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MA PROJECT PAPER

THE NEXUS BETWEEN THE BUILT ENVIRONMENT AND COUNTER TERRORISM MEASURES IN URBAN AREAS, A CASE STUDY OF THE CITY OF NAIROBI SINCE 1998

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DECLARATION

This research study is my original work and has not been presented for the award of a degree in this University or any other Institution of higher learning for examination.

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This project has been submitted for examination with my approval as the University Supervisor.

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DEDICATION

This project is dedicated to all my intellectual mentors.

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ABSTRACT

Nairobi and other major cities of the world are facing significant threats from international and local terrorism. The previous attacks show that crowded places like open air markets and public buildings remain attractive targets. Consequently, the built environment, which includes buildings, infrastructure and land use, becomes the stage upon which these heinous acts of terrorism are planned and executed. Any anti-terrorism effort must therefore create safer places and buildings that are less vulnerable to terror attack and in case of any attack, lives and properties are protected from its impact. The guiding principle is that the more a bomb or an improvised explosive device is separated from the building or target, the lesser the effects are felt. The main objective of the study is to analyze the resilience of the built environment against the global threats of terrorism in urban areas with particular emphasis on the city of Nairobi, Kenya. The study has adopted frustration aggression theory while specific objectives of the study include: to explore the relationship between the built environment and counter terrorism measures in urban areas; to highlight the exposed nature of urban areas to threats of terrorism under the currently non resilient structure; and to identify current and future resilience features of the built environment to threats of terrorism in the Nairobi City. The research design used in this study was descriptive survey method. The study adopted an interview schedule. Data has been mainly derived from secondary and primary sources. The interviewees were the National Environmental Management Authority (NEMA) and The Nairobi City County (NCC), specifically the Director City Engineer's Department, City Planning Department and the Housing Development Department (Development Control). The concept of a resilient built environment is a recent social construct that includes buildings, infrastructure and land use that can offer inbuilt protection to users. In the fight against terrorism, questions have been asked regarding the role of professionals in the building industry like architects, engineers, urban planners and quantity surveyors among others. It is possible for engineers to design building structures that can either withstand or reduce the impact of detonated bombs. Architects can also design buildings that can delay either the attacks or discourage sustained attacks. However, the input of these professionals has never been sought in the fight against terror; leave alone the need for a resilient built environment. This study highlights the connection between the built environment and the fight against terrorism. Some of the key findings are that the increasing problem of traffic jam, construction of commercial complexes and office blocks in residential zones, the absence of buffer zone of some distance between the security check point and most public buildings in Nairobi, lack of building bylaws touching on threats of terrorism and even lack of enforcement of the already existing ones are all creating very fertile targets for terrorist attacks The study recommends that the county government of Nairobi must enact building bylaws aimed at reducing terrorism, its effects and threats. Areas that must be looked at are design of public buildings like malls and traffic jam.

LIST OF ABBREVIATIONS AND ACRONYMS

A.P.A: American Planning Association

AP: Administration Police

ATPU: Anti-Terrorism Police Unit

CCTV: Closed-Circuit Television

FCO: Foreign and Commonwealth Office

FEMA: Federal Emergency Management Agency

GOK: Government of Kenya

H.V.M: Hostile Vehicle Mitigation

IDS: Intrusion-Detection Systems

ISIS: Islamic State of Iraq and Syria

LoK: Laws of Kenya

NCC: Nairobi City County

NCTC: National Counter Terrorism Centre

NEMA: National Environmental Management Authority

SGB: Security of Government Buildings

TEDD: Time, Environment, Distance and Demeanor

WTC: World Trade Center

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 Introduction

Acts of terrorism are real worldwide and have left many nations, including Kenya, tallying misfortunes. Kenya, and the whole of Africa, is no special case to the overall increment in terrorism oppression on the grounds that there is a good situation that grants psychological militant operations, including permeable fringes, inner clashes, an affinity to fizzled states, remiss money related frameworks, destitution, debasement, and sociocultural differing qualities. Statistical data for 2007 indicate that Africa experienced 6,177 casualties and other damages arising from 296 attacks by terrorists, which consequently makes it the mainland with the most elevated number of deaths and other injuries after Asia.[1] The most elevated number of deaths recorded in 1998 totaling to 5,379 was as a result of the simultaneous terrorist attacks in east Africa, Kenya and Tanzania.

The emergence of 'safe and resilient (built) environment' standards is currently a key consideration in the development of major world cities. For instance, the American Planning Association (A.P.A) highlights that organizers and strategy producers must consider all potential threats to the built environment including geologic or climate related natural dangers, technological perils that create contamination or toxic substances, economic, crime, terror, and human errors.[2] The 1998 assaults on the American Embassy in Nairobi followed by spirited war against psychological terror tactics highlighted

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[1] *Understanding Terrorism in Africa: In Search for an African voice*, ed.Wafula Okumu and Anneli Botha, (Pretoria, Institute for Security Studies, 2007), 27, accessed Sept 10, 2015,
[2] Bishop, R. and Clancey, G. (2008) '*The City-as-Target, or Perpetuation and Death*' in S. Graham (ed.) Cities, War, and Terrorism. London: Blackwell Publishing.

aspects of terrorism that have never been brought to the fore in the history of the fight against terrorism in the world, for example, how an establishment ought to react to violent challenges.[3]

Some scholars argue that "players in the built environment like architects, engineers, planners, quantity surveyors among others need to guarantee security."[4] Both approaches are considered to be part of the UN Counter Terrorism Strategy. Unequivocal consideration additionally must be paid to the regard for human rights.[5] A few nations are currently starting to consider how the built environment experts may help with designing out, or diminishing the effect of terrorism and its devastating effects. This has implied that in a few settings, security experts, architects, engineers and urban planners are synergizing their efforts towards crime reduction and lessening potential terrorism threats, especially in existing urban spaces considered a potential focus of attacks and upcoming designs and planning/zoning of cities.

While pondering about this preparedness component, the study acknowledged a new dimension in the mid 20th century as a new face of terrorism in Africa and that emphasizes the use of unconventional means practiced in the Middle and Far East, Latin America and the Western world, both in rural and urban areas. It is on the basis of this notion that terrorism throughout history associated with violence against people or property targeting a given population has shifted to public buildings, open spaces like open air markets and traffic jams frequented by a large number of people. As a

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[3] Ian Brownlie, "Interrogation in Depth: The Compton and Parker Reports," *Modern Law Review*, no. 35 (2012), 501.
[4] Jef Huysmans, "Revisiting Copenhagen: Or, On the Creative Development of a Security Studies Agenda in Europe," *European Journal of International Relations* 4, no. 4 (1998): 501.
[5] Ibid

consequence, buildings and open spaces in cities worldwide are slowly becoming the most compelling targets for contemporary terrorist attacks.

It is worth noting that these unforeseen and clandestinely planned perilous actions targeted at buildings and other open spaces frequented by large crowds cannot be entirely prevented, but there must be a concerted efforts by the governments and professionals in the built environment to combine efforts through legislation and practice to mitigate the devastating effects of terrorism attacks by coming up with urban/architectural plans that delay attacks, reduce impacts of explosions, detect potential threats in good time and/or buff off Trojan vehicles. Thus, the question is; 'are protective security management measures in urban environment in the period after the 1998 terrorist bombing adequate or there is need for enhancement'.[6]

Ironically, these buildings cannot be said to have been without any security or risk management strategy to cushion against any eventuality, more so fire and/or unauthorized access by terror minded individual or group [7] during the period before the 1998 bombing. Furthermore, even though the terrorism threat may be dealt with early enough and disrupted prior to execution by proactive Government security management systems, the roles of the aforementioned professionals in the built environment cannot be over-looked as part of international counter terrorism measures. To contextualize the terrorism threat and overall security management practices geared towards pre-empting such heinous acts targeted on the built environment. First, it is important to determine the nature of the threat and partially who is/are likely to be involved in executing it. This is necessary

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[6] Sorkin, M. (2008) 'Urban Warfare: A Tour of the Battlefield'
[7] Accordingly, there is a general view that threats and or attempts made by local criminal gangs and or 'homegrown' violent individual or group to attack banks or police stations since the 1998 bombing have been thwarted severally.

because terrorist attacks are normally a product of fastidious planning and ingenuity, which require concerted efforts to prevent before the actual attack, while taking into consideration other proactive actions.

To avert possible consequences of terror attacks in the built environment, architectural designs, structural reinforcements, mechanical/electrical installations and site/urban planning must be part of security preparedness [8] and plans to respond to terrorism threats . Consequently, such preparedness management is vital because the detection aspect as a measure has grown more than fifty percent since 1999 for federal buildings, since terrorism remains a greater threat to US interests both in and outside the country. In contrast, Kenya's security preparedness strategy to generally deal with the terrorism threat is still quite unexplored in various aspects, leave alone incorporating anti terrorism measures in architectural designs and urban planning to achieve a resilient built environment in its various cities.

1.2 Statement of the Research Problem

Almost all nations in east Africa have been attacked by terrorists. The attacks have either been executed by a nation's nationals against fellow country men and women for a local cause or they have targeted national or territorial targets like Western targets situated in the region.[9] If the 1998 terror attack in Kenya is anything to go by, then the capacity to protect critical infrastructure within the City and countrywide is the

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[8] This denotes security practices that include traditional security strategies encompassing physical and human measures in government buildings. It covers structural designs and proactive law enforcement and or intelligence actions. This term 'security preparedness' is the key parameter considering the aim of the study which is viewed in the same light with 'disaster preparedness' components captured in the literature review.

[9] Ian Brownlie, "Interrogation in Depth: The Compton and Parker Reports," *Modern Law Review*, no. 35 (2012), 501.

Government's Herculean task. This is due to the fact that terrorist targeting buildings and other open spaces for attacks remain a major security threat in the 21st century, putting to test resilience in the built environment against terror attacks now more than ever before.

The study therefore implies that either the management of the city of Nairobi has enforceable policies to achieve a resilient built environment from the threats of local and international terrorism or the built environment consisting of buildings, roads, open air spaces, roads, zoning and land use within the city of Nairobi are currently carried out without policy guidelines that respond to potential terror attacks.

Conversely, the built environment that is not resilient to potential terror attacks could lead to loss of lives, destruction of infrastructure and properties, disruption of commercial and ether gainful economic activities and huge sums of money that could have been used in other developmental projects being spent on repair, provision of material and restoration of infrastructure in the post-attack period. In fact, the terror bombing of the United States embassy in Ufundi Cooperative House in Nairobi Kenya in 1998 affected telephone communication, power lines as well as shattered windows thrown as far as 10 building blocks away, an indicator of possible poor choice of materials by the architect and inadequate security preparedness.[10] Kenya is particularly vulnerable to terrorism since nations in the region encounter frail administration, conflicts, weak institutions, permeable borders allowing uncontrolled movement of individuals and unlawful weapons, radicalization of vulnerable groups and increased extremist religious ideology.[11] The construction of multi storied apartments, office

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[10] Patrick M. Cronin, Global Strategic Assessment 2009: America's Security Role in a Changing World (Washington, DC: National Defense University Press, 2009), 101.
[11] Dill, J. C.; Anderson, C. A. (2015). "Effects of Frustration Justification on Hostile Aggression". Aggressive Behavior. 21 (5): 359–369.

blocks, malls, gated community estates, dual carriage highways and zoning of peripheral estates to be part of the city of Nairobi require policy re-examination and terror resilient approaches. Public infrastructure and homes have been destroyed, physical and psychological injuries inflicted while economic fortunes have been reversed. Many have been displaced and lives lost due to terrorism and its threats.[12] Architecture and urban planning separate disciplines have evolved over several years and civilizations, with their depths continually deepening to accommodate the prevailing evolving changes in the society[13] including threats of terrorism.

1.3 Research Questions

The study will seek to answer the following:

   i.   What is the relationship between the built environment and counter terrorism?
   ii. How exposed are urban areas to threats of terrorism if they are currently non resilient?
   iii. How effective are the counter terrorism measures within the built environment adopted by the county government in Nairobi City?

1.4 Objective of the Study

The main objective of the study is to analyze the resilience of the built environment against the global threats of terrorism in urban areas, with particular emphasis on the city of Nairobi, Kenya. Specific objectives of the study include:

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[12] Bishop, R. and Clancey, G. (2008) 'The City-as-Target, or Perpetuation and Death' in S. Graham (ed.) Cities, War, and Terrorism. London: Blackwell Publishing.
[13] Ibid

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i. To explore the relationship between the built environment and counter terrorism measures in urban areas.

ii. To highlight the exposed nature of urban areas to threats of terrorism under the currently non resilient state.

iii. To identify current and future resilience features of the built environment to threats of terrorism in Nairobi City.

