

**CONTROLLING THE IMPACT OF EFFECTS OF DEFORESTATION,  
A CASE STUDY OF BOBIGRAZING RESERVE, MARIGA LOCAL  
GOVERNMENT AREA, NIGER STATE.**

**BY**

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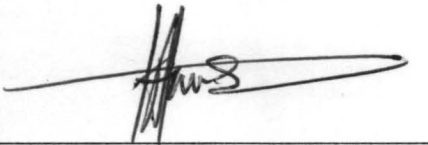
## DEDICATION

This project is dedicated to Almighty Allah, my late Grandfather Alhaji Musa Shamakin Nupe and also my late Father Alhaji Aliyu Adamu for sending me to school. May their departed and gentle souls rest in perfect peace, Ameen.

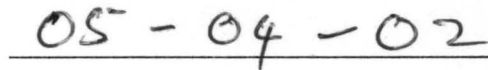
## DECLARATION

hereby declare that this project is my original work and conducted under the supervision of Prof. D.O. Adefolalu. To the best of my knowledge, the work has not been presented for the award of a post-Graduate Diploma at any University or any other institution of Higher learning.

The information and data used have been acknowledged accordingly in the reference.



HARUNA MUSA



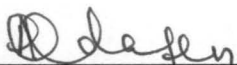
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## CERTIFICATION

This is to certify that this project work (report) was carried out and presented by Haruna N. Musa of the Department of Geography, Post-Graduate School, Federal University of Technology Minna, Niger State.

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## ABSTRACT

The problem of deforestation locally, nationally and globally possess a serious threat to human existence on the earth surface. Data collection for the research work took about three months. Questionnaires were distributed to sources for first hand information from farmers, Cattle Fulanis (Nomads) and other stake holders. The research analysis employed is frequency/percentage method. Some of the relevant questions that give correct and usable answers (responses) were analysed using frequency method.

Through investigation and analysis, the major causes of deforestation in the study area include population pressure, clearing for and cultivation of large hectares of land for crops and fuel wood consumption. These three scenarios are further exacerbated by overgrazing by the Fulani Cattle Rearers. Prior understanding by the populace of adverse effect of indiscriminate tree felling for fuel wood and logging is also critical due to illiteracy and poverty.

Possible and practical recommendations such as creation of forestry reserves and grazing reserves, practice of deforestation and re-afforestation, massive awareness campaign and use of enforceable legislation are expedient in the study area i.e. Bobi grazing Reserve in Mariga Local Government Area.

## TABLE OF CONTENTS

CONTENTS	PAGE
DEDICATION.....	i
DECLARATION.....	ii
CERTIFICATION.....	iii
ACKNOWLEDGEMENT .....	iv
ABSTRACT .....	v
 <b>CHAPTER ONE</b>	
1.0 Introduction .....	1
1.1 Historical Background .....	2
1.2 The statement of problem .....	3
1.3 Aims and objectives .....	4
1.4 Justification .....	5
1.5 Scope and Limitation .....	5
 <b>CHAPTER TWO</b>	
2.0 Literature review.....	6
 <b>CHAPTER THREE</b>	
3.0 Methodology.....	13
3.1 Questionnaire.....	13
3.2 Sample of the Questionnaire .....	14
3.3 Reconnaissance.....	16
 <b>CHAPTER FOUR</b>	
4.0 Data analysis and Discussion .....	17
 <b>CHAPTER FIVE</b>	
5.0 Conclusion .....	28
5.1 Recommendation.....	31
References.....	33
Appendix	

## CHAPTER ONE

### 1.0 INTRODUCTION

The rate of deforestation has gained global attention since Rio-92. Communities in developing countries are now aware of consequence of deforestation through public enlightenment campaign, international bodies meeting in their countries. There is now a growing perception that deforestation is one of their most pressing environmental problems. The inability of the forestry vegetation cover in the reserve to regulate climate by absorbing carbon dioxide and returning water to the atmosphere through transpiration, with too much of carbon dioxide and other gasses in the atmosphere can cause (Green House effect) i.e. Global warming and climate change. Considering the fact that massive deforestation in the name of land clearing for farming and felling of trees for fuel wood has been going on for a long time in this area, it may be suggested that the phenomenon will increase reflectivity (ALBEDO), i.e temperature rise and lower relative humidity.

Clearing forest and wood land to create agricultural and pasture land has been a human activity time – memorial . the scale and rate of clearance has increase as a modern agricultural methods are adopted for large scale activities in a bid to produce more food and earn exchange foreign revenue from export and import.

Forage production from native land and /or swan pasture is perhaps the simple most important asset of the animal production industry.

Therefore, preservation, conservation and maintenance of the grazing reserve are of the first consideration in the live stock management.

Through indiscriminate deforestation, the loss of bio-diversity is the most important process of environmental change because it is wholly irreversible. Both flora and fauna species which are specialised in the reserve are fast disappearing.

Therefore, there should be concerted efforts to check or reverse this negative trend of deforestation in the grazing reserve.

### **1.1 HISTORICAL BACKGROUND**

Bobi Grazing ground is located about 53km from Kontagora along Kontagora-Tegina road at Kamfani Bobi, Mariga Local Government of Niger State. It is between latitude 10:15<sup>N</sup> and Longitude 6:E. The reserve covers land area of 300sq/km.

It was proposed as a grazing reserve on the 14<sup>th</sup> January and was surveyed and demarcated on the 10<sup>th</sup> March of the same year. A site Board meeting was called for on July 75 to make arrangement for the payment of compensation to land owners before the local Government can approve any further plan to be carried out on the area.

On 1<sup>st</sup> January '76 a proposal for the relocation of National Herds to the grazing reserve was made by Federal Government. The initiative to set the grazing reserve came from the Federal Government on the 20<sup>th</sup> January 1977. Also in the same year, there was a proposal of cattle multiplication center in the reserve by the Federal Livestock Department (FLD).

Presently, the Federal livestock Department and National Livestock project Development are actively involved in range development and management practices in the reserve. There was also a proposal by the Federal Government to establish a cattle ranch and Dairy complex in the Grazing Reserve.

