

**AN APPRAISAL OF THE LEGAL FRAMEWORK ON
CONSERVATION AND MANAGEMENT OF BIODIVERSITY
RESOURCES IN NIGERIA**

BY

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DECLARATION

I, declare that the work in this thesis entitled ‘AN APPRAISAL OF THE LEGAL FRAMEWORK ON CONSERVATION AND MANAGEMENT OF BIODIVERSITY RESOURCES IN NIGERIA’ has been carried out by me in the Department of Public Law, Faculty of Law Ahmadu Bello University, Zaria. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this thesis was previously presented for another degree or diploma at this or any other institution.

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CERTIFICATION

This thesis entitled AN APPRAISAL OF THE LEGAL FRAMEWORK ON CONSERVATION AND MANAGEMENT OF BIODIVERSITY RESOURCES IN NIGERIA by BINTA DAN-ALI DALHAT, meets the regulations governing the award of the degree of Doctor of Philosophy in Law (Ph.D Law) of the Ahmadu Bello University, Zaria and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

This thesis is dedicated to the memory of my late Mother Hajiya Rabi'atu Muhammad with love and eternal appreciation and to my darling husband and our eight children.

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In the name of Allah, Most Compassionate, Most Merciful. All praises are due to Allah (SWT) who made everything possible in His own time because His mercy is without bounds. May His peace and blessings be showered on the seal of all prophets Muhammad (PBUH), his companions and all those who strive to follow their footsteps.

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Convention on the Conservation of Migrating Species of Wild Animals (Bonn Convention)
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United Nation Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification. (Paris 1994) Ratified by Nigeria on 8/7/1997

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ABBREVIATIONS

AGR	-	Access to Genetic Resources
AGR/BS	-	Access to Genetic Resources and Benefit Sharing
BCH	-	Bio Diversity Clearing House
CBD	-	Convention on Biological Diversity
CCD	-	Convention to Convert Desertification
CITES	-	Convention on International Trade of Endangered Species
CPB	-	Cartagena Protocol on Bio Safety
DNA	-	Deoxyribo nucleic Acid
EGASPIN	-	Environmental Guidelines and Standard for Petroleum Industry for Nigeria
EIA	-	Environment Impact Assessment Act
ESA	-	Endangered Species Act
FAO	-	Food Agricultural Organization
FEPA	-	Federal Environmental Protection Agency
FHC	-	Federal High Court
GDR		Genetic Diversity Resources
GM	-	Genetic Material
GMO	-	Genetically Modified Organism
GR	-	Genetic Resource
IBA	-	Important Birds Areas
IPR	-	Intellectual Property Right

IUCN	-	International Union for Conservation of Nature
IWC	-	International Whaling Commission
LMOs	-	Living Modified Organisms
MFS	-	Nigerian Field Society
MP	-	Marine Pollution
MTA	-	Material Transfer Agreement
NAFDAC	-	National Agency for Food and Drug Administration and Control
NESREA	-	National Environmental Standard Regulation and Enforcement Agency
NIMASA	-	Nigerian Maritime Administration and Safety Agency
NOSDRA	-	National Oil Spill Detection and Regulation Act
NPA	-	National Port Authority
OG	-	Oil and Gas
ONWA	-	Oil in Navigable Waters Act
PBUH	-	Peace be Upon Him
PIC	-	Prior Informed Consent
SAW	-	Sallahu Alaihi wasallam
SC	-	Savannah Conservation
SWT	-	SubahanaWataalah
TK	-	Traditional Knowledge
UN	-	United Nations
UNCLOS	-	United Nation Convention on Law of the Sea

WSC - World Society of Conservation

WWFN - World Wide Fund for Nature

ABSTRACT

Biological diversity-the variety within and among species and ecosystem is essential for our planet, human wellbeing, livelihood and cultural integrity of the people. Nigeria is known for its abundance of biodiversity resources endowment, it is the second largest wetland in the world with mangrove swamps, fertile alluvial plain, rich in fauna and flora specie diversities. The country's biodiversity is undeniably an asset of high value to present and future generation and its protection indispensable. But unfortunately, biodiversity resources faces accelerated loss as a result of number of factors which represents a silent emergency that threatens the eradication of poverty and achievement of sustainable development throughout the world. Being aware with what is happening and the negative impact of biodiversity loss, the government put several efforts towards conservation and management of these resources through the institution of different legal and regulatory framework. However, the effort is not gaining the desired outcome, biodiversity loss still persist irrespective of the laws and institutions put in place in the country. It is against this backdrop that there is growing concerns about the country's use of legal instruments in addressing the problems of biodiversity loss. The thesis employed doctrinal research approach as such the study will rely essentially on information from documentary sources like statutes, books, journal articles, newspapers and internet materials. Based on thorough review of the relevant literatures and analysis of the laws and the institutions, the study finds out that environmental degradations, food insecurity, climate change, loss of natural habitat and disturbance of hydrological balance are the consequences of biodiversity loss. It also finds out that there are many factors hindering the realization of the aim and objectives of the various conservation laws and the superb functioning of the institutions put in place. Some of the factors identified are: absence or lack of defined constitutional right to environmental protection; poor enforcement strategy; failure to domesticate some international environmental conventions; lack of access to judiciary; high level of poverty. While weakness in institutional response to biodiversity loss are characterized among others by poor coordination, jurisdictional conflicts, inadequate funding of biodiversity conservation programmes and official corruption. The research as part of its findings observed that there is significant negative relation between the laws and their enforcement. The study concludes that the best of laws cannot solve deep-seated biodiversity loss or guarantee conservation and sustainable use of biodiversity resources in the absence of effective enforcement. It is in this wise that this research recommends for an established statutory reforms of biodiversity conservation laws; introduction of renewable energy alternatives into Nigerian energy mix; effective implementation of policies and strategies that promote adequate income generation among others.

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CHAPTER ONE

GENERAL INTRODUCTION

1.1 Background to the Study

Conservation and management of biodiversity resources in Nigeria has a relatively short history. The history of conservation and management of biodiversity resources in Nigeria began with the creation of the first forest reserve in Nigeria (Olakemeji Reserve) established near Ibadan around 1900¹. This was followed by the establishment of other forest reserves, in various parts of what forms the present day Nigeria. In these reserves, lumbering activities were made illegal. By 1908, a Forest Ordinance, promulgated by the colonial government gave protection to all commercial timber outside the reserves. Felling of timber therefore required government permit. In 1917, the first definitive government policy on forestry came into existence. In that year, the then Governor General, Lord Lugard, stated that each province of the country must reserve a minimum of 25% of its forests². To combat the problem of bush burning, a forest ordinance was enacted in 1937, which made it illegal to set fire to reserves. This was followed by the Bush Burning Order of 1940, introduced to control bush burning outside the reserves³.

¹ Onokarhoraye. A., (1985) *An Outline of Human Geography*. The Geography and Planning Study Notes. Department of Geography and Planning, University of Benin.

² Usman B.A and Adefelu L.L (2010) Nigerian Forestry Wildlife and Protected Areas: Status Report, Tropical Conservancy Biodiversity(3&4) 11.

³ Egboh, E. O.(1897-1940) *Establishment of Government Controlled Reserves in Nigeria*. *Savanna* (8) 2. P.22

On the other hand, protection of wildlife began in 1916, with the Wild Animal Preservation Act in eastern Nigeria⁴. Similar laws were enacted in western Nigerian in 1928 Game laws however, only emerged in northern Nigeria after independence. The British Colonial Government could also be credited for spearheading the establishment of the game reserves in Nigeria. As far back as 1932, Col. A. H. Haywood, recommended the creation of game reserves in the savannah region of the country, with particular reference to Borgu/Oyo and some other areas. He further suggested the establishment of game department for proper wildlife management, enforcement of wildlife and protection of endangered species⁵.

The first game reserve (Yankari) was demarcated and constituted into a game reserve in 1956, though it was opened to the public in 1962. The Wild Animal Act of 1963 gave protection to all animals within areas designated as game reserves. Poaching and other illegal activities in the reserves were to be combated by game guards who were empowered under the law to arrest offenders for prosecution⁶. Nigeria biodiversity conservation legal regime has developed significantly from humble beginning. Having been initiated in the colonial period during which environmental issues were generally couched within public health regulation⁷, and having developed in a rather adhoc manner in the early days of independence.

⁴ SFM Tropics. (2005) Status of Tropical Forest Management: Nigeria Sustainable Forest Management. pp. 112-119. www.IHO.int/direct/tropics/tropics Accessed 9/4/2010.

⁵ *Federal Government of Nigeria 2010 National Biodiversity Report.*

⁶ Ajayi, S, and Hell, B. (1979) *An Ecological Management Plan for the Kainji Lake National Park*: S. S. Ajayi et al. (Eds) *Wildlife Management in Savanna Woodland*. P.10

⁷ Okediran, O. *An Appraisal of Environmental Sanitation Edicts in Nigeria*. In Shyllon at p. 25.

Until recently, few people outside biological circles know the word biodiversity. Now it crops up in almost all discussion about conservation and sustainable development. The concept biological diversity is the term given to the variety of life on earth and the natural patterns it forms. Biodiversity which is the short form of biological diversity is defined in Article 2 of the Convention on Biological Diversity 1992 as:

The variability among living organism from all sources including inter alia, terrestrial, marine and other aquatic ecosystem and the ecological complexes of which they are part, that includes diversity within species, between species and ecosystem⁸.

Okiwelu and Anyewu ,defined biological biodiversity as:

The variation among living organism which encompasses species diversity (the number of different species) genetic diversity (genetic variety of interaction among living thing in natural communities)⁹.

The term biodiversity refers to the total variety of living organism (plants, animals, fungi and microbes) that exist on our planet. In short, biodiversity is synonymous with the expression 'life on earth'. It was reported that, biodiversity is extremely complex dynamic and varied like no other feature of the earth, its innumerable plants, animals and microbes physically and chemically unite the atmosphere (molecule of gases around the earth) geo sphere (solid part of the earth)

⁸ United Nation Conference on Environment and Development 1992 at <http://www.un.org/genin/fo/bp/env/viro.html>(accessed on 27/11/2013.The convention was opened for signature on the 5 of June 1992.

⁹ Okiwelu and Anyema, (2013) '*Ecology, Conservation and Environmental Science*', Niyi Feniren, Lagos p. 166.

and hydrosphere (the earth's water, ice and water vapour) into which one environmental system which makes it possible for millions of species including people, to exist.¹⁰

Biodiversity comprises the variety of genetically distinct population and species of plants, animals and micro-organism with which humans being share the earth and the variety of ecosystems of which they are functioning parts¹¹. The concept is usually conceptualized at three levels, genetic diversity, species diversity, and ecosystem diversity. Genetic diversity refers to the variation of the genes within individual specie in general no two organisms are genetically identical. Species diversity means the diversity between species of living organism within a specific habitat or ecosystem. The number of species on earth is not known, while more than one and half million species have been described by scientist. Ecosystem diversity denotes the range of natural habitats, biotic communities and ecological processes within which species variety has evolved and to which they are uniquely adopted.

For Nigerians and indeed Africa, biodiversity is of critical importance to our survival. This is because our livelihood is dependent on having free and open access to a great variety of biological resources for food and medication .For example human beings derive nutrients and vitamins such as protein, from the consumption of animal meat and diaries products and more than 120 chemical substances, which are obtained from around 90 different plants species are processed in to drugs and

¹⁰ Altieri M.A 'The Ecological role of Biodiversity in Agro Ecosystem (1999) *ELSEVIER Journal of Agriculture, Ecosystem and Environment* 7419-31 at 26.

¹¹ United Nations (1997), *Glossary of Environmental Statistics* (UN DOC ESA/STAT/SER.F167)

medicine, all over the world¹². Other values of biodiversity are housing materials, economic security, subsistence and commercial agriculture, livestock production, logging and fishing which account for the bulk of employment. What is more, majority of Nigerians particularly in rural areas depend on herbal remedies for their primary health care, while wood in the form of fuel wood and charcoal represent by far the largest energy sources in both rural and urban areas of the country¹³.

The diversity of biological species is the earth's most important resources. Human depend on the wide variety of species in healthy ecosystems for air to breathe, water to drink, and productive soil for farming. In respect of its ecosystem service it has been discovered that there are certain biological processes which are affected whenever there is a change in or disruption of biological diversity. Some of the processes include seeds dispersal, pollination, carbon sequestration and climate regulation .It is a general scientific knowledge that, plants utilize carbon dioxide thus reducing the amount that goes into the atmosphere¹⁴ . Along with other species such as worms, insects, fungi, and soil bacteria-regulate stream flow and groundwater levels cleanse pollutants from water surface, and helps recycle soil nutrients. Insects are the important pollinators; 90 per cent of the crops are pollinated exclusively by insects¹⁵.

¹² Emma Okafor L. C et al 'Biodiversity Conservation for sustainable Agriculture in Tropical Rainforest of Nigeria' (2009) *New York Science Journal*, at 2 (7) at 81.

¹³ Abramowitz, Jn., (1997) Valuing Nature Science. In Starke J. (eds): *State of World. A World Watch Institute Report on Progress Towards Sustainable Society*.p. 101and 102.

¹⁴ Aweto A.O. 'Plantation Forestry and Forestry Conservation in Nigeria.(1990) *The Environmentalists* volume 10, Number 2 at 132.

¹⁵ Norman, M. H. (1983) *The Value of Conserving Genetic Resources*, Washington DC: National Park Service. US Department of Interim, pp. 198-208.

At the aesthetic level, variety of plants and animals add to the beauty and richness of the earth common wealth. Beyond aesthetic sentiment, all plants and animals serve one or more important roles to the common wealth of nature, few examples of the importance of biodiversity stated above demonstrate the need for its conservation. By focusing on biodiversity scientist hope to build political will concerning life¹⁶.

Biodiversity as a concept allows us to recognize and value the great diversity and variability of life. The concern for ants and ant eaters, rhinoceros, beetle, biodiversity as a concept contributes to environmental sustainability, a critical sustainable development goal (SDG) and central pillar of World Bank assistance¹⁷. The ethical and legal debates over the right of nonhuman life are complex, but value for all life is fundamental to many religious and moral systems. Even in today's predominately secular society, the uniqueness and inherent value of life are deeply felt by many people¹⁸.

Despite the above stated values of biodiversity resources the country is experiencing a high rate of biodiversity loss. Biodiversity in Nigeria is in jeopardy, some of the issues that pose a collective threat to biodiversity protection in Nigeria include: Exponential increase in population accompanied by intensified industrial activities for economic development, expansion of agriculture and commercial

¹⁶ David Hunter et. al. *International Environmental Law and Policy* (2nd ed.) (Foundation Press New York) p.12

¹⁷ World Bank Portfolio (2008). *The International Bank for Reconstruction and Development*. The World Bank 1818 H Street, Washington, USA.

¹⁸ Oyelowo, O.J (2007), *Plant Diversity Conservation Through Traditional Knowledge in Osun Osigbo World Heritage Sites, Nigeria*. M.F. Thesis, University of Agriculture, Abeokuta Nigeria

harvesting has led to the destruction of forests, wildfires, flooding and erosion. In aquatic ecosystem, dams have destroyed large section of fresh water habitat, while coastal development is responsible for destroying reefs and near shore marine habitat. Other factors include lack of clear and consistent national policy on biodiversity conservation, poor coordination and insufficient funding of institutions, programmes and activities that contribute to biodiversity conservation.

Where the life support system has been badly managed, the consequences could be disastrous. There is no part of the country that is free from the above menace. The northern part of the country is facing the looming danger of desertification. The communities in the south have the menace of erosion and flooding to contend with, the position now is that flooding in Nigeria is no longer restricted to the coastal states,. Excessive flooding in Sokoto, Kebbi and Jigawa states in 2010, led to the reduction in rice production by 5%. In September 2010, as compared to the period of 2009¹⁹ while at least 102 people were said to have been killed by floods in and around the south-west Nigerian city of Ibadan in the flooding that occurred in August 2011²⁰. About 500,000 were said to have been displaced nationwide in Nigeria due to the effect of flood in 2010 alone. Apart from displacement and deaths, floods results in the contamination of unprotected water sources, thereby exposing people to the risk of water-borne diseases, destroyed crops

¹⁹ Nigerian Meteorological Agency, *Nigeria Climate Review Bulletin* 2010. Retrieved from <http://ninmetng.or/upload/publication2010> on February 23 - 2013.

²⁰ BBC News Nigeria Floods: Death toll in Ibadan rises, August 31 retrieved from <http://www.bbc.co.uk/news/worldafrica>. On February 21, 2012.

and disrupted the planting season²¹. Nigeria like every coastal state has a coastal base economy through onshore and offshore oil exploration and hence majority of the industry and commerce are located along the areas in proximity with ports and borders for effective transit of good and services. The United Nation's Report²² on Shell Petroleum Development Company (SPDC) and Ogoni land released in August 2011 revealed that, the occurrence of oil spills on land bring about fire out break that leads to the killing of vegetations and creation of crust over the land ,making remediation and re-vegetation very difficult. These factors put much pressure on the coastal bio-diversity resources and reduce their sustainability.

Having highlighted the important roles biodiversity plays in shaping the human life as well as the threats posed to this biological richness, the next is, 'what has been done to stop the unraveling of nature's diversity?. Since a threat to biodiversity is a threat to all of us.

Concern for the conservation and management of biodiversity in Nigeria predate the emergence of Nigeria as an independent nation and has carried through various permutation to the present as pointed out earlier. The need for biodiversity

²¹ Chinedu, U. O., (2012) *International Displacement in Nigeria in Climate Change and Displacement*. Retrieved from <http://www.fm.review.org/FMR/polfs>. On February 20th 2012.

²² UNEP.(2011) *Keeping Track of our Changing Environment: From Rio to Rio+2 (1992-2012)*.Division of Early Warning and Assessment (DEWA),United Nations Environment Programme (UNEP),Nairobi at [http://www.unep.org/Geo/pdf/keeping track.pdp](http://www.unep.org/Geo/pdf/keeping_track.pdp).

conservation has been well summed up by the Nigerian Conservation Foundation thus:

Nature conservation is the most important challenge of the present. Nothing affects the quality of our lives quite like the welfare and state of nature and no future can be quite so bleak as one in which the living resources, such as plants and wildlife, which are very essential to human survival and development are being depleted ...²³

The most widespread acceptable definition of the concept of conservation of biodiversity is by the International Union for the Conservation of Nature and Natural Resources (IUCN) in its famous document called World Strategy for conservation as:

The management for human use of the biosphere, so that it may yield the greatest sustainable benefits while maintaining its potential to meet the needs and aspiration of future generation.²⁴

Conservation is the act of preventing something from being lost, wasted, damaged or destroyed. It is the supervision. Management and maintenance of natural resources, the protection, improvement and use of natural resources in a way that ensures the highest social as well as economic benefits. Thus, conservation

²³ See Nigeria Conservation Foundation website at <http://www.ncfnigeria.org/project/lekki> conservation centre accessed on 18/12/2013. See also Areola O. 'Environmental issues and policies in Nigeria' (in) Ecological policy and politics in developing countries-economic growth democracy and environment (ED) u. nesai state university. Newyork press (Albany) 1988 at 25.

²⁴ IUCN 'Right-Based Approach to conservation ' available online at <http://community.iucn.org/rba/pages/conservation.aspx> (accessed on 21/9/2013)

embraces preservation, maintenance, sustainable utilization, restriction and enhancement of the natural environment²⁵.

Conservation efforts in Nigeria involves the establishment and management of national parks, game reserves, forest reserves, strict nature reserves (SNRS) and relevant research institutes/academic institutions, which establish and manage arboreta/zoological gardens and gene banks. In addition, biotechnological application to conservation efforts in Nigeria have witnessed the introduction of tissue culture application as a new method of plant conservation²⁶.

There are fundamentally two reasons for conserving biodiversity, the first is the moral justification and the second is the value to human existence as highlighted above, humankind by way of reciprocating gestures play their own part in their conservation and sustainable use²⁷, according to IUCN:

‘From time immemorial nature has fed us, cured us and protect us .But today the role have switched we need to feed nature we need to cure it and protect it if we want to secure a healthy and prosperous future for our children²⁸. Nigeria has set up national legal regimes and has signed for the conservation of biodiversity in order to ensure the continuous existence of this only life sustaining planet. Some of the international instruments signed and ratified by Nigeria include:

²⁵ *Oxford Dictionary*, 7th ed.

²⁶ International Union for the Conservation of Nature (IUCN) 1980.

²⁷ Brennan & Loy’, *Environmental Ethics in The Stanford Encyclopedia of Philosophy* (ed) N.Zalta (fall 2007 edition) at <http://plato.stanford.edu/archives/fall/2007>

²⁸ Why is Biodiversity in crises?? at <http://www.iucn.org/what/bio-crises> (accessed on 04/01/2013)

- Convention on International Trade in Endangered Species of Wild Fauna and Flora²⁹. The Convention is designed to prohibit the international trafficking in wildlife species and products that are endangered.
- Convention on Biological Diversity (CBD)³⁰. Global response to curb rate of biodiversity loss at global, regional and national levels contributing to poverty alleviation and to the benefit of all life on earth.
- The United Nations Convention on the Law of the Sea (UNCLOS)³¹ for conservation of marine biodiversity under its canopy. Thus we now in effect have two environmental treaties dealing with biodiversity. The CBD for terrestrial biodiversity and UNCLOS for marine diversity.

Other legal regimes on biodiversity conservation includes: UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage³².

- i. Convention on the Conservation of Migrating Species of Wild Animals (Bonn Convention)³³.
- ii. United Nations Convention to Combat Desertification in These Countries Experiencing Serious Drought and/or Desertification, particularly in Africa (Paris, 1994)³⁴. The objective of the CCD is to combat desertification and mitigate the effects of drought in countries experiencing serious drought

²⁹ Washington D.C,1973. 46 ILM 1178.- ratified by Nigeria on 9/5/1974.

³⁰ Nairobi,1992.31 ILM.818- ratified by Nigeria on 29/8/1994.

³¹ MontegoBay,1982.21 ILM 1261 ratified by Nigeria on 14/8/1986.

³² Paris,1972, ratified by Nigeria on 23/10/1974.

³³ Bonn,1979.19.ILM 11 ratified by Nigeria on 15/10/1986.

³⁴ Paris, 1994. 33ILM.1328. ratified by Nigeria on 8/7/1997.

and/or desertification. It has long term integrated strategies that focus in affected areas on improved productivity of land and rehabilitation.

- iii. The Brundtland Report of the WCED³⁵ 1987 which epitomized the correlation between poverty and the environment. It is also the root of the United Nations Conference on Environment and Development that gave birth to the CBD 1992.
- iv. It has to be emphasized that there exist many other conventions which also contain the principles of biodiversity conservation; but the above listed, due to their broad-based global or regional character, and their centrality in Africa's participation in environmental treaty-making, can be correctly claimed to provide the vital directions for this catchment in biodiversity conservation in Nigeria.

Further several legal regimes have been put in place domestically to cater for the peculiar nature of the Nigerian vast biodiversity. These domestic laws include:

1. Endangered Species (Control of International Trade and Traffic) Act³⁶, which provides for the conservation and management of wildlife and the protection of species in danger of extinction as a result of over exploitation.
2. The Sea Fisheries Act³⁷, which provide for the regulation and protection of sea fisheries in terrestrial waters.

³⁵ Brundtland Report 1987 – The United Nations Set up a Committee to look at environmental issues in 1983. It was headed by Norwegian Prime Minister, Gro Hertem Brundtland. It quickly became known as the Brundtland Report.

³⁶ Cap. E9 Laws of the Federation of Nigeria

³⁷ Cap. S.4 LFN,2004

3. Inland Fisheries Act³⁸, the instrument is for the protection of sea fisheries within the ‘territorial waters of Nigeria and its exclusive economic zone.
4. Land Use Act³⁹, which vest all land in a state on the governor of that state and define interests that can be held in land.
5. River Basin Development Authority Act⁴⁰, which established river basin authorities to undertake development of surface and underground water resources for multiple uses.
6. Kainji Lake National Park Act⁴¹, The Act is for the conservation and preservation of wildlife and natural life.
7. Natural Resources Conservation Council Act⁴², it establishes the natural resources conservation council, responsible for the conservation of natural resources and the formation of national policy for resource conservation.
8. Animal Disease (Control) Act⁴³, the Act provides for the control and prevention of animal diseases.
9. Exclusive Economic Zone Act⁴⁴, it defines the exclusive economic zone of Nigeria as extending 200 nautical miles seawards from the coast and enables Nigeria to exercise its sovereign right especially in relation to the conservation or exploitation of the resources of the seabed, subsoil and superjacent water.

³⁸ Cap. 110 LFN, 2004

³⁹ Cap. L 5 LFN, 2004

⁴⁰ Cap. R.9 LFN, .2004

⁴¹ Cap. 197 LFN, 2004.

⁴² Cap. 268 LFN 2004.

⁴³ Cap. A.17 LFN 2004

⁴⁴ Cap. E..17 LFN 2004.

10. National Environmental Standard and Regulation Enforcement Act⁴⁵ (NESREA) which came into force in 2007 in order to provide for effective enforcement of environmental standards, regulations, rules, laws, policies and guidelines by NESREA.⁴⁶ The Minister of Environment is empowered to make regulations for the general purposes of carrying out or giving full effect to the function of the Agency. Some of these regulations that address the problems of biodiversity loss and ensuring sustainable use of natural resources include
11. National Bio Safety and Management Act⁴⁷:
- i) National Environmental (Soil Erosion and Flood Control) Regulations⁴⁸.
 - ii) National Environmental (Desertification Control and Drought Mitigation) Regulation⁴⁹.
 - iii) National Environmental Control (Control of Bush/Forest Fire and Open Burning) Regulation⁵⁰.
 - iv) National Environmental (Protection of Endangered Species of International Trade) Regulation⁵¹
 - v) National Environmental (Access to Genetic Resources and Benefit Sharing) Regulation⁵².

⁴⁵ No.25 of 2007

⁴⁶ For an analysis of the NESREA Act 2007, See M.T Ladan, *Law, Cases and Policies on Energy, Mineral Resources, Climate Change, Environment, Water, Maritime and Human Rights in Nigeria* 357-375 (Zaria, Ahmadu Bello University Press, 2009).

⁴⁷ National Bio Safety Management Act ,April 2015.

⁴⁸ S.I No. 12, Gazette No. 39, Vol. 98 of 2nd May, 2011.

⁴⁹ S.I No. 13, Gazette No. 40, Vol. 98 of 3rd May, 2011.

⁵⁰ S.I No. 15, Gazette No. 42, Vol. 98 of 6th May, 2011.

⁵¹ S.I No. 15, Gazette No. 42, Vol. 98 of 6th May, 2011.