1.5 Literature Review

The section reviews the literature on the nexus between the built environments and counter terrorism measures. It seeks to delve into counter terrorism, its perceived causes in the eyes of the victims (state) and counter explanations by the terrorist groups or sympathizers. The review will then focus on the mitigating responses by victims.

1.5.1 Changing Faces of Terrorism and the Built Environment

Terrorism definition differs from one state to another and from different unions resultant in incalculable depictions of a similar notion. Simon[14] makes case for over 212 unique possible meanings of terrorism world over. The UN Security Council Resolution,[15] for instance, in 2004, defined terrorism as "unlawful acts, including against civilians, executed or carried out with the plan to bring about massive harm or death, or taking of prisoners/hostages, with the purpose to incite a state of terror in the overall population or in a gathering of people or specific people, threaten a populace or propel a legislature or a global association to do or to go without doing any demonstration".

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[14] Simon, Jeffrey D. (1994). *The Terrorist Trap* . Bloomington: Indiana University Press.
[15] UN Security Council Resolution 1566 (2004). "*Measures to Eliminate International Terrorism*".
[3] Article 1 (a)(1) The AU convention on prevention and combating of terrorism

Urban setting provides various choices as targets for terrorists because of the high number of people and buildings, invisible and porous boundaries and passing or moving populations. The main transport infrastructures facilitate groupings of people moving and interacting in ways that not only maximize movements but also maximize vulnerabilities.[16] In this manner, a Town as an array or arrangement of interconnected hubs and access/exit roads in which people are crowded, are potential targets by terrorists to inflict maximum destruction of life and property. The urban environment in which these heinous acts are executed is defined by purposes of vulnerability that can be exploited by terrorists. The open air markets/spaces and the vibrant nature of urban areas, the availability of key basic infrastructures, government services and the presence of large numbers of people, usually crowded, all combine to provide an attractive and appealing targets for terrorists.[17]

A number of debates and discourses around terrorism in urban areas have made medical services part of managing major catastrophic occasions like terrorist attacks alongside the general wellbeing ramifications of harm to the city's supporting foundation (food provision, water, power and sewage). This practice of responding to emergency is a dimension of health-care service which is one of the contingency bureaucracies.[18] While intense medical care and its administration is a clear component of this procedure, it is also possible that essential service such as the blood transfusion, pathologist offices and funeral home arrangement and general public health wellbeing would similarly assume a noteworthy part in managing the requests of any assault. Health facilities are functionally

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[16] Fischbacher-Smith, D. (2010) Beyond the Worse Case Scenario. 'Managing' the Risks of Extreme Events. *Risk Management: An International Journal*, 12 pp1–8.
[17] Sorkin, M. (2008) '*Urban Warfare: A Tour of the Battlefield*' in S. Graham (ed.) Cities, War, and Terrorism. London: Blackwell Publishing.
[18] Ibid.

subject to different components of infrastructure for its standard operations including information technology infrastructure, power, transport, water and sanitation. Any attacks on these support services can seriously affect healthcare operations.

Health facilities in urban centers are vulnerable facilities that are, in most cases, not sufficiently cushioned from the threats of terrorism, but rather are basically accessible and permeable. Attacks in an urban area will overstretch the health care facilities for first aid services. An attack like the Mumbai terrorist attack on health facilities in India could cause mass destruction and loss of lives in a crowded urban environment. Health facilities additionally have inside them the materials for bringing about additional harm through the nearness of low-level atomic materials that create a ripple destruction effect. By attacking a health facility, it is aimed at paralyzing its core services that could render extensive parts of the facility less usable for a long time and consume huge amounts of money to restore.[19]

1.5.2 The Built Environment and Counter-Terrorism

Terrorism destroys what development has built physically. These includes infrastructure like railway lines, airplane terminals/seaports, roads, offices to open structures, recreational places, business outfits, parks and private facilities. Financially, acts of terrorism make the built environment dilapidate and the urban economy recess because development funds are usually redirected from development projects to reconstruction of the urban areas after terrorist attacks. Additionally, daily economic

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[19] Dill, J. C.; Anderson, C. A. (2015). "Effects of Frustration Justification on Hostile Aggression". *Aggressive Behavior*. 21 (5): 359–369.

activities as means of earning a living are permanently or temporarily disrupted, thereby setting disadvantages on the financial improvement in the city.[20]

These emphasis on taking security and safety measures into consideration in the urban areas as a reaction to possible terrorist threats is not a strange phenomenon. Brutality against a variety of likely targets, like army barracks, police stations and sleeping enclosure was seen, and also the fixing off of business locale in various urban areas by a stone walls, concrete, razor wire and, enclosures of tall steel entryways (the supposed ring of steel) to stop or control vehicular access.[21] Efforts to include security features into urban ground master-plans to improve the resilience of the urban areas are important for enhancing and boosting the attractiveness of the urban centre as a safe and secure business destination suitable for both high-profile events and private functions. Measures to be included in such a master plan should be vehicular access control system with adequate security check points that bar unauthorized vehicles from the city centre using removable steel bollards, bomb resistant litter bins and functional twenty four hour centralized closed-circuit television (CCTV) system.[22]

In the past few years, a cross cutting disciplinary approach to resilience that incorporates the physical, both built and natural infrastructure, and socio-political aspects of resilience. This new approach has been important due to the fact that the socio-political and administrative aspects are apparently as important to the achievement of resilience as the physical aspects. Resilience in the built environment also demands

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[20] Fischbacher-Smith, D. (2010) Beyond the Worse Case Scenario. 'Managing' the Risks of Extreme Events. Risk Management: *An International Journal*, 12 pp1–8. Op cit. p. 1
[21] Dill, J. C.; Anderson, C. A. (2015). "Effects of Frustration Justification on Hostile Aggression". *Aggressive Behavior*. 21 (5): 359–369. Op cit. p. 1
[22] Sorkin, M. (2008) 'Urban Warfare: A Tour of the Battlefield' in S. Graham (ed.) Cities, War, and Terrorism. London: Blackwell Publishing 295, 302.

robust professional organizations to network and oversee the actual construction of sound structures and put in place processes which oversee development and construction activities. Accordingly, resilience in the built environment should be achieved by designing, implementing and maintaining the built assets and associated supportive infrastructure (physical and institutional) and the general public that live or work inside the built assets to withstand and mitigate the adverse effects of possible catastrophic incidents.[23]

1.5.3 Resilience within the Built Environment in the City of Nairobi Since 1998

In the recent years, metaphors of "resilience" have been used to describe how urban areas are coping with the various security threats and disaster management mechanisms. In this context, resilience is understood to be, 'the capacity of social units (e.g. associations, groups) to reduce threats, contain the impacts of disasters when they happen, and embark on reconstruction exercises in ways that minimize social interruption and moderate the impacts of future catastrophes'. This synergized effort of resilience is seen as a component of a more extensive drive towards more safer and protected cities and concerns of environmental sustainability. The need for a resilient built environment has received widespread considerations emanating from worries over large-scale terrorist attacks on the functioning of most cities of the world. The concerted initiatives are meant to ensure that the built environment has inbuilt and sustainable abilities to recover, resist and recuperate quickly after disastrous terror attacks.[24]

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[23] Ibid 300, 305.
[24] Bishop, R. and Clancey, G. (2008) 'The City-as-Target, or Perpetuation and Death' in S. Graham (ed.) Cities, War, and Terrorism. London: Blackwell Publishing.

Consequently, resilience within the built environment will be realized if the following measures are observed by all its players: construction of high boundary walls and fences to keep off gatecrashers and intruders. In addition, urban zoning should be intended to be autonomous to include all the necessities such as office space, eateries, club house, shopping malls, boutiques stores, amusement parks, adequate internal transport network and administrative offices (mixed development), all intended to separate life and activities of the different zones around the city.[25]Controlling access to public and open structures and other premises like parks will keep potential terrorists at bay. This can be done by installing bolt and key-code on main entryways, development and utilization of speed doors, swipe-card perusers, vehicle security obstructions complete with programmed or biometric number plate recognition.

Adoption of Hostile Vehicle Mitigation (H.V.M) measures will reduce vehicle borne risks. Vehicle borne risks can be parked cars, vehicular infringement by exploiting gaps within the site perimeter, entry by deception by utilizing Trojan vehicles or human and access by coercion through obstruction systems set up by the establishment within the built environment. A resilient city should therefore have bollards to restrict vehicular access to specific establishments complete with metal or bomb detectors.

Electronic and manual surveillance can lead to early detection and deterrence within and around the establishment. Surveillance can be in the form of C.C.T.V (electronic) or erection of watch towers at strategic points (manual). This is most effective in international airports. Urban managers can also adopt the same to detect and monitor activities and movements within the city. This can help in detecting the

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[25] Fischbacher-Smith, D. (2010) Beyond the Worse Case Scenario. 'Managing' the Risks of Extreme Events. *Risk Management: An International Journal*, op cit.

movements of Trojan vehicles, detecting crowded placed like traffic jams which are favorite targets for terrorist.

Large bombs delivered by vehicles can cause huge losses. Consequently, the distance between the bomb and the building (stand-off point) or any other target should be long enough to absorb and reduce the destructive effects of the bomb. Access to buildings and open places which are considered to be suitable targets for terrorist should be controlled and checked at a minimum distance of 30 meters so that the distance can absorb the mass destructive effects of the bomb.

1.6 Summary of Literature Gaps

In Africa, most of the 54 countries has been categorized by scholars as a form of nationalistic 'Wars of Independence' owing to use of guerrilla tactics, like the Mau Mau freedom fighters in Kenya. Other arguable forms, include actor-sponsored terrorism of the 1994 Rwanda and Burundi ethnic cleansing and genocide perpetrated by armed militia groups against innocent civilians. Terrorism seems to be the fundamental strategy driver behind the growing quest for a resilient city, the inclination toward environmental sustainability is likely later on to be the major consideration in urban design and development. Although there was extensive intelligence about the presence and operations of al Qaeda and Al shabaab cells established in several African countries, including Kenya, with one cell in Nairobi. In such a situation there is currently a need to merge issues of resilience to both urban design and management in order to better adjust the changing faces of terrorism. There is an urgent need to establish the missing link in

the practice of sustainable architecture and urban planning and counter terrorism measures within the built environment.

1.7 Justification

Scholars have written widely on the subject of terrorism in general. This research study however seeks to delve deep into the relationship between the built environments and counter terrorism measures in Nairobi City. In the wake of the 9/11 attacks, counter-terror interventions were rather crude, dominated by the need for physical robustness and, in some instances, designed to be potentially intimidating and visible deterrents, mainly militaristic in nature. Now, however, terrorism is continuously changing its face from known and expected modes of attack to the unknown and unexpected ones. Equally, the counter terrorism measures put in place and intelligence gathering must be dynamic to match the subtle tactics of the terrorist networks. There is urgent need to think beyond the military and guns and involve the architects, engineers and urban planners among other professionals in the built industry in fighting terrorism and its threats.

The academic rationale on the other hand seeks to augment and further provoke other academicians to look afresh at diverse insights into the terrorist activities in Nairobi and the rest of the world. Terrorism is no longer an activity of some indoctrinated religious bigots but well educated techno savvy engineers, doctors and other professionals. Equal measure of input by academicians must be recorded and integrated in the fight against terrorism. The need to analyze the changing tactics and targets, world politics to understand the purported grievances, top notch intelligence gathering network and engaging other professionals in the fight against terrorism must no longer be

overlooked. Researches must be involved to come up with concrete evidences to help in formulating policies. Future research could also focus on the built environment among other disciplines, with the overall aim of safeguarding national security and safety of the Kenyan people.

On policy, this study is significant because it shows the importance of security preparedness with reasonable and suitable protective activity addressing plausible threats in the built environment and the country at large. The anticipated recommendations seek to achieve two specific objectives. The first goal is to fill the gap in identifying and analyzing the requisite measures, beginning with security preparedness, paying specific attention to the built environment and cascading down to preparedness policy. More fundamentally, there are emerging concerns regarding the efficacy of built environment professionals in engaging in these agendas.

1.8 Theoretical Framework

Terrorists often consider themselves as a people who are treated unfairly and denied their rights. Consequently, they rise up in arms out of frustration. This study has adopted frustration aggression theory to expound on the rationale for acts of terrorism. It is a psychological theory that posits that aggression is caused by blocking, or frustrating, a person's efforts to achieve a goal. The theory has its origin in a 1939 hypothesis and study by Dollar, Doob, Miller, Mower and Sears. Research has been done on the passionate, intellectual, substantial, and behavioral reactions that can be normal in the prompt consequence of terrorism. Beaton and Murphy (2006) audit of reactions to fear

monger occasions propose that up to two-third of those specifically influenced either as a casualty or as a relative are mentally weakened to some degree.[26]

According to Dollard, by all accounts that most basic clarification for vicious conduct originated from failure to satisfy needs. It focuses on the distinction between expected need satisfaction and genuine need fulfillment.[27] When human expectation does not meet attainment, the tendency is for people to confront those they hold responsible for frustrating their ambitions.[28] In a circumstance where the longing of an individual is denied either directly or indirectly, the resulting frustration may lead such a man to express his outrage and anger through brutality that will be meted out against those he considers responsible for his failure to attain his goals. As a result of several terrorist attacks, Kenyans may have become exposed to the psychological effects of terrorism in the country. They may encounter an extensive variety of enthusiastic and behavioral results that incorporate post-traumatic anxiety issue, a mental issue described by tenacious flashbacks or bad dreams, outrageous crabbiness or jitteriness, and passionate desensitizing or shirking of indications of the injury.[29] Others may develop other anxiety disorders, depression, and problems with substance use.

