

Peoples' Perception of Environmental Degradation in the Semi-Arid Zone of North Eastern Nigeria

*ABBA SALEH (NCE, BSc., Msc.) and **RABI'U TUKUR (BSc, PGDE, MSc)

*Department of Geography, Faculty of Arts, Social and Management Sciences, Yobe State University
Damaturu, Nigeria.

**Department of Geography and Regional Planning, Faculty of Arts Management and Social Sciences Federal
University Dutsin-ma. Nigeria.

Abstract

Environmental degradation is fast becoming a serious problem affecting peoples' lives by affecting both socioeconomic and socio cultural activities, especially in this fragile ecosystem located in the semi arid environment. This research examined the general perception of people on environmental degradation in the semi arid Northeastern states of Nigeria. The research aims at finding peoples' level of awareness and perception of environmental degradation. This was achieved through testing the level of awareness of the people on environmental degradation; also common environmental problems were identified and major human activity leading to the problem. Six (6) local government areas were selected purposefully because; they were the major area affected. A total of fifty (50) samples were drawn through systematic sampling, in each of the six affected areas, making a total of three hundred samples (300) for the research. Interview schedule was also employed. The findings of the study, indicated that the majority of the people in the study area is aware of the adverse impacts of various human activities on the environment, but sadly due to poverty and ignorance majority of the people remained adamant on embarking on practices that will ameliorate some of these adverse impacts. Based on the findings, it is recommended among other things, that there should be mass grass root mobilization to carry along the general populace in development projects and programs that will enhance environmental management and conservation in the study area.

Background to the Study

Man over time has manipulated the environmental variables like water, soil and biodiversity to meet his daily need to provide for his basic necessities of life. However, because of the rapid population growth, human greed and mismanagement, man continued exploitation and manipulation of environmental resources gave rise to degradation environmental resources. This negative development has indeed affected various parts of the earth at different rates and scales, but unfortunately human impacts on the environment are the most outstanding of all in tropical zones of the developing world with low income. In agricultural process, practices such as bush burning, overgrazing, over cultivation and deforestation has led to land or soil degradation and consequently result in desertification. On the other hand pollution of water and air, generation and passing of toxic and chemical hazardous substances have resulted in ozone depletion and therefore global warming. In addition to all these croplands, wetlands and other lands close to cities are sought by developers and converted to new layouts and suburbs. It is a clear fact that man in the twenty first century has dealt with his environment ruinously to the extent that mans inherited habitat (the planet earth) has begun to threaten his continued existence and survival.

The chaotic situation of the environment today has necessitated for an urgent and scientific approach to understanding, better management and conservation of both environment and the resources for the prosperity of the future. It was in the above view that, Olofin (1995), stated that an earth summit was organized in Rio de Janeiro in 1992 to reduce the effects of man's mismanagement and greed which culminated in the catastrophic drought, floods, land degradation, rising sea levels, climatic change, depletion of water resources among others. The recognition of the fact that human 'attack' on the environment has threatened his survival and this fact has prompted environmentalists to believe that as population and its demand increase the idea of continuous growth must give way to a more rational use and sustainable exploitation of environmental resources. These desired objectives can only be accomplished through change of human attitudes towards both the environment and sustainable use of environmental resources. Since the mental images people hold of their environment are critical in their actions and reactions to the development, studies in the area of peoples, environmental perception is instrumental to policy formulation and implementation, especially by determining the main targets that are fundamental strategies for sustainable development.

Environmental degradation is one of the pressing environmental problems bedeviling the northern Nigeria, with evident effects and implication on the lives of the people living in the semi arid environment of northeastern Nigeria especially northern Borno and Yobe States. The problem of environmental degradation in this environment goes beyond the effects on cultivation of land for production of food for human consumption but including effects as malfunction of the entire ecosystem. The desertification in this semi arid environment occurs as a result of not only persistent drought and other natural causes but also because of great human

influence on the environment through numerous activities in the study area (Saleh, 2012).