The country has also continued to cooperate with local and foreign agencies in its bid to ensure the conservation and efficient management of wildlife. For instance, local conservationist have been trained by the Nigerian Conservation Fund (NCF), and other notable NGOs like the Nigerian Environmental Action Study Team (NEST), Forestry Association of Nigeria (FAN), Savannah Conservation (SC), and Centre for Environmental Renewable Natural Resources Management Research and Development (CENRAD), the World Wide Fund for Nature (WWF) based in Britain embarked on a programme to save the white-throated money in the Ohome forest in 1992, similarly the British Government undertook a survey of Nigerian forest at a cost of N41 million to estimate what was left of the Nigerian wildlife⁵³. Further organization like the World Bank, United Nations Environment Programme (UNEP) and other foreign agencies are all involved in funding conservation programmes in the country. Also various international private funding including Mac-Arthur, Leventis and Ford Foundations also support conservation effort in the country.

Nigeria has enacted far reaching biodiversity conservation laws in the past few years as can be witnessed from the above analysis, however not withstanding these laws, the country is still experiencing a high rate of biodiversity loss as such there is the need to properly assess these laws in the light of biodiversity conservation challenges in the country. The best of laws cannot solve deep-seated biodiversity loss or guarantee conservation in the absence of effective enforcement. There is need to properly understand the economic, political and social factors

⁵² S.I No. 30, Vol. 96 of 9th Oct., 2009.

⁵³ *Sunday Concord* (Newspaper), 9/12/1992. P. 5

affecting implementation and enforcement of these laws in Nigeria and proffer workable solutions. It is in this wise that this research work attempts to make a critical assessment of these laws and the challenges facing the effective enforcement of the laws in the country.

1.2 Statement of the Problems

The salient issues that dominate the discourse on biodiversity loss at national and international levels are, identifying the causes of the loss and proffering solution to the loss. Nigeria is a hot bed of biodiversity containing very rare species of plants with high medicinal value, and unique species of animals which are endemic to it⁵⁴. Biodiversity has been described as the basic structure upon which human existence is built, hence the need to ensure its conservation, preservation and sustainable use⁵⁵.

Nigeria is not exempted from unsustainable use of its biological resources. The past few decades have witnessed a drastic depletion in the quality and quantity of these biological resources. For instance, the total percentage of the forest resources of the country has reduced greatly due to inter trading in wood resources⁵⁶. Nigeria has lost about 20% of its forest and woodland between 1983 and 1993.⁵⁷ This trend has shown no sign of abatement. According to USAID report⁵⁸, the

⁵⁴ M. Idu ‘The Plant Called Medicine 104th Inaugural Lecture Series of the University of Benin at 12.

⁵⁵ United Nation University, Institute of Advanced Studies ‘The Convention on Biodiversity: Understanding Influencing Process. A Guide to Understanding and Participating Effectively in the 9th Conference of Parties to OBD (COP) May 2008 at <http://www.UNDOO/Res> accessed on 11 – 10 – 2012.

⁵⁶ Olatubosun, A. (2010). The need for a legal regime for sustainable forest management in Nigeria. *IUCN Academy of Environmental Law e-journal issue* (1) at 1.

⁵⁷ Nigeria: Environment ‘available at <http://www.nation.encyclopedia.com/Africa/Nigeria/Environment.html> (accessed on 23/12/2013).

⁵⁸ USAID ‘Nigeria Biodiversity and Tropical Forest Assessment, maximizing Agricultural Revenue in key Enterprises for targeted sites (markets) at 6 at <http://pdf.usaidgov/pdf> accessed on 03/12/2013.

Guinea woodland once found in Jos Plateau region has nearly become extinct. More recently, Nigeria was ranked among the countries with the highest forest loss in percentage terms, as well as one of the countries on the African countries with largest rate of forest loss in area terms⁵⁹. Despite the fact that some of wildlife species, such as chimpanzee, ostrich, black rhinoceros, were given conservation priority by the Nigerian authorities, there is evidence to show that some have already become extinct⁶⁰. Agro-biodiversity resources have suffered a similar fate, as the following species of plants are on their way to extinction, Native yam, Beans, White melon, Atili and Borno ex-millet⁶¹.

Some of the socio economic factors affecting the sustainable use of biodiversity resources include: population and pressure from economic growth, poverty, habitat destruction, oil exploitation activities, poor compliance/monitoring, weak enforcement and implementation problems.

High population growth rate is a factor that militates against sustainable conservation of biodiversity resources in Nigeria. The National population Commission (NPC) and the National Bureau of Statistics (NBS) have put the current figure of Nigeria population at 193,392,517⁶². Biodiversity supports the growing population in rural and urban areas, but the pressure is becoming increasingly higher due to over – exploitation occasioned by high demand which

⁵⁹ Food and Agricultural Organization state of worlds forest 2011 at 5 at <http://www.fao.org/doorep/013/20000pdf> accessed 3-11-2012.

⁶⁰ Fifth Nigerian National Biodiversity Report December, 2015.

⁶¹ Nigeria National Biodiversity Strategy and Action Plan at <http://www.cbd.int/report/search/country.ng> accessed on 26/01/2013.

⁶² National Population Commission .<http://www.populationof2017.com>.population of Nigeria.

lead to unsustainable use of the resources. Nigeria large population is characterized by high percentage of illiteracy, poverty, unemployment, which acts as powerful drivers of increasing severe demands on the remaining bio resources in Nigeria⁶³.

In addition, the economy of the rural areas in Nigeria is driven by biodiversity due to high level of poverty in such areas. According to the Human Development Index Report⁶⁴, the number of poor people in Nigeria remains high and the level of poverty rose over a period of time. To a large extent, poverty constitutes a major threat to biodiversity conservation and in other ways contributes to further deepen the level of poverty in most rural areas of the country, because they depend on the exploitation of these resources within their natural environment for their survival⁶⁵. They depend on exploitation of the use of wood and trees for energy, they hunt animals for game and for food and income supplement these unregulated exploitation result in severe loss of biodiversity resources in Nigeria⁶⁶.

Nigeria is a developing country, with a growing economy and several developmental activities and programmes taking place, such as road and irrigation construction and the earmarking of certain position of lands for agricultural purposes, all result in serious damage to natural resources and environmental quality of the country's natural resources. Prudence dictates that we keep as much biodiversity resources as possible. But biodiversity is more threatened now than at

⁶³ Nigeria's National Biodiversity Strategy and Action Plan at <http://www.cbd.int/report/search/?Country-ng> (accessed on 26/6/2013 at 12.

⁶⁴ Human Development Index Report for Nigeria 2016 at <http://hdr.undp.org/sites/default/files/2016>.

⁶⁵ Emma Okafor et al (2009) Biodiversity Conservation for Sustainable Agricultural in Tropical Rainforest of Nigeria. *New York Science Journal* 2(7) at 81

⁶⁶ *ibid*

any time. The trend is steadily downward. As more habitat are converted exclusively to human use. As far as biodiversity is concerned, many vegetation such as forestry, grassland and wetlands have been converted construction land for the purpose of development, this destroys the habitat of many endangered and threatened species⁶⁷ as well makes difficult to implement international conventions on biodiversity in Nigeria. Constructive activities of government, institution and concerned individuals are fragmented and limited to bring about fundamental changes that are required to reverse the trend.

Nigeria is Africa's largest oil producer and its economy is largely dependent on oil, the abundance of oil in the Niger Delta region has been a curse rather than a blessing to the inhabitant of the region, as well as to its biodiversity. According to Ajayi⁶⁸, pollution resulting from oil spills and improper disposal of drilling muds from oil prospecting have impacted negatively on the aesthetic value of natural beaches, damaged the marine wildlife and altered the ecosystem, resulting in extinction of several species, the environment, human life and biodiversity. The overall effects of oil on ecosystem health and biodiversity are many as oil interferes with the functioning of various organs of plants and animals and it create environmental condition unfavorable for life. Source of oil spill are varied, including pipeline leakage and rupturing, accidental discharge etc. leads to fire outbreak that leads to killing of vegetation and erection of crust over the land, making remediation

⁶⁷ Choker, B. A. Environmental Pressure Group and Habitat Protection in Developing World: The Case of Nigeria (1992). *The Environmentalist* Vol. 12, No. 3 169-180 – according to him, oil exploitation activities have helped to alter the rich national flora and fauna of the marshland and mangroves.

⁶⁸ Ajayi et al (2010) 'An analysis of Nigeria Vision 2010. *Journal of Environmental Policy and Planning* 7:4 – 341-365.

and re-vegetation very difficult.⁶⁹All these activities exert pressure on biodiversity resources more particularly on marine ecosystem in Nigeria. This thesis intends to investigate fully the effects of oil pollution on protection and management of marine ecosystem.

Over the years, Nigeria has put in place a number of environmental Regulations and Policies which contain provisions that are significant and very useful for ensuring the conservation and sustainable use of its biodiversity resources. Incidentally, some of these legislations even pre-dated the Convention to Biological Diversity⁷⁰. But for variety of reasons, the laws are often too ineffective or simply unworkable, though related laws like Endangered Species (Control of Trade and Traffic) Act, Environmental Impact Assessment Act, Sea Fisheries Act and Regulations have been formulated which covered the field of forestry, grassland, wildlife, fishery, water, mineral and land. But the main purposes of these laws are to manage the use of these resources, and not to conserve them.

Many requirements within such legal documents have not been implemented. Violation of wildlife conservation laws such as illegal hunting and illegal markets are still frequent happening. Hunters in Nigeria hunt according to market demand and prices. The existing laws are obsolete with the exception of new laws establishing the National Bio safety and Management Act⁷¹, that on Climate

⁶⁹ Nenibarin, I. Z. (2004) *Impact of Extractive Industries on the Biodiversity of the Niger Delta*. National Workshop on Coastal and Marine Biodiversity management.

⁷⁰ Example of the pre-1992 conservation legislation in Nigeria are the Forest Ordinance 1937, *Sea Fisheries Act* and its regulation of 1972 and the Endangered Species Act.

⁷¹ *National Bio- safety and Management Act 2015*

Change⁷², the Grazing Commission⁷³ and the National Environmental Standard and Regulation Enforcement Act⁷⁴.

The law relating to the protection of Endangered Species in Nigeria is grossly inadequate in terms of complying with the provision of CITES and CBD. It only protects some wildlife biodiversity leaving out the agro and ecosystems, which are all included in the CBD. In relation to ecosystem restoration the Nigerian government, has developed some programmes and projects aimed at ensuring the protection of endangered ecosystem. These are the National Biodiversity Strategy and Action Plan (NBSAP), Shelter Belt and Ecological Disaster Relief Programme, to confront issues such as flooding, erosion ,oil spill, pollution and desertification.⁷⁵ In addition to this the Federal government established the Ecological Fund in 1981 to combat the various ecological problems in the country .These funds have often been misappropriated and sometimes diverted to other activities which have no relevance to their statutory purpose⁷⁶ Most of the activities are being carried out by local NGOs and international biodiversity organization while most of these activities are still too disparate, fragmented and limited to bring about fundamental changes that are required to reverse the trend. The provisions of EGASPIN Regulation have also been inadequate to guarantee ecosystem restoration within the oil-degraded areas of the country.

⁷² *National Adaptation Strategy and Plan Action on Climate Change*(NASPA-CCN) 2011

⁷³ *National Grazing Route & Reserve (Establishment) Bill* 2015.

⁷⁴ NESREA, has Twenty four(24) Regulations as at 2011

⁷⁵ Mwalimu, C. *The Nigerian Legal system* Vol.2 at 24.

⁷⁶ See *Better Uses for Ecological Funds*, reported in the *Vanguard Nigeria.com*/2011/07/better uses for ecological funds (accessed on 11/12/2014)

The problem of illegal fishing has persisted; despite the enactment of Sea Fisheries Act by the Federal Government, even the state legislations on biodiversity protection have also been ineffective, due to problem of poor implementation. For example, an impact assessment conducted in fishing activities in Niger state reveals that fisheries laws are not in operation in some of the areas where the assessment was conducted, because most of the prohibited fishing gears are still being freely used.⁷⁷

Similarly despite the existence of Forestry Act and various Forestry Laws of the state, Nigeria has been rated as having the world highest deforestation rate of its primary forest⁷⁸. Government have take steps towards ensuring conservation of its biodiversity resources within their natural ecosystem, this is reflected in the establishment of national parks and other protected areas in different part of the country, activities such as felling of trees, forest fire and hunting are prohibited within these designated areas. Unfortunately, some of these protected areas are poorly managed⁷⁹ and offer very little to protect the biodiversity within them for example, Afi Mountain Wildlife Sanctuary has been encroached by the 16 communities around it and has set up over 600 illegal farms within it⁸⁰. The problem in this area is compounded by the fact that the extent legal regime pays little attention to the needs of indigenous or local people who are key players in resource conservation by their proximity to the natural resources. Instead, too much emphasis

⁷⁷ Raji, A. et al Illegal Fishing of Inland Water bodies of Nigeria: Kainji Experience (2012). *Continental J. Fisheries and Aquatic Science* 6(1): 47-58. *Wilolud Journal* at 48.

⁷⁸ See the illegal logging portal at www.illegal.logging.info.content.ng accessed on 12/11/2013.

⁷⁹ Usman, B. A. (2010) *Nigeria forestry, wildlife and protected areas: Status Report*. *Tropical conservation biodiversity* 11 (3 & 4) at 45.

⁸⁰ World Conservation Society: Nigeria at <http://www.org/where-we-work/Africa/Nig> accessed on 20/11/2013.

is placed on state sovereignty over the natural resources, without corresponding legal obligation to protect the economic interest of the local communities. The land use policy hardly favors biodiversity preservation in face of poverty. This is derived from the fact that wild plant and animal sustain rural economies and even the government by generating foreign earnings from timber and non-wood products. While it is acknowledged that intensive exploitation of resources maximize resource use, it is at the expense of maintaining biodiversity.

An examination of biodiversity conservation laws reveals the use of command and control systems to environmental conservation with punitive measures. For example the Sea Fisheries Act⁸¹, the National Environmental (wetland, river bank and lake shore protection) Regulation 2011⁸², National Environmental (protection of water shed mountain, hilly and catchment areas) Regulation 2011⁸³, National Environment 2011, all provides strict punitive measures for non-compliance. However, state that recourse to legal remedies is seen as inefficient and not cost effective particularly in comparison to other approaches, such as education and negotiation. This falls short of the requirement of Article 11 of the CBD. Even though policy like forestry policy⁸⁴, in its strategy for achieving community participation, intends to grant tax relief and liberal financial agreements as incentive for communal tree growing, that policy has not been transmitted into legal document. The thesis noted that transplanting western models of legal

⁸¹ Op.cit.

⁸² Op.cit.

⁸³ Op.cit.

⁸⁴ Nigerian National Forest Policy 2006.

structures has often failed in Nigeria due to economic issues, corruption, lack of political will and so on

The National Policy on Environment, National Biodiversity Strategy and Action Plan all these policies lack the necessary legal backing to ensure implementation. None has been transmitted into biodiversity conservation legislation, thus making them unenforceable and not binding. This rob them of the requisite legal foundation upon which they can be properly implemented, lack of adequate implementation of policies has been the bane of the Nigerian government over the years. Despite the existence of these policies, the rate of biodiversity loss has continued to rise unabated.

The above analysis of the research problems reveals that the problems in this area are not as a result of regulations and legislative framework, but are purely due to lack of appropriate enforcement, which is the bedrock of effective implementation and is very important in achieving the objective of any legal and legislative framework in Nigeria. According to Senator Joseph Lieberman, without enforcement most of the best of environmental protection lacks meaning, lack truth, and lacks reality⁸⁵. The enactment of laws is a pathway to ensuring biodiversity conservation, which is complemented with effective enforcement. Lack of enforcement of laws in Nigeria is traceable to the absence of political will and sincerity on government part⁸⁶.

⁸⁵ Mintz, et al (2007) *Environmental Enforcement : Cases and material*. Carolina academy press at 3.

⁸⁶ Ibid.

The reasons for poor enforcement in Nigeria are quite complicated ranging from low capacity of the enforcement agents⁸⁷, lack of coordination among various institutions responsible for enforcement of these laws, official corruption, low fines, poor compliance and monitoring and insufficient funds to mention a few.

Financial resource is one of the most predominant factor influencing implementation of conservation laws. In Nigeria the enforcement agencies to biodiversity conservation do not have the necessary resources and the human skills needed to effectively enforce and implement the promulgated laws constitute another side of the problem of research problem in this area. The national policy on environment is committed to ensuring that the country's biodiversity resources are sustained for the use of the present and future generation. However, these lofty dream and vision of environmental conservation law and policy cannot be implemented in a vacuum. Public resources will be appropriate to achieve them. A review of the highlight of the 2016 budget of the Federal Ministry of Environment strikingly allocated a paltry sum of N19.473bn, being 0.32 per cent⁸⁸ of the overall budget to the environment. The allocation to the Ministry has been decreasing between 2013 and 2016. Considering the relationship of environmental conservation to food security and livelihood, this vote over the years seems in adequate to tackle the challenges of the sector, as most of the institutions responsible for conservation lack modern infrastructures and facilities to ensure compliance, to make things

⁸⁷ Abere, S. A. (2011) Evaluation of Forest Resources Conservation Laws in Nigeria. *Mediterranean Journal of Social Sciences*. Vol. 2(5) at 51.

⁸⁸ *Punch Newspaper*. The Environment and the budget, August 22, 2016. <http://punch.ng.com/the-environment-and-the-budget>

worse, the available ones are underfunded⁸⁹. While in terms of restoration and re-vegetation, individual lack the capital for land restoration, even small land holders do not want to plant trees at little or no cost, because of ecological limitation of regenerating indigenous plant, the cost of raising wild plant is higher than the cost of raising economic plants..

International conventions and treaties are entered into and signed by the federal government of Nigeria, but implementation has been slow, with huge backlogs of annual contribution to the respective trust funds of these conventions. Nigeria is yet to fully implement Article VII of CITES despite its domestication into the Nigeria law and the ability to do so have become increasingly doubtful. Nigeria appears to demonstrate particular lack of capacity, technical and manpower or lack of willingness political and economic to meet international standard and expectations. Nigeria has up till date not become a party to the Convention on Access to Information, Public policies, Participation and Decision making in Environmental Justice adopted in 1998⁹⁰. The convention addresses concern that developing countries have no access to decision making and do not often get justice in matters relating to environment. The convention is a very important instrument that is bound to improve the management of the environment. It is a wonder that Nigeria has neither signed nor acceded to the convention⁹¹. The country though ratify the CBD, but is yet to domesticate the convention into its national law by an

⁸⁹ Borokini (2013), The AState of Ex-situ Conservation in Nigeria. *International Journal of Conservation Science* Vol. 4 Issues, 2, 197-212 at 207.

⁹⁰ Aarhus Convention adopted in 1998

⁹¹ (UN 2016) 'Multilateral Treaties deposited with Secretary General UN Online doc. Accessed April 20, 2016 UN 2016 – Treaty Collection = at <http://treaties.UN.org>.

Act of National Assembly as required under section 12 of the Nigerian constitution by the very nature of Nigeria's inclination to being a dualist state.

The CBD has not been directly domesticated into Nigeria's law, though there are different legislations, regulations, programmes and policies which align with the provision of the articles of the CBD. All the above listed factors remain the major problems against the success of laws and policies in biodiversity conservation which the research intends to address. The problem statements and the research objectives below of this study leads to the following research questions of which when addressed, the aim of these thesis would be achieved.

Thus the research seeks to answer the following questions

1. What are the effects of biodiversity loss on sustainable conservation of biodiversity resources in Nigeria?
2. How best can Nigeria address a noble problem of the impact of biodiversity loss on sustainable conservation of biodiversity resources in Nigeria?
3. What legal frameworks are in existence for conservation of biodiversity resources in Nigeria?

4. What policy, legislation and institutional reforms should be made in order to ensure sustainable conservation and management of biodiversity resources in Nigeria.

1.3 Aim and Objectives of the Research.

In broad terms, the aim of this research is to appraise the legal framework on the conservation of biodiversity resources and to determine how effectively Nigeria has been able to ensure implementation of these laws that is to determine, the effect of compliance with the objectives of the laws. The objective of this research work therefore is to investigate the history and philosophy behind the legal provision on the subject of biodiversity. Along this line, the work will examine critically the evolution and implementation of biodiversity laws within the context of national and international environmental laws in Nigeria.

The second objective is to explore into a course of legal research which hopefully, will unearth some of the principles of the legal and institutional framework responsible for the promotion of sustainable use and conservation of biological resources and ensure fair and equitable sharing of benefits for poverty reduction and to also enhance biodiversity management capabilities through education and awareness, appropriate formulation of policy, legislation and international cooperation. This objective will support the main aim, because it will help in understanding the influence of various stakeholders involve to the success and failure of conservation policies in Nigeria. This would mean achieving

environmental sustainability, economic sustainability and social equity which are the three pillars of sustainable development.

It is hoped that, the study will accentuate intellectual discussion, especially through the process of examining the provision of the current biodiversity conservation laws under the provision of NESREA Act and the newly enacted National Bio safety Act of April, 2015. Taking these alongside the international organization and international conventions ratified by the country, the research will show the extent to which the subject biodiversity has become worthy of legal protection. In short the research is set to achieve the following objectives:-

- i) Examine the factors responsible for the steep increase in biodiversity loss and utilization in Nigeria.
- ii) To assess the effectiveness of the various biodiversity conservation laws put in place by the government.
- iii) To establish the reason why the enforcement of biodiversity conservation laws has been so weak in spite of the existence of overarching environmental laws.
- iv) Identify specific actions required to secure support for biodiversity conservation and management in Nigeria.

1.4 The scope of the Research

The scope of this research is attained by the statement of the problems and objectives of research so much that only issues that involve resolution of the research

problems and advance its objectives will be dealt with. Any issue that does not help the resolution of the research problems or attainment of its objectives will not be considered.

The research will have Nigeria as its main target place with special reference to biodiversity conservation and management in the Niger Delta and Sahel region of the country. The main focus of the research are on issues relating to conservation and management of biodiversity resources for sustainable development, it would examine the existing legal framework designed for that purpose as well as observe the grey areas and recommend suggestions to relevant bodies responsible for implementation of biodiversity conservation laws for progressive attainment of sustainable development in Nigeria.

1.5 Justification of the Research

While scholars, environmental activists and international organizations including United Nations have provided a plethora of scholarly research on environmental protection and few on conservation and management of biodiversity resources, most of these works have not specifically exhaustively examined the need for according greater attention to the legal framework on conservation of biodiversity resources as part of conservation tools especially in the light of the current study. This thesis takes a closer look at the transition of Nigeria Biodiversity Management from the reactive biodiversity loss to relatively advanced conservation methods of present time in the light of new legal order of Access to Genetic Resources and Benefit Sharing regulation to the enactment of the Bio Safety Act, 2015 on the one

hand to implementation of Islamic and Customary laws on conservation of biodiversity resources.

The justification of the research lies in the fact that the strategic framework for effective conservation and management of biodiversity resources need to be developed and disseminated such that Nigerians would appreciate better their corresponding duties and objectives towards nature for that I believe it is critically urgent to conduct a research in this area. The central focus of this study therefore, is to analyze the legal frame work on biodiversity conservation.

This is with the view to making relevant recommendations to both the Government and civil society groups on improving strategies and monitoring compliance with the provision of biodiversity conservation laws in the country. This research hopes to address the gap by previous writers, namely to explore the root causes of poor enforcement of biodiversity laws and analyze them from the right perspective.

Further the significance of the research lies in the fact that, most of the former works in this area were based on the former environmental legislation Federal Environmental Protection Agency Act (FEPA), which was repealed by (NESREA Act, 2007). The legislation in the area of biodiversity conversation and management has necessary implication on environmental right today that need to be analyzed. It is therefore hoped that the research will be a flying kite to the law makers for the much needed reform in this aspect of the law which is long awaited. It is hoped that this study on completion would provide a ready guide to policy makers and other

stakeholders in Nigeria to make informed decision in relation to implementation of biodiversity resources laws geared towards sustainable development in Nigeria.

1.6 Research Methodology

The study adopts a doctrinal legal methodology based research. Both primary and secondary sources of information will be used to generate information and relevant material on the subject. Laws and regulations on conservation and management of biodiversity resources in Nigeria are not contained in a specific legislation or document. They are scattered in bits and pieces in different government policy documents and programmes, as well as different legislative enactments on the various aspects of conservation in the country. The plethora of instrument for biodiversity conservation in the country makes the analysis in the area a challenging task.

In order to find a way around this hurdle recourse will be made to every relevant and available material, which includes the national legislative frame work and statutes as well as various policy documents. These address broad environmental challenges facing the country and specific programmes towards ensuring biodiversity conservation and its sustainable use. The biodiversity conservation programmes in these primary instruments will be the focus of the thesis. In addition to this, the various national and country reports submitted to international bodies such as the World Bank, the United Nation convention on biodiversity and other biodiversity related conventions will be consulted in the research.

The secondary sources includes research materials obtained from the textbooks, academic journals, reliable Nigerian national daily news papers magazines, seminar and conference papers on biodiversity conservation and management

In addition to the above sources of the research methods, national archives and internet sources will include the official webpage of international conventions and organization, as well as the home pages of the Nigerian government, ministries, institutions and agencies.

1.7 Literature Review

Although, there exist a wealth of literature on environmental law, but very few exists on analysis of the legal regime on the subject of biodiversity. However, many important aspects of this work, relating to both form and substance, have been crafted with heavy reliance being placed on the existing literature. In the main, the major area of concern will be on implementation of international and national biodiversity conservation laws in Nigeria, while in other it will relate to customary and Islamic biodiversity conservation laws.

According to Malcolm⁹² environmental law is multi-disciplinary encompassing a wide spectrum of thought. The dynamic nature of the concept of environmental law as observed in this thesis admits the above preposition that the categories of environmental problems governed by law are not closed as

⁹² Malcom, R. (1994) *A Guide Book to Environmental Law*, (Sweet and Maxwell London, p. 16

environmental law present a new classification which absorbs many areas previously considered to fall under different headings.

Hardin G⁹³ text follows a similar trend. The work traces the history of environmental law from the knowledge of ecology and conservation, which he said it includes but not limited to quality of environmental media, their protection, biodiversity and its protection, sustainable development conservation cum management of natural resources. This research is also of the view that the point expressed by the writers above is the situation of development of environmental law in Nigeria. Hence to fully understand and appreciate the myriad issues as it pertains to environmental laws one may need to conduct interdisciplinary research in biology, physical science, social science, economics, history and other areas.