In every descriptive, there is a body of theories that gives the clarification to recognizable marvels in that field. This area endeavor to draw similarity between set up speculations and the issue being examined where such analogies drawn even bolster the significance of the review. The hypothetical necessity of this work is draw from

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[26] Dill, J. C.; Anderson, C. A. (2015). "Effects of Frustration Justification on Hostile Aggression". Aggressive Behavior. 21 (5): 359–369.
[27] Ibid.
[28] Bishop, R. and Clancey, G. (2008) 'The City-as-Target, or Perpetuation and Death' in S. Graham (ed.) Cities, War, and Terrorism. London: Blackwell Publishing.
[29] Akwen, G.T. (2011), *Theories of International Relations*. Lap: Lambert   Academic Publisher.

frustration-aggression theory which give a point by point clarification to the rise of Al Shabaab insurgence.[30]

In Nigeria, it appears the systemic fall of the Nigerian state might be the genuine impetus of all types of fear mongering being by and by displayed. It has been proposed that Nigeria's poor proficiency rate and rather flawed usage of the Universal Basic Education program might be halfway in charge of the new influx of domestic terrorism in the body nation. On the off chance that terrorists commit an assault and the state utilizes outrageous compel to send a rebuffing message back, the terrorists may utilize that activity to find more noteworthy against state supposition among natives, loaning defense to their next activities.[31]

1.9 Hypotheses of the Study

i. There is no correlation between the built environment and counter-terrorism in urban areas.

ii. The built environment in urban areas is not resilient against terrorism.

iii. The City of Nairobi is highly exposed to threats of terrorism under the current non-resilient state.

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[30] Fischbacher-Smith, D. (2010) Beyond the Worse Case Scenario. 'Managing' the Risks of Extreme Events. Risk Management: *An International Journal*, 12 pp1–8.
[31] DiMaggio C, Galea S. The Behavioral Consequences of Terrorism: a Meta-Analysis. *Acad Emerg Med*. 2006.

1.10 Research Methodology

1.10.1 Research Design

The study has adopted descriptive survey method as a research design. Observation and interview schedule were also used to collect data. This method was found suitable because it provides for academic comparison of the research findings.[32] The qualitative approach preferred in this research study is theory based. The aggression research theory unfolds and emerges scientifically from the data and is more responsive to contextual values rather than researcher values[33].

1.10.2 Data Collection

Data has been mainly derived from secondary and primary sources. The tools for collecting secondary data were detailed information gathering and analyzing documents. For the primary data direct observation and open ended interviews were used. This technique mainly involved literature research. Data collected in this procedure included quotations, opinions and specific knowledge and background information relating to critical examination of the Kenyan counter terrorism measures in light of the escalating terrorist threats.

The study used an interview guide to collect the required data. An interview guide is a schedule of questions administered to the respondent.[34] It facilitates getting the required data to meet the specific objectives of the study. The interviewees were drawn

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[32] D. R. Cooper and P. S. Schindler, *Research Methods* (7th ed. New York: Irwin/McGraw-Hill, 2000) p 112
[33] Jankowicz A. D., *Research Projects* (6th ed. London: Thomson Learning, 2002) p 87
[34] Mugenda, O. M., & Mugenda, A. G., "*Research methods: Quantitative and qualitative approaches*", (Nairobi: Acts Press Siegel, N. 2003), Research methods for managers, A skill building approaches (2nd ed.).(New York: Wiley Publishers, 2003). Pp. 71

from the National Environmental Management Authority (NEMA) and The Nairobi City County (NCC), specifically the Director City Engineer's Department, City Planning Department and the Housing Development Department (Development Control). These departments are involved in the statutory approval of all the Architectural and Civil/structural engineering plans.

Data collected was mainly qualitative and was analyzed by means of content analysis.[35] Content was analyzed through observation and thorough description of phenomena that constituted the object of study. This method is suitable due to the fact that the information gathered was qualitative and therefore needed analytical understanding. When human coders are deployed in content analysis, reliability translates to the amount of agreement or correspondence among two or more coders.[36] Reliability in content analysis was guaranteed by studying the amount of agreement or correspondence among the main informants. The primary data was beefed up by secondary data on counter terrorism architecture. The secondary data was collected from electronic journals, book, periodic reviews and articles.

1.10.3 Data Analysis and Presentation

The data which was collected was analyzed by drawing parallels to the existing and integrating it with relevant concepts and theoretical underpinning. Data was analyzed interpretatively. This was done through synthesizing, categorizing and organizing the data systematically to produce the description of the phenomena or a narrative of the

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[35] Holsti, O.R., *"Content Analysis for the Social Sciences and Humanities",* (MA: Addison-Wesley 1980) pp, 7

[36] Neuendorf, K. A., "The Content Analysis Guidebook Thousand Oaks", (CA: Sage Publications, 2002) pp. 56

synthesis. It was based on the belief that all meaning is situational in the particular context or perspective.[37] Consequently, it was possible to have different meanings to the same phenomena because the meaning depended on the context. Since it was a qualitative research, the hypothesis was generated after the data was collected. This involved evaluating and analyzing the data to decide on the adequacy of its information and its credibility, usefulness, consistency and validation of the hypothesis. This was the last step and involved giving a vivid descriptive account of the situation under study. It gave an analytical view citing the importance and consequences of the findings.[38]

1.11 Scope and Limitation of the of the Study

The study deals with a statistically rare field relating to security preparedness in the built environment in Nairobi City, Kenya. It will delve into an area few scholars in Kenya have exhaustively given the due diligence it deserves. The city of Nairobi was originally designed and planned when there were no major threats from terrorism in East Africa in general. After 9/11, crowded places like bus stage, religious gatherings and public buildings became targets of terrorism. This vulnerability, among other factors, emanate from poor land use, planning/zoning and failure to infuse counter terrorism measures in the practice of architecture within Nairobi city. The study will mainly compare old and new developments trends in the built environment and check their responsiveness towards counter terrorism measures. As a result, the focus remains a

[37] GoK, 2005, *Draft National Policy on Peace Building and Conflict Management*, National Steering Committee (NSC), Nairobi.
[38] Burrow, H Gichohi & M. Infield, 2001, *Rhetoric or Reality; a review of Community Conservation Policy and Practice in East Africa*, Nairobi.

proactive means against potential terrorists by way of actionable strategies, both within the built environment and at the national level.

1.12 Chapter Outline

Chapter one focuses on the introduction, statement of the problem, objectives, literature review, theoretical framework, justification, hypotheses and methodology

Chapter Two analyses the relationship between terrorism threats and the built environment

Chapter Three highlights the exposed nature of the city of Nairobi to threats of terrorism in its current non resilient state.

Chapter Four analyses terrorism threats against the built environment trends in the city of Nairobi since 1998.

Chapter Five is the conclusions and recommendations

CHAPTER TWO

OVERVIEW OF BUILT ENVIRONMENT AND COUNTER TERRORISM IN

URBAN AREAS

2.1 Introduction

Since the rise of urbanization, cities have become safe havens and fertile grounds for all manner of criminal activities like mugging, violent protesters and terrorism, mainly due to the cities' economic, social and political vibrancy. To protect the smooth flow of activities in the cities from disruptive criminal activities, urban managers and national governments have tried to plan their cities with resilient and defensive features aimed at keeping disruptive and criminal activities out of the cities. The ancient Rome had city walls for fortification from external aggressors and to contain undesirable internal human activities, the modern-day Jerusalem has checkpoints to control entry, internal movement and exit while the city of Belfast has what is popularly known as the ring of steel for fortification. This is a clear demonstration hat since the dawn of urbanization, the concept of a resilient built environment has always been at the core of urban development. However, after the September 11th 2001 terrorist attack on the twin towers in the United States of America, structural engineers, architects, urban planners, urban managers and various scholars begun to realize that the upsurge of attacks by the various terrorist networks would create major insecurity problems in most cities of the world.

This chapter tries to understand the relationship between the built environment and counter terrorism measures in the city of Nairobi as a case study of other cities in Africa. It will focuses on open spaces, land use or zoning, traffic flow road networks and

the existing architectural cityscape. The September 11th attack was a rallying call to professionals within the building industry to deal with the challenges that the Irish Republican suffered on the mainland in the 1980s and 1990s.

The current efforts to synergize traditional urban counter terrorism measures with efforts to achieve a resilient built environment offer exciting opportunities to all players. Cities should achieve their aesthetic outlook without compromising on security features for effective urban governance. These discourses must be multidisciplinary in approach and provide the missing linkage between the people who capture or arrest space, those who secure the space and those who use it as well.

2.2 The Concept of Resilience in the Built Environment

Resilience in the built environment and urban development and design is hardly a new concept. Human beings are warlike in nature and has always been engaged in warlike activities for territorial expansions, protection from intruders in self defense among others,. Most cities and other human settlements in the past were consequently designed and built with protective and security features including thick and towering boundary walls, watchtowers at various points to notice intruders, ditches around the settlement and forts. However, the need to secure the built environment has changed over time. In the west, it became clear that the need for protection from manmade and natural disasters became paramount. The need to design resilient structures to the effects of earthquakes or hurricanes became dire in Europe and Asia. When acts of terrorism increased in western and African civilizations in the last few decades, especially the incident of 9/11, the need for resilience in the built environment became dire and took

centre stage in national politics.[39] The main objectives of the built environment and a zoned urban design and development are to effectively and efficiently mitigate the chances of a possible terrorist attack and absorb the impacts of the said attacks. The guidelines for these measures should be spelt out clearly in legislations like building codes, regulatory authorities created by acts of parliament, national disaster management policy and formal and informal security guidelines of each country among others.[40]

The first step in safeguarding the built environment should be to evaluate which buildings, roads and bridges, and other open spaces frequented by large crowds of people in general are likely to be targets of terrorism. Terrorists always crave for media attention and publicity for their motives to create fear and perception. Consequently, some targets are more likely to be attacked than others owing to the anticipated media coverage and public outcry. Attacks on national interests will attract higher media attention and coverage. Potential areas of attack mainly include frequented public buildings, iconic buildings with national importance or significance, busy infrastructural hubs, crowded open or closed commercial and industrial centers.

Vulnerabilities can be reduced by individual and technical security measures like discrete surveillance cameras and deployment of guards with metal detectors among others. These measures can be put to use in a visual or relatively hidden manner. They can be covered with greening and plantation. The concept of a resilient built environment and secure urban space is better captured by S. Graham when he wrote about the "palpable militarization and securitization of urban space in many Western cities."[41] In

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[39] Patrick M. Cronin, Global Strategic Assessment (2009): America's Security Role in a Changing World
[40] Dill, J. C.; Anderson, C. A. (2015). "Effects of Frustration Justification on Hostile Aggression". *Aggressive Behavior*. 21 (5): 359–369.
[41] S. Graham (2010.) Cities, War, and Terrorism. London: Blackwell Publishing

the same breath, P.M. Cronin also identified a security creep within most cities even though there are many different approaches adopted by different countries. In trying to achieve a resilient built environment in the African cities, constitutional rights and freedoms and democracy must be observed; otherwise the counter terrorism measures adopted will negatively affect the freedoms of the citizenry more than the threats and effects of terrorism attacks,[42]especially in Africa where the fight against terrorism has both religious and ethnic undertones.

2.3 Urban Development and the Built Environment

Africans are social by nature. The agglomeration of people in most African cites, resulting from rural to urban migration in search of greener pasture and inadequate counter terrorism preparedness, have made them soft targets of international terrorism. Larger African cities like Abuja and Nairobi are more attractive targets because their urban densities have more people to kill and more buildings and other man made features to destroy in a smaller area. This link between terrorism and urban density shows why most African cities, including Nairobi are targeted. During the dawn of urbanization, agglomeration of people in major cities of the world made individuals safer.[43] Collectively, they were able to build high walls for defensive fortifications and fight off expansionist invaders for territory. The current planning of most African cities, including Nairobi, has historical linkages that largely depends on their various colonial masters. Having been a British colony, the building code in Kenya is to a large extent British tailor made. However, while the British and other first world countries are responding and

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[42] Patrick M. Cronin, Global Strategic Assessment (2009): America's Security Role in a Changing World
[43] Dill, J. C.; Anderson, C. A. (2015). "Effects of Frustration Justification on Hostile Aggression". Aggressive Behavior. 21 (5): 359–369.

introducing building and planning by-laws to contain acts of terrorism, most of their former colonies, especially in Africa, are still living in the past. Consequently, it's accurate to assume that most African cities, including Nairobi were planned and designed without terrorism threats in mind.

