THE *TERRORFIC* CITY

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The *Terrorfic*[1] City

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[1] *Terrorfic* has been coined by the author from the two words: 'Terror' and 'Terrific', being a representation of how a beautiful city is being turned to instead intimidate its users.

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DECLARATION

I declare that this project report is my original work, and that to the best of my knowledge, has not been presented for award of a degree in this or any other university.

_____   _____

Signed: Yasir Brek (Candidate)   Date

This project has been submitted for examination with our approval as the University Supervisors:

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Signed: Arch. E. O. Abonyo (Supervisor)   Date

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(Chairman of Department)

Submitted in partial fulfillment of the requirement of award of
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DEDICATION

To my late Grandmother:

Saida Huwemliye

ACKNOWLEDGEMENTS

ABSTRACT

Urban terror is increasingly becoming a normal phenomenon in modern day cities. Its impact is creating changes in building designs and urban form and in essence altering city life. It is well known that the city has always been, a place where freedoms are expressed and interactions blossomed. This is now being threatened by these alterations.

The main objective of this research was to look into the effects of urban terrorism on Nairobi's built environment and whether the interventions currently practiced are conducive to city life and form. In its analysis, the study used a survey design using exploratory and causal methodologies. Data was collected through questionnaires and backed up with interviews and field observations to support the arguments. The questionnaire survey was analyzed using Microsoft Excel and presented in charts and graphs while field observation was documented through photography.

The results indicated that the City still has a long way in ensuring the safety of its citizens due to terror attacks. It also found out that through the methods used in securing buildings, the City is increasingly becoming segregational and is losing its vitality.

The research concludes that the City need to re-appropriate its vivacity and proposes several methods to achieve this. Ultimately, it seeks to develop Nairobi as a city that is inclusive, joyful and one that promotes the civil liberties and freedom of its citizens.

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LIST OF ABBREVIATIONS AND ACRONYMS

CBD   Central Business District

CONTEST   Counter-Terrorism Strategy

CCTV   Closed Circuit Television

NIUPLAN   Nairobi Integrated Urban Development Master Plan

IED   Improvised Explosive Device

GDP   Gross Domestic Product

FLW   Frank Lloyd Wright

IRA   Irish Republican Army

CPTED   Crime Prevention Through Environmental Design

KEBS   Kenya Bureau of Standards

CHAPTER ONE

1.0 INTRODUCTION

1.1. Background of the Study

Nairobi is the capital city of Kenya and the most important economic center in East Africa. According to the 2014 Urban Development Master Plan for the City of Nairobi (2014), it accounts for 50% of formal employment in Kenya and generates over 50% of the country's gross domestic product (GDP).

The city of Nairobi has been known historically as the City under the Sun. Conceptually, it was developed and conceived using the principles of Ebenezer Howard's Garden City (Ward, 2000) (Muggah, 2012) to have lush gardens, open spaces and places to work while at the same time enjoying the repose of rural life.

Within its 100 years of development, the city has undergone tremendous growth putting pressure to its infrastructure. New residential areas have now developed and land that used to be agricultural tuned into commercial complexes. On the other hand, densities have increased tremendously necessitating the provision of commercial centres to cater for the demand. New commercial centres such as Westlands and Upperhill, have now sprung up and with the anticipated growth, more are expected to develop.

Yet perhaps, there has never been a city that has been exposed to proxy wars as Nairobi. In 1980, the Norfolk Hotel was bombed followed by the 1998 United States

Embassy, and the Westgate Mall shooting in 2013, with other sporadic and smaller incidents.

The response to these attacks has been the heightened security in urban areas. The situation has been made worse by the growing crime rate in the city. These terror situations have resulted in developers demanding fortified buildings laden with security installations and in response, throwing out the user of the urban space: the pedestrian. The urban developments have now turned on its user by terrorizing the pedestrian as he gets locked out from experiencing the urban scape when he walks along property lines.

The study is anchored in urban design with critical theories in passive security, vibrancy and inclusivity within the urban fabric as set forth by Jane Jacobs, Kevin Lynch and Oscar Newman. It seeks to explore measures that need to be adapted in a terrorizing urban environment that do not diminish the vitality of the city.

Emerging cities, such as Nairobi, are often targets by terrorists and due to the non-existence of adequate studies and policies towards the planning of the city, ad-hoc interventions are usually employed that end in alleviating public life from the physical fabric of the city. It is anticipated that this study will give direction towards the interventions necessary to combat terrorism while at the same time maintain and enhance the vitality of the city.

1.2. Problem Statement

Nairobi is a rapidly growing urban centre and a model African metropolis. Planned around the Garden City Concept, it was envisaged that the city would offer its inhabitants a place of repose, enjoyment and delight as one walks along its streets. Over time, these basic fundamental principles of space-making were ignored and historical mis-planning developed Nairobi into an exclusionary and seemingly unplanned and congested city.

Around the turn of the century, another factor was introduced to the already suffocated planning parameters: terrorism. Urban terrorism came with it a dynamism that was never envisaged during the original planning of the city. Its sudden realization in the life of the city, threw the planning parameters into yet another chaotic scramble of finding a solution on how to deal with it. As a result, ad-hoc and rudimentary interventions were quickly employed which, over-time were accepted as the 'norm'. The aftermath of this intervention was the further exclusion of the public in enjoying the urban space.

1.3. Objective of the Study

This thesis succinctly looked at the morphosis of Nairobi's urban-scape in relation to user experiences with emphasis on the effects of heightened security as a result of terrorism. It will investigate and analyze various developments to highlight how they are designed, whether the urban user is considered and whether the public spaces created enhance the vitality of a city. Towards the end, it is attempts to give direction

as to how to achieve harmony between security and the delightful experiences usually enjoyed by the city-dweller and briefly highlight possible additions to the planning parameters of Nairobi so as to achieve vitality.

1.4. Specific Objectives

The specific objectives include:

a. To assess the impact of terrorism on building designs and public spaces

b. To examine the effects of these designs on urban form

c. To briefly explore the adequacy of the planning parameters used in the development of Nairobi in relation to urban terrorism

1.5. Research Questions

The following are the questions the thesis dwelled in:

a. What are the effects of terrorism to building designs in Nairobi?

b. Has urban terrorism had an effect to urban form and in particular public spaces?

c. How has the planning of Nairobi responded to the rise of the threat of urban terrorism?

1.6. Justification of the Study

A city throughout history is supposed to be inclusive to its inhabitants, yet Nairobi was created and is continuing to develop as an exclusionary urban centre. Whereas

many studies have been done on how to develop the physical environment of Nairobi, there seem to be none that addresses the issue of vitality and especially with the current increase in rate of terrorism.

1.7. Limitation of the Study

The Study was confined to Nairobi County geographically and not included its outskirts. The research confined itself to the study of security in relation to urban terrorism, its effects to the built environment while drawing parallels to historical planning of the city. The study was carried out between November 2016 and June 2017.

CHAPTER TWO

2.0 LITRERATURE REVIEW

2.1. Introduction

This chapter looks into aspects of urban terrorism and how cities are responding to this relatively "new phenomena" in both urban design and planning. It searches into the immediate modification of buildings due to urban terror and the subsequent effect of the modifications to the public space adjacent to the building. The balance between security and the unhindered enjoyment of the public space experienced by the user traversing property lines are explored to establish how planning is to be done in a modern day city. It finally looks into the planning parameters used in the development of Nairobi to establish whether security concerns were considered and how these concerns have influenced the spatial organization of the city.

In the chapter, several experiences from various cities are discussed so as to determine the critical elements constituting city life in the wake of terrorism. Nairobi is placed into focus with its share of terror activities and whether the planning framework is condusive to a modern vibrant metropolis.

Substantiated throughout history, it is established that violence and the city are elements that are usually inseparable. What is important is the realization of a balance between the two and critical being the crowning of civil liberties and freedom over fear and confinement.

2.2. Impact of Urban Terrorism to Building Designs and public spaces

2.2.1. Urban Terrorism

Urban terrorism is becoming an increasing phenomenon in modern day city living. As I write this paper, a terrorist attack has just happened at a concert in Manchester, England (Westcott & Masters, 2017) where twenty-two individuals lost their lives after a targeted suicide bomb was detonated at the foyer of the Manchester Arena. A few days prior to this incident, a man using a car, ploughed into pedestrians at Times Square, New York (Yan, 2017) following a similar incident at Westminster, London on Match 24, 2017 (Dewan & Said-Moorhouse, 2017). All incidences happening within what is considered as the public space in a city.

Plate 2.1: The Manchester Arena Attack

Source (Associated Press, 2017)

Others, which are not the subject of this paper, are incidences happening in remote locations, possibly due the inaccessibility of the terrorists to the city due to increased surveillances, like the recent bombing of a military personnel vehicle by an improvised explosive device (IED) on May 26, 2017 where four people died (Astariko, 2017).

In Kenya, the latest major terrorist attack happened at a university college in Garissa town where 150 people were killed when gunmen attacked the campus at dawn. Again, like the attacks at Manchester and New York, most of these happen in towns and in spaces considered 'public' in order to instill fear to a population for the purpose of propagating a politico-religious ideology.

The table below lists the terror attacks in Kenya. To note, is that these are not new phenomena but have been increasing in frequency over the years.

Date	Incident	Location	Casualty	Method of Attack
21 12 2015	Attack on a bus travelling to Nairobi from Mandera	El Wak near the Somali border	2 people killed, 3 injured	Gun attack
26 05 2015	Ambush to the Police, Yumbis Village	Garissa County	20 policemen killed	Landmine and gun attack
02 04 2015	Attack at a University	Garissa	150 people killed, several injured	Gun Attack
02 12 2014	Attack to quarry workers	Mandera	36 people killed	Gun Attack

Date	Incident	Location	Casualty	Method of Attack
22 11 2014	Attack on a bus travelling to Nairobi from Mandera	Near Mandera Town	28 people killed	Gun Attack
5–6 07 2014	Attack on villages at Hindi in Lamu County and Gamba in Tana River County	Lamu and Tana River	29 people killed	Gun Attack
15-17 06 2014	Attack at Mpeketoni, Majembeni and Poromoko	Lamu	68 people killed, several injured	Gun Attack
23 05 2014	Grenade thrown to a police vehicle	Mombasa	2 people injured	Grenade Attack
16 05 2014	Explosion at the Gikomba Market	Nairobi	12 people killed, 70 injured	IED
04 05 2014	Explosion to commuter buses	Thika	3 people killed, 62 injured	Home-made Bombs
03 05 2014	Explosion to a commuter bus	Mombasa	3 people killed, 15 injured	Hand Grenade
23 04 2014	Bombing of Police Station	Pangani, Nairobi	4 people killed	Car Bomb
01 04 2014	Bomb explosion	Eastleigh, Nairobi	6 people killed, dozens injured	Bombs
14 12 2013	Explosion to a commuter bus	Eastleigh, Nairobi	4 people killed, 36 injured	Hand Grenade

Date	Incident	Location	Casualty	Method of Attack
21 09 2013	Attack at Westgate Shopping Mall	Westlands, Nairobi	67 people killed	Gun Attack
30 09 2012	Explosion at St. Polycarp Church	Nairobi	1 child killed	Hand Grenade
24 10 2011	Explosion at Mwauras Disco	Nairobi	14 people injured	Hand Grenade
28 11 2002	Attack to Kikambala Hotel	Mombasa	13 people killed, 80 injured	Bomb Blast
07 08 1998	Attack at the US Embassy	Nairobi	213 people killed, 4000 injured	Bomb Blast
31 12 1980	Bombing at the Norfolk Hotel	Nairobi	20 people killed, 87 injured	Bomb Blast
01 03 1975	OTC Bus Blast	Nairobi	30 people killed, several injured	Bomb Blast

Table 2.1: Terror Incidences in Kenya

Source: (Wikipedia, 2017)

Terror activity has been increasing in frequency over the years. With increased populations and development, it is expected that such activities will not relent but equally increase in occurrence (Shukla, 2006). Though many of these terror activities are politically and sometimes ideologically motivated and organized by a group, others are singular activities perpetrated by a lone wolf like the shooting in Norway on July 22, 2011 that left 77 people dead.

The figure below shows the increased frequencies of terror activities over the years.
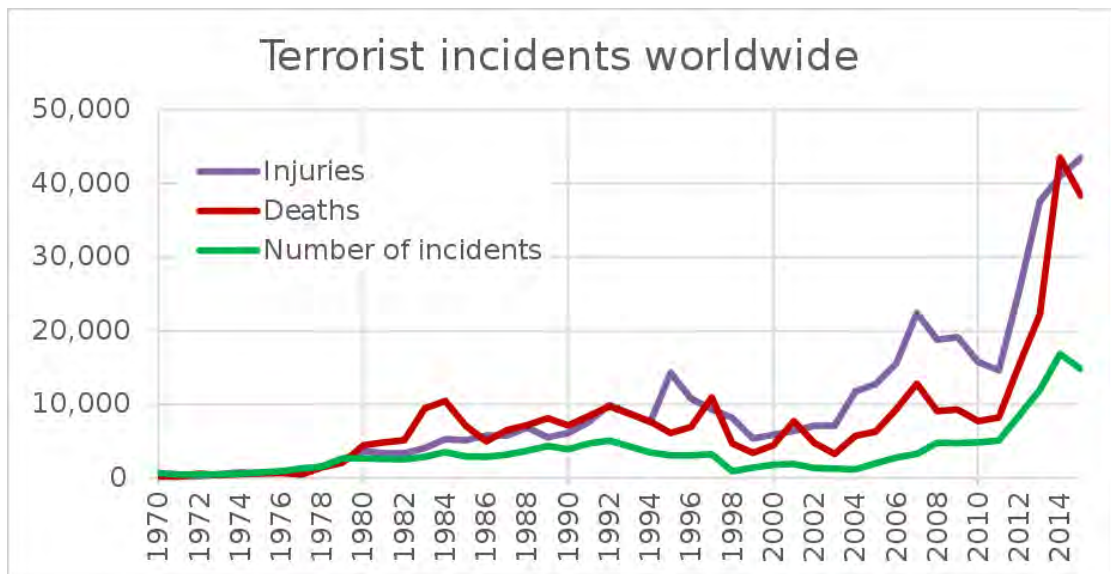
Figure 2.1: Terror Incidents Worldwide. Source: (Global Terrorism Database, 2016)

Terrorism by itself has been a subject of debate especially on its definition with others taking the position that it is impossible to define terrorism (Hodgson & Tadros, 2013) (Douglas, 2014). The most widely accepted definition though is that of Yonah Alexander (1976), who defines it as: *"the use of violence against random civilian targets in order to intimidate or to create general pervasive fear for the purpose of achieving political goals"*.

Savitch (2005) also takes the position that urban terror cannot be defined in a singular sentence but rather can have several characteristics represented by various elements, which include:

i.   It's a form of warfare but not carried in a formal battlefield due to the factions having differing strengths with the terrorists having inferior forces

ii.   Terrorists use unconventional methods of violence

iii.   They would further employ this violence randomly and indiscriminately so as to intimidate the population

iv.   Terrorists usually target non-combatants and a certain portion of a population so as to cause fear to the general population

v.   It is directed to areas of high density especially to areas of importance so as to optimize on the damage and cause mass disruption

Due to their high densities, cities and public spaces are usually the preferred targets of terrorists. Other target areas are usually sensitive installations and targeted non-aligned entities such as embassies and government buildings (Dermisi, 2011).

Plate 2.2: The 1998 Nairobi Bombing. Source: (Weiser, 2010)

Urban terror usually bring about the destruction of architecture, sometimes referred to as *"warchitecture"*; a term coined in Sarajevo for the catastrophic destruction of architecture during the war in 1992 – 1996 (Herscher, 2008). According to Herscher

(2008), architecture is a representation of a culture and therefore a civilization. The violence extended to this architecture therefore symbolizes the destruction of a culture that is in conflict with the other.

Contrary to the senseless and irrational destruction of buildings in a city (which is considered as a barbaric act), the targeted, rational violence towards a certain type of a building is considered and understood as a means of revolutionary 'cleansing' and conquest of the dominant faction in the conflict (Bevan, 2006). Such is the case of the failed bombing attempt of the World Trade Center Towers in New York on February 26, 1993 (CNN, 2017) and the subsequent successful destruction of the towers in September 11, 2001.

Plate 2.3: Terrorist attack to the World Trade Centre. Source: (Muskal, 2010)

In other instances, architecture may not have been the main target, but due to its presence and within the line of target, either by the terrorists or the security agents, violence inflicted by either, results in the destruction of it as collateral like in the case

of the Westgate Building terror attack in Nairobi of September 21, 2013 (Howden, 2013).

Plate 2.4: The Westgate Shopping Mall Destruction. Source (Howden, 2013)

For the purpose of this study, the adapted working definition of terrorism is that it is *an act of violence targeting an individual or a group of people, propagated by a certain ideology, aimed at instilling fear to the masses so as to influence political change.*

Urban terror is gaining ground in modern day cities and in effect, impacting casualties in the urban population and in most instances, destroying the architecture of the place. Architecture, considered to be the symbol and a representation of the culture of the place, has now been forced to be in a constant conflict towards providing a joyous liveable environment while at the same time providing the necessary security to protect the citizens within and around it.

2.2.2. Building Designs in the wake of Terrorism

More so than any other terror incident, the Nairobi US Embassy bombing of 1998 ushered in a new way of thinking architecture in the city, especially in relation to security. With the feeling that the government is unable to guarantee the safety of the city residents, Nairobians instead opted to manage their own security (Olima, 2013). As a result, and due to lack of any regulations in the planning by-laws, architects and developers started employing security measures to almost every aspect of the built environment. Compounded with fear due to increased levels of crime, security in cities has developed far beyond the functional responses to the perceived threat as highlighted by Smith (2015).

In turn, today's urban scape is in a continuous contest between security and liveability. Many a times, agents of security would drive the agenda of fortification as a substitute and an answer to threats of violence without considering the functional aspects of a space or the user experience. Such interventions are irreversible once taken, have no association with any architectural practice and ultimately rendering the city's systems unsustainable (Petersen, 2006).

Plate 2.5: A fortified development in Nairobi forcing people to use the road

Source: Author (February 2017)

In most instances where a terrorist act would happen in the city, the immediate response (unfortunately so even to the user of the space) would be the overzealous reactionary design of fortified public spaces. Learning from history, terrorism does not decrease the importance of public life in city centres as highlighted by Vidler (2002) after the terrorist attack of the World Trade Centre in New York. Vidler points out that even London has had numerous terrorists attacks over its history from the Victorian Age, the World War II, the proxy wars of the Irish Republican Army and the current bombings of its various facilities. The same has recently happened in Paris and Brussels, yet their public spaces are continually filled. It is therefore upon architects to chart a direction on this subject so as to demonstrate the correct approach towards providing security while maintaining the vitality of a place.

In Manchester for instance, when the Irish Republican Army (IRA) exploded a bomb in the City Centre in 1996, one of the reactions to this event was to consciously not have the "ring of steel" measure where access was restricted and surveillance enhanced, as this would further perpetuate fear and in turn make the city less attractive to visit. Instead, low visibility and less intrusive security measures were implemented such as the installation of closed circuit television cameras (Kitchen, 2001).

