EFFECT OF DESERTIFICATION ON ENVIRONMENTAL MANAGEMENT IN NORTHERN NIGERIA

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Abstract
This paper examined the effect of desertification on environmental management in Northern Nigeria. The study focused on the causes of desertification, factors affecting environmental management of land use and recommended policies for land conservation. Literatures on concept of desertification, and environmental management in Nigeria were discussed. The study made use of secondary data like literatures, internet sources, textbooks, journals and magazines to conduct the research through qualitative study approach. The study finding reveals that the causes of desertification includes over-exploitation and inappropriate land use, poverty related agricultural practices and other land use systems, deforestation, high population growth in the region, and insecure and unclear land and other natural resources tenure and access rights and environmental management factors that meet the need of protection of land resources and environment were identified to include; control, evaluation and identification. While the study recommends that government should support the rural dwellers through the initiation of income diversification to reduce pressures on the dry land and the Ministry of Education should include desertification in environmental education programs for children in secondary and adolescent in the college of education and higher institutions (University).

Keyword: Desertification, Environmental Management, Causes and Northern Nigeria

1. Introduction
Migration is a complex and costly venture, but mostly the poor people are involved. Though it is often seen as the last bid the poor have in the bid for survival, however their little choice to survive led them to either fight or flee their productive land. When people flee their productive land, it increases their desire to make risky life choices. In the Northern Nigeria where people depend on scarce productive land resources, land degradation is a driver of forced migration. When the living standards of people starts coming under tremendous pressure, people with few
options can feel their life is trapped. Corroborating this view is a report by United Nations Convention to Combat Desertification (UNCCD) (2014), which states that unless we change the way we manage our land, in the next 30 years we may leave a billion or more vulnerable poor people with little choice but to fight or flee. Desertification is a silent, invisible crisis that is destabilizing communities on a global scale. It degrades the environment and reduces the present and potential productivity of arable lands, forestlands, and rangeland. It increases landlessness and food prices. Statistical analysis from past research according to The United Nations Convention to Combat Desertification shows the following: more than 1.5 billion people in the world depend on degrading land, and 74% of them are poor. Poor people spend between 50% and 80% of their income on food. Meanwhile, Agricultural yields could fall by up to 50% in some African countries if production practices are not changed, while 52% of the land under agriculture is moderately or severely degraded and 12 million hectares of productive land become barren every year due to desertification and drought alone, which is a lost opportunity to produce 20 million tons of grain (UNCCD, 2014).

As depicted in the report of United Nations Conference on Desertification (UNEP, 2003) which states that “desertification is the diminution or destruction of the biological potential of the land, and can lead ultimately to desert-like conditions. It is an aspect of the widespread deterioration of eco-systems and has diminished the biological potential of the land, i.e. plant and animal production, for multiple use purposes at a time when increased productivity is needed to support growing populations in quest of development”. The effects of desertification are on the increase globally and it affects innocent people who become victims, as a result of the situation people are turned into refugees, internally displaced people and forced migrants or they turn to radicalization, extremism or resource-driven wars for survival. In the work of Arifalo (2005) it was discovered that under arid conditions, there is very little organic matter that could provide binding force for soils, making it vulnerable to wind erosion. Farmers and their families in their thousands have almost been forced to move away from lands that are already barren. Leading many people to head southwards which have no land available for farming. Corroborating this view was the work of William, (2007) whose finding reveals that not only farmers are been affected here, the nomadic Fulani people also head southwards in search of better grazing areas for their herds.

2. Statement of Problem
Maintaining a good climate condition is best for environmental sustainability. That is why the expansion of cultivated areas during rainfall is an important human factor in the desertification of Northern Nigeria. Generally, land use in the arid and semi-arid ecosystem of northern Nigeria appears to have entered upon a severe level of misuse. There is an over-exploitation of soil and vegetable plantation which results in depletion of soil fertility and tree covers. When there is a loss in soil fertility, it implies that more land use are required to substitute for falling yields because of increasing human and animal population, this eventually leads to the land progressively worsen until desertification occurs. Meanwhile, studies have shown that desertification is the greatest environmental problems facing the dry land of northern Nigeria even till this very day. Additionally, the effect of global climate change on desertification is complex and not sufficiently understood especially in the Northern part of Nigeria. Hence, the need to conduct a research of this nature on the effect of desertification on environmental management in Northern Nigeria.
3. **Purpose of the Study**
The main aim of the study is to x-ray the effect of desertification on environmental management in Northern Nigeria. The study was therefore examined under the following specific objectives, to:

1. Examine the causes of desertification in Northern Nigeria
2. Examine factors affecting environmental management of land use in Northern Nigeria
3. Determine the future consequences of desertification on the environmental management of Northern Nigeria
4. Suggest policies that are needed to ensure the conservation and protection of land use and vegetation

4. **Research Question**
The following research questions were considered for this study:

1. What are the causes of desertification in Northern Nigeria?
2. What are the factors that affect environmental management of land use in Northern Nigeria?
3. What are the future consequences of desertification on the environmental management of Northern Nigeria?
4. What are the suggest policies needed to ensure the conservation and protection of land use and vegetation in Northern Nigeria

5. **Research Methodology**
The methodology employed in carrying out this study was quantitative research which involved the use of secondary data to gather relevant data to conduct the research finding. The use of text book, journals, literatures, and internet sources was adopted to examine the views of various authors on already done works that are related to desertification as it relates to environmental management in Northern Nigeria.

6. **Concept of Desertification**
Desertification is a term used to describe land degradation in its most extreme form. It involves the loss of land’s biological productivity and can be caused by human activities as well as by climate change. Desertification is the degradation of land in arid, semi-arid and dry sub humid areas (known as dry lands). Dry lands occur on all continents except Antarctica (United Nations, 2006). The end result of desertification is barren and unproductive land that cannot be used for crop and food production or other agricultural purposes, and has little biodiversity value.

Desertification is a major serious challenge and threat facing sustainable development in northern Nigeria and other African countries. The problem have an adverse effect on human health, food security, economic activity, physical infrastructure, natural resources, and the environment, both national and global security is also affected by desertification (United Nations Economic and Social Council, 2007).

Desertification is seen as the process of land degradation in arid, semi-arid and dry sub-humid areas, resulting from various factors, including climatic variations and human activities (UNCCD, 2014). And when this occurs, land degradation manifests itself through soil erosion,
water scarcity, reduced agricultural productivity, loss of vegetation cover and biodiversity,
drought and poverty.

6.1 Causes of Desertification
Desertification is caused by multiple direct and indirect factors such as mentioned below.

1. **Over-exploitation and inappropriate land use:** The practice of inappropriate
agricultural produce, overgrazing, over cultivation and deforestation are major issues that
causes desertification in northern Nigeria. This is due to poverty and total dependency on
natural resources for survival by the poor.

2. Climatic factors according to (Yang and Prince 2000; Hulme and Kelly 1993) that lead to
reduced rainfall (Rowell et al. 1992) and human activities involving technological
factors, institutional and policy factors, and economic factors (UNCCD 2004) in addition
to population pressures, and land use patterns and practices. The technological factors
include innovations such as the adoption of water pumps, boreholes, and dams. The
institutional and policy factors include agricultural growth policies like land distribution
and redistribution (AIBS, 2004). These factors as identified here are part of the causes of
desertification such as the expansion of cropland and overgrazing, the extension of
infrastructure, increased aridity, and wood extraction are all involved.

3. **Poverty related agricultural practices and other land use systems:** Bad farming
practice such as consistent and continuous irrigation farming without adding better
supplements to the soil, the issue of overgrazing, poor land management practices, lack of
soil and water conservation structures and high incidence of indiscriminate bushfires
which leads to land degradation and aggravate the process of desertification. In Nigeria, it
was reported that between 1950 and 2006, livestock population grew from 6 million to 66
million, making an 11-fold increase. The forage needs of livestock exceed the carrying
capacity of its grasslands (Conserve Africa, 2006).

4. **Deforestation:** This is due to the expansion of agricultural land in various regions but it
is counted as a serious direct cause of desertification. There is a negative impact of the
energy sector on forest and other vegetation cover and land productivity globally. This is
why Biomass constitutes 30% of the energy used in Africa and over 80% used in many
sub-Saharan countries such as Burundi (91%), Rwanda and Central Africa Republic
(90%), Mozambique (89%), Burkina Faso (87%), Benin (86%), with Madagascar and Niger (85%) (Africa Regional Review, 2005). This is directly affecting desertification
due to some trivial factors like high levels of poverty in the region, high population
growth rates, poor natural resources tenure and access regimes, conflicts, and climate
change.

