

**LOGGING AND IT ENVIRONMENTAL EFFECT OF
SHIRORO AREA OF NIGER STATE**

BY

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DECLARATION

I declare that, this research work was carried out by the author in person of Haruna Damidami Aliyu and presented to Geography department of the federal university of Technology Minna for the award of post-graduate Diploma in Environmental management. While the references and field trips are acknowledged, the project work has never been presented at any university known to me.

.....
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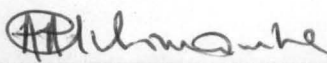
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CERTIFICATION

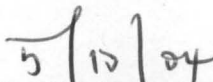
I Haruna Damidami Aliyu certify this project work and its presentation was carried out by myself to the Geography Department of the Federal University of Technology, Minna.

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(EXTERNAL EXAMINER)

DATE

DEDICATION

Praise be to Almighty Allah, the Lord of the Universe who's guidance and
mendous help made this work a success. This thesis is dedicated to my late
parents, Ali Damidami and Hauwa Damidami, also to my wife, children, brother^s
sisters, lecturers and friends.

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I would like to express my appreciation to DR. AKINYEYE of Department of Geography for undergoing this study.

I am sincerely grateful for the immense contribution by my supervisor in person of DR. A.A. Okhimamhe (Miss) of Department of Geogaphy, federal University of technology, Minna. She gave me assistance by offering timely suggestion, taking pain to read through my manuscripts, making necessary corrections and helpful comments, may God reward her abundantly. The entire staff of Geography Department are no exception for they have contributed in no small measure to the success of the course. I also thank the Zonal forest officer Minna for giving me the materials and informations required without which there will be no success.

ABSTRACT

Deforestation through logging has been a major factor responsible for environmental degradation in Shiroro and its environs. In this thesis, the author emphasizes on the effect of logging operations and other human induced activities like fuel wood for energy drive in houses (eg cooking, smoking fish and) grazing, collection of herbs, land clearing or farming etc which has resulted severe land degradation and dryness of water catchment areas within the study area.

The methodology employed basically include administration of questionnaires, reconnaissance survey, field of the study area and personal communications. Although, the resultant proved that all factors mentioned above contributed negatively, but, logging operations took the lead.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 BACK GROUND

Logging can be defined as Legal exploitation of merchantable tree species from a given Natural forest or plantation (as raw materials) for conversion into timber in the wood based industries. Kio (1972) defined Logging as systematic exploitation on sustainable bases within a given forest reserve or plantation. Logging can also be referred to as indirect deforestation. Saw milling industry is one of the wood based industries that are contributing to the socio-economic development of the nation, thus, their existence is justified.

However, population increase, industrialization, increase per capital income and literacy rates has led to increased demand of sawn wood and wood products in Nigeria and this subsequently influenced the logging system particularly in Niger State, Since the establishment of the first sawmills in 1960's (Badejo – 1965).

Regrettably illegal power sawn wood operations could with high demand for firewood, have overshadow the logging system in Niger State and Shiroro and its environs in particular, and as a result of this, the Natural forests in the areas were fast being devoid of trees and other woody vegetation which has gradually rendered the farm lands bare, resulting into land depletion, degradation erosion and infertility of land for agricultural food production.

Exploitation through logging and illegal power sawn wood operators have also deprived the fringing forests of trees which also cause quick dryness of some rivers especially in the catchment areas. It is obvious that forestry is the mother of agriculture and therefore deforestation will negatively affect the general output of food production. In recent times, some of the inhabitants of the various communities within Shiroro and its environs are migrating in search of virgin forest for cultivation, and this is a clear indication of the high rate of the effect of deforestation and its impact on the general populace of these areas.

Unfortunately, most of the economic trees like Khaya Senegalenses, Butrus permum paradoxium etc have disappeared as a result of massive and dubious character of the illegal power sawn wood operators in Niger State. Generally, deforestation through logging has imposed serious negative impact on the entire vegetation in Niger State and Shiroro and its environs in particular.

1.2 PROBLEM STATEMENT

About 80% of the people in the study area are poor farmers and they depend on the little forest within Shiroro and its environ for fuel wood and other domestic purposes. Also most of the trees have been clear felled through logging activities. The logging system is seriously practiced by some power saw men in the area, cutting down the big trees in the small

fringing forest and this has resulted into deforestation, land degradation, and destruction of biophysical components of the forest land areas. The economic factors influencing deforestation in the area have been on the increasing demand for fuel wood. The current trend or pressure on the natural vegetation of study area is due to increase in population, poverty etc which has necessitated the demand on resources and new trends in land use with linkages between crop production, livestock and human settlement, which eventually reduces the forested areas. Generally, the destruction of these natural vegetation as well as biophysical components of the forest land through deforestation have imposed negative impact on the entire surrounding communities.

1.3 AIM AND OBJECTIVE OF THE STUDY

The aim and objective of the study is to survey and as well, assess the impact of deforestation, on the vegetation and general populace within Shiroro and its environs, also to create awareness to the people of the danger ahead (e.g erosion climate change etc) through continuous logging operation within the area. The author through reconnaissance survey of the area, personal shall effectively carry out this research work contact with various communities and sample of the inhabitants' opinion in-groups or individual personally. The impact assessment in terms of land forms, vegetation, rivers, agriculture, grazing and its general environmental impact on the surrounding communities.

4 JUSTIFICATION

There is no any established forest plantation in Shiroro and it's environed. Regrettably the original vegetation and some economic trees in the environment have all disappeared including the small shrubs and herbs. The farmlands being degraded and no trees planted by the farmers for replacement. Both farmers and the government (Local government) could share the blame of which.

The project is aimed at identifying those effects on the various ecosystem within the study area (Shiroro and its environs) the possible solution that may correct their attitude of deforestation, land degradation, wildlife extinction, illegal exploitation, poor land farming system as well as indiscriminate bush burning logging operation in Shiroro and its environs have deprived the area of economic and other timber trees species, a typical situation in most part of Northern states like Sokoto, Kebbi, and Zamfara of which various afforestation projects and sustainable management of the existing natural forest resources is currently being carried out. Nevertheless, there is need to be mindful about finding means of checking this situation in Niger State in particular with Shiroro and its environs, so as to avoid the occurrence of similar situation in the above mentioned states. More so, as it encourages desert encroachment which has already affected those states.

Therefore, these effects on the various ecosystem is to offer suggestions to Niger State Government, on the bases of sustainable management of our forest resources and the need to enlighten our people to reduce deforestation not, only through logging but also other means like fire wood collection herbs etc.

