DECLARATION

This is to certify that this write-up and research of this thesis is an original work undertaken by me SIDI MOHAMMED PGD/GEO/2000/2001/149 and it has been prepared in accordance with the regulations governing the presentation of the project in Federal University of Technology Minna -Niger State.

SIDI MOHAMMED
STUDENT

22/ March 2005

DATE:

CERTIFICATION

This is to certify that, this thesis is an original work undertaken by SIDI MOHAMMED PGD/GEO/2000/2001/149 and it has been prepared in accordance with the regulations governing the presentation of the project in Federal University of Technology, Minna – Niger State.

_____ **DATE:** 20/3/2002

DR. AKINYEYE, PETER SHOLA
PROJECT SUPERVISOR

_____ **DATE:** 20/3/02

DR. M. T. USMAN
HEAD OF DEPARTMENT

_____ **DATE:** _____

EXTERNAL EXAMINER

_____ **DATE:** _____

DEAN, PG SCHOOL

DEDICATION

This project is dedicated to my beloved children, Shammasu, Yusuf and Fatima.

ACKNOWLEDGEMENT

I wish to express with deep respect and my gratitude to my able Supervisor (Dr. Akinyeye Peter Shola) for his efforts and depriving himself so many leisure hours in order to make this write up possible.

I am also indebted to all the Lecturers of Geography Department for their contribution towards the successful completion of this thesis.

also wish to express my sincere thanks to all my classmates who have sist in one way or the other during these course.

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PPENDIX 1

CHAPTER ONE

1.1 INTRODUCTION:

The Term Laterite: is regarded as natural aggregate of mineral with or without organic construction; it is natural found beneath vegetable topsoil and reddish in colour.

Laterite has many applications in Civil Engineering works ranging from their usage as construction material. The civil engineering works includes construction of Roads, Buildings of Houses, construction of Earth Dams etc.

The Environment: The World Environment is in great danger as the rate of environment detoriation is accelerating with the expansion laterite removal during construction and most famous industrial renovation. These will culminate in all ecological disaster of an unimagined i.e. proportion. If urgent remedial measures are not taken to protect the environment.

Nigeria as a developing country has urgent need to pursue both economic and social welfare development. These development in part depend on the level of her economic, physical and social infrastructure and their environment suitability. Until now the construction of our socio-economic and physical stocks not been environmentally sustainable.

The Nigeria communities have become sensitive. This is evident from the increasing environmental reactions. The contention seen to be that communities socio-economic cultural and political needs for survival should not be in for economic driven environmental projects. The Nigeria environmental and the rational public are as king for a mutual balance of ecology and land use to avoid over manipulation and damage to the environment.

A development which will address the use of land resources while exercising care to minimise potential negative impact. It is my belief that such development rest on a pivot of green construction, which represent innovative pragmatic, adhoc responses to the day to day. Environmental problems of construction project.

1.2 STATEMENT OF THE PROBLEM:

The fact that, there exist many observable environmental problems such as the distribution of the lithosphere, which is as a result of the direct and indirect effect of the works of civil construction in Nigeria more especially in Abuja. Shows that, there is either no blue print in integration of both the construction industry and the environment or that such policies are not being implemented by the various actors in the sector. Therefore, time has come for a proper and efficient harmonisation of the works of these sectors if we must boost of a future for us and for the generation urbanely.

1.3 AIMS AND OBJECTIVES:

The aim of this project is to update the damage done to the environment during lateriate removal and the possible ways of solving them. By the construction industry and the Nigeria environment. Using Abuja a case study, with a view to synthesis this relationship for more suitable development in the line with following:

(a) The Degree to which green techniques are exercised in Nigeria construction.
(b) Laterite Removal and it effect the environment
(c) Make recommendation based on the findings.

1.4 JUSTIFICATION:

The issue of laterite removal and construction activities in Gwarinpa Abuja it destoriation is a fundamental challenges to human survival as it effects human, economic, socio-economic activities and environment.

1.5 SCOPE OF PROJECT.

The dissertation work is a response to the growth concern about the state of the Nigeria environment with regards to the ever-increasing distortion of this sector, due to impact of civil construction which is not environmental benign.

Hence the scope of this project shall cover such area of interest as the dynamic of the natural environment, excavation of laterite, formation of policies and recommendation for suitable construction practices.

1.6 STRUCTURE OF THESIS

The project started with introduction statement of the problems aim and objectives, justification and scope of the project, while in Chapter two we have the location of the area of the thesis, land form, climate and land use. Chapter Three it is literature review while in Chapter four it is the methodology data collection and data analysis. Chapter Five it is discussing absent summary, recommendation and reference.

CHAPTER TWO

ABUJA

2.1 LOCATION:

Abuja is the Federal Capital of Nigeria. Abuja came into existence on 12th of December, 1991. This came to be as a result of the recommendation of Late General Ramat Murtala Mohammed's Panel to examine the question for a new Capital for Nigeria in all its ramification.

