



**UNIVERSITI PUTRA MALAYSIA**

***CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN PRINCIPLES  
IN RESIDENTIAL AREAS IN ABUJA, NIGERIA.***

**AMANDO ALEXANDER**

**FK 2012 142**



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By

**AMANDO ALEXANDER**

**This thesis submitted to the School Of Graduate Studies, Universiti Putra Malaysia,  
In fulfillment of the Requirements for the Degree of Master of Science**

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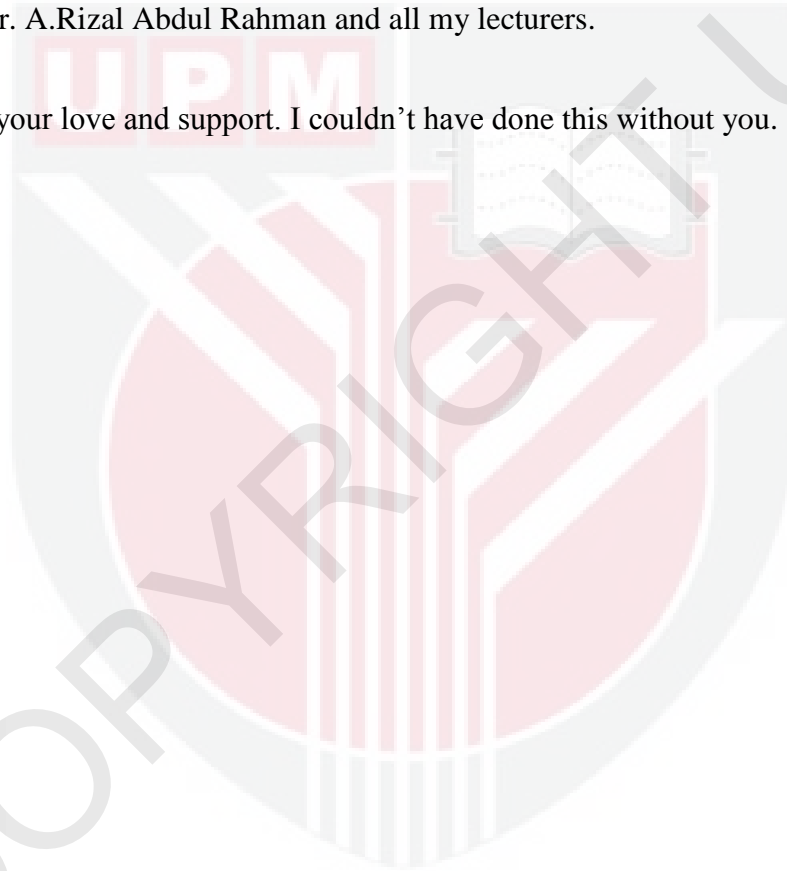
**July 2012**

## **DEDICATION**

I dedicate this study to my Family, every one of them that believed in me even when I didn't come through, my parents, Mr. & Mrs Amando, Arc. Joseph Kyaabga, my Mentor and Father, this wouldn't have been possible without you.

To my friends and loved ones, Allenbyba Teneilabe, Utip Obot, Ebitare and Elaye Lyndon, Oratile Molatole, Tiza Kyaagba, Raymond Henshaw, My supervisors Assoc. Prof. Dr. Kamariah Dola, Dr. A.Rizal Abdul Rahman and all my lecturers.

Thank you for all your love and support. I couldn't have done this without you.



Abstract of thesis presented to the Senate of the Universiti Putra Malaysia in fulfillment of the requirement for the degree of Masters of Science

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By

**AMANDO ALEXANDER**

**JULY 2012**

**Chairman: Assoc. Prof Kamariah Binti Dola, PhD.**

**Faculty: Design and Architecture.**

Due to development pressure, disregard for proper planning for urban growth, and inefficient justice systems, residential areas in Abuja, Nigeria face serious crime problems. Burglaries and assault are among criminal activities that are common in these residential areas. The result of these consistent criminal activities is the creation of prison-like enclaves and fortresses means for residents to protect themselves. This in turn caused ad hoc in urban fabric, disharmony of the city facade, affecting social cohesion and interaction.

Crime prevention through environmental design which will be referred to as CPTED in this thesis refers to the development of defensible space through the belief that the physical environment can be manipulated to influence behavior to reduce crime. CPTED is the basis of the design for safer living environment. An array of works from the 70's up to date have described principles that lead to the effectiveness and success of CPTED programs, and these have been successfully implemented in many countries around the world (United States, Brazil, South America).