Thornton and Beckwith work titled 'Environmental Law'⁹⁴ considers environmental law from domestic European Union and international perspectives. According to the authors, coherence in environmental legal regime may be said to come from the fact that the everyday rule are underpinned by a set of principles and that these principles are in turn underpinned by an ethical philosophy. There however remains some difficulty in arriving at the precise definition of some of the principles of environmental law.

⁹³ Hardin, G., (1968) *The Tragedy of the Common* 162 Science 1243.

⁹⁴ Thornton and Beckwith, (1997) *Environmental Law*, Sweet and Maxwell London.

Ladan, M.T⁹⁵. provides a critical review of environmental justice, he raises the need for an attitude of judicial activism by the Nigerian judiciary in environmental matter as is the trend in other jurisdiction. The author stressed the need for mediation which has the potential of being more satisfactory, stable, less expensive, less time consuming process for resolving environmental disputes. The thesis noted that transplanting western models of legal structures has often failed in Nigeria due to economic issues, corruption, political will and so on. Informal means of resolving disputes are more important than formal ones. Ikoni U D⁹⁶. shared the same view with the above writer while explaining the ecological implication of oil pollution on the marine environment suggest the establishment of oil pollution enforcement and compensation tribunal, to be responsible for the imposition of all enforcement sanctions and decide all cases of compensation arising from oil pollution for speedy dispensation of justice. The above views are correct in view of the inherent bottlenecks which often time makes justice elude victims of environmental wrong from constitutionality or otherwise of the right to locus-standing issue observed in the thesis.

Usman A. K⁹⁷. in line with the above view stated in his book that, environmental litigation serves to enforce environmental laws to the benefit of the environment. It is the means by which environmental laws are brought to live, vested with teeth not only to bark but also to bite offenders. Further stated that

⁹⁵ Ladan, M. T., (2007) *Biodiversity, Environmental Litigation Human Rights and Access to Environmental Justice*, Faith Printers and Publishers, Kongo Zaria.

⁹⁶ Ikoni, U. D. (2010) *An Introduction to Nigerian Environmental Law*. Malthouse Press Limited, Surulere, Lagos, Nigeria p. 229.

⁹⁷ Usman, A. K., (2012) *Environmental Protection Law and Practice*, Abeba Press Limited, Ibadan.

unfortunately in Nigeria, environmental litigation is yet to assume its proper role in the scheme of environmental protection, factors like poverty, ignorance of environmental harm, conservative attitudes of the judges have coalesced as handicaps to environmental litigation in Nigeria. He went on to state that the mere existence of a law seeking to protect the environment does not automatically translate into environmental protection. For law seeking to protect the environment must be one that enjoys enforcement of the law courts through the instrumentalities of litigation, in the absence of such mechanism then such law, not minding how comprehensive and well couched it is, is nothing but a paper tiger. This work would explain the salient themes in environmental litigation, exposing the judicially untested environmental legal provisions with respect to biodiversity conservation laws.

On the issue of conflict of interest between economic growth and resource conservation, Promise A. K. (2011)⁹⁸ pointed out that unguarded resource exploitation is an anathema to economic growth and development and therefore counterproductive, because the economic benefit concern only in short run, while losers in the long run are the helpless and impoverished indigenous people whose primary livelihood depends on the natural resources, thereby denying the future generation of these people the benefit of biodiversity resources.

⁹⁸ Promise, A. K. (2011) *The Environment: Land and Management in Nigeria*. Hybrid Consult, Surulere, Lagos, Nigeria p. 19.

On the value of biodiversity resources Paul and Paul⁹⁹ opined that biodiversity is a key pad of the ecological balances that helps the planet to function, they submitted further that biodiversity guarantees the supply of biodiversity resources, protection of habitat and species as well as the maintenance of hydrological circle

Siyanbade¹⁰⁰, noted that the benefit from biodiversity are multi dimensional. He categorized them under the heading of supporting, regulating, provisioning and cultural values. The thesis support the fact that biodiversity helps in the regulation of fresh water, food, fuel, fibre, as well as the climate recreational cultural and spiritual values which lead the theses to devote a portion of two chapters on the analysis of customary and Islamic law on biodiversity conservation and management.

According to a research jointly conducted by Okoko, Adekunle and Adeduntu S.A¹⁰¹ the authors also tend to look at biodiversity loss in Nigeria in the context of economic constraints, thereby calling for understanding of the inter-relationship of the sector of Nigerian economy so as not to promote one development at the expense of another. A short coming of the work is the differing, and somewhere contradictory view points of the various authors who are preoccupied with different aspect of environmental protection.

⁹⁹ Paul, H. (2011) *Essential of Environmental Management Leicester shire*, Losh Services Limited

¹⁰⁰ Siyanbade, D.O. (2007) *Ecological Consideration in Planning and Managing the Environment*, Lagos, Olas Ventures.

¹⁰¹ Okoko, Adekunle and Adeduntun, S. A. (1999). *Reservation and Biodiversity Conservation in Nigeria In: Environmental Sustainability and Conservation in Nigeria* (eds.), Environmental Conservation and Research Team Federal University of Akure, Nigeria , p. 82-90.

Similarly Moses M. (2013)¹⁰², uphold that the conversion of vast and biologically rich forest lands into parks and protected areas has direct livelihood impacts on the buffer zone communities of such park and protected areas. He maintained that 50% of existing protected areas have been established on ancestral lands of indigenous people and local communities as a result, enduring conflicts, instead of supportive roles often characterize relation among rural communities policy makers and development agents.

Ladan M.T¹⁰³. argued that previous paradigm of development completely ignored the role and significance of the environment in development, environmental cost were never factored into national development plans, because the environment has been erroneously seen as an indefinite store of natural resources and things for waste. The author further stress that today's development is more and more understood as sustainable human development addressing human being in relation to both resource management and participation. The author round it up by saying that 'environment must be utilized in a manner to meet to productive, domestic, cultural, spiritual and aesthetic needs of present and future generation.

In a recent study Alexander, C. & Aloni, C.¹⁰⁴ observed that development of agriculture and modern technology has led to an increasing human impact on

¹⁰² Moses, M. & Kevin, B. (2013) Factors affecting the success of conserving biodiversity in national park: A Review of case studies from Africa. *International Journal of Biodiversity* Vol. 2 p. 20
<http://dx.doi.org/1011155/2013/798101>

¹⁰³ Ladan, M. T., (2002) "Human Rights as the Bench Mark for Developmental Policy". Vol. 1 No. 6, *Journal of Economic, Social and Cultural Rights*.

¹⁰⁴ Alexander, C. & Aloni, C. (2015). The Effect of Unplanned Exploitation of Environmental Resources: The Nigerian Experience. *Journal of Environmental Pollution and Human Health* Vol. 3, No. 2 pp. 39-45.

environmental resources, without adequate correlation toward the after effect on future generation in Nigeria. This is hoped that the research in this area will be breakthrough to achieve sustainable conservation of biodiversity in Nigeria.

In another book written by the above author¹⁰⁵, maintained that protection of the environment and management of natural resources is a key priority for sustainable development in Nigeria.

Further the above authors rightly pointed out that implementation of biodiversity conservation laws is conditioned upon alleviation of rural poverty. The work provides vivid illustrations of the socio-economic effect of biodiversity loss on the lives of Nigerian as well as the linkages between poverty and biodiversity conservation.

Joppa, L. N. and Pimma, S. L.¹⁰⁶ argued that effectiveness and success of conservation of biological resources in any part of the world normally depends on many local factors of economic, social, political nature and that in Nigeria, various factors are obstructing the effective implementation of conservation policies which has programmes for conservation in the country. This present study would contribute extensively in pointing out the social dimension of biodiversity conservation and how those factors affect the effective implementation of biodiversity conservation laws in Nigeria.

Doi.1012691 3-2-3.

¹⁰⁵ Ladan M.T (2012). *Recent Trend in Environmental Law, Regulation and Access to Environmental Justice in Nigeria* – LAP LAMBERT Academic Publishing Company, Germany p. 20.

¹⁰⁶ Joppa, L. N. and Pimma, S.L. (2008) ‘*On protection of protected areas*’ *proceeding of the National Assembly of science* (105) 18: 6673-6678.

On the other hand Ayua and Ajai¹⁰⁷, are of the view that problems of biodiversity conservation in the country relates to the inadequacies in biodiversity conservation legislations and that even the existing ones are archaic, unenforced, unenforceable as there is no deliberate, and comprehensive allocation of legislative competence on the environment. Abere S.A¹⁰⁸ confirmed the poor level of enforcement of biodiversity conservation laws in Nigeria where he strayed that Nigeria has a number of laws and regulations aimed at ensuring sustainable use of biodiversity resources, which consist of both federal and states laws. However, despite the existence of these laws the rate of biodiversity laws has not decreased. This research seeks to find out the true state of the legal regime in respect of biodiversity conservation laws in the light of NESREA Act and the newly enacted Bio safety Act 2015.

On conservation strategy Moses, M. and Kevin, B.¹⁰⁹ are of the view that national parks are a cornerstone for biodiversity conservation in Africa. The result of their analysis was that future conservation approach in national parks in Africa should place more emphasis on the human dimension of biodiversity conservation than purely scientific studies of species and habitats.

¹⁰⁷ Ayua, I. A. and Ajai, O., (1997) *Implementing the Biodiversity Conventions: Nigeria and African Perspectives*; NIALS, Lagos, p. 131.

¹⁰⁸ Abere S.A (2011) Evaluation of Forest Resources Conservation laws in Nigeria. *Mediterranean Journal of social science*. Vol. 5 at p.51

¹⁰⁹ Moses, M. & Kevin, B. (2013) Factors Affecting the Success of Conserving Biodiversity in National Parks: A Review of case studies from Africa. *International Journal of Biodiversity*. Vol. 20 p. 20 Article ID. 798101.

Olubisi, O. and Gideon, N.¹¹⁰ observed that, Nigeria has taken significant action related to biodiversity conservation as: A country study on biodiversity in Nigeria was published in 1992, more national parks established, establishment of different ex-situ sites, zoo/zoological gardens, museums and herbaria. But the legal coverage of these areas is still rather weak and is an area that needs to be addressed in keeping with article 9(d) of the CBD. The thesis in this line advocate for the divergent of comprehensive biodiversity act in Nigeria. It is the task of this research to find out whether this view expressed by the writers is true or not considering the poor implementation of biodiversity convention in Nigeria.

Other interactive consulted include Monica Rosell¹¹¹. In the field of access to genetic resources stressed the importance of the duties of the national government to determine access to genetic resources in their home countries as provided under article 15 of biodiversity convention. In line with the requirement of Article 15 of CBD & Bonn Guidelines on access to genetic resources, the thesis analyses the current Nigeria position in that regard.

Ohuruogu,C.C and Chukwudumebi, O.¹¹² pointed out the major fall out of CBD and Bonn Guidelines on access to genetic result and benefit sharing, argued at the same time that even the Nagoya protocol, has done little in locating the required security for indigenous people interest by providing that such benefit should be in

¹¹⁰ Olubisi O. & Gideon N. (2012) *Critical Appraisal of the Legal Regime for Biodiversity Conservation in Nigeria*. Canadian Social Science. Pp. 249-251. DOI: 1039681192366/97201

¹¹¹ Monica Rosell (1997), *Access to Genetic Resources: A Critical Approaches to Common Regime on Access to Genetic Resources*, (6 RECIEL) p. 274.

¹¹² Ohuruogu, C.C and Chukwudumebi, O(2014) Bioprospecting in Nigeria: Evaluating the Adequacy of Laws and Practice and the implication for Environment.Afe Babalola University, *Journal of Sustainable Development Law and Policy* 3:1

accordance with the domestic regulation. They submitted that this can lead to state abuse, instead the protocol should have stated unequivocally that the relevant indigenous people interest be protected through national legislation. The research work seeks to find out how CBD, fail to realize its aims of bio conservation, where people who are the main actors in conserving bio diversity are subject to unjust treatment.

Okorodudu Fabor's¹¹³ work is a detailed legal study of environmental degradation, the work focuses on the legal measures for the protection of environmental resources namely air, water, land, fauna and flora. The limitation of the work is the adoption of strict legal approach in analyzing environmental issues and failed to relate the law to economic, social and political rights of those affected in the society. This work seeks to fill this vacuum by placing the law within its social and economic context.

Nigeria is rich with biodiversity; both unfortunately many people do not appreciate the function and value of these resources. One of the principal means of ensuring that biodiversity resources are managed sustainably lies on placing proper values on those resources. In effect any management regime which assign zero value knowledge to natural resources runs the risk of over exploitation. In line with the above Habu Audu¹¹⁴ pointed out that available knowledge of biodiversity is still inadequate to ensure proper management and is only with scientific knowledge the

¹¹³ Okorodudu, F. (1998). *Law of Environmental Protection*. Materials and Text Caltop publishers Ltd, Ibadan, Nigeria.

¹¹⁴ Habu Audu (2016) Biodiversity Conservation in Nigeria: Contemporary Challenges for Ecologist. *International Journal of Innovation and Applied Studies* Vol.1 No.1 Pp.331 – 340

country is likely to learn new improved method for managing natural habitat which serve as a living laboratory to learn how to get better use from biodiversity resources and how to renew dilapidated ecosystem. The research in this area is inclined to the above view that both, scientific and traditional knowledge are essential tools for biodiversity conservation.

Any accurate documentation of the historical evolution of environmental law in Nigeria must start with the customary environmental rules and practices of various communities that make up the Nigerian state. Nigeria customary environmental law covers such activities as hunting, forestry, water resources, fishing, agriculture and soil preservation. Hence review of literature of both customary and Islamic environmental rules and principles is very essential to this work. Ajomo, M. A. and Adewale, environmental law and sustainable development in Nigeria¹¹⁵, emphasizes that knowledge of customary environmental law on biodiversity resources is valuable for the purpose of conservation of natural resources in the country.

Ezenwaka, and Abare¹¹⁶, in view of the above, pointed out that the local people have very strong ties with their land, they have extensive knowledge of land and conservation of natural resources and have developed ancient habit and practices which were used to directly or indirectly regulate exploitation and this ensure conservation by both indigenes and strangers.

¹¹⁵ Op cit.

¹¹⁶ Ezenwaka Joper and Abere S. A (2010). *Community Participation in Natural Resources Management in Niger Delta: Nigeria Case Study of Bonny Island*, River State University of Port Harcourt International Conference Paper Delivered on Feb. pp 16-21.

Rim-Rukeh (2013)¹¹⁷ states that traditional conservation ethics are capable of protecting biodiversity species in particular and in the environment in general as long as the local people have a stake in it. The writer further explained the role of traditional belief in the protection of natural resources which is reflected in a variety of practices including sacred graves and secured landscapes which harbor many endangered plants species and animals, thereby emphasizing the vital roles of the beliefs and taboos in traditional management of natural resources. According to Oke, Traditional practices offer the most practical and acceptable modes of achieving sustainable development for the purposes of environmental protection as well as biodiversity conservation, both for the wellbeing of the present generation and in the interest of those to come .He described the modern day conservation practice as being driven by economic development which is against the spirit of traditional conservation practices.¹¹⁸ This work seeks to identify local practices and institutions which promote biodiversity conservation and the limitation which may affect the efficacy of such institution and practices as conservation tools.

On the Islamic perspectives on conservation of biodiversity resources, Islamic law considers natural resources such as land, water, forest to be common property of all, not just for human being, but of all living things, stating that the holy Quran and Hadith of Prophet Muhammad (peace be upon him) frequently call to

¹¹⁷ Rim-Rukeh, A. et al. (2013) Traditional beliefs and Conservation of Natural Resources: Evidence from selected communities in Delta State, Nigeria. *International Journal of Biodiversity and Conservation*. Vol. 5(7). pp. 246-452.

¹¹⁸ Oke, G.A' *Intergenerational Sustainability and Traditional Knowledge in Africa: Natural Resources Management Perspectives Presented Global Ecological Integrity and the Sustainability of civilization: Hard and Soft law Perspectives* June 29 –July 2005 –Venice, Italy at 4.

preserve equilibrium or balance, to be moderate in everything and not to seriously disturb the order in nature. In line with the above view Ramadan¹¹⁹, argued that Islamic religious tools and opportunity are available though there is lack of awareness and commitment on the part of the Muslims community to utilize the approach to enhance conservation of natural resources. He further stressed that Islamic principles should not be treated independently rather there should be link between religion and natural resources management which is greatly needed to establish environmental policy of different nations.

Sayed¹²⁰, states that the need to protect the natural resources with all its biological components from harmful activities of men has existed as long as history has been recorded. Now more than ever before we witness in the accelerating degradation of our environment. He further stressed that. Islam promotes emphatically all measures that lead to the realization of common good and make it tangible reality, in this high he pointed out that conservation of natural resources is moral and ethical duty on every Muslim to perform the noble role of stewardship on earth for which God created us. With current state of biodiversity loss, the research is of the view that the approach of using Islamic principles as a conservational tool in Nigeria should be considered to be of paramount importance.

The research therefore harnesses all relevant issues with the object of adding more knowledge and prospect of achieving better articulation cum biodiversity

¹¹⁹ Ramadan, T.(2010) *Radical Reform: Islamic Ethics and Liberation*. Oxford. Oxford University Press.

¹²⁰ Sayed, M. (2015) Conservation and Islam. The Friday Times Pakistan Weekly Paper Issue: 26 June 2015
<http://www.the.friday.times.com/ttt/conservation&Islam/June26-2015>

conservation and sustainable development. There is no doubt that the above mentioned scholars tried their best in bringing out fundamental issues surrounding the research topic appraisal of biodiversity conservation legal regime, issues and challenges in implementation. The thesis is therefore motivated, by the need to fill in the gaps in knowledge by generating data that could under pin future biodiversity conservation strategies, laws and policies in Nigeria. There is therefore a need for more research in this area such that would lead to realizing the cumulative impact of biodiversity loss and how people can conduct their enterprises within nature regenerative capacity with law as instrument for setting mechanism, procedure for negotiating the necessary rules and standards. Hence the work seeks to fill this vacuum by placing the law within its social context.

1.8 Organizational Layout

The thesis is divided into seven chapters, with the first chapter on general introduction. It sets out the background information, statement of the research problems, aim and objectives of the research work, its scope, justification of the research, methodology, literature review and organizational layout of the research work.

Chapter two provides conceptual clarification of key terms under which defined the meaning and scope of Biodiversity, Biodiversity resources, Biodiversity conservation, Biodiversity management, Genetic resources and Ecosystem.

Chapter three examines the legal and policy frame work on conservation and management of biodiversity resources. The chapter is devoted to examined the

general legal frame works on conservation and management of biodiversity as: National Policy on the Environment, National Policy on Biodiversity Conservation ,Forestry Policy, NESREA Act and National Bio Safety and Management Act.

Chapter four examined the nature and scope of conservation of plants and animal species in Nigeria, appraised the existing legal and regulatory frameworks regarding their conservation in Nigeria, identified some the challenges of the implementation of the legal instruments. It also examined the customary and Islamic laws on plant and animal conservation in Nigeria.

Chapter five of the thesis contained an analysis of the nature and scope of genetic species conservation in Nigeria, the legal regime on conservation of genetic species in Nigeria on two angles, Access to genetic resource and in the context of national bio safety laws, and constraints in the implementation of the legal instruments in Nigeria.

Chapter six examined the nature and scope of marine ecosystem conservation in Nigeria; the legal regime on protection of marine ecosystem from the impact of oil pollution; constraints in the implementation of the legal instruments, customary and Islamic law on marine conservation.

The curtain will be drawn on this research in the seventh chapter which will sum up the thesis, the conclusion, findings and recommendations on how to improve the present level of compliance with biodiversity laws and policies in Nigeria for sustainable conservation of biodiversity resources.

CHAPTER TWO

CONCEPTUAL CLARIFICATION OF KEY TERMS

The aim of this chapter is to provide a conceptual clarification of some key terms. It therefore deals with such preliminary issues as definitions of the term biodiversity and its value. Other key variables defined include: Biodiversity resource; Biodiversity conservation; Genetic resources and Ecosystem.

2.1 Introduction

‘Biodiversity’ has become a popular term in conservation biology. The term has several historical origins from ecology, genetics and evolutionary biology. The term itself is abstract and descriptively complex. The concept is a growth industry this is shown by the increase in the use of the term in titles and abstract of environmental science papers. Biodiversity is an infiltrating administrative language, particularly after the United Nations Conference on the Environment and Development held in Rio de Janeiro in June 1992.¹²¹ The Conference declared preservation of biodiversity as a major element in

¹²¹ United Nation Environment Programme (UNEP)- Nairobi Convention 1992. UNEP is the leading Global Environmental Authority that sets the global environmental agenda.

‘sustainable development,¹²² and, what will influence the use of terms even more.

Biodiversity was acknowledged as a new type of natural resources, providing raw materials for productive activities ranging from plants, animal breeding, genetics engineering to medical industries. ‘Biodiversity’ is appearing as a resource to be systematically surveyed and prospected,¹²³ much as geological resources were surveyed and prospected. In the 19th century, there is no justification for being cynical about the increasing use of ‘biodiversity’ in different contexts. The worry about the fate of biological diversity of the earth is certainly warranted¹²⁴ and thus the change in the public attitude towards biodiversity is certainly positive. However, it is important to recognize that the term has changed in meaning since it was originally launched in conservation discussions in the 1980s.

2.2 Conceptual Discussion on the Concept Biodiversity

The phrase biological diversity has been in existence since the nineteenth century and is still being widely used.¹²⁵ In order to arrive at a simple

¹²² Oxford Dictionary defines the phrase as ‘being able to maintain a certain level or rate, or uphold and depend.

¹²³ Reid, W. V. et al (1993) *Bio prospecting: Using genetic resources for sustainable development* – world resource Institute, Washington DC.

¹²⁴ Wilson, E. O. (1988). *Biodiversity*. National Academy Press Washington DC 521 pp.

¹²⁵ Colwell, R. K. Biodiversity Concepts, patterns and management at <http://press.princeton.edu/chapters/S3/8879.pdf> (accessed n 04/02/2013).

definition for the phrase, it would be logical to join the word ‘biology’,¹²⁶ which means the study of living organism, with ‘diversity’ which means varieties.¹²⁷ Biology defined as ‘the study of living organism including their structure, functioning, evolution, distribution and interrelationship.’¹²⁸ Therefore a combination of these two words describes biodiversity as the study of life and living organism in their different forms. These forms have been categorized into genetic, species and ecosystem variations.

The US Strategy Conference on Biological diversity (1981) and the National Forum on Biodiversity (1986) in Washington DC, were the critical debates in crafting a definition, and it was E. O. Wilson, that launched the word biodiversity as title of the proceeding of the forum.¹²⁹ Wilson(1992) defined biodiversity as the variety of life at all levels from genetic variation belonging to the same specie through array of species families and genera and through population, community habitat and even ecosystem level, and the general diversity of life¹³⁰.

Various scholars and scientists have given different definitions often only to suit the purpose for which they required at any one time. According to

¹²⁶ Collins English Dictionary third edition at 157.

¹²⁷ Defined to mean varieties.

¹²⁸ Ibid

¹²⁹ Citizendium biodiversity at <http://en.citizendium.org/wiki/biodiversity> (accessed on 31/1/2013)

¹³⁰ Wilson, E.(1992) The Diversity of Life. New York , Norton.

De Chazournes¹³¹ “It is the infinite value of life of forms: genetic diversity – variation of genes within individual species, species diversity – variety of species in flora and fauna, and ecosystem diversity – variety of ecosystem, such as rainforest, coral reefs and deserts that exist on our planet’. Heywood¹³², stated that defining biodiversity as ‘the total variability of life on earth is admirably compact but for too inclusive to be of much practical use. In practice biologists generally resort to the expedient of defining biodiversity as ‘number of species’. Species is, in relatively informal stage.

The United Nation Convention on Biodiversity (CBD) provides a similar definition for biodiversity:

“the variability among living organism from all sources including inter alia (among other things), terrestrial, marine and other aquatic ecosystem and the ecological complexes of which they are part, this include diversity within species, between species and ecosystem”¹³³.

It is thus a comprehensive umbrella term for the degree of nature or varieties within natural system, both in number and in frequency which in general refers to variety of all forms of life on earth. These include the different plants, animals, micro-organism, the genes they contain and the ecosystem

¹³¹ De Chazournes L.B., 'Convention on Biodiversity and its Protocol on Bio safety at <http://untreaty.un.org/cod/vl/pdf/hl> (accessed on 16/10/2012)

¹³² Heywood, V. H. (1995). *Introduction Heywood V.H., ed. Global Biodiversity Assessment*. Cambridge, UK. Cambridge University Press, 1-10.

¹³³ Article 2 The Convention on Biological Diversity 1992.

they form. The CBD definition is the internationally accepted definition of biodiversity. The E. O Wilson version is included in further definition as the first recorded definition of the term and therefore of historical interest. Fundamentally the above definitions are similar, they all incorporates the term ecosystem which is used in a comparable context to the word biome within Wilson definition. All these dimensions of biodiversity are tightly interconnected, affecting the state, stability and productivity of the ecosystem as well as ecosystem services, thereby making biodiversity not only an ecological, but also social and economic issues.¹³⁴

From the above it can be said that an all encompassing definition of the concept is difficult to arrive at, as it has been used both broadly and narrowly, and generally in a vague and ill defined manner, thereby making it difficult to arrive at a precise and universally accepted definition. Various scholars of the above discourse and scientists have given different definition often only to suit the purpose for which they are required at any one time. All of these definitions may be very close, as they all refer to various categories of life and living forms. As biodiversity has different meaning in different disciplines, ranging from ‘all species’ approach to socio economic to functional units of ecological modelers. In this thesis, biodiversity might become a one size – fits

¹³⁴ Balvaneva, G. et al (2014). *Linking Biodiversity and Ecosystem Services: Current uncertainties and the necessary next stage bioscience*, 64(1), pp. 49-57.

all concept that can be stretched in every direction according to the conveniences of those who use it .While Resources as a concept is defined by Meyhew¹³⁵ as some components which fulfils people needs more specific to include such things as forests, wildlife, oceans, rivers, lakes ,minerals and man.

2.2.1 Values of Biodiversity

Biodiversity is playing a significant role in the social, economic, cultural and political aspects of any nation. It is a major source of food, nutrient, income, construction, and transport. Also, it is a good source of employment, fertilizer and traction. It provides materials and facilities for machines, ecotourism and tradable goods that form the basis for income earning opportunity. In fact, the survival and continual existence of man in the environment depends on the presence of biodiversities and their habitats. Paul and Paul (2011) opined that biodiversity is a key part of ecological balance that helps the planet¹³⁶.