Similar design responses were also employed in the IRA bombings against the London rail system, the Fulton Street fire bombing in New York, the sarin gas release on the Tokyo subway and the Armed Islamic Group bombings against the Paris rail system (Cherry, Loukaitou-Sideris, & Wachs, 2008). The table below, adapted from Cheryy et al (2008), summarizes the terrorism prevention strategies that can be used

in various parts of the city to help reduce and even move away the perpetrators to other areas outside the city.

Design or Operation Strategy	Cost	Effectiveness	Advantages	
			Crime	Security
Remove or closely monitor hiding places for devices (trash cans, lockers, restrooms, etc.)	medium	high	X	X
Improve CCTV coverage of station areas	high	high	X	X
Install technology hardware on trains (alert/notification systems, emergency buttons and phones, and GPS locators)	medium	medium	X	X
Install passenger scanners at station entrances	high	high	X	X
Reduce sources of secondary fragmentation (ground-level glass, vending machines, chairs, decorations, etc.)	medium	medium		X
Improve transparency, visibility, and lighting to all areas of station	high	medium	X	X
Install chemical or biological ventilation systems	high	medium		X
Install chemical detection devices	medium	medium		X
Install chemical or biological agent isolation systems (platform-edge doors)	high	medium		X
Establish ventilation procedures in the event of a chemical or biological attack	low	medium		X
Use non-combustible and non-toxic materials in stations and rolling stock	medium	high		X
Improve interagency communication systems and protocol	low	medium	X	X
Encourage passenger vigilance/information campaigns	low	high	X	X

Table 2.2: Design and Operational Strategy against Terrorism

Source: (Cherry, Loukaitou-Sideris, & Wachs, 2008)

Specifically to the UK, the strategy for protecting the city and the urban space from terrorists moved away from the fortification of buildings (a practice common during the Cold War), but instead gave priority to the aesthetic and architectural design of buildings and the impacts that these structures would have to the surrounding areas and the community frequenting such places. In response, policy makers developed a long-term strategy as a counterterrorism measure dubbed CONTEST (Coaffee, 2010).

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CONTEST according to Coaffee (2010) is primarily concerned with the reduction of the risk to terrorism through four aspects: *'Prevent', 'Pursue', 'Protect' and 'Prepare'*. Critical to architecture is the *'Protect'* element, which is mainly concerned with the reduction of vulnerability to crowded spaces and places of interest by increasing security while at the same time the features employed not to be obtrusive. "Built in" salient components were encouraged to be integrated within the built environment and included; provision of safe areas, traffic control and the use of blast-resistant materials to new buildings.

It therefore seems that non-obtrusive and almost covert systems are usually more effective in combating urban terror with a key element being the non-disturbance of normal urban living. Defensible spaces have been tried out in other parts of the world but these seem to be ineffective and in turn create tension between the citizens and the authorities as in the case of the old fortified US Embassy building in London, which is said to have offended the "aesthetic sensibilities" of the residents some of whom relocated away from the building (Coaffee, 2010). Questions also arose as to the 'upgrades' that the embassy has had to expand beyond its plot boundaries in terms of security barriers set up on the road side (Petersen, 2006).

Plate 2.6: The American Embassy in London before Fortification
Source (Taka, 2016)

Plate 2.7: The American Embassy in London after Fortification

Source (Hopkins, 2016)

The current design for the US Embassy in contrast to its predecessor and borrowing largely from Medieval Europe with the use of a moat, has used non-intrusive, innovative and stealth counter-terrorism features such as blast-proof glass façade and using the landscape imaginatively as a security device while minimizing on fences and walls to avoid the fortified feeling.

Plate 2.8: The Proposed New American Embassy in London

Source: (U. S. Embassy & Consulates in the United Kingdom, 2017)

The same responses of non-intrusive systems are also employed in places of large gathering. For instances, taking a cue from the USA Super Bowl security framing, the first task is the identification of possible targets for terrorists and categorizing these in various levels. Usually, places of large gatherings and critical installations are accorded a higher status for security and together with private security contractors, government agencies collaborate in ensuring the safety of the people. Once a target has been identified, some of the systems as highlighted by Schimmel (2011) include;

i.   Installation of surveillance cameras within and around the area

ii.   Use of biometric face-matching technology to identify possible threats

iii.   Increase in immigration dragnets to arrest undocumented persons

iv.   Expanding powers of the urban police

In as much as these installations may be required, they also put into sharp focus elements of individual and collective 'freedoms' where over zealous government surveillance would snoop intrusively into people's lives. A balance between security and freedom is therefore necessary to maintain appropriate civil liberties.

Plate 2.9: People lining up for security checks before a super bowl event

Source: (Getty Images, 2004)

Crime like terrorism is another serious challenge on the urban environment in that it propagates fear and is a barrier to sustainable development (Gamman & Thorpe, 2009). Crime also has a way of impacting on city structure that reinforces inequalities, which in turn posses further opportunities for increased crime (Kruger & Landman, 2008). Crime and fortified city structure design is therefore an almost never-ending cycle of growth with literature pointing out that such measures are not necessarily effective in reducing crime levels (Kruger & Landman, 2008; Polanska, 2010).

Drawing inspiration from Jacobs (1961), Crime Prevention Through Environment Design (CPTED) suggests that the physical environment plays a fundamental role in the shaping of the criminal mind (Schneider, 2005). According to Schneider, CPTED theory and practice include emphasis on natural surveillance, use of subtle control design, creation of clearly defined hierarchies of spaces and reorganizing conflicting spaces within the city. CPTED can be implemented in significant ways in cities to reduce crime, bring down the physical barriers within the urban environment and in turn promote vitality and liveability of the city.

City life is ultimately about experiences and freedom where people are expected to enjoy in the built environment as they move through the streets. Security on the other hand, if not checked, tends to curtail these freedoms by the introduction of barriers within the city. Delightful experiences of the city can go hand-in-hand with security by the use of covert security installations and systems without necessarily impacting on the user. Obtrusive building designs have been shown to impact negatively on the population and in turn affect the vitality of a space.

2.3. Impact of Terrorism to Urban Form

Historically, urban form has been strongly influenced by elements of violence. The economic, social and political forces of a society has over time, shaped the physical form of cities. Threat and violence has been, from time immemorial, been present and at times help shape our cities (Picon, 2008). During the utopian period of the modern movement, urbanists constructed a world with a vision that would put an end to the shackles of history including its principles, decoration and the darker side of violence. Images of prosperity and lush green gardens with orderly efficient transport systems filled the imagination of many architects and planners and later on defined and developed many cities around the world. Like burying their heads in the sand, these utopian models would not consider violence as an integral part of living in the city.

Plate 2.10: The Broadacre City Proposal by FLW
Source: (Intercon Green, 2011)

Cities historically, often provided protection in a precarious world. During attacks, the rural populace could flee behind city walls, where defence forces assembled to repel the enemy. This "City of Defence" became almost the standard form of organization to the ancient world where the populace would seek protection from various elements; natural and man-made.

The classical Hellenic cities of Greece were for instance, surrounded by protective walls for purposes of defence as in many other ancient cities (Eisner, Gallion, & Eisner, 1993). During the development of the Roman city, a gridiron plan was designed and developed with recognizable two main axes to form a similitude of military camp. The acropolis, the altars and the temples were separated from what was the heart of the city (Cavaglieir, 1949).
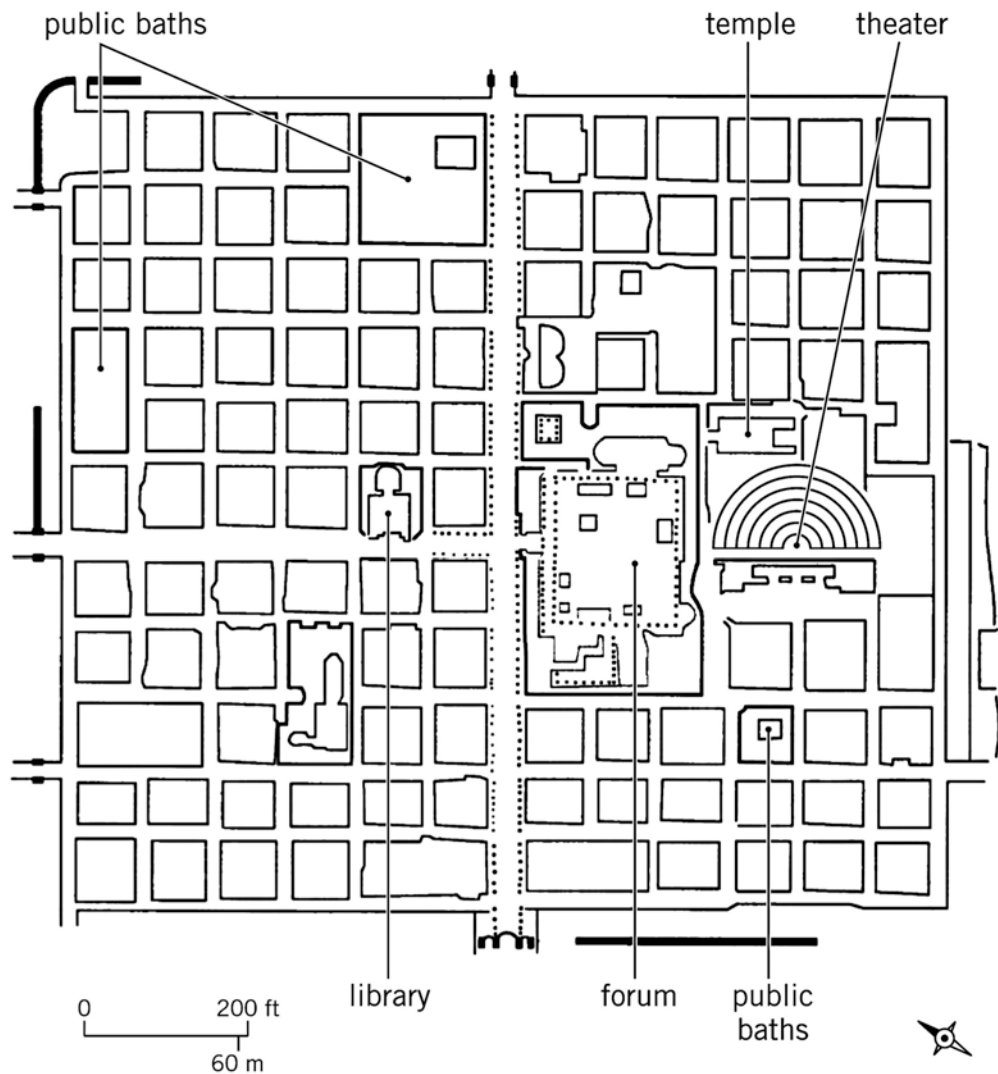
Figure 2.2: A Typical Roman City Planning

Source: (Jantz, 2013)

After the fall of the Roman Empire, the marauding barbarians in the Middle Ages disrupted trade and caused a decline of the port cities developed by the Greeks and the Romans. Walled cities subsequently developed as people sought safety in numbers within them (Sullivan, 1990).

Plate 2.11: The French Medieval City of Carcassonne

Source: (James, 2017)

The coming of the Industrial Age ushered in developments in many aspects of production and transport. Population into urban areas exploded and new construction techniques developed so as to cater for the ever-growing populace. The walled city designs were abandoned in favour of tall buildings. The skyscraper increased the intensity of land use, increasing the city's productive capacity and its size (Sullivan, 1990). From this turn onwards, defensive city designs were instead replaced by plans to increase the efficient transportation of people and goods for commerce. During the late 19th Century, electric trolleys and elevated rapid transit lines were introduced in the city providing affordable transportation to the population (Dickinson, 1962).

City planning in the late 19th Century and the 20th Century broadly concerned itself towards efficient production systems and control mechanisms. It is no wonder that most of these cities developed with a central core where the seat of administration and commerce would be located and concentrically spiraling outwards towards residential areas. The Burgess Zone and Hoyt Sector Models including the Garden City Planning as advanced by Ebenezer Howard and Le Corbusier's City of Tomorrow all followed this planning principle.

CONCENTRIC ZONE MODEL

A

Central business district
Zone of transition
Zone of independent workers' homes
Zone of better residences
Commuters' zone

SECTOR MODEL

B

High-rent residential
Intermediate-rent residential
Low-rent residential
Education and recreation
Transportation
Industrial
Core

MULTIPLE NUCLEI MODEL

C

Central business district
Wholesale, light manufacturing
Low-class residential
Middle-class residential
High-class residential
Heavy manufacturing
Outlying business district
Residential suburb
Industrial suburb

Figure 2.3: Burgess and Hoyt and the Multiple Nuclei City Models

Source: (Lewis Histrocial Society, 2016)
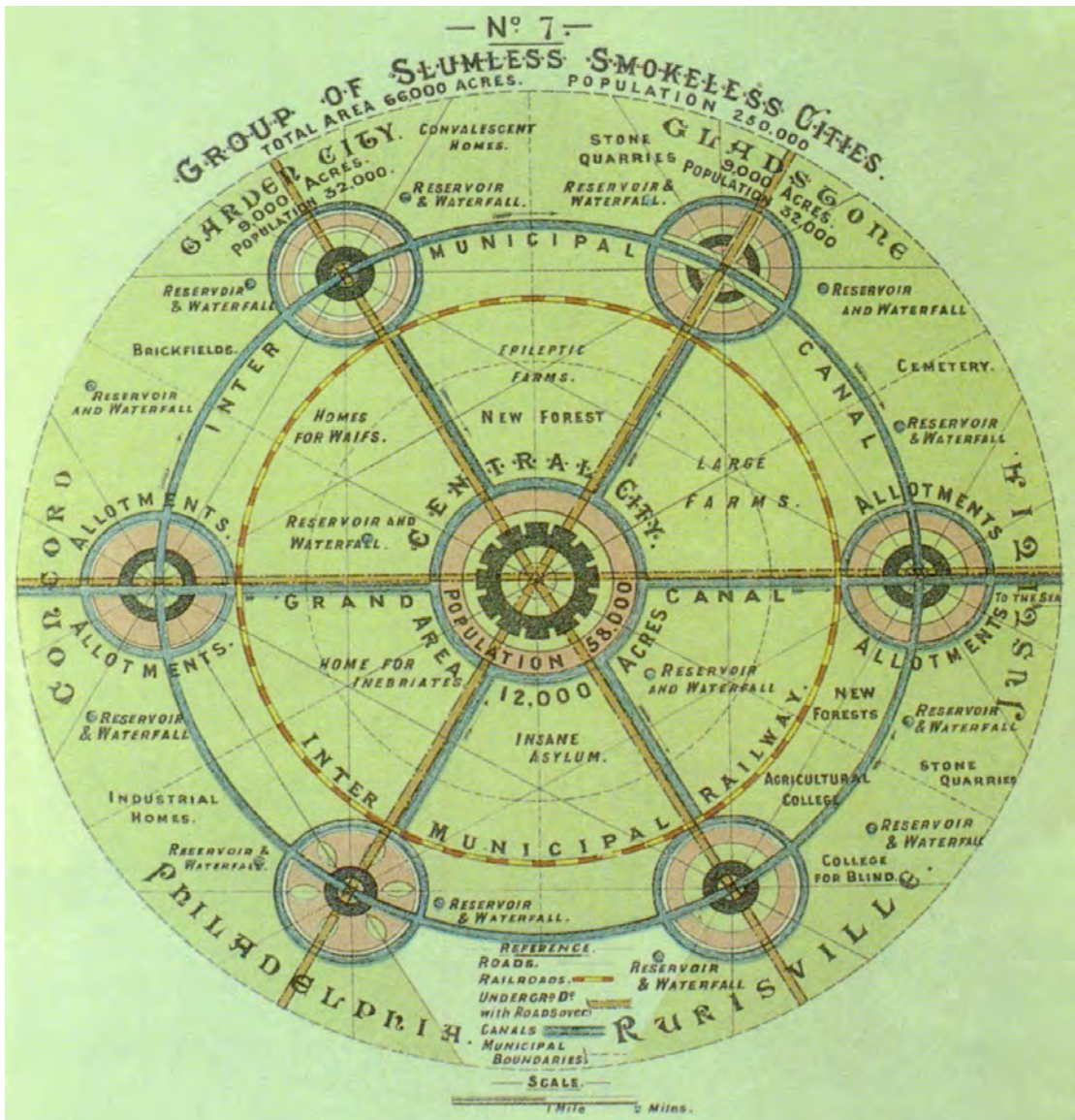
Figure 2.4: The Garden City Concept by Ebenezer Howard

Source: (Wainwright, 2014)

The rigidity and utilitarian aspects of these planning principles developed cities that had no vivacity prompting crusaders of urban rights to advocate for the well-being of its citizens. Jane Jacobs in her classic *"The Death and Life of Great American Cities"* (1961) campaigned for a city that is not only concerned with efficiency and commerce but also the essential framework for assessing vitality of cities discussing what makes

street life safe and unsafe and what are the characteristics of a thriving neighbourhood including the function it serves within the larger context of the city.

Kevin Lynch (1982) further advanced these theories in an endeavor to explain the city as a spatial phenomenon. Lynch categorized these theories as: the planning theory, the functional theory and the normative theory. A liveable city should therefore consider elements that have been highlighted by Lynch's normative theory to include parts like dimension, vitality, sense, fit, access, control, efficiency and justice as highlighted in his book; *A Theory of Good City Form*.

Figure 2.5: Concept of a Liveable City

Source: (Hale School, 2017)

Ultimately, urban designers have the responsibility of shaping human experience as they walk along property lines so as to provide spaces that are beautiful, functional, equitable, sustainable, spiritually rewarding and safe (Ellis, 2005). Unfortunately, planners throughout history have concerned themselves with only the allocation of land use and systems that have in turn created zones of exclusivity. These barriers of exclusivity can be broken down by the employment of integrative theories that transcend the commodification of the city through good form, legibility, vitality, meaning and comfort (Sternberg, 2000).

Today, the city form is again in conflict between freedom and security. According to Claval (1984), spatial planning and specifically planning for density is paramount in ensuring freedom as it results in a much wider range of occupation, choices and roles. High density though also lessens freedom by reducing privacy and security. The tension created by these forces of freedom and security are in a constant conflict within our urban environment and it is the responsibility of the architect and the planner to ensure the vibrant co-existence of both.