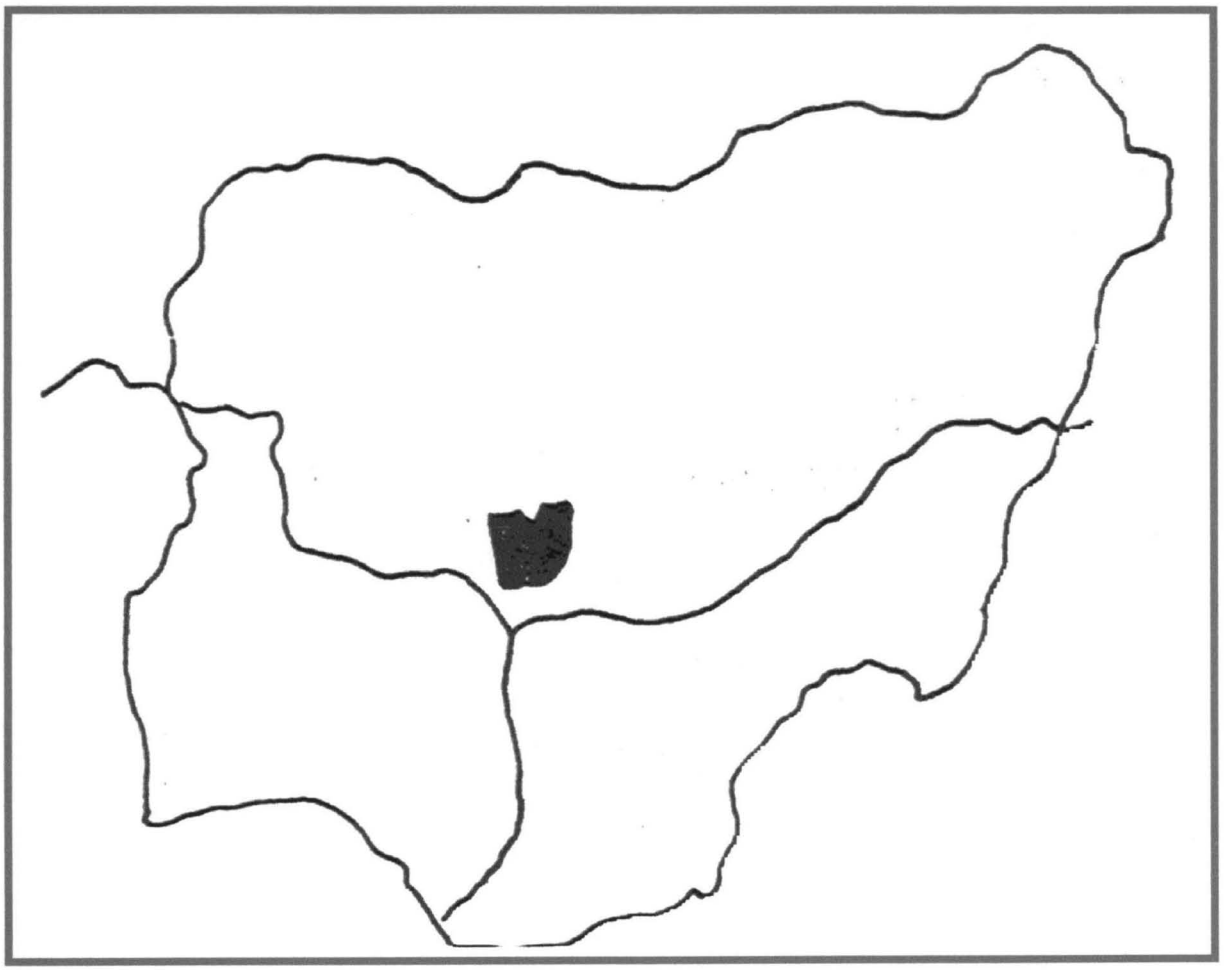

Figure: 2.1 MAP OF NIGERIA SHOWING ABUJA

(Source Abuja hand book)

Abuja is located in centre of Nigeria, it is bound on the North by Kaduna State, on the West by Niger State, on the East and South East by Nassarawa State and on the South-west by Kogi State. It falls within Latitude $7^0$25N and $9^0$20 North of the Equator and Longitude $6^0$45 and $7^0$39.

2.2 CLIMATE:

Abuja composes of rolling hills isolated highlands and combines the savannah grassland of the north, hence the climate is neither too hot nor too cold all round the year as if falls within the climate transition zone between the essentially humid south and sub-humid north of the country.

In terms of physiological comfort, the high temperatures and the relative humility in the Niger-Benue through Abuja a heat trap effect. Rainfall in the FCT reflects the territory location on the windward side to Jos Plateau and at the zone of rising air masses. The annual total is in the range of 1100mm of 160mm the duration of the rain seasons, however decreases 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 actual evapotraspiration is well over 1000mm.

2.3 VEGETATION:

The area now designated Federal Capital Territory fall within the savannah zone vegetation of the West Africa sub-region, patchen of rain lowest however occur in the Gwagwa plains, especially in the gullied terrain to the south and the rugged south-eastern parts of the territory.

This area of FCT form one of surviving northern most occurrences of the mature forest vegetation in Nigeria. The dominant vegetation of the territory is however, classified into three savannah types.

i. Pack or Grassy Savannah occupies about 53 percent (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 (plate 1) namely Albizia, Zypia, Butrospermum Paradoxum, Daniellia Oliveri and Parkra Clappertoniana.

ii. Savannah woodland occurs mostly in the rugged and less accessible part of FCT especially on the gurane, Ribo and Rubochi Plains and surrounding hills they cover 12.8 percent or 102 km of the territory, the more common trees include afzelia African, anageissus leocampus, butryroscorpus paraducum, deniellia oliveri, khaya senegalivisis, prosopis africana, unpaca togonesis, ablizia, zygia, vitexdonian, bombax costatum and pterocarpus erinacens.

iii. Shrub Savannah occurs extensively in rough terrain close to hils and ridges in all parts of the territory, it covers about 12.9 percent or 1032km of the land area.

