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REAL ESTATES AND URBAN PLANNING

THE QUALITY OF AN URBAN RESIDENTIAL NEIGHBOURHOOD: A CASE STUDY OF UMOJA I ESTATE, NAIROBI

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ABSTRACT

Purpose of the study: The study examined the quality of an urban residential neighbourhood in Umoja I Estate, Nairobi. Notably, the study sought to determine the indicators of quality in an urban residential neighbourhood and the prevailing quality condition in Umoja 1 estate.

Statement of the problem: The building standards adopted and once planned neighbourhoods including Umoja 1, are rapidly transforming into unplanned settlements thus losing their neighbourliness.

Research methodology: Secondary data was obtained from a review of past literature from libraries, resource centers, government agencies and the internet. Primary data was obtained by administration of household questionnaires, holding face-to-face interviews and use of an observation checklist. The population consisted all the stakeholders, institutional, governmental, non-governmental and all the residents of Umoja 1 Estate.

Findings: The findings of the study established that indicators of quality in an urban residential neighbourhood included physical quality, transportation quality, environmental quality, social quality, economic quality and institutional quality.

Conclusion: The study concluded that residential environment of Umoja 1 Estate had metamorphosed since its initial establishment and after the high-rise developments. The study further concluded that indicators of quality in an urban residential neighbourhood included physical quality, transportation quality, environmental quality, social quality, economic quality and institutional quality.

Recommendations: The study recommended that physical quality, transportation quality, environmental quality, social quality, economic quality and institutional quality need to be improved. There should be upgrading possibly by tarmacking or compacting the roads to enable the smooth flow of vehicles and pedestrians into the estate.

Keywords: *Indicators, quality, residential, neighbourhood, Umoja, prevailing*

1.0 INTRODUCTION

1.1 Background of the Problem

There is a growing body of research that suggests that quality of life in cities is directly commensurate with success of the economy. Luger (1996) assessed the links between the quality of life and the economic success of cities and concluded that cities that are not livable are not likely to perform important economic functions in the future. Therefore, enhancing the quality of neighbourhoods are being employed as economic development tools.

The quality of neighbourhood in this case was defined by performance of three main areas; environmental quality, physical form and functionality and individual well-being. The key elements of a livable city often include attractive public open spaces, which are walkable, mixed use, vibrant, sociable among others (Pavan, 2018). These attributes make places pleasant and easy to live. These initiatives are often met by environmental, economic and equity goals, which are also elements for the transition to sustainability (Bhatia, 2011).

Studies have shown however, that rapid increase of the urban population, has stretched the available services and infrastructure in developing countries (Ilesanmi, Housing, Neighbourhood Quality and Quality of Life in Public Housing in Lagos, Nigeria, 2012). Physical infrastructure, social infrastructure and environmental quality has thus been affected (Ilesanmi, Housing, Neighbourhood Quality and Quality of Life in Public Housing in Lagos, Nigeria, 2012). Studies on quality of existing residential neighbourhoods are rare.

1.2 STATEMENT OF THE PROBLEM

Neighbourhood units planned during the post-colonial period were meant for small communities and now the population increase can no longer be contained in the original plans. (Shihembetsa, 1989). The population has increased in such a great extent that the neighbourhoods are overcrowded and are losing their original look. The pressure for urbanising has led to the evolution of these urban areas whose physical development is not in sync with the physical development plans (Mwaura, 2002). This unmanaged urban growth has contributed to the Environmental, social and economic problems which include informal settlements, shortage of decent housing, rising crime, vulnerability of disasters like fire, collapsing of buildings and flooding, environmental degradation, poor infrastructure such as road transport, social amenities, poor drainage system and poor sanitation services (Mwaura, 2002).

The problem of housing in Kenya, should not be seen only in the light of the individual housing unit, but as a total sum of appropriate building designs, ease of doing business, inhibitive policies and regulatory environment, available resources and stakeholder participation (Osiolo, 2017). Application of the neighbourhood unit concept to planning in African residential areas in Nairobi has been overtaken by urbanisation. The residential environment that included both housing and social facilities such as shops, schools, community buildings and open space is threatened by the rapid urbanisation (Mwaura, 2002). Neighbourhood concept in planning residential areas in Nairobi was first employed by the colonial administration. Since independence, efforts were adopted by the post-independence planners to fill in the gaps that the previous plans presented (Masiga, 1975). Although the conditions were improved, the population growth has and is slowly degrading the original plan so as to accommodate the population and its needs. This western-based concept that was introduced to Kenya by the colonial administration and continued by the post-colonial administration has been questioned based on its validity and sustainability in Kenya.

Nairobi city is rapidly growing, and old plans are being quickly overtaken by this growth. Being over 100 years old, the strategy for dealing with housing has been based on population projections, density assumptions and calculations of land needs ((G.O.K.), 2007). The building standards adopted and the once planned neighbourhoods including Umoja 1, are rapidly transforming into unplanned settlements thus losing their neighbourliness.

The original plan for Umoja has rapidly changed, with only a few houses and public institutions showing traces of what would be a purely planned residential estate. The single dwellings are now multi-storey concrete jungles. Areas meant for the public, such as the market areas are congested, the road network within the estate is in a deplorable condition and left-over spaces that served neighbourhood functions have been encroached by informal traders. There is a research gap on studies quality of the changing Umoja estate, and this study aimed to fill this gap.

1.3 RESEARCH OBJECTIVES

1. To determine the indicators of quality in an urban residential neighbourhood.
2. To examine the prevailing quality condition in Umoja 1 estate.

