

**A COMPREHENSIVE APPROACH TO ADDRESSING DROUGHT AND
DESERTIFICATION IN NIGERIA**

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This project report is dedicated to my beloved elder brother HAMISU IDRIS MEDUGU for his moral and financial support throughout my stay in UTM.

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ABSTRACT

In the 1970s, the United Nations identified desertification as a global threat to environmental sustainability. While the concept of dryland degradation has long and always existed, desertification on the other hand implies the rapid spread of the degradation of vast land and its productivity throughout the world, notably in Africa and Asia. Modern desertification, as the case is in Nigeria, often arises from the demands of increased populations that settle on the land in order to grow crops and graze animals. The extent and severity of desertification in Nigeria has not been fully established neither has the rate of its progression been properly recognized. However, it is estimated that the country is currently losing about 351,000 hectares of its landmass to desert conditions annually, and such conditions are estimated to be advancing southwards at the rate of about 0.6km per year. Desertification, which is affecting the 11 northern states, is considered the most pressing environmental problem. The purpose of this study is to evaluate current government policies in addressing desertification and to offer new measures based on the findings of the study. The study has found out that the reasons for the failure of current government policies are numerous including the government's top-down approach, inconsistency of government policies, neglect of indigenous knowledge, use of inappropriate technology, sectoral approach, inadequate funding, inadequate awareness, etc. Having identified the causes of the problem, this study proposes new measures to combat desertification and mitigate the effect of drought in Nigeria.

ABSTRAK

Dalam tahun 1970an, desertifikasi telah di kenal pasti oleh Pertubuhan Bangsa-bangsa Bersatu sebagai ancaman global terhadap keseimbangan alam. Walaupun konsep ‘degradasi kawasan kering’ telah lama wujud, desertifikasi sebaliknya mewakili proses penggurunan tanah dan penurunan produktiviti yang berterusan merangkumi seluruh dunia, terutamanya di benua Afrika dan Asia. Di masa kini, desertifikasi sebagaimana di Nigeria kebiasaannya berlaku akibat tekanan populasi di kawasan kering melalui aktiviti bercucuk tanam dan penternakan haiwan. Tahap dan ancaman desertifikasi di Nigeria dan juga kadar perkembangannya setakat ini belum dikenalpasti sepenuhnya. Walaubagaimanapun, dijangkakan bahawa negara ini kehilangan kira-kira 351,000 hektar tanah kepada keadaan gurun setiap tahun dan dijangkakan fenomena desertifikasi ini mara kearah selatan pada kadar 0.6km setahun. Desertifikasi yang melanda 11 negeri utara kini merupakan impak alam sekitar yang terbesar. Tajuan kajian ini adalah untuk menilai semula polisi-polisi kerajaan dalam menangani kejadian kemarau dan fenomena desertifikasi serta mengusulkan cadangan-cadangan mengatasinya berdasarkan hasil kajian. Kajian ini telah mendapati bahawa antara sebab-sebab kegagalan polisi semasa adalah banyak dan antaranya ialah pendekatan ‘top-down’ yang diambil oleh kerajaan, percanggahan dalam polisi-polisi kerajaan, pengabaian pengetahuan/kemahiran tempatan, penggunaan teknologi yang kurang sesuai, pendekatan secara sektoral, kurang tahap kesedaran dan sebagainya. Setelah mengenalpasti punca-punca kepada masalah ini, kajian ini akhirnya mencadangkan beberapa pendekatan baru dalam menangani masalah kemarau dan desertifikasi di Nigeria.

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LIST OF ABBREVIATION

ADB	-	African Development Bank
AZAP	-	Arid Zone Afforestation Project
CAZS	-	Centre for Arid Zone Studies
CBO	-	Community Based Organization
CCD	-	Convention to Combat Desertification
ECN	-	Energy Commission of Nigeria
EEC	-	European Economic Community
FAO	-	Food and Agricultural Organization
FCT	-	Federal Capital Territory
FEPA	-	Federal Environmental Protection Agency
FMA	-	Federal Ministry of Agriculture
FME	-	Federal Ministry of Environment
FMENV	-	Federal Ministry of Environment (formerly)
FMWR	-	Federal Ministry of Water Resources

FORMECU	-	Forestry Management Evaluation and Coordinating Unit
FOS	-	Federal Office of Statistic
FRIN	-	Forestry Research Institute of Nigeria
GDP	-	Gross Domestic Product
GEF	-	Global Environment Facility
GHG	-	Greenhouse Gas
GIS	-	Geographic Information System
ICT	-	Information and Communication Technology
IGU	-	International Geophysical Union
IK	-	Indigenous Knowledge
JICA	-	Japanese International Cooperation Agency
KM	-	Kilometers
KSACDP	-	Katsina State Agricultural and Community Development Project
LNG	-	Liquefied Natural Gas
MOU	-	Memorandum of Understanding
NAP	-	National Action Programme
NAPCD	-	National Action Programme to Combat Desertification