1.5 DESCRIPTION OF STUDY AREA

The defunct North Western State was made up of Sokoto and Niger provinces on the 3rd of February, 1976, the area formally known as Niger province because Niger State (excluding the then Zuru Division along with seven other new states created in addition to the twelve existing ones in Nigeria as at that time. The State took off as an autonomous state in the federation on the 1st April 1976 by assuming full responsibilities for its services. Niger State lies between latitude 8° and 11° 4' East meridian. The State covers a land area of about 7,356 square kilometres with a population of about 2,421,581 people (1991). The land is flat and undulating with ranges of gravities hill, the Southern parts are low and swampy forming the Niger Basin with mean annual rainfall of about 100cm. It enjoys a rainy season lasting about six months (March – September) and dry season (October – February).

Shiroro Local Government came out of this State, and was created in May 1989 from the former Chanchaga and Rafi Local Government areas, with the headquarter at Kuta, (the study area). Shiroro Local Government

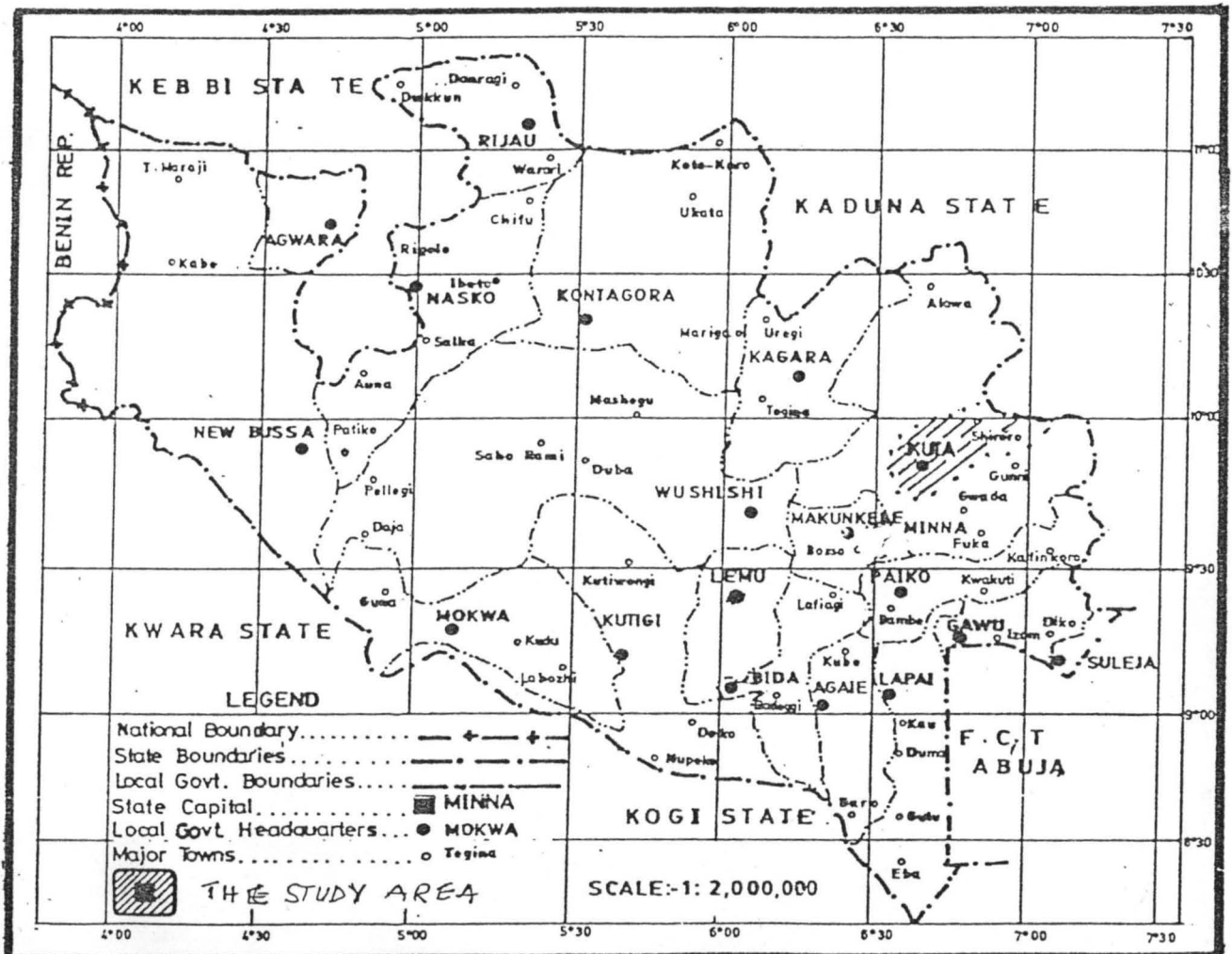


Fig.1: MAP OF NIGER STATE SHOWING THE STUDY AREA

area, has the total population of 300,000 people covering an area of 480 square kilometers. The area is characterized by rocky and undulating hills which are surrounded by Guinea Savanna trees and shrubs. The area has distinct dry and wet seasons with rainfall varying between 1,100mm and 1,600mm from North to South. The study area experiences mean temperature of 13.88°C or 740°F between March and June.

1.6 SCOPE AND LIMITATION OF THE STUDY

This study is confined to the effect of logging operations and its environmental impact on Shiroro and its environs in terms of vegetation, soil and water sources. In the light of this study, the author shall make personal contact with the people, within the study area in order to sample their opinions for proper and effective research on the subject matter and to determine its impact on the surrounding communities.

CHAPTER TWO

LITERATURE REVIEW

The environment is a system and a resources while deforestation, desertification and bio-diversity loss are resultant effects of over exploitation of the Natural resources, in the environment. Environment is also a life support system, which is a resource that is widely used, values and waste. Assimilator. If one should look at today environment, is high on the global agenda and many dimension of environment degradation such as the deforestation, decertification, and loss of biodiversity and many more. Environmental degradation is an umbrella term that includes physical, demographic and socio-economic processes that contribute in either directly or indirectly to the deterioration of the environment. (Sanusi and Sarah 1999). The over bearing element in desertification control is man. The land use practice are not well planned but are influenced by the traditional tenure system which also encourages fuel wood gathering, grazing and crop production. The rural population is forced to degrade the environment in the absence of ineffective legislation policies. The communities in the study area, utilize the natural environment beyond its capacities, there by encourages decertification in the environment.

Human-induced many changes in land use and forest areas are destroyed due to different activities. Results obtained from hydrological investigation in tropical Asia have emphasized the importance of forest

cover in proper management of soil and water resources (Kenworthy 1969).

The protective effect of forest cover on water yield and erosion was demonstrated by an accidental fire in the Snow Mountains of New South Wales in Australia (Brown 1972). The flow pattern changed abruptly after the fire. The water yield and sediment load increased significantly in the first four years after fire.