This study explores the availability of principles of CPTED in present residential areas in Nigeria and how far this principle has been implemented in the selected study sites. The methodology includes extensive literature search, non-participant observation and survey on purposefully selected residential sites in Abuja comprising of two gated and two non-gated communities with equal distances from the city center. In addition, semi-structured interview of four experts, two architects and two planners were also conducted. This research explores whether or not CPTED principles can be applied in these areas as it has been stated that the success of any CPTED program depends solely on the residents to benefit from the program. This means that residents have to support all the four (4) CPTED principles identified in this research (Territoriality, Natural Surveillance, Social interaction, and Image and Milieu) for the program to succeed. Findings from this study showed that the residents in the selected sites support three of the four CPTED principles. Those in the gated communities revealed higher support than those in the non-gated communities. This indicates that crime could be controlled through CPTED in the residential areas in Abuja, Nigeria. This research suggests that missing principle - Social Interaction - needs to be established and stressed to ensure the ultimate success of CPTED implementation to prevent crime in residential areas. The results from the research can be used by urban managers, urban designers and planners as well as architects to improve residential design to reduce criminal activities and also to improve good design and encourage social interaction amongst residents to create sustainable and safe cities.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah master sains.

**PENCEGAHAN JENAYAH MELALUI PERSEKITARAN REKA BENTUK  
PRINSIP-PRINSIP DI KAWASAN PERUMAHAN DI ABUJA, NIGERIA**

oleh

**AMANDO ALEXANDER**

**Julai 2012**

**Chairman: Profesor Madye Kamariah Binti Dola, PhD.**

**Faculty: Design and Architecture.**

Disebabkan oleh tekanan pembangunan, kurang penekanan dalam perancangan pembangunan bandar secara betul, serta sistem keadilan yang tidak berkesan, kawasan perumahan di kawasan Abuja menghadapi masalah jenayah yang serius. Rompakan dan serangan keganasan adalah antara aktiviti-aktiviti jenayah yang sering berlaku di kawasan perumahan ini. Aktiviti-aktiviti jenayah ini menyebabkan pembinaan enklaf dan benteng yang menyerupai penjara sebagai cara untuk penduduk melindungi diri mereka. Ini menyebabkan keadaan fabrik bandar yang ad hoc, fasad bandar yang tidak harmoni, dan menjejaskan perpaduan sosial dan interaksi.

Pencegahan jenayah menerusi reka bentuk persekitaran yang akan dirujuk sebagai CPTED di dalam tesis ini merujuk kepada pembangunan ruang pertahanan melalui kepercayaan bahawa persekitaran fizikal yang boleh dimanipulasi untuk mempengaruhi tingkah laku untuk mengurangkan jenayah. CPTED adalah asas reka bentuk untuk persekitaran hidup yang lebih selamat. Pelbagai kajian yang dilakukan dari sejak tahun 70an hingga kini telah membuktikan

keberkesanan dan kejayaan program CPTED, dan ini telah dilaksanakan di banyak negara di seluruh dunia.

Kajian ini meneroka samada terdapat prinsip CPTED dalam reka bentuk perumahan di Nigeria pada masa kini dan bagaimana prinsip-prinsip CPTED digunapakai di tapak kajian yang dipilih. Metodologi termasuk kajian literatur yang meluas, pemerhatian dan kajian ke atas kediaman terpilih di Abuja yang terdiri daripada dua kawasan berpagar dan dua kawasan tidak berpagar yang mempunyai jarak yang sama dari pusat bandar. Di samping itu temubual separa berstruktur dengan empat pakar, dua arkitek dan dua perancang bandar juga telah diadakan. Kajian ini menekankan bahawa sokongan penduduk amat penting bagi memastikan kejayaan semua empat (4) prinsip-prinsip CPTED (Kawasan Teritori, Pengawasan Semulajadi, Imej dan Persekitaran Sosial serta Interaksi Sosial) yang telah dikenalpasti dari kajian ini. Dapatan kajian menunjukkan bahawa penduduk di tapak yang dipilih menyokong tiga dari empat prinsip CPTED. Penduduk dalam komuniti berpagar didapati lebih kuat menyokong prinsip CPTED berbanding dengan masyarakat dalam kawasan tidak berpagar. Kajian ini menunjukkan bahawa pelaksanaan CPTED boleh dilakukan di kawasan perumahan di Abuja, Nigeria. Kajian ini menunjukkan bahawa prinsip yang tidak dapat dikesan (Interaksi Sosial) perlu diwujudkan dan diberi penekanan bagi memastikan kejayaan CPTED untuk mencegah jenayah di kawasan perumahan. Hasil dari penyelidikan ini boleh digunakan oleh pengurus bandar, pereka bentuk bandar dan perancang bandar serta arkitek bagi memperbaiki reka bentuk kediaman untuk mengurangkan aktiviti jenayah dan juga untuk menambahbaik reka bentuk dan interaksi sosial di kalangan penduduk untuk mewujudkan bandar yang mampan dan selamat.



