GRAZING AS AN ENVIRONMENTAL PROBLEM IN LEMU AND ITS ENVIRONS GBAKO LOCAL GOVT. AREA IN NIGER STATE.

BY

MOHAMMED IDRISU 101

" *PGD/GEO/200 1/2002/210*

A PROJECT REPORT SUBMITIED TO THE DEPARTMENT OF GEOGRAPHY

IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR TI-IE AWARD OF POST GRADUATE DIPLOMA IN ENVIRONMENT AL MANAGEMENT OF FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

OCTOBER 2003

CERT1F1CATION

This project work has been read and certified by t

he undersigned as having met the requirement for the award of the post Graduate Diploma (PGD) certificate in Environmental management of Federal University of Technology, M~(ip ~. _ ,/\ _ ,!>

Dr. Abubakar ~

(supervisor) Sign/Date

DqMrs) A Odafen

(Head of Department) Sign/Date

Professor Abalaka

(Dean PGS) Sign/Date

Professor J.A.Ariyo

(External Examiner) Sign/Date

DEDICATION

This project is dedicated to my lovelv parents Nna-Aishatu (Kulatso), Alhaji Muhammad Musa and Alhaji Muhammad Jiya for their continued assistance and prayer for me.

DECLARA TION

I hereby declare that except where literature is cited the investigation came out on this study and the result obtained are purely mine and not a duplication of another persons \\ ork previously carried out any where.

Date: , .

Sign: , .. , .

Student's Name: .

Registration Number

PGD/GEO/200 I12002/21 0.

ACKNOWLEDGEMENT

Firstly. 111~ thanks goes (0 Almighty Allah for protecting me throughout my period of studies and [or the successful completion of this project.

My profound appreciation goes to my able supervisor Dr. Abubakar Sadiq. Who edited the work and made useful suggestions throughout the project writing. My sincere appreciation is expressed to my head of department and the programme coordinator for their moral support. To all my lecturers lowe them my thanks for giving me the benefits of their expertise.

I must certainly thank my friends and colleagues who have helped me In various ways during my course of study and the project 1 own a special debt of gratitude to Dr. Halilu Ayuba through whose unquantiftable .effort I came into this university unexpectedly. I am indeed grateful.

This acknowledgement will be grassly incomplete without the consideration of Mallam Muhammad B. Adamu and Mallam Muhammad Shehu for their tolerance and financial support. Once more, I am indeed grateful.

ABSTRACT

For livestock production, the importance attached to grazing can not be over stressed. Animal like cattle, sheep, goats and many others reed on vegetation cover.

This show how the grazing constitutes dwelling environmental problems of lemu and its environs. As such the need to tackle grazing problems within the geographical region is of paramount importance. Evident have shown that clashes between the farmers and cattle rearers caused major environmental problem problems not only in Nigeria but some part of North em Africa countries like Niger, Senegal, Burkina Faso to mentioned but few.

However, livestock grazing also causes environmental degradation eg desertification, deforestation, overgrazing, bush burning etc. the researcher find it necessary and have locus oyer these prohlem in order to seek far possible improvement and to reduce the means or bush burning for instance constitutes major environmental problem.

Effort to reduce the menace of these mentioned environmental problems, calls for government concern to enforce rules and regulations in order to avoid or put to an end to community clashes between cattle reares and also land degradation. Awareness should also be given to enlighten the community and the fulanis to avoid community clashes. The study focuses more on settling Fulani wanderers and their livestock to be positioned in a permanent grazing reserve centers. Government should create alternate period of grazing and rest for management forage resource base.

Above all the cattle rearers and community should be properly educated in order to make judicious use of advantaged proposed to them. In conclusion, these if done will go along wav 10 reduced the problem or environmental degradation and community clashes within the land users in Nigeria in particular and as well as Africa in general.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

1.0 TNTRODUCT10N

1.1 BACKGROUND

In Northern Nigeria, livestock farming is one of the major farming practices, livestock farming is a type of farming in which only animals are reared. Grazing is refers to as the vegetation on ranges or pastures that are available for livestock to feed upon. The commonest animals reared are cattle's. sheep, goats, chickens, donkey and pigs. camels, sheep and goats, constitute over 90% of the animals reared. Camels and Donkeys are also reared but used also as beast of burden (Anchili etal) ⅃992 and (FEBA 1*yyg).*

In Nigeria, the fulanis herdsmen, mostly based in Northern move their cattle, sheep and goats from place to place feeding on grass in field known as pastoral nomadic transhurnance as the main method of grazing.

Livestock-base livelihood are an important component in both subsistence and commercial economic activities in dry lands. Traditional pastoral normal systems have been very important iII northern Africa, some parts of south Africa., Arabia and central Asia for thousands of years.

