

**THE IMPACT OF CONSTRUCTION ACTIVITIES ON THE  
ENVIRONMENT:**

**A CASE STUDY OF THE FEDERAL CAPITAL TERRITORY**

**ABUJA**

**BY**

**HAYATUDDEEN ATIKU AWWAL**

**PGD/GEO/2000/2001-169**

**DEPARTMENT OF GEOGRAPHY**

**FEDERAL UNIVERSITY OF TECHNOLOGY MINNA**

**MARCH 2002**

**THE IMPACT OF CONSTRUCTION ACTIVITIES ON THE  
ENVIRONMENT  
A CASE STUDY OF THE FEDERAL CAPITAL TERRITORY (FCT)  
ABUJA**

**BY**

**HAYATUDDEEN ATIKU AWWAL**

**PGD/GEO/2000/2001-169**

**BEING A DISSERTATION PROJECT SUBMITTED TO THE  
DEPARTMENT OF GEOGRAPHY, SCHOOL OF SCIENCE AND  
SCIENCE EDUCATION, FEDERAL UNIVERSITY OF  
TECHNOLOGY, MINNA**

**IN PARTIAL FULFILLMENT FOR THE AWARD OF POST  
GRADUATE DIPLOMA (PGD) IN ENVIRONMENTAL  
MANAGEMENT TECHNOLOGY.**


## CERTIFICATION

I hereby certify that this project work was carried out by Hayatuddeen Atiku Awwal with registration number PGD/GEO/2000/2001-169 of the Department of Geography, Federal University of Technology Minna, and accepted for the award of a Post Graduate Diploma in Environmental Management Technology.

**Dr. G.N Nsofor**  
Project Supervisor



21/01/03  
Date

  
**Dr. M. T. Usman**  
Head of Department

20/3/02  
Date

External Examiner

Date

**Prof. J. A. Abalaka**  
Dean PGS

Date

**DEDICATION**

To

*My Father Alhaji Atiku Awwal*

**&**

*Maimuna, Hafsah, Faridah, Khadijah, Sa'adah*



## **ABSTRACT**

This project undertook study on the impact of various construction activities in the Federal Capital Territory (FCT) Abuja. The impact of such activities to the Natural environment, Ecosystem and the consequent environmental hazard to both man and nature.

It also offers suggestion on the most sustainable ways of carrying out construction activities in the FCT using the environmental friendly technology.

## ACKNOWLEDGEMENT

All praise are due to Allah (SWT), owner of the day of judgment, I praise your Name and associate no partner unto You.

I wish to acknowledge with thanks the contribution of my project supervisor G.N. Nsofor (Phd.) for reviewing the complete manuscript and providing me with many useful and constructive criticisms, which contributed to the improvement of the project.

My sincere appreciation goes to the entire staff of geography department in particular the head of department Dr M.T. Usman for all the encouragement and understanding.

My thanks and appreciation goes to the Family of Dr. Usman Ahmed Bokani.

## TABLE OF CONTENT

Title page	i
Certification	ii
Acknowledgement	iii
Abstract	iv
Dedication	v
Table of content	vi
List of plate	viii

### Chapter One

1.0 Introduction	1
1.1 Preamble	1
1.2 Problem statement	2
1.3 Aims and Objectives	3
1.4 Justification	4
1.5 Scope and Limitation	4

### Chapter Two

2.0 Historical background of Abuja	5
2.1 Physical environment	5
2.3 Human settlement	11

### **Chapter Three**

3.0	Literature review	12
3.1	The state of world environmental Awareness	12
3.2	The state of Nigerian environment	14

### **Chapter Four**

4.0	Research methodology	17
-----	----------------------	----

### **Chapter Five**

5.0	Data analysis	18
5.1	The impact of construction activities on the environment, a case study of the Federal Capital Territory (Abuja)	22
5.2	The overriding factors	24

### **Chapter Six**

6.0	Conclusion	26
6.1	Recommendation	26

<b>References</b>		28
-------------------	--	----

## **CHAPTER ONE**

### **1.0 INTRODUCTION**

#### **1.1 PREAMBLE**

The growth in human population and the increasing need for infrastructural development bring about adverse interaction with the environment particularly in the federal capital city Abuja while government is conscious of the need to protect the environment man's ever increasing need for more pleasing life has caused over exploitation of the of the natural resources of the ecological environment in the federal capital city. As a result of several factors, population increase in the federal capital city has reached an alarming rate. In-fact the federal capital city is approaching a biological collision whose consequences are bound to be disastrous. In a sense, the loss of Bio-diversity is a significant process of environmental change due to its reversible nature. Many flora and fauna species, which are very specialized in the federal capital city area and have restricted ecological amplitude, may have disappeared in the process of uncontrolled and unplanned construction activities in the federal capital city.

Therefore, there should be concerted effort to check or reverse this negative bend of unplanned, uncontrolled, distortion of the master plan of the federal capital city as the result of the indiscriminate construction going on.