Statement of the Problem

It is an obvious fact that environmental quality and environmental resources are deteriorating and depleting simultaneously worldwide. This trend of event is common, mostly to developing countries of the world at different dimensions and magnitude. Nigeria is facing the problem of environmental degradation at different dimensions and magnitude in all the six geopolitical zones. The northeastern sub region being located in the dry tropical environment is classified as the Frontline for the process of drought and desertification. On the other hand majority of the people living in the area are farmers and nomads who are directly dependent on the exploitation and utilization of environmental resources such as farming and rearing of animals. Now the mental images that people hold of their environment are critical in the formulation of decisions that can restructure such environment; and by ignoring the perception of the people directly concerned all efforts geared toward environmental protection and government may fail to meet the yearning and aspirations of the people. It is therefore pertinent to examine the mental images people hold of environmental degradation since understanding of such perceptions is instrumental to finding solutions to environmental degradation problems and it is for this obvious reason that this research was undertaken.

Aim and Objectives of the Study

The aim of this study is to examine the general perception of people on environmental degradation in the study area; this is achieved through the following specific objectives:

- i. To examine whether people are aware of the concept of environmental degradation and their causes in the study area.
- ii. To identify common environmental problems in the study area.
- iii. To identify the major human activities and their impacts on the environment in the study area.
- iv. To recommend solutions to the identified problems based on the finding of the study

The Study Area

The northeastern geopolitical zone is one of the six major geopolitical zones in Nigeria and as the name implies, it is located in the northeastern Nigeria, it comprises six states, namely; Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe States. It shares common boundary with Cameroon and Chad republic in southeastern part and it borders with Niger republic on the northern part, it also shares common borders with some sister states in the western part and also with some states in the north central. This geopolitical zone plays very significant roles in the socioeconomic sector, especially in the area of agriculture.

The climate of this geopolitical zone is characterized by two major season's namely dry and wet seasons with variation in both duration and intensity. As one move from the southern to the northern part both the duration and intensity rainfall keep decreasing, also the temperature follows vice versa trend i.e. as you move north from south the temperature keep increasing e.g. from temperature of about 20°C in Mambila plateau to as high as 43°C in Tulotulowa in the extreme northern part of Yobe state and Mobar in northern part of Borno state. The rainy season set on as early as from April and ends in October with an annual rainfall of over 800mm, in southern part of the region to be specific in Adamawa and Taraba states. On the other hand rainy commence in the semi arid environments in June and terminate in September with August recording the highest amount of rainfall and rainfall here is conventional in nature and is associated with thunderstorm. The end of the rainy season is succeeded by the harmattan which is a cold dry wind characterized cold and poor visibility due to haze, dust and cold. The cold dry wind, with its associated weather causes many problems which include wind erosion and varied sickness and psychological disorders such as cold catarrh, crack lips and soles of legs, cough eye irritation and many others (Tanimu 2006)

The vegetation of the entire northeastern sub region cuts across the three major vegetation zones in Nigeria namely; guinea savanna, Sudan savanna and Sahel savanna but of interest to this study is that of the semi arid environment known as the Sahel savanna which is the dominants vegetation covering the entire northern parts of Borno and Yobe states. It is an obvious fact that the vegetation of an area is the direct consequence of the climatic condition operating in that area. The dominant vegetation cover is mainly grasses and shrubs, the few tree species in the area include Neem trees (*Azadirachta indica*), the Gum Arabic (*Acacia senegalensis*), Baobab tree (*Adansonia digitata*) and many other acacia species. (Tanimu 2006)

Materials and Method

Primarily information concerning demography and socioeconomic variables of the respondents were collected through questionnaire administration. Interview schedule and physical observation was also employed to ascertain the level of environmental degradation in the area. Relevant information were collected from governmental and Non governmental organizations like state ministries of environments, agriculture and the

North East Arid Zone Development Program (NEAZDP)