The patches of rain forest contain such tress species as anteris africana, authoceista nobila, ceiba pentandra, cola tigautea, celtis spp. Chlorophora excels (iroko), khaya grandilolia (Benin Mahogany) trminabia superb (a fara), triploduton sclerocylon and dracaena arborea, indeed, certain tree species normally associated with wetter parts of te patches, e.g. piptadeniatrum africannu (agoin), cophira alata (ekki) and terminalia ivorensis idigbo). However the rain forest patches constituted only 74 percent (592km) of the vegetation cover. Riparian



Plate 1: *Picture Showing The Natural Vegetation*

2.4 LANDFORM:

Apart from climate and vegetation. The topography of Abuja composes of ridges, isolated highlands and combines savannah grassland of the north and the middle belt with richness of the tropical rain forest of the south. The underlying rocks score the most essential factors in understanding the native and spatial distribution of soil in FCT. There are two geological provinces, namely the Sedimentary belt in the southern and south western entermities of the territory and the pre-Combrian basement complex rock country which accounts for more than 80 percent of the territory. The state of these features are grately being threatened by Laterite removal as such defect as erosion and flood.

2.5 LAND USE:

Housing/Settlement; The master plan for the Federal Capital Territory adequately took into account the need for systematic growth. It also took into consideration element of the Nigerian city tradition, making room for flexibility as well as reflecting the symbolism of the. It provides a general frame work of development within which planning for various system and sectors can continue making allowance for change and uncertainties. As prepared and approved by government the master plan put the ultimate population of the city at three million inhabitants. This means that the congestion, characteristic of many large cities especially capital cities in the developing world is likely to be reassuming, but absent for a very long time to come. However the

situation now on ground is almost alarming as the phase I is already three times over populated as government had hot been able to open up phase II for further development. According to data collected from National Population Commission, the Abuja population growth is abnormal, as it is far-above the 2.3 rate of general growth rate in other states of the federation, hence the actual population at this time is not available but reference is still being made to the 1991 census figure of 371,674.

Settlement: Settlement patterns concern the distribution of human habitation in groups in various forms of villages, towns environment. The settlement pattern of the indigenous rural communities in the FCT are nucleated type and scattered in plains and inselbergs Typically is made up of wards or hamlets, while a ward is made up of households, which are usually closed up in security and defence purpose. Few narrows passages between wards left as street. An open species left in front of village head's residence as a village square for festivals. The master plan divides the Abuja city in to sector. Each sector should accommodate a population between 100,000 to 250,000 each. The development of the city is in four phases. Phase one of the city consists of the Central Business District, the Three Arms Zone comprising of the Offices of the Presidency, National Assembly, and The Judiciary, Maitama, Wuse I, Wuse II, Garki I, Garki II and Asokoro District, while Phase II Consist of Katampe, Mabushi Utako Wuye, Dutse and Kukwaba National Park. The detailed land plan for phase III and IV are not yet prepared: expect for Gwarimpa II one of the proposed northern districts of phase III.

With the Nigeria federal structure, which revolves around three tripods: the Federal State and Local Government, Abuja as one of the state of the federation according to the 1979 constitution is not left out of the provision of grass-root administration which is carried out by the local government councils hence, there are six area council which are namely.

1. Municipal Area Council, with Headquarters at Wuse.
2. Abaji Area Council, With Headquarters at Abaji.
3. Bwari Area Council, with Headquarters at Bwari.
4. Gwagwalada Area Council, With Headquarters at Gwagwalada.
5. Kwali Area Council, With Headquarters at Kwali.
6. Kuje Area Council, With Headquarters at Kuje.

CHAPTER THREE

LITERATURE REVIEW

THE STATE OF WORLD 'S ENVIRONMENTAL AWARENESS

Environment: The term environment is used in its restrictive physical sense (rather than the broad socio-anthrological sense) it connotes the components and system of the geosphere (e.g. soil, land, flura, climate) as commonly applicable in the natural sciences.

The environment in this context is a reservoir of resources on which man draws to sustain his economic activities, and assure his survival and well-being (Baba J. M. 1998).

'While the intelligent application of technology factors human well-being directly, a reducible but not removable burden of environmental disruption by the technology undermines well being. This negative burden includes the dirty efforts of technology accidents and effluents on human life and health"

"Clark and holing (1985) in a historical analysis of environmental charge since the 2nd world war also made the incisive and plumy 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. The will be manageable if it all only with consistency of purpose that transcends normal cycles and boundaries of scientific research and political action ".

These strong statements are symptomatic of a new realization. As it were it has now downed on man that the divine mandate allured to about carries a responsibility which must be equally executed to guarantee his survival and well being. This new realisation now furies the basis of a deepening global concern that as become in the second half of the 20th century a very strong issue in furring international co-operation the light to show the would environment.