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My course mates and senior colleges who assisted me with books and advice, to all those who never gave up on me. I remain thankful for all the love you have shown.



I certify that an Examination Committee has met on date of viva to conduct the final examination of Amando Alexander on his Masters of Science thesis entitled “**Crime prevention through environmental design (CPTED) principles for preventing crime in residential areas in Abuja, Nigeria**” in accordance with Universiti Putra Malaysia (Higher Degree) Act 1980 and Universiti Putra Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfillment of the requirement for the Master of Science. The members of the Supervisory Committee were as follows:

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## DECLARATION

I declare that this thesis is my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously, and is not concurrently, submitted for any other degree in Universiti Putra Malaysia or at any other institutions.

---

**AMANDO ALEXANDER**

Date: 26<sup>th</sup> July 2012



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## CHAPTER 1

### INTRODUCTION

#### 1.1 INTRODUCTION AND BACKGROUND TO THE STUDY

Crime Prevention Through Environmental Design or CPTED has been in existence since the 1970's. It has been used to control criminal activities in neighbourhoods like Bridgeport, Connecticut, the Phoenix Project, Knoxville Tennessee, and Sarasota, Florida in the United States of America (Atlas, 2008). Different scholars over the years have explored various factors involved in the successful implementation of a CPTED program, some independently and while others collectively. Such scholars include Foster, Giles and Knuiman (2010), Newman, (1996), Clarke, (1995), Crowe, (2000) among others. CPTED is one of the most promising and currently effective approaches to reducing opportunities for crime mostly in residential areas (Crowe and Zahm, 1994, pg. 22).

Various measures have been conducted to prevent crime in Nigeria such as Operation Flush Out Crime- 1994-1998, Operation Sweep- 1998-2002, And Operation Fire For Fire -2002-2004 (Alemika and Chukwuma, 2005) but all ended with minimal success as shown in Figures 1 and 2, as crime continues to thrive ([www.vanguardngr.com](http://www.vanguardngr.com), accessed July 2011).

As such, this research proposes implementing CPTED principles as a crime prevention and control measure in residential areas in Abuja, Nigeria.

This research seeks to explore the workability of CPTED in Abuja as a crime prevention measure, through the principles studied and suggested by scholars who have delved in this topic.

While crime prevention through environmental design (CPTED) generally involves changing the built environment to reduce the opportunity for crime to happen, it is aimed at other outcomes including reducing fear of crime, increasing the aesthetic quality of an environment, and increasing the quality of life for law-abiding citizens, especially by reducing the propensity of the physical environment to support criminal behaviour (Clarke, 1995, Crowe, 2000; 1, 28-9, 40).

The building industry seeks to be better, with sustainable designs in this modern age, such as better design, better quality building materials for construction, faster ways of completing projects, and still looking to combat the menace of crime through designs. This is necessary as home owners in a bid to live safely within their environment, have all ended up in creating fortresses and enclaves. This has always left mixed feelings whenever raised, as different people have their own ideas and hold it up as the right way to combat criminal activities in residential settlements.

Newman (1996) said, “because of the size and density of our newly evolving urban societies, we have become more dependent on each other and more vulnerable to aberrant behaviour than we have ever been before” (Newman 1996, pg.3). This research deduces from the preceding statement that there is a need for new ways of designing to suit the fast and ever evolving urban megalopolis. A cross sectional view of countries around the world showed that issues of criminal activities in residential neighbourhoods are common (Annabel 2009; pg. 15).

Social polarization has also been blamed for the emergence of gated communities, and an example of this is Nigeria (Annabel 2009; pg. 5). A brief summary of literature by Newman and Colquhoun (2004; pg.39) suggest that a practical solution to the control of crime involves manipulation of the physical environment in order to reduce the incidence of crime and also the Fear of Crime.