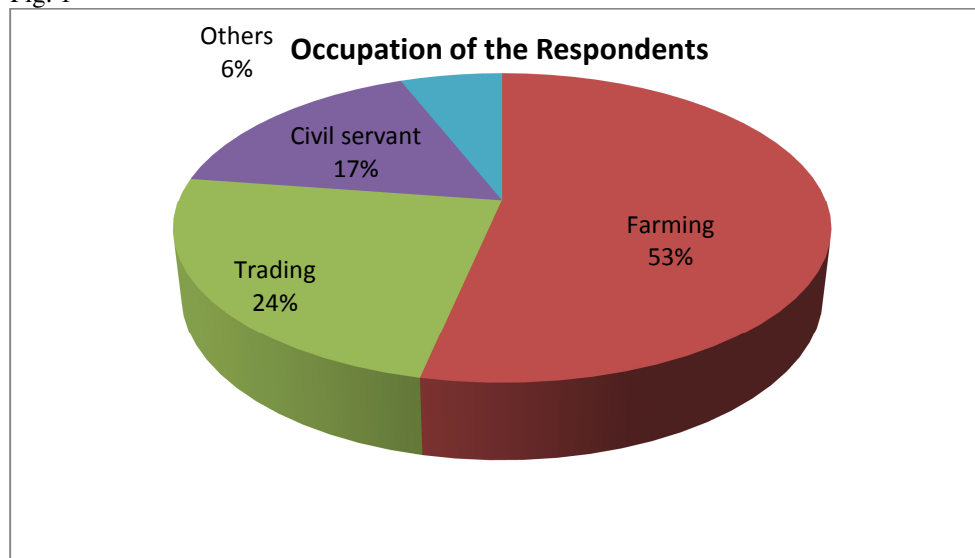
The population for this study is selected through purposive and simple random sampling, the sampled local government areas are selected through purposive sampling bearing in mind the topic at hand and the intensity of aridity in the selected sample local governments, such as six local governments namely; Mobar, Mafa, Monguno Machina, Yunusari and Yusufari in Borno and Yobe States respectively. In each local government one hundred sample populations were selected through simple random sampling to represent the entire population.

Primary data are generated from these samples through questionnaire administration, where questionnaires each containing twenty relevant related questions are designed and administered on each respondent with the view to elicit relevant information while other data concerning environmental degradation mitigation policies are elicited through the scheduled interview which is designed and administered on some staff in relevant ministries and organizations. Statistical tools used for analysis of the data herein include simple percentages, charts and bar graphs.

Occupation of the Respondents

Occupation is an important socioeconomic and demographic characteristic of population anywhere in the world. Since occupation is all about what people does for a living and in all ramifications it involves exploration, exploitation, extraction, utilization and or processing of resources. This study has discovered that the greatest part of the population in this area are engaged in one type of farming or the other using various traditional farming system which consequently result in depletion of quality of the environment in various ways. 53.3% of the respondents are farmers, 24% are traders, while 16.6% are civil servants and only 6% engaged in other occupations. It is clear that in the process of farming a lot vegetation is being cleared with the view to obtain space for cultivation thereby adding up to the already existing environmental problems. It is believed that substantial number of these human activities results in depletion of environmental qualities and consequently leads to environmental degradation. This information is presented in the pie chart below.