Siyanbade (2007) noted that the benefits from biodiversity are multidimensional. He categorized them under the headings of supporting, regulating, provisioning and cultural roles. The biological diversity helps in the regulation of fresh water, food, fuel, fibre, wood, nutrients as well as

¹³⁵ Mayhew (2009) Dictionary of Geography, Oxford University Press, London P. 17

¹³⁶ Paul, H. and Paul, R. (2011) Essentials of Environmental Management. Leicestershire. 105H Services Ltd.

climate. Also, it has cultural, spiritual and recreational value. Above all, it is very useful for maintaining the life sustainability system of the biosphere¹³⁷.

Similarly, Dilys. (2011)¹³⁸ submitted that billions of poor people living in rural areas of developing countries of the world are directly dependent on biodiversity and ecosystem services for their immediate survival. In spite of the multi- dimensional usefulness of biodiversity, it is under pressure from natural and anthropogenic factors.

2.3 Biodiversity Conservation.

Black's law dictionary,¹³⁹ defined conservation as the supervision management and maintenance of natural resources, the protection, improvement and use of natural resources in a way that ensures the highest social as well as economic benefit. The word conservation is the act of preventing something from being lost, wasted, damaged or destroyed.

On the other hand biodiversity conservation is the sustainable use of biodiversity resources and encompasses protection of biodiversity resources as

¹³⁷ Siyanbade, D. O. (2007) Ecological Consideration in Planning and Managing the Environment. Lagos, Olas Ventures

¹³⁸ Dilys, R. (2011) Biodiversity and Poverty: Ten Frequently Asked Questions – 10 Policy Implications. London, International Institute of Environment and Development

¹³⁹ Ibid

well as exploration and Preservation.¹⁴⁰ Conservation means¹⁴¹ to keep something without altering or changing it.

Conservation is a problematic word to define, as it is capable of provoking a variety of interpretations. Other words, such as ‘preservation’, ‘protection’, ‘restriction’, ‘improvement’, prevention, having different meaning and deflections, are all terms which have been associated with conservation. The International Union for Conservation of Nature (IUCN)¹⁴² covers many of these ideas when it defines conservation in the world strategy for conservation.

“The management of human use of the biosphere, so that it may yield the greatest sustainable benefits, while maintaining its potential to meet the needs and aspiration of future generation”.

Similar to the above concept in the field of bio conservation is the phrase ‘sustainable use’ which was defined by Oxford Dictionary as ‘being able to maintain at a certain level or rate, or uphold ’ The CBD, in its Guidelines¹⁴³ towards ensuring the sustainable use of biodiversity described

¹⁴⁰ User, P. J. (2000). *Traditional ecological knowledge in environmental assessment and management. Arctic*: 53(2): 183-193.

¹⁴¹ Smith & Wislhnje (200) *Conservation and Subsistence in Small Scale Societies*. Ann. Rev. Anthropol. 29-493 – p. 5-24.

¹⁴² IUCN

¹⁴³ Addis Ababa Principle and Guidelines for the sustainable use of biodiversity at <http://www.cites.org/en/res/13/addis/en> pdf(accessed on 03/12/2013)

sustainable use as “use that won’t lead to a long-term decline”,¹⁴⁴ that is, it should be used in a manner in which ecological processes, species, genetic variability remains above threshold needed for long-term viability.¹⁴⁵ According to the Guidelines, sustainable use of biodiversity has the capacity to promote conservation and also plays a part in alleviating poverty.¹⁴⁶

These definitions reveal that there is a very strong connecting thread between the terms ‘conservation and sustainable use’. A comparison between these concepts reveals little or no difference, as both have adopted a long-term projection approach to the use of biodiversity.¹⁴⁷ Both terms are adopted in environmental law due to realization of that fact that these resources are not inexhaustible.

conservation efforts in Nigeria involves the establishment and management of national parks, game reserves, forest reserve, biosphere resources, strict nature resources (SNRs) and relevant research institutions. In academic institutions, which establish and manage arboreal, botanical/zoological gardens and gene banks? In addition, biotechnological application to conservation efforts in Nigeria have witnessed the introduction

¹⁴⁴ Ibid

¹⁴⁵ Ibid

¹⁴⁶ Ibid

¹⁴⁷ See the objectives of the convention in articles 3 of the CBD.

of tissue culture application as a new method of biodiversity resource conservation.¹⁴⁸

Conservation measures of biodiversity resources may take the following forms, ex-situ conservation – refers to conservation of component of biodiversity outside their natural habitat, for example, zoos, museums, gene bank, botanical gardens, arboretums etc. It is used for threatened and endangered species to avoid their extinction, also known as captive conservation. It has the advantage of preserving plants and animal material and making it available for research purpose, without damaging the natural population. In-situ conservation: Refers to conservation of ecosystem and natural habitats including maintenance and recovery of viable population of species in their natural habitats.

The term conservation, came into widespread use in the late 19th century, and referred to the management, mainly for economic reasons of such natural resources as timber, fish, game, pastureland and minerals. In addition it referred to the preservation of forest (forestry), wildlife, parkland, wilderness and watersheds. This period also saw the passage of the first conservation legislation and the establishment of the Forest Nation's Conservation Societies. The Sea Birds Preservation Act of

¹⁴⁸ Conservation is a problematic word to define, as it is capable of provoking a variety of interpretations. Words such as preservation, protection, restoration, improvement, prevention having different meaning but are all terms which have been associated with conservation. Oxford Dictionary at <http://oxforddictionaries.com/defined/english/conservation> (accessed on 24/6/2013).

1869 was passed in Britain as the first nature protection law in the world¹⁴⁹ and the first Game laws in 1872, which protected animals during their breeding season so as to prevent the stock from being brought close to extinction.¹⁵⁰

The Nigeria Conservation Foundation has stated its quest for biodiversity conservation when it stated inter alia:

“Nature conservation is the most important challenges to the present century. Nothing affects the quality of our lives quite like the welfare and state of nature and no future can be quite bleak as one in which the resources, such as plants and wildlife which are very essential for human survival and development are increasingly by destroying or depleted by human carelessness.

Put in another form, we all rely on nature for food, water, energy, clothing, shelter, minerals, drugs and more. And we rely on million of animal and plants species to keep the system that provides these needs in running order. Yet despite this obvious fact, we are destroying the natural world, biting the hands that feeds us, so to speak.

¹⁴⁹ See Oxford Dictionary at <http://oxforddictionaries.com/defintion/english/conservation> (accessed 24/6/2013).

¹⁵⁰ IUCN ‘Right-Based Approach to conservation’ available online at <http://community.IUCN.org/rbel/page/conservaton> available at <http://community.IUCN.org/rbel/pages/conservaton.aspx> (accessed on 21/9/2013). See also living resource conservation for sustainable development at <http://date.IUCN.org/dbtw.wpd/htm/wcs-004/section6.htm> (accessed on 21/9/2013).

Nigeria has progressively exerted efforts towards the integration of conservation concerns into National policies as discussed in Chapter three (3) of this thesis. For instance, Nigeria has articulated its Agenda 21 in conformity with obligations undertaken at the Rio summit. It has taken full cognizance of the provision of the CBD and CITES as would be explained in the subsequent chapters of the research work, more importantly enacted the National Bio safety Management Act in 2015.

Conscious efforts to conserve and protect global biodiversity resources are recent phenomena.¹⁵¹ Biodiversity resource conservation however, has a history that extends prior to the age of conservation. Resource ethics grew out of necessity through direct relations with nature. Regulations or command restraints become necessary to prevent selfish motives from taking more than could be locally sustained, therefore compromising the long term supply for the rest of the community.¹⁵² This social dilemma with respect to biodiversity recourse management and conservation is often called the tragedy of the commons.¹⁵³

Biodiversity conservation can be traced to communal resource based, ethics throughout cultures as a solution to communal resource conflicts and

¹⁵¹ Ibid

¹⁵² Nest (1991) *Nigeria Threatened Environment: A National Profile*, Lagos. P. 182

¹⁵³ See the objective of the convention in Article 3 of the CBD

conservation ethics are also found in religious and philosophical writings. In the Quran,¹⁵⁴ God Almighty said:

“And do not mischief on earth; after it has been set in order and invoked Him with fear and hope, surely Allah’s mercy is ever near unto the good doers”.

As nature belongs to God, it has been given to men merely as a trust and men’s right to dominate over nature comes with condition to protect it and use the resources sustainably. The discussion on customary and Islamic rules on conservation of biodiversity will be provided in chapter four, five and six of the research work.

2.4 Definition and Scope of the Concept Ecosystem

The word ecosystem is a relative term that apply to a whole community of organisms and its environment as one unit. The Convention on Biological Diversity (CBD), defines ecosystem as:

“... a dynamic complex of plant, animal and microorganism communities and their nonliving environment interacting as a functional unit.”¹⁵⁵

To Alfred George T., Ecosystem is

“a biotic assemblage ... including its associated physical environment in a specific space.”¹⁵⁶

¹⁵⁴ Interpretation of the meanings of Noble Qur’an:-Al-Araf. 7 V 56 (M.T. AL-Hilali and M.M K han Trans) Darussalam Publishers.

¹⁵⁵ Op.cit

Ecosystem diversity is the combination of communities of living things with the physical environment in which they live and it is constantly changing and cycle and recycles. For example, forest acts as filters for air, absorbing carbon dioxide and releasing oxygen, seas are the greatest stabilizers of climates, with current moderating temperatures on land masses they pass, mangroves and sea grasses beds are the nurseries for marine creatures, while the sun is constant source of earth energy. So while each ecosystem generates its own relationship, each ecosystem is connected to each other and the diversity that exist amongst the earth ecosystem maintaining the ecological diversity is important for health of planet.¹⁵⁷

There is no unique definition or classification of ecosystem at the global level, because it is difficult to make a quantitative assessment of diversity of ecosystem, habitat or community level¹⁵⁸. Ecosystem are self regularity communities of plants and animals interacting with each other and with their non-living environment - forest, wetlands, mountains, lakes, rivers, deserts etc. Ecosystem is vulnerable to interferences as pressure on one component can upset the whole balance. They are also vulnerable to pollution. Many ecosystem have already been lost, and mismanage, others are at risks.

There are two types of ecosystem they are the terrestrial ecosystem and aquatic ecosystem. Terrestrial ecosystem is major land ecosystem. They are

¹⁵⁶ Tansley, A.G. (1935) *Use and Abuse of Vegetational Concepts and Terms in Ecology* vol. 16 No. 3 9 pp. 284-301.

¹⁵⁷ Preamble CBD.

¹⁵⁸ Habu Audu (2016) Ecosystem management. *International journal of Innovation and Applied Studies* Vol. 18 No. 1, pp. 331 – 340.

described by their types of vegetation for example forest, grassland or desert. These types of vegetation are sectored by climatic condition such as temperature and rainfall. While aquatic ecosystem are mainly water ecosystem. Aquatic ecosystem can be further classified to include oceans, lakes, rivers, estuaries. These various types of aquatic ecosystem are a result of local physical conditions.¹⁵⁹

The whole essence of ecosystem is at the services it provides. Human beings depend on the environment for their survival¹⁶⁰, while those ideas have been around since antiquity¹⁶¹. Ecosystem services include air and water purification, flood and drought mitigation, generation of soil and pollution¹⁶². Hence ecosystem services is a term used to describe the benefits human population derive from ecosystem because it conveys the value of these resources and the harmful impacts their degradation would present.¹⁶³

A good understanding of ecosystem conservation in Nigeria is an essential prerequisite to the effective assessment of the ability of law and policy to conserve the system. Moreover to determine the most effective legal means for marine

¹⁵⁹ Aminu Kano and Margube, L. B. (2002). *History of conservation in Nigeria* in Ezeakor, A. U. (ed), *Critical sites for bioconservation in Nigeria: Nigerian Conservation Foundation*, Lagos, pp. 3-11 - 2002.

¹⁶⁰ See Millennium Ecosystem Assessment, *Ecology and Human wellbeing: Synthesn* (2005) available at <http://www.millenniumassessment.org/doc/356.aspx.pdf>

¹⁶¹ Kent Nnadozie. *African perspectives on genetic resources* (2003) Environmental law Institute. A handbook on laws, policies and institute governing access and benefit sharing.

¹⁶² Ibid

¹⁶³ Gretchen, C. (1997) *What are ecosystem services in Nature services: Societal Dependence on N/Ecosystem* 1-3-4.

ecosystem conservation it is necessary to have a clear understanding of the meaning of key terminologies and relationship between terms.

Nigeria has a variety of ecosystem ranging from forest in the south, through moist savannas in the central part of the country to dry arid savannas in the extreme north. Freshwater, brackish and marine ecosystem also occurs, and elements of Montana vegetation occur at high altitudes in the eastern borderlands. The coastal fringe of the country is characterized by a mix of mangrove swamps and freshwater forest on Barrier Island. The Nigerian mangrove ecosystem is the largest in Africa.¹⁶⁴

About four fifths of Nigeria was once savanna or grazing lands. The remaining savanna lands are found in the north and central areas and are often classified into four types ranging from north to south. The sahel, Sudan, Guinea and dried savanna. The sahel savanna is found in the north east and is typically by grasses and scattered thorny trees, Sudan zones found in North West is covered by sand and dominated by grasses and shrubs and trees. The guinea savanna is found in middle belt and is typified by open woodland and tall grasses.¹⁶⁵

The low land rain forest is where abundant rainfall regime favors the development of ecosystem type. The large remaining tracts rainforest are primarily

¹⁶⁴ Food and Agriculture Organization (FAO). *Land Use Area Data for Nigeria Based on the work of P.E Allen and Shinde*, N. N. project working document No. 1m Vol. 2 FAO NIR /77/009 Federal Department of Forestry, Lagos.

¹⁶⁵ Isobor, E.C. and Awosika, L.F (1993) Nigeria Mangrove Resources: Status & Management in Conservation & Sustainable Utilization of mangrove forest in Latin America and African region. International Society for mangrove ecosystem. *Mangrove ecosystems technical report* No. PD/114/90 pp. 169-185.

found in Cross River, Edo, Delta and Ondo States. Freshwater swamps forests are dominated by species of raphia and canopy that is sometimes as high as 15 meters. Mangroves survives in marine and brackish habitats and provides a number of ecological services, including habitat and nursery grounds for productive range of fish that are harvested locally and in off shore fisheries.¹⁶⁶

Nigeria freshwater ecosystem is endowed with a diversity of freshwater resources including seasonal, permanent rivers, lakes and wetland. Many of these water features provide important breeding and feeding habitats for a diversity of bird species¹⁶⁷.

2.5 What are Genetic Resources (GR)?

The term genetic resource has become common place in international agricultural, environmental, interrelated property and trade policy circles. The Food and Agricultural Organization (FAO) Commission on Plant Genetic Resources for Food and Agriculture or (CGRFA), established in 1983, was the first international forum dedicated to the subject, albeit only with regards to agriculture. However, it was the entry into force of the CBD in 1993 that readily made genetic resource (GR) a subject of heated debate and brought it fully to the international stage. As most prominent and widely adopted international agreement addressing genetic resources, the CBD is a national

¹⁶⁶ Ibid.

¹⁶⁷ Mohammed, A. Al-amin (2015) Place Biodiversity in Ecosystem Efficiency in Nigeria. *British Journal Earth Science Research* Vol.1 N-1. Pp 10 – 17

starting point in seeking a definition of genetic resources. In Article 2, on 'Use of terms', the CBD defines Genetic Resources as follows:

'Genetic resource means Genetic Materials (GM) of actual or potential value'.¹⁶⁸

The meaning of genetic resources thus rests on the CBD definition of Genetic Material (GM): 'Genetic material' means any material of plant, animals, microbial or other origin containing functional units of heredity. This definition of genetic material is relatively clear, referring to all forms of biological entity with 'functional units of heredity or deoxyribonucleic acid (DNA), the basic building blocks of life. Genetic material encompasses all biodiversity, including plants, animals, arthropods, and microorganism. The question becomes, therefore, what is the distinction between genetic material and genetic resources? In the definition, the distinction lies in the point of 'actual or potential value', actually in the rapidly developing biological sciences. The distinction is actually a conceptual, rather than physical one: a genetic resources is a genetic resources rather than genetic material (gm) because we perceive it as a resource that is why, we attach value to it. If a genetic resource is such because we perceived it as a resource, question arises as to the distinction between a genetic resource and a biological resource, another term that is defined by the CBD as:

“Biological resources’ which include, genetic resource, organism or part thereof, population, or any other biotic components of ecosystem with actual or potential use or value for humanity.¹⁶⁹

In scientific term, this definition is not substantially different from that of genetic resource except on a few semantic points, including whether there is difference between materials of plant, animal, microbial organism and the genetic resource, organ or parts thereof, population and components of ecosystem the one point that distinguish genetic resources from bio resources is that the former are identified as a subset of the latter. There is no substantive language, either in definition nor elsewhere, which clarifies this point. Once again, this lead to the conclusion that any distinction that may exist is conceptual and not physical. The conceptual clarification is intended to highlight what is often overlooked, but potentially a significant issue, for it is important for government implementing article 15 of the CBD to clearly delineate what is and what is not a genetic resource, to enable it know what it is regulating.

All living organisms, plants, animals and microbes, carry genetic material that could be potentially useful to humans. These materials can be taken from the wild, domesticated or cultured. They are sourced from the environment in which they occur naturally (in-situ) or from human-made

¹⁶⁹ See Article 2 (Use of Terms) of the CBD.

collection such as botanical gardens, gene banks, seed banks, and microbial culture collection (ex-situ).

There are significant potential benefits to be gained from by accessing genetic resources and making use of them. They provide a crucial source of information to better understand the natural world and can be used to develop a wide range of products and services for human benefits. However, like many key resources in the world, genetic resources are not evenly distributed. What is more, the plant, animal and microbes in which they are found often make-up complex and delicately balanced ecosystem which can be threatened or endangered. The way in which genetic resources are accessed and how benefits of their use are shared are discussed in chapter 5 of this thesis.

CHAPTER THREE

LEGAL AND POLICY FRAMEWORK ON CONSERVATION AND MANAGEMENT OF BIODIVERSITY RESOURCES IN NIGERIA

3.1 Introduction

In the past few decades, the environment has received so much attention both internationally, nationally and locally, the global environmental and developmental challenges such as climate change, biodiversity loss, severe poverty, amongst other challenges have continued to grow. National efforts are thus more important than ever, as a result of global and national environmental challenges, government around the world have responded with public consultations, policy statement, agency creation and legislative intervention, this has in turn resulted in different techniques and strategies of environmental management and overall governance.¹⁷⁰

The government of Nigeria has responded in similar fashion and there are new sets of legislations, agencies, institutions and policy statement on governance and management of the Nigerian environment and biodiversity in particular. However, despite the extensive legislations, institutions and policy statement, there seems to be lack of an effective and robust framework for

¹⁷⁰ Fagbohan, O. (2012). *Mournful Remedies Endless Conflict, Inconsistencies in Nigeria Quest for Environmental Governance: Rethinking the Legal Possibility for Sustainability*. Being inaugural lecture delivered at the Nigerian Institute of Advance Legal Studies, 2012 pp 20-26.

managing the environment and more importantly for ensuring its long term sustainability¹⁷¹, for present and future generations. Could this be as a result of lack of adequate laws, policies and regulations to ensure a robust management of biodiversity? Or could it be due to the absence of an effective legal framework that can drive the implementation of the various laws, policies, regulations that exist to manage the biodiversity? Or could it be due to lack of political will on the part of different tiers of government or a combination of all aforementioned? The aim of this chapter is to appraise the legal and policy framework on biodiversity conservation and management in Nigeria in order to ascertain their adequacies or otherwise.

The legal and policy framework on biodiversity conservation can be classified into two broad groups, the general framework and the sector specific framework. The general framework addresses the issue of biodiversity generally and consists primarily of the followings:

- i) Provision relating to management of the environment (biodiversity) under the Constitution of the Federal Republic of Nigeria 1999(as amended)¹⁷²;

¹⁷¹ The word ‘sustainability’ is derived from the concept of sustainable development. Sustainable development emerged in 1987, when the world commission on environment and development (WCED), also referred to as the (Brundflant Commission) published its report ‘Our Common Future’. The commission defined sustainable development as development that meets the needs of the present generation without compromising the ability of future generation to meet their own needs. See world commission on environment and development (WCED) our common future Oxford: (Oxford University Press, 1987) p. 43.

¹⁷² Section 20 of the Constitution of the Federal Republic of Nigeria 1999(as amended).

- ii) National Policy on Environment 1988¹⁷³;
- iii) Nigeria National Biodiversity Strategy and Action Plan¹⁷⁴
- iv) National Environmental Standard and Regulation Enforcement Act 2007¹⁷⁵
- v) Nigerian National Bio safety and Management Act 2015¹⁷⁶

The sector specific framework on biodiversity refers to legislations on specific components of biodiversity such as forestry, wildlife, genetic and ecosystem diversity, which comes under Chapters 4, 5, and 6 of the thesis.

Below is an analysis of the general legal/policy framework on biodiversity conservation.

3.2 An Appraisal of the General Legal/Policy Framework on Biodiversity Conservation in Nigeria

3.2.1 Constitutional imperative on biodiversity conservation and management

The basis of the environmental policy in Nigeria is contained in 1999 Constitution of the Federal Republic of Nigeria (FRN), the constitution makes

¹⁷³ Federal Environmental Protection Agency(1989), *Our national environment goals special publication* No.3 Federal environmental Agency Lagos.

¹⁷⁴ Nigeria launched her National Biodiversity Strategy and Action Plan(NBSAP) in 1997-The goal of the NBSAP is to develop appropriate frame work and programme instruments for the conservation of Nigeria's biodiversity and enhance its sustainable use by integrating biodiversity consideration in to National Planning ,Policy and decision making process.

¹⁷⁵ Section 36 NESREA Act 2007 which repeals the Federal Environmental Protection Agency (FEPA Act) which was the flagship clearing house as well as the regulatory authority for environmental protection in the country.

¹⁷⁶ National Bio safety Management Act,2015.

fundamental provisions and clearly identifies important components of environment, Section 20 of the constitution provides that: “The State shall protect and improve the environment and safeguard the water, air and land, forest and wildlife in Nigeria”. This, according to the side note of the section, is the constitutional environmental objective for the Nigerian environment.

The above constitutional provision guaranteed not only protection of the Nigerian environment in its various media but also the improvement of such environmental media with their flora and fauna, presumably; so couched, the provision provides a framework for national conservation and management of biodiversity resources. However, the constitutional provision is not within the part dealing with fundamental human rights points to an intention by the constitutional framework to exclude the right to a sound environment from the fundamental rights of citizens.¹⁷⁷

Also regards being had to the side note to the section, which talks of environmental objectives, which objectives like other objective directing state policies are not justifiable. This reality is that, a mere policy statement unattended by legal consequences on breach by the state has been pointed by section 20 of 1999 constitution. Worse, there is something decidedly wanting about a provision that says that the state shall protect and improve the

¹⁷⁷ Usman, A. K. (2012) *Environmental Protection law and Practice*, Abebe Press Ltd, Ibadan, Nigeria. P. 7

environment and safeguard the water, air and land, forest and wildlife, without suggesting the means by which these shall be achieved. If this provision serves any useful environmental protection purposes, it is that of a favorable normative climate for protection of environment and its biological resources which it fosters.¹⁷⁸

This constitutional provision is a far cry from the provision of the Philippines and South African constitutions¹⁷⁹. Under section 16 of the Philippines, Constitution, it is provided that: “the state shall protect and advance the right of the people to a balanced and healthy ecology in accord with the rhythm and harmony of nature”. It was this provision, which subjects the state to a duty of protecting and promoting the people’s right to health that was held in *Minors Oposa V Secretary of the Department of Environmental and Natural Resources*¹⁸⁰ to entitle the petitioners Minors to sue for themselves and others of their generation and generation yet unborn to press their fundamental human to a healthful ecology in harmony with nature. By the decision of the Philippine Supreme Court in *Minors case*, the right to a healthy ecology in harmony with nature is a fundamental human right in Philippine justifiable at the instance of aggrieved person as opposed to what is obtained in Nigeria.

¹⁷⁸ Ibid p. 7

¹⁷⁹ See Article 24(1) , Constitution of the Republic of South Africa 1996

¹⁸⁰ 33 Km (1994) 173 Supreme Court of the Philippines.

3.2.2 The National Policy on Environment

An environmental policy can be an instrument of power to solve some perceived problems in the environment. Nwaobi¹⁸¹, defined policy as ‘planned actions to be followed by institutions with the objective of achieving a target’. Based on this definition, environmental policy is action to foster and improve the quality of the environment, with the thrust of balancing economic and social issues. Environmental policy can be an institution of power to solve some perceived problems in the environment¹⁸²

Evolution of Environmental law and Policy in Nigeria

Prior to independence in 1960, the country had in place some laws on resources specifically, such laws were in most cases imported directly from England and incorporate into the Nigeria legal system. This accounted for the structure of such laws for example the Forest Ordinance, Wild Animal Preservation Ordinance, Agricultural Ordinance and so on. After independence, some of these laws were adopted into the state laws with little or no modification.

¹⁸¹ Nwobi, G.C.(2005) *Oil Policy in Nigeria: A critical Assessment*(1958-1992) Public Economics-Econs WPA 10/24/2010 from <http://econpages.respect-/RePewpa:www.ppe.0501001>.

¹⁸² Shore c. and Wright S. (Eds)(1997). *Policy: A New field of Anthropology .Anthropology of Policy : Critical Perspectives on Governance and Power*, Routledge, London.

Nigeria operates a federal system of government with three tiers namely; federal, state and local government. Until recently, responsibilities for environmental matters were dispersed and handled by various ministries and departments. For example, the public health officers or sanitary inspectors in the ministry of health or environmental health officers in the local government handled sanitation matters. Working environment in the factories was certified under the factories Act, by the occupant health and safety department. All forestry and wildlife matters were handled by the ministry of agriculture and so on and so forth. Some of these responsibilities on environmental matters were sometimes moved from one ministry or department to another through administrative arrangements. Consequently, the levels governing these responsibilities were also sector based and scattered in various ministries and departments without any coordination properly so called.¹⁸³

During the 1970s numerous environmental related laws were enacted in response to industrial growth that resulted from oil boom. The River Basin Authority was created and environmental units were established in some government ministries. The 1980s witnessed the most drastic and to some extent systematic laws on the environment, some international conventions on

¹⁸³ Ugolo, M. J. (1996) *Environmental Policy and Regulations: The Nigerian Experience* (a paper delivered at a Seminar on Environmental Law at International Law Institute, Washington DC, USA 14-17.

environment were signed and this led to the enactment of a number of laws as a result of the Koko incident in 1988. National environmental standard regulation and enforcement Act was enacted. The Act repealed FEPA Act. While in 2015, the National Bio safety Management Act was enacted.