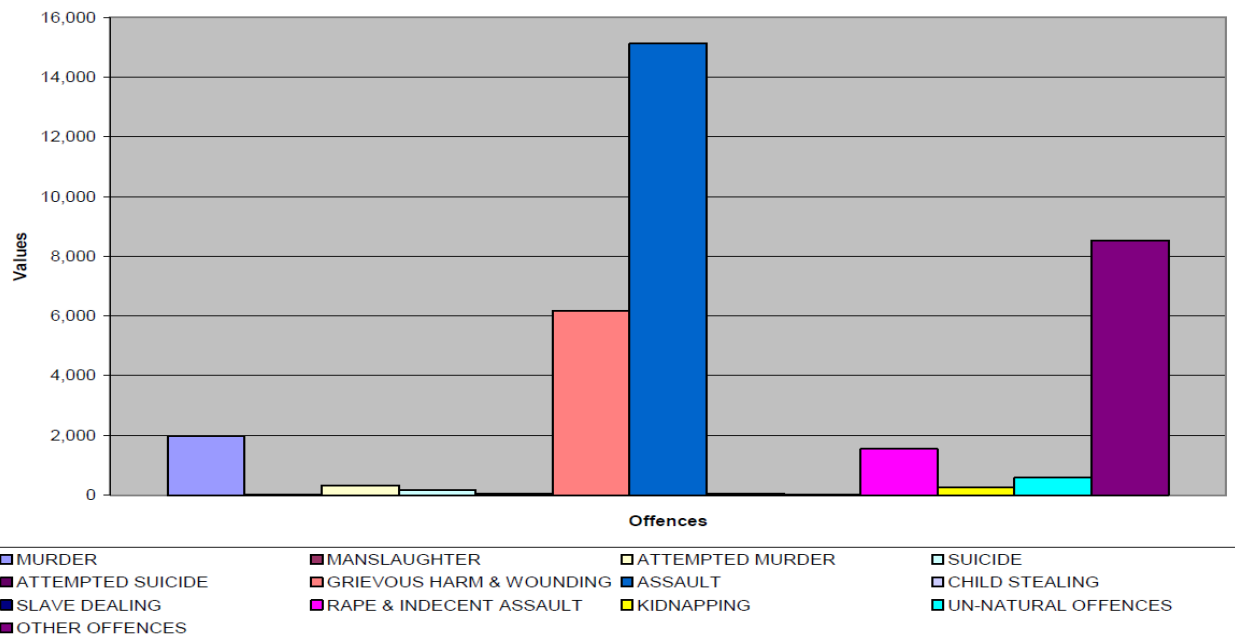
Newman's principles were based mainly on the key trait of territoriality. Newman broke down CPTED into four basic categories; territorial control, access control, natural surveillance, and image and maintenance (Newman, 1996). Territoriality includes subdividing the grounds into zones and is meant to exert influence of the legitimate users of these properties and enable them oversee activities in their neighbourhood. The control of access to public areas was proposed through physical designs. Surveillance should be natural as this eliminates barriers, manipulations and vulnerable spots that can be found with mechanical methods of surveillance (e.g. with surveillance cameras) which are the order of the day in this present developing world. Also relating to this is the broken window effect, which is the image and maintenance (or Milieu) of an area. It deals with the total impression of one's surrounding, as a neighbourhood which is clean and well-kept will have a reputation that wards off offenders. A dirty and unorganised area will attract drug dealers and criminals around. A review of the CPTED design methods in 2004 came up with the conclusion that the increasing rate of change a sense of neighbourliness and community is the core of having safe cities (Colquhoun, 2004). Other researchers have also revisited the topic of crime prevention through environmental design and made their own contributions to the body of knowledge, people such as Gardner (2009), who re-emphasized that crime can be prevented through crime prevention designs by employing physical barrier features that discourage crime but at the same time promotes social interaction.

Wilson and Kelling introduced the broken window effect in 1982, which is a subject closely related to the issue of crime in urban environments. The theory has to do with maintenance and preservation, as this sends out vibes to outsiders and even the inhabitants of such areas (Wilson and Kelling, 1982; pg. 1-10). Vandalism has a way of portraying a neighbourhood as vulnerable to attacks and criminal activities even when it is not. Neighbourhoods that are unclean and vandalized are normally the base for criminals and drug dealers, as opposed to

clean and kempt neighbourhoods, this tends to portray dominance by the occupants and this helps in deterring people who would normally waltz through. This also reiterates the point that inhabitants have a huge role to play in ensuring that their neighbourhoods are safe and conducive places to live and raise their families.

