. Within the dwellings, an increase in the size of households reduced the level of privacy. The study established that there was a strong association between the household size and the opinion about the size of dwelling space and privacy. As household size became bigger, the opinion that the dwelling space was small increased as privacy reduced.

*Household continuously reorganize space in the dwelling units* during the day to carry out domestic activities such as food preparation and consumption, sleeping and entertainment. This finding established that this was one creative way households utilized scarce space to meet their housing needs. This was also observed in the way households maintained satisfactory level of hygiene within the context of shared facilities and services. For example, water, which is usually in short supply, is used sparingly for personal hygiene and domestic chores. Toilets are manually splashed using a five-litre container and basins used for bathing, to minimize water usage. Here, one can learn important lessons on living with scarcity.

There is no attention made to spatial needs of children in the tenements and the neighbourhood. They play in spaces that expose them to risks of physical harm. Children hardly venture into the streets because they are congested with activities, mainly commercial and both vehicular and human traffic. There is also lack of
appropriate space for mothers with new-borns to bask in the sun. Balconies are used for drying clothes and many tenements have pitched roofs, which are not an option. The use of undeveloped neighbourhood plots for sunbathing and as a meeting venue for mothers is not a sustainable solution because these plots do not remain undeveloped for long. As noted in chapter seven, this kind of environment is repressive to growing children because it lacks conditions for health and mental development. The issue of raising children in the tenements is a challenge that can be redressed through proper physical planning and housing designs.

### 8.1.4 Contribution to housing knowledge

This study set out to understand the phenomenon of tenement through investigation of its quality and domestic lifestyle of tenants using a framework drawn from people-environment studies. The study has shown how the interrelations of parameters and attributes of various disciplines and practices explain the phenomenon of tenements. For example, it has been shown that a broad understanding of the phenomenon of tenement housing can be achieved through a review of its quality approached from two perspectives. One, using parameters and attributes of the material condition of the built environment referred by Lawrence (1989) as ‘statutory yardstick’, derived from built environment academics and professionals and, two, social environment perspective, using economics, psychology and political science parameters. The findings of this study discussed in chapter four to seven illustrate the significance of the interrelationships of these disciplinary and practice parameters and attributes.

Commercialization of housing has been shown to influence planning, design and construction of tenements. Further, the household’s ability to afford housing and the level of wages are significant economic indicators that explain increased demand for single rooms in tenements of Lucky Summer. The subject of wages is also at the centre of domestic lifestyle of households influencing such issues as choice and preference and even to some extent mobility.

Further, psychological parameters related to space use such as privacy, crowding and user group together with domestic activities of households have been used to discuss domestic life in the tenements thus offering an opinion on its quality. The socioeconomic characteristics of households and domestic practices that were carried out through a number of study instruments such as demographic studies, interviews and observations, investigated factors such as choices and preferences, settings, user group and mobility gave indications about households satisfaction living in the tenements. This offered an opinion on its quality.

Finally, this study set to develop a broad understanding of the phenomenon of tenements
and not one specific aspect, which could be carried out through specific disciplinary approaches. As such, the multidiscipline character of PES offered an opportunity to evaluate many parameters as study variables and their interrelationships in this subject matter. PES is thus a useful approach for gaining broad overviews of the phenomena, as was the intension of this study.

8.2.0 RECOMMENDATIONS

The recommendations of this study are mainly centred on issues of policy that arise from the findings that political and economic factors that include commercial interests of developers are the overriding reasons in the creation of tenements. The recommendations are reflections on policy and administrative issues, which have been organized into four parts; housing policy, planning and building laws, socioeconomic interventions, legislation and land administration and tenement design and methods of construction.

8.2.1 Housing policy, planning and building laws

This study has shown how normative planning and building practices including those prescribed by the housing policy and building laws of Kenya, are unmet in Lucky Summer. The case of Lucky Summer is a contradiction of these practices and it raises question on how housing policies and laws are formulated in Kenya. The case of Lucky Summer is one example that shows these housing policies and laws are not responsive to the housing reality of the poor urban populations in the prevailing socioeconomic and political context. It is not surprising that the private sector, which supplies housing for this cadre, violates the provisions of these policies and laws to build affordable housing notwithstanding spatial inadequacy and poor quality of construction. According to De Soto (2000), when laws are in conflict with the basics of human survival, they are, out of necessity, violated. Although the laws are not violated by the tenants themselves, the violations are a consequence of their need for affordable housing, which is unmet within the legal framework. Accordingly, this study recommends that policies and laws that govern housing need to be reviewed to account for prevailing housing realities.