Prior to 1988, the environment was managed by different tiers of government in line with the respective constitutional responsibilities as pointed above. However, the dumping of 41,000 tons of toxic waste from Italy in Koko Delta state, in 1988 marked the water shed in the history of Nigeria's environmental awareness and policy development¹⁸⁴. The Koko toxic waste incident prompted a swift reaction for the government in an attempt to manage the environment and its biological resources. This incident led to the passing of Harmful Waste (special Criminal Provision Act) 1988¹⁸⁵, the enactment of FEPA Act, 1988 establishment of FEPA agency and a national policy on the environment. Nigeria was rudely awakened from environmental inactivity by the well publicized illegal dumping of toxic and hazardous waste in its territory.

The National Policy on the environment was the first action plan to be developed by the Nigerian government to ensure the protection of its

¹⁸⁴ Eneh, O. (2011) Managing Nigerian Environment: The Unresolved Issues. *Journal of Environmental Science and Technology*. Vol. 4 (3) pp. 250-263.

¹⁸⁵ Harmful Waste (Special Criminal Provision Act) Cap.H1 LFN 2004.

environment. It was launched in 1989¹⁸⁶ and has subsequently been revised in 1999 to incorporate and to reflect newly emerging global and national environmental concerns and challenges. The policy which underwent another review in 2004, places the mandate to coordinate environmental protection and natural resources conservation in the Federal Ministry of Environment (FMENV). This measure is not a law but is a policy framework, and such does not carry the force of law. The policy contains a comprehensive action plan, aimed at creating a synergy between encountered concordance and national development, by emphasizing the need to incorporate environmental consideration and the principle of sustainability in certain key sectors of the country's national life¹⁸⁷. These include: Human Population, Wildlife and Protected Natural Areas, Forestry, Marine and Coastal Area Resources¹⁸⁸, Land Use and Soil Conservation Water Resources Management¹⁸⁹.

The policy identifies the various environmental challenges facing the country and which require immediate attention and provides a detailed approach towards addressing them. The biodiversity goal of the policy is to:

‘restore, maintain and enhance the ecosystem
and ecological processes essential for the

¹⁸⁶ Federal Environmental Protection Agency (1989), *Our National Environmental Goals Special Publication*. No. 3 Federal Environmental Protection Agency, Lagos.

¹⁸⁷ Chokor, B. A. ‘Government Policy and Environmental Protection in Developing World’, *the example of protection in Nigeria* Environmental Management Vol. 17, No. 1, p. 25.

¹⁸⁸ World Resources Institute – Nigeria: National Policy on Environment. Available at <http://projects.wri.org/lsd-pains-database/nigeria/institute-policy-environment> (accessed on 14/1/2013)

¹⁸⁹ Goldface I. (2002) *Towards an Effective Legal and Institutional frame work for Integrated Water Resources Management in Nigeria*. A.B.U Zaria.

funding of the biosphere to preserve biological diversity and the principle of optimum sustainable yield in the use of living natural resources and ecosystem'.¹⁹⁰

The policy recognizes the fact that biodiversity has not been given the attention it deserves. For instance, its beneficial value and importance and the need to conserve it have not been adequately considered. This is evident in the non-inclusion of the full cost of biodiversity loss in the country's economic accounting¹⁹¹. Some of the strategies developed by the policy towards achieving its objectives in the area of biodiversity conservation and their method of implementation include:

- Protection of the remaining natural ecosystem as well as the restoration and rehabilitation of the degraded ones¹⁹².
- Ensuring the implementation of Nigeria's biodiversity strategy and action plan.¹⁹³
- Incorporation of environmental consideration in economic and natural policies.¹⁹⁴
- Supply the sharing of the benefit of knowledge, expertise and technologies in the use of biodiversity, in a fair and equitable manner.¹⁹⁵

¹⁹⁰ See Policies (b) & (c) of the National Policy on Environment.

¹⁹¹ See biological diversity management section in the Nigeria National Policy on the Environment.

¹⁹² Ibid see strategy (b)

¹⁹³ Ibid see strategy (k)

¹⁹⁴ Ibid see Strategy (h)

- Facilitating access to genetic resources which are useful in agriculture and medicine.¹⁹⁶
- Providing support of the various centers for the exchange of data and information of relevance to the conservation of biological diversity.¹⁹⁷

The policy apart from designing programmes for the direct conservation of biodiversity as a whole, the policy makes specific provision for the conservation of some of its components. These include a comprehensive programme on the conservation of natural resources such as land use and soil conservation, forestry, wildlife conservation, marine and coastal area resources. It intends to ensure the promotion of sustainable agricultural practices and under usage.¹⁹⁸

The policy sets out a list of goals and the mechanisms for implementing them under its forestry and wildlife strategy. They include encouraging acts and measures aimed at ensuring a moderate and rational exploitation of forest resources, for both local consumption and foreign exports¹⁹⁹. Strengthening and enactment of policies and programmes aimed at protecting the forest²⁰⁰, and the creation of forest reserves, as well as the protection of plants and

¹⁹⁵ Ibid see Strategy (g)

¹⁹⁶ Ibid see Strategy (f)

¹⁹⁷ Ibid see Strategy (m)

¹⁹⁸ See generally part (4.6), (4.7), (4.8), (4.9) & (4.10) of the National Policy on Environment.

¹⁹⁹ See strategy (a) under the forestry wildlife and protected areas goal of the policy.

²⁰⁰ Ibid see Strategy (e)

animal species which are threatened²⁰¹. In order to replenish the diminishing forest stock of the country, the policy seeks to promote and encourage afforestation, reforestation and tree-planting exercise. It gives consideration to the identification of endangered species and ecosystem and taking decisive action to salvage them²⁰². A national inventory of forest resources is to be established, alongside germ plasm conservation programmes²⁰³. The policy seeks to employ the combination of the most effective rational conservation practices with modern methods of conservation.²⁰⁴

The National Policy on Environment (NPE), is without doubt complete and exhaustive, because it provides feasible and detailed strategies on how its goals should be achieved in a more sustainable manner. This policy can be one of the best environmental policies ever known if the goals contained in the policy can be effectively implemented and executed, as the policy covers all the aspects of environment and biodiversity conservation in particular. Do these policies have effective implementation mechanisms that can be translated into effective government and management framework? These are the issues that the rest of chapters will address in its examination of the section specific legal framework of components of biodiversity.

²⁰¹ Ibid see Strategy (g)

²⁰² Ibid see Strategy (f)

²⁰³ Ibid see Strategy(m)

²⁰⁴ Ibid see strategy (i)

Environmental Policy Implementation

Implementation means getting things done. It is the process of translating policy decision made into events²⁰⁵. Implementation is one of the important steps in the policy cycle, and this step is the process that takes effect between policy expectations and policy result. Implementation of biodiversity environmental policies and strategies in Nigeria is currently fraught with certain challenges cutting across socio-economic, scientific and cultural frontiers. Some of such key challenges include overlap of authorities²⁰⁶ this relates largely to the apparent overlap in functions of Federal Ministries/Agencies dealing with environmental resources and other issues. Other challenges include poor environmental education, dearth of equipments and logistics for policies and strategies actualization.

Furthermore for a policy to be effective, so much focus should be put on implementation stage and for implementation to be successful some

²⁰⁵ Gupta A. (2009) *Policy Process Theory: Environmental Policy*. Wageningen University, Netherlands
Nov.4

²⁰⁶ UN. Environmental Programme(UNEP)(2001) *Environmental Assessment of Ogoni land*. First published in 2011 by UNEP. www.server.com.

scholars propose bottom-up approach, emphasizing that implementation of a policy will be successful only when the people to be affected by such policy are involved. This shows that every stakeholder should be involved during implementation for the policy to achieve its goals²⁰⁷. The actors could be scientist, economist, government, agencies, non-governmental organizations (NGOs) and the public. It is also essential to have proactive and forward looking policy, anticipating economic, social and environmental changes to guide the development of biodiversity resources in Nigeria.²⁰⁸

3.2.3 An Appraisal of the National Policy on Biodiversity Conservation²⁰⁹.

The earth is the only planet in the universe with a history of the origin and evolution of living form²¹⁰. It is blessed with various classes and species of life and living creatures. This makes it distinct and unique among all other planets. The duty to ensure the continuous existence of the plant and the life forms placed on it fell into the hands of mankind. Man's intrusion into this complex web called environment has had devastating effects. The environment is the source of energy and material which mankind transform into goods and services to meet his needs. It also acts as a vast sink for the

²⁰⁷ Salau (1997) *National Environmental Policies: A Comparative Studies of Capacity Building*. Berlin: Springer P.257.

²⁰⁸ Agbejo, B.O. (2008) The need to link States and Federal Government Institutions in Nigeria in Rebuilding African Capacity for Agricultural Development- The role of Tertiary education . African Network for Agroforestry (ANAFE) Kenya.

²⁰⁹ Nigeria's National Biodiversity Strategy and Action Plan available at <http://www.cbd.int/report/search/?Country=ng>.

²¹⁰ Ghosh, A. *Convention on Biodiversity: A comprehensive analysis: Cuts centre for international trade*, Eco & Env No 7/2003 at <http://www.cut> accessed on 1/11/2012.

wastes and polluting substances he generates, this increasing hostile and unhealthy environment is causing the dislocation, depletion and extinction of species of plants and animals. Human beings are expected to prudently manage these resources, bearing in mind that they are subject to irreversible decline and that there are limitations to the carrying capacity of the ecosystem²¹¹.

Biodiversity entails components of the ecosystem that make life possible and is critical to ecological sustainability. Healthy ecosystems contribute positively to air, water, agriculture, and other productive activities. Nigeria is a hot bed of biodiversity, containing very rare species of plants with high medicinal value, and unique species of animals which are endemic to it²¹². The Niger Delta region of the country has been described as the second largest wetland in the world, with mangrove swamps and fertile alluvial plains, and is also home to the gorilla. *Gorilla dichli*, which is endemic to Nigeria and Cameroon, and has been described as the most endangered gorilla in the world²¹³. These include but not limited to the rainforest of the Cross River basin the mountain along the Cameroon boarder with Nigeria²¹⁴. Along with the Atlantic Ocean which forms the southern border part of Nigeria, and

²¹¹ Schwess R. D. 'Introduction to Sustainable Development' World Conservation Strategy at the Int. Union for the Conservation of Nature, Natural Resources encyclopedia of life support system at 5 <http://www.olso.net.E/1/5-02-05.pdf>

²¹² Idu, M. "The Plant called medicine" 104th Inaugural Lecture series of the University of Benin at p. 12.

²¹³ Sidhu, B. (2010) 'Gorilla and Their Habitats – A Legal Review Environmental Policy and Law, 40/6 at 337.

²¹⁴ Wildlife Conservation Society (WSC) 2015. Retrieved from www.wsc.nigeria.org.

with its highly diverse marine and freshwater ecosystem. There exist also an inland layout of an array of other forest and woodland ecosystem which end up in Sudan savannah and sahel semi-desert belt in the northern part of Nigeria.

However, overall, biodiversity in Nigeria is highly threatened due to land use changes from agriculture, overgrazing, over exploitation of natural resources through extractive actions, invasive species and pollution. According to IUCN red list 2013²¹⁵, Nigeria has a total of 309 threatened species in the following taxonomic categories: mammals (26), birds (19), reptiles (8), amphibians (13), fishes (60), molluses (1), other invertebrates (14) and plants (168)²¹⁶.

In response to the growing rate of biodiversity loss, the international community, through the United Nation facilitated the process of convening the earth summit in Rio de Janeiro, Brazil in 1992, to address various threats to the human environment; these included the upsurge in the rate of biodiversity loss, among other environmental issues addressed at the summit²¹⁷. Among the documents which were available for signature by parties during the summit was the convention in biological diversity (CBD). The CBD is the

²¹⁵ Sedghi, A. (2013) Red list: The threatened species across the regions of the world. *The guardian*. Retrieved from [http://www.the-guardian.com/news/datablog\(2013\)No/26/IUCN-redlist](http://www.the-guardian.com/news/datablog(2013)No/26/IUCN-redlist)

²¹⁶ Ibid.

²¹⁷ UN Conference on Environment and Development 1992 at <http://www.un.org/geninfo/bp/enviro.html> (accessed on 27/11/2013).

first comprehensive multilateral environmental agreement containing measures for biodiversity conservation²¹⁸. It contains 42 articles which comprises inter alia, strategies for conservation and sustainable use of biodiversity, obligation of developed countries towards the developing countries in order to protect biodiversity in addition to countries administrative obligation.

Nigeria as a member of the United Nations attended and signed the CBD during the summit (on 13th June 1993) and subsequently ratified it in 1994. It has since participated actively in the activities of the convention and is committed to its objectives. Nigeria equally signed the Cartagena Protocol on Bio Safety which is intended to conserve biological diversity from adverse impact of genetically modified organism (GMOs). The country, therefore, accords very high priority to a successful implementation of all articles of the convention as a responsible member of the global community and in pursuit of sustainable development.

This part is a reviewed effort of Nigeria in the implementation of CBDs. Nigeria has not yet enacted a specific legislation on biodiversity. However, the obligation to implement the CBD has added greater impetus in enacting and applying national laws related to biodiversity over the years, the

²¹⁸ The convention was opened for signature on the 5th of June, 1992.

Nigerian government has put in place a number of environmental regulations and policies which curtail provision that are significant and very useful for ensuring the conservation and sustainable use of its biodiversity. Incidentally, some of these legislations even predated the convention.²¹⁹

Having ratified CBD, Nigeria is obligated to domesticate its elements by incorporating them as part of its national law in order to ensure effective implementation. According to section 12(1) of the Constitution of the FRN 1999(as amended).

No treaty between the federation and any other country shall have the force of law to the extent to which any such treaty has been enacted into by the National Assembly”.

The CBD has not been directly domesticated as a Nigerian law. This means that the country does not have a national law by which it implements all the provisions of the CBD. However, there are different legislations, regulations, programmes and policies which have been put in place to conserve the country’s biodiversity. These policies and programmes align with the provision of the CBD and therefore can be used to assess the level of domestic implementation in the country. The country has prepared its National Biodiversity and Action plans (NBSAP). In compliance with its

²¹⁹ Examples of the pre-1992 conservation legislation in Nigeria are the forest ordinance of 1937, the sea fisheries Act and its regulation of 1972 and the Endangered species Act.

obligation all the convention and its fifth National Biodiversity Report²²⁰. A list of some of these policies which show compliance with the objectives of Article 5 of the CBD include the National Policy on Environment, which has been discussed above, Nigeria's Agenda 21, the National Forest Policy, the Vision 2010 and the Vision 2020 Policy and Nigerian National Policy on Biodiversity Conservation.

Furthermore, in compliance with article 6(b) of CBD²²¹, biodiversity conservation and sustainable use has also been included in the objectives and goals of some of the federal ministries and agencies in the country. For example, the Science, Technology and Innovation Policy of the Federal Ministry of Science and Technology and National Agricultural Policy of the Ministry of Agriculture. All of these combine to show compliance with the provision of article 6 of the CBD. Other policies on biodiversity conservation and management are briefly examined below.

a) National Forestry Policy²²²

The policy was developed to promote the development and proper management of the country's available forest resources which contributed to

²²⁰ Nigeria's National biodiversity strategy and action plan at <http://www.cbd.int/report/search/?country=ng> accessed on 26/1/2013.

²²¹ This article provides for the interpretation as far as possible and as appropriate, of the conservation and sustainable use of biological diversity into relevant sector or cross-sector plans, programmes and policies.

²²² National Forest Policy of Nigeria-Federal Ministry of Environment and Urban Development in Nigeria. National Forest Policy, 2006 at <http://foris.fao.org/static/pdf/nfp-and-forest-policy-document-national-forest-policy-20006.pdf> (accessed on 23/03/2013).

the conservation of biodiversity resources. The guiding principle of the policy revolves around addressing issues such as:

- Factors responsible for forest decline.
- Mobilizing local communities, civil societies into forest development and
- Promoting partnership with the private sector, NGOs and CBDs.

Its national objective is to manage the country's forest sector judiciously to meet the needs of the present generation, without compromising the rights of future generation²²³. The document contains 31 policy objectives²²⁴, which focus on the country's national forest development plans and its international development commitments. It also contains strategies for the implementation and specific areas where priority attention would be given²²⁵.

These objectives include:

- Forest management
- Community participation and in outside forest reserves.
- Private sector involvement
- Biodiversity conservation, national parks, and game reserves of conservation interest.
- Forest research and development and poverty alleviation and food security.

²²³ Ibid. This aligns with the concept of sustainable use, which is one of the key objectives of the CBD.

²²⁴ Ibid. see chapter 3 for the policy objectives.

²²⁵ Ibid.

Despite the fact that the policy was formulated to facilitate the development of the forestry sector, it makes specific provision for the conservation of the country's biological diversity. Its objectives include the improvement and management of fauna and flora within the country. The promotion of scientific studies in areas of research conservation education etc.²²⁶ Some of the strategies to be used in achieving these objectives are to identify, delineate and inventories species and sites of conservation interest, develop in situ conservation areas as national parks, game reserves, strict nature reserves, sanctuaries and cultural heritage centers, development of excavation conservation areas. Such as zoological and botanical gardens, which are to serve as centre for genetic improvement of endangered species, develop transparent mechanism for responsibility and benefit sharing among the tiers of government.

b) Agenda 21

The Nigerian Agenda 21 was drafted in response to global agenda 21 which was one of the strategies to achieve sustainable development by the United Nations Conference on Environment and Development (Earth Summit in Rio, Brazil, in 1992). The major objectives of the Nigeria's agenda 21 are:

‘to integrate environmental consideration
into development planning at all levels of

²²⁶ Ibid

government and the private sector, commerce a transition to sustainable development, address sector priorities, plans, policies and strategies for the major sectors of the economy, and simultaneously foster regional and global partnership'.²²⁷

Agenda 21, just like the national policy on the environment, discussed above, identifies the various environmental challenges confronting the country; these include biodiversity loss and set out strategies to address them. Some of these strategies are poverty alleviation, afforestation, erosion control, municipal solid waste management, rational use of oil and gas resources, desertification and mitigating effects of drought etc.²²⁸

With regards to ensuring the conservation of biodiversity, the major objective of the Agenda 21 is 'to prepare and implement a national biodiversity strategy and action plan programme' in compliance with the provisions of the CBD²²⁹. Some of the activities towards achieving these goals include taking of inventory of all species of flora and fauna within the country ecosystem,²³⁰. Promotion of both in situ and ex situ conservation activities by encouraging research activities in biodiversity studies,

²²⁷ See the objectives and strategies of Nigeria's Agenda 21 in the first part of the document.

²²⁸ See generally the objectives of Agenda 21 of Nigeria.

²²⁹ See the mission statement under the biodiversity management objective of Nigeria's Agenda 21.

²³⁰ See activity (10 of the goals under biodiversity management.

monitoring, evaluation and education and public enlightenment on the importance of biodiversity conservation.²³¹

Other activities in Agenda 21 for the conservation and sustainable use of biodiversity include the ratification of the RAMSAR Convention²³². Encouraging of international and regional cooperation toward the implementation of its national and international obligations towards CBD²³³, strengthening of various national centre for the exchange of information on biological diversity and increasing its biological diversity management capabilities²³⁴. In line with the forest objectives in the national forest policy of the country, Agenda 21 intends to ensure an increase in the forest reserves of the country from the present 10% to 25% by the year 2010. In order to achieve this target, a ban was proposed on the exportation of log wood until the desired 25% reserve target is attainable.

A. Nigeria's Vision 2010

The fundamental objective of the environmental agenda is the vision 2010 which is to have a safe and healthy environment that secures the economic and social well being of the present and future generation²³⁵. The

²³¹ Ibid see activity (3)

²³² Nigeria has ratified the RAMSAR convention and some of the wetland in the country have been denigrated as RAMSAR sites.

²³³ See activity (7) of the goals under biodiversity management.

²³⁴ Ibid see activity (4)

²³⁵ Federal Republic of Nigeria (1997) *Ecology and Environment*, In: Report of the vision 2010 at 100.

policy in relation biodiversity provides for the conservation and sustainable use of biodiversity²³⁶. Its objective is to ensure absolute protection of the country's flora and fauna²³⁷. It aim to promote in situ and ex situ conservation approaches, increase number of protected areas and embark upon educational and public awareness campaigns on the importance of biological diversity and the need to conserve it. To conserve the country's present resources and ensure its attainment of the 25% target, the policy intends to strictly control and reduce the rate of foreign export and international trade in logwood and also encourage the involvement of indigenous people in forest management practices and conservation. It is regrettable that vision 2020, has not been adequately implemented and died along with the president who intended it²³⁸.

3.2.4 Appraisal of the National Environmental Standards and Regulations Enforcement Act 2007

The National Environmental Standards and Regulation Enforcement Agency bill was passed into law by the National Assembly in (2007) it succeed the Federal Environmental Protection Agency (FEPA Act)²³⁹. It

²³⁶ Ibid.

²³⁷ Ibid.

²³⁸ Ayodele, O. S. et al (2013) 'Challenges Facing the Achievement of Vision 20:2020' *Global Advanced Research Journal of Social Science (GARJSS)* Vol. 2(7) pp. 143-157 at 146.

²³⁹ Section 36 NESREA Act 2007 which repeals the FEPA Act. The Federal Environmental Protection Agency was the flagship clearing house, as well as the regulatory authority for environmental protection in the country. It was set up after the discovery of toxic waste which was dumped in Koko, in the present day Delta State in the Niger Delta region of the country in 1988. Hitherto there has not been specific agency saddled with the responsibility of environmental protection within the country.

transfers its powers to the agency created by it, as well as the status of being the country's leading environmental protection to environmental protection and enforcement of all regulations, both national and international, within the country.

Section 2 of the Act provides that the Agency shall subject to the provision of this Act:

“have responsibility for the protection and development of the environment, biodiversity conservation and sustainable development of Nigeria natural resources in general and environmental technology, including coordination and liaison with relevant stakeholders within and outside Nigeria on matters of enforcement of environmental standards, regulations, rules, law, policies and guidelines”.

The duties of the Agency are contained in section 7 of the Act, and are centered on environmental protection and biological diversity conservation. In relation to its environmental protection commitment, it is expected to ensure compliance with laws, guidelines, policies and standards on environmental matters²⁴⁰, and to co-ordinate and liaise with stakeholders within and outside Nigeria on matters of environmental standard, regulation enforcement²⁴¹.

²⁴⁰ Section 7(a) NESREA Act 2007.

²⁴¹ Ibid Section 7(b)

In furtherance of its responsibility to conserve the country's biodiversity, the Act intends to ensure compliance with guidelines and legislation on sustainable management of the ecosystem, biodiversity conservation and the development of the country's natural resources²⁴², among other responsibilities imposed upon the Agency by the Act²⁴³. Its authority extends to the enforcement of environmental guidelines and policies, such as the national policy on the environment, 1999. This is indicative of the importance and relevance of standards, rules, policies and guidelines on the environment. Although they may not have the force of law, they are vital and necessary elements in the protection and preservation of the environment²⁴⁴.

The NESREA Act and Regulation constitute a new dawn because in both purposes and contents, they are aim at addressing the preponderance of obsolete environmental regulations, standards and enforcement mechanism, which resulted, over the years, in the high rates of non-compliance with environmental laws, regulations and standards.

A notable provision of NESREA Act in section 7(c), which mandates the agency to enforce compliance with the provision of international agreements, protocols, conventions, and treaties on the environment and such

²⁴² Ibid Section 7(e).

²⁴³ The guidelines and regulation referred to in this provision include the biological diversity related legislation and policy guidelines in the country, such as the regulation made pursuant to it, the Endangered Species (Control of International Trade and Traffic) Act.

²⁴⁴ Ladan, M. T. (2012) Review of NESREA Act 2007 and Regulation, 2009 – 2011: A New Dawn in Environmental Compliance and Enforcement in Nigeria. *Environmental Law and Development Journal*. P.116.

other agreements as may from time to time come into force. NESREA is also concerned with the enforcement of guidelines and regulations on sustainable management of the ecosystem, biodiversity conservation and the development of Nigeria's natural resources.²⁴⁵ This provision confers broad powers on NESREA over a wide range of issues and regulations on sustainable management of the ecosystem and biodiversity conservation.

Section 8 of the Act provides that the Agency shall have power to:

(f) Subject to the proviso of the Constitution of the Federal Republic of Nigeria, 1999 and in collaboration with relevant judicial authority establish mobile courts to expeditiously dispense cases of violation and environmental regulation.

(g) Conduct public investigation on pollution and the degree of natural resources, except investigation non oil spillage.

While section 26(1) of the Act, prohibits discharge of harmful substances upon the nation land, it also prohibits some specified environmental unfriendly acts in a forest reserves such as illegal trafficking in timber and bush burning.

In order to provide for effective enforcement of environmental standards, regulation, rules, laws, policies and guidelines by NESREA, the Minister of

²⁴⁵ Ibid.

Environment is empowered to make regulation for the general purposes of carrying out or giving full effects to the functions of the agency of the NESREA Act²⁴⁶. This has led to twenty-four regulations of which the following relates to biodiversity conservation:

- National Environmental (wetlands, River Banks and Lake Shores) Reg. 2011;
- National Environmental (Watershed, Mountainous, Hilly and Catchment Area) Reg. 2011;
- National Environmental (Access to genetic resources and benefit sharing) Regulation, 2011;
- National Environmental (Desertification control and drought mitigation) regulation, 2011;
- National Environmental (Protection of endangered species in International trade) Regulation, 2011.
- National Environmental (Control and bush/forest fire and open burning) Regulation, 2011.
- National Environmental (Coastal and Marine Area Protection) Regulation, 2011;
- National Environmental (Surface and Groundwater quality Control) Regulation, 2011;

²⁴⁶ Ibid, Section 34.

All the above regulations sought to address biodiversity loss and ensuring sustainable use of natural resources. Some of the above regulations would be discussed fully in subsequent chapters dealing with components of biodiversity.

Finally, from the above analysis of the general framework on the conservation and management of biodiversity resources, it can be said that the protection of biodiversity resources is a primary key for sustainable development of biodiversity as a life support system for millions of Nigerians but which is yet to receive recognition and serious consideration in national policy and legislative action. The process of policy review in biodiversity related issues is very slow and given little or no consideration, major policy and strategic national discourse. Biodiversity issues have been relegated into the background and have been mostly the concern of conservationist, scientist and environmentalist despite its significance contribution to the livelihood and commerce in Nigeria.

From the above analysis, we can safely conclude that the agency is responsible for enforcement of environmental standards, regulations, rules, laws, policies and guidelines its authority extends to the enforcement of environmental guidelines and policies, such as the National Policy on the Environment 1999. This is indicative of the importance and relevance of

standards, rules, policies and guidelines on the environment and biodiversity in particular. As observed above the agency is charged with responsibility for the protection and development of the environment, biodiversity conservation and sustainable development of Nigeria's natural resources. The Act and its regulation constitute a new down because in both purpose and contents they are aim at addressing the preponderance of obsolete environmental regulations, in the high rates of non-compliance with environmental regulations and standards.