The famours U. N. sponsored international conference at Stockholm (Sweden) held in December, 1972 set the ball rolling as a concerted efforts on the part of the international community to raise awareness about the dangers which human activities pause to the environment and untimely to man himself. An out come of that initiatives has been a series of global institutional arrangement to address environmental issue, for example the World Environmental Day (June 5th of every year) was instituted in the year, 1972, for the promotion of global environmental awareness. These was also the creation of the United Nations environmental programme (UNEP) Headquarters at Nairobi Kenya as a specified agency for monitoring the state of the world environment. Another significant step was the institution in 1983 of the Breadth and commission to undertake a comprehensive study of global environment vis-à-vis development, the report of which was published in 1987. Finally, there has been another on the platform of the U. N. a

major Earth Summit on Population and environment which held in Brazil by June 1992.

On the African continent evidence of this new awareness has been manifested trough the Cano Plan or the Environment (AMCEN) started in 1985 and which has become a major form for co-operation away African nations on matter affecting the environment. To institutional outfit, or network structures including Regional Co-ordination Units (RCUS) and Six centres in environmental education and training network (ETNET) of which two are in Nigeria. At Obafemi Awolowo University, Ile-Ife and Federal University of Technology Minna. The purpose of the (ETNET) is to create and develop centres of excellence in environmental training for all categories of decision maker and practitioners.

At the national level, there has been a rapid growth in environmental consciousness. Nigeria in recent years, a tread that culminated in December 1989, in the inauguration of the Federal Environmental Protection Agency, an apex environmental, Parastatals charged with the responsibility of formulating environmental protection policies, monitoring the state of the nations environmental and prosecuting violators of established environmental laws and regulations the agency has metamorphosed in to Federal Ministry of Environment.

It's mandate which has been integrated into the function of the newly metamorphosed Federal Ministry of Environment. The decree 58 of 1988 as amended by FEPA (Amendment Degree No. 59 of 1992 First

in FEPA. The overall responsibility for biodiversity conservation and sustainable development of Nigeria natural resources. It also specially mandate FEPA to:

(a) Prepare a comprehensive national policy for the protection of the environment and conservation of Natural resources and scientific and technological activities affecting the environment and natural resources.

(b) The Federal Government on nation environmental policies, including procedure for environmental impact assessment of all development project.

(c) Carry out such activities as are necessary or expedient for full discharge of the functions of the Agency under Decree. The Decree also confers additional powers on the Agency to :

(i) prescribe standards for and make reputations on water quality. Effluent limitations, air quality, atmosphere protection, ozone protection, noise control as well as the removal and control of substance; and

(ii) monitor and enforced environmental protection measures,(source from :Anniversary Brochure FEPA 10th year 1998-1998).

Nigeria being on the first African Government to touch a National Policy on the environment, (manifold. UNDP 1989) WITH The following as source of the goals of the National Policy on the Environment which is armed at achieving sustainable development.

(i) Secure for all Nigerians a quality of Environment adequate for their health and well being.

(ii) Conserve and use the environment and natural resources for benefit of present and future penetrations.

(iii) Raise public awareness and promote understanding of essential linkages between environment and development and to encourage individuals and community participation in environmental improvement effort.(source: National Policy on the environment FGN 1989)

THE STATE OF THE ENVIRONMENT IN NIGERIA

In 1986, the department of forestry, Federal Ministry of Agriculture collaborated with the Nigerian Conservation foundation, in close co-operation with many Nigeria scientist and institution in the public and private sector, prepared the first National conservation strategy Sectoral summaries have traditionally been produced by various ministries in their annual reports.

Also in the recent past i.e. in June 1991, another group of Nigeria (the Nigerian environmental study action team NEST) published a report titled "Nigerian Threatened Environment a national profile" Based in the forgoing events.

WASTE IN THE ENVIRONMENT:

In many urban areas in Nigeria, arrangement for waste disposals have been un-sufficient and ineffective per capital production of domestic solid waste is estimated at 20kg per annum, studies show that with increasing urbanisation this rate may have doubled by the end of last century.

HUMAN SETTLEMENT AND HOUSING:

In spite of the rapid rate of urbanisation in Nigeria within the last three decades, the country population is still about 79% rural the Directorate of Food, Roads and Rural Infrastructure (DFFRI) has determined that, over 80 million rural population is settled in more than 100,000 villages and hamlets the urban population is however becoming increasingly dominant with its share increasing from 30% in 1985. Current estimates put the urban population share at about 35% of the total close to 60% of the urban population is settled in cities of over 500,000 inhabitants of which there are now less than ten.

VEGETATION:

There is handily any vegetation in Nigeria infected by human activities. Farming logging praising, hunting, urbanisation, road construction and other development activities by the rapidly expanding population have together reduced plant cover to isolated remnants. Studies on these vegetation remnants and their distribution indicate that the country cover consisted of 20% forest concentrated in the south with savannah covering the remaining 80% of our national territory.

The following summary assessment of the present statue of the Nigeria environment has been prepared. This assessment also draws extensively on the background reports and findings of the World Bank Study on environmental condition and trends in Nigeria (World Bank, 1990) the report is summed up under the following headings:

Atmospheric Pollution:

The impacts of atmospheric hazards in Nigeria Namely; air pollution, noise pollution, thunderstorms, sandstorm, fog and heat waves are tremendous. In recent years, several of these hazard have disrupted economic planning and development with their effects ranging from simple destruction of property to complete wreckage and loss of lives. Sandstorms an also particularly widespread in northern Nigeria and in the dry season.

Water Pollution:

The inland waters 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 sewers, source these pollutants have however led to centroplication of these water bodies and the production of extensive word cover and sitting up in some areas.