Categorically, Auyedun (lYYS) said there are basically three management system in study area of Nigeria and these are:

I. The settled Pastora.lists

') Transhumance Pastoralists

3. Agro-Pastoralists

Table I () On the Methodology of Grazing in Nigeria.

Methodology of Grazing in Nigeria	Tribes/Communities	Grazing Orbit	Remark
Settled Pastoralist	Fula.ni	20.50km	Low Mobility
Transhuman PastoraJisl	Fulani	400km	Medium
Agro-Pastoralist	Fulani/Hausa	20.5km	

Source: Leeuw etal 919X2)

Analytically leeuw etal (1982) pointed that these grazing methods are found within the Northern vegetational zone. Leeuw eta! report falls within the Northern vegetation zones where intensive grazing and browsing of forage, fadama and crops crating problems everyday, leading to communities' clashes. They continued these major characteristics are pastoral. Agro-pastoral and transhumance systems, falls within Sudan, Northern guinea and shale vegetational respectively.

In Conclusion over, it is crystal clear that over 77% grazing is nomadic pastoral which moves within the country southward, within the Northern states, Southern wards and the local government areas of northern state of Nigeria according Odibo (1994)

1.2 THE STUDY AREA.

l.ernu is a district and a local Government Headquarter in Niger State. 11lies

Greenwich meridian. It is bounded on the north by wushishi local government, on the south-East by Bida Local Government, by the East Katch Local

Government and bv the South-West Lavun Local Government. These are within Niger State as shown in figure 1.2&3.

This settlement is located along the trade route of Bida-Wushishi -Zungeru, where Hausa traders/Fulani herdsmen from North traveled to southern part of the country. The settlement is use as a stoppage center for refreshment, where some even pass the night.

The settlement has the advantages of two rivers ie Kaduna in the west and Gbako in the west. Which attracts the Fulani herdsmen especially during the dry season.

1.2. I GEOLOGY

Over 90% of the region is underlain by Nupe sandstones. These Nupe sandstones comprises of weakly cemented fine to coarse-grained clays, siltstones and sandstones with locally embedded with this beds of carbonadoes shale. The

sediments are generally laid horizontally especially to the west of Kaduna

The remaining area is underlain either by' basement complex or river alluvium or

Alluvium deposits found along river valleys in varying thickness. Usually they are made or consolidated gravels, coarse and line sand, silts and clay.

] .2.2 TOPOGRAPHY.

The landscape features of the region are largely determined by the underlying geology especially its litho logy and structure. On the area or Nupe sandstone, it is the local texture that largely shape the landscape morphology. Area underlain by coarse sandstone are relatively Oat to gentle undulating while

areas of fine sand stone are hilly and dissected. Most of these hills are flat topped and capped with hardened iron pan or sedimentary collation iron-stone. These hills promotes transhumance.

Generally, the topography is simple and according to Buchanan and Pugh, this area lies \\ ithin "Niger Trough ".

1.2.3 CLIMATE

This region experience a climate transitional between the arid desert climate in the

North and tropical rainforest climate in the south with basically two distinct seasons namely. dry and rainy seasons. The climate is mfluenced and controlled by North easterly and south westerly winds

The latter with high relative humidity and low temperature yields rain, while the former which controls the greater part of the country between November and May does not produce rains. Generally the length of rainy season and amount of rainfall decrease from south to north.

The mean annual rainfall ranges from about IOO()mmin the west to about 145mm in the East with a wet season of 1~W-250days. Overall, the North experiences a uniform temperature throughout the year, which does not fall below 2°c. Both daily maxim and minima temperature rise to their annual peaks 01'38 "c between February and March and 35°c between November and December.

The average annual evaporation is observed to be between 1200 - 1600mm, but rainfall pattern provided adequate water for animals and annual crops.

1.2.4 VEGETATION

The area lies mainly within the southern Guinea savanna zone with much of the primary woodland over the plains modified by slash-and-bush Agricultural practices. A large part 0f the zone consists presently of open savanna woodland with tall, coarse tussock grass (5-10m high). However. along the river valleys where vegetation is typically of the evergreen gallery of the forest of the Guinea savannah zone could be found deciduous trees and plan groves.

1.2.5 SOILS

The sot! 0f the region can be broadly classified into two. The upland and lowland

Soils. While the upland soil are generally sandy. the lowland areas are characterized by loamy soils.

The upland soils are mainly feral soils, reddish yellow in colour and generally very sandy with a clayey sub-soil. Apart from being highly leached soils, they are slightly acidic with Ph (1.5 and with 10\\' to very low exchangeable cat ions.

Furthermore, they are characterized by low cation exchange capacity and organic matter. Consequently to their high sand content, they are easily degraded and can hardly sustain high crop) ield 101 a long period without application of artificial fertilizer or animal dunes. The soil fertility recuperates very slowly under fallow system. However. the deep friable and porous nature of the soil make it potentially suitable and for mechanization and can also be suitable for a range of traditional food and export crops.