## 1.2 PROBLEM STATEMENT

The federal capital city's Natural Environment is being effected by the following main problems namely: Building construction, Civil engineering construction, Sewage construction and Hydrological Engineering works. Building Engineering construction works are basically one of the major environmental problems and can be described to include estate development Government (e.g. Assembly Quarters, Lugbe Housing Estate, Gwarinpa prototype Housing scheme) and private ownership (e.g. Kingscourt Estate Jabi, Stallion Estate wuse II, Amal court wuse II). Civil Engineering works include infrastructural development like road bridges, sewage-engineering works, liquid waste management plants; hydrological engineering works include boreholes drilling and private water reservoirs. All these are major activities that adversely affect the environment. Prior to the promulgation of decree No. 6 of 1976 Abuja was a virgin land with natural thick forest. Construction work in the federal capital city commenced in 1978 and since that time series of Environmental problem have been in increase. These include deforestation, soil erosion, pollution, decline in soil fertility, loss of Bio-diversity, loss of agricultural land, siltation of water bodies and inability of the forest to regulate the city's climate. The sand borrowing embarked upon by the multinational construction companies which is evident in the central Business District, near the central Mosque, Kado express way, Kubwa express way and the indiscriminate dumping of waste resulting from construction activities requires urgent government attention. The indiscriminate annexing of corner plots, green-areas Recreational lands, sitting of shops, uncontrolled erection of worshipping centers and movement

of heavy plants and equipments, sitting of cranes and scaffolding requires immediate government attention.

Unless and until government takes an immediate action on regulating the construction activities in the federal capital city it will reach a catastrophe that will bastardise the aim of having a new federal capital city and the environment will be drastically affected.

### **1.3 AIMS AND OBJECTIVES**

The aim is to assess the impact of construction activities on the environment. To examine and critically assess the impact and consequences of construction activities on human beings and the environment in the federal capital city.

The major objectives are:

- i. To proffer adequate solution to adverse effect of construction activities in the federal capital city.
- ii. To provide the necessary guidelines for the construction activities in the federal capital city.
- iii. To proffer adequate solution for the preservation and conservation of flora and fauna in the federal capital city for this generation and generation yet unborn.
- iv. To suggest guidelines for improved awareness in existing constructional activities.

## **1.4 JUSTIFICATION**

Environmental resources are renewable resources, but they are been exploited at the rates that exceed their sustainable yield in the federal capital city.

The requisition and clearing of land for the purpose of construction of Housing Estate Development, commercial Buildings, Public Buildings, Road infrastructure Civil Engineering, sewage and shelter of any kind have contributed in the environmental problem in the federal capital city.

Due to the other environmental problem created by the construction activities in the federal capital city, it therefore become imperative to critically analyze the consequences and proffer adequate solution or remedies to this globally acclaimed environmental problems.

Therefore, this project apart from proffering adequate solution to the manner at which construction activities are been carried it will also provide guidelines for the maintenances of the natural environment of the federal capital city.

## **1.5 SCOPE AND LIMITATION**

The scope of this project is limited to the construction project within the Federal Capital City, which includes Government Estate Development, Private Estate Development, Road infrastructural development, and general Engineering works. The unavailability of Environmental Impact Assessment affected the collection of information and data for this project and therefore prevented the expansion of this research effort.



## **CHAPTER TWO**

### **2.0 HISTORICAL BACKGROUND OF ABUJA**

Abuja, the new federal capital city of Nigeria came into being as the result of the recommendation of Akinlola Aguda in 1976 under the leadership of the then military ruler General Murtala Ramat Mohammed. That regime considered Lagos no longer easy to contain the activities of the federal government, beside it no longer represent it image of being the center of excellence all federal infrastructures are over stretched and therefore collapse.

Consequent upon these factors, the concept of creating a new befitting federal capital city for the country is nurtured a virgin land which does not have the history of any major tribe as it inhabitant was discovered by the committee chaired by Justice Akinlola Aguda.

However the movement of the highest seat of power became a reality only in 1991 under the leadership of the then military ruler General Ibrahim Badamasi Babangida.

In 1993 when the interim national government of Chief Earnest Shonekan resign and leadership of the country was taken over by General Mohammed Sani Abacha all the head of federal parastatals were directed to move their headquarters to the federal capital City.

### **2.1 PHYSICAL ENVIRONMENT**

**2.1.1 LOCATION:-** Abuja the center of unity as it is popularly known is located in the center of the country. It boards with 4 state of the federation,