CHAPTER FOUR

4.1. METHODOLOGY

This research work is based on data collected from both primary and secondary sources. The direct, personal observations made at Project Sites, in terms of the physical damage done on the environment, forms the primary source of data, together with verbal discussions through personal interviews with them was conducted amongst constructional professional consultants, environmental practitioners, project contractors.

4.2 DATA COLLECTION

While responses for the study were obtained from questionnaires issued to 150 respondents sampled from 10 construction site / neighbourhoods of the six area councils of the Federal Capital Territory, using cluster systematic and simple random techniques. Appendix 1 show the questions asked / distribution on the field.

The secondary data were from library researches from magazines, journals, commissioned reports, and test book on the matter pertaining to this study. A copy of questionnaires and the questions that formed the basis of the interviews is attached.

4.3. DATA ANALYSIS

The collected data will be analysed using existing statistical method such as percentages, the use of graph and tables etc. The use of various places (photographs) will also be used as data analysis.

Using value and percentage count in analysis the data when the value of x & y are constant, while value represent the responses.

QUESTION 2

VALUE LABEL	VALUE	PERCENTAGE
Those disturbed	80	80
Those not disturbed	20	20
TOTAL	**100**	**100**

Source: Personal field survey 2001 90 percent of the respondents from the table above answered *Yes* to disturbances from construction activities while 10 percent said *No.*

QUESTION 5

VALUE LABEL	VALUE	PERCENTAGE
Those who think deforestation and erosion are impact of construction activities	80	80
Those who think otherwise	20	20
TOTAL	**100**	**100**

Source: Personal field survey, 2001 80 percent of the respondents from the table above answered *Yes* to deforestation and erosion been impact of construction activities while 20 percent said *No.*

QUESTION 7

VALUE LABEL	VALUE	PERCENTAGE
Government has done nothing in protecting the environment	80	80
Those who think otherwise	20	20
TOTAL	**100**	**100**

Source: Personal field survey, 2001 80 percent of the respondents from the table above answered *Yes* to the fact that Government has not done much to protect the environment from the activities of the construction companies while 20 percent said *No.*

CHAPTER FIVE

5.1 THE IMPACT OF CONSTRUCTION ACTIVITIES IN ABUJA AND ITS ENVIRONS.

According to my investigation, that is the Construction Industry in Abuja in her calculated measure to bringing social economic development to the Nigeria society by way of erecting modern civil structures to meet the increasing demand for both the ever-increasing populations settlement residential need and the metropolitans settlements for industrialisation, she has in-turn brought about some unavoidable negative impacts upon the environment which tend to have adverse effect on the human population, such a deforestation, erosion, flooding, high radiation pollution, etc. removal.

The nascent state of environmental constancy result in despicably low level of environmental consultant in construction projects. In Abuja the disparity is even wider because most construction professionals are yet to develop green construction. Many professionals could not apprehend the input of environmental consultant in construction projects.

As a result site externalities such as indiscriminate excavation of laterite, high noise and pillage of hazardous / toxic waste like fuel, diesel, Lubricants and chemicals have remained unabated in construction sites. Re-vegetation or biotic landscaping of development sites for ecological harmony and hydrological balance as still

theoretical and concepts. Level of application of environment (green) tools in the management of construction varied from project. And also depends on the clients involved. Protect to project subjected to a balanced dose of green tools (Environmental Assessment EA, Environmental Impact Statement EIS, Green Structure, Environmental Management and Green Audit) in the project cycle emerged community friendly.

The Nigeria construction practice has not been environment oriented and this is characterises has led to increased environmental impasse with project communities. Equally, our socio-economic, legal and political policy implementation appear unsupportive but rather contributory to the perpetuation of anti-green construction in Nigeria. The worst culprits are the power of eminent domain compulsory acquisition of land or properties without prompt and adequate compensation to the disenfranchised communities.

The foregoing exposure, it is evident that

- our construction practice had not been significantly green-orientated
- our socio-economic and political framework do not sufficiently support the emergence of green construction.

THE OVER RIDING FACTORS

Compulsory Acquisition of Community Land:

This issue has caused a great deal of heat and dissatisfaction to the affected communities. Much of this, apart from the degradation arising

from the development projects emanate from unsatisfactory acquisition procedure, inadequate compensation and absence of proper appeal machinery for the aggrieved party and general poor administration and implement of acquisition and compensation policies, such as non-uniform payment approval practices, over payment and under payment of some expropriate rights. These have all combined in some communities to fuel wide spread apathy and sensitive to additional degradation arising from the construction activities as observable from the existing case between the Gwari Communities in the Federal Capital Territory Abuja and the Federal Government of Nigeria.

Indiscriminate Award of Contract Project:

The unprofessional manner in which government has exercised its authority in awarding construction contracts has also not helped issues as it concerns the environment. This is so, as contractors who do not possess the technical know-how in the field of construction talk more of having environmental considerations are usually awarded contract projects which arte of great value resulting in shabby execution of the projects without implementing or observing the necessary environmental regulation.

EXPLANATION OF IMPORTANT CONCEPT

Green Construction:

This term refers to civil construction practice which is environmental friendly, i.e. construction which has the value of the environmental as the underling principle from the conception, design implementation to maintenance stage.