5. **High population growth in the region:** The population growth of rural dwellers in
Africa is estimated at 325 million (UNCCD) (2014). This leads to deforestation and
overexploitation of Land use. The issue of Nigeria’s human population that grew from 33
million in 1950 to 134 million in 2006 was a fourfold expansion that forced farmers to
plough marginal land under the pressure to meet food needs.

6. **Insecure and unclear land and other natural resources tenure and access rights:**
These were identified as some of the main reasons the natural resources end-users are
unwilling to invest in long-term sustainable land management (SLM). For instance it is
reported that in Uganda, insecurity of land tenure in parts of the cattle corridor under
mailo and communal land ownership systems does not encourage farmers to invest in sustainable land management practices.

7. Environmental Management in Northern Nigeria

Environmental management is a purposeful activity with the goal to maintain and improve the state of an environmental resources affected by human activities. It can be defined as “the management of the interaction and impact of human activities on the natural environment” (West Coast District Ministry (WCDM), 2015).

The aim of environmental management according to (WCDM, 2015) is centered on ensuring ecosystem services and that the protection of biodiversity is taken care of with proper maintenance for equitable use for future human generation. Also, the maintenance of eco-system integrity as an end in itself by taking into consideration ethical, economic and scientific ( ecological) variables is highly essential. The essence of environmental management is to single handedly identify those factors that affects meeting its need and protection of the environment and this is achieved through:

- Identification: When people in the community complain about their environment, it sends a signal that an environmental problem may have occurred
- Evaluation: The extent of the problem is often determined when government officials in charge of environmental issues inspects the community in question
- Control: After proper evaluation is done by the authority, they will proceed to educate, caution and advice the community in charge to stop the pollution of their environment and illegal misuse of their environment.

This is the centre focus of environmental management as it relates the preservation of land use in order to curb desertification in the northern Nigeria. The social and environmental factors surrounding the Northern Nigeria existence with the flexibility of both ecological management and economic activity are very important agenda of any plan for agricultural and rural survival in the region (Adams and Mortimore, 1997). African farmers have been seen as not increasing agricultural productions since often do not use environmentally sustainable methods and as well as economically productive measures. This is unavoidably true since the major vegetation of northern Nigeria is majorly marginal or short grass savannah. Meanwhile the northern region is surrounded by hot climate which brings about seasonal rainfall and an identified dry season (Mortimore, 2005). Lack of good or proper environmental management of agricultural productivity of land use among farmers can be seen in the areas of reduced soil fertility and when this occurs, it create much room for desertification and draught to permeate the land. However, this situation arises much in the northern Nigeria due to a constant increase in the population which eventually leads to increase in food demands by urban consumers and rural farmers, additionally, the expansion of areas of cultivation and reduced fallow intervals with a lack of inputs necessary to compensate, and as a result reduced land production level (soil fertility) (Draper and Maureen, 2009).

8. Findings

Finding from the study shows the following

1. The causes of desertification as studied includes over-exploitation and inappropriate land use, poverty related agricultural practices and other land use systems, deforestation, high
2. Environmental management factors that meet the need of protection of land resources and environment were identified to include; control, evaluation and identification.

3. Lack of proper environmental management of agricultural productivity of land use among farmers leads to reduced soil fertility.

9. Conclusion
The importance of land resources to the existence of man in the global environment is inevitable as discovered in the course of this study. It has important potentials that are economically, socially, financially, nutritionally and medically beneficial to man when it is efficient utilized. That is the reason why the present research stresses the need to manage land usage, since its misuse causes a lot of damages to the climatic environment and human existence like causing internal displacement, refugee and migrants to urban cities in search of jobs that are rarely available. Though, this study is particular about desertification on environmental management in northern Nigeria, the future of desertification is hidden on the ability of rural farmers to enhance their ability to utilize the land and learn better ways to conserve its natural resources for quality soil fertility.

10. Recommendations
Based on the challenges affecting the establishment of a well restored state of the climatic environment, land use restoration and expected outcome in combating desertification in northern Nigeria, the researcher therefore recommend that;

1. The Ministry of Education should include desertification in environmental education programs for children in secondary and adolescent in the college of education and higher institutions (University).

2. The Federal Government through its State Government should continue the fight against corruption through its agency (Economic and Financial Crime Commission, EFCC) to promote to reduced or eliminate corrupt practices that heighten desertification.

3. Government should support the rural dwellers through the initiation of income diversification to reduce pressures on the dry land.

References