The lowland soils are found on the flood plains of the major rivers especially the Kaduna and Gbako rivers and the dense s) stein of smaller streams eg Tadan and

kaburu which dissect the upland. The soils are weakly developed alluvium, from sandy soils to clay loarns.

Generally. the soils are good for rice, cassava, sugar cane e.t.c cultivation.

1.3 STATEMENT OF PROBLEMS.

The movement of cattle, sheep and goats from place to place feed on grass in field creates problems especially during the dry season. Fadama are the sources of fodder for livestock, are put is the major sources of conflicts resulting also to clashes among the various land users.

Fadama has social stigma m Northern Nigeria and indeed Lemu and its environs were not exempted. This is because Fadama has competitive uses among which are farming, grazing, fishing and herbal plants. For example streams Kaburu and stream Tadan West/North of Lemu have perennial water body where Fulani herdsmen water their cattle in dry season.

1.3 AIM AND OBJECT1VES.

The research work is aimed at identifying the problems of livestock grazing and

To analyze the impact it has on the environment

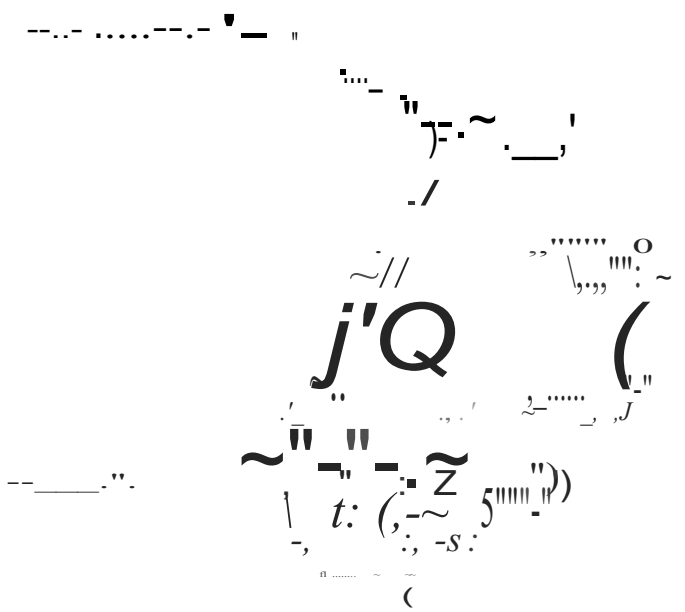
To identify'the major problems of grazing activities within the study area.

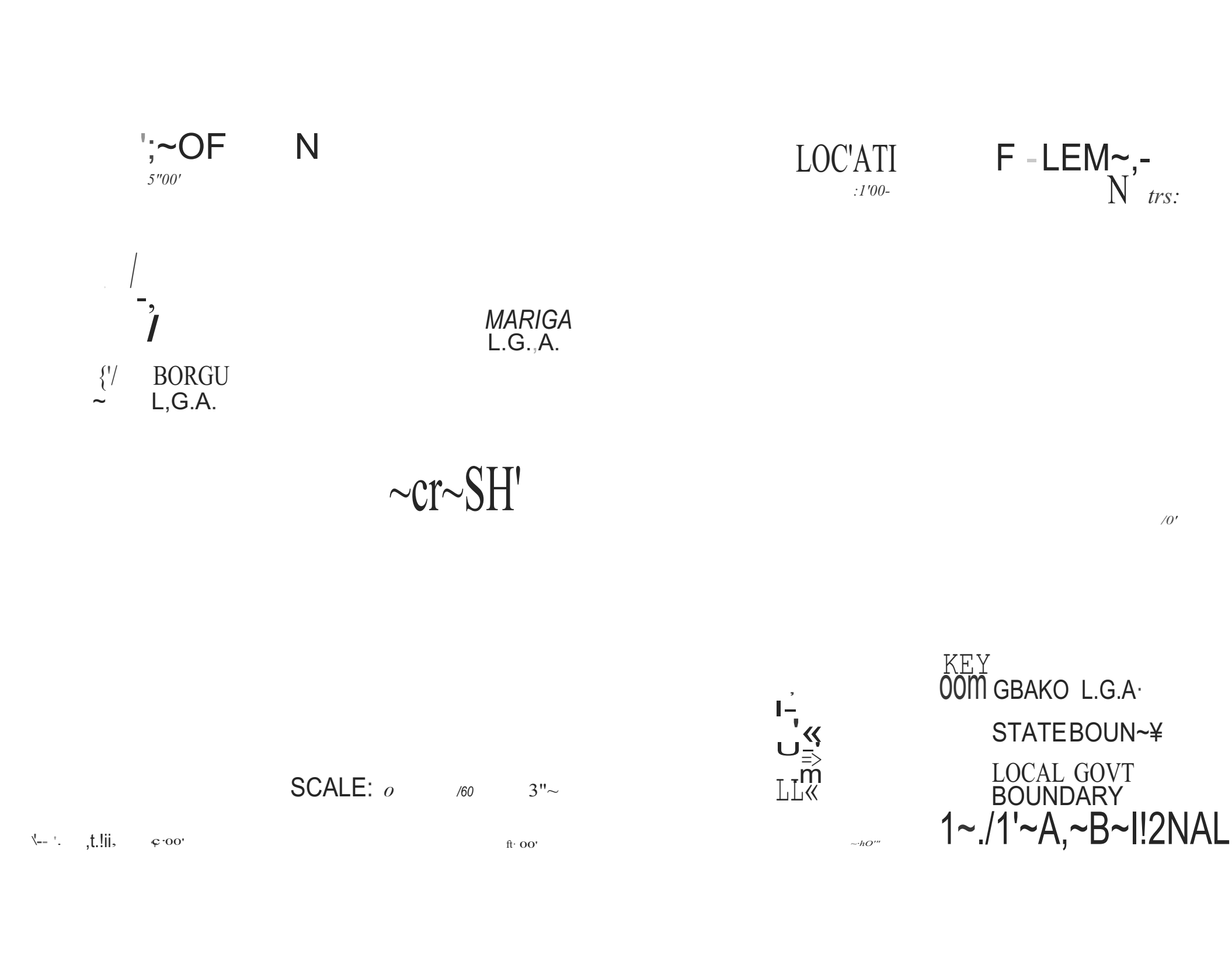
To assess the impact of grazing on the environment.