## **1.2 THE STATEMENT OF PROBLEM**

The Grazing Reserve as a biotic resources is being threatened by the following problems, namely; Deforestation, Desertification, Displacement and loss of biodiversity. Deforestation or de-vegetation is a major global environmental problem and be defined as the indiscriminate felling of trees and wanton clearance of forest without any concrete effort to replace them. This is as a result of population pressure, over cultivation of lands, over grazing by pastoralist, provisions of fuel wood, timber logging and bush fire. The trends of deforestation in the area is through cutting down of trees for fuel wood as heaps for sale to urban city for small income as a source of small revenue to local farmers.

There is overgrazing by pastoralist herds men due to shortage of land and the problem of illegal timber logging or harvesting. All this nefarious activities are carried out by the farmers emigrants or encroachers from urban cities.

Therefore, there is urgent need for drastic measures to be taken to address the problems of deforestation in the grazing reserve, so that the natural resources in the environment can be harnessed for pastoral fulani settlement and a sustainable development.



### **1.3 AIMS AND OBJECTIVES**

The aims and objectives of the research work is an attempt:-

- (i) To find out remote and immediate causes of deforestation in Bobi Grazing Reserve.
- (ii) To evaluate the role of human activities (Farms, Grazing lands). Or to identify the role played by Agricultural activities and Pastoralism.
- (iii) To assess the impact of increase agricultural and livestock production in the deforestation scenarios.
- (iv) To provide necessary guidelines for maximum utilisation of the natural resources in the grazing reserve.
- (v) To create awareness among the people in the grazing Reserve and alert the Governments of various level on the inherent dangers of deforestation to humans, livestock and environment.
- (vi) To recommend possible ways of checking or ameliorating the problems.

### **1.4 JUSTIFICATION.**

Deforestation is undermining the central focus of sustainable development. Biological resources are renewable resources, but they are being exploited at the rate that exceeds their sustainable yield in the reserve. Rural areas such as Kanfanin Bobi, Durugu are engaged mainly in primary production activities. The rural populace depend solely on the natural environment for their lively hood. These are Agricultural activities and pastoralism.

The effect of deforestation in the grazing reserve such as removal of bio-diversity and species, loss of soil fertility and decrease in rainfall are reducing or retarding vegetational growth and forage production for livestock use. With respect to the present population growth and inadequate need for animal protein intake in the country, more food and animals must be produced which requires more land to be cultivated and more grazing reserves to be established. Therefore, the project apart from proffering adequate solutions to deforestation, will also provide guidelines for the pastoralists and farmers in the grazing reserves to maintain her natural land scope, vegetation cover and conservation of the natural environment sustainable development.

The project work if carried out, will also help in checking the prenal clash between the Arable Farmers and the Cattle Fulani rearers (Pastoralist) in the grazing reserve.

### **1.5 SCOPE AND LIMITATION**

The scope of this project will cover only Bobi Grazing Reserve in Mariga local Government. This is due to the high rate of deforestation observed in the area. The ways and manner of deforestation will be studied and the their subsequent impact on the environment. Attention was given on the cause and ways of controlling it.

#### **LIMITATION**

As usual with other research undertaking, this research work is not with out its problems in the cause of data collection. Time limit certainly affected the comprehensiveness of the research. Hence, the data collection will be limited to Bobi Grazing Reserve, Mariga Local Government.



## CHAPTER TWO

### 2.0 LITERATURE REVIEW.

A review of available literature on deforestation by Enabor(1986) led to the conclusion that man is the most important agent of deforestation. In a similar manner, Awodola and Oboho(1991), in their study of the semi Arid Zone of Nigeria reported that deforestation in the zone is a reality, various ecological and socio-economical indices confirmed these and this is causing environmental degradation.

Acute concern is now widely expressed over the deforestation of boreal and tropical forest, the degradation of grass land and wet lands, and desertification(Kelvin and Lewis, 1995) such destruction of natural ecosystems has led to reduction in biodiversity and impoverishment of soils. The human impacts on lands has been enormous as land-use has changed, natural vegetation is cleared for agricultural use, settlement and urbanisation increase, reservoirs are created, minerals are extracted and more land is developed for creation purposes all these are clear indications of wide range of deforestation (Cooke and Doomhamp, 1990).

Recent studies from a number of countries in the tropics have shown that the rate of deforestation has gone higher than the rate of deforestation is higher than the previous estimated( UNEP,1991). In Brazil alone, the area estimated to be deforested each year has increased from 2.3million to 8.0million hectares in recent year there by making it to have the greatest area deforested each year. However, Brazil's 2.2% annual rate of deforestation is far lower that those of many major deforestation countries especially

in tropical Africa. Nigeria was named as one of the African major Deforestation countries. The two others are Cote d'Ivoire deforestation at the rate of 1.4% per year and Zaire experiencing a similar condition. In these countries over 250,000 hectares of lands are converted to non forest land use each year (Wood, 1990).

In Nigeria, as many other tropical countries, the rate of deforestation has been estimated to about 265,000 hectares of forest been exploited annually (Oseni, 1978).

At this rate of Deforestation, 5% of the countries forested land will be eliminated by the year 2000 A.D. The concern is even greater for the Saharan region at the country, which is characterised by Fragile ecosystem and climate peculiarities inimical to fast tree growth.