Recently, urban terror has put into sharp focus elements of traditional valued rights and freedom from intrusive security measures. Debates are abound as to how urban public spaces are to be built (Vidler, 2002) and whether open cities with easily accessible transportation systems are viable (Blomberg, Sheppard, & Glaeser, 2007) or whether sensitive and critical buildings are to be moved outside the city or to other towns where the population density is not as high (Bagehot, 2017). Terrorism and its response therefore seem to be the new principle of urban design in the 21st Century.
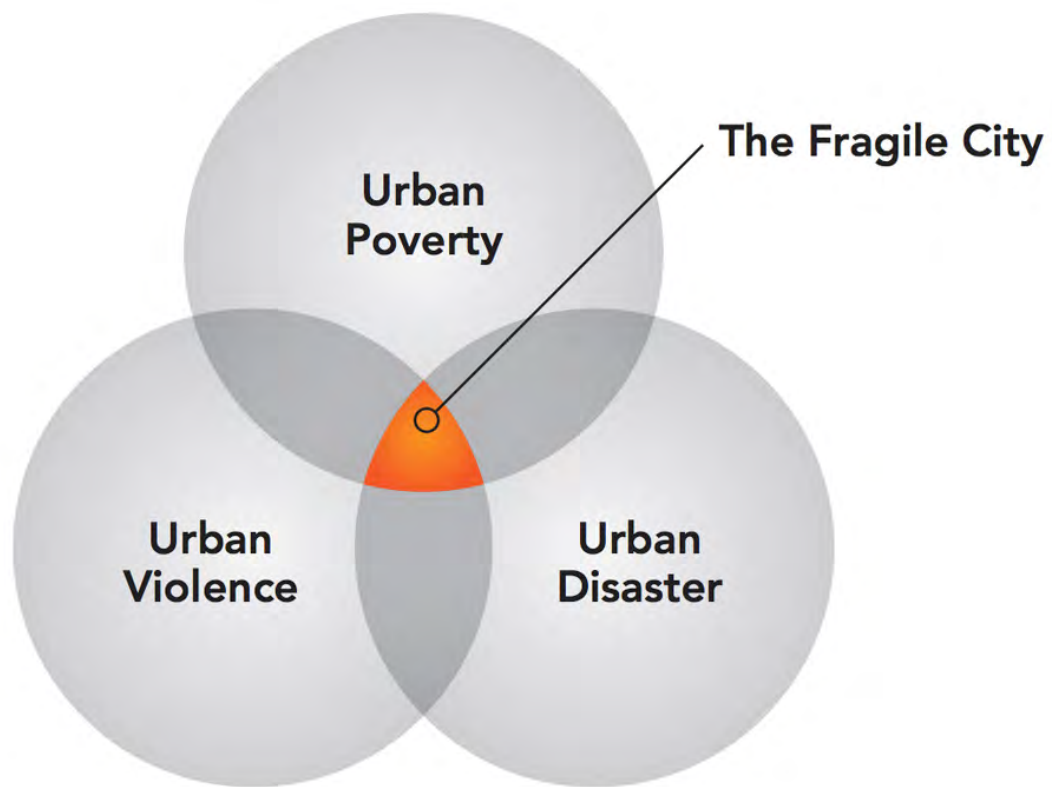
Figure 2.6: The Fragile City

Source: (de Boer, 2015)

The natural assumption on a population under attack by terrorists is that the city will disperse and be made up of low-lying buildings scattered over a vast area. Based on experiences from other parts of the world, Vidler (2002) argues that the reverse is actually true. By giving examples of London and Paris that has been under a constant threat, these cities have instead flourished and have become more densely populated. Vidler argues against what he terms as anti-city campaigns but instead offer alternatives that provide a city that is inclusive and also that strengthens the public space and its relation to the urban community.

The same conclusion was also reached by the empirical study of Blomberg et. al. (2007) that supported the notion that urban form and densities are affected by acts and frequency of terrorism. Their assessment made after several studies suggested that increased aspects of terrorism reduces urban land use with the result being higher density cities not because people flock together for purposes of security, but because increased terrorism adds to the uncertainty associated with housing supply and land development. In such events, developers usually put on hold plans for development until the nature of such terrorist acts are understood.

The study further suggested that in as much as higher densities are the usual targets for terrorists, and would imply that it will ultimately disperse people, the contrary is actually true: that people tend to cluster together. The study puts forth two proposals to counter the effect: the *"costly travel effect"* and the *"city walls effect"*. In the costly travel effect, the hypothesis is that terrorist usually target transportation modes and hubs and in turn make it expensive to travel while the city wall effect deals with the economies of scale in the provision of security to high density areas than in sparsely populated towns.

Jerusalem on the other hand, a city that is under a continuous terror threat, has found it necessary to enclose its open spaces and resort to extensive and regulatory surveillance of its urban population. In turn, these approaches have reduced the terror threat but have instead affected the urban space and movement, the exact result that terrorism seeks to achieve (Savitch, 2005).

2.4. Planning Nairobi

2.4.1. General Overview

Nairobi is the capital city of Kenya and the most important economic center in East Africa (Nairobi City County, 2014). According to the 2014 Urban Development Master Plan for the City of Nairobi, it accounts for 50% of formal employment in Kenya and generates over 50% of the country's gross domestic product (GDP).

The lure of Nairobi has seen it increase in population, which has grown to over 3.1 million according to the 2009 census compared to the national population of 38 million. This population growth has been higher than the country's with Nairobi averaging 3.9% while the national average being at 3.0%. The high immigration rate to the city has been the dominant reason for this rapid increase in population (Nairobi City County, 2014).
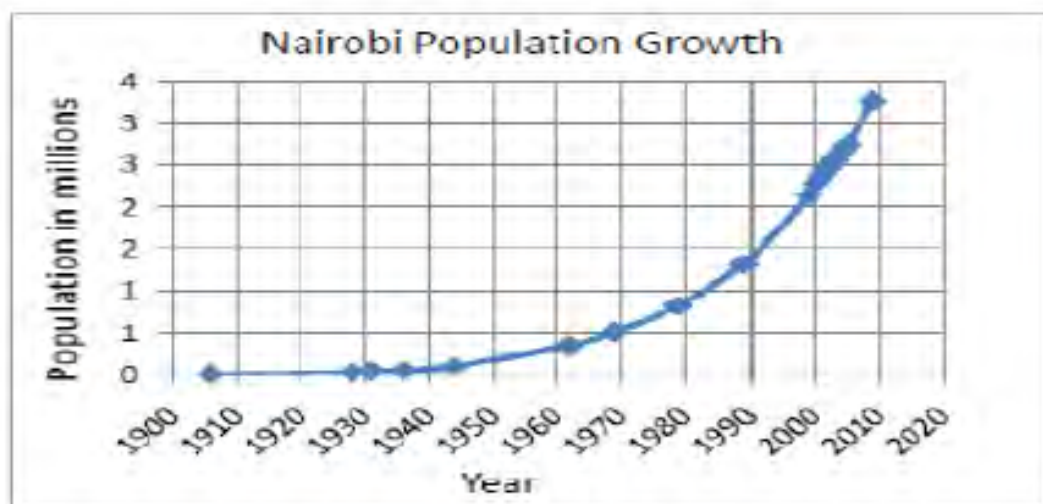
Figure 2.7: Nairobi's Population Growth

Source: (Muggah, 2012)

This rapid urbanization has had a tremendous effect on the County's infrastructure and in turn has resulted in sprawling, congestion and increased informal settlements (Muggah, 2012). The planning logic of the city, as highlighted previously, has further aggravated the situation by reinforcing the segregation of areas between the different classes.

The growing urbanization has also resulted in increased crime and insecurity in the city. According to Pokhariyal and Muthuri (2003), there has been a deterioration of security in urban centres in Kenya. It is perhaps for this reason that the city has witnessed across the population; poor, middle class and affluent areas, the fortification of development to secure and manage neighbourhoods (Smith, 2015).

Gated communities and complexes are nowadays a norm in Nairobi despite the various passive methods in crime prevention using elements of the built environment to produce what Oscar Newman (1972) describes as *"defensible space"*. According to Newman, crime and delinquency can be mitigated through environment design using factors of territoriality, natural surveillance, image, milieu and safe adjoining areas (Newman, 1973).

Vesselinov (2008) further supports the idea that the process of gating neighbourhoods reinforces the process of segregation leading to urban disadvantages perpetuated by fear and profit motives by the developers so that the occupants would have some sense of a feeling of community. This *"sense of a feeling of a community"* in the Nairobi scenario is the feeling of belonging to a more privileged group.

Compounding the issues of segregational planning and crime to the problems affecting the vitality and livability of Nairobi, the city has further been afflicted by acts of terror due to its porous border to Somalia and being a close ally of the United States (Prestholdt, 2011).

As crime affects both the private neighbourhood and public spaces in Nairobi, perhaps terrorism has had, singularly, the greatest effect on how life is conducted within the city. The fear brought about by the terrorist acts in Nairobi has been escalated to a level where it now feels that security personnel are almost intrusive into one's space despite numerous research showing that the response of using extraordinary efforts such as physical barriers and invasive security checks, are usually unwarranted and usually prove to be counterproductive (Rycus, 1991).

Despite the reduction of crime levels in Nairobi as reported by the Kenya Police Service Annual Crime Reports of 2011 and 2014, the fortification of developments seem not to relent but is rather reinforced.
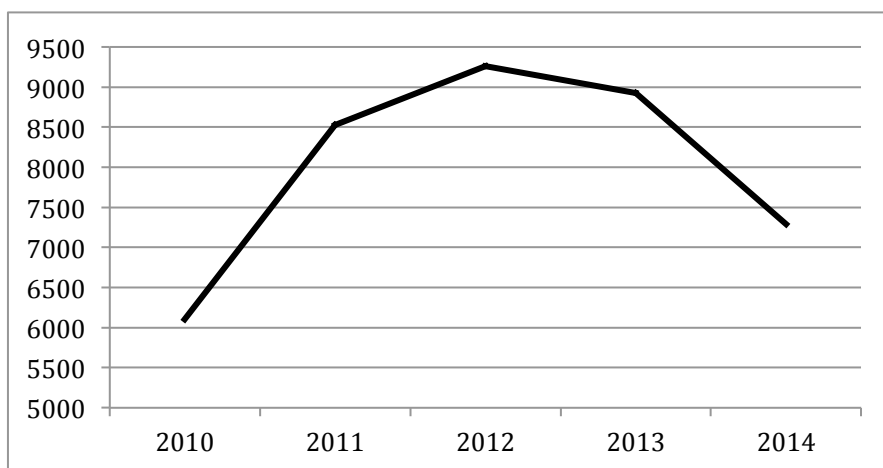
Figure 2.8: Nairobi Crime Rate as extrapolated from the Kenya Police Service Crime Report of 2011 and 2014

The major, modern terror act bore its ugly head with the 1998 bombing of the American Embassy. Ever since, the characteristic of the city has been morphing towards increased security that have in turn affected the planning and architecture of the city.

Nairobi's architecture has been a target especially with the bombing of the US Embassy in 1998 and the Westgate Mall attack of 2013 and the resultant has been fortification of buildings, public space and neighbourhoods. Public buildings have now resorted in having a defensible fortress of high walls instead of embracing and opening up to the street (Smith, 2015).

Access to these citadels has also been made arduous by the numerous security checks that are subjected to the user almost to the extent of intimidation. Smith (2015) notes that this *"psychology of anxiety and fear"* has further created architecture of exclusivity and segregation. This architecture of exclusivity represented by high walls and strongly secured physical enclaves is also a show of *"having made it"* to many of the rising middle-income earners in Nairobi.

This pattern of segregation, according to Kingorah (1983) was not shaped by economic factors but by racial segregation policies implemented by the government to demarcate the best residential areas for the dominant race. Nairobi has therefore developed as a zone where the 'have-not' is unwanted in areas of the '*have*' (read: the urban centre). A policy planned, engineered, supported, encouraged and promoted by the bourgeoisie from the founding times of Nairobi.

It is no coincidence therefore that the pedestrian in Nairobi, who is the greatest consumer of the urban space, is constantly being pushed off the street by these monstrosities called the urban block or gated neighbourhoods. Public space has been turned against the user and in turn, *"hopelessness, dullness and regimentation"* is the result of this '*sacking of cities'* (Jacobs, 1961).

2.4.2. Nairobi's Planning Principles

Nairobi is the capital city of Kenya and the most important economic center in East Africa. According to the 2014 Urban Development Master Plan for the City of Nairobi (2014), it accounts for 50% of formal employment in Kenya and generates over 50% of the country's gross domestic product (GDP).

Nairobi was founded by the British colonialists in 1899 as a depot for the railway to Uganda (Owuor & Mbatia, 2008). The planning followed the *1898 Plan for a Railway Town* and the *1899 Plan for Railway Staff Quarters* (Nevanlinna, 1996) and thus laid the foundation for a railway town which consisted mainly of the Kenya-Uganda Railway, separate housing for the Europeans and Indians with a segregated African settlement in Eastlands (Owuor & Obudho, 1997).

The construction of the railway quarters in turn attracted other administrative organs such as the office of the sub-commissioner and Vice Council of Ukamba Province, John Ainsworth, who moved the administrative centre from Machakos to Nairobi (Wahome, Njuguna, & Nyachwaya, 2013).
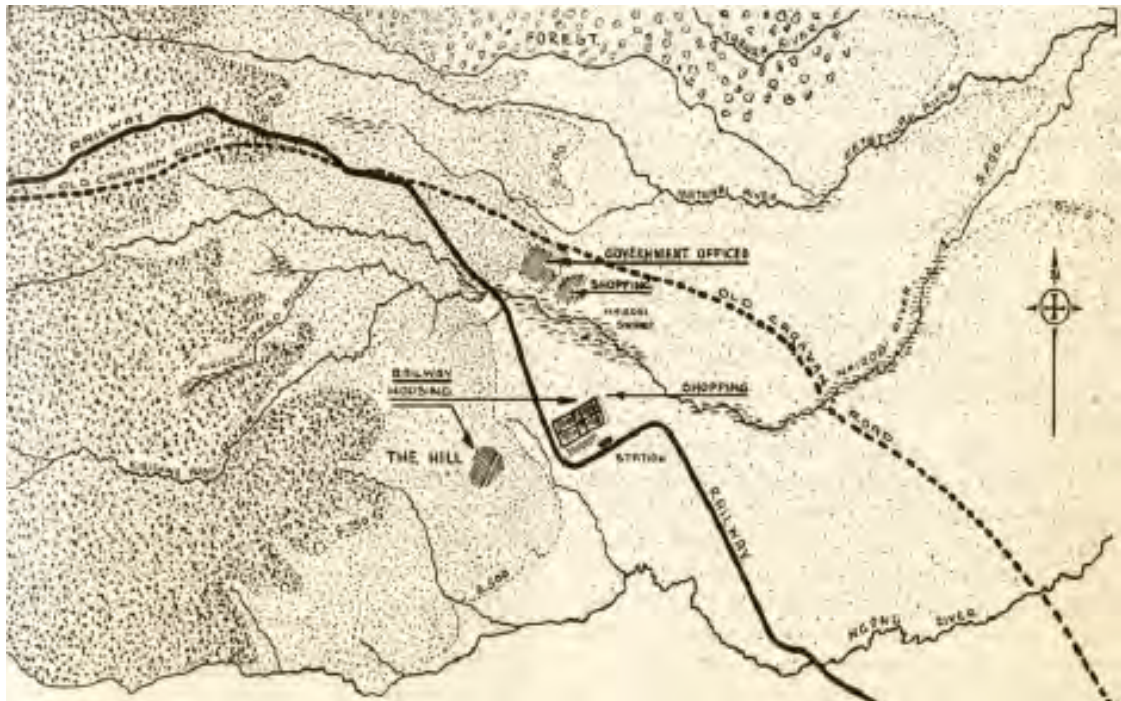
Figure 2.9: Nairobi circa 1900

Source: (Wahome, Njuguna, & Nyachwaya, 2013)

Nairobi was further conceived along lines of racial segregation for both housing and employment and still bears this mark of segregation to date (Owuor & Mbatia, 2008). It therefore did not start as an African village (Hirst, 1994) but as an alien concept of the colonialists and could therefore be deduced that it had very little input from the existing archetype of the region. This settlement pattern nevertheless, has persisted and remained almost unchanged over the years (Richardson, 1980). Nairobi though, despite everything else continued to be an attraction to many settlers who preferred the place due to its terrain and weather.
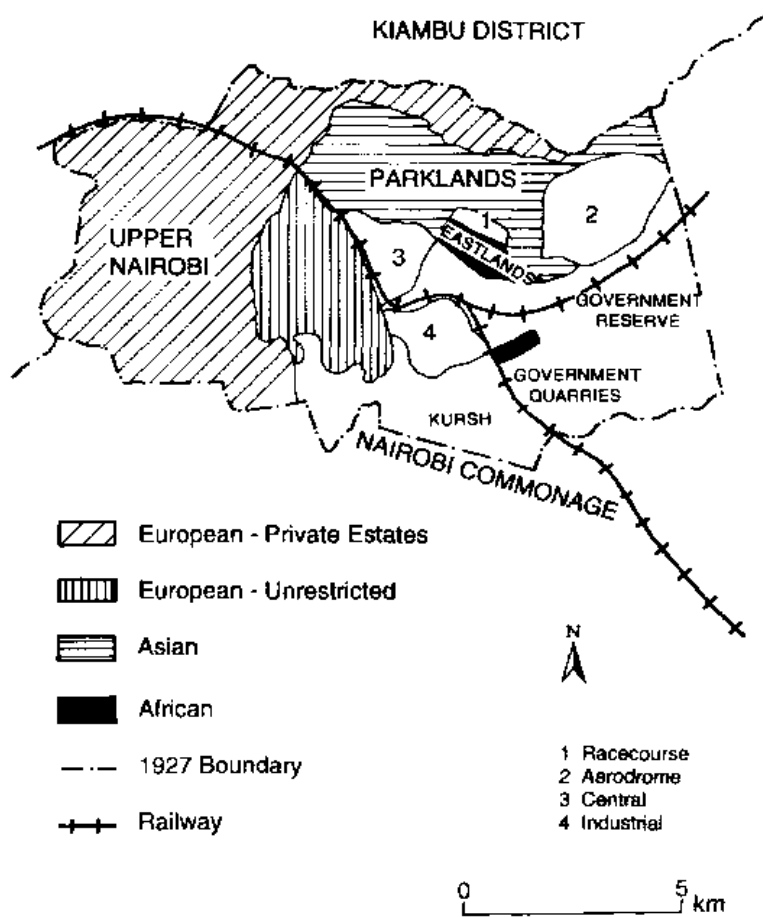
Figure 2.10: The segregation of residential areas in Nairobi, 1909

Source: (Obudho, 1997)

Despite the growth experienced during this period, the city continued to face a number of challenges due to its swampy location, overcrowding and poor sanitation conditions (Wahome, Njuguna, & Nyachwaya, 2013). Wahome et al (2013) further quotes Winston Churchill (1908:19) on the state of Nairobi as thus:

'The ground on which the town is built is low and swampy. The supply of water is indifferent and the situation is generally unhealthy. It is now too late to change and thus lack of foresight and of a comprehensive view leaves its permanent imprint upon the countenance of a new country'.

Despite all these challenges, the colonialist's planners marched on with the development of Nairobi as the administrative hub for the region that culminated with the moving of the East African Protectorate headquarters from Mombasa to Nairobi in 1899 (Wahome, Njuguna, & Nyachwaya, 2013). It therefore follows that genesis of the development of Nairobi was wrongfully cast and could be the reason to the problems currently facing the city.