As a result of deforestation, the open nature of the vegetation renders the soil vulnerable to direct impact of rain drop. And these easily dislodge the naturally loose soil particles, and start a wash off as the rain fall is heavy. Ezenwa and Momodu (1980) observed that the erodibility of the soils of forest reserves in Nigeria Savannah was not attributable only to the nature of the soils, slope and parent material but also to the nature of the vegetation cover. The effect of logging brings about deforestation in Nigeria. It is clearly practiced all over Nigeria, after the big trees have been lost, and the clearing of land for farming, accounts for over 80% of the total forest area deforested annually. Population growth is another important factor of deforestation through logging in Nigeria. It is very well known by now, the important role of which vegetation plays in maintenance of purity and constant composition of the air in the atmosphere. All green plants absorb (CO_2) which is essential for human existence, Okali (1978) draw attention to the possible level of increase in atmospheric carbon dioxide (CO_2) if all tropical forests in the world is replaced by grass of

equivalent. The value of shade provided by trees to both human and livestock especially in the hot, arid climate of Northern Nigeria was stressed by Adeyoju (1974).

The situation in the developing countries indicates that forest areas have continued to decline, due to frequent felling of trees for the demand of wood for either for cooking and constructions.

Deforestation comes as a direct consequence of the following, shifting cultivation, logging, grazing, fuel wood use, fire and urbanization. Of these factors shifting cultivation is by far the most important cause and it accounts for about 70% of the total deforestation in the African Region (Global forest fund 1982).

The effect of deforestation on atmospheric condition on a global scale is still a matter of speculation. Richards (1977) discusses the possible increase of atmospheric CO_2 content by up to 10% and a consequent increase in global temperatures through the green-house effect as a likely result of removal of all tropical rain forest.

In Nigeria, the adverse effect of deforestation is already measurable in the form of increase in light intensity, soil and air temperature decrease in soil moisture and atmospheric relative humidity (Ujah 1982). Destruction of habitats of many animals and plants has become wide spread thereby endangering the existence of such species. Forest areas and population density, and estimated population densities for 1980, 1985

and 1990 forecast deforestation rates for the periods 1981-1985 and 1986-1990 as 3.48 and 3.57 percent respectively, FAO (1992) concluded that if these rates are maintained, the remaining forest area of Nigeria would disappear within the next three decades i.e by the year 2020.

In the early days of forest operations in this country, when natural regeneration methods were considered for replacement of our felled woods throughout most states of the federation. Forestry role in land conservation has been recognised thousand years ago. The ban on the exportation of processed and unprocessed timber came about 1976. Even before this time, the quantity of timber exported decreased from 566,000m³ (20 million ft³) in 1971 to 283,000m³ (10 million ft³) in 1975 (Ojo 1977). The ban therefore is a realization of one of the dreams of foresters. And even since, the Nigerian forestry services have been able to meet the wood requirements of the country despite the various developments. And this was achieved via Judicious management of the forestry resources of the country.

Observation by Arnoni 1981, indicated that as a result of rapid increase in population since 1970's demand for land in order to provide enough food for the growing population has increased. Simultaneously, there has been increase in liestock with increase intensified use of forest to meet rising demand for fuel wood, poles and other forest produces. Fuel wood is the dominant of domestic energy accounting for over 90% of total

wood requirements (Biliya 1987) the use of wood as a major source of fuel has led to serious supply demand imbalances, which is more severe in the Sudan and guinea Savannah zone of Nigeria. Another school of thought maintains that few authorities on forest association in Nigeria have contributed study to help in making us understand what deforestation is all about. According to (Adepoju 1975) Forestry plays a significant role in Nigeria's economy.

However, some has the ideas that deforestation results not only in the loss of trees, but may also cause the entire remaining vegetation to partially break down most areas are drained and organic matter (e.g humus) bound with soil becomes easier to decompose. All these processes release 20% (117 thousand million tones C) of CO_2 and CH_2 Locked up in vegetation since 1850 into atmosphere.

2.2 LOGGING SYSTEM IN NIGER STATE

Although Niger State government realises a lot of revenue through logging, it is obvious that this system in the State both from Natural forest reserves and plantations is relatively very high considering the number of saw mills being established in the state. There is no previous work on survey of saw mills in Niger State, but, according to Salihu (1981) two saw mills i.e Minna was established 1967 and that of Alhaji Gboyiga sawmill at Suleja was established in 1972 were in existence. Later the survey of forest industries carried out by F.A.O. in 1980 showed that Niger State had

about Nine (9) sawmills made up of seven small ones and two medium and it was ranked 10th position in the federation. Today, it is a clear fact that the numbers of sawmills in the State have risen to about twenty (20). From the above analysis of wood based industries (sawmills) therefore, it could be observed and imagined that the intensity of logging is very high despite the fact that all these sawmills depends on trees as the only source of raw materials for their sustainability. These logging activities in order to satisfy the raw material needs of these industries have therefore imposed our environment to a great danger in terms of deforestation easy penetration for grazers, land depletion, degradation and pollution.

Nevertheless, considering these site effect of deforestation through logging, it could be observed that there is need to review the general system in the state to a better footing of afforestation.

2.3 LOGGING SYSTEM IN SHIRORO AND ITS ENVIRON

Deforestation through logging, illegal power sawn wood operations and firewood collection by the various village, Women in Shiroro and its environ have almost reached an alarming rate. Although there is no any established small and medium wood based industry in this zone, but all trees felled here are conveyed to

Minna sawmills for conversion into timber sizes and also most of the powersawn wood by illegal operators are conveyed to Minna Timber Shed to be sold to consumers.

Although logging operations in Shiroro and its environs generate a lot of revenue into both the local government and State Government, it has imposed serious environmental problems into these areas. Some of these environmental problems include land degradation, depletion, erosion, floods and pollution. Above all, most of the natural forest known to exist in 1960's has turned to mere grassland causing the scarcity of agricultural land and as a result of this, some of the inhabitants have migrated elsewhere in search of fertile land. Also most of the fringing forests where rivers used to flow have disappeared and rivers dry up as a result of illegal power saw wood operators who penetrated into any corner of the area in search of merchantable economic timber trees. The plantations in this zone are also under serious exploitation for the past ten-(10) years without maintenance and no new ones planted.

The impact of this deforestation has also extended even to the wildlife in this areas as most of wild animals seen around some villages in these days have disappeared as a result of unconducive environment created through deforestation.