NCCDC	-	National Coordinating Committee on Desertification Control
NEAP	-	National Environmental Action Plan
NEAZDP	-	Northeast Arid Zone Development Programme
NEEDS	-	National Economic Empowerment and Development Strategy
NGO	-	Non-Governmental Organization
NIMET	-	Nigerian Meteorological Agency
NRCS	-	Natural Resources Conservation Service
RBDA	-	River Basin Development Authority
RET	-	Renewable Energy Technology
SAP	-	Structural Adjustment Programme
SEAP	-	State Environmental Action Plan
SEEDS	-	State Economic Empowerment Development Strategy
SEPA	-	State Environmental Protection Agency
SEPP	-	Sokoto Environmental Protection Programme
SHP	-	Small Hydro Power
UN	-	United Nations

UNCCD	-	United Nations Convention to Combat Desertification
UNCED	-	United Nations Conference on Disarmament
UNCED	-	United Nation Conference on Environment and Development
UNCOD	-	United Nations Conference on Desertification
UNDP	-	United Nations Development Programme
UNEP	-	United Nations Environment Programme
UNFCC	-	United Nations Framework Convention on Climate Change
UNIDO	-	United Nations Industrial Development Organization
UNIMAID	-	University of Maiduguri
UNSO	-	United Nations Sudan-Sahelian office
USDA	-	United States Department of Agriculture
WMO	-	World Meteorological organization

GLOSARRY OF TERMS

Afforestation	The act or process of establishing a forest especially on lands not previously forested
Anthropogenic	Caused by human activity
Arid	Lacking moisture, especially having insufficient rainfall to support trees or woody plants
Biodiversity	Biological diversity in an environment as indicated by numbers of different species of plants and animals
Capacity building	Strengthening the technical and administrative skills of local agencies
Deforestation	The removal of forest stands by cutting and burning to provide land for agricultural purposes, residential or industrial building sites, roads, etc
Desertification	Land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities
Desert	Arid land with usually sparse vegetation; such land having a very warm climate and receiving less than 25 centimeters (10 inches) of sporadic rainfall annually and where evaporation greatly exceeds precipitation
Drought	A period of dryness especially when prolonged that causes extensive damage to crops or prevents their successful growth
Dunes (sand)	A hill or ridge of sand piled up by the wind
Dust storm	A severe windstorm that sweeps clouds of dust across an extensive area, especially in an arid region

Ecological	
Immigrants	(sometimes called ecological refugees) are those people who leave their land and re-locate because of the destruction of the environment and its inability to support them and provide household food security
Fixation (sand dune)	Establishment of a vegetative cover to stabilize the sands to resist erosion by wind. In some situations, non-biological methods such as petroleum products may be used to achieve this
Forecasting	To predict (weather conditions) based on correlated meteorological observations
Fuelwood	Wood grown or used for fuel
Grassland	Area in which the vegetation is dominated by a nearly continuous cover of grasses
Human influences	Influences caused by human actions, effects
Infrastructure	The underlying foundation or basic framework (as of a system or organization)
Irrigation	To supply (land) with water by artificial means
Land degradation	The process of degrading, from a former state
Land-use	The manner in which land is used
Livestock husbandry	The scientific control and management of a branch of farming and especially of domestic animals
Meteorology	Science that deals with the atmosphere and its phenomena and especially with weather and weather forecasting
Nomads	Someone who does not lead a settled life but moves from place to place, usually seeking pasture for herds of grazing animals.
Rangeland	Is a type of land rather than a type of use. Yet traditionally the term applies to any extensive area of land that is occupied by native herbaceous or shrubby vegetation that is grazed by domestic or wild herbivores

Reforestation	The actions of renewing forest cover by planting seeds or young trees
Remote sensing	A means of acquiring information using airborne equipment and techniques to determine the characteristics of an area
Revegetation	To provide (barren or denuded land) with a new vegetative cover
Sahel	The region of poor and intermittent rains south of the Sahara Desert in Africa
Salinity	The degree of salt content, especially in soil and water and at a level deleterious to crops
Sandstorms	A windstorm (as in a desert) driving clouds of sand before it
Savanna	A tropical or subtropical grassland containing scattered trees and drought-resistant undergrowth
Socio-economics	Of, relating to, or involving a combination of social and economic factors
Soil erosion	The action or process of eroding, through wind, rain, or other methods
Steppe	Short-grass prairies at margins of deserts and transition zones
Sustainable Development	Relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged in the long-term
Traditional Knowledge	Inherited, established, or customary pattern of thought, action, or behavior (as a religious practice or a social custom) in technology
Waterlogging	A situation where soil is constantly wet, often as a result of poor drainage and/or rising water tables
Weather	Refers to the environmental conditions being experienced on a day-to-day (even hour-by-hour) basis