2.0 LITERATURE REVIEW

2.1 THEORETICAL PERSPECTIVES

2.1.1 Smart Growth

Smart growth is a theory that imparts growth in the center of the city to decrease urban sprawl, create compact, transit oriented, walkable, bicycle friendly land use, including neighbourhood schools, complete streets and mixed- use development with a range of housing choices (Ritu Shrivastava, 2011). Smart growth recognizes the interconnections between development and quality of life. It leverages new growth to improve the community. It invests in time, attention and resources in community and provides new life to center cities and older deteriorated areas. Smart growth is based on ten principles which include; mixed land uses, compact building design, range of housing opportunities, walkable neighbourhoods, attractive communities with strong sense of place, preservation of open spaces and critical environmental areas, strengthening direct development, providing a variety of transport choices, making predictable fair and cost effective development decisions and encouraging community and stakeholder participation in making development decisions (The Benefits of Smart Growth Planning Principles, September 2013)

2.2.2 Intelligent Urbanism

Intelligent Urbanism promoted environmental quality by encouraging balance with nature. It emphasizes on urban ecological balance, and the utilization of resources and exploiting them. This principle promotes environmental assessments to identify fragile zones, threatened ecosystems and habitats that can be enhanced through conservation, density control, land use planning and open space design (Wafula, 2011). This theory also demands respect for the historical and cultural heritage and values of a place. Planning decisions must operate within the balance of tradition, as in protecting, promoting and conserving generic components and elements of the urban pattern, including concerning unique local knowledge, cultural and societal iconography of regions, their signs and symbols that are expressed through art, urban space and architecture (Bugadze, 2018).

It also emphasizes implementation of building materials, construction techniques, infrastructural systems and project management which are consistent with local contexts. IU promotes vibrant societies are which are interactive, socially engaging and offer their members

numerous opportunities for gathering and meeting one another. IU encourages optimum sharing of public land, roads, facilities, services and infrastructural networks, reducing per household costs, while increasing affordability, productivity, access and civic viability.

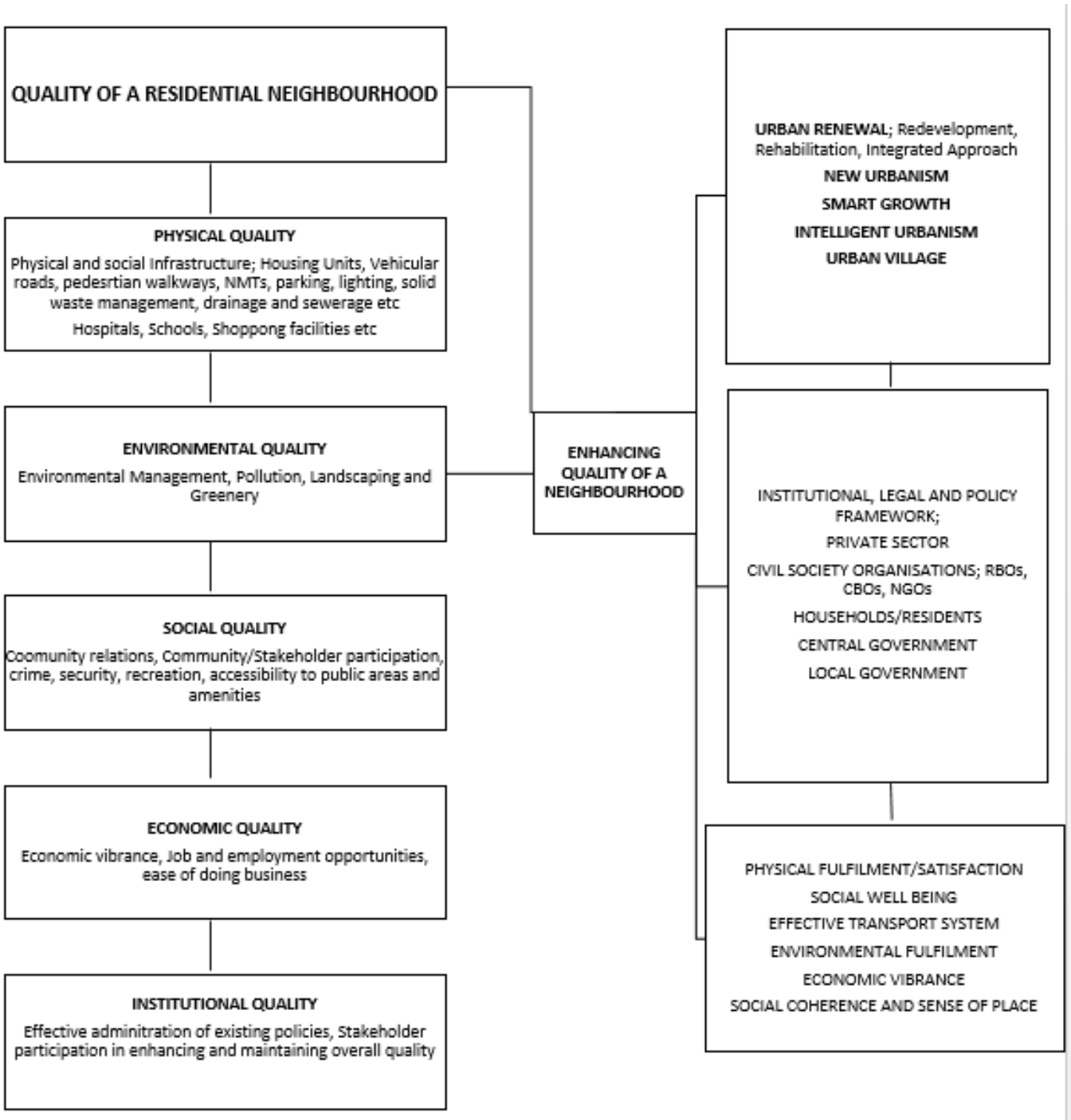
A major concern of this IU principle is transportation. While recognizing the convenience of personal vehicles, it attempts to place costs (such as energy consumption, large paved areas, parking, accidents, negative balance of trade, pollution and related morbidity) on the users of private vehicles. Good city planning practice promotes alternative modes of public transport, as opposed to a dependence on personal vehicles (Kuehn, 2013). It also promotes medium to high-density residential development along dense urban corridors, social economic facilities and public services in compact, walkable mixed-use settlements, and efficient urban infrastructure systems, delivering services at less cost per unit to each citizen.