Fig. 1



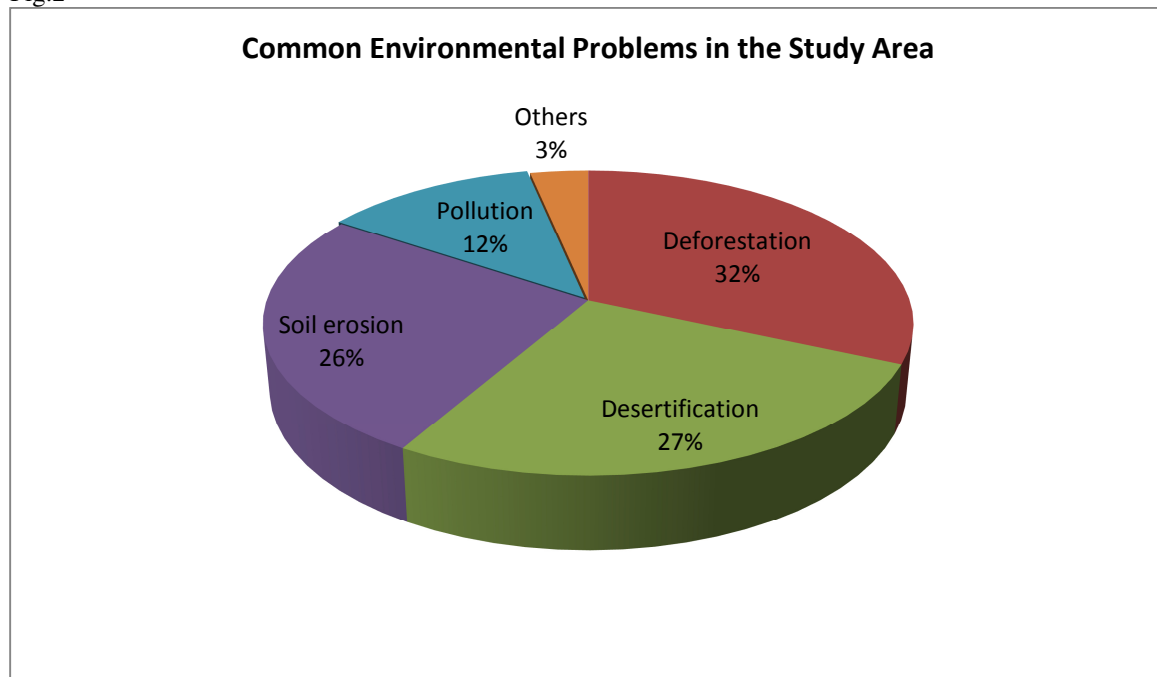
Source: Field work 2012

Common Environmental Problems in the Study Area

From the pie chart below, the most prominent environmental problem in the area is deforestation with 32% of the respondents suggesting that it is the common environmental problem and indeed this hold a serious potential threat to environmental degradation considering the numerous vital role plays by vegetation in an ecosystem. This is followed by the problem of desertification with 27% of the respondents identifying it as the common environmental problem and by implication desertification is a diminution of biological potentials of land leading to desert like condition and consequently result in environmental degradation. 26% of the respondents believed that soil erosion is also a serious environmental problem in the area, but emphasis is placed high on wind erosion, which is dominating the area, where wind from the hinterland keep depositing transported soil particle which are not or less fertile on top of the old fertile soils in the area, thereby degrading it. This is occurring all year round in the semi arid environment (the study area). 12% of the respondents state that pollution is another environmental problem in the study area but emphatic to atmospheric pollution which causes a lot public health

problems and discomfort especially during the harmattan when the sky become hazy due to enormous suspended amount of dust in the atmosphere. All other environmental problems in the study area account for only 3% of the responses.