In view of the reality that many households cannot afford adequate housing, the housing discourse in Nairobi needs to address the minimum irreducible spatial provisions; at a private dwelling, at a housing block level where there are shared facilities, and in the neighbourhood. The basis of such a discourse should be spatial requirements based on household categorization as is exemplified in Britain (Mayor of London, 2012), where an elaborate classification of housing types has been established that conform to the varied requirements of households. This study envisions a review of the housing policy and laws that provide for varied dwelling types. In that regard, a single room dwelling
such as the ones in Lucky Summer should not necessarily be condemned but embraced and reorganized in terms of layout planning, to serve households in a better way. Housing literature from the developed countries shows that it is common for single people to make a choice to live in single-room dwellings with inbuilt services such as kitchens and bathroom facilities. Unlike in Kenya, such housing is restricted and cannot be occupied by those with children.

The Kenyan building code and housing policy does not have an explicit policy on housing categorization based on household characteristics. It assumes a basic standard for a family dwelling and provides minimum area for the same. It could benefit from the lessons of these other countries where housing categorization is based on household characteristics, a position that would influence the planning of neighbourhoods. Consequently, tenement housing such as that in Lucky Summer could be classified as an adults-only settlement for the working class. With adjustments made to tenements to conform to physiological comfort parameters such as ventilation and lighting, the settlement can serve as dormitory housing for the neighbouring service and manufacturing industries. Combinations of categories of housing based on context analysis could be one way of ensuring households get suitable housing as well as guiding investment decisions for both the private and public sectors.

8.2.2 Socioeconomic interventions

The chronology of housing, from the colonial administration to subsequent post-independence governments, shows that successive administrations did not provide any meaningful social support in accessing housing to the majority urban poor. The lessons of the welfare state concept practiced in Europe and America at the beginning of the 20th century were not emulated in Kenya’s housing sector despite the country’s colonial heritage. While it could be argued that Kenya cannot afford such interventions because of a number of factors, including a weak economic base, there has been no significant effort towards developing policies that would attract formal investment in the low-income sector.

The government’s support of low-income households to access housing that was done in the 1960s and 1970s to cater mainly for the low-income urban population in the form of site-and-service schemes in Nairobi was a strategy that should have been continued and reformed to comply with socioeconomic conditions of the rapidly changing urban context. Unfortunately, this policy was abandoned in the 1980s due to global economic changes that introduced Structural Adjustment Programmes (SAPs). This socioeconomic policy shift meant that the government lessened its social responsibility to its citizenry in favour of market forces. Consequently and within the low-income settlement areas, infrastructure and service provision that supported housing
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development, suffered. While the site-and-service programmes provided infrastructure and core housing units in a medium-density framework for home ownership, this study envisions one that focuses on high-rise housing, possibly both for rent and purchase.

The rent paid for a single-room dwelling, which households can afford for approximately 10m² of floor space, is considered sufficient earning for only such a floor area. It is not sufficient earning to supply housing of a larger area or ‘adequate housing’ at the same rent and remain in housing business. Hence, to achieve access to adequate housing some form of housing subsidy would be considered. Research has shown that housing is the single-most expensive component to households, consuming between 25% and 50% of household income. In the low-income sector, that is a significant proportion and yet it will not be enough to invest in adequate housing. Such is the understanding that makes progressive countries provide subsidies to low-income households to access quality housing that they could otherwise not afford in a free market.

An argument that could support a recommendation for housing subsidy is captured in an article in one of Kenya’s daily newspapers by economist Kwame Owino titled Low-cost housing? In Kenya, that’s a myth. It delves into the issues of low-income housing and extensively discusses the subject in the context of the prevailing economic situation in Kenya. He reviews national economic performance, wages, employment, land ownership and cost of building. He concludes that what is referred to as a housing problem is in actual sense an income and employment problem. (Daily Nation, 15 March, 2014). The findings of the survey in Lucky Summer concurs with these views; that wages are too low to afford adequate housing under the existing socioeconomic and political context.

The housing solution for the low-income households such those of Lucky Summer lies in the involvement of the State in the provision of housing subsidies in one or more ways recommended in social/housing policy discourses. Such interventions can take the form of subsidized rent through a social welfare system or monetary policy that support housing investment in the low-income sector and which is attractive to the private sector. One suggested example in contemporary time is Public Private Partnerships (PPP) initiatives.

8.2.3 Administrative interventions

Out of the lessons learnt from the growth of Lucky Summer and observations of other similar settlements, it is the view of this study that the state bureaucracy, either, within the existing land administration framework or through new legislation undertake four tasks.
• Make available more land for housing development in the low-income sector because of the reason that a large number of residents in Nairobi are in the low-income category and these are currently housed in congested settlements that occupy the lowest land mass of the city.

• Make a commitment for enforcement of land administration laws. That will mean demolition of tenements and a demand that subsequent housing development comply with planning and building laws. Such action will present serious political, commercial and social implications to all actors. Moreover, such housing, which will be legal, will be unaffordable to the category of tenants that currently reside in Lucky Summer. As noted in chapter five, the county bureaucracy has attempted to demolish these tenements before but because it lacked political backing, it failed.

• Support the development of infrastructure and public amenities within such areas. A case for such action is the increased demand for housing within the low-income echelons and the numbers of households that live in housing that is inadequate. The state can develop policy mechanisms that can compel it to make available land in urban areas zoned for mass housing, possibly high-rise developments, for low-income households where it will commit resources to support services such as infrastructure and amenities. These interventions should be carried out by the state as its social responsibility without much regard to neoliberal economic consideration.