The second wave of planning happened in 1926 where Nairobi was given its first zoning arrangement to accommodate the growing population (Wahome, Njuguna, & Nyachwaya, 2013). This plan, like its predecessor, further consolidated the colonialist settler's planning of segregation and exclusion (Kingorah, 1983), a concept that seems to have found its way to modern day city planning and design.

The 1926 Plan was though not fully implemented due to the onset of the Second World War and in 1948, a detailed "Master Plan of a Colonial Capital" was developed as a blueprint for the development of Nairobi in the next 25 years (Slaughter, 2004).

The 1948 plan adopted the Garden City idea (Ward, 2000) (Muggah, 2012) so as to *"overcome the deadening effect of the gridiron layout"* as highlighted by the authors of the masterplan (White, Silberman, & Anderson, 1948). This plan introduced the neighbourhood unit and zoning scheme for different users in the city. And again, following up on the exclusionary planning of its predecessors, this plan too adopted the segregation principles (Hagans, 2013, Kingorah, 1983).

Figure 2.11: A Neighbourhood Unit: Nairobi Master Plan (1948)

Source: (Ward, 2000)

In 1963 when Kenya got independence, the 1948 Master Plan was not replaced, but rather, the neocolonial kleptocrats continued with the instruments of exploitation employed by the colonialists before them. The racial zoning adopted by the settlers was now replaced by socio-economic segregation (Hagans, 2013).

It was not until 10 years later in 1973 that the Nairobi Metropolitan Growth Strategy was put in place. This plan, though never approved (City Council of Nairobi, 2007) laid out the physical plan for Nairobi and incorporating future projections of urban development to the year 2000AD (Kingorah, 1983). Thanks to the non-implementation of this plan, the 1948 Master Plan remained the only comprehensive document for the city (Ottichilo, 2010) and thereby reinforcing the idea of segregation to the city. It was not until 2014, more than 60 years and 3 million inhabitants later, that another plan for the city was launched.

The Project on Integrated Urban Development Master Plan for the City of Nairobi in the Republic of Kenya (or NIUPLAN as commonly referred) is to "review and develop concepts on sustainable urban development and improvement of living conditions based on an integrated urban development plan for Nairobi City" (Nairobi City County, 2014).

The plan (Nairobi City County, 2014) seeks:

1. To address the congestion of the Central Business District (CBD) by the creation of sub-centres coupled with an enhanced urban transport network
2. To expand and renovate the CBD by assimilating the current Kenya Railway Corporation's yard
3. Preserve and restore the green and water environment by preserving vegetation and restoration of river banks
4. Conserve agricultural activities

5. Restructure the Industrial Area by giving it a new urban function and the creation of a new zone in the southern part of the city

6. Beautify the city by enhancing the urban landscape

It though fails short in addressing the inequalities currently existing within the city and providing for a good form that brings vitality to the urban centre and promoting inclusivity and livability.

The NIUPLAN has set out very ambitious targets towards the development of Nairobi as a regional hub of commercial activities by mainly targeting the functional aspects of the city. A critical element of the city (that has been left out in the NIUPLAN) is the experience and perception of urban life achieved through the provision of diverse, vibrant and viable neighbourhoods and communities (Raman, 2010). In the case of Nairobi it is therefore necessary to revert to the first principles of urban design as highlighted by Jane Jacobs (1961) in her influential book *The Death and Life of Great American Cities* where she advocates for a dense, mixed urban layout for a design of a vibrant urban community.

It therefore becomes critical that the current urban scene be revisited so as to imbue vitality and livability in cities. Unfortunately though, the contemporary practices in the city are assiduously repeating the same basic errors that had produced the issues that was inherited (Chapman, 1951-1952). This is despite the expensive studies and machinery that has been employed to prevent the same mistakes, yet government after government, seem to be producing the same plans (albeit more refined), with the only change being the use of current population statistics in forecasting.

Furthermore, the city plans are purely functional and utilitarian concerned with densities, land-use and transportation with disregard to liveability of the residents and their well-being (Southworth, 2003). Yet the quality of the built environment is as equally important as these functional aspects of the city. According to Southworth (2003), urban planners need to deal with the various sensory and experiential aspects of urban life as well as comfort and safety. In the case of Nairobi, safety can be expounded to the feeling of being secure without necessarily having to have heavily fortified enclaves.

It appears therefore that planning for Nairobi, historically and currently, has been concerned about enhancing exclusivity of the urban centre while showing little regard to the majority of the users within the urban setting.

2.5. Chapter Summary

This chapter looked into the urban terrorism and the effects it has had to the built environment. It looked into the difficulty in defining terrorism and instead established the characteristics that is common to acts of terror. It finally established that urban terror is not relenting but increasing in frequency over the years.

The effect of terrorism on buildings was discussed to establish several measures that have been found to be effective in countering the threat. Mostly, it was established that covert measures are usually more effective than the construction of defensive fortresses.

On urban form, densification and the joyous experiences of the city was found to be more desirable than sprawl and the confinement of movement. Densification helps in the reduction of costs on security installations and travels therefore making safer for the populace. It also helps in providing "eyes on the street" where people would help in ensuring safety of others by providing natural means of deterrence.

Finally, Nairobi planning principles were discussed to ascertain whether measures to threats of violence have been provided for. It was established that Nairobi has been developed as a city of exclusivity concerned more with the provision of utilities rather than the vital experiences for the user.

The next chapter deals with the research methods employed in this paper highlighting the various parameters used and their limitations.

CHAPTER THREE

3.0 RESEARCH METHODS

3.1. Introduction

The structure of this research aims to give direction on how to analyze Nairobi's planning principles to the effects of terrorism on urban form and social spaces. It lays out the step-by-step approach towards investigating the research questions so as to come up with a valid and a reliable conclusion. It highlights and outlines the methods used in conducting the research, area of study and the analytical tools used. In its design, it details the research strategies, sample design and selection including their limitations before elaborating on the data collection methods and analysis.

3.2. Research Design

The planning and structure of conducting a research is critical to a successful research design strategy (Cooper & Schindler, 2000) (Mauch & Park, 2003). This research's design was centred on the analysis of the planning principles of Nairobi and the survey of urban design in the face of terrorism. The research was historical, exploratory and causal in establishing how building designs in Nairobi have evolved as a result of terrorism. This methodology appeared best suited to identify the complexities and details of urban development and vitality.

The data was collected using various methodologies including observation, case study analysis, interviews and pre-tested questionnaires that were developed and administered by the researcher. The questionnaires employed in this design allowed the use of standardized responses so as to facilitate the comparison of the relevant variables in the study. The data collected was then analyzed and some subjected to statistical testing to enable the research come up with conclusive directions on how buildings in an urban centre are to be designed to cope with the threat of terrorism while still maintaining the vitality of the urban public space.

The design further marked the bombing of the American embassy in 1998 as the point zero of the study. It is hypothesized in this study that this particular event was the turning point in the changing of architectural responses to terror activities in Kenya.

3.3. Research Strategies

The strategies that the research employed are surveys and case studies derived from a sample in a population. Surveys enabled the researcher get inferences using various techniques such as interviews, observation and historical analysis of key study elements. The surveys enabled the researcher get an in-depth analysis of the study area.

The case study method involves the in-depth investigation of an element within the sample (Yin, 2003). Usually a single or multiple cases may be used in a research. In this particular research, multiple cases were identified from the stratified sample so as to develop and test theories and also for cross-case analysis.

3.3.1. Survey Techniques

The survey techniques employed in this study are two fold: historical and townscape analysis. Historical analysis mainly deals with past developments while townscape analysis looks into elements of vitality within the city.

3.3.1.1.   Historical Analysis

The study of a place's history usually reveals the reason for its present form and function (Moughtin, Cuesta, Sarris, & Signoretta, 1999). Historical analysis involved the study of planning principles used in the development of Nairobi. This in turn gave way to the study of buildings constructed prior to the bombing of the American embassy in 1998 and their modifications thereafter.

3.3.1.2.   Townscape Analysis

Difficult to quantify, townscape analysis looks into aspects of vitality and livability in a city. It relates itself with experiences of a person walking along property lines and is concerned with legibility of the urban structure, permeability and visual analysis.

Legibility dwells with the perception of the urban environment, including its quality and identity by the user (Lynch, 1982). In this research, it looks into how the urban space has been shaped following the interventions introduced in the city as a result of terrorism and whether these interventions create a liveavable space to the user.

The private-public divide is an important aspect of the city ensuring privacy while maintaining a friendly and safe environment on the public street (Moughtin, Cuesta, Sarris, & Signoretta, 1999). Permeability studies looks into street frontages with the possibility of enriching the street scene with increased levels of porosity between the private and the public domain.

Visual analysis concerns itself with the study of the three-dimensional public space and including the details of the space that gives the area its character (Moughtin, Cuesta, Sarris, & Signoretta, 1999).

In townscape analysis, observation, photography and sketches were mostly used to document the spaces that form the urban spaces and how people reacted to them. Various parts of the Aga-Khan Walk in Nairobi were studied to highlight this aspect of vitality.

3.3.2. Case Study Research

Case study research goes hand-in-hand with townscape analysis as it examines a phenomenon in its natural setting employing various methods of data collection (Yin, 2003). In this research, direct and indirect observation of activities in the natural setting was analysed and further reinforced by interviews to selected subjects so as to come up to a conclusive analysis.

3.4. Population and Sampling Design

3.4.1. Population

The total collection of constituent parts in the study area and onto which reference has to be made is what is considered as population (Cooper & Schindler, 2000). For the purpose of this study, the population constitutes the property line of buildings within the Nairobi CBD and in particular, the interface space between the private property and the adjacent street/urban space. This margin is critical as it has an impact on the public user comfort and the enjoyment of the city space as one moves through the city.

3.4.2. Sampling Design

Research design involves the identification of a portion of study from the total population. This selection procedure of a particular sample from the population is what is considered as the sampling design (Cooper & Schindler, 2000) and constitutes the sampling frame, sampling technique and sample size.

3.4.2.1. Sampling Frame

The sampling frame is the list of segments from which the sample is actually drawn (Cooper & Schindler, 2000). In the case of this research, the sampling frame consisted of city residents, administrators and buildings comprising of shopping malls, government and private buildings located within the Nairobi and their immediate street.

3.4.2.2.   Sampling Technique

In order to critically study the effects of terrorism on urban spaces, the study divided the population into subpopulations so that they can be better handled. The stratified sampling design (Cooper & Schindler, 2000) provides a weighted mean that is less variable than the sample mean of the population. In this research, the population was categorized into three distinct strata.

Strata 1 dealt with urban residents to get their perception about various aspects of building designs in the wake of terrorism. It also centred on their perception about elements of urban planning within the city and the various interventions being made to counter terrorism.

Strata 2 dealt with administrators of the city and included the planners, police and security consultants. The key aspect of this stratum was to receive a counter narrative and perceptive on matters related to terrorism and the built environment separate from the users of the space.

Strata 3 dealt with the physical infrastructure of the city and how these have been designed to counter terrorism. It ultimately looked into the larger planning premises of the city so as to support the findings in strata 1 and 2 above.

By breaking down the population in various strata, it enabled the analysis to be more precise than in a generalized sample. In the end, this technique enabled the researcher to come up with a more efficient and accurate analysis of the study.

3.4.2.3.   Sample Size

Sample size constitutes the number of observations made within it (Cooper & Schindler, 2000). Since the population was stratified, each strata had its own sample size; strata 1 had a sample size of 150 city residents, strata 2 had a sample size of 4 administrators and strata 3 having a sample size of 15 built up spaces within the city. The size coupled with the case study analysis led to an in-depth analysis of the samples giving a more accurate finding to the research.

3.5. Data Collection Methods

This research involved data from primary and secondary sources. Primary data was collected from observations and interviews. Structured interviews were administered to the users of the sample spaces. Field observation strategies included taking photographs, note taking and sketching of observed phenomena.

Secondary data are from published data by authors who were not direct observers or primary sources and was mostly obtained from books, journals and the internet.

3.6. Research Procedures

The researcher on the basis of the research objectives identified areas of studies within Nairobi based on the sample selection outlines earlier. These sites were then visited and studied using various tools depending on the appropriateness of the tool.

Several visits were made to Town Hall so as to have a one-on-one interview with policy makers and planners to establish their observation, experiences and thoughts on the subject. These interviews were recorded and analyzed to come up with a framework for an appropriate urban intervention.

Visits to security firms were also made and similar interviews conducted with the security agents towards their thoughts on the subject. Like the Town Hall visits, these were recorded and also analyzed to establish the appropriate security measures.

Finally, pre-tested questionnaires were administered to the users of the identified spaces to establish their thoughts about the interventions made on the urban block. In some instances, the researcher used an assistant to help in the data collection. The researcher collected the questionnaires on the same day that they have been administered to avoid delays that result from this kind of research methodology. These were then passed through a mathematical analytical tool such as Microsoft Excel to help in analysis.

3.7. Data Analysis Methods

The data was analyzed to ultimately establish the quality of urban spaces on cities that experience terrorism. Various analytical tools were used to interpret the data .

For maps and plans, overlays were used to synthesize and understand the historical growth of a section of the city. Aerial photographs on the other hand presented an opportunity to analyze urban spaces diachronically on spatial growth trends.

Documentary sources such as the development plans for Nairobi were analyzed to check on their sufficiency in the provision of interventions for urban terrorism. This was studied in parallel to experiences with other cities that have had similar problems.

Utimately, it was crucial to systematically carry out the research on urban social spaces based on Moudon (1997) outline which included: buildings and their related open spaces; plots or lots and streets; scale; of the building, the street, the city and the region.

3.8. Chapter Summary

The research was undertaken to study Nairobi's intervention to urban terrorism and whether the methods used are ideal in the creation of a city of vitality. Various sections of the city were identified in undertaking the research using a stratified random sampling method.

Information was collected via a variety of forms including, historical analysis, study of documents, photography, observation, interviews and questionnaires. These were finally analyzed using various tools depending on the type of data.

The findings were presented using various techniques including photography, drawings and charts to represent the various interventions.

CHAPTER FOUR

4.0 RESULTS AND FINDINGS

4.1. Introduction

This chapter deals with the report on the research findings based on the data collected during field observations, interviews and the administration of questionnaires. The findings are explored quantitatively using descriptive statics and presented in graphs, tables and charts to support field observations and the interviews conducted during the research.

This chapter is structured on the basis of the research questions presented and seeks to explore if urban terrorism has had any impact to the built environment in Nairobi. It starts by the analysis of the general population and dwells into their perception in matters regarding security and the various interventions as currently practiced. This is then correlated with information gathered during the interviews of security consultants and planners and further explored by field observations presented as photographs.

The chapter further seeks to engage the discussion into urban form especially as set out in the planning parameters developed by the government. Ultimately, it seeks to find answers on the perception of the user in regards to security, convenience and liveablity in the city.

4.2. General Information

As set out in the research methods, the sample was divided into three strata, which together formed the basis of the analysis. Questionnaires were sent out to users of public spaces in Nairobi, targeting a sample of 150 persons above the age of 20 years. The selection was random and 133 questionnaires were received making the response rate to be 88.7%.
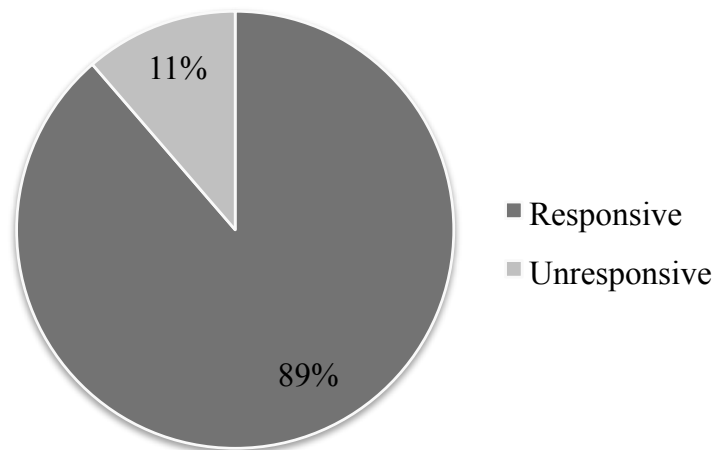
Figure 4.1: Questionnaire Responsiveness

The second stratum was the targeted interviews, which were compared the responses from the data collected in the questionnaires. The following were interviewed:

i.   The National Police Service

ii.   A Security Consultant

iii.   The Urban Design Department at the County Government

The last stratum was field observations supported by photographs. These were presented alongside the findings from the questionnaires and interviews, to further support the argument.

4.2.1. Demographic Information

This section, derived from the questionnaire, had basic information on age and sex of the respondents. The results follows the general demographic distribution of the Country.
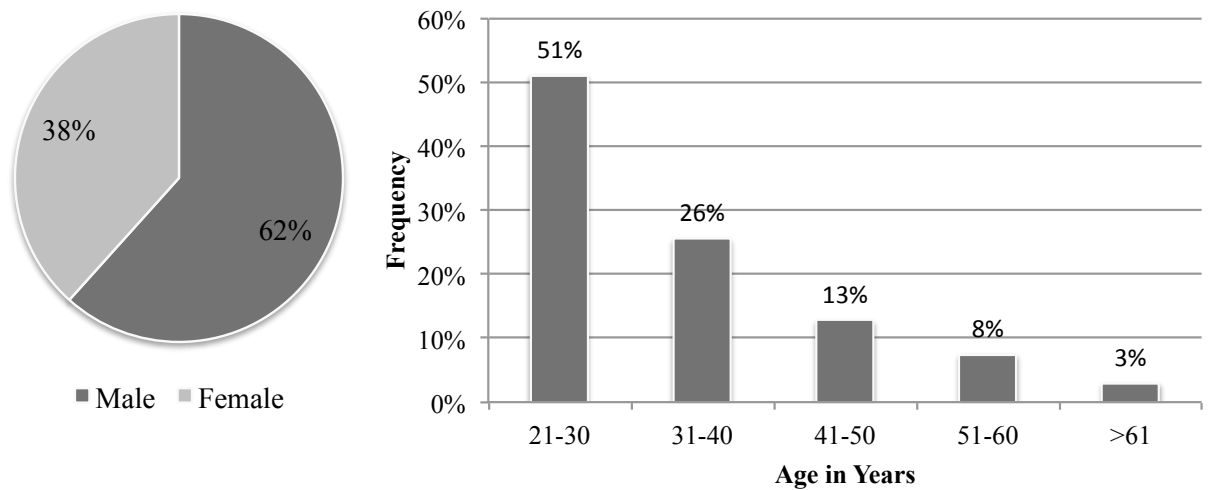
Figure 4.2: Sex and Age of Respondents
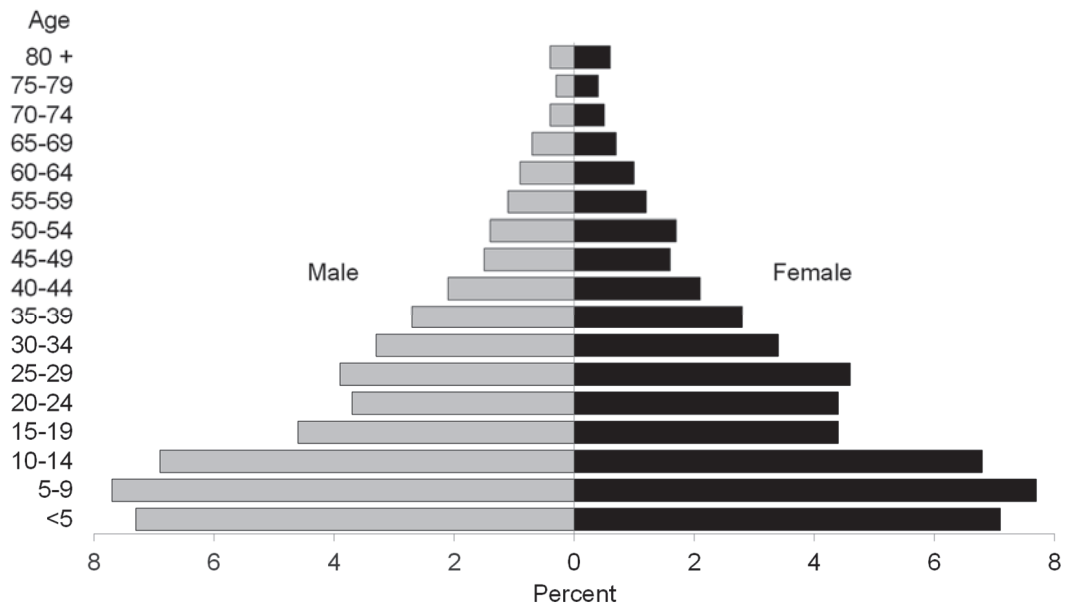
Figure 4.3: Kenya's Demography

Source: (Kenya National Bureau of Statistics, 2015)

4.3.   Building Designs and Terrorism

This section looked into building designs in Nairobi and whether they have been adequately designed to ward off terrorists. It searched into the appropriate methods to secure premises while at the same time ensuring that the freedom and privacy of the user are not infringed.