The rate at which those tropical and equatorial rainforests are being deforested is frightening. A few thousand years ago, rain forests cover about 14 percent of the land surface, whereas today it cover only 7 percent. Much of these have been lost over the past 2000 years. Most after the second World War (Eden, 1989). In a study for the United Nations Food and Agricultural Organization published in October 1992, the most thorough to date and involving satellite and aerial photography recognised in 88 countries, it was estimated that the rainforests are disappearing at the rate of one acre second, equivalent to the combined size of England and Wales being lost annually. This annual rate of destruction is running at 50 percent more than the decade ago (Kelvin, 1995). On the causes of deforestation, Hirsch (1987) observed that the predominance of tropical forests locations in the less developed countries leads to

functional association of the problems of deforestation with under development for instance, deforestation is seen as a complex problem that has largely resulted from poverty, unequal land distribution and pressure from the over growing population. As productive land became scarce, the small farmer seeks new and fertile soil either in fragile upland forest or in original low- lands already over burdened by large number of like minded subsistence farmers. He argued that rather than the seeing of deforestation as a symptom of underdevelopment. It is more useful to view the problem as part of particular development dynamics. Chidumayo(1998)also arrived at a similar conclusion in examining the relationship between the shifting cultivation practices, population pressure an deforestation in Zambia. The world bank(1990) came out with a research paper on the nexus between population, Agriculture and environment. The paper asserts with proofs that rapid population growth rates, lack of agricultural development and degradation of natural resources are naturally reinforcing. In their study of deforestation, in sudan, Hassan and Hertzeler(1988)noted that one of the most important causes of deforestation in the arid and semi arid countries is the over-cutting of under valued trees for Fuelwood. Further more, peoples culture, habits and other sociological factors affects deforestation in sub-Saharan Africa. This assertion was also made by Talbot(1986) in his analysis of how demographic pressure affects ravage land areas using the muse of African range lands. The obvious results of cutting trees for fuelwood are most easily seen nearly virtually, all african cities where trees ground spread outwards.

Burman (1991) pointed out that timber is one of the major causes of deforestation in some african countries. Stressing that hectares and natural forests with luxurious trees have been decimated through timber industry the careless exploitation of the Savannah's through the planting of inappropriate crops such as Soya beans and sugar Cane and the development of Pine plantations, or eucalyptus, all served to decline habits where because of the extremes in the climatic conditions, plants are already under natural trees. Plant collectors and the local population take many of the beautiful, rare and variable flowers and plants at rates much greater than they can be replenished naturally. AS the flora diminishes or is wiped out , the animals and insects lose their habitats and disappear from the 'Aswan'.

Elui (1989) in an analysis of the affect of deforestation on agricultural productivity in cote d' voire, examined two facets of the problem, namely current period deforestation and cumulative deforestation. It was confirmed that current period deforestation can have positive impact on agricultural productivity, through improved soil fertility due to the effect of nutrient content of ash left after burning the forest . Cumulative deforestation on the other hand, has a negative effect on the agricultural productivity due to argues on the irreversibility of the problem of deforestation resulting from fuel wood production and consumption and like Anderson(988), suggested the adoption of forestation programmes through agora-forestry practices. Clearly, man has radically alerted the earth's surface with accelerated impact in the recent to understand the natural system and the interaction between various earth's

surface processes and the impact of human activities and the actions, and to manage resources in sympathy with the natural environment.

It is highly imperative that a less obvious but equally important factor of deforestation is bush fire (Areola,1978). He was of the view that the first human impact on vegetation , which is still prevalent, is the use and misuse of fire, even though over half of the fire that occur are natural, resulting from lighting strikes or spontaneous combustion of decaying organic materials. The rest can be attributed to accidental fire may result from agricultural uses. Camp fires, trains, children playing playing with fire. Fire causes reduction in natural vegetation, they threaten wildlife, humans and properties. Fire produces secondary problems in association with the clearance of vegetation such as soil erosion, flooding and wind erosion.

Animal husbandry can also have major impact on the landscape (Revvien, 1990). He further explained that heavy grazing of cattle leads to trampling and compaction of the soil, reducing its capacity to hold water and altering its structure. Utimately, this leads to soil erosion both by wind and water. Selective grazing at particular plants may lead to changes in the nature of the vegetation cover. Livestock based livelihood are on important component in both subsistent and commercial economic activates in dry lands. Traditional pastoral nomads system have been very important in Northern Africa, some parts of the Southern Africa, Arabia and Central Asia for thousand of years. Plant commodities are destroyed by animals . Plants destruction is not solely achieved by eating as trampling of plants destruction or disturbance of root systems by scuffing and compaction of surface, reducing rainfall infiltration all contribute to

damage. Degradation has especially been regarded as ensuring from situation where herds sizes are allowed to increase in almost uncontrolled and irresponsible manner. Rising livestock numbers in dry land grazing system have particularly been seen to lead to desertification which will gradually start as deforestation (Umoh,1990) .

Wood and other combustible resources were main kinds first energy resources. Wood still exhibit more flexibility than other fuel resources. Wood energy gains supremacy over other fuel resources mainly because it costs less in some circumstances got free depends on excessive dependence on fuel wood as the only source of energy. Nigeria is within the land areas facing crisis of in fuel wood extraction. Ojo(1975), has confirmed the widespread of use of fuel wood as the only source of energy in rural areas. FAO(1985), identified fuel wood as the staple energy source for about three-quarters(3/4) of the population in the developing countries.

Wood(1985), Morgan and Moses (1981), Accentual (1978) Areola (1978) and Martimore (1967) confirmed that fuel wood that is the primary source of energy in developing countries and especially in the tropical lands. FAO(1981), revealed that poor people depend more on fuelwood because they could not afford the alternative fuel. Also Akintola et all (1996) noted that methods of fuelwood exploitation in both the forest and savanna regions are unsustainable as people do not plant trees to replace those removed for fuelwood.

Definition of environmental impact assessment abound. They range from off-quoted and broad definitions of Munn(1979). Which refers to the need to identify and predict the impact on the environment and on man health and well being of legislative



proposals, policies, projects, programmes and operational producers, and to interpret and communicate information about the impacts” to the narrow UK DE(1989) operational definition.

Institutional responses to meet the goal of sustainable development are required at several levels. Issues of global concern, such as ozone-layer depletion, climate change, deforestation and biodiversity loss, require global political commitments to action. The United Nations conference on Environment and development (UNCED) held in Rio de Janeiro in 1992 was an example of International concern, but also of the problems of security concerted action to deal with such issues. Agenda 21, an 800-page action plan for the international community, into the twenty first century, set out what nations, should do to biodiversity, desertification, deforestation, toxic waste, sewages, oceans and the atmosphere.