IU principle emphasizes that good practices can only be realized through accountable, transparent, competent and participatory local governance, founded on appropriate data bases, due entitlements, civic responsibilities and duties. (Benninger, 2001) The institutional framework can only operate where there is a Structure Plan, or other document, or equivalent mechanism, which acts as a legal instrument to guide the growth, development and enhancement of the city. It defines, for instance, how the land will be used, serviced, and accessed. The Structure Plan is intended to provide owners and investors with predictable future scenarios. There must be a system of participation by the city stakeholders in the preparation of plans, in a form of institutionalized public meetings, hearings of objections and transparent processes of addressing objections, in promoting public participation. The main actors also must be institutionalized or professionally qualified or licensed, so there is a guarantee that they truly understand the issues, plan objectives, configurations, standards, the codes and regulations, methodologies, and so on (Kuehn, 2013). This applies to architects, planners, contractors, and other designated consultants, civil engineering and M&E, for instance. Finally, there must be legislation creating statutory Local Authorities, and empowering them to act, manage, invest, service, protect, promote and facilitate urban development (Benninger, 2001).

2.2 CONCEPTUAL FRAMEWORK

The conceptual framework is developed from the literature that quality of a neighbourhood is related to residents' well-being and fulfilment of the quality indicators.

Figure 1: Conceptual Framework



Source: Author's construct, 2019 (Developed from literature reviewed)

3.1 RESEARCH METHODOLOGY

This research adopted a qualitative approach in the collection of primary and secondary data. Secondary data was obtained from a review of past literature from libraries, resource centers, government agencies and the internet. Primary data was obtained by administration of household questionnaires, holding face-to-face interviews and use of an observation checklist. The population consisted of all the stakeholders, institutional, governmental, non-governmental and all the residents of Umoja 1 Estate. A sample of the research population were

obtained through random cluster sampling. The empirical data was analyzed using spatial analysis, descriptive analysis and basic computation using SPSS and MS-Excel.

4.0 RESEARCH FINDINGS

4.1 Quality Indicators in an Urban Residential Neighbourhood

4.1.1 Physical Quality

Physical structures are a basic need for residents in a neighbourhood. Physical structures provide shelter for human activities. The built environment influences a people's health and well-being (Moore). All buildings, according to the building code by law (252) provides that all buildings should pass through an approval process before being erected. A sustainable neighbourhood should offer a wide choice of housing facilities to ensure long-term value and to create a balanced community over time. The homes should cater for residents of different income ranges and different ages. The physical characteristics of the 'house' include the kitchen space, laundry, washing areas, living area, dining area, morphological configuration of the residence hall, number and levels of sockets, number of bedrooms, number of bathrooms and other aspects of housing by developers such as garbage disposal, safety, brightness and ventilation of the house ((Nyaboe, 2016).

Water supply should be sufficient to meet the water needs of different households, businesses and institutions in the study area. The building code of Kenya requires that all building developments should be approved to have a wholesome water supply. Different sectors of a neighbourhood use water for different purposes such as drinking, dilution of wastes, production of manufactured goods, growing food crops, producing energy among other uses (Gleick, 1996). Access to clean water is an important determinant to its use. The increase in urban population demands for an increase in the water supply or an improvement of the existing systems for a better future of a city.

The neighbourhood also needs a well-connected sewer line and no buildings should be erected over it. Clogging and blocking is one attribute of most sewer lines in the city of Nairobi. These poor sewer systems cause flooding causing major damage to property and is a health hazard, exposing residents to water and food borne diseases. water management should also enhance a quality of a neighbourhood by not only eradication waste water from ablution blocks, but also integrate the reuse of wastes and water in a way that is beneficial to the residents, without harming the environment (Arwari, 2016). Adequate housing protects individuals and families from harmful exposures and provides them with a sense of privacy, security, stability and control (Sultan, 2013).

4.1.2 Transportation Quality

The neighbourhood transport concept should be based on accessibility, meaning that a resident need is accessible at a walkable distance. Walkability affects community, health economics and the overall livability of a town. It is not just being physically able to walk somewhere but about all things that influence one's choice to take care of daily activities on foot, which include safety, convenience, attractiveness and connectivity.

Walkability should not just be judged from a straight-line measurement. Separated Land uses, dead-end streets, large blocks, and poorly designed and arranged developments can mean that many places are undesirable or unsafe to walk through. Supporting facilities such as termini should be planned to support all modes of transport, without affecting the flow of transport. A good neighbourhood transport system should reduce the resident's need to use vehicles,

especially single occupancy car use as a mode of travel and reduce the need to travel. It should maximize opportunities for public transport, minimize additional levels of pollution and encourage walking, cycling and car sharing (Deddington Neighbourhood Plan, 2017). A good transport system should enhance the connectivity, land-use mix, proximity and sufficiently serve the residential density (Karen Croucher, 2007).

In order to achieve internal connectedness within the sustainable neighbourhood, the entire neighbourhood needs sidewalks on both sides of the street and the distance between intersections needs to be relatively short i.e. not more than 90-120metres. Most people, when walking as a mode of transportation, will not walk farther then ¼ mile or five to ten minutes from their origination location, when walking for transportation the route from the origination location to the destination should be as direct as possible (Yan-et-al: 2005). According to Rohe:2009 neighbourhood connectedness incorporates the following elements: A street system that uses a grid or undulating design to maximize connectivity, a mix of compatible land uses that includes housing, retail, and public facilities, single family homes set close to the street, with front porches, and garages set to the rear and pedestrian amenities and public open spaces.

This includes the quality of roads, road markings, and traffic mix, parking facilities, traffic quality and congestion. The location of and ease of transport, circulation and accessibility determine the quality of a neighbourhood (UBANI Princewill, 2017).

4.1.3 Environmental Quality

The quality of the environment, its cleanliness and the housing stock in a neighbourhood have a positive effect on neighbourhood satisfaction (Matthieu Permentier, 2011). Trash, litter, odour, dust, smoke, street noise, airplane noise, rundown and abandoned houses and industrial activities determine the quality of a neighbourhood (The Determinants of Neighbourhood quality, 1979).