4.3.1. Adequacy of Building Designs in Combating Terrorism

Figure 4.4 below shows that the majority of city residents (90%) are not comfortable with the way buildings have been designed especially in the wake of terrorism.
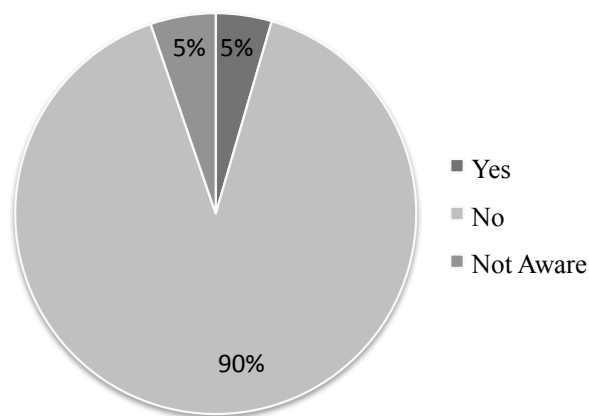
Figure 4.4: Adequacy of Building Design

Among the issues raised in this part are:

    i.   Insufficient security systems installations within the buildings

    ii.   Constricted entry and exits making it difficult to evacuate

    iii.   Back of buildings are usually not properly designed and are dull making the adjacent street uninhabitable and dark

iv.   Material usage in the building cannot withstand the impact of an attack and at times causes injuries to persons

v.   Insufficient alarm and communication systems installed that cannot communicate to other response agencies

vi.   Insufficient signage within the building and provision of escape routes

vii.   Evacuation drill not been conducted to premises

viii.   Awareness to users on what to do in case of an emergency

According to the planner interviewed at the County, one of the major challenges they face due to insufficient staff, is in the inspection of materials and buildings under construction. Material usage is critical in the design of buildings as this can be a major cause of casualty in case of a disaster. As had been in the case of the 1998 bombing in Nairobi, major casualty was as a result of flying glass during the explosion and the collapse of the Ufundi Building.

Plate 4.1: The Nairobi 1998 Bombing and Collapse of Ufundi House

Source: (Daily Mail, 2010)

In some instances, security personnel advise on the use of a single entry and exit for the control and checking of traffic in and out of a building. Whereas this strategy may be useful in security, at times it becomes an impediment in the apprehension of the attackers and the evacuation of persons trapped within the premises as in the case of the Westgate attack in Nairobi. A balance therefore, according to the security consultants, need to be achieved so as to make the building porous but at the same safeguarding the security of the occupants.

Plate 4.2: The arcade at ICEA Building along Kenyatta Avenue enhancing porosity

Source: Author (March 2017)

According to the persons interviewed though, safety and security in and within buildings have greatly improved over the years. Adequate measures in the prevention of an attack and especially in the evacuation of persons in the premises in some instances are lacking and need to be enhanced.

4.3.2. Security Provision by the Government
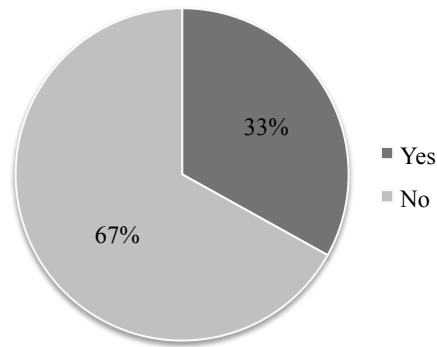
Figure 4.5: Adequacy of Security Provision by the Government

Comprising of about 67%, the perception of the majority of respondents feel that the government is not providing enough security to counter terrorist acts in the City. Many feel that police presence is inadequate, pedestrian walkways need to be broadened and properly lit and also there being need to add on the surveillance installations such as the CCTV.

Plate 4.3: A Fortified Neighbourhood

Source: Author (March 2017)

These results corroborate with a similar study (Olima, 2013) where it was found that most people in the City feel that they are not well protected and hence organize for their own security. This could possibly be the reason behind the heavy fortification of premises.

Plate 4.4: Walled residential units within a walled gated community

Source: Author (March 2017)

The minority of the respondents (33%), on the other hand feel that the government has greatly improved security in the city as characterized by the installations of streetlights and surveillance cameras. This has been further evidenced by the reduction of terror and crime related activities in the city. Though still most of the respondents feel that there needs to be more emphasis on security interventions in the city.

Plate 4.5: Security Cameras has been enhanced by the Government

Source: Author (March 2017)

On the other hand, according to the interviews conducted with the police and the security consultants, there is a very effective deployment and presence of highly trained personnel in the city to counter attacks by terrorists. Further, the government is constantly training its personnel on counter-terrorism, developed the Disaster Management Unit that caters for all types of disasters in the country, terrorism being one of them, and has also set up the Anti-terrorism Unit to the It is for this reason that attacks in the city have been on the decline.

Further, it was informed that depending on the country's policy, there are some countries where one hardly sees a uniformed police though the terror threat is high, as they would rather opt for plain-clothed security personnel and undercover operatives. Admittedly, the direct benefit of police presence gives the psychological assurance to the public that they are safe.

4.3.3. Strategies to Prevent Terror Attacks
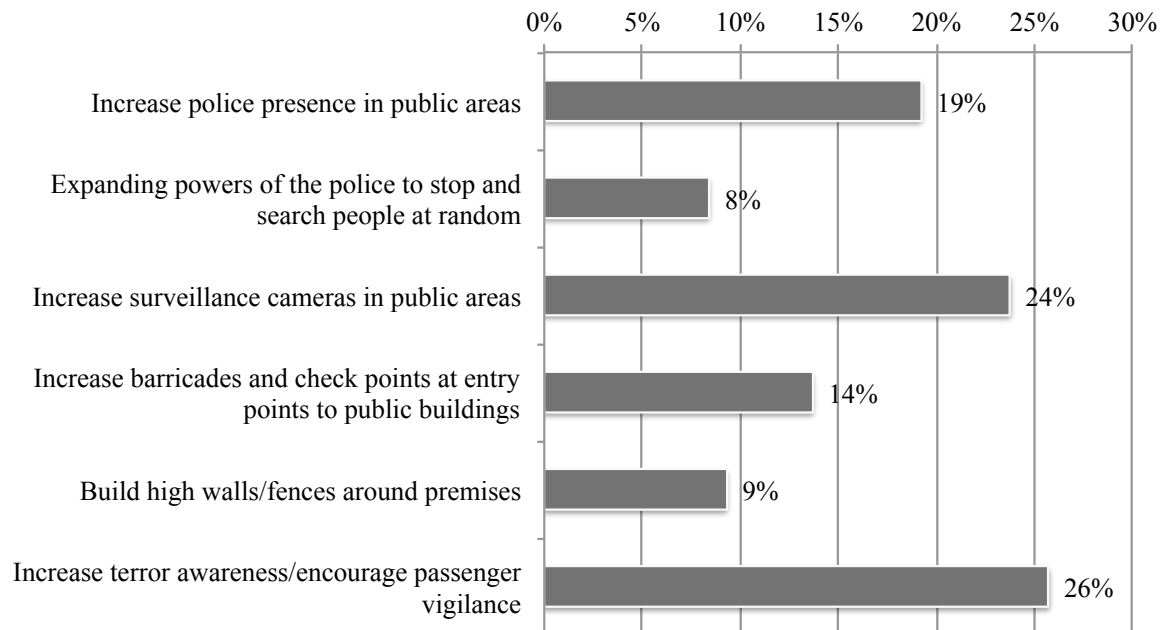
Figure 4.6: Strategies to Prevent Terror Attacks

Figure 4.6 above highlights the various strategies outlined in the study to prevent attacks in the city. An analysis of the findings shows that the three critical and most preferred strategies are:

i.   Increase terror awareness / Encourage vigilance (26%)

ii.   Increase surveillance cameras in public areas (24%)

iii.   Increase police presence in public areas (19%)

To note is that the strategies preferred by city residents are not in any way related to the design and construction of buildings but rather deal with the 'soft fabric' of built environment. As highlighted in 4.3.2 above, presence of police in public areas is a perception issue by the public and probably, the increase in awareness may dispel this fear.

Plate 4.6: Security Checks at a Building

Source: (The Rockerfeller Foundation, 2016)

Note also the 'hard' elements in the built environment that have been lowly appreciated by the public such as the building of walls. As confirmed by the interviews conducted in the survey, all are in agreement that 'hard' interventions may deter a threat but is not in itself sufficient and would not hinder a planned attack.

According to the interviews conducted, terrorists are equally trained and well informed about their target and the physical barriers may not be a hindrance but rather make it even more difficult for people to escape as in the case of the attack at the Westgate Shopping Mall in Nairobi. In this instance, due to the constricted nature of the premises, terrorists were able to horde their victims and shoot them easily.

Plate 4.7: Westgate Building During the attack in 2013

Source: (Rankin, 2013)

In contrast, if one is to compare the Sarit Shopping Mall, not very far from the Westgate Mall, its multiple entrances and porosity would make it easier for people to escape and therefore desirable.

Plate 4.8: The Sarit Centre

Source: (The New Economy, 2014)

As regards to the awareness campaigns as preferred by many respondents, both the security consultants and the police were of the opinion that the matter is also sensitive, as may heightens fear of the population and also provide a tool for the terrorists to use. According to them, terrorists sometimes do appear as normal people and the best strategy is to be alert and cautious of any character at all times.

The emphasis by the interviewees is that there is no single strategy that is better than the rest, rather a combination of all strategies is critical. Central to this combined strategy, is that the use of covert methods and technical surveillance systems to prevent an attack are preferred.

Plate 4.9: A Street in Westlands showing different approaches in their design. One side with high walls and less frequented by pedestrians compared to the opposite.

Source: Author (March 2017)

4.3.4. Perception on Safety of Users to Premises Laden with Security Installations
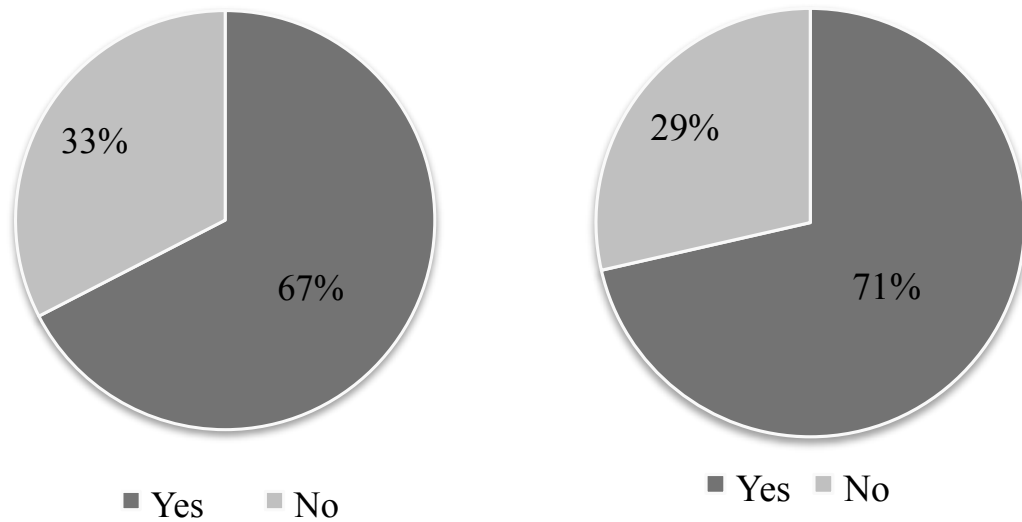
Figure 4.7: Perception of Safety within Buildings of high security (Left) and whether such security installations are to be extended to other buildings (Right)

In as much as the respondents would not prefer to have fortified premises as per the results obtained in 4.3.3 above, in contrast, the majority of them (67%) actually feel safe within them and would actually recommend that such interventions be further extended to other premises (71%). Interestingly, the same respondents are cognizant that high walls would not deter a terrorist attack (See results in 4.3.5 below).

The paradox in these results could signify the confusion within residents of the city especially by not being provided with an alternative for security integration within buildings except for what has been practiced over the years: the setting up of fortified premises so as to ward off unwanted elements including criminals, terrorists and to an extent, other people of a different class (See Section 4.5.3 below). It is interesting to note that city residents know that walls around premises does not prevent an attack,

but at the same time feel a sense of comfort within these confinements. Perhaps, it provides a perceptional psychological shield to the user.

Respondents who didn't feel safe within such fortified premises mostly raised the issue of escape in case of an attack or an emergency. Others, especially by visitors to the city who are not used to such levels of security, expressed the feeling of anxiety and fear being within such buildings as it appears that the building was a target, hence the fortifications.

Plate 4.10: A property with high walls and laden with security systems

Source: Author (February 2017)

Security experts interviewed, confirm that it is normal for people to feel safe in buildings that are guarded and fortified as this gives them a psychological assurance of being shielded from harm just like the need of having a visible police force. Security concern is ultimately a delicate balance between safety, security, freedom and convenience.

4.3.5. Perception of Residents on High Walls to Premises
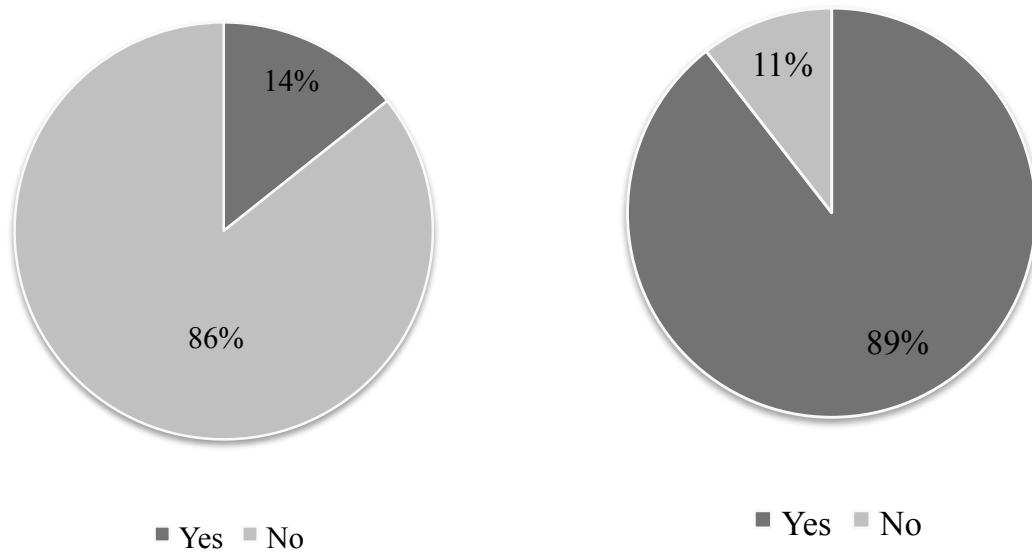
Figure 4.8: Perception on fortification of buildings surrounded by walls (Left) and whether the strategies outlined in 4.3.3 would be preferred (Right)

86% of the respondents are opposed to buildings with high walls. A major statement especially in the design of buildings within the City. Again, a vast majority of the respondents (89%) opting to favour the 'soft' strategies outlined in 4.3.3. As discussed earlier, this is the paradox of not wanting the wall but at the same time feeling that it is necessary for safety.

According to the County Planners, this is a worrying trend within the city where many developments are currently practicing such. Such walls are illegal and are a threat to the users as they get cut-off from the general public view in case of an attack. The Planners instead encourage and advocate for a low wall of a maximum of 1.2m that is also porous.

Plate 4.11: Boundary Wall to the Government Press along Haille Sellasie Avenue

Source: Author (February 2017)

Plate 4.12: A Porous Wall to a building in Upper Hill

Source: Author (February 2017)

Plate 4.13: High Walls along Ole Odume Road without a pedestrian walk

Source: Author (March 2017)

Plate 4.14: High walls to the World Bank Offices along Upper Hill Road

Source: Author (February 2017)

4.3.6. Buildings and Exclusivity
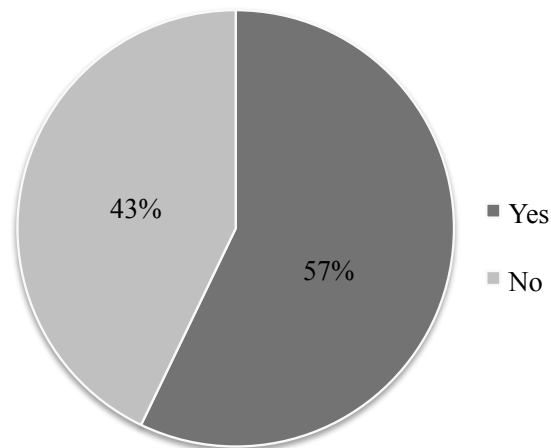
Figure 4.9: Security as a Means to Discrimination

A slight majority of respondents (57%) are of the opinion that business owners sometimes use security as a means to discriminate against access to their premises. Perceptions that could be true and as suggested in this report, inherited from the colonial planning principles have permeated into our modern day society.