Due to the rise in population and scarcity of land, most cities including those in Africa lend themselves to having tall buildings, expanded road networks which grind to a halt due to traffic jam and other planned infrastructure like gated communities and high-rise residential apartments to support the population. Like the city of Rome, the city of Nairobi and other African cities provide an excellent example of how insecurity and violence directly impact urban form and development. The population of Rome reduced to 35 000 from over 1 million in the year 210 at the beginning of the middle ages as a result of leadership wrangles pitting Visigoth and the sacking of Alaric I. Persistent attacks and looting of properties made life in the hinterland around Rome safer than the city itself as a result of constant threats and economic and social disparities created by the sacking.

History has lots of examples of how consistent acts of violence can affect the population and finally the urban form and development of a city. The 17th century recorded a major decrease in population in German cities like Marburg which was occupied eleven times between 1620 and 1650 during the Thirty Years of War.[44] Like other African cities, Nairobi is replete with examples of ethnic occupation of estates due to fear of ethnic conflicts. Certain estates within the city of Nairobi can be identified with certain ethnic communities. In an ethnically charged political environment, government

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[44] Graham S. (2010) *Cities, War, and Terrorism*. London: Blackwell Publishing

intervention or neglect is either to score or make a political statement depending on the ethnic community occupying the estate. On the other hand, this trend has impacted negatively on genuine efforts by the government to fight terrorism. Efforts by Kenyan government authorities to flush out suspected terrorist and their accomplices from Eastleigh estate have been met with accusations of ethnic and religious profiling.

2.4 Intelligent Security and the Built Environment

While barricades, barriers and other forms of traditional methods defined counter terrorism measures in the urban landscape in most African cities before 9/11, there have been several significant efforts to reduce the physical presence of features of security in most urban areas. The trend is likely to continue in future due to the fact that strides in technology have made bulky and obtrusive security systems obsolete. Planners, architects and other players in the built environment industry are incorporating security measures in their designs. Consequently, securing urban spaces is becoming more electronic and invisible in most urban areas including Nairobi city. While this might improve the aesthetic value of the cityscape and reduce the inconveniences of obstructive security, it generates more questions about the management of urban areas with regards to security which should be addressed by urban planners, architects, and other players in the built environment industry as a matter of priority.[45] It could be mere obsession with technology as opposed to addressing real terrorism threats in urban areas.

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[45] Dill, J. C.; Anderson, C. A. (2015). "Effects of Frustration Justification on Hostile Aggression". *Aggressive Behavior*. Opcit.

Figure 1: CCTV Cameras along University way (field data)

While major strides in technology have made security invisible, there are increasing fears that invisible security measures will be very invasive in the future. There is therefore the fear of infringement of privacy, especially in most international airports. The kind of scrutiny and security checks people get subjected to in some buildings in Nairobi and other African cities can be described as inhuman and embarrassing. Of particular concern are the biometric technologies and scanners which will change the basis upon which administration of security at both external and internal levels are based by changing the link between the observer and the observed. This will make decision making process invisible. These invisible features in fighting terrorism are best integrated in both architectural designs and urban planning or zoning.

2.5 Counter-terrorism Measures and Use of Space

The effects of fighting terrorism through the practice of architecture, design and development are both physical and psychological in nature. In this regard, some scholars contend that form follows fear in urban areas.[46] In this school of thought, design and development are meant to cushion fears and vulnerabilities of the city residents. The construction of physical counter terrorism measures in a city like removable bollards, barricades and security check points among others interfere with the smooth vehicular and pedestrian movements. The city becomes a jungle of concrete. This however impacts on the users of space differently. In the year 2001, there were anthrax attacks in the US. As a result of these attacks, most organizations and firms in the urban parts of London reportedly upgraded security measures in their offices to reduce fears of their clients, customers and employees. This type of response to a phenomenon is impulsive and innate in people. This was a clear example of the psychological effects of fighting terrorism through the built environment.

The Irish Republican terrorist attacks that have been going on for the last three decades can satisfactorily explain the effects of anti terrorism measures within the built environment. There has been continuous militarization of most urban areas in Britain like London and Belfast during this period of attacks. These two cities have experienced erection of bollards, barricades and security check points among other measures including physical surveillance patrols which have become common security features in urban areas in most cities including Nairobi. While most urban areas in the US, a country which has experienced very little of internal terrorism in the past, has put in place radical

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[46] Sorkin, M. (2008) 'Urban Warfare: A Tour of the Battlefield'

measures and proposals for security, most urban areas in Britain are merely consolidating and improving on the existing security arrangements or measures.[47]

In trying to fight against terrorism, the built environment does not just provide functional spaces and manmade features that provide physical defense systems from attack. The urban area is also an important convergence point for a people's hopes, fears and aspirations. There is a sentimental and intimate connection between the physical look and psychological feel of a city and the way people within the built environment feel about themselves and one another. The manmade developments and planning of a city can therefore determine whether the psychological battle in the war on terrorism can be won. Iconic buildings like the famous Kenyatta international conference centre in Nairobi Kenya and ambitious designs in the city provide optimism and hope to city residents.[48] This not only ignites the psyche and gravitas to fight terrorism, but also lends credence to the fight against terrorism.

2.6 Defensive Urban Planning and Development

During early stages of urbanization, most city states in the ancient Rome were planned and designed with a lot of military consciousness. The design was defensive and roads (macadam roads) were constructed for vehicles and the military to march to exhibit might. In modern history, Belfast is a fitting example of how counter terrorism efforts can affect or influence the built environment, with physical security mountings all over the city. Its urban development is enclosed with steel and concrete surroundings. This has profoundly impacted on the aesthetic aspects of the city and the way the city residents

[47] Patrick M. Cronin, *Global Strategic Assessment* (2009): America's Security Role in a Changing World
[48] Dill, J. C.; Anderson, C. A. (2015). "Effects of Frustration Justification on Hostile Aggression". Aggressive Behavior. opcit.

and visitors appreciate, use and feel the spaces. However, defensive urban planning and development is not always the best tool in the fight against terrorism as it appears ordinarily. The cost of fighting terrorism must be compared to its advantages. Immediately after the 9/11th attacks, mere fear and hysteria increased public security spending in counter terrorism efforts in the United States of America to an extent that no other country could sustain.

The fight against terrorism is also plagued with risks. After the terrorists attacked and bombed its Consulate in Istanbul, Turkey, in 2003, the British Foreign and Commonwealth Office (FCO) reached a conclusion that all its security details at its consulate posts around the world, including Africa, be reviewed to ascertain if there was need to beef up security. In his conclusive report presented to Parliament in June 2004, Jack Straw confirmed widespread concerns that the Foreign and Commonwealth Offices in different cities around the world and employees, including Nairobi, were at risk, especially in vulnerable continents like Africa among others where the UK and her interests were seen as being a softer target than the US.[49] However, the UK security advisers rejected the fortress type of architecture approach because of the disruptive effects it was likely to have on its operational effectiveness as an office block and its interaction with the host countries.

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[49] Sorkin, M. (2008) 'Urban Warfare: A Tour of the Battlefield'

2.7 Mass Exodus from Cities

Due to the continued terror attacks by terrorist organizations in various world cities, several urban scholars and commentators have argued that the threat from terrorist organizations will probably disrupt and challenge the future development of cities because most organizations and people are moving their establishments away from the urban environments where threats are minimal. However, in the case of the US terror attacks on 9/11, there is no evidence to prove that the glamour and attractiveness of the city of New York reduced due to the terrorist attacks. It was estimated that one-third of Class 'A' property ownership in parts of New York City was lost due to fears from the September 11th attacks. However, within a few weeks after the attacks, most firms and companies had either settled on alternative premises within the downtown city or were facing short term displacements for the time being.[50] In Africa and in Nairobi specifically, it will be very costly to decentralize the city because most administrative units are centralized within the city.

In most developing countries like those in Africa, it is clear that the attraction towards the city is much more than the temptation to move out due to terrorist threats mainly because of rural urban migration in search of employment opportunities. Likewise, the terrorist attack and bombing of the Irish Republican city of London between 1980s and 90s did not create notable exodus from the city. Based on the latest statistics released after a recent opinion polls regarding business in the city of London, only 40 per cent of those interviewed believed that acts of terrorism are the most feared threats facing the capital. Only 3 per cent of those interviewed seemed to suggest that

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[50] Dill, J. C.; Anderson, C. A. (2015). "Effects of Frustration Justification on Hostile Aggression". Aggressive Behavior. 21 (5): 359–369.

terrorism was a threat that would make them move out of the city of London. Far from the expected outcome, widespread fears by those interviewed were business rates and insurance. The temptation to move out was experienced in London when insurance premiums rose steadily against terrorism related risks in early 1990s. The idea of coming up with the PoolRe insurance scheme become very successful and made insurance a lesser factor in the choice of business location. The PoolRe insurance scheme has since been upgraded to include the changes in the nature of the threat of post 9/ 11th.

Although it has been engaged in terror related conflicts with Palestine for several years, Israel has grown in most sectors and its mean population growth per year has been an impressive 4.2 per cent compared to 2.6 per cent growth in population in Tel Aviv. Jerusalem's physical features and its religious heritage have both contributed to its vibrant tourism and hospitality industry. Her rich historical/religious importance is much more than the perceived dangers of terrorism.[51] However, what is uncertain is the effect that a chemical or biological terror attack would have on the built environment in Israel. It is worth noting however that it will take a number of years before a reliable possibility that terrorist groups and their related networks will be capable of launching such an attack.[52]. It's the psychological effects of the levels of the attack on the built environment that will most likely cause mass exodus by individuals out of the city.

2.7.1 The Demise of Architecture and Design for National Symbolism

Terrorists embark on a background search and study on their potential targets before the actual attack. Terrorist organizations are conversant with the symbols of power

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[51] Patrick M. Cronin, Global Strategic Assessment 2009: America's Security Role in a Changing World
[52] Sorkin, M. (2008) 'Urban Warfare: A Tour of the Battlefield'

in most cities in the world. During their attack on the morning of September 11th 2001, they converted symbols of globalization and modernization, airplanes, into destructive weapons and flew them through the Twin Towers. The twin towers were symbols and icons of world trade and housed the Pentagon, the seat of US military power. It was later suggested that the fourth plane was going to hit the White House, another architectural master piece and an urban icon.[53] Any design of a building or a national monument that captures the values and aspirations of a people becomes an attractive target. Some protagonists in the fight against terrorism are of the opinion that such iconic structures should be abandoned.

2.8 Conclusion

While cities have been the site and choice targets for terrorist activities since the dawn of urbanization, the built environment is the container. Ancient city wall concept of protecting the city was replaced by the rings of steel. However, the basic principles underpinning the whole idea of urban defense and security have largely remained unchanged in most cities. The concept of invisible security has shifted the fight against terrorism from being a militaristic function to something less obstructive and invisible. Invisible security as a way of fighting terrorism is made possible by new advances in technology like biometrics among others which can easily be integrated in urban design and development to secure the built environment.

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[53] Dill, J. C.; Anderson, C. A. (2015). "Effects of Frustration Justification on Hostile Aggression". Aggressive Behavior. 21 (5): 359–369.

This chapter has highlighted the relationship between the built environment and the efforts to fight terrorism. The realization of a positive connection between the fight against terrorism and the built environment will depend on the willingness on the part of the urban managers, professional bodies regulating the built environment and individuals to find ways of integrating design with security features. There is an urgent need to involve architects, urban planners, structural and civil engineers, mechanical/electrical engineers and counter terrorism fighting agencies to synergize their efforts in the fight against terrorism. Together, those who are involved in the design of spaces, those who protect it for security and those who use it should consider new and responsive urban developments which will reduce threats and effects of terrorism.

CHAPTER THREE

RESILIENCE FEATURES OF THE BUILT ENVIRONMENT TO COUNTER-TERRORISM IN KENYA

3.1 Introduction

This chapter highlights the exposed nature of the city of Nairobi with regards to design and planning against its resilience to terrorism threats as a mirror image of other African cities. It shades light into past experiences and subsequent actions that followed terrorist attacks. Analytical synopsis of possible causes of terrorism, preparedness, approaches and the role of Government in the event of an attack targeted at any section of the built environment. In this way, scholarly work, Laws of Kenya (LoK) relating to security preparedness, including those of the security organs, were reviewed in order to answer or address the research questions.