To suggest possible control measures of over grazing.

1.4 THE SCOPE OF THE STUDY.

The study area will cover Lemu and its environs, Gbako Local Government Area of Niger State. On the grazing as an environmental problem. The ways livestock grazing results to community clashes and possible ways of controlling it.




';~OF N
5"00'
LOC'ATI
:1'00-
F - LEM~,-
N trs:
/
-,
I
MARIGA
L.G.,A.
{'/ BORGU
~ L,G.A.
~cr~SH'
/0'
KEY
oom GBAKO L.G.A·
STATE BOUN~¥
LOCAL GOVT
BOUNDARY
1~./1'~A,~B~I!2NAL
SCALE: o /60 3"~
ft· oo'
~·hO'"

CHAPTER TWO

2.0 LITERATURE REVIEW

2. I Preview

Livestock populaLion in Nigeria has been estimated to consist of IG million cattle. about 13.5 million sheep. some 26 million goats. approximately 22.2 and ISO million pigs and poultry respectively.

The dry land of Nigeria is said to support much of the country's livestock economy, hosting about *90%* of the cattle population, about two-thirds of the goats and sheep and almost all donkeys, camels and horses.

The early part olNorthern Nigeria has all been peaceful until the era of pastoral nomads encroachment in Northern Nigeria.

Deat Crotic (1992) in Odibo (I()()4) said it believed historically that the Fulanis communities immigrated East ward [rom Senegal into Nigeria, through the Hausa of Gobir, as early as the n" century that since their arrival, their grazing activities have been fairly peaceful except when they (initially) fought in defence of their caule according to them, even if it means killing other people in Manga, Borno state. These gory actions instill in this clashing communities, the spirit of revenge and relation years after wards and the subsequent political instability that led to their nomadic. movement to Lake Chad.

This initial fight or clash gave birth to other subsequent community conflicts and clashes in Northern igeria until today with a multiplied' clashes. These clashes have today become perennial affairs in Northern Nigeria among the Hausa Fulani cattle rearers and their host community in the frontline states as well as the buffer Lone. These clashes also have today become yearly affairs especially during the periods of pastoral nomadism.

It is one record that in IW,X . community clashes broke again between the Hausa Fulani and the people of Gongola states. which lead to the killing of Fulanis (Abraham. 20(0). He continued that two years latter the Fulanis retaliated and got the chief of the Gongola cornrnunitv almost beaten to death .

. Also. in Katsina states these clashes are usually due continual encroachment or pastorals norm ads into farmland, water catchments areas and Fadama crops. Rav and Leeuw (1914) in Ornaliko (1982) listed the above causes of community clashes as due to these three main ource of our Northern livestock feed. He concluded that the . orthem igeria clashes always stem from these principal causes:

I. Grasses from upland Savannah and Fadamas

II. Browsing of plants and

III. Crops and croops residues in farms.

THE MAJOR PROBLEMS OF GRAZING

The pnncipal causes or grazm]; problems are assocrated With livestock grazing management systems and methods in Northern states. And the basic "Problems associated with cattle (or livestock) management are essentially those of feeds, water, diseases, breeding/reproduction, socio-cultural, marketing and institutional support" with their communities in Nigeria according Aiyedum (19()X) But among all these factors above 77%, alone is that of grazing (Odibo, 1994) Further more, Aiyedun also continued that the competitive uses to which Fadama as sources or fodder for livestock, are put is the major sources of conflicts resulting also to clashes among the various users.