Plate 4.15: Spikes placed on Planter Beds to ward off people

Source: Author (March 2017)

At the same time, a slightly similar number of respondents (43%) are also of the opinion that such measures are not meant to discriminate individuals into accessing certain premises but are purely of security in Nature.

Plate 4.16: The Aga-Khan Walk with Planter Beds used as seating encouraging interaction

Source: Author (March 2017)

Either way, it is a subject that requires an in-depth exploration and would therefore not fall under this category of study. The aim of this particular finding was to have a 'feel' as to whether colonial practices have had an impact in Nairobi's contemporary society, and the results, in a way, proves that.

4.4. Impact of Terrorism to Urban Form

This section dwelt into urban form and how terrorism is having its impact. It searched the perceptions of city residents on their preferences to urban sprawl and their attitude on sensitive buildings located within the city.

4.4.1. Planning Nairobi Against Terrorism
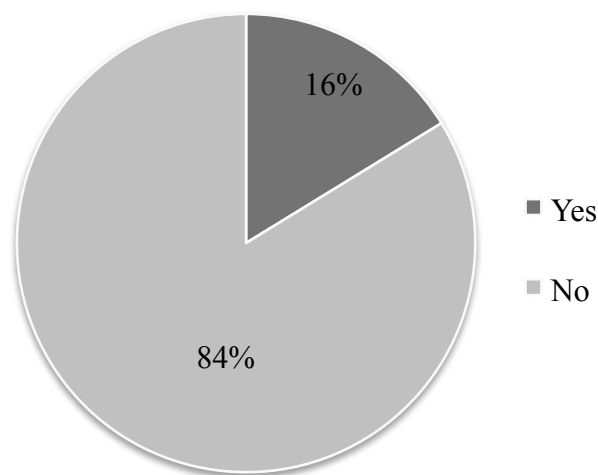
Figure 4.10: Terrorism and City Planning

The majority of the respondents (84%) are of the view that Nairobi has not been adequately planned to ward off terrorists and also not prepared for emergencies in case of an incident. The main issues cited are:

i.   Inadequate identification of persons coming in and going out of the city

ii.   There being no emergency centres at strategic locations of the city

iii.   The city roads being narrow and congested hampering movement of emergency vehicles and personnel

4.4.2. Compact Versus Sprawling City
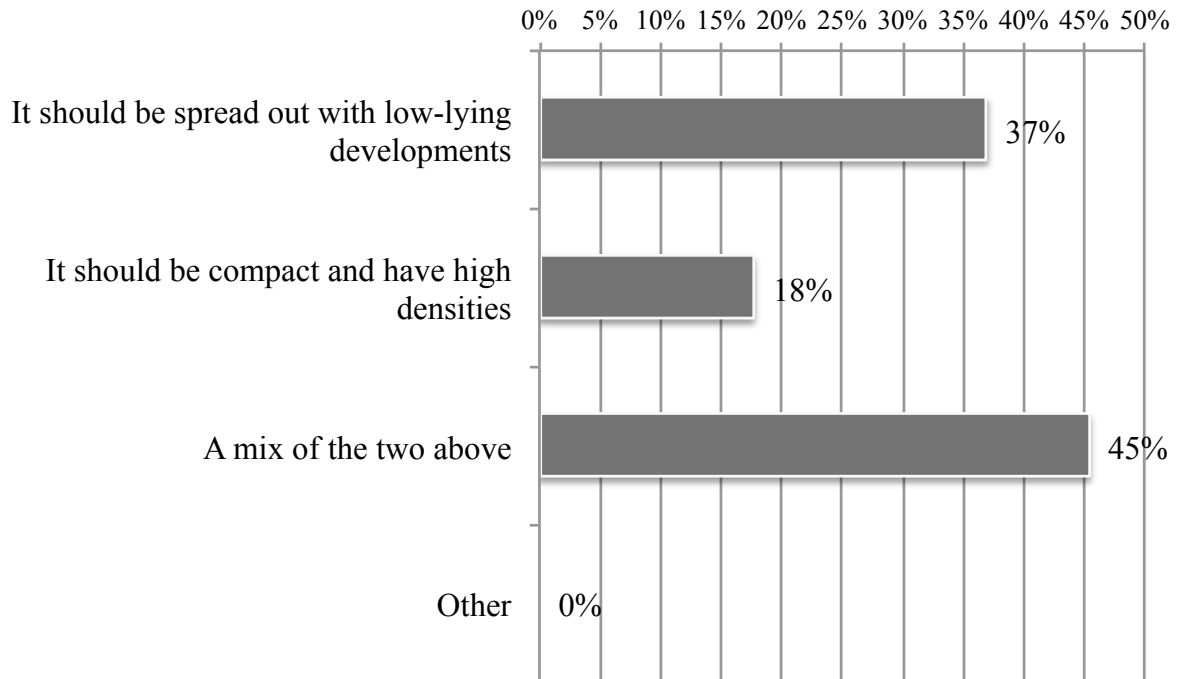
Figure 4.11: Compact versus Sprawling City

Whereas majority of the respondents (45%) preferred a mixed type of a city, what was striking was the 37% respondents preferring a sprawled city as opposed to the lowly 18% respondents wanting a compact city.

According to the security personnel, a sprawled city has the benefit of minimizing casualties in case of an attack as opposed to the compact city. A sprawled city however, posses a challenge in administration and policing, as there would be a need to have more security personnel manning this type of a city than a compact city. In addition, it is easier to identify and apprehend suspicious persons in a compact city than in a sprawled city, since there are 'many eyes' within a city that is densely populated.

The Nairobi Planners at the County advocate for a spread out city with various peripheral growth zones in strategic locations. According to them and as captured in the NIUPLAN, this strategy will decongest the city and make service availability easier to the citizens. Such sprawl also may have the effect of minimizing the damage caused by an attack. The main challenge as with the security personnel, is the administration of such as city.

All research findings therefore point towards a multi-nucleic city as a preferred urban model. Such a city has the ability to minimize the threat of an attack, deliver services efficiently to its citizens while decongesting the main CBD.

Plate 4.17 & 4.18: A city with shop frontages, sidewalks and a multiplicity of functions is preferred

Source: Author (March 2017)

4.4.3. Security Strategies in the City
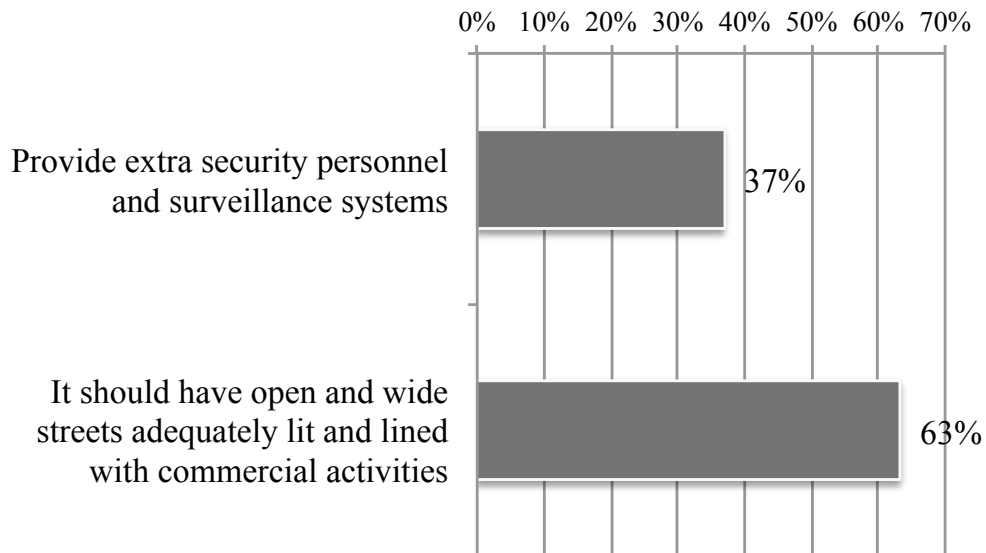
Figure 4.12: Security Strategies in the City

An interesting result in that the majority of residents (63%) prefer to have a properly laid out city with wide pedestrian streets that are properly lit and lined with commercial activities than having more security personnel in patrol (37%).

Compared to the results in 4.3.3, where residents had preferred the presence of security personnel, this result reflects that given a choice, residents would opt not to have them but instead favour a more open city.

Security personnel and the planners interviewed are also of the opinion that strategies such as the concepts presented in Crime Prevention Through Environmental Design (CPTED) area a critical element in ensuring safety of city residents. Police presence is therefore not as critical in ensuring safety of residents but rather provides a psychological comfort. However, police presence, taken too far, might send the message that the city is not safe heightening anxiety among residents

Plate 4.19 & 4.20: An open city as compared to a policed city

Source: Author (March 2017)

Plate 4.21: The Aga-Khan Walk. A good example of a street in the City

Source: Author (March 2017)

4.5. Nairobi Planning and Terrorism

This section looks into how the planning of Nairobi has responded to the rise of the threat of terrorism. It searches into the observation of residents as to their perception whether Nairobi has been planned to ward off terrorists. It also looks into their perception towards building security systems and whether these are implemented for the sake of security or as a way to discriminate against the population.

4.5.1. Preparedness of Nairobi to Counter an Attack
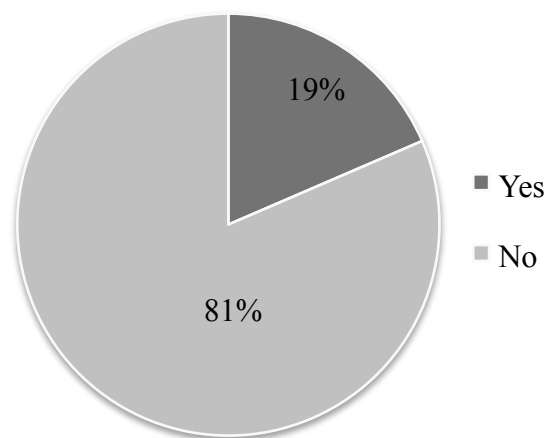
Figure 4.13: Preparedness of Nairobi to a Terrorist Attack

As in the previous sections, majority of city residents (81%) are of the perception that Nairobi is not prepared to counter a terrorists' attack. Among the issues raised are:

1. Citizens not being made aware on how to protect themselves

2. Disaster management is wanting

3. Based on previous experiences, protection against terrorism wanting

4. The congestion in the city

Further, the City Planners are of the opinion that many aspects of planning have not been considered, being ignored by developers or simply not having enough capacity to deal with the issues. Such circumstances include:

i.   Access to buildings are blocked by informal traders and street families

ii.   Building set-backs are not being adhered

iii.   Service lanes are taken over by informal traders making it difficult for emergency services to pass through

iv.   The upsurge increase in population coupled with the non-revision of master plans is making it difficult to map out the city

v.   Lack of Fire Hydrants and Assembly points in building designs cause a challenge during rescue operations

vi.   There being no focal point of emergency coordination

Plate 4.22: A street lane taken over by traders in Eastleigh

Source: Author (February 2017)

4.5.2. Planning Regulations on Terrorism
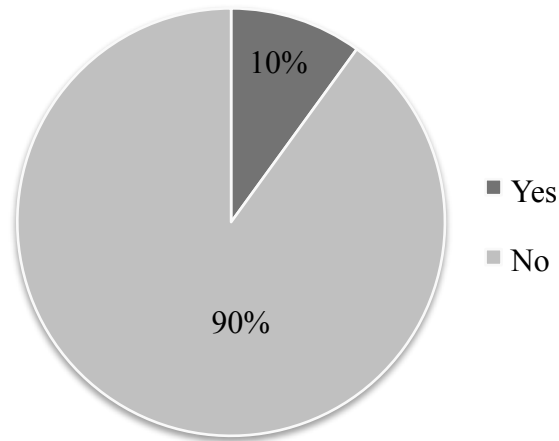
Figure 4.14: Awareness of Planning Regulations to Terrorism

Majority of the respondents (90%) are unaware that there exists planning regulations to terrorism. Security consultants interviewed are also in the dark as to whether the Planning Department at the County offices does have regulations on the subject. What is available is the 1968 Building Code that spells out various elements in the design and construction of buildings with terrorism, as expected, not being part of it.

The Planners also confirmed that as yet, there doesn't exist a policy or a strategy document at the County on matters related to terrorism. There are though various attempts to make the County ready and prepared in case such an event does occur in the future by having partnerships with other programs aimed at making the City safer. Such programs and affiliations include: The Resilient City Program, The World Bank, JICA, UN Habitat and the Rockefeller Foundation among others.

4.5.3. Cordoning Off Public Streets
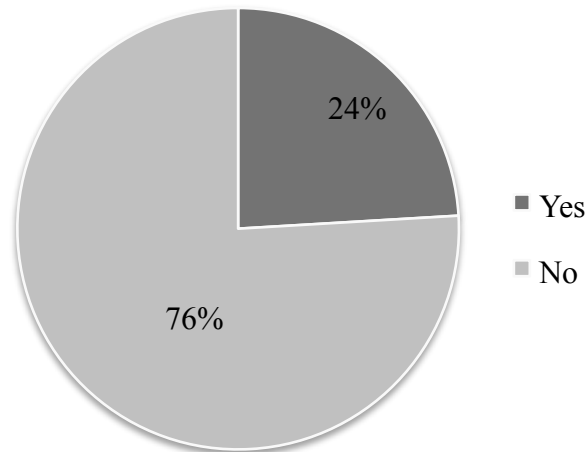
Figure 4.15: Cordoning off Public Streets

Majority of the respondents (76%), are not in favour by the government and sometimes embassies cordoning off part of the street so as to enhance security of their buildings, a common trend in Nairobi.

To the security personnel interviewed, sometimes these measures are necessary especially when the building is of importance so as to ward off terrorists. The cordoning off the streets is aimed at reducing damage especially in a car bomb terrorist attack.

According to the City Planners, cordoning off a public street is illegal and should not be encouraged. It has though become a tendency for many buildings to do that in the City. Enforcement of the law is difficult due to insufficient staff and sometimes more so, when the matter takes on a political angle where the junior officers are rendered helpless to act.

Plate 4.23, 4.24 & 4.25: Streets cordoned off with pedestrians share the road with cars

Source: Author (March 2017)

Plate 4.26: A Private Enterprise taking part of a street

Source: Author (March 2017)

Plate 4.27: The County Offices cordoning off a Public Street

Source: Author (March 2017)

Plate 4.28 & 4.29: Private Developers taking over Pedestrian Streets

Source: Author (March 2017)

Plate 4.30: A high-ranking government official taking over a road

Source: Author (February 2017)

4.5.4. Sensitive Buildings to be Located Outside the City
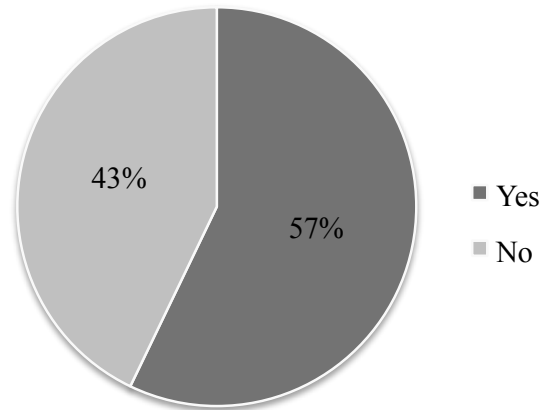
Figure 4.16: Sensitive Buildings to be Located Outside the City

A slight majority of respondents (57%) are of the opinion that sensitive buildings such as the parliament, embassies and government buildings are to be located outside the city so as to minimize the risk of a terrorist attack to the population.

But again, as highlighted by the security personnel interviewed, terrorism is an ever-evolving phenomena and one needs to be abreast with the realities of every-day living. Currently, one of the strategies used by terrorists is to use a vehicle and plough through people, would it also mean that markets and busy streets are to be moved out of the city?

This has been supported by a sizeable number of respondents (43%) who are of the opinion that the City is a mixed development and therefore all types of buildings need to be within it.

4.6. Chapter Summary

This chapter ventured out to ascertain the preparedness of Nairobi in counter-terrorism both in its building and planning principles employed within the city. By the use of several data collection methods, results were analyzed and presented in graphs and photographs, further enhanced by interviews conducted to several security and planning consultants.

A common denominator that stood out is the perception of residents not being confident on the preparedness of Nairobi in battling terrorism. Awareness was also a major issue with the residents as many felt that they do not have sufficient information on what to do or who to contact in case of an emergency.

On building designs, respondents were of the opinion that many have emphasized on the physical security to an extent that it becomes a deterrent to the user. The findings also reveal that Nairobi's planning has not been adequate especially in the provision of necessary services in case of emergencies.

It is of interest to note that 'soft' interventions to matter related to terrorism was the preferred method of intervention by all the residents, planners and the security personnel.

The next chapter discusses the findings and provides a summary of the results. It also provides recommendations on the subject and highlights possible further studies on the issue.

CHAPTER FIVE

5.0 DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This chapter collates and presents the information previously collected, as a summary of the study in support of the research objectives. For purposes of clarity, this chapter is divided into three sections.

The first section deals with the analysis of the literature review and summarizes the important aspects of the study tying these to the research objectives. It sets the springboard upon which the other sections will be based on.

The second section is then introduced, and by drawing inferences from the previous section, ties in the results obtained during the field study. These results are then cross-referenced to the previous section so as to support the argument of the research.

The final section deals with recommendations on areas of improvement and also on future studies. Based on the results in the research findings, the paper suggests improvements to various levels of the city and finally gives suggestions to future studies.

Finally, the conclusion sums up the research discussions by succinctly highlighting the fulfillment of the research questions.

5.2. Summary of Findings

The study had embarked to establish building and planning practices within Nairobi in relation to urban terrorism. It had hypothesized that the planning principles for Nairobi has not taken into account matters related to vitality of the city but rather concerned itself with the segregation of neighbourhoods. It further sought to establish whether urban terrorism has entrenched this aspect of exclusivity within the built environment and whether there are the alternative methods that can be employed so as to bring up vitality into the city despite the escalation of urban terrorism.

The study was guided with three objectives so as to investigate the effects of urban terrorism in a city. The first objective was to establish the impact of terrorism on building designs. Several studies of interventions were explored around cities that have had this phenomenon so as to pick up the lessons learnt.

The second objective was to determine the effects these building designs have had on public spaces and whether the interventions done in the wake of terrorism have had an effect on the vitality of the city. By drawing parallels from cities across the world, it sought to explore the best practices on matters related to urban design and terrorism.

Nairobi planning principles were thereafter explored and as the third objective, sought to understand whether urban terrorism had been considered in the creation of the city. It also sought to draw parallels between historical planning of Nairobi and urban terrorism and whether the two, have contributed to the design and segregation of the city.

A descriptive research design was undertaken to determine the answers to the research questions. In the research, a survey approach was used to explore and find out the effects of urban terrorism to Nairobi's built environment. In the survey, residents and users of urban premises, coupled with parallel interviews to city planners and security personnel, were targeted so as to create an all-rounded and informed proposition.