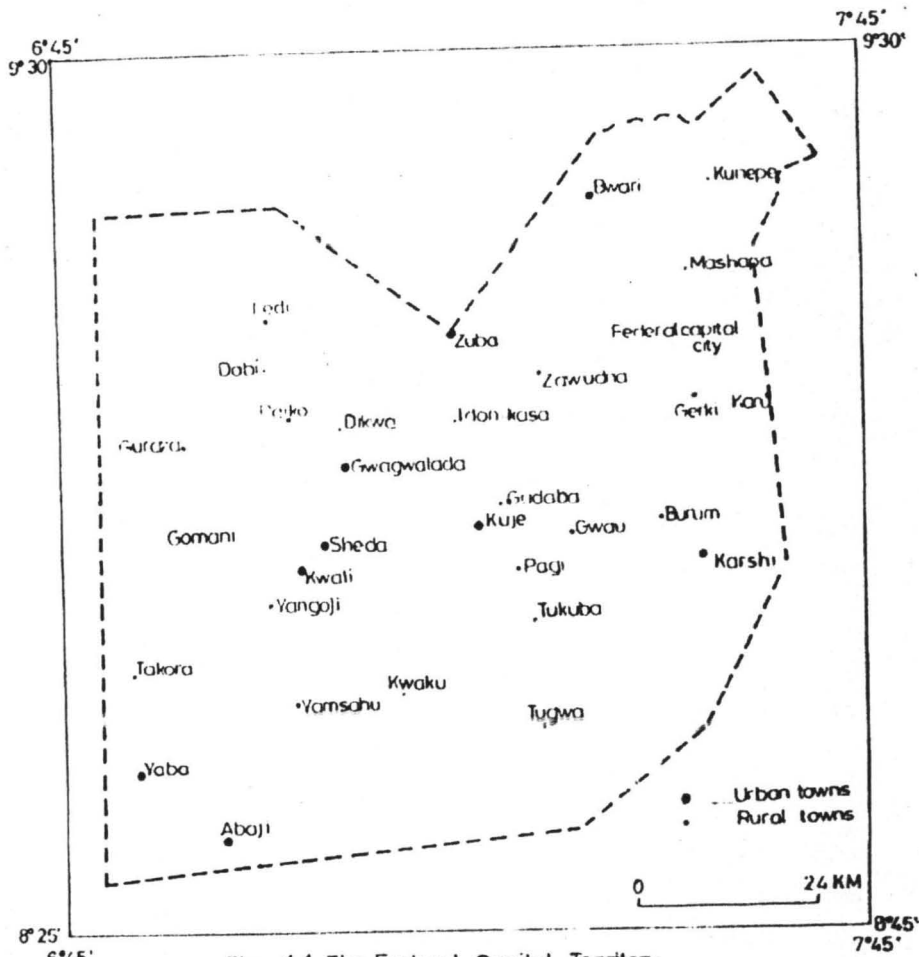
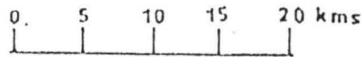
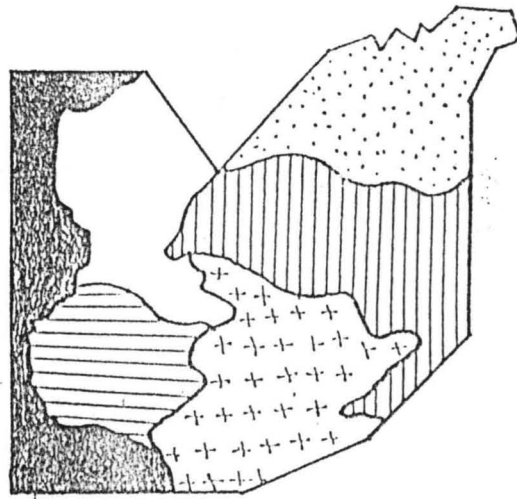


Fig. 1.1 The Federal Capital Territory







in the north by Kaduna state and on the west by Kogi state and on the east by Nassarawa state and on the west by Niger state. It falls within Latitude  $8^{\circ}45'N$  and  $9^{\circ}30'N$  of the equator and longitude  $6^{\circ}45'$  and  $7^{\circ}45'$ .

**2.1.2 CLIMATE:-** Abuja is surrounded by hills of various size , shapes and geology (Zuma rock, Asokoro rock, Katanpe rock etc.), it combines the savanna grass land of the north and the middle belt with richness of the tropical rain forest of the south. The climate is neither too hot nor too cold all year round.

Humidity of Abuja is high this due to the high temperatures of the Niger Benue.



KEY

-  ADAJI AREA COUNCIL
-  BWARI AREA COUNCIL
-  GWAGWALADA AREA COUNCIL
-  KUJE AREA COUNCIL
-  KWALI AREA COUNCIL
-  MUNICIPAL AREA COUNCIL

*Map of Abuja showing the six area councils*

*(Source: Abuja Hand Book)*

Rainfall in the FCT reflects the territory's location on the windward side of Jos Plateau and at the zone of rising air masses. The annual total is in the range of 1100mm to 1600mm, the duration of the rainy season; however decrease from about 240 days in the southern part to 190 days in the northern areas. Concentrating more in July August and September. The mean annual potential evaporation in the territory has between 1797mm to the south and 1277mm to the north and the actual evaporation is well over 1000mm

**2.1.3 VEGETATION :-** The areas which are now identified as the FCT falls within the savanna zone vegetation of the west African sub-region, patches of rain lowest occur in the Gwa-Gwa plains, especially in the Gully terrain to the south and rugged south eastern part of the territory.