• Individual plots in the settlement could be amalgamated into large land chunks and re-planned for high-rise housing development where plot owners will sell out or be shareholders. Such a suggestion would be contentious but the reality of designing high-rise multiple dwelling units that satisfy the criteria set out in planning and building laws in plots of the sizes offered in Lucky Summer is a big challenge. Plot amalgamation carried out in New York for tenement improvements is an example from which lessons can be drawn.

**8.2.4 Tenement designs and methods of construction**

This study has concluded that Lucky Summer tenements are not tenable in their current state of design and construction and possibly in the short term, a remodelling strategy could be worked out for those tenements that are certified as being structurally sound. The purpose will be to redesign the tenements to provide for natural lighting and ventilation. Systems such as wind catchers and thermal chimney that could utilize the staircases and light wells discussed in chapter six could be applied. Such intervention would however require policy and legislative changes to planning and building laws. In the long term, however, these tenement should be demolished and landlords asked to
build better planned housing that complies with a new housing policy and building laws discussed in 8.2.1.

### 8.3.0 SUGGESTIONS FOR FURTHER RESEARCH

The detailed investigations of this study were limited to Lucky Summer tenement settlement, which is considered representative of a new trend in tenement development in Nairobi. The findings could be generalized to other similar settlements but as the study has established, there are at least three categories of these developments. As such, there is a need to explore further this phenomenon in other tenement settlements in Nairobi, using similar or alternative approaches to broaden the knowledge in this area of housing. Tenements of Lucky Summer are generally similar in typology and this study considers them poorly designed. Consequently, this study recommends research into the development of low-income housing models as a collaborative activity with building professionals and developers using design and economic models, such could be one way of attracting private investment. This can be carried out in a number of ways: (i) Models of single-room dwelling tenements similar to those of Lucky Summer that conform to sun lighting and air circulation criteria. (ii) Remodelling strategies of existing tenements to approximate ‘adequate’ housing standards. (iii) Investigate and develop models of high-density housing for low-income households based on both the existing land demarcation regimes of the ‘plot’ type and holistic housing planning. Increasing demand for housing due to population growth in Nairobi and the need for adequate housing makes a case for such studies.

Further suggested studies include: Studies on urban residential densities reflecting on these realities in urban centres of Kenya and its relationship to the Physical Planning Act (2010) and those of other “best practices”. Such a study would provide lessons for review of the Physical Planning Act as suggested in this study. Studies on the impact of physical planning and designs of low-income settlements on the welfare of children. Such a study could be organized as a multi-discipline study to cover most disciplines and practice specialities covered in PES. Finally, studies on housing subsidy scenarios using socioeconomic and political approaches that are based on urban socioeconomic indicators. Such studies could seek to establish cost effective ways to fund housing for the low-income ranks. One such a case could reflect on the public-private-partnerships (PPP) and their successes.
Tenement Housing in Nairobi
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Appendix 1

The questionnaire in appendix 1 was used during phase 1 of the study to provide demographic information and other aspects of the practices of households. Such information could be generalized to the settlement.

DOMESTIC LIFESTYLES OF TENANTS IN LUCKY SUMMER SETTLEMENT (PIPELINE) – EMBAKASI

QUESTIONNAIRE TO TENANTS

Declaration
I am doing this research as part of my PhD studies. I am interested in learning about the domestic lifestyles of people that live in single room dwellings in the flats of this estate. I hope that your answers to my questions will help me to better understand how you live and that the findings of this research will eventually assist policy makers and other stakeholders to provide better services. I expect this interview to take 45 minutes. Thank you for your participation.

(Please tick within the boxes the appropriate response to the following questions.)

RESEARCH QUESTIONS TO TENANTS – PART I

1. What is your gender? □ M □ F
2. What is your age bracket?
   □ Less than 20 years □ Between 20-29 years □ Between 30-39 years □ Between 40-49 years □ Over 50 years
3. What is your education level?
   □ Primary school or less □ High school □ Certificate □ Diploma □ Degree □ Postgraduate
4. What is your occupation?
   □ Government sector □ Private sector Employee □ Self-Employed □ Student Artisan □ Home maker □ Other (specify)
5. If you are engaged in work, in what industry?
   □ Building and construction □ Horticulture □ Auto industry □ General manufacturing □ Service industry (specify) □ Other (specify)
6. If you are not the household head, what is the occupation of the household head?
   □ Building and construction □ Horticulture □ Auto industry □ General manufacturing □ Service industry (specify) □ Other (specify)