Data collection was conducted using questionnaires that were personally administered, targeted interviews and by observations that were captured by photographs. The questionnaire answers were then analyzed using Microsoft Excel and the data presented in form of charts and graphs so as to visualize the findings. Interviews were recorded and the relevant responses formed part of the report. The full reporting of the interviews has been presented in the Appendix. Observed activities formed a critical part of the survey as this reinforced the analysis of both the data obtained from the questionnaires and interviews.

The major finding was that Nairobi has come a long way towards preparedness in counterterrorism and is now better positioned to counter the threat than in the previous years albeit some challenges. It is these challenges that are now turning Nairobi into a more segregated city with loss in vitality.

On building designs, majority of city residents (90%) are of the opinion that they are not adequate for in case of a terrorists attack. Supported by interviews conducted, many feel that security in the city is inadequately provided despite the reduction in crime and terror related incidents. The most preferred counterterrorism strategies in

building designs seem to lean more on the 'soft' strategies like vigilance and installation of non-intrusive surveillance systems. Most respondents, including the security consultants, and as supported by the literature reviewed were of the opinion that the 'hard' interventions such as fortifications of premises, do not prevent a terror attack but rather add on to insecurities and loss of vitality in the city.

As regards to urban form, majority of the respondents (45%) were of the opinion that a mixed development with peripheral CBD's are preferred than a city with a high-density centre. Further, this city is to have wide roads with open streets that are adequately lit to increase on the safety of users. A sizeable number of respondents (37%) also preferred a scattered low-density development possibly influenced by the Garden-City Concept. The scattered city has an advantage of reducing casualties in an emergency but at the same time makes it difficult in the provision of services. The view for the mixed development as preferred by the majority follows that of a multi-nuclei model that has a strong central business district but also several other commercial zones scattered around the city.

Finally, the research found out that planning of Nairobi is wanting on issues of emergencies and especially the subject matter. The Planning Department at the County is at the same time not sufficiently endowed to deal with matters of encroachment and the erection of illegal structures. Streets have now been taken over by informal traders, embassies and government agencies and persons, all taking over what is supposed to be the city residents' domain. In turn, the city is increasingly becoming constricted to the user and diminishing in vitality.

5.3. Discussion on Findings

The following section gives an in-depth into the findings of the research linking the findings to the literature review earlier conducted. To highlight are the striking parallels between the respondents comments to the recommendations of the literature review. It is surprising however, that the practice is in contrast to the recommendations.

5.3.1. Building Designs in the Wake of Terrorism

The study established that the majority of respondents (90%) are of the opinion that building designs in Nairobi have not been adequately provided for in the prevention and response of a terrorist attack. A look into the responses and it is realized that most issues do not necessarily concern the reorganization or reconfiguration of buildings but rather touch on the management of such spaces. Issues raised for instance include appropriate signage, conducting evacuation drills, awareness to users in case of an emergency and the clearance of alleyways with the provision of adequate lighting.

The second tier of intervention that was deduced from the survey, which again does not cause a major disruption into the functionality and usage of a building involves the installation of surveillance, alarm and communication systems that are centrally linked to an emergency response centre. These systems would have a cost implication to premises but would go a long way towards averting incidents such as crime and terror attacks. Emphasis was made that all these systems from various premises would

require to be linked to a central unit that would be able to coordinate the various units, such as the police, fire brigade and ambulance services in case of an emergency.

The final aspect of preparedness as highlighted in the research, included a thorough audit of buildings in the city to ascertain their structural integrity, material usage and means of escape, as this is found to cause more damage as witnessed during the 1998 bombing and the 2013 attack. In the 1998 bombing, material usage in the Ufundi House made it to collapse causing several fatalities and glass from neighbouring buildings were turned into shrapnel causing further injuries. Again, all these aspects are not new to a well-trained architect in ensuring that material used in a project conforms to standards. The Planning Department at the County confirmed that due to their insufficient capacity, enforcement of such measures is a challenge and therefore many buildings in the city are a disaster-in-waiting.

On matters related to security, 67% of the respondents feel that the government is not providing enough security in the City to safeguard people and property against crime and specifically terrorism. These sentiments are similar to those highlighted by Olima (2013) where a similar study produced similar results.

The perception of security is sometimes a subjective opinion by the residents especially looking into historical responses of emergencies. The reduction of crime levels and terrorist attacks in the city, as highlighted by the Kenya Police Service Crime Report of 2011 and 2014, indicate that the government has actually stepped up measures to ensure the safety of its citizens. It therefore seems that awareness campaigns need to be conducted so as to generally inform and educate the residents

about matters regarding terrorism. The contradiction in this is that awareness campaigns may also have a reverse effect by informing the would-be perpetrators on what to expect. A delicate balance between information sharing and security is therefore critical so as to achieve the targeted purpose.

The intervention to counter a terrorists' attack as preferred by most residents are the 'soft' measures rather than physical intrusions. Among the measures preferred are: awareness campaigns and vigilance by the population (26%), increase surveillance cameras (24%) and the increase of police presence in the city (19%). Again this is in line with the study conducted by Cherry et. Al (2008), Kitchen (2001), Vidler (2002) and Schimmel (2011), whose findings indicate that sometimes the less costly measures of surveillance is more effective to counter a threat than the intrusive and expensive physical structures.

Measures such as those highlighted by Newman (1972) in his proposed CPTED promote vitality and liveablity in the city. CPTED emphasize on natural surveillance techniques and spaces that are clearly defined and organized in a recognizable hierarchy. The employment of such measures it seems therefore has, by far, a better measure in reducing insecurities while at the same time increasing vitality in the city.

Interventions such as the erection of high walls around buildings were found to be 'hard' and not preferred by the respondents (9%). Many respondents (86%) were of the opinion that high walls are not adequate in preventing a terror attack as it adds on to the insecurities of evacuation or being noticed by persons outside the premises when under attack. This aspect is in line with the proposition by Petersen (2006) who

argues that such measures are usually irreversible and renders the city systems unsustainable.

The heavy physical approach usually impacts on perpetuation of fear and in turn has an effect on the socio-economic well being of a city. It is therefore critical that Nairobi looks into measures other than the current barricades and checks so as to promote 'liveness' of the city. Bearing in mind that Nairobi is not the only city that has experienced such acts of terror and that there are more effective ways of dealing with this issue than the current strong physical fortification of buildings.

Surprisingly though, a slight majority of Nairobi residents (67%) feel safe when within these fortified premises. It is my assumption that with the lack of an alternative provided by the specialists, and over years of tradition, many residents are not able to consider other options for safety except fortification; a similar situation as in Pavlov's Classical Conditioning.

In essence, security in buildings within Nairobi has been greatly enhanced and is currently better prepared. During the years following the 1998 bombing, there has been an overzealous implementation of security checks and fortification of premises in an attempt to further secure these premises. These measures are by the day being increased, yet there are elements that are still wanting in improving the situation while maintaining vitality of the city; high impenetrable walls, hard checks and intrusive systems is not the answer.

5.3.2. Impact of Terrorism to Urban Form

According to the survey, many city residents (84%) are of the opinion that Nairobi has not been adequately planned to counter a terrorist attack. In their views, and also confirmed by the interviews conducted, Nairobi has insufficient and sometimes lacks relevant services and amenities such as emergency lanes and centres. Though surveillance systems have been placed in major roads leading in and out of the city, the survey felt that these are not adequate.

On matters of sprawl, many residents (45%) were of the opinion that the City is to follow a mixed development model in line with the Multiple Nuclei Model. This model is also in line with the NIUPLAN for the development of Nairobi by the County. In this model, Nairobi is planned to have several sub-centres that would ease up the congestion of the central core thereby increase efficiencies in services provision and reduce congestion to the CBD.

A significant number of residents (37%) are also of the opinion that the City needs to follow a sprawl model, similar to the Garden City Model. This model according to Vidler (2002) is an assumption by many residents, but actually the reverse is true. A sprawling city has the likelihood of reducing casualties in case of an attack, but it also creates a strain in the provision of services. Studies conducted from other incidences world wide, suggest that cities tend to become more congested and densely populated with attacks ((Vidler, 2002), (Blomberg, Sheppard, & Glaeser, 2007), (Bagehot, 2017)).

On city layout and security, majority of the residents (63%) are of the opinion that that streets should be wide and open with adequate lighting rather than providing extra police patrols (37%). This response is in line with the CPTED policies as outlined by Newman (1972). Unfortunately, most streets in Nairobi have no room for expansion and informal traders are now competing this space with pedestrians. On the other hand, service lanes have now been turned into parking zones compounding the issue even further. It is critical, since most of the roads in the city cannot be expanded, that a relook on the design needs to be done with strong policies implemented so as to create the vitality that the City needs.

Space for freedom and expression is an important aspect of city living and need to be enhanced (Jacobs 1961), (Lynch 1982). This freedom is currently under threat with intrusive surveillance systems that the residents were not in favour of. Instead, many are of the opinion that these need to be toned down and instead allow residents free movement within the city.

On the other hand, the heavy presence of police personnel in the city may give assurances to the residents that they are protected but at the same time develop a psychology of fear (Smith 2015) and also end up in curtailing freedoms of city residents.

A balance between security, freedom and convenience is important to be achieved in a city so as to increase on its vibrancy. CPTED has an opportunity in making this happen but with the backing of strong policies and implementation strategies by the County Government

5.3.3. Nairobi Planning and Terrorism

Nairobi has been created and is developing into an exclusive city (Hagans, 2013) with many residents (81%) having doubts as to whether is it capable of withstanding a terrorist attack especially with the way it has been planned and laid out. The issues outlined are in several folds: history, policy and enforcement.

The genesis of Nairobi was in its original plan where it was developed into a segregated city. This model has now permeated into the modern setting where the same principles are being applied. Gated and highly fortified neighbourhoods are now the norm, suffocating the city with tension as one walks along these developments. As Vesselinov (2008) points out, gated communities further reinforces the idea of segregation and in turn promotes fear that only adds on to the developer's profits with the addition of more fortified installations.

Further, the city has not followed through and developed a master plan that is relevant to the times. The last adopted plan was that of 1948 and has been responsible for the development of ad-hoc neighbourhoods. City streets and infrastructural services are now narrow and crammed making it difficult for them to be expanded and emergency services to meander through.

On the policy front, there is no regulatory framework or strategy on matters related to terrorism and the planning of the City. Confirmed by County Planners, this is a critical and essential element in the governance of the County and is currently unavailable. Other matters related to policy, include awareness to residents on what to

do in case of an event, emergency and disaster coordination by the various bodies in the City and insufficient or non-existent critical facilities within a certain radius of the city such as hydrants, the Fire Brigade, Hospitals and Disaster centres.

Enforcement of the various by-laws in the City has been made to be a difficult task due to various challenges including political interference and insufficient capacity in the County Government. Currently, service lanes have been taken over by traders, high walls continue to be built, buildings are fencing off streets and roads, set-backs are not being adhered amongst a host of many other illegalities.

A disturbing trend developing in the City in the name of security is now the cordoning off of public streets. Despite the majority of residents (76%) not being favour of this practice and its illegality, many buildings are now taking over streets in the name of protecting themselves against crime and terrorism. This practice has the resultant effect of further perpetuating fear and instead need to be replaced with non-obtrusive features that do not curtail individual freedom and liveability ((Coaffee, 2010), (Kitchen, 2001), (Cherry, Loukaitou-Sideris, & Wachs, 2008), (Schimmel, 2011)).

The location of government, embassy buildings and other sensitive installations is critical in planning so as to ensure their accessibility for service delivery. Yet, these are the usual targets for terrorist attacks in the city and a slight majority of residents (57%) would like these buildings be located far from the dense population of the residents. To note is that terrorists are always planning and their methods evolving, buildings cannot therefore be continuously moved as this would play into the terrorists' tune of creating anxiety and fear as underlined by Savitch (2005).

5.4. Conclusions

Based on the finds and discussions above, several conclusions can be derived at that are highlighted in the subsequent sections.

5.4.1. Building Designs and Terrorism

The study confirmed, based on the perception of residents and interviews conducted to city planners, that buildings in Nairobi are not adequate in combating terrorists' acts. Major aspects of these non-conformities lie in the 'soft' elements of building design and include issues such as way-finding and provision of assembly and call points. The Disaster Management Centre need to be linked to the City's infrastructure and coordinated with the rest of the emergency provision services.

Materials used in construction could also be a cause of fatalities and injuries in buildings. It is therefore critical that building professionals ensure that materials conform to the standards set out. The County has a responsibility, together with the Kenya Bureau of Standards (KEBS) and other testing labs, that their exists building material standards for the county and that these are implemented.

Apart from being illegal, high walls are not the solution to ward off terrorists. Instead, architects and planners should look into a more subtle method of giving security to the residents without resorting to fortification. CPTED need to be emphasized and implemented in the City.

5.4.2. Urban Form and Terrorism

It is a misconception that an open, spread out city is better than a dense city in countering terrorist activities. In as much as the spread out city offers better protection and minimizes casualties when an attack occurs, it also brings with it challenges of service and security provisions to the residents.

It is therefore laudable that the County has adopted the Multiple Nuclei Model for the development of Nairobi as this allows the provision of services and the development of the city to be spread out so as not to congest the central core. This scheme is also the preferred model by majority of city residents, most of who are not aware that there exists such a plan. Information dissemination is therefore important so as to bring the population on board in supporting the plan and also to anticipate future growth of their neighbourhoods.

Further, the road network need to be looked into with the aim of opening up more pedestrian streets that are wide, lined up with commercial activities and are adequately lit. Existing fire alleys behind buildings need to be reclaimed and the building by-laws such as the provision of set-backs, enforced to ensure conformity. Such streets help in the protection of residents apart from adding vitality making the city a joyful place to move through.

Ultimately, the city is a place of interaction and needs to be maintained as such. Residents need not be fearful as they use it, visitors not threatened when exploring it. Such is what gives life to the city.

5.4.3. Nairobi Planning and Terrorism

Nairobi over the years has learnt a lot in matters related to urban terrorism. With every incident, new lessons are learnt, yet there seems to be no strategy in combating this relatively new aspect in planning. It is therefore critical that the County develop policies that can be used to mitigate against such acts.

The NIUPLAN on the hand, having developed in the dark from 1948, is a long overdue program for Nairobi. It sets out the development of sub-centres that are expected to spur growth in various sectors of the City and in turn bring down the barriers of exclusivity created by the colonialists and the neocolonial kleptocrats. The NIUPLAN though fails short in advancing concepts of liveability and vitality of the City It is critical that this aspect be advanced and included within the policy framework.

Critical to planning Nairobi, is the provision of essential and adequate support services for the city. This includes: the Fire Brigade, ambulance, hospital and police services that should be located at strategic locations within the City.

Finally, politics need to be delinked from the running of the County affairs so that the officials can have authority to stop illegal erection of fences and walls to areas that are meant to be for pedestrian use. For a city of vitality, barriers need to be brought down and replaced with open gardens and adequate walking spaces.

5.5. Recommendations

The following are the recommendations made based on the finding s and conclusions of the study.

5.5.1. Suggestions for Improvement

5.5.1.1.   Building Designs and Terrorism

The survey indicated that buildings in Nairobi are not adequately designed to ward off a terrorists threat. It is therefore important that the building by-laws are followed through and material usage be in conformity with globally accepted standards. These need to be worked on together with the building consultants and the County officials in ensuring safety of occupants of premises in the City.

5.5.1.2.   Urban Form and Terrorism

The Multi Nuclei Model is the preferred growth model for Nairobi. This has the potential of breaking down the barriers of exclusivity in the city if implemented properly. Streets are a critical element in the city as they form arteries upon which people interact. The design of street need to encourage this, by providing wide accesses, properly lit spaces and open areas that people can be able to relax from the daily bustle of the city.

5.5.1.3.   Nairobi Planning and Terrorism

The NIUPLAN needs to be implemented and followed through so as to achieve its intended purpose. Sensitization and awareness campaigns to the residents need to be done so that it is accepted and adopted. Further, the NIUPLAN need to include policies on liveability and vitality to the city.

5.5.2. Recommendations for Further Studies

Terrorism is a fairly new phenomenon in Nairobi and an ever-creasing aspect in modern urban life across the world. It is therefore critical that further studies be conducted on urban terror to ensure preparedness of the City to prevent, protect and quickly recover from it.

A detailed survey of the buildings in Nairobi need to be undertaken to ascertain their integrity both in terms of structure and provision of adequate evacuation features. Coupled with a security study on their vulnerability to an attack, appropriate measures be recommended and implemented to the structures.

Together with the analysis of buildings, the city would need to be relooked and studied to check on the adequacy of emergency services provision. Location and number of these essential services needs to be determined and provided for any eventuality. The road and pedestrian street networks requires an in-depth study to be able to provide them with the necessary accesses required for a vibrant metropolis in the 21st Century.

5.6. Conclusion

Nairobi was born out of exclusivity where racial segregation was promoted and integration abhorred. This principle of segregation was reinforced by the planning proposals made to develop the city and was later adopted by the neocolonialists who further entrenched the ideology, this time round through class segregation.

Social exclusion further bore societal ills such as crime and delinquency, further propelled by the rapid urbanization and the economic gap disparity between the citizens of the city. In turn, this has led to fortification of neighbourhoods and public spaces diminishing vitality and city life.

Urban terrorism bore its ugly face in the late 20th century and with it a new era of public space articulation came into existence. Public spaces were no longer centers of interaction and joy but rather turned into places of intimidation and further exclusion. The city has now become a place of fear where the user is no longer at ease.

Urban design has a role in turning round these negative aspect of space use in the city by employing various techniques easily available within its theory and practice. Ultimately, the city is and should be a place of delight where everyone partakes in making it vibrant and liveable.

One then questions whether these fortifications and security checks are sincere or just another system of intimidating the user in an attempt to psychologically 'weed out' the 'undesirable' from entering these palaces of the privileged. Or maybe perhaps,

just like the fortified residences, is a show of the "coming of age" (*"tumefika"* in Kiswahili) of the neocolonialist bourgeoisie by having people subjected to security checks as a way of paying homage to their "kingship". A tactic used by the colonial masters in subjecting the Africans to having passes and clearance (*"kipande"* in Kiswahili) when moving between zones so as to further reinforce their dominance to the locals.

All is not lost. Architecture usually has a surprising and a twisting way of suddenly rejuvenating a place that would otherwise be considered dead or in despair. Nairobi still has areas that would be considered vibrant, breathing in a sense of joy while proclaiming that the city is still beautiful. Consider some places in the CBD for instance such as Tom Mboya Avenue or the Aga Khan Walk, with all its worn out pavements, yet forms avenues of everyday life and interaction within the city streets giving it the necessary vitality that is so needed in city life.

Yet surprisingly, new business districts, like Upper Hill in particular and in some parts of Westlands could not borrow from the vibrant exuberance of the CBD and have instead become places of 'serious work' during the day and emptiness in the night.