The vegetation which dominates the federal capital territory are classified into three savanna types: -

- i. Park or grassy savannah occupies about 53% (i.e. 42311km) of the total area of the FCT. The vegetation is annually and only a few tree species are found among the grasses, namely *Albizia*, *Zypia*, *Butrospermum*, *paradoxum*, *Daneillia*, *oliveri* and *parka clappertomania*.
- ii. Savannah woodland occurs mostly in the rugged and less access part in the FCT especially in the Gurara and Rubochi plains and surrounding hills. They cover 12.8% or 1026km of the territory. The most common trees include *Afzelia African*, *Anogeissus leiocarpus*, *Butyroscarpus paradoxum*.
- iii. Shrub savannah occurs extensively in rough terrain close to hills and ridges in all parts of the territory. It covers about 12.9% or

1032km of the land area .the patches of rain forest contain such tree species as Antaris African, Authoclesta nobila, Cieba pentadora.

A view of the present state of this vegetation cover reveals the negative effect of construction activities on the Abuja environment.

**2.1.4. ENVIRONMENTAL DEGRADATION:-** Enviromental degradation may take the shape of irreversible changes (i.e. permanent reduction in environmental space when certain ecosystem are pushed to extinction) or it can take the form of reversible change as when future investment in resource restoration will result in a reconstruction of the environmental space. Society is also able to expand it environmental space through scientific innovation and exploration by identifying hitherto unknown resources, technological innovation, enhancement of the productivity of natural re generative system or absorbing capacity etc.

**2.1.5. DEFORESTATION:** - Deforestation is the indiscriminate falling of trees or clearance of the forest in a particular geographical location without any effort at replacing it. This is caused by both human and natural factors, but the most common factor is human effect, which is the indirect consequence of construction activities which is brought about by the need for socio-economic infrastructure for development as a result of urbanization and population pressure which is the most important direct factor causing large scale deforestation mostly in developing countries like Nigeria. Abuja the federal capital city is currently regarded as the largest city with construction activities in Africa (construction digest October 1998).

The impact of construction activities in the federal capital city brought about the following removal of the land natural vegetation thereby exposing the



*Picture Showing Effect of Deforestation in Abuja*

habitants to hazardous water condition which include, increases in atmospheric carbon-dioxide and consequently, rise in temperature, decrease in rainfall, increase in soil erosion and decline in soil fertility.

**2.1.6. RADIATION:** - Radiation simply amplifies the emitted rays of heat from the sun through the space to the earth surface. These rays carry a very appreciable level of effects, which can either be useful but in most times harmful to both plant and animals hence, a matter of concern a such disease as cancer are traceable to it. The world is now witnessing increase in global warming as the result of depletion of ozone layer. This is given rise to increase in the amount of direct radiation on earth. The impact of construction activities is adversely increasing the high radiation in the federal capital city.

The impact of construction activities can be viewed from two broad points, which includes, the bye-effect of deforestation, as having devoid the earth of its vegetation cover to limit the effect of harmful radiant energy from the sun. Secondly the bye-effect of usage of metallic materials as roof covers on building e.g. zinc and aluminum. Statistics has shown that 90% of the urban buildings in the federal capital city are covered by metallic material as their roof. Combination of all this construction activities after mat bought about Abuja ranking among one of the hottest cities among the world.

**2.1.7 GEOLOGY:** - The underlying rocks are one of the essential factors in understanding the native and spatial distribution of soil in the FCT. The two broad geological provinces, namely the sedimentary belt in the southern and southwest extremities of the territory and the pre-Cambrian Basement Complex rock conty, which account for more than 80%of the territory. The



states of this feature are greatly being threatened by such effects as erosion and flood.

**2.1.8. EROSION:** - The process by which the surface larger weathered rock is loosened and carried away by running water, wind, ice or the exposure of natural agent and cover horizon in the soil, which is termed as erosion occurs in several parts of Nigeria under different geological, climatic and soil condition and the federal capital territory is no exception.