4.1.4 Social Quality

The basis for Social Quality is provided by public policies, including economic policy, labour market policy and social policy. Whilst the policy context shapes Social Quality it is also shaped by it in the way that different human and social needs are fed back into the policy process. A public policy informed by Social Quality would include: economic policies that provide for independence; labour market policies that opened the way for participation; social policies for securing individual dignity, for fostering social solidarity, and; empowerment (enabled by education and health policies as well as consultative processes) to shape the space for action. Social Quality provides the basis for a meta- theory for developing public policy and for its implementation and enables us to identify policies that might be relevant in this respect (Wallace, 2011).

The indicators of Social Quality include, socio-economic security, social cohesion, social inclusion and social empowerment. Whilst these indicators are not exhaustive, they can give an indication of the relative weight of the four domains (Wallace, 2011).

Accessible and safe environments have a significant influence on the neighborhood residents. They enhance the residents' sense of well-being by providing opportunities for engagement with nature and social interaction. Such safe environments include access to green spaces such as parks, playgrounds and recreational facilities. People who have access to safe green spaces are more likely to be physically active and less likely to be overweight compared to those living in areas with limited access to such facilities.

The social environment really matters with the key elements being trust and reciprocity (Moore). Trust includes trust within established relationships and social networks, generalized

trust in strangers and civic or institutionalized trust, which is basically having trust in the formal institutions of governance. Social neighbourhood quality is determined by integration with neighbours, community participation involvement, outdoor play areas, safety and crime level in the area, sense of privacy, accessibility to education facilities, religious institutions, health care facilities, entertainment and other community amenities.

Personal and household characteristics also determine the quality of the overall neighbourhood. Younger people have been found to be less satisfied with their neighbourhood than elderly people, possibly because they had less time to select themselves into a much pleasant environment (Matthieu Permentier, 2011). It is also expected, according to studies that households with children put more value on living in safe and more spacious neighbourhoods. The presence of children also has a positive impact on the social interaction in the neighbourhood. Quality of amenities such as green spaces, environmental health or pollution, upkeep and cleanliness, pace of life contribute to the social environment's need of the residents of a neighbourhood.

4.1.5 Economic Quality

Individual economic well-being is represented as both flow and stock variables such as income and wealth, and community economic health considerations such as industrial productivity, economic diversity and income distribution (Liu, 1977). Non-economic quality of life is assessed through urban population's satisfaction commensurate with the economic vibrancy and quality of the area.

The biggest advantage accrued to residents in planned neighbourhoods is that the resident can work (earn) and invest in their places of residence without travelling too far (they experience both economic and non-economic quality). Planned neighbourhoods lead to increased economic activities due to creation of new residential developments, industrial parks, business districts, which increase revenue leading to economic growth of a country. This includes the home value in the neighbourhood, cost of living in the community, socio-economic status, housing availability, housing cost, transport cost, income resources, housing quality, investment and employment opportunities (Segal, 1979).

Living in higher economic neighbourhoods has been found to lead to a higher neighbourhood satisfaction, which relates to a higher wellbeing of the residents, than living in poverty areas (Matthieu Permentier, 2011). Socio-economic status variables such as family income and education level have been found to have a positive effect on the quality of the neighbourhoods. A higher income and/or a higher level of education lead to more satisfaction in the neighbourhood. Those with a high socio-economic status have more choice on the housing market and thus more likely to select a dwelling in a neighbourhood of their preference (Matthieu Permentier, 2011). Presence of diverse people groups such as of different ethnicity or tribe affect the quality of a neighbourhood.

4.1.6 Institutional Quality

Quality institutions in a neighbourhood offer hands on management and long-term stewardship of the community. These include responsible local organizations, such as housing associations, development trusts, and religions councils (Arwari, 2016). Proximity to institutions such as schools, health facilities, police protection, fire protection, health facilities, religious institutions and management institutions determine the quality of a neighbourhood (The Determinants of Neighbourhood quality, 1979).

4.2 Prevailing Quality Conditions in Umoja 1 Estate

4.2.1 Umoja 1 Estate residents' perception of Physical Quality

The researcher tested null hypothesis to establish the correlation between the physical quality and urban residential neighborhood and the findings are presented in Table 1, 2 and 3 below

H_o: There is no significant correlation between the physical quality of an urban residential neighbourhood and the residents' satisfaction.

Table 1: Observed Frequencies (O_i) on Perception of Physical Quality

	Current physical structure	Original physical structure	Total
Perception of satisfaction with physical quality	40	5	45
Perception of dissatisfaction with physical quality	7	13	20
Total	47	18	65

Source: Field Survey, 2019

Table 2: Calculations of expected frequencies (Ei)

	Observed Frequencies (O_i)	Calculations	Expected frequencies (E_j)
1	40	$\frac{47x45}{65} = \frac{2115}{65} = 32.54$	32.54
2	7	$\frac{47x20}{65} = \frac{940}{65} = 14.46$	14.46
3	5	$\frac{18x45}{65} = \frac{810}{65} = 12.46$	12.46
4	13	$\frac{18x20}{65} = \frac{360}{65} = 5.54$	5.54

Source: Field Survey, 2019

Table 3: Expected Frequencies (Ei) on Perception of Physical quality

	Current physical structure	Original physical structure	Total
Perception of satisfaction with physical quality	32.54 (1.71)	12.46 (4.47)	45
Perception of dissatisfaction with physical quality	14.46 (3.85)	5.54 (10.05)	20
Total	47	18	65

Source: Field Survey, 2019

Calculation of the X^2 value

$X^2 = \sum_{i=1}^{n} \left(\frac{Oi-Ej)2}{Ej} \right)$ Chi Square model

$= \frac{7.46^2}{32.54} + \frac{-7.46^2}{14.46} + \frac{-7.46^2}{12.46} + \frac{7.46^2}{5.54}$

$= 2.0943+3.8487+ 4.4664+ 10.0454$

$X^2 = 20.6524$

P value is 0.000007

Taking the critical value as 0.05 and the (df) as 1, the resultwas significant as $p< 0.05$

The Chi-Square statistic with Yates correction is 17.4798. The P value was 0.000029. Significant at $p<0.05$

There was a strong evidence against the null hypothesis (Ho). Therefore, the study concluded a a significant correlation existed between the physical quality of an urban residential neighbourhood and the residents' satisfaction.