CHATER THREE

3.0 DATA AND METHODOLOGY

3.1 SELECTION OF THE STUDY AREA

The location of the study area and its nature was considered in terms of vegetation and biophysical components surrounding the area, before logging process commenced and compared to what the entire vegetation look like. I developed interest to find out the lapse, which resulted to the destructive condition of the area as at, now, instead of maintaining the environment to remain with its rich vegetation cover has disappeared.

The disputable fact, is that, logging and farming depleted the trees and vegetation cover. The major interest for selecting Kuta and its environ as a study area is the condition which the area faces now due to the various led of the vegetation cover, which is few years to come, the area will be a desert area. The Government forest reserve areas are no more there, and the management of the resource in terms of fund is poor, hence no afforestation programme is taking place in the study area.

3.2 RECONNAISSANCE SURVEY OF THE STUDY AREA

I embarked on the field trip and reconnaissance survey of the study area, because, seeing is believing. The reasons for carrying out this field trip and reconnaissance survey are;

- (a) To familiarise myself with the study area (Kuta and its environs) and some near by communities.
- (b) To see physically the nature of its vegetation and land forms.
- (c) Make general consultations with farmers and some community leaders in order to obtain the necessary information on how the vegetation.

It was discovered in the course of field data collection, that some of the communities' settlements have migrated from this local government area to another local government areas in the state looking for fertile land for good yield. However, photographs of some strategic places within the study area was taken for effective comparisons where necessary.

3.3 PERSONAL COMMUNICATIONS

Inter-personal method of interview was habitant of these communities were illiterates, in order to assess the severity of deforestation. Those involved in personal interview includes community leaders, households, village heads as well as few individuals. All emphasis was laid on farmers who were the architects of vegetation cover removal in the course of farming thereby killing the merchantable trees including the economic ones like By truspermon Paradoseium Parkia biglobosa etc. this again lead to reduction of the organic materials, increase run off which lead to soil

erosion. This again lead to reduction of the organic materials and leaving the soil bare, increase in run off which leads to more deposition of sediment in the rivers.

CHAPTER FOUR

4.0 ANALYSIS AND DISCUSSION OF RESULT

4.1 RESULT OF RECONNAISSANCE SURVEY

The reconnaissance survey of the study area was carried out in order to familiarise myself and see physically the vegetational changes as a result of negative effect of the logging operations within these localities. The notable villages visited in the course of this reconnaissance survey includes, Yaya Gbata, Rafin Kuka, Kato, Gusoro, and Kampanin Audu. As a matter of fact, some of these villages were covered with thick forests in 1960's but now, you can see or view some of them (villages) from far distance of more than 4 kilometers or even more due to severity of logging activities.

4.2 RESULT OF PERSONAL COMMUNICATION

The information collected from both farmers and community leaders was the same, they were free to clear the land for farming anywhere after logging operation which shows the inadequacy of fund and lack of logistics constitution, which is a major problems for the effective management of the area. The illegal timber exploitation, collection of fire wood and herbs by the communities have resulted to destruction of the environment. The people also highlighted the issue of cattle rearers which are the Fulanis for grazing

of their cattle and setting within areas for years, year in year out for continuous grazing. Also have annual fire disasters or indiscriminate bush burning activities were also discussed. People talk of high yield for subsequent years and this indicate the exhaustion of soil fertility of the area, which compelled some people (communities) out of the areas to another different local government areas in the state for farming. However, due to efficient local government management of area by state and local government by creating and planting tress in this area it has become victim of circumstances and the consequences due to destruction of tress, vegetation covers and degradation and these in turn imposes a negative impact on the surrounding communities depriving them from the benefit from the above mentioned biophysical components indirectly via their own activities.

Personal communication and interview were carried out within the rural communities visited and these communities include Yaya Gbata, Rafin Kuka, Gussoro, Kato and Kampanin Audu. The population of the people of this communities is estimated to about 7,050 (1991 census).

4.3. ANALYSIS AND DISCUSSION ON CHARACTERISTICS OF RESPONDENTS

The data analysis results and discussions were based on responses to the questionnaires administered to the various villages on the study area, namely, Kwalawa, Vemu, Chiri, Gbaykokin, Gwadami, Gussoro, Gwada, Gbegetuko, Dokovingo, Gbanape, Pina, Tapila, Shape, Shakoda, Rafinkuka, Shakwatu, Kuta, Kato, Kampani Audu and YayaGbata. The total of 1,000 questionnaire were prepared and distributed to twenty communities with fifty in each community, so as to sample the opinion of many people within the study area. About six hundred were collected back to form the bases for the analysis. Out of ~~six~~ hundred respondents, five hundred and twenty (520) are male, while eighty (80) are female. The greatest number of farmers within the study area falls between the ages of 45 years and 50 years, which signifies that most of the farmers are elders. Thus they have been farming for quite a long time. The table below explains the age categories of the respondents.

AGE CLASS	FREQUENCY	PERCENTAGE
20 – 30	10	16.7%
35 – 40	15	25.0%
45 – 50	30	50%
55 – 60	5	8.3%
Above 60	-	-

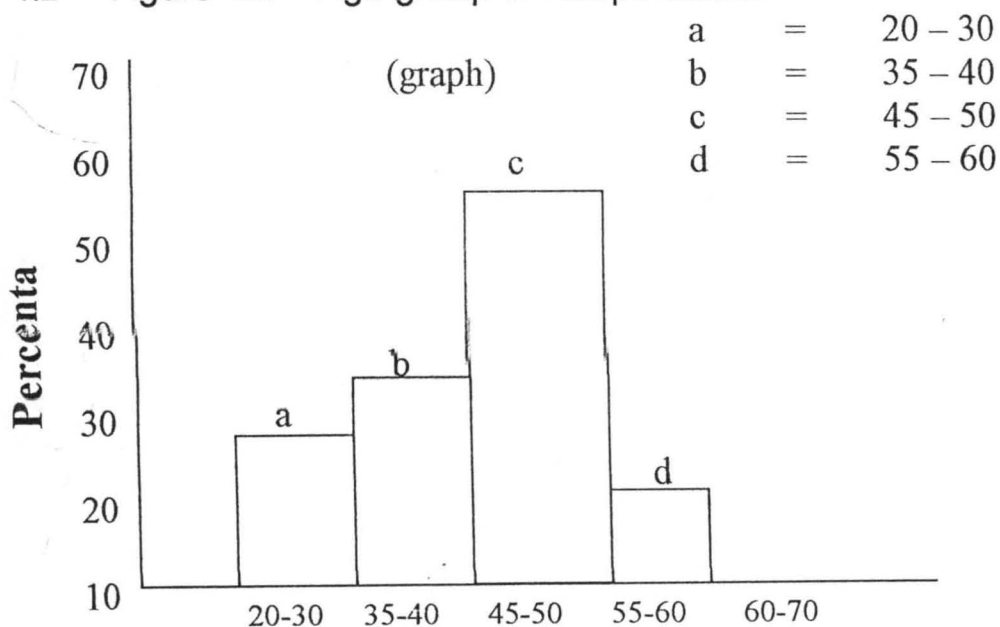
Table II: (Age categories of respondents)

Compiled by the Author.