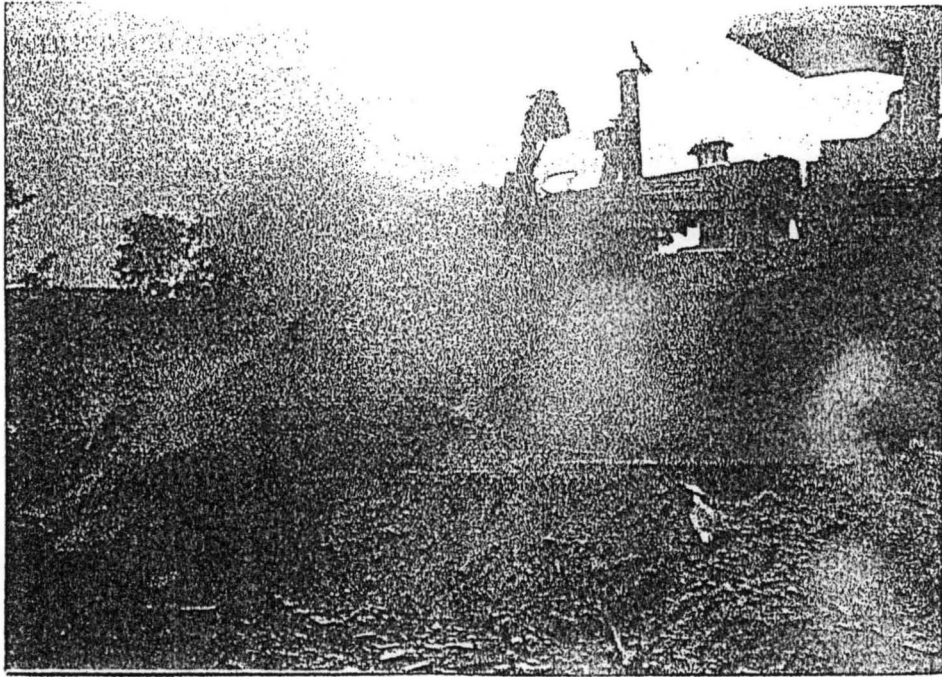
However the impact of construction activities in the FCT has increased the speed of occurrence of erosion of water and wind respectively. The absence of forest and vegetation cover which serves as windbreakers increase the effect of erosion.

The concept of high-pitched roof and tall buildings on hilltops also is a significant factor regarding the increase speed of rainwater fall, which consequently increase gully erosion.

Thirdly the indiscriminate excavation of sand, rocks stone without any attempt of backfill them. This has indiscriminately caused erosion to occur all over the FCT. All these are indirect consequences of construction activities.

**2.1.9 FLOOD:** - Flood is described as any relative high water level or discharge above normal level. These could be simplified to mean a body of water that rise to overflow land which is not normally submerged if flood conditions exist, discharge of water cannot be accommodated within the margin of its normal channel so that the water spread over adjoining ground upon which crops and forest are able to flourish. During the floods, the water fill up the channels submerge the cliff, destroy villages, farmland and





*Picture Showing Pollution of Atmosphere due to construction Activities*

properties, water logging soil which suffer flood are extremely difficult to merge. Flood results are mainly from three causes namely, climatological, partchiniatological and structural. Structural disturbances have come to place as a result of construction activities such as illegal construction of building on areas designated as buffer zones. Flood caused by structural misplacement as common site in the FCT.

### **2.2.1 HUMAN ENVIRONMENT**

**SETTLEMENT:** - Settlement pattern concern the distribution of human habitation in groups in various forms of villages, towns and hamlets in a given region or environment. The settlement pattern of the indigenous rural communities in the FTC are nucleated types and scattered in plain and inselbags.

The master plan divides the Abuja city into sectors. Each sector is divided into district; the sectors are fashioned in such a way that each sector should accommodate population between 100,000 to 250,000 each. The development of the city is in four phases. Phase one of the city consist of the central business districts, the three arm zone comprising of the office of the presidency, National Assembly, and the Judiciary. Maitama, wuse I Wuse II, Garki I, Garki II, and Asokoro Ditriect. While phase two consist of Katanpe, Mabushi, Utako, Wuye, Durumi, Gudu, Jahi, Kado. Jabi, Dakibiyu, Kaura dubuyo, Gaduwa and Kukwabanational Park. The detailed land plan for phase III and IV are not yet prepared. Except for Gwarinpa II one of the proposed northern district of phase III.

## CHAPTER THREE

### 3.0 LITERATURE REVIEW

#### 3.1 THE STATE OF THE WORLD ENVIRONMENT AWARENESS

Nature this provides society with what economists could term as an environmental utilization possibilities frontier defined production possibilities that are compatible with the constraints on metabolism derived from this concern about welfare. These constraints include processes of regeneration, biogeochemical cycles and waste absorption that cannot be dealt with here but that, in combination represent a multidimensional environmental utilization space (environmental space, fore short) (Opschoor 1992). If economic activities generate claims on the environment that exceed the limits of the environmental space, then the biospheres (future) capacity to satisfy human needs is adversely affected.

Also J.M Baba (Prof.) said human history is to be largely written in terms of the straggle between man and nature over the terms of man's existence".

This simple statement of fact summaries a complex statement of processes and relationship which have been the pre-occupation of all disciplines, but environmental management in particular. The statement alludes to the age long contest between man and the natural environment on which are pivoted all economic and socio-cultural activities. This is how deepening realization that has a limit after all, that limit being determined by how far a technology helps to destroy preserved the primary stage of its operation – The environment.

This scenario is summed up in the words of Erlich et al (1979) as follows "while the intelligent application of technology factors human well being directly, a redemptible but not removable burden of environmental disruption by the technology undermines well being. This legative burden includes the dirty effort of technology accidents and effluents on human life and health". Clark and Holling (1985) in a historical analysis of environmental change since the 2<sup>nd</sup> world war also made the incisive and prophetic statement.