5.2. Using Photographs During The Ground Exercise, It Was Found That:

Disforestation: In attempt to excavate laterite in an area, you have to clear the land. Deforestation is the indiscriminate, falling of trees or wanton exploitation 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 most common factor is the human effect, which is the indirect consequence of civil construction brought about by the need for socio-economic infrastructure for development as a result of urbanisation and population pressure which is the most important direct factor causing large scale deforestation mostly in developing countries to which Nigeria is one. Most especially in Abuja, that is currently the largest construction industry in Africa (Construction Digest October, 1998). The entire land mass is devoid of it natural vegetation cover exposing the occupant to hazardous weather conditions such as increase in atmospheric carbon dioxide with the subsequent rise in temperature, decrease in rainfall, increased soil erosion and decline in soil fertility to the loss of species and biodiversity lowering of water table, deforestation of ecological balance and in crease rate of Evaporation due to exposed soil.

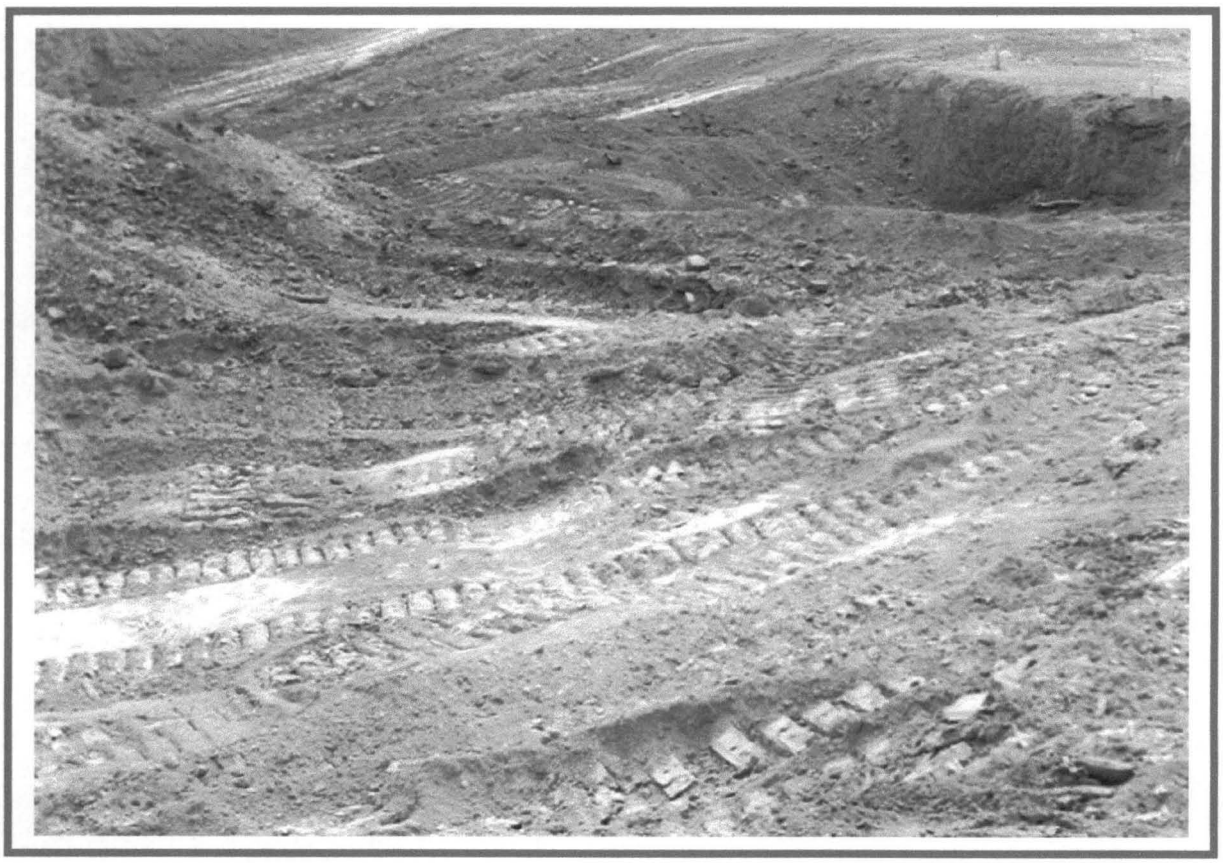

Plate 2: *Picture showing Laterite Excavation and Deforestation in Abuja.*

Erosion: The process in which laterite is being removed that exposed larger surface of weathered rock is loosened and carried away by running water, wind, ice or the exposure of natural agent and lower horizon in the soil, which is termed as erosion occurs in several parts of Nigeria under different geological, climatic and soil condition. Occurs in various degrees throughout the country and Abuja, one realises that there are two basic consequences of civil construction which gives rise to both water and wind erosion respectively. These are the effect brought about by the physical development of the environment for socio-economic needs, as the absence of the environment vegetation

which act as wind-breaks or canopy over the ground surface against both common course of erosion (i.e. water and wind) are destroyed without any replacement.

Secondly, the indiscriminate excavation of laterite sand and rock stones for hard core and gravel from the land environment, without any attempt at maintaining or back filling such site. This in no small measure contributed drastically to menace of soil erosion in Abuja which in itself is an indirect consequence of construction practice.