Fadarna has social stigma ltl , orthern Nigeria This is because Fadama has competitive uses, among which are farming grazing, fishing wildlife hunting and herbal plants orchards.

In Lemu and its environs, which is the study area most of the pastor llists interviewed reported that they use Fadama area for dry season grazing. He furthered stated that. their roles. as a source of fodder is considered msignificant dye to high ccmpeution !t;l!Qi!'!~to d~~h~~ llmong the farmer and Fulanis.

Lnmany areas of West Africa. crop production and livestock reaming are practiced by separate ethnic groups typified by the Hausa farmers and Fulani herdsmen in Nigeria. However, crop and livestock production are linked in organizational terms through arrangements between different enterprises within the same household (Bayer and Bayer, 1991). For example, where the women in the family are engaged in crop farming while men and boys tend the herd. They sometimes migrate long distance or interact within arable small holding in which few cattle. sheep and goats, pigs or poultry are kept.

Range use is considerably influenced by the nature of linkage between the crop producer and the livestock grazier. Range manger should therefore pay considerable attention to these linkages. Most of the time manure from cattle is not available for range improvement except when continue grazing system is practiced and both manure and urine are allowed to be deposited on the range indiscriminately. ILeA studies in Mali (de leeuw,]992) have indicated that there is need for close studies of the effect of grazing activity of the animal on different parts or a range. In the sahelian ecosystem based on

sandy soils. grazing impact in the short term on heavily grazed sites, were similar to rainfall pattern as were protected or leniently grazed sites. Due to the short rainy season the range were grazed for short periods over limited areas. The effect of frequent defoliation of two to fOUI weeks interval on biomass accumulation varied significantly between growing condition and plant phonology at grazing. Repeated grazing consistently increased the nitrogen and phosphorous yields on the total range herbage over a wide range of sites and years.

Hence the grazing-induced defoliation during the growmg season can significantly affect the biomass production depending on intensity and period, and may lead to long term productivity decline mainly. due to exhaustion of seed supply or re-growth and tillering of individual plants thereby reducing the impact of poor germination, seed dormancy and seeding mortality.

2.3 EFFECTS OF GRAZINNG

The menace of mismanaged system of grazing, FEPA (19n), found specifically that in Northern Nigeria, ~6.4% claimed that excessive grazing is the major source of em ironmental degradation and resultant communities clash

This is also the cause of most frequent form of tension, conflict and clashes between groups, where the farmer and pastor list conflicts is the most frequent and significant. These generally involved Fularu, Fulani Hausa and few other tribes or group.

The damages of crops by livestock are another source of conflicts and tension. In Northern Nigeria, it occurs during the planting of fadama crop in December/January. And after post harvest period in March /April, livestock are hardly permitted to enter active Nfarmland. (Abraham, 2000 and Aiiyedun 1998).

A fixed rangeland \\ ith overstocked herd sizes for longer time tends to loose its carrying capacities with time. And especially for any additional stocking. Degradation of the range field set 111 leading to defoliation, devegetation , deforestation and Biodiversity loss.

Other menaces to follow are erosion of soil and leaching soil leading to Poor agricultural productivity and finally desertification in these areas with attendant climax of perennial or vicious cycle of community clashes. This also result to effect of overgrazing after a long time. When a rangeland of say) krn is stocked with a herd size of 200 flocks of cattle or livestock for over three months.

Tramping, grazing and burning may cause changes in plant densities and species composition. The effect of and extent of these changes will depend on the rainfall distribution in the following season may lead to server decline in range productivity. Intensity of stocking rate may also cause changes in the woody plants population suggestive of an evolution towards more drought-tolerant species. The use or folder by Iivestock differs according to season o l'the year and the type of a savanna being grazed (Kirk 1991). At the start of the growing season in April/May, cattle can be more selective and choose from a wide range of folder plants. The grass savannahs is heavily grazed. With increasing age, most grasses become rank and lose their appeal as fodder for livestock. By the start of the dry season, the less desirable grass species are consumed and species such as Imperata Cylindrica become more available compared with plants like Andropogon, gayanus and Hyparrhania rufa . Toward the end of the dry season, the leaves, blooms and fruits of trees and shrubs constitute the bulk of feed available for cattle. This moisture induced shift in utilization of the range sometime ensures a high supply of protein in livestock diet during the dry period. In the Benin Republic for example, the main pruning period for

khaya senegalensis occurfs in January. that for Afzelia-africana in February and for pterocapus. Erinaaceous in March. Among the Fulbe, the pruning are used only to supplement the protein content of the animals daily rations.