The species most favoured for clearing are Isobberlinia doka, Khaya senagalesis, Danielia, Oliverii, prospis africana and parkia clappatoniana. In semi and arid zone where tree fodder accounts for least 20% of the livestock feed, deforestation and desertification have resulted and thereby forcing migration away from the desertified areas.(Spears,1985). Uncontrolled grazing and bad land-use systems also contribute to the heavy deforestation in the Savannah zone of Nigeria. If these practices gone on unchecked, the existence of the savanah region may become a history.

## **CHAPTER THREE**

### **3.0 METHODOLOGY**

#### **DATA COLLECTION AND PROCEDURES.**

Due to the nature of the research work coupled with the time constraints of the study, a questionnaire was designed as an appropriate and veritable tool for getting first hand information and data from farmers, pastoralists and other stake holders. In addition to questionnaire, reconnaissance survey and personal interview and interaction were carried out as to broaden the volume of information to be collected. The use of materials from relevant text books , journals and research papers stands out as an imperative tool. These techniques or methods mentioned gave ample opportunity for adequate data collection.

#### **3.1 QUESTIONNAIRE.**

A structured or fixed response, questionnaire containing thirty (30) relevant questions was designed and distributed to the Farmers, fulani Nordics(Pastorals)and other stake holder residing in the grazing reserve. One hundred (100) Questionnaires were distributed to fulani Normads , farmers and other stake holders. The respondents were restricted to some response options. A question was asked and a number of response were supplied. From these, the respondent were expected to pick any one that best suits his/her response. The question asked had directed bearing on the activities responsible for deforestation in the area, the questions were verbally translated into the local common languages (Hausa) for proper comprehension.



### **3.2 SAMPLE OF THE QUESTIONNAIRE**

Controlling the impact of effects of deforestation Bobi Grazing Reserve , Mariga  
Local Government.

Personal Data

Name

Occupation

Age

Sex

Educational Level

### **RESEARCH QUESTION**

(1) What type of Agricultural activity are you engaged in

(a) Crop Production (b) Animal production (C) Mixed Farming

(2) How many hectares of land do you cultivate or put into use

(a) Less than one (b) More than one , Less than Five (C) More than Ten Less than  
Twenty.

(3) What clearing methods do you use.

(a) Mechanical (b) Manual (c) Burning.

(4) How many animals do you keep

(a) Less than 1-10 (b) More than 10-20 (c) More than 20 –50 (d) Above 50

(5) What grazing system do you use for your animals?

(a) Zero grazing (b) Free Grazing (c) Semi-Intensive grazing (d) Communal grazing.

(6) What is your source of energy at home?

(a) Gas (b) Fuel wood (c) Kerosene

(7) Give an estimate of the firewood you use monthly.

(a) Half Pick-up Load (b) One Pick-up load (c) More than one Pick-ups load

(8) Do you sale fuel woods?

(a) Yes (b) No.

(9) Do you pay for felling down trees?

(a) Yes (b) No

(10) Give an estimate of fire wood you sale monthly

(a) 10 Pick-ups (b) More than 20 less than 50 (c) More than one Pick-up load.

(11) Are you aware that your activities have negative consequences on the environment?

(a) Yes (b) No

(12) Any awareness campaign against cutting down trees in this Local Government Area?

(a) Yes (b) No

(13) Do you know that deforestation could cause soil erosion, fertility and land degradation ?

(a) Yes (b) No

(14) Do you hope to limit your cutting down of trees ?

(a) Yes (b) No

### **3.3 RECONAISSANCE**

The survey took place later part of October, 2001. Some Villages visited included Kanfanin Bobi, Durugu, Bassa, Buzana, Igede, and Gada. This entails the physical observations and assessments of man's physical activities on the environment e.g. cultivation, Livestock rearing (animal husbandry) and construction, The survey involves watching, evaluating the extend of deforestation and carrying out an inventory, damage done to the environment and the impact . Apart from the first hand information given, the recognizance surveyed also provides an ample oppoturnity of the observing the real menace of deforestation in the area.

### **PERSONAL REVIEW**

Farmers and other stake holders were personally interviewed about issues of paramount concern to the research. The interview involves soliciting information from farmers and other stake holders. Verbal interaction was explored and a great deal of skill was adopted in communication. Probing questions were asked to give more details about the theme of the research work. The research work received a lot of information from interview method. The personal interview provided more comprehensive exploration that were not initially included in the questionnaire. Direct and more elaborate exploration and its causes were obtained . Pertinent and probing questions were asked and thereby revealing some basic information or data about the research.

### **OTHER SOURCES.**

Materials and data of relevant empirical works from books, journals and research papers were consulted and scrutinised in order to have justifiable data. Deforestation cuts across all countries of the world as such, a lot of research work have been documented about it. Journals and research reports that dwell extensively on deforestation were used.**SAMPLING TECHNIQUES.**Random sampling techniques was adopted for the research work. The questionnaires were distributed randomly to different farmers and other stake holders in the project area.

## CHAPTER FOUR

### 4.0 DATA ANALYSIS AND DISCUSSION

Data analysis was strictly based on frequency–percentage method. The frequency percentage methods was adopted due to its adequacy, simplicity and relative ease of interpretation and presentation. The central focus of this analysis hinges on the number of responses expressed in terms of percentage. One Hundred (100) questionnaires were distributed but only eighty(80) were filled and returned. So the analysis centers around eighty (80) questionnaires . Below is the typical example of the table used for the analysis:-

TYPES	FREQUENCY	PERCENTAGE
Crop Production		
Animal Husbandry		
Mixed Farming		
Nil		
Total		

#### TYPE OF AGRICULTURAL ACTIVITIES

The question tends to find out what type of agricultural activity is the respondent engaged or involved in. Under this the options are Crop Production, Animal Husbandry , Mixed Farming and those that don't engage in any type of agricultural activities.

This will provide ample opportunity of appreciating the kind of human activities carried out and the nature of vegetal disturbance that will result into deforestation.