4.1 The sample opinion of the respondent revealed that about 99% of these people are indigenes of these areas and have settled within the study area for several years. Some even gave the story of how difficult it was for them to clear these vegetation before they could settle to build their homes.

4.2 The farming system practiced by over 98% of the people of these communities includes shifting cultivation, rotational cropping, mixed cropping and mono-cropping respectively. These farming practice, have imposed severe and negative consequences on the general vegetation and land forms of the study area. Consequently one hundred percent of the people declared that the original vegetation of these areas was virgine areas, thick forest full of economic trees coupled with rivers flowing in catchment areas even in the dry season.

4.2 Figure III: Age group of Respondents

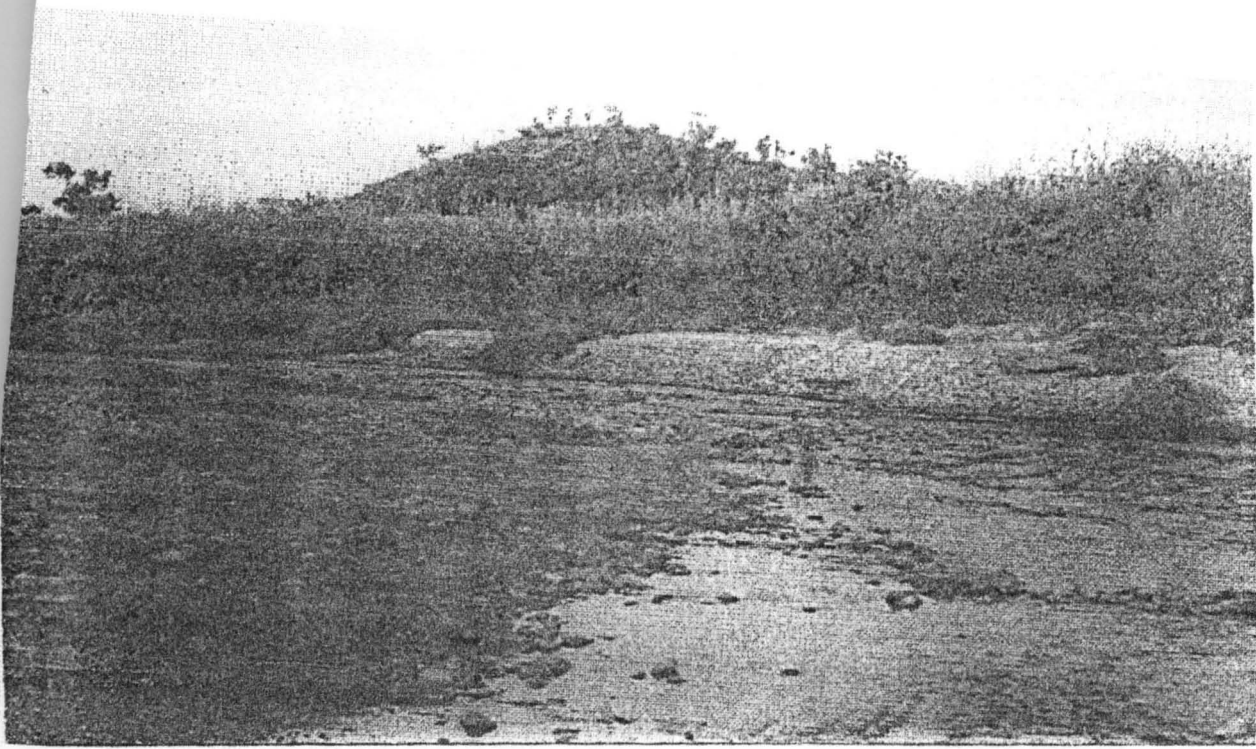


(fig III: – show the age group of respondents). The respondents, 100% also gave a negative a count of changes of vegetation in the study area because, according to the respondents, fauna was abundant e.g. wild animals, such as monkeys, gorillas rabbits etc which have disappeared. Logging have had a negative impact on the yield of the farmers in terms of quantity of crops in subsequent years, simply because of land degradation and diseases such as insects attack, termites etc. A lot of benefits were being derived by the inhabitant from the forest apart from logging operation, such as herbs for medicinal fire wood, fruits which also encourages deforestation indirectly and severely. And some of these activities include, the collection of herbs, debarking of some trees especially the fulanis, grazing in the area generally and bush burning by both farmers and Fulanis as well as wild fire. Consequently the inhabitants of these areas are migrating to other areas in search of better conditions e.g. shelter, good drinking water, fertile land for farming etc. for good agricultural yield. The fact that these vegetation have been disturbed through logging, the area experiences bush fire through land clearing for farming. Cattle rearers i.e Fulanis in search of fresh grasses for grazing, also set fire to bushes.