CHAPTER THREE

3.0 Data and Computational Method

3. I Types and sources of data

In trying to ex aluate the effect or grazmg ıı ı Lemu and its environs. Several methods were used to obtain useful information the method thus employed could be broadly classified into two: the primary and secondary sources.

3.2 Methodology of the field investigations and primary data collection.

Reconnaissance survey to various pans of the area includes the divisional police station. the area court and magistrate court. for reconnaissance and collection or primary data by means or designed master questionnaire. Personal contract interviews were mostly employed.

Several personal contract and interviews with the respondents were necessary in that most of the farmers from whom the needed information was to be obtain were illiterates who could be provide information through face to face interview and answer field into the questionnaires hy the researcher.

The questionnaire wen~designed to cover information on the negative effect of grazing in the study area and possible measures that will improve the environment.

In terms of secondary source of data related literature were reviewed collection and critical evaluation of accessible published information from the ministry of agriculture, journals, textbooks and other research project write ups relevant to the study were used.

Table 3 0 Display tabularlv Negative social effect of gra/.ing

Deforestation	High
Bicdiversirv loss	High
Bush burning	Iligh
Encroachment into reserve	High rate
Denudation of water catechment	High
Land degradation	High
Water erosion	High
Wind erosion	Iligh
Leaching of nutrient (and improvement)	High
Desertification	High
Cornrnunitv clashes	High rate

Sources FFPA 1999 (in Katsina)

3.3 Sample selection.

The researcher took sample of (l() respondents to present their population. The lemu and its environ is divided into two namely. the east of lemu include Ndako-gana and Gbangba. the west of lemu include rnantafye and Nuwankota. The researcher randomly distributed thirty (30) questionnaire in each of the area as shown by the table 3. I below

Area	No. of questionnaire distributed	No. returned
Ndakogana	[5	15
Gbangba	15	13
Mantafve	15	14
Nuwaukoto	15	12
Total	60	54

Source Research questionnaire 2003.

3.3.1 Master Questionnaire

ln order to elicit appropriate information during the field tours to the areas, a master questionnaire was designed and tested by the consultant prior to the commencement or the tour.

In each selected villages of the Area specific information in the questionnaire was obtained on effect of grazin]; on the environment

3.4 Data collection and Analysis.

The questionnaire were distributed through the help 01 village Extension Agents (VET) who engaged in dissemination of agricultural extension services in the the study area. The researcher late contact his enumerator and.collected the completed questionnaires for analysis. Out of the sixty (60) questionnaires distributed. Fifty-four (54) were returned.

The data was collected and prepared for analysis under six primary subject areas namely: -

I. General information

-, Deforestation

3. Bush burning

4. Land degradation

5. Desertification

6. Community clashes

Although a large volume or data was collected during the field visits, it became verv clear that there is a dearth of statistic in the Area. Apparently, there is no machinery for the routine and continuous collection of basic statistics.

This result in gaps in the primary data collected by the researchers. The gaps were filled with supplementary data obtained from the researcher field notes and general impression and from the literature

3.5 Analytical techniques

The studv was based on the information obtained from the farmers and therefore. limited to the objectivity or the questionnaire and sampling errors. The study was also limited by the smallness or sampling frame, which is determined by the level of the resources available for the study. Respondents were also suspicious of the motive behind the collection of such information and thus reluctant in supplying the necessary information.

Another limitation was that of the enumerators not readily getting the selected respondents during their visits for interviews.

Not all the questionnaire was properly felled. Moreover out of sixty (60) questionnaire only fifty four (54) were returned.

CHAPTER FOUR

4.0 Analysis and Results.

4 0 Bicgraphic profile of the respondents

4.1 Age Grouping

The age distribution ofthe sampled villages/towns revealed that the population structure fell between the 26 to 35 and 3()-45 years, which means that over 50% of the population can be described as youthful as shown in table 4.0. the implication of this is the forces of population growth and movement, the struggle for equity and integration, create a context grazing that is beyond. government control Aged farmers accounting lor more than 3()lXl or the population

Table 4.0 Age Grouping of respondents.

Age Group	Frequency	Percentage
16-25		5.6%
26-35	25	46%
36-45	15	27.8%
4(1-(10	X	*14.WYo*
Above 60	3	5.6%
Total	54	tOO%

Sources survey data 2003.

The study also showed that 69.6% of the respondents were married with only 9.6% of single, ~.7% divorced and *12.2(Yo* widowed 49.5% of the population had less than five children while 31.6% had between five and ten children some (4.2%) however, has more than to children.