Fig.2

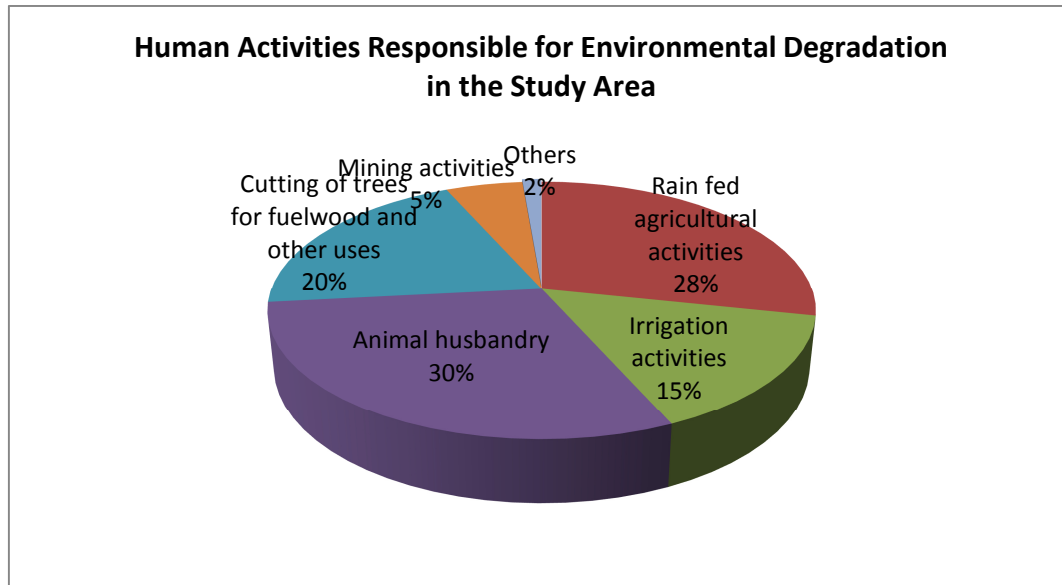


Source: Field work 2012

Human Activities Responsible for Environmental Degradation

The findings of this study have indicated that various human activities taking place at various levels are affecting the environment in various ways. Effects of human activities on the environment are proportionate to the intensity and nature of each human activity itself (Saleh, 2002). Therefore, it is an obvious fact that each human activity affects the environment in its own way, capacity and magnitude. It is therefore clear from the chart below that, 30% of the respondents are of the opinion that animal husbandry is responsible for environmental degradation in the study area, then, it is immediately followed by rain-fed agricultural activities with 28% of the respondents which is followed by 20% of the respondents suggesting that cutting of trees for fuel wood and other uses is responsible for environmental degradation in the study area, although there are 15% of the respondent who believed that irrigation activities are responsible for environmental degradation, while 5% of the respondents believed that mining activities are the cause of environmental degradation in the study area and only 2% of the respondents suggest that other human activities other than the above mentioned are the cause of environmental degradation in the area. Generally, agricultural activities (rain fed agriculture, irrigation and animal husbandry) are the major causes of environmental degradation in the area; this constitutes 73% of the entire respondents.

Fig. 3



Source: Field work 2012

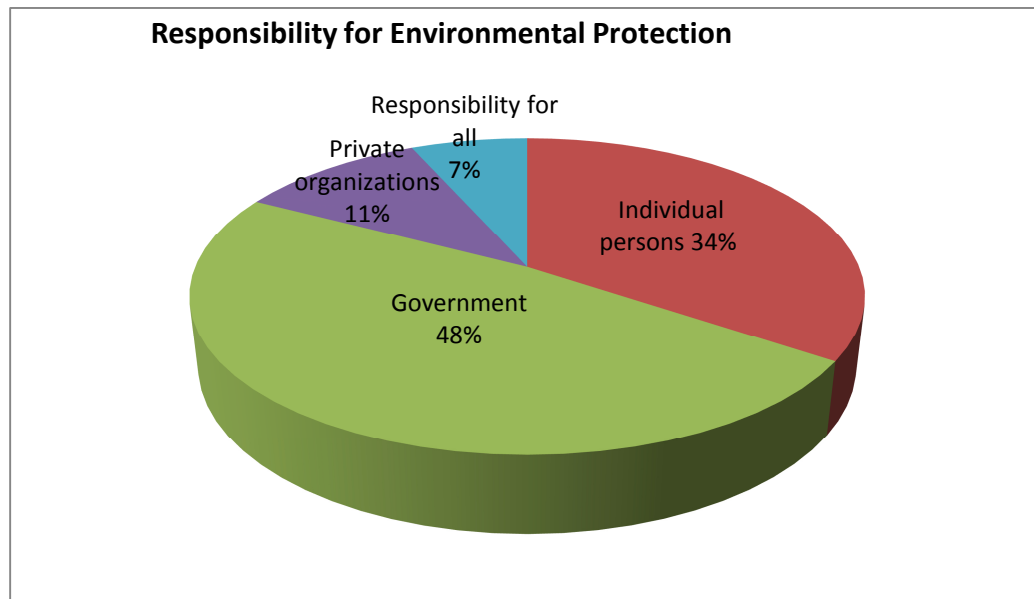
Impacts of Human Activities on the Environment