Weather patterns	Patterns in the state of the atmosphere with respect to heat or cold, wetness or dryness, calm or storm, clearness or cloudiness
Windbreaks	A growth of trees or shrubs serving to break the force of wind

CHAPTER 1

INTRODUCTION

1.1 Background of the study

Desertification constitutes one of the international environmental problems whose global importance has been recognized by the international community. This importance is clearly visible in the massive endorsement that states have given to the United Nations Convention to Combat Desertification in those countries experiencing serious drought and/or desertification, particularly in Africa adopted in 1994. However, desertification of the arid lands of the world has been proceeding sometimes rapidly, sometimes slowly for more than a thousand years. It has caused untold misery among those most directly affected, yet environmental destruction continues. Until recently, few if any lessons seemed to have been learned from the past, in part because the problem was an insidious one that went unrecognized in its early stages or was seen as a local one affecting only a small population, and in part because new land was always available to start over again. As long as remedial action could be deferred by moving on to new frontiers, land conservation had little appeal. It was not until the 20th century when easy land expansion came to an end that governments and people finally realized that continued careless degradation of natural resources threatened their future.

Nigeria is a large country with a substantial part of its area extending into the Sudano-Sahelian belt, which, together with the neighboring northern Guinea savanna constitutes the dry lands of the country (Figure 1.1). With an estimated population of 140 million (Census, 2006) human pressures on the land particularly in the marginal

areas has continued to take its toll on the environment, resulting in desertification. Desertification is made very severe in the dry lands of the country by increasing human attempts to exploit the resources of the ecological zone in the face of persistent drought. Before now, Nigeria has been tackling the problem of desertification the best way it could, but with little success. It is now obvious that the menace should be addressed in a holistic manner in order to ensure that the dry lands of the country continue to support human and natural resources.