Table 4.1 TYPE OF AGRICULTURAL ACTIVITIES

TYPES	FREQUENCY	PERCENTAGE
Crop Production	50	62.50
Animal Husbandry	25	31.25
Mix Farming	5	6.25
Nil	-	-
Total	80	100.00

Source : Survey Data, 2001.

From Table 4.1, 31.25 % Of the respondents are engaged in animal husbandry, therefore overgrazing as a cause of deforestation is low in the study area. In spite of the low level of overgrazing, it still accounts for some degree of deforestation. 62.50% of the respondents are involved in crop production and this implies that more hectares are cleared in order to farm more crops. Population pressure translates into more acquisition and clearance of land. A lot of people are engaged in crop production

such as mix farming accounting for 6.25% so the degree of vegetal shrinkage will be high.

Hectares of land cultivated.

The hectares of land cultivated will give an indepth knowledge of the rate and extend of deforestation occurring in the area. Small hectares of land will denote relatively low level of deforestation while large hectares of land imply high level of deforestation.

#### **HECTRAS OF LAND CULTIVATED**

Table 4.2

<b>HECTARES</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
<1	12	15.00
1<5	48	60.00
5<10	20	25.00
Total	80	100

Source: Survey Data, 2001.

From Table 4.2, 15% cultivates<1, 60% cultivates 1<5 and 25% cultivates 5<10 hectares of land . This point to the fact that the vegetation is prone to deforestation because of high percentage of respondents that cultivates 1<5 hectares of land. The

intensified percentage entails that large hectares of land are cleared in order to increase food production.

### **TYPES OF GRAZING SYSTEM.**

Even though over grazing is only 20% of the activities, it plays a negative role in the issues of deforestation. Animal grazing want only on grasses and shrubs are intensifying the problem. Free grazing have the greatest negative impacts, because the animals are left to graze from one place to another and lack of adequate supplement for grasses is yet to be solved, so an insight into what grazing system is used will denote the influence of grazing on deforestation.

### **TYPES OF GRAZING SYSTEM**

Table 4.3

<b>GRAZING SYSTEM</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
Zero Grazing	4	5.00
Free Grazing	60	75.00
Semi Intensive Grazing	1	13.75
Communal Grazing	5	6.25
Total	80	100.00

Source: Survey data. 2001.

Table 4.3 shows that 75% of the respondents adopts free grazing, 13.75% adopts intensive Grazing and 5% adopts zero grazing while 6.25% adopts communal grazing system. This implies that grazing of animals is one of the causes of deforestation, because a lot of natural resources like grasses, shrubs and leaves of trees are collected frequently for feeding animals. The natural resources suffer tremendous abuse.

### **SOURCE OF ENERGY**

Fuel wood as a source of energy at home is one of the basic causes of deforestation . Most Nigerian Families rely on absolutely on firewood as their source of energy and this is of a great concern to environmental managers. The fuelwood consumption rate is frightening and poses a lot of problems to the natural environment. The rate and scale of firewood collection has reached an alarming rate to the extend that attention has been drawn to this problem. The use of firewood is a common phenomenon in a virtually all homes in rural areas.

**Table 4.4 SOURCE OF ENERGY**

<b>SOURCES</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
Gas	-	-
Fuel wood	70	87.50
Kerosene	10	12.50
Total	80	100.00

Source: Survey Data, 2001



Table 4.4 shows

87.5% of the respondents rely on fuel wood as their source of energy at home, this is a very serious trend because it potends drastic and absolute demand of trees. None rely on Gas, perhaps because of its high price and low level of literacy while 12.5% rely on Kerosene. The pressure on these natural resources is incresing because of the quest of people to satisfy their needs, the collection is done wantonly and the cumulative effect is very serious in environmental issues.

#### **ESTIMATE OF FIREWOOD USED MONHTLY**

The quantity of firewood used monthly will give a picture of the area and scale of deforestation in the study area. Some household make tremendous use of firewood while others make less use of it. In a situation where large quantities are collected , the degree of deforestation will certainly be high and widespread.

#### **ESTIMATE OF FIREWOOD USED MONTHLY**

Table 4.5

ESTIMATE	FREQUENCY	PERCENTAGE
One pick-up load	60	75
Half Pick-up load	16	20
More than one Pick-up	4	5
Total	80	100

Source: Survey Data, 2001

There is a sharp difference between the fuel wood requirements of household. Table 4.5 shows that 75% of the respondents use an estimate of one pick-up load monthly, this fact is threatening because at this rate the trees in the area will fastly be exhusted in no distant future. 20% of the respondents make use of half Pick-up load and 5% more than two pick-ups load of fire wood monthly.

### **PURCHASE OF FUEWOOD/FIREWOOD**

If the users of firewood in the local government's area have to pay, there will be drastic education in the rate of collection. The fact that users just get into the bush and cut down trees without paying for it makes the case of deforestation more serious.

### **PURCHASE OF FUELWOOD/FIRE WOOD**

Table 4.6

<b>PURCHASE</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
Yes	5	6.25%
No	75	93.75
Total	80	100

Source: Survey Data, 2001.

From table 4.6, 5% of the respondents do pay for the collection/cutting down of trees while as high as 93.75% of the respondents do not pay any amount for the use of trees.

The absence of legislation makes people to collect these resources without any caution to the rate and degree of collection.

### **SALE OF FUELWOOD**

Some people are specifically involved in selling of fuel and the frequency and quantity of trees collection or felling is overwhelming and this gives rise to a large scale of cutting of trees. Sellers of fuelwood cut down trees indiscriminately and the trend is constituting great hazards to the environment

### **SALE OF FUELWOOD/FIREWOOD**

Table 4.7

<b>FUELWOOD</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
Yes	30	37.5
No	50	62.5
Total	80	100

Source: Survey Data, 2001.

From table 4.7 37.5% of the respondents are engaged in selling of fuel wood to users. 62.5% do not sell fuelwood. The amount of fuelwood collection were so much that one will envisage a situation where by the trees will be exhausted soon.