The chart below explains respondents' assessment on the impacts of human activities on the environment, where large part of the respondents (39%) strongly agreed that human activities like deforestation and overgrazing, negatively affect environmental resources. Some other 31% of the respondents have moderate opinion. On the other hand 13% and 9% of the respondents strongly disagreed and disagreed that human activities impose negative impacts on the environment. Only 8% of the respondents are indecisive. Therefore going by this finding it is clear that human activities impact on the environment, since 70% of the respondents believed that various human activities taking place in the area are having impacts on the environment which gradually leads to environmental degradation and this is opposed to 22% of the respondents who believed that the human activities are not impacting on the environment.

Responsibility for Environmental Protection

The pie chart below explains those responsible for environmental protection; this is of paramount importance for the enhancement of better environmental management and protection. This study showed that 34% of the respondents are of the view that each individual person has responsibility for protecting the environment under his control. some 48% believed that only government is responsible for environmental protection and management, while small number (11%) of the respondents uphold that the responsibilities for protecting the environment should be vested on the hands of private organizations. Only 7% of the respondents hold the opinion that, it is a responsibility for all stakeholders. Therefore, it evident that people should be enlightened towards achieving the basic aim of environmental management and protection, since it concerns everybody.

Fig. 4

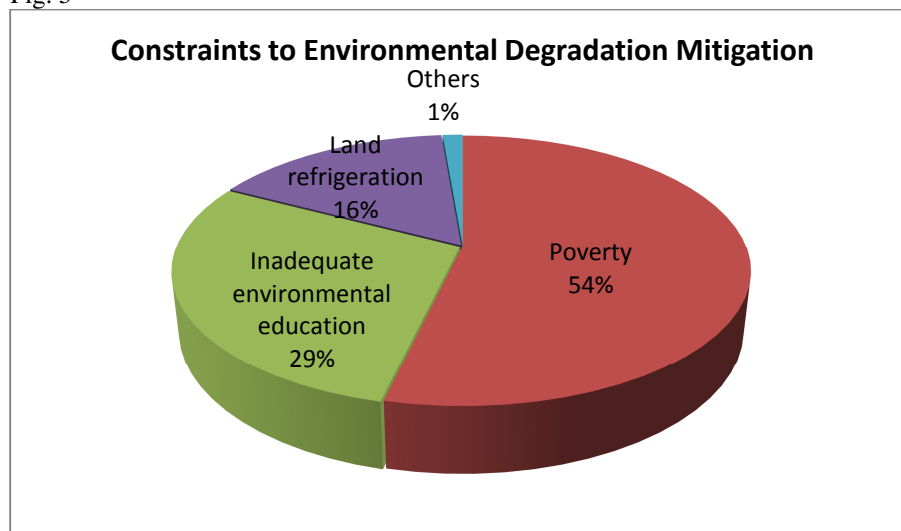


Source: Field work 2012

Constraints to Environmental Degradation Mitigation

Environmental mitigation nowadays is becoming a global concern, particularly in a fragile ecosystem of the study area. The chart below explains the problems militating against environmental degradation mitigation in the study. A reasonable number (54%) of the respondents are of the view that the problem of environmental degradation mitigation in the area is as a result of poverty. This indicated that poverty index in the area is on the increase to the extent that they cannot afford simple technologies (mechanized farming system, house hold utilities like electric cookers, gas cookers and simple stoves) that enhances environmental protection which will in turn cut the emission and reduced amount of deforestation and minimize environmental degradation. 29% of the respondents indicated that inadequate environmental education on the part of general populace constitutes a great constraint to environmental degradation mitigation. While on the other hand 16% of the respondents are of the view that land refrigeration constitutes constraints to environmental degradation mitigation. A very minute percentage (1%) of the respondents agreed that there are other constraints to environmental degradation mitigation in the study area.