7. What is your relationship with the household head?
   □ I am the household head □ Spouse □ Son/Daughter □ Friend □ Relative □ Parent □
8. What is your estimated total monthly household net income?
   □ Less than sh. 10,000 □ 10,001- 15,000 □ 15,001- 20,000 □ 20,001-25,000 □ 25,001-30,000 □ More than 30,000
9. How long have you stayed in your dwelling unit in this flat?
   □ Less than one year □ 1 to 2 years □ 2 to 3 years □ 3 to 4 years □ 4 to 5 years □ More than 5 years
10. Where were you staying before you moved into this flat?
    □ In a roomed temporary house □ In another flat in the neighbourhood □ In a similar flat in another estate in Nairobi □ In a bigger house in another estate in Nairobi □ In the rural area □ In another town □ Other (specify)
11. Why did you choose to rent a house in this flat? (If more than one reason, indicate numbers in order of priority starting with 1)
Adequate water supply, Adequate kitchen area

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
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<tbody>
<tr>
<td>12. What factors influenced you to live on this floor/level?</td>
<td>(If more than one reason, indicate numbers in the boxes in order of priority starting from 1)</td>
</tr>
<tr>
<td>The only available room was located here.</td>
<td>Other (specify)</td>
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<tr>
<td>Better natural lighting.</td>
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<td>Less noise</td>
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<td>Less theft</td>
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<td>Less disturbances</td>
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<td>Superior ventilation</td>
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<td>Less dust</td>
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<td>Children</td>
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<tr>
<td>Washing/clothes are less dripped on.</td>
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</table>

13. How many members are there in your household? (Indicate against each category)
   Adults (20 years & above) __. Teenagers (13-19 years) __.
   Children (Less than 13 years) __.

14. Do you feel your flat is secure?  Yes __  No __

15. Do you own a house elsewhere in Kenya?
   No __. Yes, in urban area __. Yes, in rural area __. Yes, in both __.

16. If ‘Yes’ above what factors prevent you from staying in your own house?
   Too far from work __. It is for rental income __. Avoid to stay with my tenants __.
   Insecurity __. Rural home __. Other (specify) __

17. What is the distance in Km between your flat and place of work?
   Between 0-3 km __. 4-6 km __. 7-9 km __. Over 10 km __.

18. What is the distance in Km between your flat to your children’s school? (If applicable)
   Between 0-3 km __. 4-6 km __. 7-9 km __. Over 10 km __.

QUESTIONS TO TENANTS - PART II
(Whenever there is more than one choice, you are free to tick more than once to a maximum of three)

PREPARATION AND CONSUMPTION OF FOOD

19. What cooker do you use?
   Jiko __. Pressure Stove __. Gas cooker __. Electrical coil cooker __.
   Wicks burner (Stove) __. Microwave __. Electric kettle __. Other (specify) __

20. What pots and pans do you normally use for cooking?
   Pressure cookers __. Flat/frying pans __. Sufurias __. Other (specify) __

21. What type of starch food do you mostly consume?
   Ugali __. Chapati __. Potatoes __. Rice __. Green bananas __. Githeri __.
   Others (specify) __

22. What vegetable food do you mostly consume?
   Cabbage __. Kales __. Traditional green vegetables __. Carrots __. Others (specify)

23. What protein food do you mostly consume?
   Fish __. Red meat __. Chicken __. Animal innards __. Peas and beans __.
   Eggs __. Others (specify) __

24. How do you clean or wash these foods?
   In a wash basin in the dwelling unit __. In a wash basin at the corridor in front of my door __.
   In the sink in the common wash up area __. Prepared by vegetable vendors __. Other (specify) __

25. As a household, how do you normally eat food?
   In the dwelling unit seated around the central table __. Self-service and eating is done all over-corridor,
   balcony and in the dwelling unit __.
   Everybody eats at their own time __. In a restaurant downstairs __. Other (specify) __

26. Where are these foods commonly sourced?
   Main fresh produce market __. Vegetable vendors along the settlement streets __.
   Kiosks or green groceries shops in the neighbourhood __. Super market __.
   Others (specify) __

27. What are the physical limitations of cooking these foods?

28. What physical facilities and or space would you suggest could make the cooking activity more pleasurable?

29. Is all food consumed in your house fully prepared by you and members of your household?
   Yes __. No __.
30. If ‘No’ where is the other food prepared?
Purchased as fully cooked food from food vendors_. Bought from restaurants_.
Purchased as semi-cooked food from food vendors_. Others_ (specify)____

31. Where are utensils cleaned after meals?
Common sink in the wash up area_. In wash basins in the dwelling unit_.
In a basin in the common corridor_. Other_ (specify)____.

32. When washing/cleaning is done in a basin, how is waste water disposed of?
Poured down the WC_. Poured down the drain in shower room_.
Poured down the floor drains in the corridor_. Poured out over the balcony_.
Poured in the common sink in the wash-up area_. Other_ (specify)____.

SLEEPING
33. What best describes your sleeping arrangements.
Adults (couple) share a bed and children sleep on a mattress on the floor_.
Adults (couple) share a bed and children sleep on the sofa seats_.
All sleep in double decker bed – adults on the lower bed and children upper bed_.
Sleep on own bed (singles) Two share the bed and other sleep on sofa seat_.
Sleep on bed, sofa seat and on mattress on the floor_. Other_ (specify)____.