However, NESREA Act, like its predecessor, was not able to provide a more coherent framework for monitoring compliance with environmental laws and regulations, after nine years of its creation rather, it create more confusion in the governance and management of different sections of the environment more so, with regards to environmental management of the oil and gas sector.²⁴⁷

3.2.5 National Legal Framework on Bio safety

It is a clear fact that biotechnology can be used to conserve biodiversity genetic resources through procedures such as artificial insemination, embryo culture and sperm injection all which are applicable to animal-bio-resources, and micro-propagation, which are used for plant resources as well as cryo

²⁴⁷ Section 7, 8 and 29 of the NESREA Act, expressly excluded the oil and gas sector from the regulated jurisdiction of NESREA.

preservation and in vitro production, which is applicable to both animal and plant resources.²⁴⁸ Notwithstanding the benefits and advantages of biotechnology, its safety with regard to human environment is surrounded in controversy²⁴⁹. It is believed that at the rate at which the world has embarked on the use of genetically engineered crops and seeds, the future of naturally occurring crops might be under threat²⁵⁰.

In recognition of these fears and resentment, the Convention for Biological Diversity in Article 8(g), provides that parties should establish means of regulating and controlling the use and release of genetically modified organisms in line with the CBD, Nigeria has also ratified the Cartagena Protocol on Bio Safety (CPB)²⁵¹. Nigeria accord high priority to successful implementation of CPB and all United Nations (UN) resolutions, the country's commitment is reflected in her effort to domesticate the protocol by signing the Bio Safety bill into law on 20th April, 2015²⁵² and mainstreaming of bio safety into her national programmes with the aim of achieving global biodiversity conservation targets. The Bio Safety Management Act, by implication the country has a now specifically enacted to protect the people and the environment from the anticipated effects of

²⁴⁸ Wicczorek, A. (2003) '*Use of Biotechnology in Agriculture – Benefits and Risks*'. College of Tropical Agriculture and Human Resources (OTAHR) Sat 1 at <http://www.chahr.hawaii.edu/oc/freepub/pdf/BIO-3pdf> accessed on (17/7/2013).

²⁴⁹ Ibid at 4

²⁵⁰ Ibid at 5

²⁵¹ The Cartagena Protocol available at <http://www.biod.org/biosafety/default>

²⁵² National, Bio safety Management Agency Act 14-04-2015.

genetically modified organism, a detailed analysis of the Bio Safety law will be provided under chapter six of this thesis.

Conclusion

The chapter has discussed the general legal frame work and policies on biodiversity conservation, the chapter found out that, despite these policies a comprehensive biodiversity conservation law failed to evolve from them. Environmental policies can only be effectively implemented if they are backed up by enabling legislation. Examination of the policies and regulations also reveals that the policies are fraught with implementation problems, thus, making them unenforceable and not binding.

CHAPTER FOUR

LEGAL FRAMEWORK ON THE CONSERVATION AND MANAGEMENT OF PLANTS AND ANIMAL SPECIES DIVERSITY IN NIGERIA

4.0 Introduction

This chapter seeks to explore the effectiveness of plants and animal conservation laws in Nigeria. The chapter aim at ascertaining the nature and scope of plants and animal conservation in Nigeria: appraise the existing legal and regularly frameworks; identify the challenges in context of implementation and accordingly examine customary and Islamic laws on plant and animal conservation in Nigeria .

4.1 An Appraisal of the Legal Frame work on Conservation and Management of Plants Species Diversity

Over the years, plants have been exploited by individuals, corporate entities and governments as a source of revenue and to boost internal and international trade.²⁵³ From time immemorial, people have also made use of extracts from plants. In Southeast Asia, approximately 6,500 and in India 2,500 plants species are used by traditional healers.²⁵⁴ Here in Nigeria, thousands of plants species are in common use by the different ethnic groups in the country as herbal remedies for various ailments. Indeed, according to the Food and Agricultural Organization of the United Nations, plants based medicine is said to provide primary healthcare to some 75 – 90% of the world population mostly in developing countries where world

²⁵³FAO Corporate Document Repositioning: Forest Reserve Situation Assessment of Nigeria (1998) Forest Department

²⁵⁴ Myers, N.(1984), '*Tropical Forest and Our Future*', (W.W. Norton and Co. New York, p. 339

commercial alternatives are unaffordable or unavailable.²⁵⁵ Forest resources are indeed centre of research for medical science needed for human and animal health. The various species of wild plants are the reposition of genetic and biochemical information. A part from orthodox medicine the wild plant in the environment have contributed to the development of herbal medicine which is a major source of cure for ailment in the developing world²⁵⁶, as pointed above plants resources are of critical importance to our survival. This is because our livelihood is dependent on having free and open access to quest variety of the natural resources for food, fiber, clothes, fuel, medicines, housing materials, the export products that generate foreign exchange all depends on the continued health and productivity of our ecological system, conservation of which is very essential.²⁵⁷

Nigerian plants resources are under serious threat today. It is being destroyed at an alarming rate because of human exploitation arising from opening of communal forestland for oil exploitation, mining, road development, agriculture and stock farming, Pollution, climate change, habitat destruction, funding and staffing for all aspects of biodiversity conservation is dangerously inadequate in Nigeria. These activities pose threats to the continued preservation and control of plants species diversity, unchecked utilization of plants diversity will lead to deforestation, which is a form of disinvestment for future generation, thereby defeating the quest for

²⁵⁵ Food and Agricultural Organization (FAO) (1991) *'Tree for Life'* (FAO World Food Day Publication, Rome 1 p. 28

²⁵⁶ Abegunde, B., et. Al, (2007) *'Environmental Law and Development'*, Petoe Educational Publication Co. Ltd, Ekiti State, p. 138

²⁵⁷ Utuamo, A., (2000) *'Planning Law and Environmental Protection'*. In Omotola, J., (eds) Environmental Law in Nigeria, pp. 16-34

sustainable development. Recent studies show that forests now occupy about 923,767 km² or about 10 million hectares. This is about 10% of Nigerian forest land area and well below FAO's recommended minimum of 25%. Between 1990 and 2005 alone the world lost 3.3% of its forest while Nigeria lost 21%.²⁵⁸ Other threats to conservation of plants diversity in Nigeria include certain economic activities, such as timber trade, illegal felling of trees, expanding urbanization, bush burning, acid rain, overgrazing to mention a few. The threat can be imagined from the list of 484 plants species in 12 families which are now threatened with extinction²⁵⁹, the implication of these losses is that many plants including many potentially valuable species may become extinct before they have even been discovered let alone analyzed on their possible benefit to man.

As these natural forest ecosystem disappear, so do many of the goods and services, like timber, fuel wood, watersheds, charcoal, pharmaceuticals and erosion control and prevention, soil stabilization, food, fruits and nuts etc. which they provide. Ensuring that these goods and services are maintain require both intra and inter generational sustainability in order which sustainable and procure forest reserves resources base can ensure food and environmental security.²⁶⁰ The primary objective of plants conservation is to ensure that these resources are used in ways

²⁵⁸ Ladipo, D., (2010) "The State of Nigeria's Forest" *11 TA Research for Development Review Bulletin*, Issue 4.

²⁵⁹ Federal Environmental Protection Agency (1998), Abuja: Proceedings of the National Train the Trainer Workshop on Environmental Management, p. 167

²⁶⁰ Faleyimu, O. I., and Arowosoge Oge, (2011) 'Status of Forest Policy Implementation in Kaduna State', *Nigeria-Australian Journal of Basic and Allied Science* 5(8): pp. 993-1001.

that do not diminish the variety of genes and species, or destroy important habitat and ecosystem.

4.2 Nature and Scope of Conservation of Plants Species Diversity

There are about 7,895, identified in 338 families and 2,215 genera plants species in Nigeria ranking it eleventh in Africa for biodiversity.

Table 4.1: Inventory of plant species

Group of plants	Families	Genera	Species
Algae	67	281	1335
Lichens	-	14	17
Fungi (mushroom)	26	60	134
Mosses	-	13	16
Liverworts	-	16	6
Pterudophytes	27	64	165
Gymnosperms	2	3	5
Chlomydosperms	2	2	6
Monocotyledons	42	376	1575
Dicotyledons	172	1396	4636
Total	338	2215	7895

Source: National Biodiversity Report Abuja, 2016 – 2020.

The Nigerian moist forest are rich in epiphyte ferns and orchids and contain over 560 species of trees which attain heights of at least 12cm and a growth of 60cm.

These species face real threat of extinction through over-exploitation of most of these commercial tree species.²⁶¹

Table 4.2: Threatened Plant Species and their Uses

Species	Main uses	Status
Milicea excelsia	Timber	Endangered
Diospyros elliotii	Carving	Endangered
Triplochiduiton scleroxylon	Timber	Endangered
Mansoiea altissinia	Timber	Endangered
Masilania acuminate	Chewing stick	Endangered
Garcina manni	Chewing stick	Endangered
Oucunbaca aubrevillei	Trado-medical	Almost extinct
Erythrina senegalensis	Medicine	Endangered
Cassia Nigerians	Medicine	Endangered
Nigella sativa	Medicine	Endangered
Hymenocardia acida	General	Endangered
Kigelia Africana	General	Endangered

Source: Nigeria National Biodiversity Report and Action Plan (2016 – 2020).

Nigeria which once consisted of about 20 percent forest can now boost of less than 10 percent coverage, mostly of the savannah woodland type. The southern rainforest, the source of most Nigerian’s timber today earns only about 2 percent of

²⁶¹ See Federal Government Environmental Protection Agency(1998), Abuja: Proceedings of the National Train the Trainer Workshop on Governmental Management p. 167

her total land area. Deforestation at 350,000 per annum is now racing for ahead of the country afforestation and reforestation efforts, which covers less than 30,000 hc per year.²⁶²

The need for the conservation of the world environment has taken the priority of place in the programme of the various government of the world. Conservation as a concept has moved and grown from the idea of a movement to become a national policy among the countries of the world. Conservation and management of plants resources in Nigeria have a long history which predates the independence era. The concern for our plants resources around the time is predicated on the fact that Nigeria as a developing country is an agrarian society and a source of raw material on the industries in the developed world of Europe. During the colonial period conservation of forestry resources is not a priority, the concept was denominated by political and economic gains of the colonial rulers, laws that restricts economic activities or imposed additional responsibilities on colonial government by way of environmental requirement are considered counterproductive.²⁶³ During that period environmental disputes were not viewed as public matter warranty state intervention but rather treated under tort.

The first legal measure to conserve and manage forest resources in Nigeria was the forestry ordinance of 1901 which established the forestry department and made provision for the conservation of forest resources through the designation of

²⁶² Ibid.

²⁶³ Nnadozi, K. C., (1992), *Pollution Control in Nigeria: The Legal Framework*. Paper presented at Workshop held at Sheraton Hotels and Towers, Ikeja Lagos on 5th – 7th April, p. 2.

some officials as ‘conservators’ with the responsibility of overseeing the forest estate within the territory of the then Northern and Southern protectorates.²⁶⁴ In 1937 another forestry ordinance was promulgated which introduced the establishment of forest reserves in the country and further consolidate the legal framework for conservation under the 1901 ordinance.

The earliest legal strategy for conserving forest and forest product is through the ‘forest reserve’, this is so because the forest reserve are the most effective way of conserving our natural vegetation. The first forest reserve in Nigeria is the Olokemeji Reserve²⁶⁵, established near Ibadan around 1900; this was followed by the establishment of other forest reserves in various parts of what form the present day Nigeria. In this reserve lumbering activities were made illegal, this was followed by Bush Burning Order of 1940, introduced to control bush burning outside reserves. The laws are however archaic and unenforced as there is lack of political will to enforce the existing forestry legislation properly.

At time of independence in 1960, many forest reserves later became game reserve for instance, the Yankari Game Reserve which was opened in 1962 was a forest reserve for some time. There was a sudden shift in concept of conservation in the first decade of Nigeria’s independence from what it was in the colonial era. 1970s saw the development of Nigeria legal regime in response to industrial growth

²⁶⁴ Onokarhoraye, A., (1985), *An Outline of Human Geography*. The Geography and Planning Study Notes, Department of Geography and Planning, University of Benin, p. 25

²⁶⁵ Egboh, E. O., (1979) *Establishment of Government Controlled Resources in Nigeria*, – *Savannah* (8)2.

associated with oil boom, River basins and ministries were created and environmental units were established in some government ministries.

The 1980s and 1990s witnessed the most drastic and optimistic development of environmental law generally in Nigeria, partly owing to Nigeria ratification of or accession to a number of international instruments during this period.

The principal statutes for conservation of plants diversity in the country include among others:

- Constitution of Federal Republic of Nigeria 1999 (as amended)²⁶⁶ National Park Act.²⁶⁷
- Land Use Act.²⁶⁸
- Natural Resources Conservation Act.²⁶⁹
- Environmental Impact Assessment Act.²⁷⁰
- National Environmental Standard and Regulation Enforcement Act.²⁷¹
- National Agricultural Seeds Decree.²⁷²
- Endangered Species (control of Trade and Traffic) Act.²⁷³

²⁶⁶ Section 20, Constitution of Federal Republic of Nigeria 1999.

²⁶⁷ CAP N65, LFN 2004.

²⁶⁸ CAP 202, LFN 2004.

²⁶⁹ CAP 268, LFN 2004.

²⁷⁰ CAP C 12, LFN 2004.

²⁷¹ NESREA Act No. 25 of 2007.

²⁷² No. 12 of 1992.

²⁷³ CAP Eq LFN 2004.

Nigeria has subscribed to multilateral treaties and one bound by customary international environmental law and other soft laws concerning protection and management of plants diversity. The Conventions include:

- United Nations Convention on Biological Diversity.²⁷⁴
- African Convention on the Conservation of Nature and Natural Resources (Algiers 1968).²⁷⁵
- United Nation Convention to Combat Desertification (CCCD).²⁷⁶
- Convention on International Trade in Endangered Species (CITES).²⁷⁷

These laws are supported by an array of national regulation and policies of plants conservation significance, An important addition is the National Environmental Standards and Regulation Enforcement Agency Act (NESREA), The Federal Ministry of Environment, Housing and Urban Development and NESREA Agency are the main institutions responsible for the formulation of policies in relation to plants conservation, monitoring compliance and enforcement respectively their function are support by government institution like the Federal Ministry of Agriculture and Natural Resources, Federal Ministry of Water Resources and Federal Ministry of Science and Technology.

Various projects involving the Federal Government and various international organization and other individual countries have also been embarked upon. The

²⁷⁴ Op.cit

²⁷⁵ Op.cit

²⁷⁶ Op.cit

²⁷⁷ Op.cit

World Bank, the European Economic Community (now the European Union) and the Japanese Government, among others have sponsored or assisted in various afforestation programmes. Other bodies that have given attention to this issue include the Food and Agricultural Organization (FAO), International Board for Plant Genetic Reserves, IGPGR, which has mandate to collect and conserve genetic reserve in the third world, Nigerian Conservation Foundation, (NCF) which sponsors project on environmental education etc.

While plants conservation laws exist in checkmating the effect of deforestation, soil erosion, bush burning and desertification in Nigeria, these laws are seldom applied and enforced. This chapter takes a critical assessment of these laws and the challenges facing the effective enforcement of these laws as it relate bush burning, tree felling, over-grazing and acid rain.

4.3 Conservation and management of Plants Species under Statutory Laws

The role of law in influencing the action of government, multinational cooperation and individuals within the society with a view to protecting the environment and maintaining a balance in human activities cannot be over emphasized. The role of law which is to set standards for acceptable behavior in the society and set sanctions for defaulters can be undertaken through different modes of governance namely – self governance, control and compliance, governance by provision and governance by enabling. This section of the chapter is set to examine critically the laws governing an important aspect of plants conservation and management in Nigeria.

4.3.1 Legal Regime on Bush Burning

The act of bush burning is rampant and predominant in many societies in Nigeria, with serious implications on the environment and health of people affected. Over the years incessant bush burning has resulted in colossal loss of resources, as a result tons of gaseous matters are released into the ecosystem polluting the environment and this results in desertification and deforestation, both of which threaten biodiversity. Thus burning bushes cause the soil to be less stable and erosion is a major concern after a fire. Microbes present in the soil if not killed by the burning fire may not survive in the warmer soil.²⁷⁸

Farmers that aim at benefiting from the boost re-growth after burning tend to subject their grassland to fire every season, thus exposing the surface material layer to destruction. The environmental sustainability of bush burning as a cultural practice has been called into question by many authors.²⁷⁹

Against this practice Katsina State provides for a law to control bush burning in the state, cited as Katsina State Bush Burning control Law.²⁸⁰ The regulation, apply to all arable and unreserved forest with the exception of forest plantation, forest reserves, protected forest and communal forest areas as provided under Section 3 of the Regulation. Sections 4, 7 and 10 of the Regulation established Bush Fire Control Committee in the State, local government and in each district of the

²⁷⁸ Everson, C. S. Veld (1999) *Burning in Different Vegetation Types* (ed) Veld Management in South Africa University of Natal p. 412.

²⁷⁹ Ojima D. S. et. Al. (1994) Long and Short Term Effects of Fire on Nitrogen Cycle in Grass . *Biogeo Chemical Journal* 24: 67-84

²⁸⁰ *Laws of Katsina State of Nigeria* (1991) Chapter 1-54 Vol. I

state. The committee has the power to promote bush fire prevention devices and determines areas within the state which are completely protected against bush burning.

The regulation,²⁸¹ provide that a person who in any unreserved forest causes a bush fire unintentionally commits an offence and shall be liable on conviction to a fine not exceeding the sum of hundred Naira (N100) or to a term of imprisonment not exceeding three months or both.

The Regulation²⁸² also provides that whoever in any unreserved forest starts bush fire without permit outside the burning season commits an offence and shall be liable on conviction to a fine not exceeding the sum of three hundred Naira (N300) or to a term of imprisonment not exceeding six months or both.

The Kaduna State Environmental Protection Authority (KEPA) acting under the Kaduna State Environmental Protection Law has provided for the Kaduna State Environmental Protection (Bush Burning Control) Regulation.²⁸³ Regulation provides that no person shall intentionally set fire in any forest or in any arable land or unreserved forest in the state for the purpose of preparing land for cultivation without a permit issued by the local authority where the land is located. However, the regulation target only intentional burning of land for cultivation while the law does not cover intentional burning for other purposes which alone is a loophole. The regulation is also limited to setting fire on land be it arable or unreserved forest and

²⁸¹ See 14(1)

²⁸² See 14(2)

²⁸³ Law No. 4 of 1998.

not on tree felling by meaning that a farmer may be prosecuted for setting fire on his land contrary to the provision on bush burning but may escape liability for felling a tree on such land.

Further the regulation omits to include corporate offenders; this implies that such offenders cannot be subjected to the law for it will not be possible to lift the veil of corporation to know the principal officers in deserving cases.²⁸⁴ The omission of corporate offenders as possible violators is a legislative oversight the problem of inadequacy of legal provision is here raised, while burning by corporation is usually in magnitude surpasses that of natural person in view of size of farm cultivated by such corporation especially in today Kaduna state where corporate organization like UAC Nigerian Ltd, Cotton and Agricultural Processors Ltd, Premier Seeds Nigerian Ltd, among others in the state engage in large scale farming and may set land on fire intentionally pursuant to the purpose listed in Regulation 1. The omission has connection with the problem of an adhoc law making in the field of environmental protection law in Nigeria²⁸⁵.

At the federal level, the legal framework is the National Environmental (Control of Bush/Forest Fire and Open Burning) Regulation, 2011.²⁸⁶ The purpose is to prevent and minimize the destruction of ecosystem through fire outbreak and burning of any materials that may affect the health of the ecosystem through the emission of hazardous air pollutions.

²⁸⁴ *Yesufu Vs Kupper International N.V.* (1996) 5 NWLR (pt. 446) 17 SC.

²⁸⁵ Usman, A. K., (2012) *Environmental Protection Law and Practice*, Ababa Press, Ibadan, p. 181.

²⁸⁶ S. I. No. 15 Gazette No. 42 Vol. 98 of 6th May, 2011.

This Regulation is aimed at conserving forest resources which is a major component of biodiversity and a major bio-resource for prospecting. According to Regulation 3, no person shall burn any forest or engage in any activity that may cause forest fire except in accordance with the provisions of the regulation which requires permit from the agency to cause fire. Permit is given subject to certain condition which the agency may deem necessary²⁸⁷. Unfortunately, bush burning continues unabated perennially. In many localities this traditional farming method not only destroys the forests but the ecosystem and the bio-resources. The regulations do not however provide any basis for supervision, this compound the challenge of indiscriminate burning which often affects forest resources. This is one of the most flagrantly breached regulation, indiscriminate bush burning is a prevalent practice in Nigeria despite the existence of the above law,

which is honored more in breach than in observance, the law does not reflect the popular sentiment of the people it sought to govern, because it will be ridiculous to require farmers to obtain permit before setting their land on fire. Also, in the absence of environmentally friendly methods (other than composting) for reducing biomass in a plot proposed for farming, the traditional alternative is to set fire to the bush, thereby saving labor and time. The challenges of poverty are serious constraints to the implementation or enforcement of bush burning laws and policies in Nigeria.

²⁸⁷ From the provision of this regulation, it appears that NESREA has a discretionary power to determine conditions subject to which permit can be given. This could create room for corrupt practices.

4.3.2 Legal Regime on Tree Felling

The law makes special provision for creation of forest reserves and protected forest. Under the various forestry laws of the state, a Governor of a state has power to constitute specific forest lands as forest reserve and made for the preservation, regulation, management and control of the forest and forest resources. In Lagos state, the government is obliged to notify the public what constitute land as government forest. By the combined provisions of sections 36, 58, 46 and 49 of the Lagos State Law²⁸⁸, illegal felling of timbers and illegal installation or operation or sawmill as raw materials are prohibited. The local government also is empowered to make rules for the same purpose. Forestry officers or policemen are empowered to seize any forest products which is reasonable suspected to have been unlawfully obtained. It is an offence under the law to set fire or allow fire to spread to any forest which has not been permitted for farming purpose. The Ondo State Forestry Law²⁸⁹ is yet another example, the regulation prohibits felling of timber, illegal installation or operation of sawmill. The offence and penalties provides therein ranges from a fine of N100.00 or six months imprisonment for offences in protected forest to a fine of N10,000 Naira or imprisonment of not less than five years for operating and installing a sawmill.

The forestry law of Kaduna state²⁹⁰, regulates tree felling and pasturing in the state. This law prohibits uprooting, stripping of barks, burning such trees. Section 12(1) and section 22 of the law conferred on the Governor and local authorities

²⁸⁸ Section 5 Forestry Laws of Lagos CAP S.1 of 1994.

²⁸⁹ Ondo State Forestry Law CAP 40 Laws of Ondo State of Nigeria 1978

²⁹⁰ (Cap 59) Laws of Kaduna State, 1991.

respectively to constitute an area into a forest reserve. The following acts are prohibited:²⁹¹ uprooting; burning; digging; cutting or cultivating the land, trespassing, construction of dams, residing or erecting any building etc. The offences above attract only a fine of N200 or imprisonment of 12 months or to both. The above provision actually prohibits the above acts which undermine conservation of plants; the provision of the law should extend to provision of taking precaution to prevent the fire breaking out of control.

However, the law is to be regretted in terms of its limitation to dams construction in forest reserves and not dams constructed outside such reserves, this is because vegetation has to be cleared before dam construction and that actually undermine plants conservation. This actually is a lacuna which needs to be filled in order to focus more on conservation of plants diversity.

Further the regulation provides that; the laws are to be instituted by the chief conservator of forests or in his name.²⁹² But did not say in which court such proceedings are to be instituted. This is an omission that raises the problem of inadequacy of the law. Finally, it can be concluded that in seeking to conserve plants, the various laws referred to do not seek to do this by referencing to biodiversity in terms of diversity of plants species.

²⁹¹ Ibid Section 50

²⁹² Ibid.

On the other hand the Sokoto State Forestry Law²⁹³, provides for the preservation and control of forest in the state. The law makes special provision for the creation of forest reserves and protected forests, the procedure for conserving forest resources has been set forth in the law, as it prohibits illegal felling of timber, illegal installation or operation of sawmills. The offences and penalties provided therein ranges from a fine of 50 pounds or 6 months imprisonment for offences in protected forest and for contravention of any regulation made under this law or the condition of any license or permit issued there under, to a fine of 100 pounds or to one year imprisonment or both. Additional penalty include forfeiture of any forest produce, destruction of any farm or plantation, or confiscation of any farm or cancellation of any license or permit held under this law.

However, the law is narrowed in scope due to lack of provision for grazing reserves and demarcate of grazing reserve areas, and there is no provision prohibiting overgrazing of land in order to assess and control the environmental impact of nomadic pastoralist. Another shortcoming is lack of provision for the establishment of organ or body to formulate both short and long term policies on planned forestry protection, control and management including the whole range of forestry activities.

However, despite the laws appraised above, deforestation still continues at an alarming rate. Many state governments are de reserving their forest²⁹⁴, for example in Kogi state 18,390 hectres of Ajaokute forest reserve, was taken over by Ajaokuta

²⁹³ Sokoto State Forestry Law CAP 44, 1992.

²⁹⁴ See Generally Ayua, I. A. and Ajai, O., (1997) Implementing the Biodiversity Convention: Nigeria and African Perspectives; *Nigerian Institute of Advanced Legal Studies*, Lagos, p. 131.

Steel Development Company. In Kaduna state about 7,420 hectares of forest reserves have been claimed by the Nigerian Defense Academy and the Police Mobile Training School. The socio-economic implication of deforestation is quite alarming, these includes, flood, erosion etc, a revision of the existing forestry laws and policy is urgently needed. The state government must take positive step in that direction because forest resource has been an effective method of conserving natural vegetation.

The Federal Government on the other hand took a giant stride in 1999, in its effort to conserve and manage the forest resources of the country by promulgating the National Park Service Act²⁹⁵, the Act appears to be the most leading legislation in the area of plant conservation. The Act prohibits destruction or collection of plants from the park except where it is for scientific or management purpose.

However, the law in its present form is preoccupied with creating administrative structure and regulations and does not contain any comprehensive and modern legislative rules for protected area management, such as a requirement for management plans, science and research based management etc.

Another laudable legislative measure of the federal government is the enactment of the National Seeds Decree in 1992.²⁹⁶ The Decree set up a council to stimulate the development of dependable seed industry. The council is also to regulate varieties, protect farmers from the sale of poor quality seeds, facilitate the

²⁹⁵ Op .Cit.

