

**CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN  
(CPTED) IN THE DESIGN OF AN AIRPORT BUILDING UMUERI,  
ANAMBRA STATE, NIGERIA**

BY

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A DISSERTATION SUBMITTED TO THE SCHOOL OF POSTGRADUATE  
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MAY, 2019

## CERTIFICATION

This is to certify that the thesis entitled “**Crime prevention through environmental design (cpted)**

**In the design of an airport building Umueri, Anambra state, Nigeria”** submitted to the school of postgraduate studies, Covenant University in partial fulfilment of the requirements for the award of Master of science degree in Architecture is an original research work carried out by Nnatuanya, Michael Chigozie with matric number 17PCA01618 under my guidance and supervision. The research work embodied in this thesis has not been previously submitted for the award of any degree in Covenant University or any other institution.

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## **DEDICATION**

This study is wholeheartedly dedicated to my beloved parents, Mr. Nnatuanya Felix Chukwudi and Mrs. Nnatuanya Precious Ifeyinwa, who have been my source of inspiration and gave me the strength when I thought of giving up, continually provided their moral, spiritual, emotional and financial support. To my lovely sisters, relatives, supervisor, mentors, friends, and classmates who shared their words of advice and encouragement to finish this study. lastly, I dedicate this study to the Almighty God, thank You for the guidance, strength, power of mind, protection, skills and for giving me a healthy life. all of these, I offer to You.

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## DECLARATION

I hereby declare that the thesis entitled “**Crime prevention through environmental design (cpted) In the design of an airport building Umueri, Anambra state, Nigeria**” has been composed entirely by me as a sole result of my research work under the supervision of Dr. A. P. Opoko of the department of Architecture, Covenant University and has not been submitted partially or wholly for the award of any degree or professional qualification elsewhere. I am aware of and I understand the University’s policy on plagiarism, as such, due references have been provided on all supporting literatures and resources.

**Nnatuanya, Michael Chigozie**

-

(Student)

Date)

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(Signature and

## CHAPTER ONE

### 1.0. Introduction

#### 1.1 Background of Study

Fruits are important part of our food products in Nigeria because they play powerful roles in microbial, animals and human diets. Common fruits in Nigeria include crops such as tomatoes, vegetables and pepper which are normally eaten fresh, cooked or processed in industries into products such as paste and juice. The tomato (*Lycopersicon esculentum* Mill.) is a seasonal fruit, which has a very high nutritional constituent due to its composition and water content (Ajayi *et al.*, 2015). This includes the soluble solids, simple sugars, dry matter, organic acids, pigments, citric acids, amino acids and wide range of substances which makes up more than 400 compounds contributing to its taste and aroma (Oranusi *et al.*, 2015).

Economically, tomatoes are one of the important edible vegetables in Nigeria and in most parts of the world. Tomatoes are source of balanced diet because of their rich content in sugars, vitamins, essential amino acids, minerals and dietary fibers. They also have high content of vitamin A and they contain lycopene, which is an antioxidant that helps to protect against carcinogenic substances (Agbabiaka *et al.*, 2015).

The quality of tomatoes at harvest depends on the cultural practices, genotype and maturity. These also depend on the time and method of harvest, postharvest handling practices, storage and transportation (Charles *et al.*, 2016). Ripening in fresh fruits including tomato is normally associated with collection of sugars and utilization of the organic acids (Chen *et al.*, 2012). The harvest of tomato fruits is seasonal and this results in certain periods of scarcity and when available, they tend to be very expensive.

Tomato plants also grow well with humus soil at pH 5 and 7. Normally, the ripe tomato fruits can be harvested and stored at ambient temperature ( $28\pm 1^{\circ}\text{C}$ ) and thus can stay without getting spoilt for five (5) days. However, some tomato fruits known as the 'iron tomatoes' can be stored for 10 days if kept well in a good environment where the storage conditions are favorable (Agbabiaka *et al.*, 2015)

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## **LIST OF ABBREVIATIONS OR ACRONYMS**

There are some abbreviated terms that are familiar to the airport and will be used in this research topic.

**ACI:** Airport Council International.

**ADT** - Average Daily Traffic

**AGL** -Above Ground Level.

**AIM** –Airman’s Information Manual.

**CPTED:** Crime Prevention through Environmental Design.

**CUSS:** Common Use Self-Service.

**CUTE:** Common Use Ticket Counters.

**FAA:** Federal Aviation Administration.

**FAAN:** Federal Airport Authority of Nigeria.

**ICAO:** International Civil Aviation Organization. A UN body for international civil

**NDLEA:** National Drug law enforcement agency.

**TSA:** Transportation Security Administration.

**IATA:** International Air Transport Association

## ABSTRACT

The September 11 incident following the hijacking of commercial airliners by terrorists, attacking the World Trade Centre and the Pentagon in the United States, several parts of aviation security have undergone series of reviews in the line to avoid such devastating incident from reoccurring in the future and keeping the airline users and the public at large to feel safe and secure. Airports are faced with the challenges of crime, thereby decreasing the will of users to feel safe within its environment. Several studies have evaluated CPTED principles and have shown the application of CPTED principles in reducing crime in the built environment. As a result of these troubling issues in the aviation industry the principles of crime prevention through environmental design (CPTED) is been evaluated on how to improve security and safety within the airport environment. Going by this premise the aim of this research is to design an airport in Umuleri, Anambra State, Nigeria, that applies the principles of Crime Prevention Through Environmental Design (CPTED) to improve safety within the airport environment for air travellers, their properties and the airport users in general. The research was carried out to address airport design configuration factoring security and safety measures from the conceptual stage down through the design and the construction stage in the literature, the principles of CPTED adopted in Nigerian airports and also the awareness of these principles by the airport users in general including airport staff and airport passengers, in achieving the objectives of this research, a mixed method of research was adopted. The research methods adopted are both quantitative and qualitative. The data collected in this research to address the objectives of this study were done through reviews of literatures, case studies of selected airports, structured interviews and questionnaires. The data obtained were analyzed with a combination of content analysis and SPSS statistical package, descriptive statistics and graphical illustration of data were used for result presentations. The results from the survey showed that the general users of the airport environment are more aware of surveillance and access control principle than the territoriality principle which could help in reducing the risk of criminals operating within the airport environment. The study further shows proper planning and implementation of CPTED principles from the design stage would influence the material selections, landscaping approach and general spatial relationship of an airport.

**KEYWORDS:** Airport, Crime, CPTED, Safety, Security, User's perception