4.2.2 Umoja 1 Estate residents' perception of Environmental Quality

The specific null hypothesis tested stated as follows;

H_o: There is no significant correlation between the Environmental quality of an urban residential neighbourhood and the residents' satisfaction.

Table 0: Observed Frequencies (O_i) on perception of Environmental Quality

	Current physical structure	Original physical structure	Total
Perception of -ve consequences on Environmental quality	32	18	50
Perception of +ve consequences on Environmental quality	5	10	15
Total	37	28	65

Source: Field Survey, 2019

Table 5: Calculations of Expected Frequencies (Ei)

	Observed Frequencies (O_i)	Calculations	Expected frequencies (E_j)
1	32	$\frac{37x50}{65} = \frac{1850}{65} = 28.46$	28.46
2	5	$\frac{37x15}{65} = \frac{555}{65} = 8.54$	8.54
3	18	$\frac{28x50}{65} = \frac{1400}{65} = 21.54$	21.54
4	10	$\frac{28x15}{65} = \frac{420}{65} = 6.46$	6.46

Source: Field Survey, 2019

Table 6: Expected Frequencies (Ei) on perception of Environmental Quality

	Current physical structure	Original physical structure	Total
Perception of -ve consequences on Environmental quality	28.46 (0.44)	21.54 (0.58)	45
Perception of +ve consequences on Environmental quality	8.54 (1.47)	6.46 (1.94)	20
Total	37	28	65

Source: Field Survey, 2019

Calculation of the X^2 value

$X^2 = \sum_{i=1}^{n} \left(\frac{Oi-Ej)2}{Ej} \right)$ Chi Square model

$= \frac{3.54^2}{28.46} + \frac{-3.54^2}{8.54} + \frac{-3.54^2}{21.54} + \frac{3.54^2}{6.46}$

= 0.4403 + 1.4674 + 0.5818 + 1.9399

= 4.4294

The P Value is 0.35409. The result is significant at $p<0.05$. Thus, the study concluded there is significant correlation between the Environmental quality of an urban residential neighbourhood and the residents' satisfaction.

4.2.3 Umoja 1 residents' Perception on Economic quality

The specific hypotheses tested stated; **H_o**: There is no significant correlation between the Economic quality of an urban residential neighbourhood and the residents' satisfaction.

Table 7: Observed Frequencies (Oi) on perception of Economic quality

	Transformed physical structure	Original physical structure	Total
Perception of -ve consequences on Economic quality	6	11	17
Perception of +ve consequences on Economic quality	30	18	48
Total	36	29	65

Source: Field Survey

Table 8: Calculation of expected frequencies (Ei)

	Observed Frequencies (O_i)	Calculations	Expected frequencies (E_j)
1	6	$\frac{36x17}{65} = \frac{612}{65} = 9.42$	9.42
2	30	$\frac{36x48}{65} = \frac{1728}{65} = 26.58$	26.58
3	11	$\frac{29x17}{65} = \frac{493}{65} = 7.58$	7.58
4	18	$\frac{29x48}{65} = \frac{1392}{65} = 21.42$	21.42

Source: Field Survey

Table 9: Expected frequencies (Ei) on Perception of Economic quality

	Current physical structure	Original physical structure	Total
Perception of -ve consequences on Economic quality	9.42	7.58	17
Perception of +ve consequences on Economic quality	26.58	21.42	48
Total	36	29	65

Source Field Survey, 2019

Calculation of the X^2 value

$X^2 = \sum_{i=1}^{n} \left(\frac{Oi-Ej)2}{Ej} \right)$ Chi Square model

$= \frac{-3.42^2}{9.42} + \frac{3.42^2}{26.58} + \frac{3.42^2}{7.58} + \frac{-3.42^2}{21.42}$

= 1.2377 + 0.4400 + 1.5430 + 0.5461

= 3.76668

The result is not significant at $p<0.05$. The Chi-square statistic with Yates correction is 2.7399. The P-value is 0.097868, thus not significant at $p<0.05$. Thus, the study concluded there is a significant correlation between the Economic quality of an urban residential neighbourhood and the residents' satisfaction.

4.2.4 Umoja 1 Estate residents' perception on social Quality

The specific hypotheses tested stated; **H_o**: There is no significant correlation between the Social quality of an urban residential neighbourhood and the residents' satisfaction.

Table 10: Observed frequencies on perception of Social quality (Oi)

	Current Physical Structure	Original Physical Structure	Total
Perception of -ve effects on Social Quality	39	6	45
Perception of +ve effects on Social Quality	6	14	20
Total	45	20	65

Source: Field Survey, 2019

Using the Chi- Square calculator, the following were the results

Table 11: Expected frequencies on Perception of Social Quality (Ei)

	Current Physical Structure	Original Physical Structure	Total
Perception of -ve effects on Social Quality	31.15 (1.98)	13.85 (4.45)	45
Perception of +ve effects on Social Quality	13.85 (4.45)	6.15 (10)	20
Total	45	20	

Source: Field Survey, 2019

The Chi-square statistic was 20.8722. The P-value is 0.000005. This result was significant at $p<0.05$. With the Yates correction, the chi-square statistic is 18.2968, the p-value s 0.000019, thus the result is significant at $p<0.05$. The study concluded there is significant correlation between the Social quality of an urban residential neighbourhood and the residents' satisfaction

4.3 Physical Environment and Infrastructure Quality in Umoja 1 Estate.

This section studies the physical quality of Umoja 1 Estate. The findings of condition of pedestrian paths and storm water drainage is presented in Table 10]

Table 12: Condition of Pedestrian Paths and Storm Water Drainage

Condition of Pedestrian Paths			**Condition of Storm Water Drainage**		
	Frequency	**Percentage**		**Frequency**	**Percentage**
Good	26	40	**Good**	30	46.2
Bad	31	47.7	**Bad**	23	35.4
Very bad	6	9.2	**Very Bad**	10	15.4
No Response	2	3.1	**No Response**	2	3.1
Total	65	100	**Total**	65	100

Source: Field Survey, 2019.