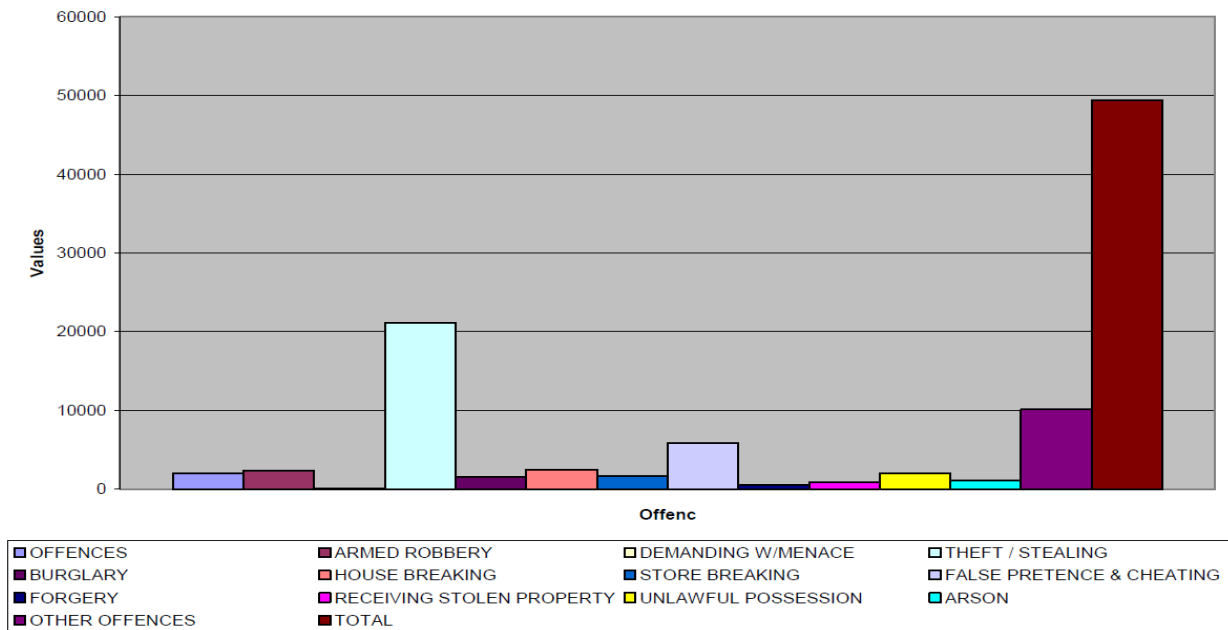
Crime in Nigeria has been on the increase especially domestic crime i.e. (burglaries, break-ins, robberies) see Figures 1 and 2, because of this residents usually do whatever is available to them and what they think is necessary to control and prevent crime, as the police and other law enforcement agencies are quite ineffective in ensuring the safety of the area. Residents then employ architects to design and develop details like very high concrete fences, electric barbwires, and as professionals, architects should be there to provide guidance to their needs and discourage such practices as these physical fences look ugly and become barrier for social interaction in neighbourhoods.

**SUMMARY OF OFFENCES AGAINST PERSONS 2007**



**Fig 1: Crime rates increase in offences against people. Source: UN-Habitat, 2008/2009.**

**SUMMARY OF OFFENCES AGAINST PROPERTY 2007**



**Fig 2: Crime rates increase in offences against property. Source: UN-Habitat, 2008/2009.**

**COMPARATIVE TABLE ON OFFENCES BETWEEN 2007/2008**

Offences	2007	2008	Remarks
Offences against Persons	34, 738	35, 109	Increase
Offences against Property	47, 624	49, 415	Increase
Offences against Lawful Authority	5, 983	7, 314	Increase
Offences against Local Act	2, 350	1, 483	Decrease
<b>Total</b>	<b>90, 695</b>	<b>93, 321</b>	<b>Increase</b>

**Fig 3: Comparative analysis of crime rates in Abuja between 2007/2008. Source: UN-Habitat, 2008/2009.**

Figure 1 shows a summary of offences against persons in Abuja in 2007. It illustrates a variety of the criminal activities that takes place and in and around Abuja in which assaults record the highest number. Figure 2 shows a summary of crime against property, in which theft and stealing are the most type of crime committed within the residential areas in Abuja

Nigeria. And from the comparative table in Figure 3, there was an increase in criminal activities between 2007 and 2008; the table displays the increase in criminal activities against persons, property and lawful authority. It shows a worrying trend that all types of criminal activities keep on rising and property offences seem to be the highest incidence.

This has led to the uprising of various types of high barriers in the residential neighbourhoods of Abuja, Nigeria resulting in a display of disorganisation of urban fabric and built environment. Traffic congestions occur as result of the closure of routes in these areas. It however has become imperative for the inhabitants to join in the already existing trend of obscure crime prevention practices (e.g. putting prison-like high concrete barriers and thorn/ barb wires around houses). There is a breakdown of social interaction, as people would not mix around with their neighbour after work or during weekends and they believe that keeping to themselves in their homes is safer as they claim it gives them a sense of security. This pattern of social behaviour is spreading through the culture of Nigerians and the building of fences is slowly being accepted as a form of local architecture.