-l.l. I Educational Back ground

The result of the questionnaire survev revealed that most of the inhabitants of the proposed area of study especially the indigenous population have no formal education. About 37% of the respondents have no western / koranic education while less than 43% have formal education as shown in the table 4.1

Table 4. I Educational Background

Educational status	Frequency	Percentage
No. western/koranic Education	20	37%
Koranic Education only	lt	\ 20%
Completed primary school	10	18.5%
Completed secondary school	g	14.8%
Tertiary institution	5	9.3%
Total	54	100%

Source survey data 2003

Despite the influence of government agencies on resource management especially vegetation resources, most decisions affecting our land are caused by pastoral. Education offer the means to transfer the basis of sound decisions to those that will ultimately make support or defeat them.

4. l.2 Religion

With respect to religions composition table 4.2 adherent of Islamic religious dominates the study are on the average Moslems accounting for 74% and Christians accounting for 20% and traditional religions accounting for the remaining 5.5% the dominance of the islamic implies that the ara has earlier formal education.

Table -1.2 Religious cornposiuon

ilslam	Frequency	Percentage
Islam	40	74%
Christianity	11	20%}
Traditional	3	5.6%
Total	54	100%

Source survey data 2003

-t. 1.2 Major occupation

Most of the inhabitants of the area of study are farmers. Both the men and women folk also engaged in the rnarkeung or farm products-on market days. Other than these activities, there are hardly any other types of economic activities in the studv area. As shown in table 4.3 there are few migrants engaged in trading. Significant proportions of the work force are hunters while about 29.6% of the people are civil servants, most of them teachers. which are to be tout in primary schools centrally locate between the hamlets and villages.

Table 4.3 Occupational status

Occupation	Frequency	Percentage
Farming	30	55.6%
Civil servant	16	29.6%
Fishing	5	9.3%
Hunting	3	3%)
Total	54	100%

Source survey data 2003

4.2 Desertification

Desertification simple means diminution or destruction of the hiologically potential of the land. This mean the intensification or extension of desert condition leading to reduced biological prcducuvuv with consequent in plant biomass in the lands.

The actions people take that cause desertification are methods of land use which are inappropriate in the sense that they apparently lead to environmental degradation. the causes of desertification include overgrazing, over cultivation, deforestation etc

Fig. Below show an organ gram component arms of desertification

Metero/Agric /Hydro

Land use *1* Energy *1* Ethics

ı Farming *Ifuel* Ipublic
Paternalism wood works

Atmospheric circulation

Interactive processes

Source course material for POD In Environmental mgt *2001/2002* by Dr. Halilu A

4.2. I Overgrazing

with the increasing pressure from other competitive land uses in lemu and its environs. the total land area available for livestock have been overgrazed. Plant community is destroyed bv animals. Plant destruction is not solely achieved by eating as tramping of plants, disturbance of root systems by scuffing a.nd compaction of the surface, reducing rainfall infiltration all contri bute to damage. Degradation has been ensuring from increasing herd sizes in an uncontrolled and irresponsible manner. Rising livestock numbers in Gbanba. Edotsu. Evuntagi. Nuwauko-sonrna etc dry season grazing system have particularly been seen to lead to environmental degradation.

4.2.20eforestation

Cleaning forest and woodland to create agricultural and pasture land has been a human activitv since time immemorial

From the information in table 4.4 below. the major system of farm land clearing by more than 54% of the respondents is through bush burning followed by manual cleaning using traditional hoes and cutlass 37% .

Only 7.4% of the respondents used modern implement for farmland clearing. Generally. large percentages or the farmers cultivate more than 5 hectare, while a significant of the respondents farm between one hectare and two hectares.

The scale of clearance has increased as modern agricultural method have been implemented both for mechanized plaguing where large fields are most cost effective. Deforestation for fuel wood, agriculture and home craft to an extent is increasing at an alarming rate and these causes land degradation.

Table 4.4 system of clearing vegetation !and

SYstem	Frequency	Percentage
Bush burning	30	55.6%
Manual labour	20	37%
Tractor	4	7.4%
Total	54	100%

Source: survey data 2003

4.2.3 Bush Burning

This ia an agent in the process of deforestation. Owing to the low relative humidity of the semi-arid zone coupled with very dry hamatan wind, there is always a high incidence of bush fires every dry season. The occurrence of tire in this zone are attributed to:

I. Bush burning by villagers during land clearing for agriculture as shown in table 4.4 above:

2. Hunters who in search of game, set fir onto the vegetation, and

3. cattle herdsmen who set fire to dry grass to stimulate growth of domant grass buds. Egunjobi (1979) reported that the degree of fire impact depends on the