The respondents indicated that physical condition of vehicular roads was good but felt that the circulation of vehicles within the estate was poorly managed. This was evident by the traffic experienced along Kangundo road and Moi drive, mostly attributed to matatus picking and dropping passenger along the road instead of doing so along designated bus stops.

4.4 Social Infrastructure Quality in Umoja 1 Estate.

4.4.1 Education Facilities

According to the initial plan, the design provided for education facilities that were meant to serve the estate, depending on the anticipated population. The education facilities present include both public and private nursery schools and kindergartens, primary schools, secondary schools and tertiary institutions that are accessible from the Estate. Some of the primary schools accessible to Umoja 1 Estate include; Umoja day Nursery, Umoja 1 Primary, Unity primary school, Kifaru Primary school, Peter Kibukosya Primary.

4.4.2 Community Facilities in Umoja 1 Estate.

The community facilities present at Umoja 1 Estate include religious facilities such as a P.C.E.A. Umoja church, A.C.K Umoja church, Umoja Catholic Church among other denominations located within or close to the estate. The estate is mainly served by one commercial center located around Umoja 1 Market. There are also provisions for shopping facilities within the multi storey buildings in the estate. Most businesses are located along the main spine road (Moi Drive) which include green grocers, beauty and hair salons, bars and restaurants, carpentry, welding and fabrication among other retail outlets. Umoja 1 Estate is served mainly by Umoja dispensary ran by Nairobi City county and other private clinics available within the estate. There is no provision for public spaces within the estate. It was observed that children play along private roads, and Primary school playgrounds, which are open to the public during weekends and public holidays. There however a need to provide for such spaces that are readily available to the public for their vitality and wellbeing.

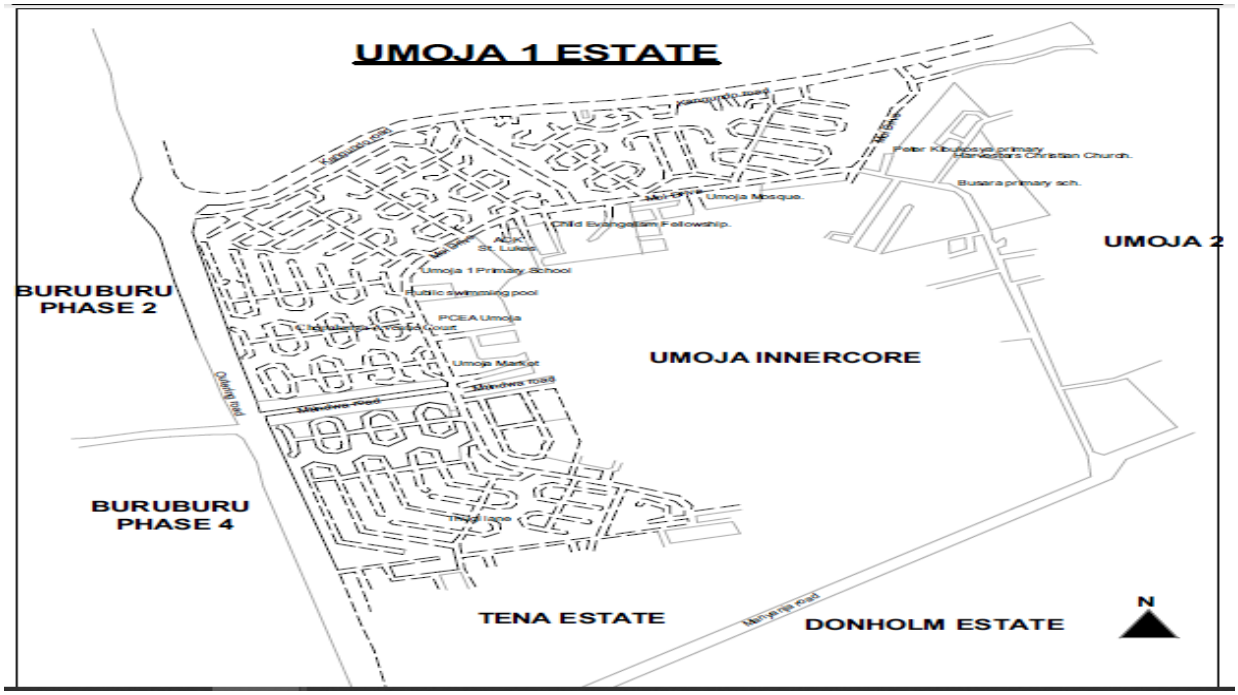
4.5 Quality of Transport and Infrastructure Services in Umoja 1 Estate.

4.5.1 Quality of The Transport System

Moi Drive is the main spine road that connects Umoja one to Outering road, Kangundo road and other estates including Umoja Innercore and Umoja 2 Estates. There are also access roads and streets within the estate. The transport system was laid according to the initial plan, thus quite satisfactory. The estate is easily accessible to public transport mainly through public vehicles (Matatus and buses) especially those that ply the Eastlands route through Jogoo road to Kangundo road and Moi drive.

However, respondents felt that the streets within the estate were not well maintained and had potholes and were prone to flooding during the rainy seasons. There is also no provision for NMTs and where this has been provided, it has been encroached by informal traders. This also causes traffic jams along the Moi drive, especially at the Umoja Market Junction due to the inadequacy of bus parking facilities to pick and drop off passengers.

Map 1: Vehicular Transport in Umoja 1 Estate



Source: Field Survey, 2019

4.5.2 Electricity and Streetlights Provision in Umoja 1 Estate.

The quality of street lighting was perceived to be adequate, as there are streetlights all along the spine roads and access roads. There is also provision of flood lights at certain areas such as the Umoja 1 market.

4.5.3 Water and Sewerage Services in Umoja 1 Estate.

The houses are connected to tap water, but the condition is fairy poor. Individual houses have access to tap water two days a week, but sometimes the water pressure from the taps in too low and the residents must buy water constantly from water vendors, to meet their daily household needs. Some residents have invested in storage tanks and water pumps to partly mitigate the problem.The inadequacy of water supply and its erratic frequency lead to unhygienic and unsanitary conditions. The inadequacy of the water supply could be attributed to the growth and erection of multi-storey buildings, which do not match the initial water pressure meant for the bungalows.