### **ESTIMATE OF FUELWOOD**

Commercial sale of fuelwood also accounts for some deforestation in the area. The estimate of firewood collected is so much that the problem will be escalating if nothing is done to check this trend.

### **ESTIMATE OF FUEL**

Table 4.8

<b>ESTIMATE</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
<5 pick-ups load	30	37.50
>5 <10 pick-ups	40	50.00
>10 <20 pick-ups	10	12.50
Total	80	100

Source: Survey Data, 2001.

From table 4., 37.50% of the respondents sale so much as 5 pick-ups load of fuel wood to consumers while 50% sale as much as 10 but less 20 pick-ups load and 12.5% sale more than 20 pick-ups load monthly. This depicts an area where the basic source of energy is fuelwood.

### **AWARENES OF NEGATIVE CONSQUENCES**

The awareness of the negative consequences of human activities on environment is a great knowledge for fighting against deforestation . The more the people are aware of the consequences the easier the task of combating the incidence of deforestation lack of awareness of the consequences of deforestation aggravating the issues.

### **AWARENESS OF NEGATIVE CONSEQUENCES**

Table 4.9

<b>AWARENESS</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
Yes	12	15
No	68	85
Total	80	100

Source: the survey Date, 2001

Table 4.9 indicates that 15% of the respondents are aware of the negative consequences of deforestation , while 85% are not aware. The low percentage of the people that are aware of the consequences is not the respondents that asserts that they are not aware on the causes of damage to the environment.

## CHAPTER FIVE

### 5.0 CONCLUSION

It is highly imperative and pertinent to note that the causes of deforestation is a complex and intricate factors revolving round a man and its activities. Lack of understanding of the natural systems and interaction between various earth surface processes and the impact of human activities or actions, and to manage resources in sympathy with the natural environment makes deforestation a serious problem. From the research work, it is obvious that population pressure, cultivation of crops, overgrazing, fuel wood consumption and bush fires are the basic causes of deforestation in Bobi grazing reserve.

Based on the research findings about 68% of the people engaged in yam and maize production and this requires extremely large hectares of land . Land clearance generally involves cutting of shrubs and trees in order to make heaps and ridges, this alone could account for a reasonable percentage of deforestation in the area. The land is seriously disturbed in the act of making heaps. In a nutshell, the over-cultivation of crops implies through land clearance. In the quest to increase farming land, big forests are cleared and rendered bare and this pave way for deforestation.

Fuelled consumption ranked second in causes of deforestation as shown from the study. Virtually, all the people in the area depends on fuel wood as the source of energy at home. Some residents are involved in the selling of firewood and this accounts for some degree of deforestation . Fuelwood gains supremacy over other fuel resources because it cost less and at times got free from the surrounding.

The rate and scale of bush fires in the area of study is another major cause of deforestation . Bush fires are very fast and could destroy vegetation within small time.

The frequent burning of bushes add to the already existing problem of deforestation. Hunters are used to burning of bush to kill animals and inadvertently causing or increase in the scale of deforestation . Lazy farmers do set fire on bush as a means of land clearance. Burning forest and wood land to create agricultural land is evidently seen animal grazing on overgrazing is seen to be one of the factors compounding the issues of deforestation. Animals are allowed to graze freely on vegetal cover land within no time the land is left bare. Consistent grazing have a cumulative effect on the incident of deforestation. Bush burning by cattle fulani s for the emergent of young grass to sprout out for animals to graze is evidently seen.

Sawmills and other activities could also be a contributing factor in the causes of deforestation because a lot of trees are fell and used by the sawmill makers. Large forests are disappearing due to the activities of the sawmill owners.

Some less obvious but equally important causes of deforestation are lack of awareness, illiteracy and object poverty. Most of the farmers and other stakeholders are not aware of the negative consequences of deforestation. Farmers are not aware that deforestation causes poor soil fertility, erosion, flooding non awareness programme is increasing the rate of deforestation. Illiteracy on the other hand, acts as a barrier to awareness and to such exposes that could enhance desirable attitude change among the people.



The poverty level of the people affect their perception of resources and the proneness of society to extract national resources at levels which may be ultimately injurious to the ecosystem. Other source of fuel are expensive and the poor, man can afford fuelwood because of its cheapness.

## 5.1 RECOMMENDATION

In face of the causes of deforestation analysed above, it is absolutely imperative that some policy, strategies and options are needed to mitigate the potential dangers of the current deforestation rate and scale in Mariga Local Government Area. The following recommendations are made in order to halt the recent trend of deforestation in the study area.

- 1- Adequate and appropriate improvement in systems of farming and land management techniques could reduce rate of deforestation and this will alleviate the impact of population pressure. For example mixed farming could be enhanced upon as a way of improving the presently prevalent slash –and – burn cultivation . This will halt deforestation in a lot of way.
- 2- The practice of deforestation and re-afforestation in the area will mitigate the increase of deforestation. This involves the planting of economical trees to combat deforestation.
- 3- The creation of forest reserves will make valuable contribution towards preventing and checking deforestation.
- 4- Legislation should be made preventing wanton cutting of trees and burning of vegetal cover, the legislation should be thoroughly enforced.
- 5- A massive awareness drive to substantially improve environmental consciousness should be embarked upon by the local Government Area and this will create a healthier environment at a cheaper cost. Educational campaign will redress the problem.

- 6- The need for general alleviation of poverty cannot be overemphasized, in view of the insidious damaging effects of poverty on the environment.
- 7- Finally, the development of alternative source of energy that minimise reliance on fuel wood e.g. solar energy is imperative.