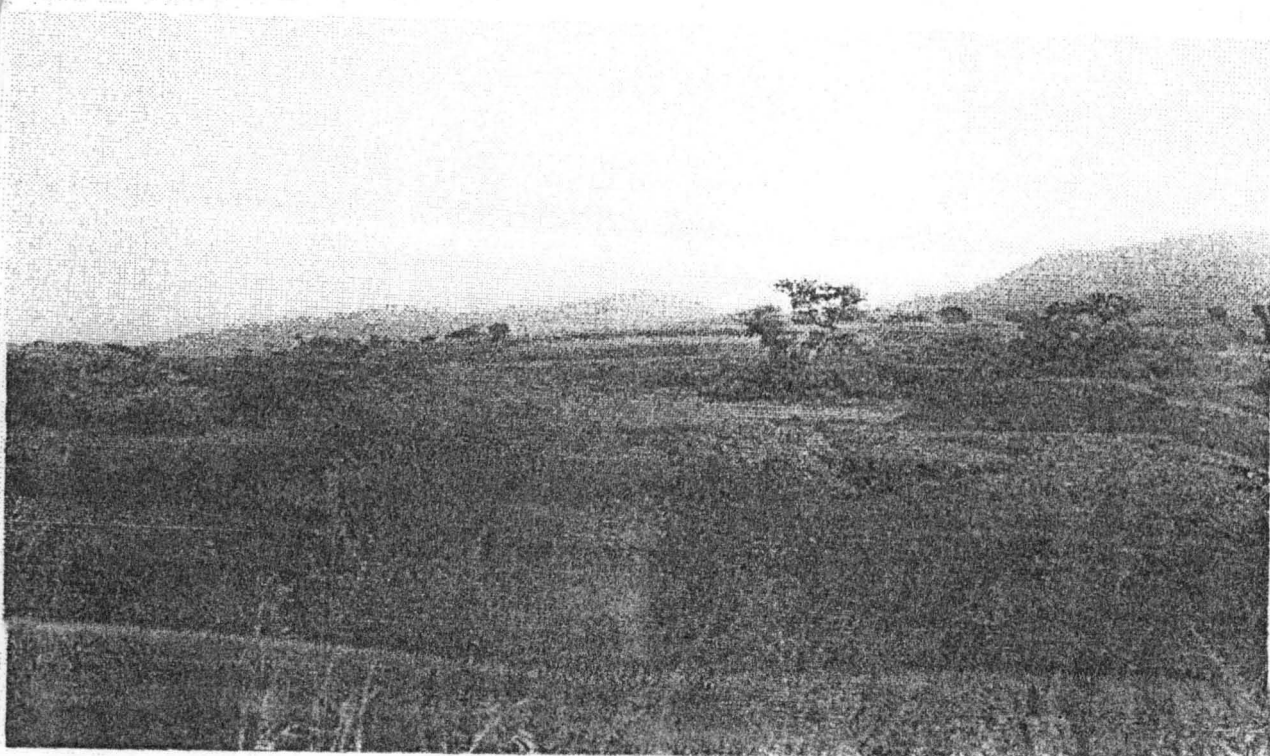
4.5 PHOTOGRAPHS OF SELECTED AREAS WITHIN THE STUDY AREAS

The photographs of selected areas being affected as a result of deforestation through logging were taken in order to enable the reader to see physically, the extent of forest destruction, land degradation within the study area. However, the photographs were numbered in plates (plates I, II, III & IV) showing the details of the physical situation at different locations.

Plate I shows the cross-section of river Rafin-Kuka which cut across the forest reserve previously with dense vegetation and merchantable economic trees, closing canopy along the banks of this particular river, but were today cleared as a result of intensive logging operation and farming. Similarly P. II. Also indicated a portion turned into grassland with the forest reserve. P.III shows a portion that is on its course to complete depletion and degradation through farming activities. While P. IV shows a bandsaw machine in one of the existing sawmills within Minna metropolis where most of the trees felled from the study area were taken to, for conversion.



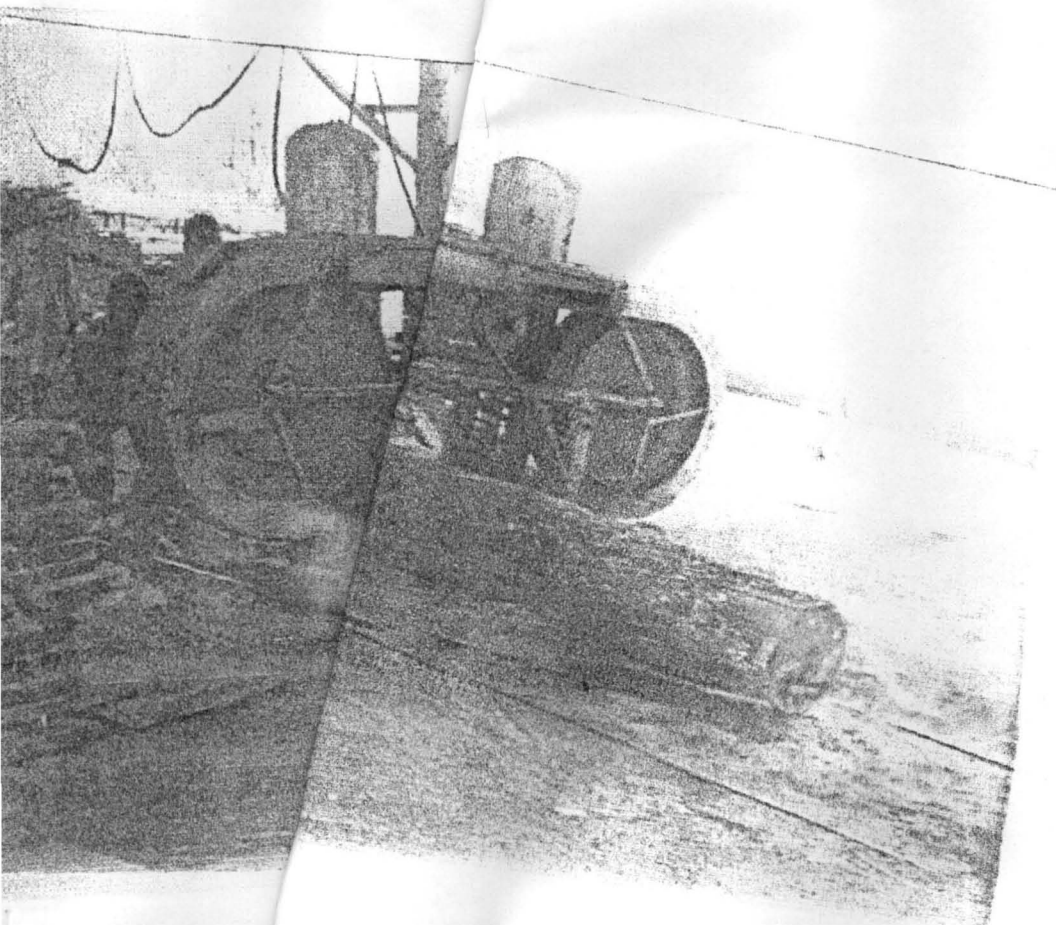
3.5.1 Plate 1: (Deforested River bank of Rafin Kuka).



3.5.2 Plate 2: (degraded Area).



1.5.3 Plate 3: (Farm Land wfew Trees)



CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

Logging as part of deforestation, must be seen as means of providing for man's legitimate needs for wood and wood products as well as expanding agriculture. It is noted that logging itself encourages scale farmers and rural energy of fuel wood later and this resulted to shifting cultivation. Fuel wood within the study areas was identified to be of good timber quality and is being used for construction. Then myriad establishment of saw mills started, and more havoc to the forests through illegal exploit action became rampant in the area and demand for wood as the population continued to increase for both timber felling and fuel wood demand. Rapp (1974) listed man's role in deforestation to include, burning of vegetation, overgrazing, wood cutting and cultivation of marginal lands and concludes that, vegetation degradation is solely caused by man's action climate being only a supporting factor. Actually the occurrence of dry periods has always existed but, in the past vegetation in equilibrium was able to recover whereas nowadays vegetation is depleted through many ways of misuses and cannot do so because of man's and animals pressure, rain forest are falling due to the demand of the timber merchant, but far more, is that village avid for more agriculture land. FAO (1969) reported studies on shifting cultivation in West Africa, which was estimated

that each additional cultivator clears an average of 4 hectares of forest in the course of his working life, destroying in the process of a volume of wood several times larger than the quantity which he and his dependants are likely to consume during their life time.