## **1.2. STATEMENT OF THE PROBLEM**

Abuja is the country's capital city and has been called the fastest growing city in the world and the most purpose built city in Africa, the seat of government and power resides in Abuja (Daily trust online newspaper. assessed November 2011). Along with all this development was an increase in population, and as the number of people increased, there was inadequacy in jobs. In 2009 it was 19.7% and increased to 21.3% in 2010 presently it is 23.9% (www.dailytimes.com.ng. Accessed November 2011).



Criminal activities have risen and linked as the last resort for those who were unable to secure jobs and do not have proper and legal means of livelihood in urban areas. To make matters worse the justice system is practically ineffective and unavailable as it falls short of its civic duties and personnel are susceptible to bribe and other corrupt practices (Fabiya, 2006).

This has left the inhabitants of most residential areas that are crime ridden to take their safety and security into their own hands as there is an unweaving need for protection against criminal activities in the residential areas in Abuja city. This problem makes residents stay indoors, reluctant to go out to socialize and eventually tears down social cohesion between neighbours as is evident in the absence of community activities and unfamiliarity between neighbours (Adedeji, 2004). Crude crime prevention measures like putting fortress with broken bottles or thorned wires around their homes for those who can afford it are gaining popularity but at the expense of aesthetic of the urban landscape. This resulted disharmony in urban fabrics and defaces the urban facades of the city.

### **1.3. RESEARCH QUESTIONS**

The main research question (RQ) and sub research questions are listed below;

Main RQ: How criminal activities can be prevented using CPTED principles in selected residential areas in Abuja Nigeria?

Sub research questions are means to answer the main RQ. Sub RQs are;

Sub RQ 1. What are the current CPTED principles that have been used to prevent criminal activities in selected site areas?

Sub RQ 2. What are the basic CPTED principles that are necessary for crime prevention to be successful in the selected study sites?

Sub RQ 3. What are the possibility to implement CPTED principles based on opinions of the residents and experts for the selected sites?

#### **1.4. RESEARCH OBJECTIVES**

1. To identify crime prevention principles that been used to successfully prevent crime.
2. To determine the possibility to implement CPTED principles for successful crime prevention in residential areas in Abuja, Nigeria.

#### **1.5. RESEARCH FRAMEWORK**

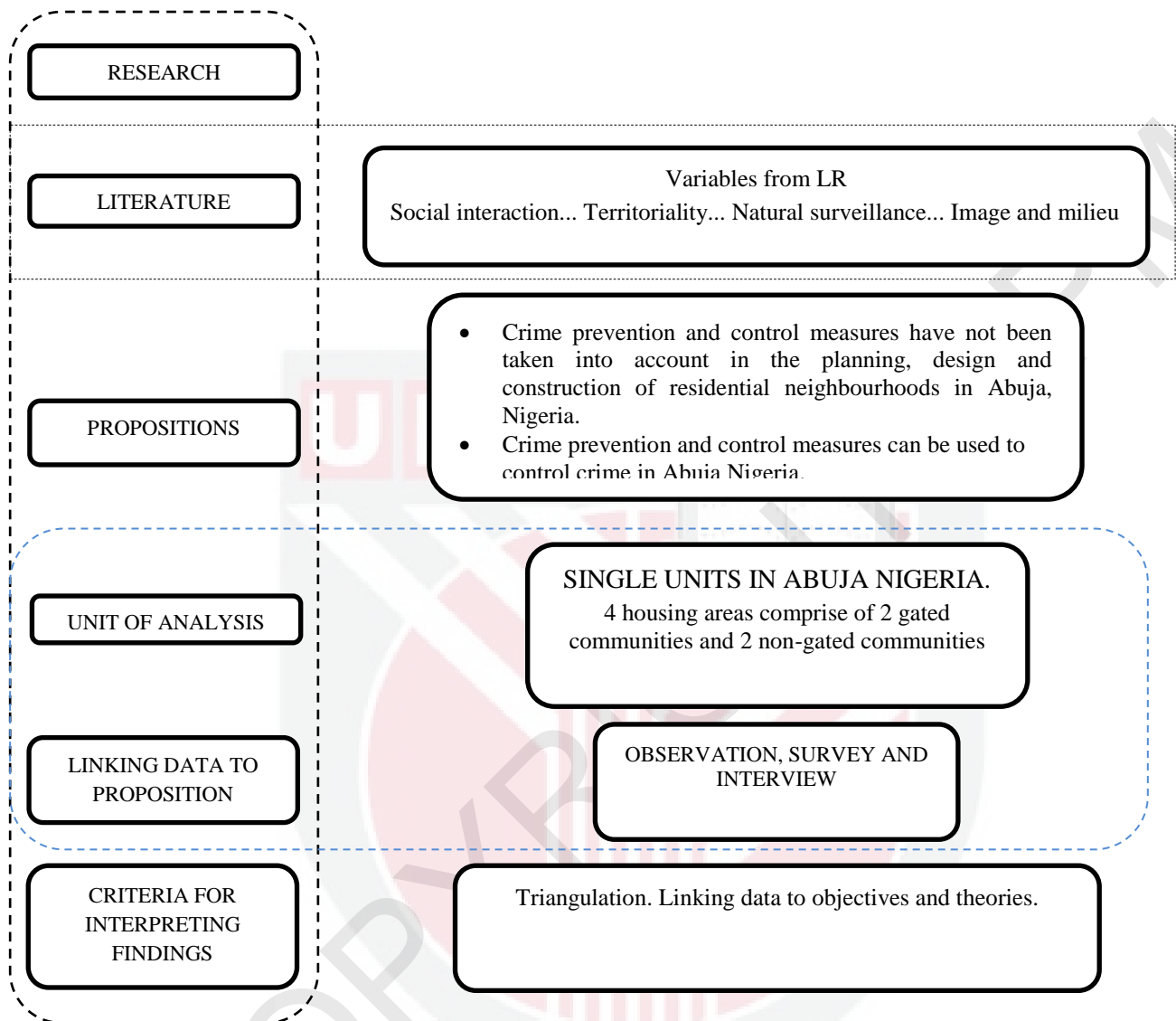
For this research, triangulation methods for gathering data was selected as the preferred method of inquiry and were conducted after careful perusal of literature in the chapter research methodology. Creswell (2003) suggested that survey method should be used when trying to provide trends, attitudes or opinions of a population by studying the sample of that population. Yin (2003) stated various instances in which survey methodology should be employed which will be discussed in the later chapters of this study.