34. In your opinion, is there any other way you could organize your dwelling unit using alternative furniture to better serve your sleeping activity? --------------------------

35. What would be your comment on the size of your dwelling unit considering your household size?
It is enough It is small but fits into my budget_.
It is small but I make savings to cater for other needs_.
I am assisted to pay rent by a benefactor and as such I cannot complain_.
Other_ (specify)____.

36. Do you have an arrangement where some of your household members sleep at alternate times within the daily cycle? Yes_ No_.

37. If ‘Yes’, why is that so?
We work at different times within the daily cycle (others day time while others at night)_.
It is a cost effective arrangement (partnering up with people that work at alternate times)_.
Other_ (specify)____.

CLEANING
38. What is your / household’s role in cleaning the flat?
I clean only my unit_. I clean my unit together with the common area that I use_.
We have arranged with other tenants to share in the cleaning of common areas_.
We tenants raise funds and hire somebody to clean periodically_. Other_ (specify)____.

39. In respect to the cleaning of common areas, how do you conduct yourself so as to avoid conflict?
I carry out my cleaning in accordance with an agreed schedule among tenants_.
I clean according to the landlord’s schedules and so does everybody else_.
I pay someone to do the cleaning_.
I clean up the area that I use and mind my own business_.
The flat caretaker does the cleaning_.

40. Is there a time when the flat remains unattended in terms of cleanliness?
Yes_ No_.

41. If ‘yes’ how do you intervene?
Call the landlord to complain_. Mobilized tenants to communally clean_.
I mobilize tenants to contribute money to hire a cleaner_.
Just clean the areas around my dwelling unit and ignored the rest_.
I take up the task of cleaning myself_. I just don’t care_. Other_ (specify)____.

42. What makes the cleaning of your flat challenging? (If more than one indicate with numbers with 1 as most offending)
The floor finishes are made of materials that are difficult to clean_. Poor drainage system_. The floor finish is poorly done_. There are too many people using few amenities_. Indiscipline among tenants_. Others_ (specify)____.

43. What in your opinion needs to be done to make the cleaning experience easier/better in the following areas:

a. Floor finishes? -----------------------------------------------
b. Wall finishes? -----------------------------------------------
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c. Amenities (wc, shower, wash-up area) ------------------------------.
d. Services? (Water, garbage management, etc). ---------------------.
e. Organization of tenants? ----------------------------------------.
f. Others (specify). -----------------------------------------------.

ENTERTAINMENT
Watching TV, entertaining visitors, listening to music, reading etc
44. What is your main form of entertainment in the flat?
Watching TV (soccer, musicals, soaps, movies, others) __. Listening to music __.
Receiving visitors __. Reading __. Socializing with other tenants __. Smoking/drinking __. No
entertainment __. Others__ (specify) __.
45. If you own a TV, who is your signal provider?
Cable TV provided by the landlord __. Cable TV paid by myself __.
Satellite TV provided by the landlord __. Satellite TV paid by myself __.
Local TV by use of an aerial to watch __.
46. How do you ensure that your entertainment noise is not a nuisance to your neighbours?
Keep the volume low __. Avoid being entertained late into the night __.
Close the door and window __. Others__ (specify) __.
47. What was the largest number of visitors that you entertained at once in your dwelling unit?
1 to 2 Visitors__ 3 to 4__ 5 to 6 __ 7 to 8 __. More than 9 __.
48. In that situation, how did you prepare and serve food?
Prepare food in the dwelling unit in their presence __. Prepared food before their arrival __. Prepared
and cooked food at the corridor __. I did not serve any food __. Entertained visitors at the balcony while
food was prepared inside the dwelling unit __. Bought ready cooked food from vendors downstairs __.
Served only drinks and snacks __. Took them out to a restaurant __. Other__(specify) __.
49. How did you organize your sitting to fit them in?
50. Who is your frequent visitor that you entertain? (Indicate by numbers with 1 as the most common)
Girlfriend/boyfriend __. Spouse __. Relatives __. Neighbours __. Friends who come to watch TV (soccer,
films, etc) __. Workmates __. Off springs __. Welfare/church groups __. Other__ (specify) __.
51. Are you ever disturbed by noise from your neighbours as they entertain themselves?
Yes __. No __.
52. If ‘Yes’ in above what is the most common noise disturbance?
Loudd sound (high volume) from music systems and TV __. Singing __.
Cheering following the watching of competitive sports by neighbours and their friends __. Talking
loudly on mobile phone __. Other __(specify) __.
53. What time(s) do you frequently experience this noise disturbance?
Early morning (5 am to 9 am) __. Mid-morning (10am to noon) __. Early afternoon (1 to 3pm) __.
Evening (4pm to 7pm) __. Early at night (8pm to 10pm) __. Late at night (11pm to 4am) __.
54. How do you intervene when noise levels from entertainment gadgets get to intolerable levels?
Talk directly to the offending tenant __. Complain to the care taker __. Call upon like-minded tenants
and collectively confront the offending tenant __. Call the landlord to complain __. Report to the local
administration __. Other__ (specify) __.
55. What are the other sources of noise that disturb your peace from outside your flat? (Indicate with
numbers with 1 as the most common)
Preaching (loud prayers) __. Music from restaurants and bars downstairs __.
Vehicle movements __. Hooting from vehicles __. Children playing or crying __. Generators in the
neighbourhood __. Shouting/singing from drunken persons __. Music/movie vendors __. Others__
(specify) __.
56. Do you own a computer or a smart phone?
Yes __. No __.
57. If ‘Yes’ do you use it as a form of entertainment? Yes __. No __.
58. Do these gadgets have access to the internet service?
Yes __. No __.
59. If ‘Yes’ who provides this internet service?
Prepaid and by self __. Post paid and by self __. Local ISP and paid by self __. Employer provide for it __. Landlord __.