We are moving into a period of chronic global and extremely complex syndrome of ecological and economic interdependence. These emerging syndromes threaten to constrain and even reverse progress in human development. They will be manageable if it all only with consistently of propose that transcend normal cycles and boundaries of scientific research and political action.

The famous United Nation sponsored International Conference at Stockholm (Sweden) held in December 1972 set the ball rolling as a concerted effort on the part of the International Community to raise awareness about the danger which human activities pass to the environment and ultimately to man himself. As the result of that conference there had being a world institutional arrangement on renewing the awareness about the environment by celebrating the world Environmental Day 5<sup>th</sup> of June. The Rio-de-Janeiro (Brazil) Environmental Conference 1987 was also a significant achievement on the Environmental Awareness.

In our continent Africa there had been an increase about the environmental awareness, this has manifested in the cano plan on the environment (AMCEN) which commenced 1985 currently Nigeria has two training Network on the Environment (ETNET) at Obafemi Awolowo University Ile Ife and Federal University of Technology, Minna. The purpose of the (ETNET) is to create and develop centers of Excellence on Environmental training for all categories of decision and practitioners.

The setting up of the Federal Environmental protection Agency in 1989, is an indication of improvement and now a full Federal Ministry charged with the responsibility of looking after the environment is a sign of improvement in environmental awareness of the policy maker.

### **3.2 THE STATE OF THE NIGERA ENVIRONMENT**

There had been a lot of effort by professionals to Alert policy and decision makers on the Nigeria Environment in recent years.

In June 1991 a group of Nigerians under the banner of Nigerian Environmental study action team (NEST) published a report titled "Nigerian Threatened Environment a National Profile" Based on the forgoing the summary of the present State of the Nigeria Environment was as follows, which was extensively on the background report and findings of the World Bank Study on Environmental conditions and trends in Nigeria (World Bank 1990) The reports is summarized as follows:

#### Water Pollution:-

The inland waterways are polluted by domestic sewage Industrial effluents, sitting, pesticides and fertilizers from Agricultural run-offs into the water bodies from the catchments areas. Many other rivers and lakes are badly polluted with sewage of human origin, laundering and parable introduced through numerous drains and savers sources these pollutants have however led to controphication of these water bodies and the production of extensive word cover and sitting up in some areas.

#### Atmospheric Hazards:-

The impact of atmospheric hazard in Nigeria namely Air Pollution, Noise Pollution, Thunderstorms, Sandstorms, Fog and Heat waves are tremendous. In recent years several of these hazards have disrupted economic planning and development with their effects ranging from simple desertion of property to complete wreckage and loss of lives Sandstorm are also particularly widespread in Northern Nigeria and in the dry season.

#### Waste in the Environment:-

In many urban areas in Nigeria, arrangement for waste disposal have in sufficient ineffective per capital production of domestic solid waste is estimated at 20Kg per annum, studies show that with increasing urbanization this rate may have doubled by the end of last century.

#### Human Settlement and Housing:-

In spite of the rapid rate of urbanization in Nigeria within the last three decades, the countries population is still about 79% rural.

Vegetation:-

There is largely any vegetation in Nigeria that is not infected by human activities. The rapid populations have reduced plant cover to isolated remnants.

## **CHAPTER FOUR**

### **4.0 REASERCH METHODLOGY**

The composition of this research work is based on data collected from both primary and secondary source. The personal observation made at project sites, in terms of the physical damage done on the environment, forms the primary source of data, together with verbal discussion through personal visit which was conducted among constructional professionals, consultants, environment practitioners and project contractors.

Response from the study use are obtained from questionnaires issued to 150 respondent samples from 15 project sites of various Area Council of the **FCT**, using cluster systematic and simple random techniques.

The Secondary data use from library researches from magazines, Journals commissioned report, seminar papers and text taking on the matters pertaining to the use of study. Copies of the questionnaires and question that formed the base of the interviews are attached at the index.



## CHAPTER FIVE

### 5.0 DATA ANALYSIS

*From that first Questioner issue to those living around site neighbourhood.*

Total Number of circulated questionnaire	-	100
Total Number of respondents	-	100
Number of those living constitution site	-	100
Number of those who feel disturbed by the activities of the		
Number of those who do not feel disturbed	-	10
Construction companies	-	90
Number of those who think the activities of the company		
Pollute their environment by noise, fume, and sand dust	-	98
Number of those do not think so	-	2
Number of those who have noticed some impact on the		
On the environment resulting from the activities of the		
Construction company.	-	80
Number of those who did not notice any	-	20
Number of those who think deforestation and erosion		
Are impact of construction activities	-	80
Number of those who think otherwise	-	20
Number of those who think the companies do not		
Care about the environment	-	40
Number of those who think otherwise	-	60
Number of those who think government has		
Done nothing in protecting the environment	-	80
Number of those who think otherwise	-	20

Using frequency and percentage count in analysis the data where the values of X & Y are constant, while value label responses.