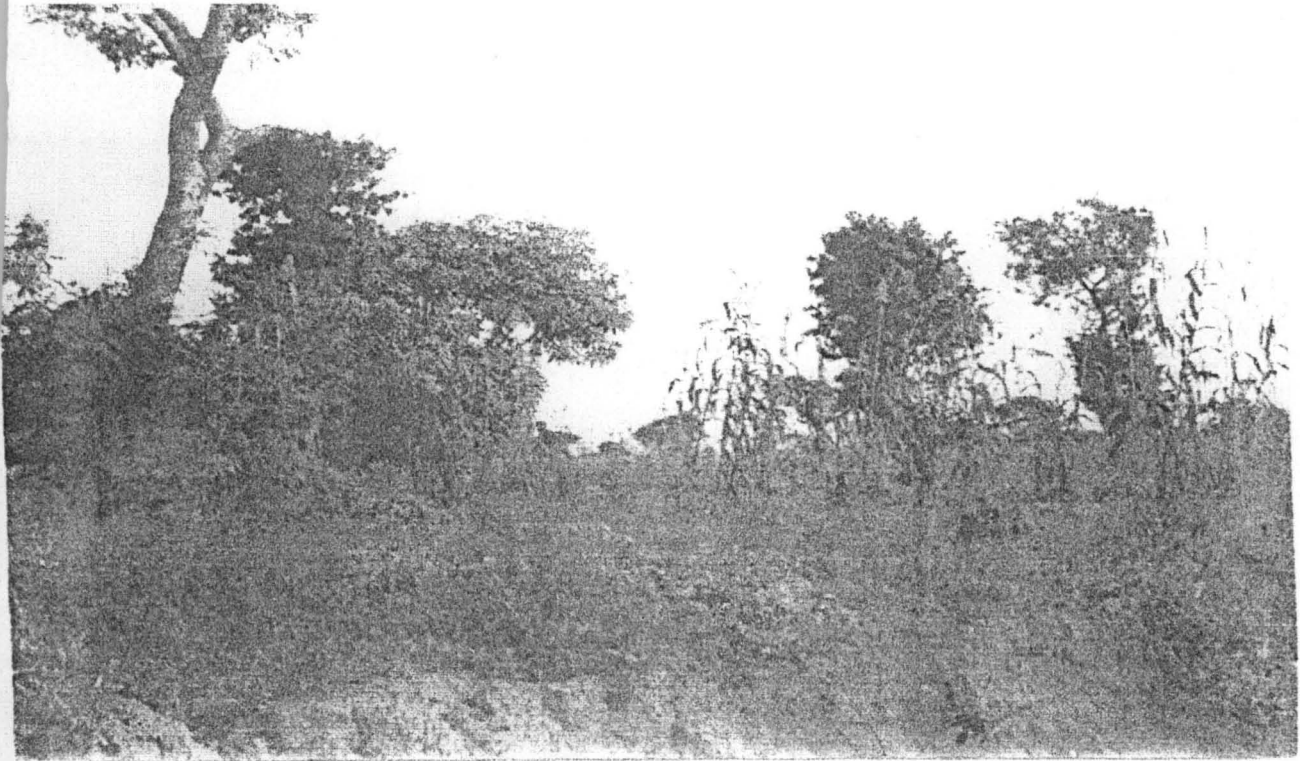
Consequently, the population growth has influenced the wood demand and consumption within the study area, despite the fact that over 80% of the total populace depends on wood as their source of energy for cooking and other domestic uses. The resultant effect of these factors exposed the entire area to total destruction wildlife and fisheries disappeared, water and soil erosion were setting in at alarming rate. The environmental impact of these factors includes water and air pollutions, resulting into migration of man and animals in search of better and conducive living conditions.

5.0

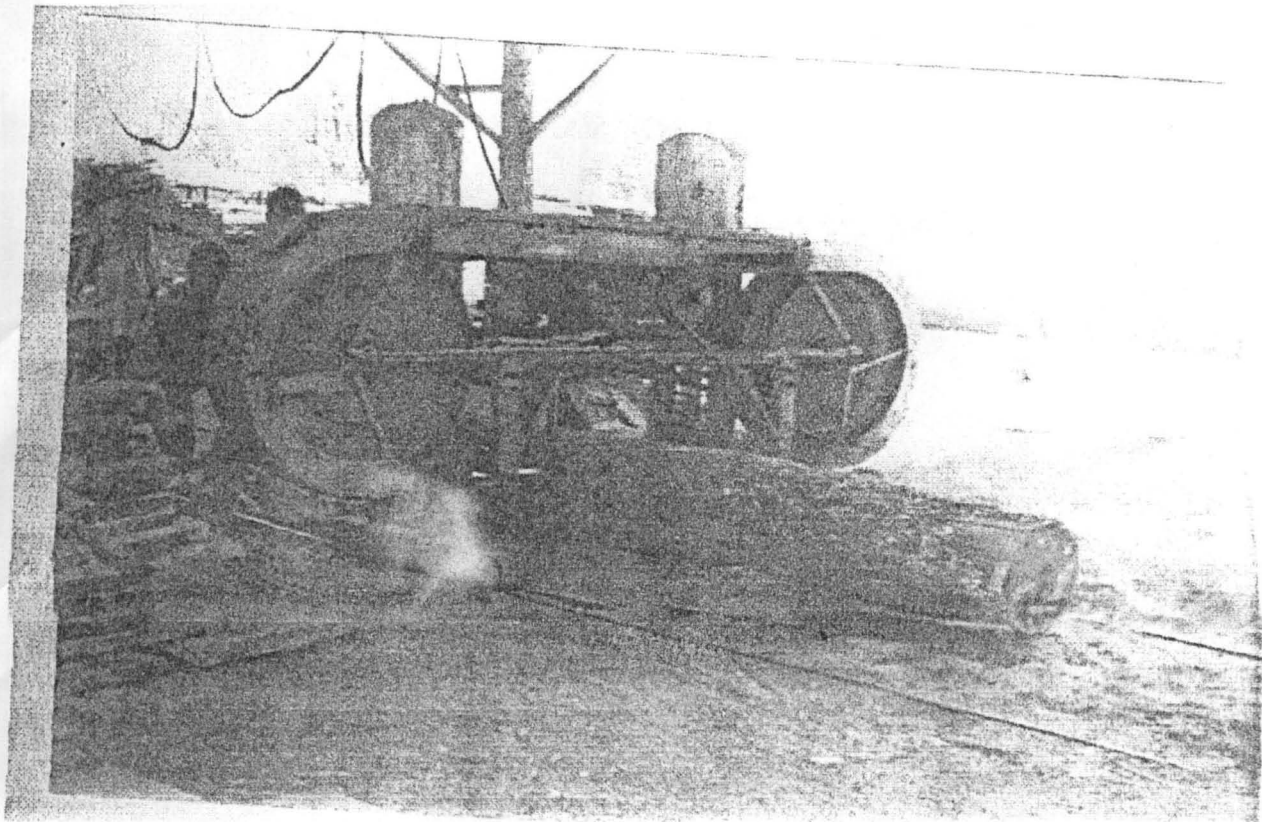
RECOMMENDATION

The people of these communities made several complaints, appeals, and suggestions, some of which include:

1. Government should try to minimize logging operations.
2. Government should provide them with alternative source of energy for domestic use, in order to reduce their (people of these localities) dependants on fire wood, which is also parts of deforestation.
3. Government should as a matter of urgency sink bore holes within these localities to reduce the sufferings of the people as regards potable drinking water and this may probably attract some people that have already migrated to urban centres back to their village.
4. Requests were also made of the need to access roads and local bridges linking these communities for easy transportation and commercial transactions.
5. The Local and State Government should embark on tree planting in the area. So as to check soil erosion and land degradation.
6. The State Government should increase financial allocation to local Government or forest department in order ensure intensive management of the area in terms of forest management.



3.5.3 Plate 3: (Farm Land with few Trees)



3.5.4 Plate 4: (Band saw Engine in operation in one of the Sawmills in Minna, Niger State)

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

Logging as part of deforestation, must be seen as means of providing for man's legitimate needs for wood and wood products as well as expanding agriculture. It is noted that logging itself encourages scale farmers and rural energy of fuel wood later and this resulted to shifting cultivation. Fuel wood within the study areas was identified to be of good timber quality and is being used for construction. Then myriad establishment of saw mills started, and more havoc to the forests through illegal exploit action became rampant in the area and demand for wood as the population continued to increase for both timber felling and fuel wood demand. Rapp (1974) listed man's role in deforestation to include, burning of vegetation, overgrazing, wood cutting and cultivation of marginal lands and concludes that, vegetation degradation is solely caused by man's action climate being only a supporting factor. Actually the occurrence of dry periods has always existed but, in the past vegetation in equilibrium was able to recover whereas nowadays vegetation is depleted through many ways of misuses and cannot do so because of man's and animals pressure, rain forest are falling due to the demand of the timber merchant, but far more, is that village avid for more agriculture land. FAO (1969) reported studies on shifting cultivation in West Africa, which was estimated

that each additional cultivator clears an average of 4 hectares of forest in the course of his working life, destroying in the process of a volume of wood several times larger than the quantity which he and his dependants are likely to consume during their life time.

Consequently, the population growth has influenced the wood demand and consumption within the study area, despite the fact that over 80% of the total populace depends on wood as their source of energy for cooking and other domestic uses. The resultant effect of these factors exposed the entire area to total destruction wildlife and fisheries disappeared, water and soil erosion were setting in at alarming rate. The environmental impact of these factors includes water and air pollutions, resulting into migration of man and animals in search of better and conducive living conditions.

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RECOMMENDATION

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5. The Local and State Government should embark on tree planting in the area. So as to check soil erosion and land degradation.
6. The State Government should increase financial allocation to local Government or forest department in order ensure intensive management of the area in terms of forest management.

7. The environmental impact assessment of the affected area should be carried out so as to determine the level of environmental pollution via logging and fuel wood production.
8. Clear and unambiguous forest policy should be made so as to ensure stronger legislation and control and to involve forestry department more judicial power to deal with such offenders.
9. Vehicles and motorcycles should be provided to forest staff to ensure effective patrolling and supervision of the area so that any body found violating the order should be brought to book.
10. Both the State and Local Government should create more awareness in the minds of the people (especially rural area) as to what forest is and its role in the Nigerian economy.
11. Forestry department should organise forest workshops most especially at the rural level to enhance the awareness and skill to village heads and communities in the area.

These recommendations will ensure integrated package of programmes designed to achieve effective and intensive management of the forest area in term of logging exercise in the study area.

CONCLUSION

The result base on the interview and reconnaissance survey has contributed in no small measure in the land degradation of the study area, which has drastically depleted the soil. The wildlife which is dense along rafin kuka forest have disappeared and this is due to logging activities by illegal feelers and farming activities, and forests is a renewable resource and the local Government and individuals should round to plant more trees in order to reclaim back our forest.

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QUESTIONNAIRE FOR ASSESSMENT AND EVALUATION
LOGGING AND ITS ENVIRONMENTAL EFFECT OF SHIRORO
AREA OF NIGER STATE

VILLAGE:.....

1. NAME OF FORMER:.....

2. SEX: MALE/FEMALE:.....

3. AGE:.....

4. Do you settle in this area?

4.1 Comment:.....

4.2 How long?

(a) Below 10 years

(b) 20 years

(c) 30 years

(d) 40 years

(e) Above 50 years.

4.2 What type of farming system do you practice?

(a) Shifting cultivation

(b) Rotational cropping

(c) Mixed cropping

(d) Mono cropping

(e) All of the above.

5. How was the vegetation of this area before settlement?

- (a) Thick
- (b) Full of economic tree species?
- (c) Grass land
- (d) A and B
- (e) Others please indicate

6. Did you notice any change of vegetation through logging operations

Yes..... No.....

6.1 If yes, how

6.2 Indicate by taking any of the changes below

- (a) Economic trees disappeared
- (b) Farm lands degraded
- (c) Wild life disappeared
- (d) Water sources dry up
- (e) All of the above
- (f) Others, please indicate

7. Did you notice any decrease (in terms of quantity) in the yield of the crops cultivated in the subsequent years. Yes.....

No.....

7.1 If yes, how?

7.2 If no, why not?

What did the inhabitants collect from the fringing forest?

- (a) Firewood
- (b) Debarking of trees for medicine
- (c) Leaves for medicinal purpose
- (d) All of the above
- (e) Others, please indicate

9. What are the environmental impact of this logging operations in this area?

- (a) Dryness of water sources
- (b) Infertility of Agric land
- (c) Migration of Inhabitants
- (d) All of the above
- (e) Others, please indicate

10. Did you experience bush fire in the area? Yes.....
No.....

10.1 If yes, through what source?

- (a) Land clearing for farming
- (b) Wild fire
- (c) Others, please indicate
- (d) All of the above.