PERSONAL HYGINE
60. What is the source of water in your flat?
Piped water that flow all the time __. Buy water from vendors and store it in drums __. Piped but
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rationed and as such I collect water in drums and keep it in my unit__. Borehole on the ground floor from which I draw water__. Other__ (specify)__.  
61. How frequently do you shower?  
Once a day__. Twice a day__. Every alternate day__. When I have done hard work__. On a sweaty day only__. When the weather is warm__. Other__ (specify)__.  
62. Where do you take your shower/ clean yourself.  
In the flats shower room__. I take a shower at the place of work__. I use a wet towel in my dwelling unit__. I shower in a friend’s house in the neighbourhood__. Other__ (specify)__.  
63. What type of WC is installed in your floor?  
Western sit-on type__. Eastern squatting type__. Other__ (specify)__.  
64. What flushing system is used in your WC?  
Flush from the installed cistern__. There is no cistern and a bucket is used__. Because of irregular water supply both cistern and bucket flushing are used__. The cistern is spoiled and we use the bucket all the time__. Other__ (specify)__.  
65. What is the arrangement, in your floor level, of using the WC?  
A number of dwelling units are allocated a specific WC__. Use the one available__. Other__ (specify)__.  
66. Where do you brush your mouth?  
Brush my teeth at the shower__. Brush my teeth at the WC__. Brush and spit down the floor drain/downpipe__. At the balcony and spit across the balustrade__. I don’t brush my mouth__. Other__ (specify)__.  
67. Where do you wash your laundry?  
In the corridor next to my door__. At the common balcony__. At the work place__. In the shower room__. At my other house__. At the commercial laundry in the neighbourhood__. Other__ (specify)__.  
68. What do you do to ensure your laundry is clean when aired?  
I air it in the corridor__. I live on the uppermost floor and dripping doesn’t affect me__. I wash at odd times when no one else is using the airing/drying lines__. I use a transparent polythene paper to cover my laundry as it dries__. Other__ (specify)__.  
**DISPOSAL OF WASTE**  
69. How do you dispose of your garbage?  
Put it in a polythene bag and dump it in a garbage pit in the neighbourhood__. Throw it out over the balcony__. Throw it in common garbage bin in the flat__. Collect it in a bucket and dump in a garbage pit in the neighbourhood__. Other__ (specify)__.  
70. Are you comfortable with the disposal system?  
Yes__. No__.  
71. If ‘No’, what other system would you suggest?  

**AIR / AERATION AND SMELL**  
72. In a scale of 1 to 5 (very good to very poor). How can you rate the level of aeration of the following spaces in your flat? (Circle as appropriate)

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<tr>
<th></th>
<th>V. good</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>V. poor</th>
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</thead>
<tbody>
<tr>
<td>a</td>
<td>Dwelling unit</td>
<td>1</td>
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<tr>
<td>b</td>
<td>Corridors</td>
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<td>Shower</td>
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<tr>
<td>e</td>
<td>Staircase</td>
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<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>f</td>
<td>Balconies</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

73. What in your opinion would you suggest to be done to increase air circulation in your flat?  

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74. Is there stench in your flat? Yes __, No __.
75. If YES, what are the sources of stench? *(Indicate with numbers with 1 as the most common)*
   - WC __, Shower __, Neighbours dwelling unit __, Splash area __, Gulley traps and drains __, Dampness from wet washing __, Dirty corridors and stairwell __, Cigarette smoke __, Garbage buckets/bags in the flat __, Cooking of certain foods __, Other __ (specify) __.
76. What interventions have you taken to ease the stench? --------------------------------
77. What in your opinion needs to be done from a design and built perspective, to reduce stench? --
-----------------------------------------------------------------
LIGHTING
78. In a scale of 1 to 5 (very good to very poor) how can you rate lighting in your flat? (Circle as appropriate)