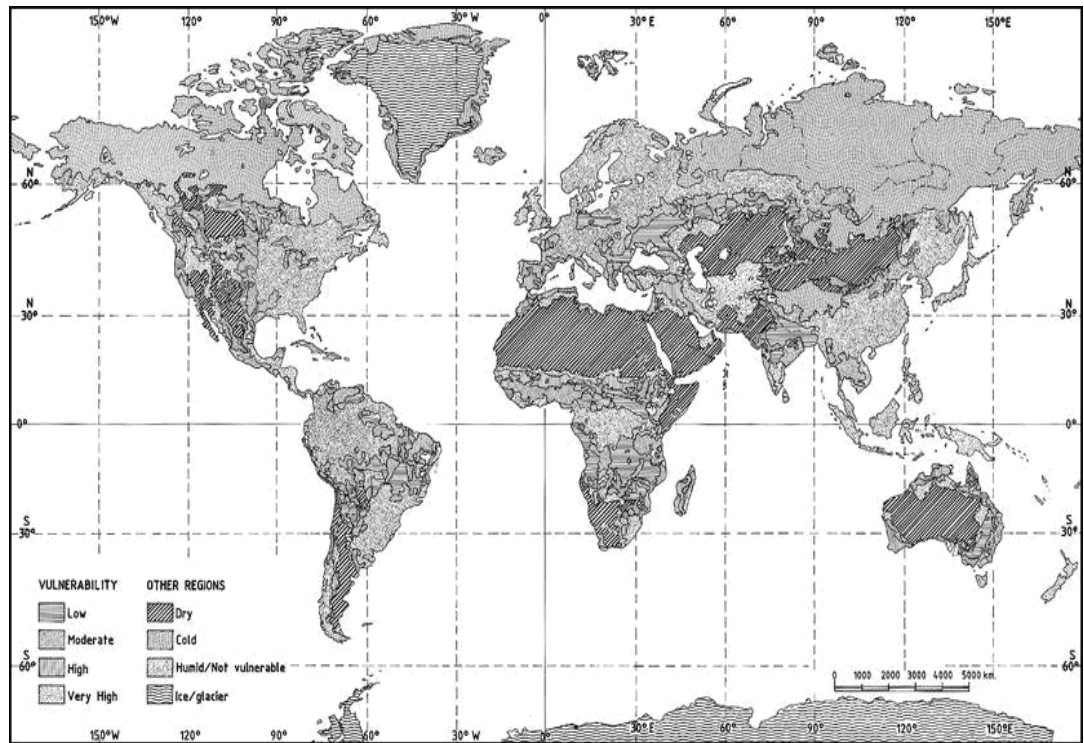
Source: Report of NAPCD, FME Abuja 2002

Figure 1.1: Areas affected by desertification in Nigeria

1.2 Statement of the problem

Land degradation caused either by anthropogenic or climatic factor has occurred since time immemorial. In recent time, it became an issue of international significance in the wake of the Sahelian drought of 1968-1973. Since then, there have been several coordinated efforts at the international level to tackle the growing problem of the desertification and land degradation, which have culminated in the adoption of the United Nations Convention to Combat Desertification.

Desertification became well known in the 1930's, when parts of the Great Plains in the United States turned into the "Dust Bowl" as a result of drought and poor practices in farming, although the term itself was not used until almost 1950. During the dust bowl period, millions of people were forced to abandon their farms and livelihoods. Greatly improved methods of agriculture and land and water management in the Great Plains have prevented that disaster from recurring, but desertification presently affects about one sixth of the world's population, 70% of all dry lands (amounting to 3.6 billion hectares) and one quarter of the total land area of the world (UN Conference on Environment and Development, 1992) (see Figure 1.2). Desertification places some 1 billion people in 110 countries at risk, mainly in developing regions (Ayoub, 1999). Losses due to desertification have been estimated to be five times the cost of halting desertification (UN Environment Programme, 1992).



Source: USDA-NRCS, Soil Survey Division, World Soil Resources, Washington, DC 2001)

Figure 1.2: Global desertification vulnerability map showing the dry regions

Desertification and the persistent droughts, constitutes the most serious environmental problem facing the northern part of the Nigeria, with dire economic consequences on the entire nation. The country is presently losing about 350,000 square meters of its land mass to desert condition which is advancing south wards at an estimated rate of 0.6 kilometers a year (NAP 2000). Increased population and livestock pressure on marginal lands has accelerated desertification. In some areas, nomads moving to less arid areas disrupt the local ecosystem and increase the rate of erosion of the land. Nomads are trying to escape the desert, but because of their land-use practices, they are bringing the desert with them. It is a misconception that droughts cause desertification. Droughts are common in arid and semiarid lands. Well-managed lands can recover from drought when the rains return. Continued land abuse during droughts, however, increases land degradation. In the 1970s, the Sahel region of Africa was afflicted by a serious drought which killed thousands of people and millions of animals (UNCD, 1978). This focused world attention on the dangers and causes of desertification and triggered a global call to action.

The issue of desertification has been debated for generations. There is little disagreement that there has been an environmental decline in much of the world's dry lands – particularly in Africa. However, there have been contentious debates about:

- i) How large is the area and population affected;
- ii) What role climate plays in the process of desertification, and
- iii) What might be done to arrest effectively or reverse the environmental and economic impacts of desertification?

While desertification has received tremendous publicity by the political and news media, there are still many things that the general public may not be aware about the degradation of productive lands and the expansion of deserts. In 1988, Ridley Nelson cited in Le Houerou (2002) pointed out in an important scientific paper that the desertification problem and processes are not clearly defined. There is no consensus among researchers as to the specific causes, extent, or degree of desertification. Contrary to many popular reports, desertification is actually a subtle and complex process of deterioration that may often be reversible.

1.3 Purposes of the study

The aim of the study is to evaluate government policies on drought and desertification in Nigeria with a view to making appropriate recommendation for further improvement.

1.4 Objectives of the study

1. To review the concept of desertification.
2. To critically identify factors contributing to desertification in Nigeria.
3. To evaluate past and present effort of Nigerian government to combat desertification.
4. To examine the existing policies on drought and desertification in Nigeria and;
5. To recommend measures necessary to combat desertification and mitigate the effect of drought in Nigeria.

1.5 Significance of the study

This research needs to be carried out because according to a report by the Federal Ministry of Environment, the country is currently losing about 351,000 hectares of its landmass to desert conditions annually, and such conditions are estimated to be advancing southwards at the rate of about 0.6km per year (NAP, 2000). Desertification, which is affecting the ten northern States, is considered as the most pressing environmental problem and accounts for about 73% out of the estimated total cost of about US\$5.110 billion per annum the country is losing arising from environmental degradation (UNCCD, 1999).

1.6 Scope of the study

The research will focus on the planning policies related to drought and desertification and it will be limited to eleven frontline states of northern Nigeria only.