Fig. 5



Source: Field work 2012

Respondents' Overall Assessment of the Environmental Quality

The chart below explains how people look at the environment and make a general assessment of environmental quality in the study area where only 5% of the respondents believed that the environmental quality is excellent

while 12% of the respondents rated the general environmental quality as very good and 39% of the respondents believed that the environmental quality is good, therefore the average overall assessment of the environment in the study area is good because the total percentages of the respondents that suggested excellent, very good and good constitutes 56% of the entire respondents while on the other hand those respondents that assessed the environmental quality in the study area to be very poor constitutes only 10% and those who believed that environmental quality is poor constitutes 34%. Therefore, summing the percentages of those who said the quality is very poor and poor constitutes 44% of the respondents.

Discussion of Findings

The environmental system may be understood in an ecological sense as the set of interactions between the elements of the **biosphere**, which includes the atmosphere, the hydrosphere, the lithosphere and the ecosphere.

Environmental degradation is a human induced or natural process which negatively affects the capacity of environmental components to function effectively within an ecosystem by accepting, storing and recycling water, energy and nutrients (Eswaran et al, 2001). Hence, different terms are associated with the term degradation. For example soil degradation, forest degradation etc. Olofin, (1995), opined that anything that can degrade the environment is hazardous. Therefore, the agents that determine the rate of, and the biophysical processes and attributes that determine the rate of degradation may as well, may be types of environmental degradation and they include: Geologic soil erosion, Earthquake, Desertification, flooding, pollution, Drought and Deforestation.

Based on the finding of this work, it is clear that the major causes of environmental degradation can be classified into three broad classes as follows:

- i. Biophysical (land use and land management, including deforestation and tillage methods)
- ii. Socioeconomic (e.g. Land tenure, marketing, institutional support, income and human health)
- iii. Political (e.g. incentives, political stability) forces that influence the effectiveness of processes and factors of land degradation.

Conclusion and Recommendations

The semi-arid zone of the north eastern region of Nigeria is vulnerable because they have inherent fragile soils and climate and as well as the localized high number of cattle's, sheep and goats. Based on the finding it is clear that there are environmental problems inherent in the study area and it has been established by this study also that these environmental problems are caused by some natural processes and aggravated by the various human activities in the study area and these consequently lead to environmental degradation, thereby negatively affecting both socioeconomic and political wellbeing of the people. It is also clear by the finding of this research that, there are problems facing the course for environmental degradation mitigation in the study area and the overall assessment of the general environment of the study area is carried out and finds out that the environment is good. In view of the finding of this work the following recommendations are hereby made:

- Since the mental images that people hold on the environment are critical in their actions and reactions to development of the environment, there is need to create awareness and build up a sense of urgency in the challenge to reduce environmental degradation. There should be involvement of local people in all development projects, particularly those relating to environmental improvements because the main solution lies in the behavior of the local beneficiaries who subject the environment to various kinds of pressure due their various socioeconomic activities.
- Most of the environmental degradation problems are rooted in poverty. There is the need for mass poverty alleviation through job creation that would target the grass root populace and provision of basic social amenities such as health facilities, portable water, good roads and schools in the rural areas.
- There is the need to advocate for community based Natural Resources Management (NRM) an approach which combines conservation objectives with the generation of economic benefits for rural communities. The three key assumptions being that: locals are better placed to conserve natural resources, people will conserve a resource only if benefits exceed the costs of conservation, and people will conserve a resource that is linked directly to their quality of life. When a local people's quality of life is enhanced, their efforts and commitment to ensure the future well-being of the resource are also enhanced. Regional and community based natural resource management is also based on the principle of subsidiary. The United Nations advocates' for community based NRM in the Convention on Biodiversity and the Convention to Combat Desertification. Unless clearly defined, decentralised NRM can result an ambiguous socio-legal environment with local communities racing to exploit natural resources while they can.
- To achieve the desired objectives of environmental degradation mitigation there is the need to urgently empower, educate and involve farmers, youth as well as women so that they can contribute to decision

making and investments in their own long term interests.

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