3.2 Securing the Built Environment against Threats of Terrorist Attacks in Kenya

As noted in the statement of the problem, key challenges in ensuring security in any sector of the built environment and the country at large against the threat of terrorism remain a reality.

To be equal to the task, different threats of attack require specific approaches aimed at cushioning the target against such unforeseen terrorist plans, as depicted by Campbell that '*We should always frame security matters properly, study and understand the risks and threats really constitute*'[54]. The absence of scientific guidance on security preparedness gives the study room to investigate and explore on whether there are

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[54]Campbell, A. (2002). *How Terrorism Works.* New Haven: Yale University Press. 12 (3): 60–69.

adequate inbuilt security features within the built environment apart from the visible

security hardware. Professionals within the industry need to incorporate protective

features in public and domestic buildings, public and domestic open spaces and the

country at large by assessing all the relevant policy guidelines. This does not however

imply that the wide range of structural and non-structural aspects ranging from the level

of training for security personnel to deal with such threats and their capacity to

investigate and locate are inadequate.[55]

Depending on the risk factors any particular built environment is predisposed to,

it's vital to acknowledge and measure the impact of an attack in terms of lives lost,

economic interruption and property destruction, apart from costs associated with

restoration of disrupted activities and symbolic visible landmark of national interests.

Terrorist attacks follow a predictable pattern, which best security practices or

preparedness pre-empt by acting before an attack by way of putting into practice a

proactive anti terrorism and protective intelligence approaches based on finding out how

such militant attacks are carried out instead of just finding out who carries out the

attacks"[56]. It includes a continuous program and a long term protective strategy complete

with gathering information and analysis, cause and effect management strategy that uses

credible but readily available resources at every stage of execution and addresses even a

higher potential threat if and when one is identified. Most cities in India, for example,

have adopted comprehensive building bye-laws and land use zoning regulations that

[55]Terrorism Research Centre. (2002). *Special Analysis: The War against Terrorism*. New York: TRC Inc.

[56]STRATFOR, 2007-2010. *Geopolitical intelligence, economic and security*. **www.stratfor.com/**

control developments within the built environment that accommodate structural mitigation measures in disaster-prone areas.[57]

Following the much publicized terrorist attack on the World Trade Center (WTC), several counter terrorism measures been proposed by several scholars which include legislations like the US Patriot Act of 2001 which specifies the roles of different anti-terrorism measures, domestic preparedness and adoption of the Office of Homeland Security. The Act included intelligence gathering and surveillance mandates to assessing threats and evaluating the country's built environment depending on origin, kind and level of threat. This is complimented by use of other devices developed over time since non-metallic forms like fertilizer, plastics and petrol are quite difficult to identify using a metal detector.[58]

In the Kenyan context, collaboration efforts by security agents like the Administration Police, Kenya Police, National Intelligence Service (NIS), National Counter Terrorism Centre (NCTC) and other quasi-military anti-terrorist units have synergized efforts to provide a framework for the country's anti-terrorist activities, which the study delved into. Based on the research question, understanding the best case scenario of tackling the terrorism threat complexities with a practical plan of action covering both non-structural protection[59] and structural measures in the long run assist in securing the built environment, which the next section endeavors to address.

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[57]Ibid
[58]Terrorism Research Centre. (2002). *Special Analysis: The War against Terrorism*. New York: TRC Inc.
[59] Non structural protection is a key theme in the study.

3.2.1 Systemic Security Preparedness Aspect

In national security plan, physical security measures in the built environment are an important part of security measure and preparedness. Upon mapping out the building layout of a targeted building within the built environment by a potential terrorist with intent to evade physical security measures, other security arrangements can reduce chances of executing his/her threats. These physical security measures are however not foolproof since they can be outmaneuvered by suave attackers who meticulously plan the attacks in advance. In such a scenario, it is important to deny the attackers the luxury of striking when and where they choose besides making it difficult for them to be able to reach the target building by whichever means. Under these circumstances, physical security methods like badge readers, closed-circuit TV (CCTV) coverage, metal detectors and cipher locks may deter armed persons away from their targets and even deter would-be attackers from reaching their targeted buildings with weapons.[60]

Technically, the structural design and materials used should also be strong enough to withstand massive explosions from terrorist attacks. Consequently, there is need for a security-based design process that integrates security and terror mitigation objectives with new technologies and risk management. That is the main reason why the Federal Emergency Management Agency (FEMA), for instance, came up with federal standards on hardening of buildings because of terror explosives and other related risks[61]. A classic example is the result of Alfred Murray Federal building bombing in Oklahoma City on 19th April 1995 that compelled the General Service Administration (GSA) to come up with security criteria for classification of federal buildings based on the built up or plinth

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[60]Terrorism Research Center. (2002). *Special Analysis: The War Against Terrorism*. New York: TRC Inc.
[61]*FEMA Strategic Plan, 1997*

area, estimated number of employees and volume of public access[62]. Consequently, the FBI's offices in Washington DC were renovated to meet these new security standards after receiving a face lift that included structural reinforcements to provide additional blast protection in view of worldwide terrorism threats.

Preventable terrorism risks therefore imply that the consequences of mistakes, oversights and even the best intentions may only result in real and unexpected surprises much later.[63] However, security preparedness against potential terrorist threats particularly targeting the built environment would benefit from previous lessons from other internationally accepted anti-terrorism strategies before any potential target is attacked. In this context, strategies initiated by the Government of Kenya (GOK) in conjunction with international partners may equip the County Government of Nairobi, National Operation Centre and relevant security apparatus whose sole purpose is to create and enhance security preparedness.

3.2.2 Non-Systemic Security Preparedness Aspect in Kenya

Non-systemic aspect of dealing with terrorist threat targeting the built environment narrows down to periodic security procedures by uniformed security personnel or private security guards contracted to offer security support services in all urban areas and beyond. This is mostly intended to safeguard the built environment against possible terrorist's attacks and other criminal activities which are likely to inflict mass destruction of properties and loss of lives. Non structural security preparedness in relation to the built environment excludes technical measures at planning and design

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[62] Ibid.
[63] Terrorism Research Centre. (2002). *Special Analysis: The War against Terrorism*. New York: TRC Inc.

stage like structural engineers' calculations, material tests and zoning and land use considerations.

In an effort to answer the research question regarding counter terrorism preparedness and measures in the built environment within the County of Nairobi, non structural or uniformed security measures are mainly form of the City Inspectorate patrolling the city centre and traffic corps, Administration Police (AP) officers charged with the Security of Government Buildings (SGB) and the regular police patrols along the various streets in the city. Private business enterprises contract private security firms to offer them security services. These private security firms are authorized by the government to operate and work hand in hand with other security organs of the government for ease of coordination and smooth operations in case of any attacks.

These security officers are charged with various responsibilities ranging from controlling check-in-procedures at security desks, scrutinizing everybody entering into the building or question those standing suspiciously within the vicinity and screening of parcels/luggage or vehicles entering public buildings. These reduce potential terrorist groups from taking advantage of occasional security lapses to detonate or plant explosives. In order to carry out these twenty-four-hour protection of public buildings satisfactorily, the Administration Police (AP) Strategic Plan of action highlights two core functions aimed at pre-empting acts of terrorism and threats. The first function includes periodic review of the competencies of security staff that entails security of VIPs and protection of Government strategic installations. The indicators of success are measured

by the number of existing personnel that are well trained and equipped against the number of prevented cases of terrorism acts.[64].

The second role, which is of equally important, is Terrorism Interdiction. This includes identifying, isolating, monitoring and disruption of any activity with terrorism manifestations. It also develops policy frameworks to facilitate dissemination of information and analysis with relevant organizations, improving surveillance, improvement of human and technical capacity and mainstreaming terrorist interdiction skills within the ranks and file of Administration Police (AP). Its rate of success is measured by the number of patrols and surveillance, informers/personnel recruited, reported cases of potential threats or acts of terrorism to relevant departments, arrests made, types of weapons recovered from crime suspects and the number of security personnel trained on counter terrorism[65].

Since terrorism tactics are increasingly becoming more advanced across the world, new training and roles for counter terrorism personnel have also been developed to match the changing threats of terrorism. Consequently, several terrorist plans on hard targets like Government buildings, infrastructure and public places have been thwarted at an early stage. This shows another paradigm shift in security practice leaning towards intelligence gathering to arrest and disrupt terror related activities of the criminal-minded individuals or groups targeting the built environment. This action, which the study sought to explore, generally entails disruption of terrorist plans before execution in a clandestine manner under the purview of the security intelligence capabilities across the world.

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[64] AP strategic plan, 2002 : 8
[65] STRATFOR, 2007-2010. *Geopolitical intelligence, economic and security*.**www.stratfor.com/**

Going by this, *security intelligence*[66] has taken anti terrorism intelligence measures to a higher level through assessment of threats arising from within and without in an effort to reduce distractive end results. Given the perpetual fear and possibility of attacks by terrorist in the country, the Government of Kenya in an effort to reduce chances of another terrorist attack in the country started a view (1999) to restructure the Directorate of Security Intelligence (DSI) into the National Intelligence Service (NIS) and also to establish an operational Anti-Terrorism Police Unit (ATPU) in 2003[67].

In fighting against terrorism or its threats, the main responsibility of the NSIS in this regard entails the aspect of *protective security intelligence*[68]**,** a process that is practiced across the world**.** The main purpose in this process is to isolate a threat in order to pave way for counter action to pre-empt the potential of an attack at the planning stage. The process of identifying those who are involved in terrorist attack planning involves a thorough scrutiny of Time, Environment, Distance and Demeanor (TEDD) principle[69]. It involves a thorough study of human behaviors that may not be criminal in nature like visiting a public building, photographing or honest inquiries by strangers and observing security measures that are not in any way unlawful but can be signs that an attack is being planned[70]. As illustrated in the terrorist threat cycle in section 2.2, a terrorist executing such non-criminal activity or pre-operational surveillance is usually detected by a suave

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[66] Loch equate security intelligence to "Knowledge of the enemy"
[67] IGAD report , 2004
[68]Burrow, H Gichohi & M. Infield, 2001, *Rhetoric or Reality; a review of Community Conservation Policy and Practice in East Africa*, Nairobi.
[69]The acronym TEDD is widely used in such instances like, if a person sees someone repeatedly over *time*, in different *environments* and over *distance*, or one who displays poor *demeanor* (acting unnaturally), then that person can assume he or she is under surveillance.
[70] STRATFOR 007

and techno-savvy intelligence outfit within a counter surveillance process which is an important proactive tool in fighting terrorism.

It is worth noting that the intelligence gathering method of counter terrorism has been quoted by several scholars as an important non-military use of surveillance or covert operations. In total, the attacks and threats to the US Embassies recorded over 400 reports of surveillance of its embassy buildings in 1998 by strange people[71]. In the same breath, the deterrence doctrine, being part of counter-terrorism measures, has for some time been considered by some security scholars as clouded in difficulties because terrorists seek mass destruction and threatening them with war and the same destruction they seek to achieve in retaliation produces no effect.[72] It's therefore very difficult to fight terrorism by use of hard power. Adopting soft power in the fight against terrorism, including measures within the built environment, look more promising.

The government of Kenya presents a classic example of soft and hard approaches in the fight against terrorism. The use of both force and non forceful methods is a two pronged approach that has seen the deployment of uniformed security personnel and other invisible methods of fighting terrorism. Even though security preparedness and approaches all over the world are not new when considering the threats of terrorism, their explicit connotation in the Kenyan security situation remains an uphill task. The difficulty in literature review is that Government documents related to national security, especially those pertaining to terrorism, are highly classified documents by those responsible for safeguarding against terrorism threats from within and without.[73]

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[71] (Department of State, 1998)
[72] STRATFOR, 2007-2010. *Geopolitical intelligence , economic and security.* **www.stratfor.com/**
[73] Ibid

3.3 Case Studies of Terrorist Attacks within the Built Environment

The most common and active international terror organizations are the Islamic State of Iraq and Syria (ISIS), Boko haram and Al Shabaab. They emerged after the split of Al-Qaeda and Wahhabi movement which were Jihadiists[74] and were formed by Osama Bin Laden in the late 1980s to bring the Arabs who fought in Afghanistan against the Soviet invasion together. Over the years, it has mutated into an international terrorist organization[75] that has executed well coordinated attacks targeted public places and buildings with high densities. It is believed that the group masterminded the simultaneous 1998 terror attacks on the US embassies in Nairobi and Dar es Salaam where over 301 people lost their lives and injured more than 5,000 others. Other terror attacks in the built environment include the Garissa University terror attacks, kikambala bombing and several attempts to blow up public transport service vehicles on Thika highway, Eastleigh and the famous Machakos bus terminus/stage.