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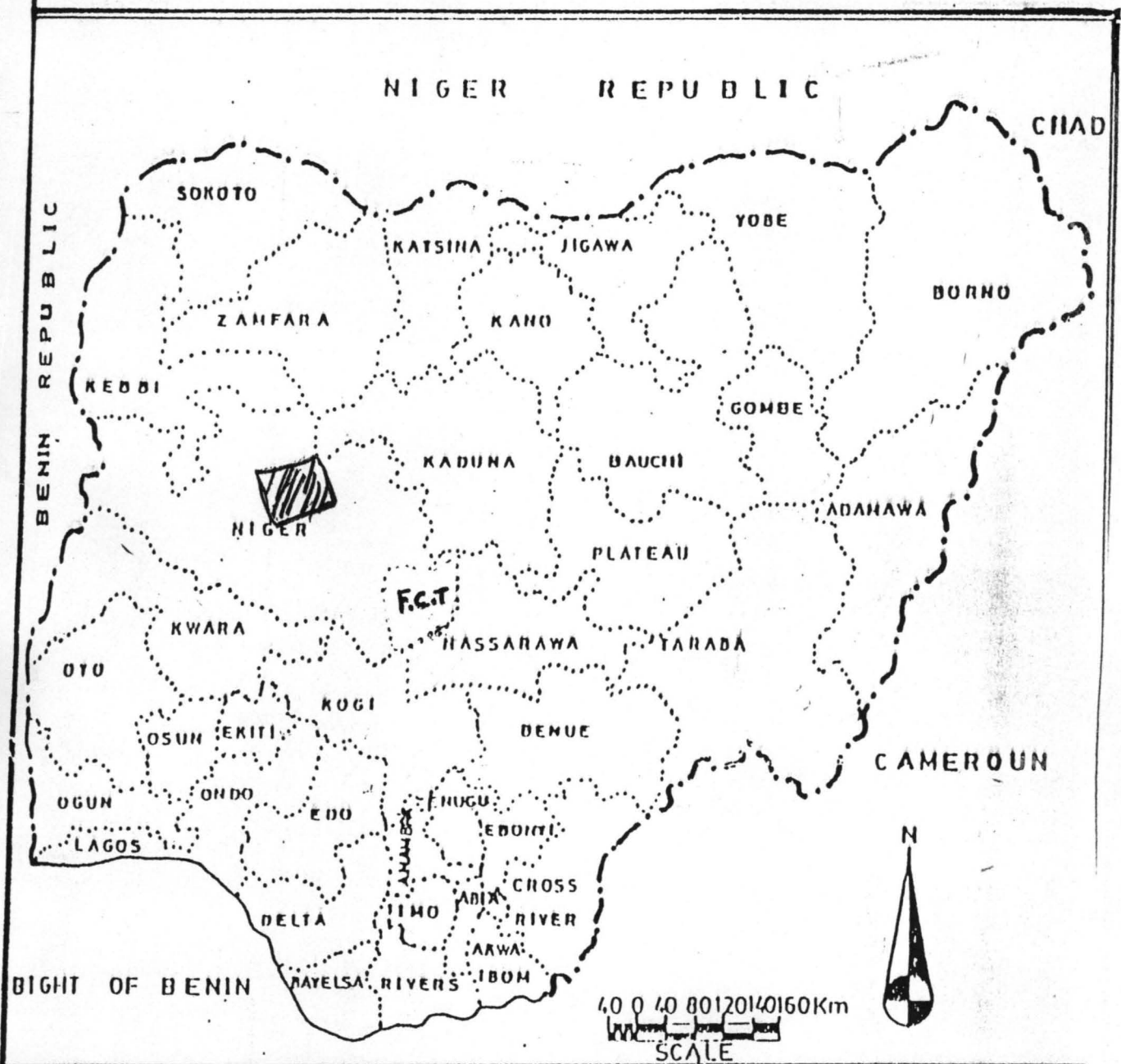
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### LEGEND

- National Boundaries . . . . .
- State Boundaries . . . . .
- Study Area . . . . .



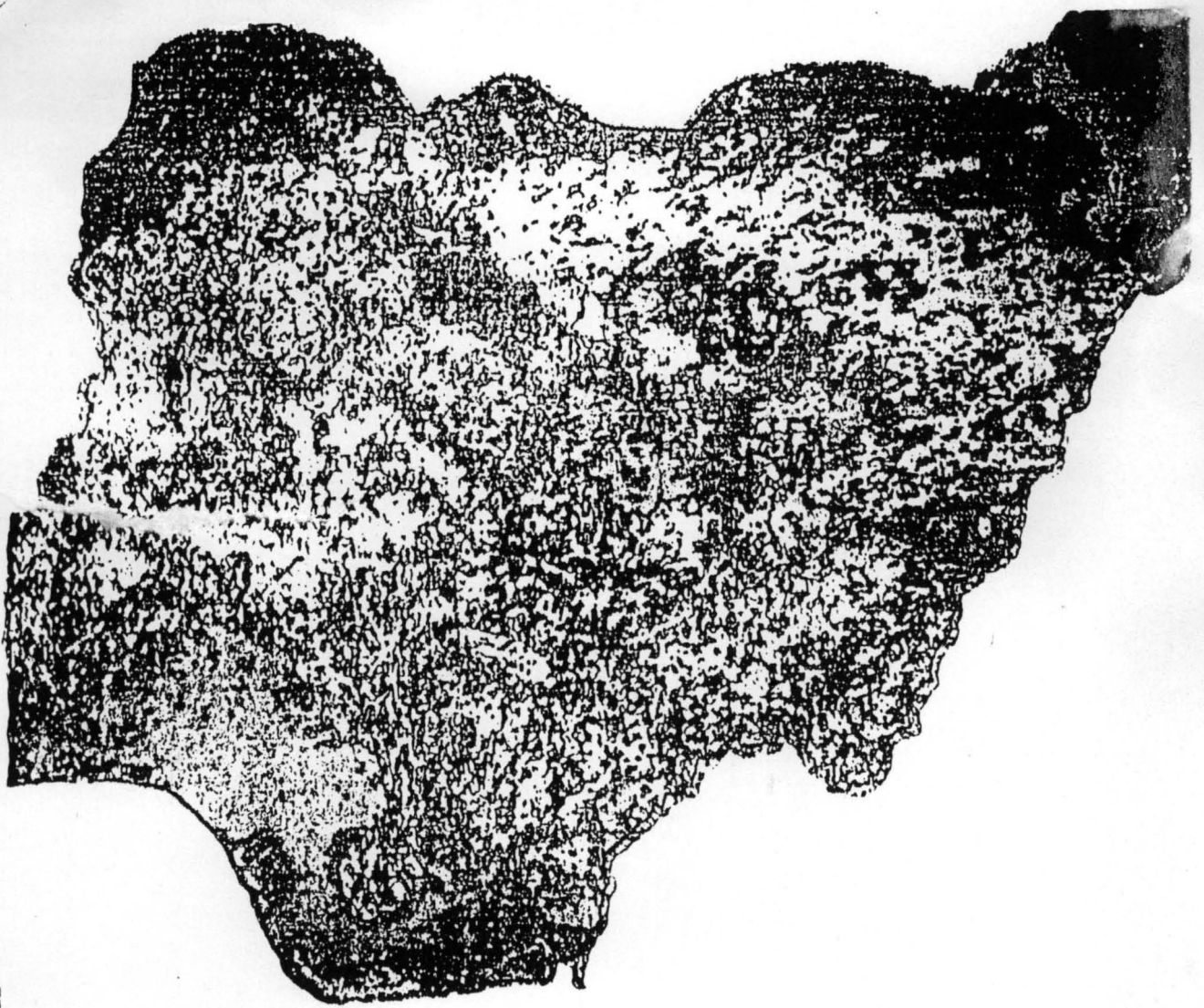
. Map of Nigeria showing the 36 States and F.C.T. and Study Area  
 Source : Ministry of Land and Survey, Niger sta