4. Total amount of combustible material,

5. Drvness of the material

6. Season and time of burning. and

7. Prevailing weather conditions.

Because of repeated burning there IS severe exposure and surface run off there by causing erosion and the soil becomes degraded and generally infertile Indiscriminate

or ill-planned buming could also lead to loss or soil fertility, vegetative alteration of soil structure. desert encroachment and extinction of certain species of pasture (ukpabi 1993)

CHAPTER FIVE

5.0 Conclusion and Recommendations

A bottom - up approach hould recognize that different people have different functions to fulfill. Governments need to Lind ways of supporting rather than stifling the imitative of local farmers and herders bv providing a context within which land users can plan and act with confidence National Action Programmes provide an opportunity for trying to learn from the past and encourage new partnership between government and local people. Support of outside agencies can provide careful support for this process.

Based on the findings, the following mitigations measures are summarily recommended

The GO\ ernment should earmarked more grazlllg field for pastor lists.

The Government should also revitalize old grazing field for pastorlists.

The Government extension outfit should reach out to the grazers and farmers on improved ways towards avoiding cornrnuruty clashes.

The Government should put place and enforce rules and regulations in industrial and grazing activities will put an end to community clash .Livestock Department of Agriculture ministry should be created daily radio public awareness programme tagged" Range managers time" every evenmg at 4-6pm for pastoral nomads than most of more about with their radio.

The pastoralists should be encouraged by ADPS or Agricultural ministry livestock officers to reach to pastoralists hay making during the raining season. This will provide feeds to animals on fadama land or crop in dry season.

The Government guest lectures bv pastoral officers to pastoral camps in their language "'i11sene as a soothing balm to rangeland problems and improvement on livestock farming generally.

It is necessary to rnonitor animal disinbuuon oyer the range throughout the year in order to formulate policy for proper rang utilization and population control. It is necessary to balance the number of animals with the available forage supply. This means adjusting the grazing capacuy and siockmg rate of the range to avoid over utilization and habitat deterioration. There should be proper research into grazing and stocking rate of the range. It is also necessary to oversee the area with better and improved varieties of grasses and legumes. which are more nutritious than the indigenous species to supplement grazing during the dry season. For example, the sahel and sudan zones requires the mrroducuon of improved pasture species like Brachiaria brizantha and Antropogn gay anus. Other drought resistant species like Antheohora ampulaceae can also be used 111 grazing reserves to provide fodder for the ruminants during the dry season (Gohl. 1975). Legumes like stylosanthes humilis which maintain their quality into the drv season could also be used to improve the carrying capacity of the rangeland. But for this to succeed, it must be coupled with limited phosphate fertilization (Agish: and deleeuw. 1*n5)*

There should be an intensive study to consider possibilities of settling the wandering fulanis and their livestock in permanent grazing reserves where they can be responsible for breeding, selection and rearing of their animals. In this way, the nation will gradually ensure that the users of the range assume increasing responsibility for its continued productivity. The resettlement will also result in a redistribution of livestock population in the country so as relieve the sahel-sudan-Guinea zone and increase the utilization of the resources of the sub-Guinea and Rain tropical zones.

The exercise wil! also rrururruze constant conflicts which occur between the wandering fulanis and the indigenous farmers.

There should also be alternated penod or grazing and rest in order to manage and maintain the forage resources base. Division of range area into grazing blocks should be considered. All the grazing reserves should be provided with good access roads to ensure movement within it and for prevention of unwanted fires.

Water spreading in the pastures should be done judiciously and adequate number of boreholes and dams should be prox idcd. The number of animals using a water hole should be carefully controlled and areas around the dams and boreholes should not be over utilized.

The fulani livestock owners need to be properly educated so that they can make the best use of the advantages proposed to the. With these management approaches. a uniform distribution of animal and forge utilization will be obtained oyer the range and this would also induce livestock to graze inaccessible pasture areas that would otherwise have remained unutilized.

B[BLIOGRAPHY

I. Global Environment outlook VoL' No. () 200'

Smart N. Uchegbu (19<)H). Em ironrnental management and protection. 6s

J. Impact of human activities on the west Africa savanna. Proceeding of the regional Training workshop held at the Federal unversity of Technology Akure, Nigeria. On 23rd -25th July 1<)<)5.

-t. Federal Republic of Nigeria (Dec. 200U) Nation Action Programme (NAP) to combat desertificauon and mitigate the effects of drought.

5. Jimoh H.l and l.P ifabiyi (2000) "contemporary issues in environmental studies"

0. Dregne H.E and N.T chov (! *t)<)2)* .~Global desertification dimensions and costs (internet)

7. Cadwell L. "PNNL Break through magazine winter/spring 2003, solution update in remote sensing technology on overgrazing (internet)

~. Ogiev a E. (1998) .. comprehensive Agricultural science for seruor secondarv schools"