4.5.4 Storm Water Drainage in Umoja 1 Estate.

The sewer and drainage channels are well installed that connect to the county council mains. However, open drains along the courtyards are frequently blocked, especially during the rainy season due to vegetation overgrowth, over siltation and erection of kiosks over the drain channels. The blockage also is attributed to poor maintained of the drainage channels. The blockage also could be attributed to the increased capacity of the generated sewage as the sanitary lanes were constructed to hold a certain amount of sewage generated by the target population of 3000 housing units.

4.5.5 Solid Waste Management in Umoja 1 Estate.

The quality of solid waste management is fair. This is attributed to the local arrangements made by community-based organized youth group and private entrepreneurs who have been contracted to provide garbage collection services. Households pay monthly garbage collection fees averaging Kes.150/-

5.1 CONCLUSIONS

The study concluded that indicators of quality in an urban residential neighbourhood included physical quality, transportation quality, environmental quality, social quality, economic quality and institutional quality. Quality of a neighbourhood is individual's overall satisfaction with life and that satisfaction affects the resident's quality of life. Also, the study concluded that residential environment of Umoja 1 Estate has metamorphosed since its initial establishment, following the high-rise developments that had come up with time, without due consideration of the supporting infrastructural facilities available as well as lack of enforcement of existing standards. Domestic water supply and sewer system had been a big problem in the area because the existing one was initially made for the supply of a low to medium density population, but the estate had fast changed into a high-density area and thus exerted a high population pressure.

6.1 RECOMMENDATIONS

The study recommended that physical quality, transportation quality, environmental quality, social quality, economic quality and institutional quality need to be improved. There should be upgrading possibly by tarmacking or compacting the roads to enable the smooth flow of vehicles and pedestrians into the estate. Also, there is need to boost the capacity of various institutions in order to ensure they possess adequate capacity to regulate development within the estate, and thus create an atmosphere for controlled development. In addition, there should be an involvement of the residents, community, along with the policy makers and technical experts, during the entire decision-making process is crucial

REFERENCES

(EU), E. U. (2005). Handbook 2: Approaches to Urban Rehabilitation. *LUDA PROJECT, Improving the quality og Life in Large Urban Distressed Areas*.

(G.O.K.), G. o. (2007). *Kenya Vision 2030.* Nairobi: Government Printers.

(UNCHS), U. N. (1996). *An Urbanising World: Global Report on Human Settpements.* Walton Street, Oxford 6DP: Oxford University Press.

(URS), U. R. (2011). *URBAN RENEWAL STRATEGY: People First, A District-basesd and Public Participatory Approach to Urban Renewal.* Hong Kong: Government Logistics department Hong Kong special administrative Region Governement.

Abdul Ghani Salleh, N. B. (2012). Quality of Life in Urban Neighbourhoods of Pulau Pinang, Malaysia. *Journal of Construction in Developing Countries*, 117-123.

Aleksandrina V. Mavrodieva, R. I. (2018). Role of Civil Society on Sustainaible Urban Renewal .

Arwari, S. K. (2016). Sustainable Urban design in Nairobi Eastlands: The case of Kaloleni Estate.

Benninger, C. C. (2001). The primciples of Intelligent Urbanism. *World Society of Ekistics Symposium.* Berlin .

Bhatia, R. (2011). BUILDING HEALTHY COMMUNITIES. *Case Study: San Franscisco's Use of Neighbourhood Indicators To Encourage Healthy Urban Development*.

Bugadze, N. (2018). Theory and Practice of 'Intelligent Urbanism'. *Bulletin of The Georgian National Academy og Sciences*.

Communities, G. A. (2005, March). *www.communities.gov.uk/index.asp?id=1139866*.

Deddington Neighbourhood Plan. (2017). Retrieved from Movement and Transport: http://www.deddingtonneighbourhoodplan.org/movement--transport.html

Delaware, U. o. (2018, March Thursday). *What is Mixed-Use development.* Retrieved from www.completecommunities.org: http://www.completecommunitiesde.org/planning/landuse/what-is-mixed-use-development/

Development, C. o. (September 2013). *The Benefits of Smart Growth Planning Principles.* Planning and Community Development Department, Kirkland.

Ding, G. (2013). Strategies for Sustainable Housing Development-The Challenges from Renewable. *International Journal for Housing and Science, Vol. 37*(No. 4), 239-248.

Dominique Bienfait, K. F. (1992). *Indoor Air Quality and its Impact on Man.* Luxembourg, Italy: Commission of the European Communities.

Dr. Mohammad Rahim Rahnama, P. R. (August 2012). Use Principles of New Urbanism Approach in Designing Sustainable Urban Spaces. *International Journal of Applied Science and Technology, Volume 2*(No. 7), 196-202.

Gleick, P. H. (1996, June). Basic Water Requirements for Human Activities: Meeting Basic Needs. *Water International*, 83-92.

HABITAT, U. (n.d.). *A NEW STRATEGY OF SUSTAINABLE NEIGHBOURHOOD PLANNING: FIVE PRINCIPLES.*

Hamam Serag, A. S. (2013). Principles of Urban Quality of Life for a Neighbourhood. *HBRC Journal*, 86-92.

Hamam Serang El Din, A. S. (November 2012). Principles of Urban Quality of life for a Neighbourhood. *Cairo University, Faculty of Engineering , Department of Architecture. Housing & Building National research Centre (HRBC), Egypt.*, 87.

Hofe, X. W. (2007). *Research Methods in Urban Planning.* Beijing: Tsinnghua University Press and Springher-Verlag GmbH Berlin Heidelberg.

Ilesanmi, A. O. (2012). Housing, Neighbourhood Quality and Quality of Life in Public Housing in Lagos Nigeria. *International Journal for Housing Science, 36*(No. 4), 231-240.