²⁹⁶ Op .Cit.

production and marketing of high quality seeds in Nigeria and provide legal backing for official testing, sales, importation, exportation and use of seeds.

The Environmental Impact Assessment Act²⁹⁷, no doubt is another federal law in the right direction, although, it does not explicitly contain an objective to ensure a sustainable forest reservation, it may be assumed that its framework and rules will enable statute implementation to achieve that objective. Under the Act nineteen (19) projects are listed as requiring a mandatory environmental impact assessment, section 62 of the Act provides, to the effect that any person who fails to comply with the provision of the EIA, shall be guilty of an offence and be liable to N200,000 or five years imprisonment. However experience has shown that EIA, is hardly undertaken prior to approval of many projects. *Douglas v Shell Petroleum Development Company Ltd*²⁹⁸ where the plaintiff has instituted an action at FHC, challenging the failure to comply with EIA, the court dismissed his application holding that, the plaintiff had no locus-standing and has shown no prima facie evidence that his personal rights was affected by the defendant's failure to comply with the EIA. One major problem of this law is over-centralization of E.I.A sanctioning process which appears to pose a major stumbling block to proper implementation of the law.

The National Agricultural Lands Development Authority Act²⁹⁹, the Act establishes an authority, inter alia, to prepare and clear land for agricultural use. The

²⁹⁷ Op. Cit

²⁹⁸ (1999) 2 NWLR, p. 466.

²⁹⁹ Op. Cit

most significant shortcoming of the Act is that it omits to explicitly or implicitly require the authority to undertake E.I.A of its projects or activities. More so, it does not give any guidelines on how the conservation of biodiversity is to be ensured in respect of land clearing by NALDA.

The National Environmental Standards and Regulation Enforcement Agency, is currently the major federal body charged with the protection of Nigeria's environment. The federal government, in line with Section 20 of the 1999 constitution establishes the agency as an institute under the supervision of the Federal Ministry of Environment, Housing and Urban Development. The agency is charged with responsibility for the protection and development of the environment biodiversity conservation and sustainable development of Nigeria's natural resources. In order to provide for effective enforcement of environmental standards, regulations, rules, policies and guidelines of NESREA, the Minister of Environment as empowered by the Act has enacted the National Environmental (Soil Erosion and Flood Control) Regulation, 2011.³⁰⁰ The purpose is to protect human life and the environment, minimize losses due to flood and erosion and then effects on vulnerable areas by controlling earth-disturbing activities.

Another Regulation made by the Minister under NESREA includes National Environmental (Desertification Control and Drought Mitigation) Regulation, 2001.³⁰¹ The purpose of which is to provide an effective and pragmatic legal framework for the sustainable use of all areas already affected by desertification and

³⁰⁰ No. 12, Gazette No. 39 Vol. 98 of 2nd May 2011.

³⁰¹ No. 13, Gazette No. 40 Vol. 98 of 3rd May, 2011.

the protection of vulnerable lands. The regulation aims to encourage and ensure sustainable agricultural management practices, promote cooperation with relevant international and non-governmental organization through partnership, knowledge sharing and the domestication of convention like the CBD, and to sustain and expand forest areas and trees cover through conservation, protection, rehabilitation of natural vegetations, tree planting and control of forest exploitation with a view to reversing desertification trend³⁰². By its provision it encourages reforestation, reseedling, afforestation and conservation in order to attain the 25 per cent national forest cover as prescribed by the United Nation Food and Agricultural Organization (FAO)³⁰³.

The Land Use and Planning Laws,³⁰⁴ primarily governs land in Nigeria but it mere concerned with title to land rather than with planning or natural resources conservation. In fact there is no explicit mention of biodiversity or environmental concerns in the Act. The Nigerian Urban and Regional Planning Act,³⁰⁵ has some feeble provision on environmental impact assessment which are in fact not integrated with the Environmental Impact Assessment Act. The planning law does not explicitly articulate for integrating natural resources conservation into planning process. The planning law ought to be able to establish regional land use framework geared towards total and holistic environmental conservation. Suffice to say therefore that the above existing factor will not assure adequate management and conservation of plants diversity in Nigeria.

³⁰² Reg. 2(g)(h)(i)

³⁰³ Reg. 2(8)

³⁰⁴ Op Cit.

³⁰⁵ Op Cit.

4.3.3 Legal Regime on Over-grazing

Livestock population in Nigeria has been estimated to consist of 16 million castles, about 13.5 million sheep, some 26 million goats, approximately 2.2 and 150 million pigs and poultry respectively³⁰⁶. The dry land of Nigeria is said to support much of the country's livestock economy. In the Sudan and Sahel zones, which carry most vast of the livestock population nomadic herdsmen graze their livestock, throughout the areas and are in constantly in search of suitable postures. Additionally pressure is also put on posture resources by livestock from neighboring countries notably Cameroon, Chad and Niger respectively.

Over-grazing by herdsmen is damaging to the natural habitats. This is notably in savannah areas thereby exacerbating the desert encroachment. Herdsmen also actively destroy forest by lobbing branches trees as feds for their cattle and burning forest for early flushing and extension of the postures. Over-grazing causes trampling of the soil, increases erosion and retard re colonization of base areas. This consequently leads to de conservation of plants diversity in the country. One of the challenges of the nomadic pastoralist is that it does not augur well for conservation practice, as the nomads move from one area to another, over-grazing usually occurs during this movement; the animals destroy the vegetation as they trample on it thereby undermining conservation of the plants in the areas.

Over grazing lead to habitat destruction for indigenous species of plants occurring in narrow ecological ranges. The areas devoted to grazing in the country

³⁰⁶ Gadzama, N. M. (1995) *Sustainable Development in the Arid Zone of Nigeria*, Monograph Series No. 1 Centre for Arid Zone Studies, University of Maiduguri Nigeria p. 32

rose from 166,326km² in 1978 to 187,236km² in 1995.³⁰⁷ Semi-arid zones support 90% of the cattle in the country as such the area is subjected to overgrazing.

Some states provide for Grazing Reserves Law. The Sokoto state government enacted a Regulation demarcating some areas in the state as Grazing Reserves.³⁰⁸ The regulation empowers a Commissioner for Agriculture and Natural Resources to take control and management of grazing reserves in the state. The order created a grand total of about 20,000 hectares as grazing reserve within the state.

The Kaduna State Grazing Reserves Regulation³⁰⁹, the law assigns responsibility on the Commissioner or local government authority, power to make rules prescribing persons who may use the grazing reserve, number and type of livestock which may be permitted therein. The law also provides for the issuance of grazing permits to person using the grazing reserves among other rules. Overgrazing with a lot of potential undermining the conservation of plants particularly vegetation destruction; the laws are honored more in their abuse than in their observance as the law is unknown to most people. It is not uncommon today to see traditional Fulani pastoralist coming out of the bush, to hawk along highway in Nigeria to survive the loss of their traditional occupation, thus, the pressure on land

³⁰⁷ *Nigeria First National Biodiversity Report*, July 2006.

³⁰⁸ Sokoto State Legal Notice No. 14 of 1992.

³⁰⁹ Section 33 Grazing Reserve Law (CAP 62) Laws of Kaduna State 1991.

often led to increased incidence of pastoralist-farmer conflicts. The nomadic Fulani are now going even further south in hope of finding grazing areas for their herds.³¹⁰

4.3.4 Legal Regime on Acid-rain

Rain has traditionally been regarded as the harbinger of growth and productivity. However, the rain has taken a new and threatening complexity. Describing the alarming phenomenon in its state of environment report, the United Nations Environmental Programme (UNEP) notes the way in which the rain reacts with sulphur and nitrogen oxides that pollutes the air to produce 'acid rain'. Acid rain is rain that is more acidic than it should be, it is deposition on earth of the dilute solution of acids namely (sulphuric and nitric) with rainfall. Sulphur dioxide mainly comes from coal and oil power generating industries, industrial builders and smelters. Oxides of nitrogen come from automobile exhaust, high temperature, combustion engine, and chemical fertilizer factories; burning fossil fuel is the main source of man-made nitrogen, the second key elements in acid rain³¹¹.

Acid rain is a global environmental problem besides acid rain and the air pollution that it causes, it can severely damage ecosystems; it directly affects trees and other plants which are important to ecosystem. Trees affected by acid rain will take centuries or even millennium to achieve the pre disturbance level of productivity structure and function .As a result of climate change forests are particularly vulnerable to climate change because even small changes in temperature

³¹⁰ IRIN News Nigeria: Desert march, Fuel Tension. Retrieved from <http://www.irin.news.aspx> 20-2-2012.

³¹¹ Kumar, A., (2008) '*Textbook of Environmental Science*' (Published by APH Publishing Corporation, New Delhi, p. 60.

and precipitation can have significant effects on forest growth. It has been shown that an increase of 1 degree change in the temperature can modify the function and composition of forests.³¹² Climate change may force species of animals to migrate or shift their ranges far faster than they are able to. Some species may die off as a result.

The international legal regime on acid rain starts at the Stockholm Conference Sweden³¹³. The United Nations Conference on Human Environment (UNCHE) held in Stockholm in 1972, marked the advent of new era in environmental consciousness. This conference resulted in an international agreement to endeavor to reduce acid pollution to the environment. This conference took place when the first report of serious acid rain damage to trees in the West Germany was becoming common public knowledge. Also 'Pea Souper' incidence in 1952 in London is a testimony of wind lethal acidification of the atmosphere can be, in just one day 4,000 people died as a result of acidification of the atmosphere by sulphur dioxide and nitrogen oxide, the death as a result of inhalation of water droplets from the atmosphere that was as acidic as the water in a car battery. In March 1983 the Long Range Transboundary Air Pollution Convention to which Nigeria is a signatory accepted an obligation to reduce emission levels of all active substances contributing to global warming.³¹⁴

³¹² UNEP Climate Change Information Sheets accessed online at <http://www.unep.org/dedddocs/info/ccinfor/kit/infor/kit-2000-pdf>

³¹³ Hardl. G. (1992) 'Declaration of the United Nations Conference on Human Environment Stockholm Declaration 1972 and the RIO Declaration on the Environment and Development', at <http://untreaty.un.org/cod/pdf/ha> (accessed on 6/10/2012).

³¹⁴ Pickering, K. T. and Beekwith, S., (1994) "An Introduction to Global Environmental Issues" (1st Ed), Rutledge, London, p. 128.

The NESREA³¹⁵ has provided regulation of atmospheric pollutants thus:

The agency may make regulation setting specification and standard to protect and enhance the quality of Nigeria's resources as to promote the public health or welfare and normal development and productive capacity of the nation human, animal, marine and plant life, and include in particular:

- a) Minimize essential air quality standards for human, animal, marine or plants health.
- b) The control of concentration of substance in the air which separately or in combination is likely to result in damage or deteriorating of properly, human, animal, marine or plant health.
- c) Control of atmospheric pollution originating from energy sources, including that produced by aircraft and other self propelled vehicles, industries, factories and power generating stations or facilities.

The sources of atmospheric pollution enumerated by Section 20 of NESREA Act, covers the area of acid rain which is mainly caused by the emission of substances (sulphur dioxide and nitrogen dioxide being active ingredients contributing to global warming).

The NEAREA Act, by sections 20(3) and 20(4) makes it a criminal offence punishable with fine of two hundred thousand naira (N200,000.00) or imprisonment for a term not exceeding one year or both for individuals while for a body corporate

³¹⁵ Section 20 *NEAREA Act*, 2007.

it is fine not exceeding two million Naira (N2,000,000.00). However, the Regulation failed to include provision where in the corporation may be required to rehabilitate the environmental media damaged or pay compensation to the victims of the pollution which is a serious oversight.

However, the need for a comprehensive legislation on emission of atmospheric pollutants from all sources can hardly be over emphasized regards being had to their deleterious effect on human and animal welfare and plant health herein lies therefore the need for effective legal regime on air pollution in order to reduce the effect and dangers of acid rain. Nigeria in particular suffers the disappearance of rain forest, the so-called lungs of the earth, in the tropics: the loss of plants species and changes in rain pattern as a result of acid rain.

4.4 An Appraisal of International Conventions Relevant to Plants Conservation and Management

The threat to global ecosystem by human activities, and the recognition that the solution to environmental problems required international collaboration led Nigeria to be signatory to a number of international convention and agreements related to biodiversity and the environment, but due largely to the absence of an international framework for harmonizing the different sectors of biodiversity initiative, that is through appropriate national or domestic legislation, there have been problems with enforcement and implementation. Though there has been serious effort to review and reconcile all existing Regulations on biodiversity with

the objectives of developing general rules on subject. Some of the major convention on plants conservation ratified by the country includes:

- i) United Nations Convention on Biological Diversity³¹⁶: In recognition of the urgency of tackling the problems associated with biodiversity conservation worldwide. The governing Council of the United Nations Environmental Programme (UNEP) in 1987 and 1989 convened two adhoc working groups of biodiversity experts to harmonize existing conventions relating to biodiversity, and to prepare an international level document for conservation and sustainable use of biodiversity. This document becomes the CBD, which was unveiled at the Earth Summit in Rio de Janeiro Brazil, in June 1992. Nigeria ratified the convention on 29/8/1994, whose principal objectives are the conservation of biodiversity and sustainable use of its components. In this regards, Nigeria Biodiversity Study has been undertaken with objective of providing baseline information on the country biodiversity resources and identifying a number of measures to be initiated to ensure conservation and sustainable use of nation bio resources. In its effect to implement the biodiversity conservation programmes the country has evolved collaboration with research projects between forestry communities and counterpart department in various universities, research institute and some environmental NGOs. Nigeria by confirming to Article 6 of the convention on CBD has,

³¹⁶ Ratified on 29/8/1994

prepared national strategies, plans and programmes for management of its plants resources.

- ii) The Convention on International Trade in Endangered Species of Wild Fauna and Flora 1975³¹⁷ otherwise called (CITES): This convention provides the primary international control structure for trade in wildlife products. It focuses on the identification of endangered plants and animal species and their withdrawal from world market through a listing process. Nigeria ratified this instrument on 9/5/1974, the instrument has significantly influenced Forestry Laws in Nigeria, and the country has ingrained the proscription of trade in endangered species of flora in her domestic legislation

- iii) African Convention on the Conservation of Nature and Natural Resources³¹⁸: This Convention was signed in Algiers on 15 September 1968 and came into force on 7th March 1969. It enjoined parties to accord special protection to plants species threatened with extinction, or which may become so, and to the habitat necessary for their survival and establishes conservation areas. Nigeria become party to the convention on 7/5/1974 and establishes categories of conservation areas based on definition set out by the convention.

³¹⁷ Ratified on 09/05/1974

³¹⁸ Known as Algiers Convention signed in 1968 in Algiers.
Revised African Convention on Conservation of Nature and Natural Resources. Date of Adoption, March 07, 2017

iv) United Nations Framework Convention on Climate Change (UNFCCC)³¹⁹.

The convention was adopted in 1992 and entered into force in 1994. Its main objective is to stabilize greenhouse gas concentration in the atmosphere at a level that would prevent dangerous interference with the climate system; such a level should be achieved within a time-frame sufficient enough to allow ecosystem to adapt naturally to climate change. The above international treaties and conventions are to set standard to individual states and to maintain best standard globally. It is expected that all the signatories to the convention should comply with principle in law.

v) United Nation Convention Converting Desertification (UNCCD)

Obliges countries to strengthened relevant legacies to enact new laws and to establish long – term policies, but is silent on the specific content and form of such legislation and policy. It also does not promote bilateral and multilateral arrangement in linking donors with local entities. This lack of support constitute one of the reason of the failure to affect the states to adapt relevant legislations.

The environmental challenges of drought and desertification is affecting the Nigerian states of Sokoto, Jigawa, Katsina, Borno. The vegetation is gradually slightly from grasses, bushes and sporadic trees to extensive areas of sand.

³¹⁹ Adopted in May 9th, 1992.

Shelter belt programme either wholly or shortly funded by bilateral or multilateral aid agencies.³²⁰ It National ecological fund, instituted in 1989 and action by presidency to assist disaster prone areas, and to alleviate challenges related to soil erosion, flooding, oil spillage, desertification and pollution related incidence, has been enmeshed in controversies ranging from misappropriation or diversification to embezzlement.³²¹

Nigeria inability to deliver in its UNCCD obligation had a consequential opportunity cost, as a result of which Nigeria has been designated a food – insecure country due to the poor performance of its agricultural sector.³²²

From the above discussion of various International Treaties and convention relating to conservation of plants species ratified by Nigeria, however, remain problem or obstacle to the protection of these species through the instrumentally of these international treaties. International treaties and protocols though ratified by the country, have not been given practical effect; this is largely owing to Section 12(1) of Nigeria 1999 Constitution, which requires international treaties to be domesticated before acquiring the force of law, this hinder enforceability of international instruments.

Nigeria have used vast number of legal policy tools to implement their international biodiversity obligations, for instance the importance of in situ

³²⁰ The European Community and The World Bank granted Nigeria US90 million aid and 7 million as a loan to assist its environmental programme

³²¹ Embezzlement of fund in a widespread phenomena in nigeria

³²² Eme, O. (2009) *Oil Resources Management and Food Insecurity in Nigeria*. A paper proposed for presentation at the European reputation n development ERD. Inf. Accra, Ghana, 21 -23- may

conservation measures highlighted in the CBD has been acknowledged by Nigeria which have included provisions for institutional conservation measures in the areas of plants protection and pollution control. Nigeria has put significant emphasis on explicit institution conservation measures in the realm of forest conservation.

The domestication of international conventions through national laws are important steps towards effective management of plants resources in Nigeria but the major shortcoming is with the national laws seeking to implement international instrument usually follow the priorities set out in these instruments without matching them to local priorities and needs³²³ Nigeria requires the community to view biodiversity management as part of holistic regime of laws and policies dealing with basic food needs, health and energy of its population. Nigeria should go beyond the insufficiencies of the international legal framework to take care of their own needs and priorities.

4.5 Constraints against Conservation of Plants Species Diversity

In Nigeria various factors are obstructing the effective implementation of conservation laws and policies, some of these factors as observed above include:

- 1) As far as this discourse is concern, while acknowledging the role of Nigeria constitution³²⁴, on environmental protection, being the supreme law of the land, it is empathetic that success of Nigerian effort to sustainably use, control and manage its environment depends on developing a target oriented environmental

³²³ Patricia K. M. and Philippe, C., (2000) *Biological Diversity Management in Africa: Legal and Policy Perspective in Round-up* to WSSD, REC IEL 11(1) pg. 50

³²⁴ Section 20, Constitution of FRN, 1999 as amended.

legislative framework. The Nigerian constitution merely provides for non justiciable environmental objective, unlike equivalent provisions under the South African constitution³²⁵ in which environmental rights are binding and legally enforceable by aggrieved parties.

The problem of lack of adequate data on the status of plants resources and the extent of degradation in the country³²⁶. This has made it difficult to design adequate programmes for conservation in the country, the Nigerian biodiversity Reports takes time before it is reviewed. The few programmes and activities aimed at achieving the objectives are not well designed or organized. For instance, the tree planting campaigns are not properly coordinated nationally. The situation is complicated by the problem of discontinuity in commitment to the policy. The rapid turnover of political leadership in the country has resulted in varying degrees of commitment to the implementation of programmes in case of the tree planting campaign, while it was mostly neglected by some regimes, others made half-hearted attempt to reviving or promoting it. Also programmes for reforestation of marginal lands are sometimes used as political strategies. Priorities are seldom given to areas where urgent actions are needed since they are often used to gain political advantage.

2) Another problem is the uncoordinated land use policy. National forests are being destroyed by other forms of land use, like agriculture, grazing and construction activities as a result of rapid urbanization leading to desertification and

³²⁵ See Article 24(1), Constitution of the Republic of South Africa 1996.

³²⁶ FAO, *Country Report: Nigeria Forestry Work Study for Africa (FOSA) 2000*
<http://www.fao.org/docrep/004/abs92ehtm>

degradation of the environment. There is evidence of land converted to agriculture in some forest reserves without any serious efforts by the authorities to stop the trend³²⁷. Moreover, the institution for forest and biodiversity management at both the federal and state levels are coordinated through the national council of environment made up of the Federal Ministry of Environment and State commissions of environment. There is however, no single government agency solely devoted to biodiversity conservation in the country.

- 3) In the area of manpower, the country lacks an adequate supply of well-trained foresters, forest biologist and other conservation experts capable of successfully managing the country's forest resources³²⁸. Protected areas lack adequate staff, training and equipment; this is the same especially in areas protected by state government. For example, Meduna et. al,³²⁹ listed inadequate staffing, lack of equipment and poor remuneration of staff as some of the management problems experienced in the Kainji Lake National Park.³³⁰
- 4) Another important factor is the high poverty level in the country, many forestry laws are difficult to enforce because of high level of poverty in the country. A lot of people in both rural and urban areas depend on firewood and charcoal for cooking.³³¹ Thus, the local trade in firewood and charcoal continue to thrive the

³²⁷ FAO 2000, USAID/Nigeria 2008.

³²⁸ WSS Nigeria(2010): Work Conservation Society (WSC) www.wsc.org/wherewework/africa

³²⁹ Meduna, A. J., et. al, (2009) 'Biodiversity Conservation Problem and their implicate non Ecotourism in Kainji Lake National Park', *Nigerian Journal of Sustainable Development in Africa*, Vol. 4 No. 59

³³⁰ Moses, Mahumuze (2013) factors affecting the success of conserving Biodiversity in national parks. A review from Africa. *International journal of biodiversity*. Vol.2. at <http://dx.101.org/10.1155>

³³¹ *The Nation Newspaper*: Kerosene Price Like: We Don't Cook Anymore! Kerosene at 250 per litre. By Gboyega Alaka. On Aug – 21 – 2016

problem of increasing food and fuel prices which force more people to depend on forest resources for survival. Further population living around the forest are generally poor such community have depended on forest and would continue to do, unless an alternative is provided by government.

All said and done, the problem of seeking to conserve biodiversity of plants in rural Nigeria where many people rely on wood fuel for energy generation is a herculean task. Kerosene and cooking gas where available carry prohibitive prices which many rural and poor urban people cannot afford. For this mass of people, the only fuel available is firewood. However, such exploitation should not over strip the regenerative face of such plants. The exploitation that leads to reduction in plants biodiversity is exploitation for commercial purposes. This type of exploitation is mainly by multinational and Nigerian logging companies. Individual loggers who crash into our forest with their chain saws whirring. These chain saws are to the forest what an army of locust is to field of grains: they lay bare the forest in a matter of days. It is against these commercial exploiters that the law on biodiversity conservation of plants species must be vigorously enforced, not on small time firewood cutter.

Further another constraint is corruption among political office holders and implementing officials. Funds meant for conservation and programme such as desertification and erosions control are often diverted to other uses which are often personal, many programmes are eventually joined into avenues for

fraudulent practices, very negligible achievements are often recorded as pointed above.

The viability of traditional parks approach and the laws protecting them is challenged by the fact that these parks do not enhanced the quality of life of the rural dwellers in terms of providing them with tangible economic benefits.

Another dimension of the problems relates to inadequacies in plants conservation legislation. As observed that a number of legislations, mostly outdated and adhoc in nature exist in our statute books, most of these laws are not in conformity with present development trends. Most of them were drafted under the regional government arrangement (Northern, Western and Eastern Administrative Regions) which still subsists till today, except for some few states for example Cross River, Kebbi, Lagos that have enacted new legislation. A prominent feature of these legislation is that the states laws are largely modification of the regional laws, which were in turn modification of the 1938 forestry laws.

Another legal impediment clogging the wheel of effective plants protection in Nigeria is the unenforceability of international convention. Regrettably enough, some of the treaties have not been domesticated by Nigeria given the provision of Section 12 of the 1999 Nigeria Constitution.

4.6 Customary Laws on Plants Conservation

The discussion on the traditional ways of conserving and protecting our environment will only be meaningful by identifying the traditional environmental problems that have been with us from the colonial days, some of these problems arose from our economic and social activities, they include our agricultural practices such as bush burning for farming, the up-rooting of palm trees for palm wine tapping; felling of timber for building construction, mining activities and grazing by animals to mention a few. At an international level, the integration of traditional knowledge in biodiversity policy has repeatedly being advocated. IUCN the world conservation union is a traditional leader of this international debate. It found it echoes in Rio's Agenda 21 and the Johanesburge plan of implementation. Also the CBD initiated a debate and action on the issues related to the wider application of indigenous and traditional knowledge beyond the local communities. All these calls driven by the idea that indigenous knowledge is useful and valuable in natural resources management and that consequently, its wider application would be of benefit to the entire world.

This part of the chapter assesses the role that customary law can play in conservation and management of natural resources especially forest resources in different parts of Nigeria. The stronghold of customary principles rests wholly on

the ascription of psychic powers to any part of natural resources as the abode of the god and goddesses of the land and the protection of these bodies of the gods/goddesses. The protection of the abode, from entrance, utilization and exploitation overtly or covertly encourage conservation and management of natural resources. The forbidden areas associated with worship contribute to bio-conservation.

Cultural policy had also helped in conservation of some plant species. Some cultures forbid the cutting down of certain tree species, for example, an Iroko tree, *calorophone excelsa*, was never cut by the Binis. It was believed to protect the Bini Kingdom against witches and wizards. Also observed that trees like *parkia biglobosa*, *prosopis Africana*, *irvingis gabonansis* etc were highly protected in many parts of the country particularly in Northern Nigeria due to cultural beliefs and tradition³³².

The traditional or customary method of conserving and protecting the environment is by designing some forest areas as prohibited areas for farming and hunting. These types of forest lands are common in the Southern part of the country. By this practice; the forest land retains its fertility and serves as natural habitat for different species of animals. Some of these forests are used as sports for cultural festivals. In the western communities, there are various categories of forest reservation, the Igbo Igbale' is a forest where masquerades appear and disappear at the end of the Egungun festival; some of these forests are also used for the burial of

³³² Gundu, E. G. and Adis, J. E. (2014) 'Conservation Methods of Endangered Species'. *Journal of Research in Forestry, Wildlife and Environment*, Vol. 6 No. 2, Sep-2014

people who died in circumstances regarded as taboo in the society.³³³ The taboos and beliefs have legal backing in the rules of the communities which are strong enough to make people obey the religious and cultural regulation.

Felling or burning of trees in such forest is prohibited by relevant customary laws. Such was the basis of the decision in the case of, the Bale of Idona v Abiodun Koye³³⁴: the defendant was alleged to have entered into the sacred grove and cut down some trees, he was sued before a native court under native law and custom of Igun, the court ordered him to leave and further forbade him from further felling of more trees in the grove.