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<tr>
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<th>V. good</th>
<th>Good</th>
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<td>Shower</td>
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<td>Staircase</td>
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<td>Balconies</td>
<td>1</td>
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<td>4</td>
</tr>
</tbody>
</table>
79. What in your opinion would you suggest to be done to increase natural lighting in your flat? ----
-----------------------------------------------------------------
CHILDREN
80. Where do your children mostly play?
   - On the roof terrace __, On the balconies and corridor __, On the stairs __, On the road outside the flat __, On an empty plot near the flat __.
   - They play only when they are in school __, Other __ (specify) __.
81. How do you ensure their safety when they are playing in the flat?
   - I ask them to be careful __, I watch over them as they play __, The design of the flat takes care of safety __, They don’t play in the flat __, Pay the guard at the flat to watch over them __, Other __ (specify)
82. What are the common accidents involving children in your flat?
   - Falling off the balconies __, Falling down the stairwell __, Slipping on the floor __, Knocking against walls/balustrades __, Knocking against open windows and doors __, Other __ (specify) __.
83. In case of an accident in the flat, how do you intervene?
   - Meet the hospitalization costs myself __, Ask the landlord to enhance safety features __, Take the child to hospital and seek compensation from landlord __, The neighbour whose child had an accident just moved out of the flat __, Other __ (specify)
84. Where do children go to school?
   - In a council school far away from the settlement __, In a church sponsored school nearby __, In a private school in one of the flats __, In boarding school __, In rural area __, Others __ (specify) __.
GENERAL
85. Do you experience electricity outages/blackout? Yes __, No __.
86. If ‘Yes’, how do you deal with it?
   - Use a candle __, Use a paraffin lantern __, Use a gas lump __, Use rechargeable lighter/lamp __, Other __ (specify) __.
87. Do you experience frequent water shortages? Yes __, No __.
88. If ‘Yes’, how do you cope with the problem?
   - Purchasing from vendor __, Drawing from borehole __, Draw & store in container when it flows __, Landlord purchases & keeps in water reservoir for common use __.
89. What is it that you think makes your flat insecure?
   - Anonymity of tenants __, No watchman/guard __, No censorship of visitors __, Petty thefts __, No security lights around the flat __, Others __ (specify) __.
Appendix 2

Interview guide in appendix 2 was intended to deepen the understanding of domestic life of households as a follow-up on phase 1 study.

Interview guide to tenants
Name of tenement __ Floor level ___ Dwelling number ___

Affordability and choice
1. Why did you make a choice to live in this one room dwelling and not elsewhere, where rent is equivalent or lower but there is more room space?
2. What is your opinion about your household income and the level of your education/ training?
3. What is your opinion about the level of rent for your dwelling?
4. Why did you choose to specifically live in this tenement when rent for most single rooms across the settlement is the same?

Relationship of privacy, crowding and the characteristics of space on household activities.

Preparation and consumption of food
5. How do you manage the activity of food preparation in respect to the type of fuels and cleaning?
6. What changes could be made in terms of space reorganization and or fixtures to make food preparation a pleasurable activity in the dwelling or tenement?

Sleeping
7. How have you organized your sleeping activity? How satisfactory is it?

Cleaning
8. What can you comment on the cleanliness of the tenement?

Entertainment
9. Can you comment about TV and radio as entertainment gadget/media in your dwelling and the tenement?
10. What can you comment about the entertainment of visitors in your dwelling? (Numbers, frequency, purpose)

Personal hygiene
11. What can you comment about your personal and household hygiene in regard to the challenges of water and common amenities?

Disposal of waste
12. Comment on waste disposal from your dwelling.
13. What is your opinion on waste disposal in your tenement and neighbourhood?

Natural lighting and air circulation
14. Comment of natural lighting and air circulation in the dwelling and tenement.

Children
15. Comment on raising children in the tenement (sunbath, play and school)

General
16. What can you comment about electricity supply?
17. What is your opinion about the security of your tenement? (burglary and petty thefts)
Appendix 3

Interview guide for Landlords

Housing development
1. What is the mandate of the landlord’s association?
2. Why invest in tenement housing?
3. Do you seek professional services in the development of tenements? If not, why?
4. What is their understanding of planning and building laws?
5. What is your relationship with regulatory authorities? Local council? NEMA? Public Health?
6. What does it cost to build a tenement?

Rent issues
7. How is rent collection managed?
8. Are any utilities included in the rent?
9. What is the policy for rent increases?

Utilities/amenities
10. How are utilities supplied and paid for? (Water, electricity, cable or satellite TV etc)
11. How are common amenities managed?

Cleanliness/maintenance/repair
12. How is common areas cleaning organized?
13. How is waste managed in the tenement?
14. How is maintenance of the tenement managed? Are requests made by tenants?
15. What modifications are tenants allowed to make to the dwelling / tenements?
16. Are their pest control strategies?
17. Have they ever been faced with reports on issues such as mould, toxins or disease outbreaks in the tenements or surrounding environment? How was it dealt with?