Ilesanmi, A. O. (2012). Housing, Neighbourhood Quality and Quality of Life in Public Housing in Lagos, Nigeria. *International Journal for Housing Science*, 231-240.

Jordan, R. (2013). Urban Sustainability in Latin America and the Caribean. *CSTD 2012-2013 Inter-Sessional Panel.* Lima, Peru: Economic Commission for Latin America and the Carribean (ECLAC).

Karen Croucher, L. M. (2007). *Health and the Physical Characteristics of Urban Neighbourhoods: a Critical Literature Review.* Glasgow Centre for Population Health.

Kuehn, S. S. (2013). Intelligent Urbanism. *Convivial Living in Smart Cities*, (pp. 556-570). Fort Worth, Texas, USA.

Liu, B.-c. (1977, July). Economic and Non-economic Quality of life: Empirical Indocators and Policy Implications for Large Standard Metropolitan Areas. *The American Journal of Economics and Sociology*.

Luger, M. I. (1996). *Quality of Life Differences and Urban and Regional Outcomes: A review* (Vol. 7). Universisty of North Carolina: Fannie Mae Foundation.

Masiga, E. S. (1975). *The Neighbourhood Concept and its Application to Planning.* Nairobi, Kenya: University of Nairobi.

Matthieu Permentier, G. B. (2011). Determinants of neighbourhood satisfaction and perception of neighbourhood reputation. *Urban Studies*, 977-996.

Mbataru, W. (2018). *Umoja Estate, Nairobi, and the fight for Democracy.* Nairobi: Daily Nation.

Meenakshi. (2011). Neighhbourhood Unit and its Conceptualization in the Contemporary Urban Context. *Institute of Town Planners, India Journal*, 81-87.

Moore, D. T. (n.d.). *The Impact of neighbourhood Physical and Social environments on child and family well-being.* Melbourne: Centre for Community Child Health.

Mwangi, I. K. (June 1988). *An appraisal of Plan Implementation and Development Control in Nairobi: A Case Study of Umoja 1 Estate.* Nairobi: University of Nairobi.

Mwaura, A. M. (2002). *A framework for Urban Renewal in a low Income Residential Neighbourhood: A Case of Kaloleni, Makongeni and Mbotela, Nairobi, Kenya.* Nairobi, Kenya.

Nairobi City County, Japan International Coopertation Agency (JICA). (2014). *The Project on Integrated Urban Development Master Plan for the City of Nairobi (NIUPLAN).* Nairobi: Nippon Koei Co. LTD, IDCJ Inc., EJEC Inc.

Njonjo, K. S. (2013). *Exploring Kenya's Inequalities* . Nairobi, Kenya: Kenya National Bureau of Statistics (KNBS) and Society for International Development (SID).

Njoya, W. (2018, March 17). Leaders should push for a proper drainage to end the flood menace. *Daily Nation*.

Njuguna, G. N. (2007). *Environmental Planning and Management: Towards a better Envorinmental Law, Management, Evaluation and Impact Assessment.* Nairobi.

Norainah Abdul Rahman, D. O. (2012). Deternimant Factors of Neighbourhood Quality. *Journal of the Malaysian Institute of Planners*, 1.

Nyaboe, S. (2016). An Assessment of Residential Neighbourhood Satisfaction: A case of Bahati Estate, Nairobi, Kenya. 30-36.

Osiolo, J. G. (2017). Delivering Affordable Housing in Kenya Reduires a Paradigm shift. *The Kenya Institute for Public Policy Research and Analysis*.

Pacione, M. (2003). Urban environmental quality and human wellbeing-a social geographical perspective. *Landscape and Urban Planning*, 19-30.

Paul Odhiambo, J. G.-K. (2018). *Policy Monitor; Supporting Sustainable Development Through Research and Capacity Building.* Nairobi: Kenya Institute for Public Policy Research and Analysis (KIPPRA).

Pavan, C. G. (2018, February). Evaluating Urban Quality: Indicators and Assessment Tools for Smart Sustainable Cities. (I. University of Cagliari, Ed.) *Suatainability*, 2-18.

Ritu Shrivastava, A. S. (2011). Smart Growth: A modern principle.

Rugendo, K. J. (2012). *Sustainable Urban Drainage System: Nairobi Case Study.* Bangkok, Thailand.

Schwanke, D. (2003). *Mixed Use Development Handbook* (Second Edition ed.). Washington D. C.: The Urban Land Institute (ULI).

Segal, D. (1979). *The Economics of Neighbourhood.* Havard: Academic Press.

Shihembetsa, L. (1989). *Neighbourhood Units in Nairobi: A Survey of Bahati and Ofafa.* Nairobi: HRDU.

Solaimani, S. L. (2009). An assessment of Urban Quality if life bu using Analytic Hierachy Process Approach (Case study: Comparative Study of quality of Life in the North of Iran). *Journal of Social Sciences, 5*(2), 123-133.

Sultan, C. B. (2013). *Home Sweet Hoome: The Determinants of Residential Satisfaction and its Relation with Well-being.*

(1979). *The Determinants of Neighbourhood quality.* U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

UBANI Princewill, A. D. (2017, July). Determinants of Residential Nighbourhood Choice in a Nigerian Metropolis. *Journal of Humanities And Social Science (IOSR-JHSS), 22*(7), 01-11.

UN-HABITAT. (2001). *The state of the world cities.* Nairobi: UNCHS.

UNHABITAT. (2017). A New Strategy Of Sustainable Neighbourhood Planninng: Five Principles. *URBAN PLANNING*.

Vijal Shanker Sigh, D. N. (2012). Balancing Environment with Urban Growth in India. *Sustainable Housing*.

Wafula, N. (2011). Planning and Managing Urbanisation in Kenya following the New Constitutional Dispensation Promulgated in August 2010. *Bridging Gap between Cultures*.

Wallace, P. A. (2011). *Social Quality: A Way to Measure the Quality of Society.* Social Indicators Research Springer.com.

Wouter Poortinga, T. C. (2017). Neighbourhood Quality and Attachment. *Validation of the Revised Residential Environment Assessment tool*, 256.