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[74] Islamic militant

[75] A *Qaeda organization uses terror against the US to justify hatred to the Americans blamed for among other things persecution of Muslims, the Palestinian question, the Gulf War and invasion of the Afghan Taliban regime.*

Figure 2: The aftermath of Kikambala attacks in Kenya

Another case of terrorism attack on the built environment which is widely considered by most scholars to be a case of domestic terrorism was the attack of Alfred Murray Federal building in Oklahoma City on 19th April 1995 by an American attacker, Timothy McVeigh. He used a bomb made from ammonium nitrate fertilizers mixed with combustible fuel oil. The vehicle that carried the bomb was parked in front of the targeted building before the bomb was detonated. The above trends resonate with the way most attacks have been carried out in Kenya and Africa in general.

3.3.1 The Built Environment as a Battle Field

Buildings and other infrastructure like roads and bridges are often considered to be durable but are also sustainable to unforeseen natural and man-made disasters that

require pre-emptive measures and foolproof design against the said disasters. Japan, for instance, has a national building code designed for safety and security of the built environment mainly due to recurring earthquake accidents. It is an open fact that terrorists with intent to bomb targeted buildings consider the various ways of achieving their objectives. The most common form of terrorist attack on the built environment is simply by way of an individual sneaking various forms of explosives into vulnerable areas like open air markets, visitors lobbies and parking areas among others.

On the other hand, vulnerabilities within the built environment[76] are mainly separated by methods connected with the threat and the extent of protection that are in turn connected with those methods. For instance, the general design strategy against forced entry into a building or any section of the urban area is to provide a means of detecting forceful entry and to incorporate mechanisms to delay the attackers long enough to enable the response force to arrive at the scene in good time. Vulnerabilities include insufficient intrusion-detection systems (IDSs) and appropriate barriers to delay the attacker. However, the strategy in design should be to deter a moving vehicle loaded with a bomb as far from the building as possible and to keep the facility away from the explosive. Vulnerability, in this case, is the limited standoff[77] point or the distance between the bomb and the building.

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[76]STRATFOR, 2007-2010. *Geopolitical intelligence, economic and security* .**www.stratfor.com/**
[77] Ibid.

3.3.2 Conclusion

The fight against terrorism should no longer be seen as a military act or responsibility of the government alone. The changing faces of terrorism call for synergized efforts from the government, private sector and civilians. This chapter has delved deep into the exposed nature of the city of Nairobi with regards to design and planning against its resilience to terrorism threats as a mirror image of other African cities. It has highlighted what Kenya, and other African countries by extension, have gone through in the past and subsequent counter terrorism responses. Poor urban planning, land use, choice of building materials, traffic jams, insufficient enforcement or total lack of building by laws and architectural designs that encourage terrorist attacks (siege attacks like the Westgate terror attack) are some of the main hindrances to the fight against terrorism in most cities in Africa.

CHAPTER FOUR

TERRORIST THREATS AND BUILT ENVIRONMENT TRENDS IN NAIROBI

CITY: A CRITICAL DATA ANALYSIS

4.1 Introduction

This section highlights the results of data analysis extracted from in-depth interviews, focus group discussions and observations. The overall aim to address the research objectives and answer the research as well as verify the hypotheses made in chapter one. The chapter has data analysis addressing the study question on best anti terrorism measures and practices against potential terrorists targeting the built environment and the country at large. As deduced in the chapter, short term and long term anti-terrorism preparedness measures' positive indicators after the 1998 bombing are further examined to determine the success of both structural and non-structural strategies and challenges as per respondents' and expert viewpoints.

4.2 General Overview on Security Preparedness Measures

Most respondents indicated that the noticeable changes in the way City buildings are guarded may not be sufficient in dealing with terrorism threats since it aims at bursting the execution, which is just the last stage in terrorist attack? In actual sense, other important remedial measures including a legislative framework[78], which the study could not ignore is attributed to the fact that although Kenya, like many other African countries, still depend on legislations in the Laws which do not in any way recognize terrorism as a crime punishable by law, there have been a number of efforts towards its

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[78] Legislative Framework that entails legal means of dealing with the emerging threat of terrorism locally.

realization. The legislative efforts, particularly the revised Anti-Terrorism Bill, that seek to provide means with which the detection and prevention of terrorist activities can be contained by amending relevant Acts like the Extradition (Commonwealth Countries) Act and the Extradition (Contiguous and Foreign Countries Act) were cited by some respondents as pertinent.

However, one cannot confidently say that that initiative is in the public domain since it's held by senior public servants, legislators and lawyers. In the envisaged bill, terrorism is depicted as 'the use of violence or threat to pursue a political, religious, ethnic and ideological goals with intent to put the public or a section of the public in fear'[79]. Replete throughout the data are signs that the terrorism threat and security preparedness within the built environment may provide direction for future action points in dealing with terrorism ant its threats. However, these findings beg a critical look at efficacy of security preparedness, government's willingness to freely share and discuss security matters and a case for private sector/civilian involvement in the fight against terrorism without victimization.

4.2.1 Terrorism Threat and Assessment of Preparedness in a Nairobi City Buildings

The study looked at the various viewpoints about terrorism, vulnerability of the City at large including buildings, infrastructure and the prevailing architectural regimes complete with threats and relevant security preparedness measures in the Kenyan context. In an effort to shade some light on the implications of terrorism action on security preparedness within the City and its buildings, the basic terrorist mindset (of

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[79] Suppression of Terrorism Bill 2007.

premeditated violent acts or systemic violence by members of an organized group or individual acting with outmost secrecy threatens a specific target) was assumed to be the point of reference. While it is important to attempt to understand what is going on in a terrorists mind, several factors are considered to aid and propel a terrorist to act in a certain way. A common motivational factor for a lone ranger attacker and an organized terrorist group working in concert for a long period of time has been cited by several scholars, especially Fein & Vossekuil, as cases whose final aim is to exert undue influence on the government and/or the general public in their favuor.[80]

To realize such intended goals, higher risks like public buildings, open air markets or highways with higher vehicular capacities usually targeted by potential terrorists indicate the need for security preparedness plans. This is out of the notion that terrorists targeting City buildings and other public places are more likely to be on the strength of reaping maximum damage and publicity for their cause. In Kenya, the study's examination of potential targets are likely to be those with national symbolic value (buildings) such as KICC, Parliament, Central Bank and City Hall buildings. It is this 'symbolic' value touching on national sovereignty and national interests that appeal to the terrorists to inflict maximum pain and national shame.

As a result of globalization effects mentioned in the preceding chapters, the threats and dynamism of terrorism in Kenya and Africa at large became a reality in 1998 after the bombing of the US embassy, begging the question as to how one of the most guarded City buildings could be reduced to rubbles by terrorists. Security preparedness had shifted focus from traditional security details to proactive protective deterrent

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[80] Fein R. A, & Vossekuil, B (1998). Protective Intelligence and Threat Assessment Investigations: *A guide for state and local enforcement officials*. Washington.

approaches geared towards defusing terrorists' plans. These new ways of enhanced security of public buildings in the City and the country at large indicated identifiable protective security activities covering both structural and non-structural measures which could assist in dealing with the terrorism threat before the attacks.

Figure 3: Ruins of the US embassy bombing in Kenya in 1998-CNN

4.2.2 Vulnerability of Urban Buildings

Vulnerability of city Buildings to acts of terrorism implies that a number of factors may need to be considered for its success or failure. In a study by the ISD Summary of Second Working Group, the 1998 bombing could have been averted if the US State Department had not dismissed intelligence report on the need to move their

embassy outside Nairobi's city center before the bombing. The report further stated that the State Department's remarks on the then Nairobi Embassy as a "medium-risk" post barely qualified for selected security improvements, let alone constructing a new building, given the number of embassies deemed "high risk," hence falling below standards because of financial constraints'[81]. The end result was that there was failure to act on available intelligence which pointed to Osama Bin Laden's meticulous preparation, planning and funding the growing terrorist networks in East Africa, which culminated into the 1998 Nairobi bombing[82].

In the unfortunate event of a terrorist attack, the respondents projected the following adverse effects;

Table 1: Projected Adverse Effects of Terrorism Attack

Variables	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
Mass Casualties	53%	27%	0%	12%	3%
Paralyzing of Public service	49%	25%	2%	16%	7%
Destruction of Property	12%	23%	3%	24%	37%
Loss of Wages	3%	20%	4%	35%	37%

(**Source**: Researcher's computation, 2017)

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[81] ISD Summary of Second Working Group report of 14th March 2005,
[82] Ibid.

In table 1, the cell representation for ramification arising out of any terrorist attack indicated cell performance of 29.3%, 23.7%, 21.7% and 21% spread across strongly agree, agree, disagree and strongly disagree cells respectively with regard to mass casualty event, paralyzing of public services, destruction of property and loss of wages as the most likely effect of a terrorist attack in a public building while 4.3% is neutral. *Mass casualties:* In effect*,* 53% strongly agree, 27% agree, 12% disagree and 3% strongly disagree to a possibility of a mass casualty event, leading to deaths as a result of a terrorist attack targeted at City buildings as compared to other resultant effects. The argument is based on the fact that a majority of the public does seek services on a day–to-day basis in these buildings. Respondents specifically cited passersby, contractors, civil servants and security personnel as part of the larger public equally predisposed to a terrorist attack by virtue of working in these buildings.

Paralysis of Public Service: It also emerged that 49% strongly agree, 25% agree, 16% disagree and 7% strongly disagree that various public delivery services are bound to suffer most in a terrorist attack targeting City buildings as compared to other effects.

Destruction of Property: the table above also show that there is a very high likelihood of destruction of a part or whole of the building targeted by a terrorist as indicated by 12 % that strongly agree, 23% agree, 24% disagree and 37% strongly disagree to structural damage as a foremost possibility.

Loss of Wages: A paltry 3 % strongly agree, 20% agree, 35% disagree and 37% strongly disagree to possible resultant loss of wages and livelihoods in the event of a terrorist attack on a City building as compared to other repercussions.

4.2.3 Structural Mitigation Criteria against Terrorism Threat

The new ways put in place in City buildings to guard against potential terrorism threats as per the study objective with regard to level of structural security preparedness measures after the 1998 terrorist bombing indicated the following;

Table 2: Adequacy of Structural Mitigation Indicators in City buildings

Variables	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
Gate/Door Maintenance	57%	29%	1%	5%	8%
Building Designs	32%	20%	1%	29%	17%
Technical Equipment	43%	23%	2%	24%	8%
Secure escape access	21%	31%	5%	28%	15%

(**Source**: Researcher's computation, 2017)

In Table 2, the cell performance of 38.3%, 25.3%, 21.7%, 11.7% and 3% spread across strongly agree, agree, disagree, strongly disagree and (not sure) cells in respect to gate gate-system, building designs, technical equipment and secure emergency access suggested plausible indicators of structural mitigation measures in city buildings aimed at thwarting possible terrorist attack. As for the g*ate system (*gates and doors*),* 57% strongly agree, 28% agree, 5% disagree and 8% strongly disagree that it is the foremost security preparedness indicator against intruders at points of entry in City buildings that require enhancement after the 1998 bombing as compared to other physical preparedness

measures. The respondents cited reinforced barriers, lockable doors and steel gates which are manned on a 24-hour basis.

Building Designs: as indicated in Table 2 above, 32% strongly agree, 20% agree, 29% disagree and 17% strongly disagree that the way City buildings within the Nairobi CBD have been designed, have had a net effect of forestalling all manner of risks including potential terrorist attacks. Respondents cited perimeter walls, parking and laminated windows as having been enhanced after the 1998 bombing, by way of retro-fitting. However, most respondents disagreed that the structural design does meet the expected standard to wade off potential terrorists, citing those determined to use aerial bombing means of attack.

Use of Modern equipment in the building: As indicated above, 43% strongly agree, 23% agree, 24% disagree and 8% strongly disagree to indicators of adoption and usage of modern security equipment like CCTV security cameras in City buildings that assist in monitoring suspicious/illegal intruders including potential terrorists as compared to physical security measures. In most buildings, respondents noted that adoption of technological equipment in the form of surveillance cameras, bomb or fire detectors, electronic security system, intrusion detection sensors / alarm, backup utility systems, installed electric barriers, hand band metal detectors, fire extinguishing, detection and suppression systems have been enhanced in most City buildings, thus effective in curtailing all forms of illegal entry not necessarily to guard against terrorists.

On *access to building,* statistics show that 21% strongly agree, 31% agree, 28% disagree and 13% strongly disagree that there is enhanced restricted access in terms of structural mitigation measures that ensure convenient level of access to designated entry

points for persons and vehicles and emergency exits as compared to other measures. They

cited various security checks, including hand band detection, motor vehicle and luggage

screening for all persons seeking services in these City buildings.