Tenancy
18. How well do you know your tenants?
19. What are the modes of communication between tenants and the landlord? (Housing agent, caretaker, direct contact with landlord, etc)
20. How are conflicts between tenants managed?
21. What are the common complaints by tenants about other tenants?
22. What is the policy on children? Are there any special considerations/provisions made to cater for children?
23. Are there limitations on what tenants can and cannot do in the tenement? (limits on guests visiting or staying, parties, timelines, noise levels, keeping pets, prohibition on usage of certain fuels, etc)

Safety / Security Issues
24. What safety and or security measures are in place in the tenement?
25. How are security lapses and safety issues such as accidents handled?
Appendix 4

Interview guide for contractors

1.0 Bio Info.
   • What is your level of training?
   • How long have you been a contractor?
   • For how long have you been constructing tenements?

2.0 What is your role in the construction of tenements?
   • About drawings
   • Building inspection
   • Procurement of materials
   • Procurement of labour
   • Construction

3.0 What is your opinion about the tenement building process?

4.0 What are the challenges you face as a contractor working on tenements?
   • Landlords
   • State agencies
   • Others

5.0 What innovations, if any, have been introduced into the construction of tenements over the years?

6.0 What is your opinion on the future of tenements?
Appendix 5

Interview guide to caretakers

1.0 Bio Info
What is your highest level of education?
Do you have any skills?
What duration have you worked in this tenement as the caretaker?
Have you worked previously as a caretaker?
For what duration have you worked in this tenement?

2.0 Job description.
Describe what your role as caretaker is?

3.0 Cleanliness of tenement.
What are your cleaning responsibilities?
What are the tenants’ cleaning responsibilities?

4.0 Complaints by tenants
What are the common complaints about this tenement?
• Amenities
• Space use
• Cleanliness
• Others

5.0 Disputes
What are the common disputes and how do handle them?
• On amenities and space use
• Interpersonal relations

6.0 Rent.
How do you collect rent?
How do you handle rent defaulting?

7.0 Maintenance
Do you carry out regular maintenance in the tenement?

8.0 Security and safety
What are the security measures in place in the tenement?
Are there complaints or incidences of insecurity?
Are there safety complains arising from the construction of the tenement?

9.0 Observations
What can you tell me about the following.
• Noise in and around the tenement.
• Waste disposal
• Tenants use of common spaces and utilities
• Shifting flats

10 Knowledge of tenants
How well do you know your tenants in terms of the following.
• Household composition
• Place of work
Observation guide

Settlement wide
1. Types of businesses and activities along the settlement street
   Preparation and selling food, green groceries, retail businesses, hardware and software
   businesses, textiles and shoes, services such as workshops, water vending, restaurants, salons,
   cyber cafes and furniture among others.
2. Infrastructure
   Roads- materials used in its construction, state of repair, drainage (material used in
   construction, effectiveness as a drain, sewers, water)
3. Services (waste management)
   Quantity and quality of waste receptacles, littering of waste and other dump sites.
4. Building construction process
   Building materials- types and handling, construction process such as formwork and concreting.
   Sizes of construction components etc.
5. Physical characteristics of tenements
   Floor height, characteristics of balconies, types of opening- doors, windows, vents, physical
   state of maintenance, painting, roof finishes

Tenements & dwellings
7. Physical character of the dwelling
   Floor layouts /organization and size of spaces, types and sizes of components (stairs,
   balustrades, doors, windows, etc), state of maintenance of the tenements (floors, toilets and
   showers, walls, doors).
8. Tenants activities within the common space,
   Cleaning, laundry, relaxation, movements, playing, etc
9. Tenants activities in the dwelling
   Food preparation, entertainment,
10. Environmental characteristics of dwelling
    Lighting, ventilation /air circulation, temperature, relative humidity
11. Organization of the dwelling
    Furniture arrangement, wall hangings, clothes management, floor covering etc)
Edwin Oyaro Ondieki

TENEMENT HOUSING IN NAIROBI

Tenements are increasingly becoming a popular housing option in Nairobi yet it is unregulated. This thesis is a study of an emerging trend of this housing type that is often built on legally owned land, which is unplanned and unserviced. It is carried out through a study of the quality of tenements and domestic life of enants with reference to the high-rise block consisting of single-room dwellings with shared facilities that predominantly accommodate low-income households. The study has used a multidisciplinary approach to illuminate the multiple factors that exemplify tenement housing through a case study of Lucky Summer settlement in Embakasi, Nairobi.

Tenements are presenting a new urban lifestyle perceived to be superior to the slums that are dominated by the upper echelons of the low-income category/tenants/city dwellers. This group is on the rise thus increasing demand for this housing type and consequently providing an opportunity for the private sector to profit from the investment. This residential transformation is happening rapidly in tandem with the city’s growth and should raise concern about housing quality but at the same time, it presents an opportunity to review the ways in which housing is provided. Concerns such as affordability, social and behavioural, commercialization of housing, interest in land administration, planning, design and construction offer an opportunity to redress this urban growth phenomenon through policy reviews, administrative action and improvements to existing stock of housing.

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