Hence

### QUESTION 2

Value Label	Value	Frequency	Percentage	Value Percentage	Cumulative Percentage
Those disturbed	5	90	90	90	90
Those not disturbed	2	10	10	10	10
TOTAL					100

Source: Personal field survey, 2001

90 percent of the respondent from the table above answered yes, to disturbances from construction activities, while 10 percent says no.

### QUESTION 5

Value label	Value	Frequency	Percentage	Value Percentage	Cumulative Percentage
Those who think deforestation and erosion are impact of construction activities	5	80	80	80	80
Those who think	2	20	20	20	20

otherwise					
TOTAL					100

Source: Personal field survey, 2001

80 percent of the respondent, from the table above answered yes to deforestation and erosion been impact of construction activity, while 20 percent says no.

### QUESTION 7

	Value	Frequency	Percentage	Value Percentage	Cumulative Percentage
Govt. has nothing in protecting the environment	5	80	80	80	80
Those who think otherwise	2	20	20	20	20
TOTAL					100

Source: Personal field survey, 2001

80 percent of the respondents, from the table above answered say to the fact that government has not done much to protect the environment from the activities of the construction companies while 20 percent says no.

From the second questionnaire, used to those working at construction site.

Total Number of circulated questionnaire	-	100
Total Number of respondents	-	100
Number of those working at construction	-	100
Number of those who have worked for 5 to 10 years	-	70
Numbers of those have not worked up to 5 years	-	30
Number of those who work in big construction companies	-	60
Number of those who work in the small construction companies	-	40
Number of those who think the companies do care about the safety and heath of their work	-	30
Number of those who think otherwise	-	70
Number of those who asses the companies plants and Machines are of modern technology	-	10
Number of those who think otherwise	-	90
Number of those who are aware of environmental Defect, arising from the activities of the companies	-	85
Number of those who are not aware	-	15
Number of those who are not aware of any Environmentalist in the working site or companies Manager	-	90
Number of those who think otherwise	-	10

#### QUESTION 4

Value label	Value	Frequency	Percentage	Value Percentage	Cumulative Percentage
The Companies care	5	30	30	30	30
The companies do not care.	2	70	70	70	70
TOTAL					100

#### 5.1 THE IMPACT OF CONSTRUCTION ACTIVITIES ON THE ENVIRONMENT, A CASE STUDY OF THE FEDERAL CAPITAL TERRITORY (ABUJA)

The construction industry is the most important party in progress as far as the Federal Capital Territory is concerned. As without it present the City could not have become what it is today, however the rate and manner at which this construction activities are being carried indiscriminately is already and had brought about a series talking to Environmental, policy makers and indeed all stakeholders.

The ever increasing population of the City is continuously yearning for speed opening of new site and yet the Environment is increasingly losing its natural condition and the atmosphere is becoming tense and harsh to an already inhabitant of the City. Environment hazard such as deforestation, flooding, erosion, high radiation, pollution etc are increasing being experienced.

The professionals are slow in appreciating the need for green construction. Government who is supposed to be the initiator is yet to develop a policy on such an important matter.

The design teams have not reasonably considered embodied energy in selecting materials and Component for construction similarly, plants and equipment specification for construction are not the best practical or available technology equipment with just fumes vibration and noise attenuating devices. As a result site externalities such as spillage of hazardous /Toxic waste like fuel diesel, lubricants and chemical have remained unabated in construction sites.

Biotic landscaping of development site for ecological harmony and hydrological balance are still theoretical concept.

Level of application of environmental (green) tools in the Management of construction varied from project to project. It also depends on the client, design team and contractors involved. Projects to project subjected to a balanced dose of green tools (environmental impact Assessment, Environmental impact stated, Green structure environmental Management programme and Green Audit) in the project cycle emerged beneath, sustainable and Community friendly

Green contractors had not built green because the design and documentation use not green. For example, expect a Community welfare programme to form parts of the contract package green contractor cannot implement it. However our construction industry is yet to acquire average structure and know how to implement environmental Management system. The Nigerian

construction industry needs to be oriented about the concept of green construction

## 5.2 THE OVER RIDING FACTORS

Decision making and policy siting had always been some of the basic problem in sustainable construction other issues includes:-

- **PROJECTION LOCATION:** Projection that requires some special location and construction method due to the type of operation the undertake site indiscriminately without given consideration to the impact on the land.
- **BULCANISING OF PROJECTS:** Variation in value of project in a contractual phenomenon. A project that is earmarked to take 500 unit of houses will be extend to 1000 units to satisfy political allies as in the case of Gwarinpa and lugbe Housing estate.
- **INDISCRIMATE AWARD OF CONTRACT PROJECT:** Lack of proper documentation of contact award which result to substandard construction as the result of lack of technical capacity manage a given project.
- **COMPULSORY ACQUISITION OF COMMUNITY LAND:** Us to date any few ant of the Communities disperse off their heritage land are settled or compensated. This encourages

moving further unto the bush and consequently increasing deforestation and radiation effect.



## CHAPTER SIX

### 6.0 CONCLUSION

The policy makers of Nigeria have failed in realizing the danger of not having an establish policy for carrying out construction using green technology.