4.3 Efficacy of Counter-Terrorism Measures in the Built Environment

Terrorists are individuals or groups whose objectives include personal

gratification and criminal tendency. They pose a threat to the whole cityscape. Although

the threat may be ongoing, it cannot be wholly addressed using a prescribed security

preparedness formula as Senkas' asserts '*As we deal with certain tactics, certain weapons*

the terrorists do innovate is just enough to obviate our security measures. They either

switch to softer targets (sic) or they may innovate tactically'.[83] Rather, a well thought out

preparedness paradigm management shift in mitigating against disruption of normalcy,

loss of life and property remain critical. Consequently, it goes without say that

effectiveness of both structural and non-structural measures may assist in addressing the

risks on or before things get out of hand, as adduced in the next section.

4.3.1 Physical Structural Criteria as a Key Security Preparedness Measure

Structural engineers are key players in ensuring that City buildings are resilient

against any potential risks associated with the structural soundness of a building.

Structural precautions and designs have been cited in the study as going along way

towards cushioning against detrimental consequences of bomb blasts and unauthorized

access. Bearing in mind the study's objective, there is a strong connection between the

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[83] Brian Senkas. (2015). Obstacles to Bio Chemical Disarmament (in Patrick Marshal, 1990). *Editorial Research Report, pg 376*.

structural gate system as a key physical security mitigation feature against intruders and terrorists at the points of entry and parking, as indicated in the preceding chapter.

Figure 4: Exposed structural components of Westgate after terror attack

It was observed that limited access by way of well manned entry points in City buildings minimizes chances of a vehicle with explosives being left unattended, entering freely or forcefully into a building. Any attack therefore via vehicle, pedestrian, or even aerial form of attack, is best kept at bay.[84] Apparently, the way the gate system has been designed has also been replicated in some buildings in the city. These measures in the long run have the potential of forestalling terrorist attacks that may in most cases lead to mass casualty events.

It was also observed that structural compactness of some old City buildings is likely to enable a building to withstand an explosion. This indeed could mitigate against

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[84] Bonn International Center for Convention. (2015). A Preliminary Paper for Crimes in Kenya. Nairobi: East African Publishers.

the second category of possible attack by way of shelling or aerial bombing. Although a remarkable absence of laminated glass windows in most of the City buildings could otherwise ensure that staff or passersby are protected from flying glass in event of bomb blast, the recently constructed City buildings have taken into consideration the importance of laminated window glasses.[85]

Figure 5: Refurbished Co-operative house after US embassy terror attack. The structure never collapsed due to its structural resilience

In most public buildings, it was clear that eeffective scrutiny of unusual packages, use of employee and visitors' identification and staff reporting anything curious or confronting idlers are major hallmarks in City buildings against walk-in or individual placement carried in small quantities using a parcel or back-bag mode of transporting

[85] Bonn International Center for Convention. (2015). A Preliminary Paper for Crimes in Kenya. Nairobi: East African Publishers.

explosives into a building. Presence of security awareness posters or caution signboards labeled thus 'Emergency *EXIT, ENTRANCE, FIRE*' and evacuation route signs, fire extinguisher/water hydrant points in most of the sampled City buildings.[86] There are also notices of restrictions in City buildings as a means of deterring unauthorized access.

4.3.2 Non-Structural Criteria as a Security Preparedness Measure

This covered pertinent human security enhancements, namely;

a) **Trained security personnel able to detect, prevent and rescue in view of terrorist threats on City buildings**.

The study noted improvement of security and safety in City buildings, based on the number of trained security officers on the subject matter. Although all security officers have a bias towards training in martial arts and weapon handling, as well in threat analysis, any form of terrorism threat remain a major challenge to various scholars. This is more evident in threat assessment for any form of terrorism threat as there is an over-reliance on training targeting all cadre of security officers basically on traditional criminal tackling and maintenance of law and order. In effect, a substantial number of officers seemed not to have adequate training to deal specifically with security situational analysis, a form of sharing vital information amongst enforcement officers.

Similarly, the officers' firsthand knowledge on general security indicates a great disparity in training of other auxiliary staff to deal with all manner of threats. This is based on the small percentage of respondents who strongly agree that level of training

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[86] ERRI Daily Intelligence Report. (2015, November 26). Retrieved August 18, 2017, from ERRI Database/URL (website).

given to other non-security staff/personnel is still insufficient, hence security preparedness measures against terrorism portend a big challenge requiring an all-encompassing training for both security personnel and other workforce in each building.[87] This is attributed to the fact that awareness raised just as preventive steps to minimize chances of terrorist attacks taken are of paramount importance. As a result, there is need to ensure that all staff members are knowledgeable/trained on general security skills, law enforcement duties and threat assessment in order to ensure that lives are saved in the event of a life threatening situation or attack. For effective results, simulation exercises done periodically in these buildings can a go a long way in filling that skills gap.

Emphasis on threat assessment, as well as use of modern technological equipment, in minimizing terrorism risks requires equal input in the form of training of personnel using them, besides new innovations. This is because adequacy of personnel to handle them is still insufficient. Essentially, trained staff ought to know how to use these equipment for greater preparedness.[88]

b)   Effectiveness of the local security regime in dealing with terrorism.

Most significantly, there seemed to be a norm amongst the local security regime to treat every threat, no matter how far-fetched, to be a serious threat. In discerning diverse roles of security organs, a look at the security level in all the city buildings

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[87] ERRI Daily Intelligence Report. (2015, November 26). Retrieved August 18, 2017, from ERRI Database/URL (website).

[88] Ibid

indicates that they are equally secured by a contingent of security personnel whose functions are primarily guard/protection duties throughout the day and night in shifts.[89]

In the first instance, the study underscored the important role played by Administration Police (AP) officers in providing security in city buildings within the CBD, with visible presence at Harambee House, Nyayo House, Herufi House, and Sheria House, and all commercial banks while Kenya Police officers' presence were noticeable at Central Police Station, Vigilance, Parliament Buildings and Treasury House. In buildings where the APs provide actual security at main gates, entrances, visitors' bay and parking, they are usually armed. Part of their responsibilities includes monitoring check-in procedures at security desks, as well as scrutinizing all persons, parcels/luggage or vehicles entering building during the day and night, throughout the week.

The APs officers carry out these roles with much ease given that they possess the requisite skills involving weapon identification, crime detection and general protection duties. This notwithstanding, other specific roles under the Administration Police Act (CAP 208, LoK) include assisting the Provincial Administration in execution of their duties, preservation of peace and conflict resolution[90]. In the AP Strategic Plan, terrorism interdiction is categorized as its major tasks, apart from other roles more often than not seen as supplementary. Involvement of private security guards, mainly from the G4S, visibly deployed at Times Tower and KICC, also supplement police officers' day duties.

Similarly, the Kenya Police listed as another defense line against terrorists have multiplicity of roles, ranging from those executed by ATPU to those charged with the responsibility of ensuring security of City buildings and the country at large. In occasions

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[89] Bonn International Center for Convention. (2015). A Preliminary Paper for Crimes in Kenya. Nairobi: East African Publishers.
[90] Administration Police Act CAP 208; pg 121

where there are emergencies, including bomb scare incidences, the regular police usually cordon, conduct searches and control movement of people and vehicles. They also have bomb experts and sniffer dogs.

The importance of intelligence obtained by way of undercover operations ensures elimination of terrorist weapons' supply, suppression of recruitment and blocking or freezing their assets. It is in view of seeking to prevent persons threatening to attack public officials and/or building targets described by Fein as *threat assessment[91],* that use of discrete intelligence in conjunction with the TEDD principle is seen as highly likely to prevent any terrorist attack or plans.[92] This is because such appraisal is able to assist in identifying those threatening to commit violent acts or targeted violence as opposed to the normal security 'profiling'[93] through a sequence of actions. The problem with this approach is that since bombing threats in Kenya are rare and isolated, profiles will not be sufficient when compared to, for instance, *Mungiki* stereotyping. In the literature on assassination, for example, the classic profile of the ``American assassin'' is of a male attacker[94], which may not be the case as for a terrorist. This assessment assists in evaluating the threat by uncovering any facts or evidence that indicate the threat is real.

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[91] This specific assessment developed by the US Secret Service has evolved into a standard approach to analyze a variety of dangerous situations, including threats of workplace violence
[92] Fein R. A, & Vossekuil, B (1998). Protective Intelligence and Threat Assessment Investigations: *A guide for state and local enforcement officials*. Washington.
[93] Ibid. 'profiling' widely used in a typical police investigation where a criminal associated with proscribed Mungiki gang for instance is profile to be one who sniff tobacco stuff, wear *rasta* hairstyle and or deal ruthlessly with own defectors including beheading in a characteristic style
[94] Kirkham has expounded the concept of profiling in most of his scholarly work.

4.4 Conclusion

This chapter concludes that the heavy traffic jams in the city of Nairobi, construction of malls and shopping complexes that cause congestion and are misplaced from urban planning point of view are suitable targets for terrorists' attack. The county government of Nairobi, development control, should relocate or even demolish shopping malls and other developments that create congestion on the highways and strictly apply and adhere to the building bylaws. The role of private security personnel in most public buildings was also questioned by the respondents. There is a general feeling from most city residents that they are ill equipped and also lack basic training in public relations and human rights issues. Issues of invasion of privacy by the same private security personnel have been reported. Architects and engineers in the building industry should also design structures that can withstand terrorist attacks to avoid mass destruction and loss of lives.

Figure 6: Private security guards at an entry check point.

(A bomb detonated at this point can easily bring the main buildings down due to the short distance between the security check point and the secured buildings)

CHAPTER FIVE

CONCLUSION, SUMMARY AND RECOMMENDATIONS

5.1 Introduction

In this chapter, the entire research efforts are appraised alongside the study objective, hypothesis testing and the conceptual framework. It highlights discussion on themes derived from the study as per the study hypothesis for ease of interpretations and drawing of conclusions based on security preparedness strategies. Finally, recommendations alongside future work are also critically outlined.

5.2 Key Findings

From the study, it is unfortunate to note that the county government of Nairobi is silent on how to respond to terrorism threats in its building bylaws. This has given the developers, who are mainly businessmen and women, the liberty to construct buildings which are not resilient to terrorism threats. There are shopping malls and other building complexes which are constructed next to highways without the required climbing lanes for access, in some cases next to roundabouts. This has created avoidable traffic jams on some of the highways. A case in point is Nakumatt along Uhuru highway. Motorists accessing the super market during peak hours create long traffic jams extending up to the roundabout. Large crowds and congestions are attractive targets to terrorists. There are also rampant cases where zoning and land use policies are not adhered to within the city of Nairobi. Office blocks are constructed in residential zones, multi dwelling unit apartments are currently mushrooming in single dwelling zones without considering

density thresholds. Similarly, there are no minimum structural specifications for public buildings that can withstand heavy explosions from detonated terrorist bombs.

In Kenya and Africa in general, the fight against terrorism is considered to be the responsibility of uniformed forces and intelligence officers. While the various terrorist cells across the African continent are headed by young and techno savvy professionals drawn from various disciplines like medicine, engineering and humanities among others, majority of those charged with the fight against terrorism have basic military training and commanded and headed by old and rigid officers who don't seem to understand the mutating and the changing faces and nature of terrorism. Their understanding of the fight against terrorism revolves around the use of military hardware and force without any room or use of soft power. Consequently, terrorists are often ahead in their planning and often outmaneuver those charged with the responsibility to diffuse their activities, always executing their heinous acts when they are least expected to inflict maximum damage.

Due to the rigid nature and chain of command in the military and government secrecy on certain matters, especially those bordering on security issues, it is extremely difficult to get information upon inquiry from the police or any government office. No government official is willing to discuss and provide information relating to security matters, especially terrorism. This has hindered and ruined opportunities to research collect data and engage in practical efforts that can help in improving the understanding on the concept of terrorism, their modes of operation and how to effectively mount a fight to diffuse their intentions. This reluctance to provide information has further emboldened terrorists to plan and execute their plans, knowing that the details of their operations and acts will not be divulged. Furthermore, it denies the general public the right to knowledge

and yet they are expected to participate in the fight against terrorism by providing information which they not privy to in most cases

It is however important to acknowledge and recognize the efforts by the government in the fight against terrorism. The creation of bodies like Anti Terrorism Police Unit (ATPU) and the enactment of the once controversial Anti Terrorism Bill by parliament among others must be hailed by all the stakeholders. There are also several uniformed and non uniformed government officers enrolled in various colleges, some sponsored by the government, to take up courses on security, terrorism and even diplomacy. There are also improved twenty four hour police patrols across the cityscape to deter potential criminals from executing their evil acts. There have been efforts to install CCTV cameras on the major highways and to decongest the city to ease traffic jam and therefore reduce the number of casualties in case of attack. These efforts may appear negligible but will go a long way in the fight against terrorism.