Also this research employed non-participant observation and semi-structured interviews of experts in the construction industry to get their opinions on the causes and factors involved in crime in the residential areas in Abuja as complimentary sources of data and also to enable triangulation of results. Non participant observation serves to explore whether or not CPTED attributes are already available in the areas, and also to collect data that could not be detected from the survey questionnaire and interviews.

The frame of this study starts with, literature review, then proposition, design research questions, site study, analysis, linking the data from analysis to proposition and interpreting the findings from all the aforementioned.



Below is a diagrammatic illustration of method of the design for research methodology.



**Fig 4: Research methodology framework.**

## 1.6. PROPOSITION

After rigorous research and reviews, a proposition for this study was developed. As stated by Gardner (2009), Foster et. al (2010), Newman (1996), the successful execution of every CPTED programme depends solely on the inhabitants in that area. This is so because if the

residents do not support the programme after it has been put in effect, the area will only return to its original condition before implementation. Neighbours are required to support each other and exhibit principles which are important to the success of a CPTED programme, thus supporting social interaction and all the other factors mentioned in previous sections. For someone to be able to protect his environment and also ward off criminals and offenders, he must be able to assert dominance over his immediate environment, this in itself can discourage intruders. Newman (1996) cited instances of the importance of territoriality in redesigning of mini neighbourhoods in Five Oaks, Dayton Ohio, United States of America. Interaction and territoriality measures gave rise to a feeling of responsibility from residents and they also went ahead to come up with rules and guidelines to direct their activities and appointed people to oversee certain activities.

This study aims to explore whether or not the aforementioned traits are supported by residents of Abuja Nigeria. This research also attempts to explore the possibility of implementing the CPTED measures in residential area, as it has been used successfully around the world .

Therefore the propositions for this study are:

- Proper crime prevention measures have not been taken into account in the planning, designing and construction of residential neighbourhoods in Abuja, Nigeria
- Crime Prevention Through Environmental Design principles can be used to prevent criminal activities in the residential areas of Abuja, Nigeria, with the support of residents.

## 1.7. LINKING DATA TO PROPOSITION

Data collection was conducted using three methods survey, semi-structured interviews and non-participant observation. Upon analysis, this study will try to link retrieved data to the above mentioned propositions. An affirmation of the existence of CPTED principles in the study sites was carried out using observational method of research. Non-participant observation was carried out to analyze the selected area in line with the principles of CPTED, to see if these factors have already been employed in the planning, designing and construction of the residential neighbourhood. Security patterns will be analyzed, general conditions of the physical built environment, indication of social activities, how the place has been maintained and image of the entire neighbourhood.

De Vaus (2002) in his book surveys in social research wrote about the importance of pilot testing and the proper development and execution of questionnaires in survey research. Survey enables the researcher to conduct a needs assessment, measure people's perceptions, opinions, knowledge, attitudes, and behavioural intentions using questions, all of these which needed to be able to draw conclusions for this study.