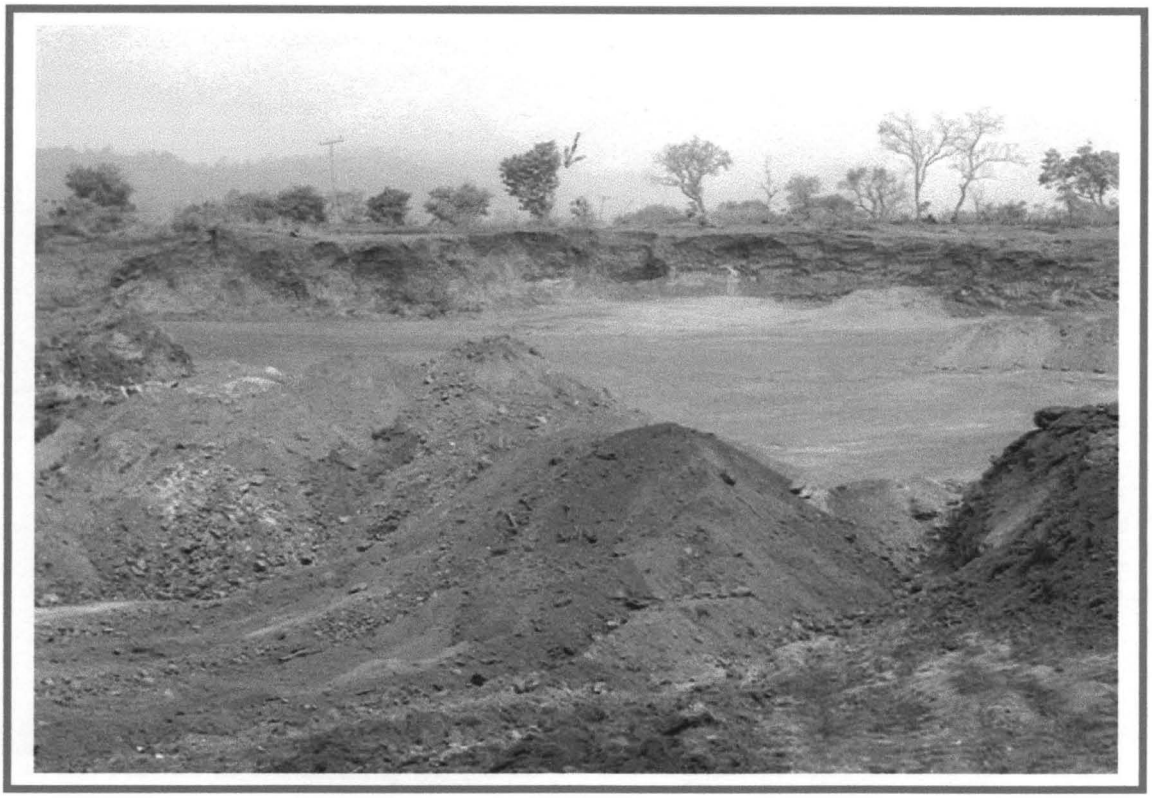

Plate 3: *Picture showing Erosion due to Laterite Excavation*

Flood: Among all natural disasters, flood produces some of the highest death toils and material damage. A flood is regarded as any relatively high water level or discharge above an arbitrary selected water or water discharge. Hence a general definition of flood may be given as a

body of water which rises to overflow land which is not normally submerged if flood condition exist, discharge of water cannot be accommodated within the margins of its normal channels so that the water spreads over adjoining ground upon which crop or forest are able to flourish. During the flood the water fill up the channels submerge the cliffs destroy villages, farmland and property. Floods result from three main causes namely climatologically, parchimatological and structural. Structural disturbances which have come to place as a result of civil construction such as the erection of building and roads which tend to prevent and obstruct the natural channel of storm water flow after rainfalls which is common factor in Abuja and the failure of dams which are the most source of flood in most urban cities as in Lagos and other major developed form of Nigeria.



Plate 4: *Picture showing Flood due to Laterite Excavation*

Pollution: The cumulatively effect of so many construction companies in Abuja have result to the pollution of the atmosphere Air Pollution rank high as constructional impact on the Abuja environment. The chief type of air pollution here is the pollution by sand dust from rock blasting and excavation of laterite coupled with noise hazards.

It is common place to have ones body dusted with sand and rock particles within most working hours throughout the area yet under construction such as Gwarinpa, Utako etc. the effect ranges from skin diseases and eye problems; while noise from the vibrating machines, heavy duty equipment and activities of dynamic in blasting rock.

The tolerable level of noise by human ear in between 80-90 decibles. A prolonged exposure to this situation can lead to physiological disorder such as hypertension, coronary disease, ulcer, migrainous headaches, cardio-vascular problems and susceptibility to viral infection and toxic substances (FEPA Report on Toxic and Air Pollution in Abuja).