5.3 Conclusion

With the emerging terrorism threat as an ongoing dilemma, a situation where strategies to thwart the threat based on the standard of imminence of the previous threats, like those of 1998 and 2002 bombings, require similar concerted efforts to counter it. To cushion against possible attacks therefore, the paradigm shift in security approach in Government buildings should reflect both the threat and difficulties inherent in containing the vice. It is therefore recommended that security preparedness measures take cognizance with the emerging threat, emphasizing on the following as per the study objectives:

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Developing and implementing appropriate security preparedness measures as a long-term activity for all buildings at various areas, especially in urban settings, not only after a disaster strikes to contain losses but also before the event happens or re-occurs. These may include; Implementing such proactive protective measures on possible risks and use of the latest technology, based on safety guidelines and plans of action in Government departments. This would be more of collective protective measures where appropriate instructions are given to all building staff.

Enhancement of existing policies and strategies taking cognizant of the policy framework on counter terrorism and disaster management. This should include; Expediting pending policy/legislative Bills relevant to dealing with terrorism threat, alongside other security challenges in the country to avert the same. This is expected to give a clear guideline on plans that could be reviewed and tested regularly in light of the Suppression of Terrorism Bill 2007 and draft the National Security/Disaster Management policy, which is still pending for discussion in Parliament.

Evaluating risks as a means of adopting technical progress and firm prevention policies for effective building security and safety, particularly with appropriate training of security staff and disaster managers. Formalizing risk assessment actions and keeping constant review to ensure appropriate action via regular monitoring and evaluation.

5.4 Recommendations

The county government of Nairobi must enact building bylaws aimed at reducing terrorism, its effects and threats. One area that should be looked at is design of public buildings like malls. One aspect that favored terrorists during the Westgate attack was its

design. Any public building that is designed as a fortress with one entrance and exit encourages siege attack, giving the attackers the advantage to control the entrance and exit while holding their victims within the building.

Figure 7: Fortress-like design of Westgate Mall facilitated sustained resistance by terrorists

On the other hand, a public building designed to be open and have several entrances and exits within the site cannot favor terrorist in mounting a sustained resistance since they cannot be sure of the direction of counter-resistance. It's encouraging however to note that some architects have started to respond to threats of terrorism in executing their professional duties, not as a requirement by the bylaws but out of necessity. Two shopping malls that best illustrate the concept of open site planning are the Hub in Karen shopping centre and Galleria located at the Karen/Ongata Rongai junction.

The two shopping malls are sited with several entrances and exits. These features make a sustained terrorist attacks nearly untenable.

Figure 8: Open sited Galleria mall can't facilitate sustained resistance by terrorists

The fight against terrorism should be broad based and include professionals from other disciplines like architects, engineers and urban planners among others. Currently, the fight is left to the uniformed forces and a few privileged top civil servants. Kenya and the other African countries must depart from that narrow approach to a level where the efforts are synergized. Before the actual attacks, terrorist study their targets meticulously to inflict maximum damages and precision. This involves reconnaissance studies, chemical composition of their hand made bombs, location and siting of their targets. That kind of preparation presupposes that different professionals are involved in the preparation before execution. This explains why most terrorist outwit our forces.

The government also need to open the lid on information relating to security and avoid unnecessary secrecy that has only served to further mystify the fight against terrorism. For the fight to succeed, information is needed for accurate research,

formulation of policy about the fight against terrorism and effective action plan. Unless the government is freely willing to share information on security issues, the campaign to make the fight against terror an all inclusive exercise is self contradicting. Everybody on board must have and share information so that the whole exercise can succeed.

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APPENDICES

Appendix I: Introduction Letter

UNIVERSITY OF NAIROBI

College of Humanities and Social Sciences
Institute of Diplomacy and International Studies

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E-mail : director-idis@uonbi.ac.ke

P.O. Box 30197
Nairobi
Kenya

19th June, 2017

TO WHOM IT MAY CONCERN
RE: ODIPO GEORGE OTIENO – R52/81054/2015

This is to confirm that the above named person is a bona fide student at the Institute of Diplomacy and International Studies (IDIS), University of Nairobi pursuing **M.A. in International Conflict Management.** He is working on research project titled: **"THE NEXUS BETWEEN THE BUILT ENVIRONMENT AND COUNTER TERRORISM MEASURES IN THE AFRICAN CITIES: A CASE STUDY OF NAIROBI CITY".**

Any assistance given to him to facilitate data collection for his research project will be highly appreciated.

Thanking you in advance for your cooperation.

Yours sincerely,
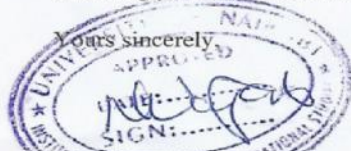
Prof. Maria Nzomo
Director, IDIS
  &
Professor of International Relations & Governance

Appendix II: Interview Guide

SECTION I GENERAL INFORMATION

Table 1: Information Regarding Respondent's Particulars and Focused Group Participants

Respondents/ Focus Group Participant Demographics		
Name:	Date: Time:	Place:
What is your area of Occupation / speciality? ○ Security/Public officer ○ Private Consultant ○ Student ○ Others (specify)	*Age in Years:* ○ 20 to 30 ○ 31 to 40 ○ 41 to 50 ○ Over 51	*Gender*: ○ Male ○ Female
Level of Education ○ Primary ○ O-Level ○ A-Level ○ University	*Experience in the job?* ○ Less than 5 Years ○ 5 to 10 ○ 11 to 15 ○ More than 16	*What religion do you belong or profess?* ○ Christianity ○ Islam ○ Traditionalist ○ Others

SECTION II: Respondent's Interview Guide

a. Information Regarding the Built Environment

1. Name of Building/development……………………………………………………………….

2. State nature of surrounding (zone) and name of the nearest road…………………………

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

3. Indicate the function of building i.e. a mall, office block, residential estate or institutional

    …………………………………………………………………………………………..

4. What are the inconveniences caused by the development? (tick the appropriate)

    - Traffic jam

    - Environmental pollution

    - High population density

    - Insecurity

    - Reduced water/power supply

5. Who is responsible for security in the building (specify)

    ………………………...

    ....

    ....

6. Is the distance between the security check-point and the building/development spaced

    enough to detect, neutralise or absorb possible devastating effects of a terrorist attack?

    Explain...

    ....

    ....

    ....

7. Tick as appropriate (YES/NO)

    a. Is access to building restricted to all persons?

YES	
NO	

    b. Is the building provided with a protected sign in procedures?

YES	
NO	

    c. Does it clearly indicated by pictorial or directional exit signs/escape route?

YES	
NO	

    d. How often do you have mock exercise on bombing and training of staff on emergencies?..

    e. How often is it rehearsed i.e. bomb threat plan of action in your building dovetailed within the overall threat framework?...

    f. Considering that the level of protection against potential attack on a targeted building with less effort or mitigation strategy is high, do you think resource input is important?

YES	
NO	

b. Information regarding Counter-Terrorism and Routine Mitigation Measures in the built environment

(Tick where appropriate)

1. In your opinion, do you agree that the following factors are more likely to promote terrorism in Kenya? Apportion as appropriate for each.

   (I strongly agree, I agree, I am not sure, I disagree, I strongly disagree)

   - ❖ Radicalization   ( )
   - ❖ Poor urban planning   ( )
   - ❖ Youth apathy   ( )
   - ❖ Globalization   ( )
   - ❖ Marginalization   ( )
   - ❖ General crime   ( )

2. In your opinion, which category of the built environment do you think is most likely to be an ideal target for attack by potential Terrorist in Kenya? Apportion as appropriate for each

   Ω   *(I strongly agree, I agree, I am not sure, I disagree, I strongly disagree)*

   a) Residential dwellings   ( )
   b) Office blocks   ( )
   c) Malls/super markets   ( )
   d) Highways   ( )
   e) Foreign own   ( )
   f) Open air markets   ( )

3. All terrorists prefer certain mode of attacks. In your opinion, please rate on a scale of 1 to 5 where 1 = strongly disagree and 5= strongly agree, the assertion that the following mode of terrorist threats is likely to be used in carrying out attacks on targeted buildings?

    i. Vehicle bone Attack   ( )

    ii. Aerial Attack   ( )

    iii. Walk-In bombing   ( )

    iv. Biological/Chemical attack ( )

    v. Cyber-attack   ( )

4. In your opinion, please rate the following statement on a scale of 1 to 5 where 1 = strongly disagree and 5 = strongly agree. What key security criteria/ factors determine level of preparedness in the built environment?

(Apportion as appropriate)

    Ω *(I strongly agree, I agree, I am not sure, I disagree, I strongly disagree)*

Symbolism of the development   ( )

Services provided in the development   ( )

Size of the development   ( )

Population   ( )

Cost implication   ( )

5. What measures have been instituted to minimize the impact of terrorist attack in the built environment? List /categorize them appropriately………………………………..

………………………………………………………………………………………………

a). Do you think the measures have assisted/sufficient in dealing with terrorism risks? If not what could be done? (Elaborate)…………………………………………………...

………………………………………………………………………………………..

b). What best security practices / strategies do you think Government should institute to deal with terrorism threat? (Elaborate)…………………………………………………

………………………………………………………………………………………….

6. Do you agree that Kenyan security regime has mutual understanding with other regional or international actors in combating the vice? Specify instances of diplomatic approach as a means to combat terrorism………………………….............................

………………………………………………………………………………………….

7. In your opinion, please rate the following security agencies on a scale of 1 to 5 where 1 = strongly disagree and 5= strongly agree on whether they are best suited or recommended to deal on day to day security preparedness and/or management in the built environment? Tick as appropriate

- o Anti-terror police (I strongly agree, I agree, I am not sure, I disagree, I strongly disagree)
- o Military (I strongly agree, I agree, I am not sure, I disagree, I strongly disagree)
- o N.I.S (I strongly agree, I agree, I am not sure, I disagree, I strongly disagree)
- o Administration Police (I strongly agree, I agree, I am not sure, I disagree, I strongly disagree)

- County government development control (I strongly agree, I agree, I am not sure, I disagree, I strongly disagree)

- Kenya Police (I strongly agree, I agree, I am not sure, I disagree, I strongly disagree)

- Ministry of housing development (I strongly agree, I agree, I am not sure, I disagree, I strongly disagree)

<u>Efficacy of Counter-Terrorism Measures in the Built Environment</u>

1. In your opinion, what are the most appropriate factors that determine effectiveness of preventive measures in the built environment and contribute to tackling terrorism threat?...
…………………………………………………………………………………………
…………………………………………………………………………………………

2. What additional precautionary security measures were adopted with regard to urban planning, personnel deployed in buildings and the regulatory framework after the 1998 bombing?...
…………………………………………………………………………………………
…………………………………………………………………………………………
…………………………………………………………………………………………
…………………………………………………………………………………………

3. Give any other information helpful to this study.
…………………………………………………………………………………………
…………………………………………………………………………………………

Appendix III: Research Authorization Letter

NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION

Telephone: 020 400 7000,
0713 788787,0735404245
Fax: +254-20-318245,318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/17/28211/19544**

Date: **10th October, 2017**

George Otieno Odipo
University of Nairobi
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *"The nexus between the built environment and counter terrorism measures in the African cities a case study of the City of Nairobi Since 1998"* I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending 9th **October, 2018.**

You are advised to report to **the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nairobi County.

The County Director of Education
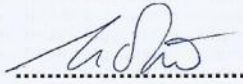Nairobi County.

Appendix IV: Research Permit

THIS IS TO CERTIFY THAT:
MR. GEORGE OTIENO ODIPO
of UNIVERSITY OF NAIROBI, 0-100
NAIROBI,has been permitted to conduct
research in *Nairobi County*

on the topic: *THE NEXUS BETWEEN THE BUILT ENVIRONMENT AND COUNTER TERRORISM MEASURES IN THE AFRICAN CITIES A CASE STUDY OF THE CITY OF NAIROBI SINCE 1998*

for the period ending:
9th October,2018

Permit No : NACOSTI/P/17/28211/19544
Date Of Issue : 10th October,2017
Fee Recieved :Ksh 1000

....
Applicant's
Signature

....
Director General
National Commission for Science,
Technology & Innovation

CONDITIONS

1. The License is valid for the proposed research, research site specified period.
2. Both the Licence and any rights thereunder are non-transferable.
3. Upon request of the Commission, the Licensee shall submit a progress report.
4. The Licensee shall report to the County Director of Education and County Governor in the area of research before commencement of the research.
5. Excavation, filming and collection of specimens are subject to further permissions from relevant Government agencies.
6. This Licence does not give authority to transfer research materials.
7. The Licensee shall submit two (2) hard copies and upload a soft copy of their final report.
8. The Commission reserves the right to modify the conditions of this Licence including its cancellation without prior notice.

REPUBLIC OF KENYA

NACOSTI

National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT

Serial No.A 16076

CONDITIONS: see back page