**KEY**

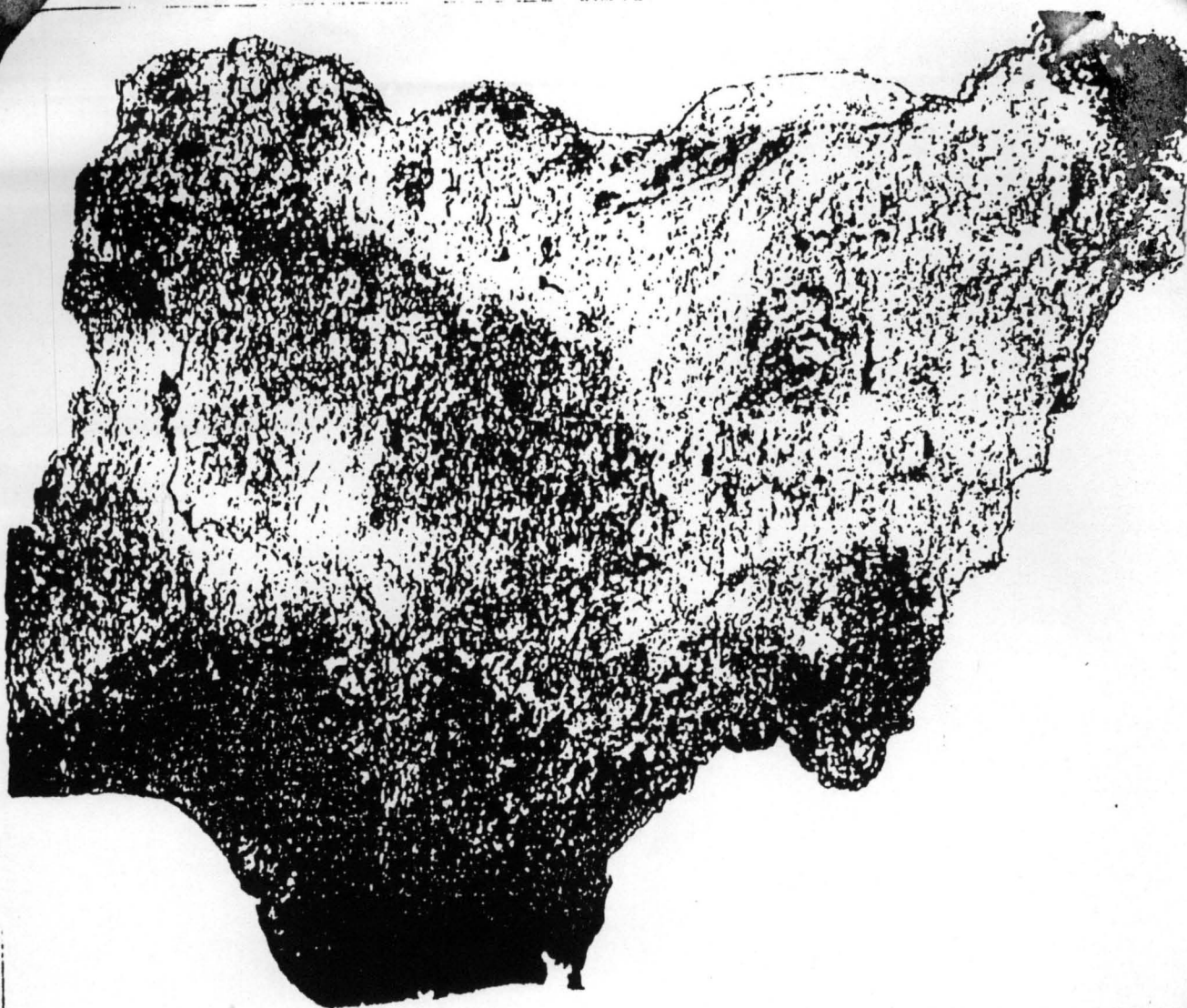
- INT. BOUNDARY.
- STATE BOUNDARY.
- L.G. BOUNDARY.
- L.G. AREA.

Source: Ministry of Land and Survey, Niger state.



**Fig 2.3: 1978 map of Nigeria using remote sensing technique to show the various types of vegetation.**

**Source: Crystal Magazine, March 2000 Edition**



**Fig 2.4: 1995 map of Nigeria using remote sensing technique to show the effects of deforestation and desertification.**

**Source: Crystal Magazine, March 2000 Edition**