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APPENDICES

Appendix 1: Questionnaire on Terrorism and Building Designs in Nairobi

Letter of Introduction

Dear Sir/Madam,

RE: SURVEY OF TERRORISM AND BUILDING DESIGNS IN KENYA

The undersigned is a student at the University of Nairobi, pursuing a Masters Degree in Architecture and is currently conducting a research on terrorism and its impact on building and public space designs in Nairobi. The research is a partial fulfilment of the requirement for the Degree of Masters in Architecture.

By targeting the users of the premises, the research is aimed to gather information on the effectiveness of planning regulations and the security interventions due to terror activities to the built environment and how these interventions may have affected the public space.

Your response will be treated with complete confidentiality. If there is any question you do not wish to answer, you may pass on to the next one. The survey should take approximately 10 minutes to complete.

Thanking you for your co-operation.

Yours faithfully,

Yasir Brek
(Student No. B52/81813/2015)

SECTION 1: General Information

1.1 Name: (Optional)…………………………………………………………………….

1.2 Sex :   Male ☐   Female ☐

1.3 Age in Years: 21 – 30 ☐   31 – 40 ☐   41 – 50 ☐   51 – 60 ☐   >61 ☐

SECTION 2: Building Designs in the Wake of Terrorism

2.1.   Do you think buildings in Nairobi are adequately designed to ward off a

        terrorists attack?   Yes ☐   No ☐   Not Aware ☐

2.2.   If Yes/No, please explain:

        ……………………………………………………………………………………

        ……………………………………………………………………………………

        ……………………………………………………………………………………

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2.3.   Do you think the governement is providing enough security for your safety

        against acts of terrorism in the City?   Yes ☐   No ☐

2.4.   If Yes, please explain:

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2.5.   What do you think should be done to ward off terrorist attacks in the city? Please Rank the following from 1 – 6 (1 being most preferred and 6 being least preferred)

☐   Increase police presence in public areas

☐   Expanding powers of the police to stop and search people at random

☐   Increase surveillance cameras in public areas

☐   Increase barricades and check points to public buildings

☐   Build high walls/fences around premises

☐   Increase terror awareness/encourage passenger vigilance

2.6.   Do you feel safe inside premises that have extensive checks, body & bag scanners, CCTV cameras and fortified high walls around its perimeter?

Yes ☐   No ☐

2.7.   Would you like such installation in 2.6-above, be further increased and extended to all buildings in the city?   Yes ☐   No ☐

2.8.   Do you think the fortification of premises by building tall fences/walls is adequate to ward off terrorists?   Yes ☐   No ☐

2.9.   If No, would the improvements mentioned in 2.5-above be desirable?

Yes ☐   No ☐

4.1.   In your opinion, do you think owners of buildings in the city use security as an excuse to keep off people? Yes ☐   No ☐

2.11. Kindly explain which other improvements you would like to have?

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SECTION 3: Impact of Terrorism to Urban Form

3.1. In your opinion do you think the city has been adequately planned to ward of

terrorists?　　　　　　Yes ☐　　　No ☐

3.2. Please explain

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3.3. What is your opinion regarding the planning of a city in regards to counter-

terrorism?

☐　　　It should be spread out with low-lying developments

☐　　　It should be compact and have high densities

☐　　　A mix of the two above

☐　　　Other, please specify……………………………………………

3.4.   What in your opinion between the two below, is better in making a city safe?

☐   Provide extra security personnel and surveillance systems

☐   It should have open and wide streets adequately lit and lined with commercial activities

SECTION 4: Planning Nairobi

4.1.   Do you think Nairobi is prepered to counter a terrorist attack?   Yes ☐   No ☐

4.2.   Please exlain

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4.3.   Are you aware of any planning principles/regulations in the County's by-laws on isses regarding security?   ☐ Yes   ☐ No

4.4.   Are you happy with government buildings/embassies cordoning off public streets and roads so as to protect their property? Yes ☐   No ☐

4.5.   Do you think sensitive buildings like the parliament, embassies and government buildings, should be located outside the city?   Yes ☐   No ☐

4.6. Would you like to share any other comment regarding terrorsim and buildings in Nairobi? Please briefly elaborate.

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Thank You for Your Participation

Appendix 2: Interview Proceedings with The National Police Service

Title:

Name:

Designation:

Would you mind if the above information is published in the report?

The Interviewee did not want particulars disclosed.

Questions

Q1: Nairobi has been a victim of several terror attacks masterminded by international terror groups. What is your take when it comes to preparedness incase of a terror attack, both in terms of mitigation, preparation, response and recovery?

Terror threat is a global concern affecting everyone and Kenyans have been a victim. Sometimes back, our preparedness has not been good but has late advanced and stepped up preparations to combat the threat.

Operational strategies in terms of physical deployment have been increased over time. Currently there are units that deal with terrorism in the police force and also in disaster management. The Disaster Management Unit deals with all kinds of emergencies, terrorism being one of them.

Contrary to the feelings of many, the Police Service is well prepared and advanced in terms of countering and the apprehension of terrorists. This has had a tremendous impact in the reduction of the threat.

Q2. What are the common tactics used by terrorists in an urban setting, giving consideration to the magnitude of a city like Nairobi?

The common tactics include:

    i.   Implanted IED's by the road,

    ii.   Ambush of specific groups or communities

    iii.   Use of Conventional weapons including attack grenades and assault rifles

    iv.   Use of chemicals. For instance, Anthrax was once intercepted before being used.

Q3. In your opinion, what are the main factors that have led to Nairobi being under terror attacks?

There are several factors. Among them include:

    i.   Foreign investment into the Country especially from the West

    ii.   Religious radicalized approach like in Somalia, wanting to spill over the ideology to the Country

    iii.   State of the neighbouring country whose impact in piracy and kidnapping dragged Kenya into the conflict

Q4 In your opinion, how effective are the security interventions employed in buildings in regards to:

    i.   The high walls/fences being built around premises?

Physical structures may have a bearing in preventing threats. Terrorists are though highly trained and informed that it is easy for them to breach this.

ii.   The numerous checks of vehicles and persons entering these public buildings?

This is an effective way as it sends a message in advance that the terrorists have been detected as it restricts free movement.

iii.   The use of CCTV and other non-personal, covert installations?

This is the most effective means and it depends on intelligence gathering to avert a threat before it happens

Q5. Do you think the current practice of government buildings and some embassies cordoning off the public streets with barriers and fences helps in the prevention of terrorism?

Suicide bombers have made a tendency of driving in, heavily loaded with explosives into a building. Out of such methods, made people to do this and to ensure that they are blocked at a distance and therefore becomes very effective.

Q6. Would it be better for policing if the city, especially the business zones, be spread out or scattered around a large area rather than be concentrated on one zone?

Concentrated city and a densely populated area will have more casualties than a spread out area. The wider city is better placed to absorb the impact and the number of casualties will be less.

In terms of policing, we usually take into account the density of a place: a heavily populated area will have more deployment of officers. Together with density, we also consider the geography of the place and the threat to a particular area.

Q7. Is there an interphase between the public, business community and the police where there is seamless communication incase of a terror attack?

Yes there is. There are many patriotic citizens who share information with us on many aspects of security. We may not say that all citizens are well informed on the tactical nature of these various threats, but the general concept is there especially looking at what is happening in the world. Information sharing is also sensitive as it may be a tool to terrorists who are smart and some live among people as ordinary citizens. We have though a good number of officers who are trained to pick out suspicious characters. Experience has taught us a lot.

Q8. From my research, many respondents feel that they are not being provided with enough security. What is your opinion on this?

We have officers that have been highly sensitized and trained in matters of security. Together with the officers, there is the National Disaster Operations Centre, the Anti-Terror Police Unit and tactical officers. In terms of preparedness, we are, but terrorists are always looking for opportunities. The challenge is where the community is part of the threat like the refugee camps that became a ground for terrorists.

Q9. Do you believe that increasing the visible presence of the police force in the city would curtail terrorism?

Security presence usually deters any form of crime, but also to consider that terrorists plan from far.

Q11. Are there any policies/regulations currently in use to a counter a terrorist attack?

Yes there are. But these are solely in the custody of anti-terrorism units.

Q12. What in your opinion is the best strategy to ward off and counter acts of urban terror?

There is no single strategy in couter-terrorism but a combination of many, which include:

i. Making sure access to premises is restricted and controlled through proper screening

ii. Buildings are protected by the use if CCTV and other protecting devices like poles/posts to prevent drive in of a vehicle with explosives

iii. To always remain suspicious and cautious to every character

iv. Vehicles to be thoroughly searched

v. Deployed security to be vetted and re-vetted from time to time

Appendix 3: Interview Proceedings with a Security Consultant

Title: Maj (Rtd)

Name: Twalib Mbarak

Designation: Certified Security Management Professional, CSMP (The International Security Management Institute, UK)

Would you mind if the above information is published in the report?

It is Ok. I am currently a security Manger with Energy Generating Company.

Questions

Q1: Is Nairobi Prepared for a terrorist attack, both in terms of prevention, response and comeback before, during and after an attack?

It is difficult to quantify the level of preparedness in terms of a terror attack since terrorists keep on evolving with new mode of attacks as what we are witnessing in European capitals right now. Terror attack form part of crisis management which calls for four main pillars (Mitigation, preparedness, reaction and recovery). Nairobi has suffered major terror attacks and each attack has been a learning lesson. Today we see improvement in access control ,cctv monitoring, improved guarding services and a semblance of high security awareness from the public.

Q2. What are the common tactics used by terrorists in an urban setting, especially in Nairobi?

We have no fixed terror tactics. Terrorism tactics or mode of attacks include active shooters (Westgate type of attack) , Vehicle bounded with explosive devices(1998

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American Bombing), Improvised Explosive Devices(used in Matatus) and planting of time bombs(the Norfolk Hotel Bomb in early eighties.

Q3 In your opinion, how effective are the security interventions employed in buildings in regards to:

i. The high walls/fences being built around premises?

Terrorism is applied in phases (Selection of target, studying the target, preparation and execution) The high wall fences is a form of deterrence but not complete insulation from terror attack and this can form a separate discussion. In any security layout, there are advantages and disadvantages hence no one mode can be taken as the best option. For instance many buildings in Nairobi are coming up with high end walls that appear to be addressing terror threat but at the same time the same walls can act as a major safety issue incase of fire or even where terrorists manages to penetrate inside. Westgate is a good example where terrorists managed to heard shoppers and canalize them into areas and shoot them easily. There was no escape route and I think if this attack was in a place like Capital Centre, more shoppers could have escaped.

ii. The numerous checks of vehicles and persons entering these public buildings?

The vehicle and personnel checks are part of deterrence. However these checks must not be seen as security rituals as they happen in many places. A well trained terrorist can easily penetrate most of these buildings since most of our guards including policemen have never seen some of the material and explosive used by terrorists. However, we should commend government move to have police agencies and the National counter Terrorism Centre in their public security awareness and partnership

with corporate security in sensitizing guards and members of the public on terror activities and how to identify terror suspects.

iii. The use of CCTV and other non-personal, covert installations?

The have helped a lot but also a lot of counterfeit CCTV products are in the market. CCTV is meant to deter, do surveillance, leave evidence for identification during investigations. With poor quality of CCTV, most of the time investigation and achieving convictions becomes a challenge. Equally Kenya doesn't have a well documented Code of Conduct and Operation for CCTV unlike in Europe and North America.

Q4. When does the Police come in on matters of Urban Terror?

Police have a key role in urban terror since they are required in all phases to deter, apprehend , prosecute suspected criminals. Equally police partnership with the public is very crucial since for the police to succeed in fighting terror, they need a good rapport with the public for information sharing.

Q5. Are the police effective in the prevention and responding to an attack?

Initially there were serious challenges but as at now, we can say that the police has really improved in handling terror related matters though there is room for improvement.

Q6. Do you believe that increasing the visible presence of the police force in the city would curtail terrorism?

I still believe there is no single dose or cure to address terror threat. There are countries that believe in visible presence of uniformed police on the streets as a way of addressing terror threat. There are some countries in the world that you hardly see uniform police even though the terror threat is high because they opt for plainclothes police and undercover operative. The one direct benefit of police presence is it gives psychological assurance to the public that they are safe and this is very important to a society.

Q7. Are there any policies/regulations currently in use to a counter a terrorist attack?

I won't be able to tell but what I know is that the government has come up with several measures to address the terror threat. These include community policing (Nyumba Kumi) and other measures like giving of your full identity in money transaction.

Q8. Are you aware of any building/planning regulations in Nairobi in regards to terrorism?

No, but there is need to come up with such plans. It will be important for architect and planers to factor terror threats and counter measures in building plan. The concept of Target Hardening, Crime Prevention Through Environmental Design and other can no longer be ignored.

Q9. Are there building/planning regulations elsewhere in the world? Please give a few examples.

There are general plans and recommendations for minimizing terror attacks and its effects. For instance, the Algeria Gas field terror attack realized a complete inquiry and a report on the recommendations. The European Union developed its policy on critical energy infrastructure in relation to the European Programme for Critical Infrastructure Protection, EPCIP.

Q10. In your opinion, do you think buildings need to be spaced out even further than so as to minimize on damage caused by bombing to neighbouring buildings?

The answer is Yes and No. This will depend on the area. For instance, it will be impossible to start spacing building in Tokyo, Hong Kong or Gibraltar just because of a possible terror attract. This will not be viable economically. It should also be factored that terror attack is a low occurrence act with very low likelihood only that when it occurs the impact may be high.

Q11. In your opinion, do you think sensitive buildings like the parliament, government buildings, embassies need to be located outside the city so as to minimize damage during a terror attack?

Twenty years ago, this argument could hold water. Today, terrorists have varieties of targets. Who thought terrorist would use heavy commercial vehicles and drive over

innocent crowds? Should we move markets out of town? We must address the course of terrorism, apprehend the masterminds, improve information collection and be able to neutralize terror units at their formative stages.

Q12. What is your opinion regarding government buildings and some embassies taking over the streets and the roads next to their buildings in the name of security?

The public must accept that the biggest challenge in security is compromise of their personal convenience and sometimes their self-esteem. It is true these embassies and government buildings causes inconveniences but the situation is compelled by circumstances just like the way air travelers get inconvenienced when flying by undergoing numerous objective and sometimes subjective security searches.

Q13. What in your opinion is the best strategy to ward off and counter acts of urban terror?

A difficult question considering the new mode of terror attacks going on especially in Europe where strategy realignment is in serious need. I believe the best strategy is vibrant intelligence at both strategic and tactical levels. At the same time we need to address the issue of failed state both in Africa and Middle East namely, Somalia, Afghanistan, Yemen, Iraq, Libya and semi failed states such as Pakistan, Mali and others. This may reduce terror threats including urban terror.

Appendix 4: Interview Proceedings with a County Planner

Title: Miss

Name: Vivian Adung'o

Designation: Urban Planner with Public Space Management Section

Questions

Q1: Is Nairobi Prepared for a terrorist attack, both in terms of prevention, response and comeback before, during and after an attack?

We are in a challenging city with its good and the bad. At the planning we are always trying to make Nairobi a better place. Some of the challenges we encounter include:

2. Access to buildings being blocked by informal traders making it difficult for fast responders to attend to an emergency

3. Set-backs to buildings are not being adhered to

4. Lanes being taken over by traders and street families. In Eastleigh for instance, this has become the norm. At one time we were able to clear the streets, but the same situation comes back again

5. The Know-how is low by the local citizenry on what to do in case of emergencies is wanting

6. Lack of fire points, hydrants and assembly points

7. The needs of the residents are exceeding the provisions set aside. For instance, in the CBD there are fire lanes behind buildings but these are now used for parking and as loading zones to the buildings.

Q2. Are there any policies/planning premises in relation to terrorism? If yes, can I get a copy?

I am not aware on the existence of a policy in regards to terrorism.

Q3. It has always been argued that Nairobi is an exclusive city, especially on the way the planning has been done over the years. Do you think that this "exclusivity" has had an impact on the way we build our neighbourhoods?

This is true. Our historical planning has had an impact on our lives. Segregation still exists, for instance, the Eastlands have always been associated with poverty whereas areas like Karen are for the affluent.

In regards to fortifications, we encourage people to do walls that are 1.2m high that are porous. High walls are conducive for gangs as they are not easily detected once inside the premises.

Q4. Are there any regulations regarding the building of walls and fences to a premises?

Yes there are. One usually applies for the approval. The main issue is usually enforcement of the standards.

Q5. During my research, many respondents are not aware of any planning regulations regarding the subject. What is your opinion on this?

There needs to be awareness campaigns done to the residents as regards to the planning requirements. Currently this is not happening.

Q7 In your opinion, how effective are the security interventions employed in buildings in regards to:

i. The high walls/fences being built around premises?

These do not offer security and in fact are a threat to the residents

ii. The numerous checks of vehicles and persons entering these public buildings?

This depends on the security situation and threat to the building. Some buildings do not require these kind of checks.

iii. The use of CCTV and other non-personal, covert installations?

This is an effective way of ensuring security. The greatest challenge is what to do with the information once obtained. Such systems need to be linked to a central station where they can be attended to.

Q8. Is the current practice of government buildings and some embassies cordoning off the public streets with barriers and fences, allowable by the planning regulations?

It is not allowable and illegal to put up barriers and fences in the City to buildings. Such facilities usually start by requesting for temporary access to their properties but later on convert this into a security zone. In some instances, the matter has a political angle that we do not have the power to act on.

Q9. Would it be better for security, if the city, especially the business zones, be spread out or scattered around a large area rather than be concentrated on one zone?

The County is advocating for a spread out city and are currently reviewing the Development Control Plan. Together with the NIUPLAN, the proposal is to have different growth zones and with IT, we are seeing an efficient service delivery thereby creating further decongestion. A good example are the KRA offices who have both decentralized from Times Tower and their IT portal has made the building less congested. The same applies with the Huduma Centres that offer services to the residents and are located in various areas.

Q10. What in your opinion is the best strategy to ward off and counter acts of urban terror?

There are several aspects to this. Some of them include:
  i. Redesign our spaces especially in areas that are prone to such incidences so that they can be responsive

ii.   Increase community awareness

iii.   Develop policies and strategies to handle the matter

iv.   To link up with the National Government

Q11. During rescue operations, what are some of the planning challenges within buildings, roads and streets?

There are several challenges including:

1.0 Emergency exits would be provided for in the planning document but not implemented in the building or not properly accessed

2.0 Service lanes taken over by other activities

3.0 Advertisers placing metal barriers to the streets making it difficult for rescue operators to have access

4.0 There being no policy or strategy on the subject

5.0 Individuals blocking off roads and accesses

Q12. Why aren't these planning premises enforced?

Enforcement is a major challenge at the County due because the capacity is insufficient all the way from the inspectorate to the planning side.

Q13. Do you have any other comments regarding the subject?

Public awareness is critical in planning the city, which is currently insufficient. There are also several attempts by the County Government to work with partners for instance, the Resilient Cities Program, the World Bank, Rockefeller Foundation, UN Habitat, JICA among others. The main challenge is in governance and politics.