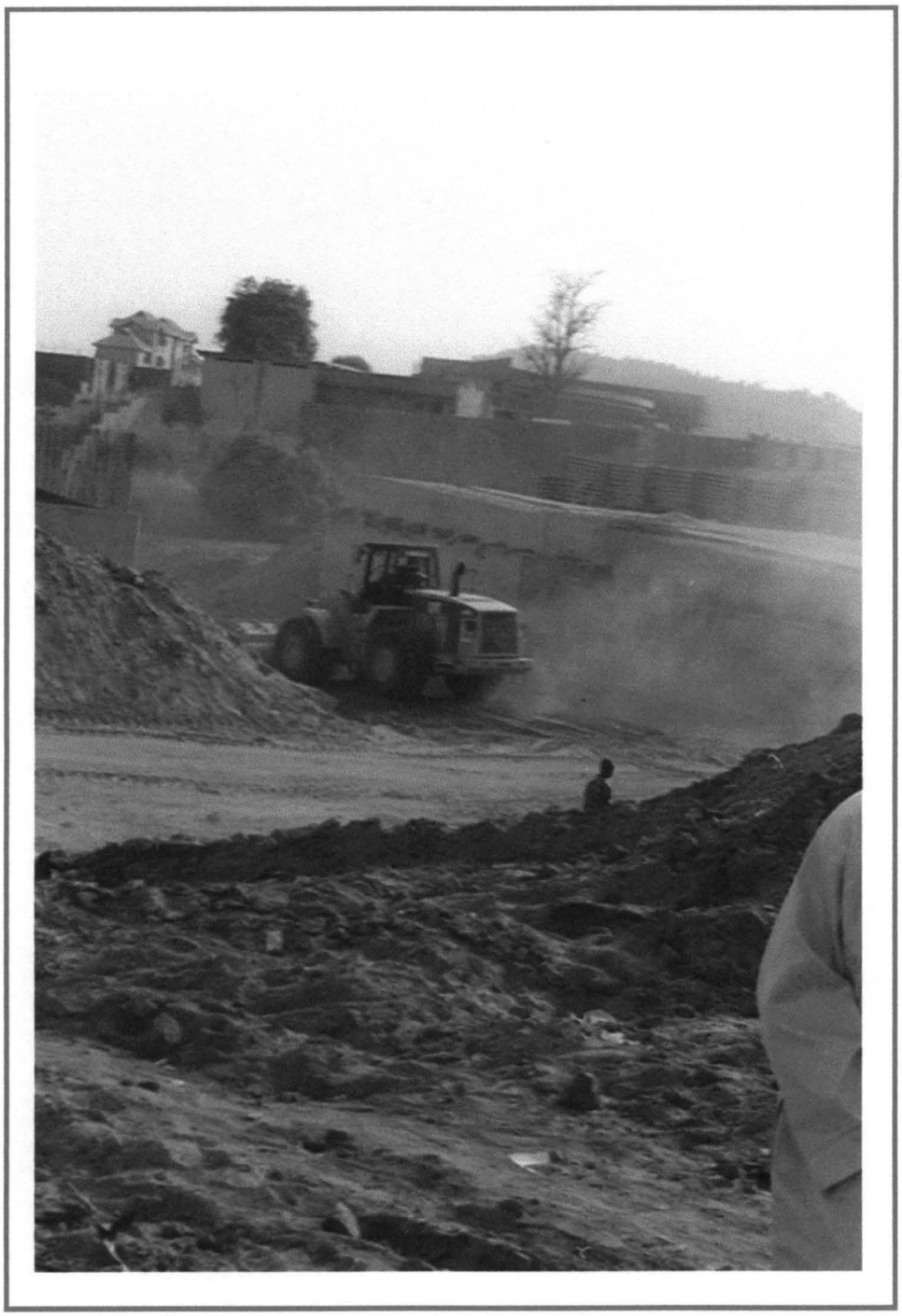

Plate 5: Picture showing Air Pollution during Construction

CHAPTER SIX

6.1 SUMMARY CONCLUSIONS:

In summary, the project has been able to identify some effect of laterite removal and effects to the environment. This is so as my findings reveal of the actual existence of the agencies and laws for an enabling suitable construction practices but for their non-functional and implementation. For example, the Abuja Environmental Protection Board do not in practical terms have access to evaluate the environmental impact Assessment (EIA) of any construction project before they are implemented. This explains why laterite excavation can be found dig every where in the community.

On the other hand, the construction companies apart from not being well educated concerning environment, are rather scared of involving environmental management in the execution of the work as their thoughts are rather enhance profit, while also the general public has not in any formal way shown dissentients of the impact of civil construction as a way of sensitising the government into its responsibilities therefore both the government, the construction companies the professional bodies and the general public in Abuja and Nigeria need to be oriented concerning the importance of protecting the environment during construction.

6.2. RECOMMENDATION

It is clear that Environmental degradation, affects all nations of the world and respects no boundaries, the environment cannot be allowed to deteriorate further. In this regard, the recently created Ministry of Environment, should evolve thresholds for controlling all aspects of construction activities. This will fine-tune the provisions of the EIA Decree number 86 of 1992 as they relate to civil construction.

Environmental management practices in construction should be made a pre-selection criteria in awarding contract. Only construction firms which have the required know-how to implement Environment Management System will be selected to execute projects.

That Government should as a matter of basic principle, ensure that project assessments include environmental and social cost. That the relationship between a community and its environment be considered before any development.

6.3. REFERENCES

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Appendix 1

QUESTIONNAIRE FOR THE ASSESSMENT OF THE NEGATIVE IMPACT OF CONSTRUCTION PRACTICE ON THE ABUJA ENVIRONMENT.

ISSUED TO PEOPLE LIVING AT CONSTRUCTION NEIGHBOURHOOD

(Please tick in the appropriate box)

1. Do you live around 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 environment by noise, sand, dust, spillages of fusille fuel?

   Yes ☐ / No ☐

4. Outside these disturbances that you experience from the construction company, 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 environment 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 environment especially from the effect of construction practice?

   Yes ☐ / No ☐