Participant's involvement in questionnaire survey part of data collection is very important and questionnaire had been distributed at four different sites of equal proximity from the city center. (See chapter 3 for more detail on this topic.)

Semi structured interviews were carried out to get experts opinions on the crime situation and possibility to implement CPTED in the country.

## **1.8. CRITERIA FOR INTERPRETING FINDINGS**

The criteria for interpreting findings are parameters set to enable us explain results and findings and this is explained further in more detail in chapter 4.

Cumulative percentages are used to explore whether or not the residents of the residential areas in Abuja support the principles that are necessary for the successful execution of a CPTED program and at which level. This is a constructive process which starts from the literature review all the way through questionnaire design, administration, data gathering at study sites and analysis.

From the survey, this research utilized descriptive analysis to determine what cumulative percentages completely agrees and disagree with the variables, thus indicating whether CPTED principles is being supported. The questions were designed to get residents opinions on matters patterning to the principles of CPTED. CPTED principles were derived from literature and used for onsite non-participant observation to explore their availability in the selected study sites.

## **1.9. LIMITATION TO THE STUDY**

The limitations to this research are that it is confined to residential areas in Abuja; therefore it did not include residential housing areas in other states of Nigeria and other countries. The lack of prior research studies on the CPTED concept in Nigeria was a limitation to getting references and information. This study focuses on residents of residential areas in Abuja, Nigeria and the areas in legislation and culture have not been covered in great detail.

## **1.10. ORGANISATION OF THESIS**

This thesis is divided into five chapters a brief explanation of what is included in each chapter is given below:

CHAPTER ONE: Introduction. This chapter introduces the research and analyzes the birth of the research design from research questions, proposition, significance and limitations of this study.

CHAPTER TWO: Literature review analyzes extensive literature and points out the theoretical framework of this study. CPTED principles are discussed, namely, Territoriality, Social interaction, Surveillance, and image and milieu. Previous works on successful implementation of CPTED were explored. Propositions to the study were birthed from this chapter.

CHAPTER THREE: Research methodology utilized in the design and execution of this chapter are non-participant observation, semi structured interviews and survey methods like questionnaire design, conversion of constructs to measureable variables and validation and reliability of survey are explained. The chapter includes materials and methods of analysis.

CHAPTER FOUR: Results / findings are discussed. This chapter contains data analyzed and results discussed. The methods and results of the various forms of data collection methods are discussed and triangulated. Discussion includes analysis and interpretation of findings.

CHAPTER FIVE: Discussion, Triangulation of results and recommendations for future research are included in this chapter. Contributions to the body of knowledge are stated.



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## **BIBLIOGRAPHY**

### **DEFINITION OF TERMS**

**Territoriality:** refers to an area or space been guarded or defended by people that believe it to be their own. It is a behavioural pattern, exhibited by residents. It is the area around a place, territoriality is a trait exhibited by both humans and animals (www.dictionary.cambridge.org. Assessed July 2011).

**Neighbourhood:** refers to a collection, independent or collective physical boundary which has been created by people with similar socio cultural backgrounds or interests. Most people who reside in such areas do so because of similarities they have in common. E.g. income levels, religious beliefs, cultural backgrounds (Abbaszadeh, 2009, pg. 6).

**Physical Environment:** refers to the external, tangible surroundings in which people exist; environment can influence the people's behaviour and development. For neighbourhoods these spaces are intertwined and shared by inhabitants. The term "environment" in standard CPTED definitions includes only the external environment of the place and not the internal environment of the offender (Carmen, 1997).

**Crime Rate:** refers to the rate and severity of disturbance and incivilities in the society or a particular area. It is measured in different places around the world in different ways, e.g. household surveys, Police records, hospital records (www.dictionary.cambridge.org. Assessed July 2011).



**Social interaction:** refers to mutual influence two or more people have on each other. It is the co-existence between neighbours. For the purpose of this research, how people in an area help and support each other will be the focus (Abbaszadeh, 2009, pg. 13).

**Surveillance:** refers to close observation and monitoring of one's surrounding. It is the ability to oversee activities that are within visual reach (www.dictionary.cambridge.org. Assessed July 2011).

**Crime Prevention through Environmental Design:** refers to the development of defensible spaces through the belief that the physical environment can be manipulated to influence behaviour to reduce crime. This is the basis of the design (Colquhoun, 2004; pg.37).

**Environmental design:** refers to the process of applying arts and sciences to dealing with and creating a designed environment, examples could be devising plans, programmes, policies or buildings.