Research are not carried out before comment of many construction project in the federal capital territory, even when they are carried out high authentic trade with them to the interest. The Abuja Environmental Protection Agency does not insist on sitting environmental impact assessment before granting permission for construction, in fact the development control is not aware of the significant of that report before granting permission for construction to commence.

The design teams are not documenting the need for green construction in the execution of project. Contractors are ignorant of the green technology and therefore do not regard environmental management as a significant aspect of their activity. Both the government and construction company need to embrace the significant of sustainable development through sustainable construction.

### 6.2 RECOMMENDATION

The world is awakening the to the challenges of environmental problems some of which are beginning to reach a catastrophe and therefore Nigeria cannot be an island.

Government to have a blue print on construction activities that will meet the world requirement of environmental friendly.

All construction multinationals must be compelled to include green technology their construction activities. Plant and equipment must meet the world standard of green house before there usage be allowed in the federal capital territory and Nigeria at large. Environmental professionals should be involved at design stage of all government project and private owners should be encouraged to do so. Incentives should be given Environmental practitioners as the case in other professional bodies. In planning massive Development like the Gwarinpa Housing Estate in the FCT Abuja, including linear facility, overlay/ geomorphological mapping for terrain assessment to highlight possible appropriate standards problems should be applied. Awareness should be stepped up on the issue of facility management as a viable option in the life cycle of sustenance of green development.

## REFERENCES

Abuja Handbook, 1998: The Abuja Master Plan

Ehrlich; P.R. Ehrlich, A.H and Holdren J.P, 1970

Elo- Science population, Resources

Ivor H. Salley; Construction Technology

Ortolano, L. 1984, Environmental Planning & Decision Making

Picking, K.T and Oweh L.A 1995: An Introduction to Global Issues.

## INDEX

### RESEARCH QUESTIONS

This study is structured to explore the application of green techniques in constructing for sustainability using the following research question which formed the bases of my personal interview with the various professionals as stated in my chapter 4.

1. How can Nigerian civil construction process be made green?
2. Are our construction professionals environmentally conscious?
3. Do environmental consultants form part of our project development and implementation team?
4. What should be the green roles of construction professionals in the project development and process phases?
5. In what way can Nigeria contractors contribute to the prevention and / or management of environmental effects of construction development?
6. Do construction plants /equipment currently in use have the innovative technologies (such as attenuating devices for noise, vibration, dust exhaust emissions, diesel and lubricant spillages etc) to improve productivity and operating efficiency of construction?
7. How can construction activities be laid-out, administered to minimize waste, aesthetic nuisance, damage to existing sensitive developments and eco-systems, enhance safety and reduce injuries and death to work forces and the general public?
8. Can alteration to natural vegetated surface be managed to modify loss of Albedo surface roughness, thermal and hydrological properties?

9. What enabling environmental laws and other legislations have been enacted to regulate and control construction development to ensure harmony with the environment?
10. And how have they been implemented or enforced to achieve sustainable development?

# QUESTIONNAIRE FOR THE ASSESSMENT OF THE NEGATIVE IMPACT OF CONSTRUCTION PRACTICE ON THE ABUJA ENVI- RONMENT

## ISSUED TO PEOPLE LIVING AT CONSTRUCTION NEIGHBOURHOOD

NAME:.....

AGE:.....SEX:.....

OCCUPATION:.....

ADDRESS:.....

*(please tick ✓ in the appropriate box)*

1. Do you live around any on going construction site?  
Yes  / No
2. Have you ever been disturbed by the activities of this company?  
Yes  / No
3. If yes, then do you think the construction company's pollute our environ-  
ment by noise, sand, dust, spillages of fusille fuel?  
Yes /No
4. Outside these disturbances that you experience from the construction com-  
pany, are there any noticeable impact of the works of this company on the  
environment that you know?  
Yes /No
5. In your opinion is deforestation and erosion an environmental impact from  
the activities of this company?  
Yes /No
6. Do you think the construction company care about the environment?  
Yes /No
7. Do you think that government has done any thing in protecting the environ-  
ment especially from the effect of construction practice?  
Yes /No

**QUESTIONNAIRE FOR THE ASSESSMENT OF THE DEGREE  
OF GREEN CONSTRUCTION PRACTICE IN ABUJA**  
*ISSUE TO CONSTRUCTION WORKERS AT SITE LOCATION*

.....

.....

.....

ession/

.....

l of Education:

ed:.....

illed:.....

*(Please tick ✓ in the appropriate box)*

Do you work in any construction company in Abuja?

Yes / No

Have you work for over five to ten years on construction in Abuja?

Yes / No

Is the construction company you work for a big one?

Yes / No

Does the management of the company care about you safety and health?

Yes / No

In your assessment, are the company's plant and machines for site work modern technology?

Yes / No

Do you think the company care to protect the environment?

Yes / No

Are you aware of any environmental defects, the activities of your company ever caused e.g deforestation and erosion.

Yes / No

Do you know of any environmentalist that has ever worked with this company beside your construction work at any site before?

Yes / No