In some forest, the selling of certain wood is prohibited. In Badagry there are at least seven trees which are prohibited from being cut down³³⁵. There are forests which women are prohibited from entering; women being normally wood cutters in the country side, the prohibition by the custom from entering a given forest will serve the end of conservation of such forest. In Ijebu, the Ageo festivals enjoin the total protection of a large forest ecosystem by the community where the festival is observed.³³⁶ Oro festivals also ensure that large tracts of forest are protected where intimation for the festival are initiated annually.³³⁷

³³³ Abegunde, A., et. al., (2007) '*Environmental Law and Development*', Petoe Education Publishers Co. Ltd, Ekiti State, p. 24.

³³⁴ (Unreported) Ilugun Native Court 85/1956.

³³⁵ These Trees are Igi Ajura, Igi Akoko, Igi Safsaf, Igi Oru, Igi Maghu, Igi Mongo and Igi Kaefi.

³³⁶ Ajomo and Adewale, O., (1994) '*Environmental Law and Sustainable Development in Nigeria*' NIALS, Lagos, p. 65

³³⁷ Ibid.

It was stated also by Ojo³³⁸ that, “there are different rules of customary laws relevant to environmental protection for example; there is the Yoruba customary law on the sanctity of Igbooro (forest of shrines) in numerous sacred groves in the south-south of Nigeria. Some of these traditional beliefs and practices are still in existence, and are being observed in the rural areas. Some of the sacred groves are very rich in biodiversity and its components and relatively undisturbed³³⁹ .

It was reveal that in most of these rural communities in Nigeria, due to high level of illiteracy, the degree of legal awareness is low³⁴⁰, thus communities are not aware of statutory laws generally and environmental law in particular, hence forest managed by communities under native law and custom has lower deforestation rates than those enjoying legal protection, the difference was even greater where the communities were indigenous groups, this is so because the customary rules of conservation is known by heart by virtually every body and breach of which attracts instance severe social consequences such as ostracism, which provoke immediate awe in the minds of the natives. However, these traditional beliefs and practices which tends to conserve these resources have themselves been under severe threats of extinction in recent times as they lack no legal structure upon which they can be implemented.³⁴¹

³³⁸ Ojo, G. U. and Gaskiya, J., (2003) ‘Environmental Law in Nigeria: A Critical Review (Benin: ERA)’. *Federal Ministry of Environment, p. 27*

³³⁹ Osemeobo G.J. (2013) ‘Back to Traditional Taboos in Biodiversity Conservation in Nigeria’ *International Journal of Agricultural Science* Vol. 3 (1), pp.351-356 at 351.

³⁴⁰ Op cit.

³⁴¹ Osemeobo .G.J.(2013) ‘Back to Traditional Taboos in Biodiversity Conservation in Nigeria’ (2013) *International Journal of Agricultural Sciences* Vol.3.(1)p.352.

Therefore it becomes necessary to understand and know how rural communities control and manage the renewable and non-renewable natural resources, knowledge of customary rules on conservation of plants diversity is valuable for the purpose of conservation and management of biodiversity in Nigeria. From the above discussion it become necessary to appreciate the benefit of customary law on conservation of plants species diversity as pointed out by Oyelowo:

“Reverence for all life is fundamental to many religion and moral system. Even in today’s preliminary secular society, the uniqueness and inherent value of life are deeply felt by many people”.³⁴²

It has been suggested that incorporating cultural norms and taboos into conservation programmes may provide incentives to communities to conserve their natural resources. The convention on biodiversity to which Nigeria is a party³⁴³ underscores the need for nations to respect, preserve, maintain and promote the wider use of the knowledge, innovation and practiced of local communities and as far as possible encourage traditional and cultural practices, that are compatible with conservation and sustainable use of natural resources conservationist all over the world have recognize the effectiveness and efficacy of ancient conservation rules and practices.

³⁴² Oyelowo, O. J., (2007) *Plants Diversity Conservation Through Traditional Knowledge in Osun Osogbo* World Heritage Sites, Nigeria MF Thesis, University of Agriculture, Abeakuta, Nigeria.

³⁴³ Op. cit

Cultural and traditional plants conservation methods are still relevant, since they cover the broadest range of society, and are particularly useful in less-developed areas, where the majority of population lack fundamental education and because of the tendency to downplay the critical link between traditional and scientific conservation approaches, most conservation initiatives by government in Nigeria has not been too effective.

It is therefore the considered opinion of the research that beyond the statutory legal regime on conservation of plants diversity, the country need a kind of hybrid model of conservation and management of natural resources which harmonise both traditional and modern conservation practice which in the considered view of the work would redress the apparent imbalances in environmental governance on conservation of natural resources in Nigeria.

4.7 Islamic Rules on Plants Conservation

Islam have explicitly taken a position in relation to issues of environmental protection, conservatory teaching of Qur'an and Sunnah declared and preached by early Muslims over 1400 years ago contain a components of environmental education and conservation³⁴⁴. Muslims are urge as their religious duty to protect the environment and respect its different elements .Therefore the existing religious tools and channel for conservation should be seriously considered.

³⁴⁴ Manzoor, S. P., (1998), *Environment and Values: The Islamic Perspectives*, 169. In Ziauddin, S. (Ed), *The Touch of Mids. Science, Values and Environment*, Suban Jayo Publication p. 150.

This work attempts to create a potential guideline to promote conservation of natural resources through sustainable development from an Islamic perspective to compliment the western philosophy of conservation in Nigeria. The Islamic foundation for an ecological ethics and moral principles rest firmly on Al-Qur'an and Hadith (statement or action of Prophet Muhammad) (PBUH) where the notion as Khalifah (Vicegerent) and Amanah (trusteeship) shows communal obligation to the environment. Islamic traditions and values could provide very effective and comprehensive answers and could be used as a tool to address the current state of nature.

As nature belongs to God, it has been given to man merely as a trust and man's right to dominate over nature comes with conditions to protect it and use its resources sustainably. Privilege to utilize natural resources was given to human on a guardianships basis, which basically means the right to use another person property on the understanding that what is entrusted will not be damaged, destroyed or wasted. The Prophet also obtains his companion from wasting any element from nature, even ablution using the running water of a stream.

According to Islamic law, the basic element of nature such as land, water, forest and light were considered to be the common property of all, not just for human beings, but all living things. The Qur'an and Hadith frequently call to preserve equilibrium or balance, to be moderate in everything, and not to seriously disturb the order in nature:

And the firmament has he raised high, and
he has set up the balance (of justice), in
order that ye may not transgress (die)

balance. So established weight with justice
and fill not short in the balance.³⁴⁵

The Quran guides the Muslims in maintaining a balanced natural environment, as it is a great favour bestowed on human beings by Allah Al-mighty:

‘Who hath appointed the earth a resting place for you, and the sky a canopy and caused water to pour down from the sky, thereby producing fruits as food for you ... (Al-Baqrah: 22).

The above verse shows that Allah the Most Merciful has made this universe subservient to man and taught man the ways of benefiting from it for his need. At another instance Allah Al-mighty said:

And when he turned away (from three) his effort in the land is to make mischief therein and to destroy the crops and the cattle; and Allah love not mischief’
Al-Baqarah: 2-205.

This yet shows that man is responsible for reaching mischief in the universe ‘at various instance, human, due to over exploitation of natural resources, have created complex problems for themselves such as pollution, deforestation, climate change and extinction of different species etc.

In addition to this the Qur’an repeatedly warns mankind not to cause destruction on earth:

³⁴⁵ Interpretation of the meanings of Noble Qur’an 55:7-9 (M.T .AL-Hilali and M.M.Khan Trans) Darrussalam Publishers.

And do not mischief on the earth, after it has been set in order, and invoke Him with fear and hope, surely Allah's mercy is (ever) near unto the good-doers.³⁴⁶

And defraud not people by reducing their things, no do evil, making corruption and mischief in the land.³⁴⁷

Protecting both the plants diversity and its fragile environment on which we all depend ought to be the urgent tasks of any God-fearing being.

There is none amongst the Muslims who plants a tree or sows seeds, and then a bird, or a person or an animal eats from it, but is regarded as a charitable gift for him.³⁴⁸

In another it says that:

The world is sweet and green (alluring) and verily God is going to install you as Vicegerent in it, in order to see how you act.³⁴⁹

The Holy Prophet (PBUH) was the first to establish environmentally protected area in which felling of trees and killing of animals was prohibited. He declared an area of 20km out of each section of Al-Madina al-Munawwarah as a

³⁴⁶ Ibid Qur'an Al-Araf (7:183).

³⁴⁷ Ibid Qur'an Ash-Shuara (26:183).

³⁴⁸ Hadith Books (Sahih al Bukhari ,Sahih Muslim ,Sunani Abu Dawood. [http://www. Search truth.. com/hadith . books.php](http://www.Searchtruth.com/hadith_books.php).

³⁴⁹ Ibid . Muslim – Kitabal al-Riqaq (Chapter 36).

protected area and prohibited cutting of trees and branches except what was required for driving camels.

The Holy Prophet (PBUH) said:

“I declare Medina as a sanctuary, and like Makkah, the area in between it two mountains shall be protected area, it trees shall not be cut, except the extent that is needed to drive camels”³⁵⁰

Prophet Muhammad (SAW) said: If any one cuts down a tree of the desert, Allah will direct his head into Hell-fire³⁵¹. What is meant by this Hadith was clarified by Abu Dawood: “whoever cuts a tree in a dessert that travellers or cattle use for shade, without a reason will be punished by Allah. The Prophet (SAW) also encouraged planting in several Hadith; whoever plants a seedling, earns a reward, whoever any human or any Allah’s creature eats from it.

According to Islam, the relationship between humankind and environment evolves living in harmony and enjoy natural beauty of the earth. Allah has pointed to human the beauty and important of plants where He said:

It is He who sends down water (rain) from the sky and with it we bring forth vegetation of all kinds, and out of it we bring forth green stalks, from which we bring forth thick clustered grain. And out of the date-palm and it spath forth cluster of dates hanging low and near and gardens of grapes, olives and pomegranates, each

³⁵⁰ Ibid Sahih Bukhari, Kitab al-Itisan bi Kitab was sunnah. Hadith No. 2791.

³⁵¹ Ibid Hadith (Abu Dawood and Bayhaqi).

similar (in kind) yet different (in variety and taste). Look at their fruits when they begin to bear, and the ripeness thereof. Verily in these things there are signs for people who believe.³⁵²

Islam prohibits all sorts of corruption and Muslims are urged to take care of the environment and as we benefit from it, we have to remember the right of others. All these Hadith demonstrate the importance of the preservation of the component of the environment and of safeguarding the individual justice. The approach of using Al-Qur'an and the Hadith as a conservational tool in Muslim dominated areas of the country should be considered of paramount importance as Islam has been regarded as a way of life (Ad-dean) and will likely be accepted by many. It is thus the view of this study that the compilation, accurate translation, and application of the Hadith and Qur'an from a conservation biodiversity perspective should be greatly encouraged and spearheaded by the religious leaders, higher education centers, joining forces with other related government agencies that manages natural resources in Nigeria.

It is therefore advocated that injecting moral and ethical values and stewardship in conservation of plants resources from an Islamic perspective would encourage the younger generation to view sustainable use and development from broader viewpoint not just on ecological needs. Islam in ecology is certainly not a new concept, but many amount to be the few attempt to identify the core Islamic

³⁵² Op.cit Qur'an (6:99).

principles related to conservation of biodiversity and how they could be applied in preventing or protecting environmental impacts and enhancing positive impacts.³⁵³

There is a high potential in achieving high standard of conservation and management of natural resources if we adhere to the fundamental principles of Islam in Nigeria. Today, the increase in the world's population exerted tremendous pressure on natural resources as the recent living planet report 2014 by WWT confirm that humanity's demand on the planet is 50 per cent more than what nature can renew, meaning it will take 1.5 earths to produce the resources necessary to support our current ecological footprint³⁵⁴. If we implement Islamic principles in our daily lives and make our consumption patterns sustainable, we can easily maintain a balance between our resources and needs. Consequently, this will help to alleviate food and water scarcity which are some of the major issues the world faces and will be in a position to lead a sustainable life where humans live in harmony with nature. The protection, conservation and development of environment and natural resources is a mandatory religious duty to which every Muslim should be committed. This commitment emanates from the individual's responsibility before God to protect himself and his community of the soil, air and water. Therefore there is an urgent need to synergize Islamic concepts in conservation with the existing governance system. It is the believed of this research work that if Islamic concepts are genuinely preached and amalgamated into the existing implementation and governance

³⁵³ Ramadan, T., (2010) *Radical Reform: Islamic Ethics and Liberation Oxford*: Oxford University Press.

³⁵⁴ Sayed, M. (2015), 'Conservation and Islam'. *The Friday Times Pakistan Weekly paper issue: 26 June*
<http://www.the.Friday.Times.con/ttl/conservation&Islam/ june26,2015>

structure in conservation of natural resources, the future of biodiversity in the state, where Muslims are in predominant will be bright.

Examination of the existing laws and policies on conservation of plants diversity in this chapter reveals that the existing legal regime are inadequate and ineffective, the imbalance in the laws, budget and policies are inadequate as second class conservation – citizen, consequent upon which plants lose ground daily to sprawl, pollution, invasive exotic organism, and most tragically, to neglect despite their enormous values observed in the chapter. The chapter also examined customary and Islamic laws on conservation of plants species.

4.8 An Appraisal of the Legal Framework on Conservation and Management of Animal Species Diversity in Nigeria

Human beings have profitably utilized several kinds of animal species for tradition, power generation, research, medicine, sports, tourism and entertainment. Despite all the above innumerable pleasure mankind derive from wildlife resources, men's inhumanity to animal species remain unceasing and unabated. Thus, these human activities, such as environmental pollution, hunting and poaching, bush burning and desertification are threatening their existence. The rate of disappearance of entire species of both plants and animals across planet has been so high in the last centuries.³⁵⁵ The problem confronting successful conservation of wild population in the country stem from two reasons; the continuous destruction of loss of wildlife habitats as a result of the ever increasing human population and rampant and

¹ Ijeomah et al., (2012), 'Analysis of Poaching Activities in Kainji Lake National Park of Nigeria'. *Environmental and Natural Resources Research*, 3(1). P.51

unrestricted hunting and poaching.³⁵⁶ Like with plant conservation, a legal treatise on animal conservation start with Nigerian customary law through common law to statutory law. Nigeria has put in place legal and institutional framework to protect her animal species diversity from extinction through enactment of municipal laws on environment, Wild Animals, Sea Fisheries, National Parks and Environmental Impact Assessment agencies. However, the laws in many aspects remain ineffective in pursuit of these goals due to struggles with implementation, enforcement and insufficient public participation as well as legislative prioritization of economic values over ecological ones

At international level relevant treaties and conventions on management and conservation of endangered species have been adopted and implemented by the Nigerian government. The implementation of which will yield to stabilizing preserving hydrological system, protecting soil, ensuring climate stability preserving breeding stocks and protecting renewable and genetic resources. It will further help to promote tourism and provides facilities for research technology and education. This section of the chapter is set out to examine the existing laws for the conservation of wildlife resources with a view to evaluating the socio-economic value of these natural resources to Nigeria vis-à-vis international standards set out by various applicable conventions, it will also determine the impact of various human activities such as hunting expeditions on the animal species, deforestation and the

³⁵⁶ Mobolaji, A.,(2015) '*Wild Fauna Conservation in Nigeria Environment and Natural Resources Research*', Vol. 5 No. 3 2015 published by Canadian Center of Science and Education pg. 104.

resultant effect on the climate change and environmental depletion within and outside the reserves.

4.8.1 Nature and Scope of Conservation of Animal Species Diversity in Nigeria

Traditionally wildlife is used to refer to non-domesticated vertebrate species, i.e. animals that are out of the direct control of man, existing in the world. These animals exist in all ecosystem including deserts, forests, plains, and grassland.³⁵⁷

The Wild Animal Preservation Act³⁵⁸, defines animal to mean the vertebrates and invertebrates (including non-edible fish), their nest, eggs, egg shells, skin and plumage. While the Animal Disease Control Act defines animal to mean horse, mule, cow, bull, dog, wild animal etc. Under that Act – wildlife means wild animals birds and other living things, sometimes including vegetation, living in a natural, undomesticated state. Wildlife conservation is the science of analysis and protection of earth's biological diversity, which is the variation of life form within a given ecosystem, or for entire earth.

Nigeria is rich in fauna found in boundless forests and grasslands. There are 22,000 vertebrates and invertebrates species, these species include about 20,000 insects, about 1000 birds, about 1000 fishes, 247 mammals and 123 reptiles. Of these animals, 0.14% is threatened, while 0.22% is endangered. About 1,489 species of micro-organisms have been identified.³⁵⁹ All these animal species occur in different numbers within the country's vegetation that range from the mangrove along the

³⁵⁷ Id

³⁵⁸ Section 1 *Wild Animal Preservation Act*, (CAP 559) Laws of the Federation of Nigeria 1990.

³⁵⁹ Federal Government of Nigeria(2010), *First National Biodiversity Report* p. 2

coast in the south to the sahel in the north. The diversity of Nigeria wild animal can be attributed to the country's tropical location, size and its ecosystem.

The legal and regulatory framework in wildlife conservation in Nigeria dated back to the colonial era. Various legislations governed conservation of wildlife resources in the country. Protection of wildlife began in 1916 with Wildlife Animal Preservation Act of the Eastern Nigeria,³⁶⁰ similar laws were enacted in Western Nigeria in 1928. Game laws however, only emerged in Northern Nigeria after independence. The applicable laws on wildlife and game management remained in expropriate and exploitative manner. These laws alienated the rural inhabitant role in exploitation of forest and hunting expectation. The existing laws broadly cover many aspects of wildlife and game management. Such as National Park, Wild Animals, Endangered Species Preservation, Fisheries laws, Livestock Breeds, Water Resources Laws etc. In 1962 a comprehensive survey of the country's wildlife showed that the wildlife population was falling rapidly as a result of overhunting³⁶¹. This resulted in the creation of game reserves like Borgu game reserve, Kamaku game reserve, Lame game reserve, Okhoma game reserve and Ohosu game reserve among others. Some of the game reserves were later declared as national parks. For instance, Borgu and Zugurma game reserve became the Kainji lake national park in 1975. Other national parks later created include Yankari national park, Old oyo national park, Gashaka Gumti, Chad basin, Cross River, Okomo and Kamuku national parks.

³⁶⁰ "Status of Tropical Forest Management (2005): Nigeria" Sustainable Forest Management SFM Tropics. Pg. 112-119.

³⁶¹ Federal Government of Nigeria *First Biodiversity Report* 2006 pg. 22.

There are mammalian species such as the African Elephants (*Loxodonta Africana*), African buffalo (*Syncerus caffer*) and hippopotamus (Hippopotamus amphibious) existing in the rainforest. Other large mammalian species found here are the large duikers (*Cephabius niger*), Chimpanzee (*Pan troglodytes*), and red river-hog (*Potamochoerus porcus*). The savannah areas house species such as the hartebeest (*Alcephalus buselaphus*) and warthog (*Phacochoerus aethiopicus*) and most of the carnivores. Grass cutters (*Thryonomys swinderiannus*), Giant rats (*Cricetomys spp.*) and tree squirrels (*Funisciurus spp.*) are among the vast variety of small mammals that exist in the savannahs as well as a range of primates. The lowland rain forest provides habitat also for about 200 species of birds, Four of the bird species; Anambra waxbill (*Estrilda poliopareia*), Ibadan malimbe, (*Malimbus ibadanensis*), Jos Plateau indigo-bird (*Vidua maryae*) and the Rock Fire-Finch (*Lagonosticta sanguinodorsalis*) are endemic to the country, making them globally important species for conservation . A list of all the bird species in Nigeria and their conservation status can be found on the Avibase website.

Wild bird species were found to be relatively abundant where there is dense tree vegetation according to a study on the Dagona-Waterfowl Sanctuary in Borno State, Nigeria .

Nigeria is also noted as a global hotspot for some species of primate. A great diversity of this is found especially in the gulf of Guinea forests of Cross River State. Some of these species are endemic to Nigeria, like the white-throated monkey (*Cercopithecus erythrogaster*), Scalter's guenon (*Cercopithecus scalateri*) and the Niger Delta red colobus (*Procolobus pennantii epieni*). All wild species endemic to

Nigeria are presented in Table 4.4, while Table 4.5 shows the number of threatened species in each taxonomic group for Nigeria. Nevertheless, figures for the reptiles, fishes, mollusks and other invertebrate taxonomic groups are the number of species that have been assessed and known to be threatened within these species groups and not as the overall total number of threatened species for the group.

Table 4.3: Endemic wild fauna species in Nigeria

Mammals	Birds	Reptiles	Amphibians
Sclater's Guenom <i>(Cercopithecus Sclateri)</i>	Ibadan Malimbe <i>(Malimbus ibadanensis)</i>	Dunger's file snake <i>(Mehelya egbensis)</i>	Nigerian toad <i>(Bufo perreti)</i>
Fox's Shaggy Rat <i>(Dasymys foxi)</i>	Jos-Plateau Indigo bird <i>(Vidua maryae)</i>	Wormsnake <i>(Leptotyphlops sp)</i>	Danko puddle frog <i>(Phrynobatrachus danko)</i>
Gotel Mountasin soft furred mouse <i>(Praomys obscures)</i>	Rock firefinch <i>(Lagonosticta sanguinodorsalis)</i>	Giant forest Gecko <i>(Cnemaspis gigas)</i>	<i>Phrynobatrachus rainerguentheri</i>
Savanna swamp shrew <i>(Crocidura longipes)</i>	Anambra waxbill <i>(Estrilda poliopareia)</i>	Ondo forest Gecko <i>(Cnemaspis petrodroma)</i>	
Forest Shrew <i>(Sylvisorex ollula)</i>		West African worm lizard <i>(Baikia Africana)</i>	
Delta Red Colobus monkey <i>(Procolobus epieni)</i>			

Source: <http://Intreasures.com/nigeria.html>, accessed 15/01/2015

Table 4.4: Threatened species in Nigeria (Total by taxonomic group)

Group	Total number
Mammals	26

Birds	19
Reptiles	8
Amphibians	13
Fishes	60
Mollusks	1
Other invertebrates	14

Source: IUCN Red List (2013).

Table 4.5: National Parks

S/N	Name of park	Area	Location	Vegetation type
1	Kamuku National Park	121,130ha	Kaduna state	Guinea savannah
2	Kainji National Park (Borgu sector)	532,000ha	Niger state	Guinea savannah
3	Old Oyo National Park	253,000ha	Oyo state	Dry forest/Guinea savannah
4	Okomu National Park	200ha	Edo state	Lowland rainforest
B	Cross River National Park Okwango Division	400,000ha	Cross River state	Low land rain forest
6	Gashaka Gumti National Park	6,402,480ha	Taraba state	Guinea savannah/montane
7	Yankari National Park	225,000ha	Bauchi state	Guinea savannah
8	Chad Basin National Park	230,000ha	Borno state	Sahel savannah

Source: Nigeria First National Biodiversity Report, 2015

The Wild Animal Act of 1963 gave full protection to all animals within areas designated as game reserves. Poaching and other illegal activities in the reserves were to be combated by game guards who were empowered under the law to arrest

offenders for prosecution³⁶². Wildlife conservation also benefited from Land Use Act Cap 202, LFN 2004 of 1978, Endangered Species Act of 1985, National Park Act of 1979, and Endangered Species Control of International Traffic Act of 1983. The regulatory agencies such as the NESREA, the Environmental Impact Assessment Commission, the Urban and Regional Planning Agency, and many state environmental agencies, have been established to strengthen the institutional regulation of the wildlife conservation. Nigeria is signatory to a number of International Regulatory Conventions³⁶³. The formation of the Nigeria Conservation Foundation in 1982, marked the beginning of organized private involvement in the promotion of ethics in the country. Government cooperates with other notable NGOs like the Nigerian Field Society (NFS), Savanna Conservation (SC), Center for Environment Renewable Natural Resources Management Research and Development (CENRAD). The World Wide Fund for Nature (WWF) based in Britain also embarked on programme to save the white-throated money in the Okhoma forest in 1992, Birdlife International, in partnership with NCF, carried out survey of Important Birds Areas (IBAs) in the country and prepared a draft site account directory³⁶⁴. Various international private foundations including Mac-Arthur, Leventis & Ford Foundation also support conservation efforts in the country.

³⁶² See Natural Resources Conservation Action Plan (1992), p. 90.

³⁶³ For a comprehensive Discussion of the International and Regional Environmental Instruments which Nigeria is a Party. See Simpson S., and Febgohun, O. (eds)(1998). Governmental Law and Policy Lagos: Law Centre, Faculty of Law, Lagos State University pp. 10-49.

³⁶⁴ Birdlife International 2010. 'Nigeria' <http://www.mcnigeria.org> accessed on 12/4/2010 at p p.m.

4.8.2 Conservation of animal species under statutory Laws

Nigeria is a country that is blessed with wealth of species of wild fauna as a result of the richness of its physical environment, climate and vegetation zones³⁶⁵. Currently, the majority of Nigerians rural dwellers, comprising about 70% of the national population, depend on the nation's rich endowment of wild fauna for their livelihoods. Due to this dependency and coupled with wide spread poverty and the general lack of awareness of environmentally sound practices, these natural resource are being subjected to unsustainable uses and practices and have come under severe threat. In this context government efforts in order to stem the tide of destruction of our common heritage includes the enactments of the following principal statutes to combat and penalize illegal trade in wild fauna.

Nigeria regulates its wild animal resources through "utilization permits". The utilization permits include those for domestication and breeding, hunting and fishing, import and export certificates are also available. Limited utilization is encouraged by restricting hunting quotes, establishing hunting/fishing zones and periods, and hunting wildlife trading and transportation activities.

The principal statutes for conservation of wild animal includes among others:

- a. Endangered Species (Control of Trade and Traffic) Act³⁶⁶.
- b. Wild Animal Act³⁶⁷

³⁶⁵ Marguban, L. B. (2002) "*History of Conservation in Nigeria*" In *Critical Sites for Biodiversity Conservation in Nigeria*. Publication of the Nigerian Conservation Foundation p. 3.

³⁶⁶ CAP E9, LFN 2004

³⁶⁷ CAP 559, LFN 1990

- c. Animal Diseases Control Act³⁶⁸
- d. Sea Fisheries Act³⁶⁹
- e. Inland-Fisheries Act³⁷⁰
- f. National Park Act³⁷¹
- g. Hide and Skins Act³⁷²
- h. Exclusive Economic Zone Act³⁷³
- i. Land Use Act³⁷⁴
- j. Natural Resources Conservation Act³⁷⁵
- k. Environmental Impact Assessment Decree³⁷⁶
- l. National Environmental Standard and Regulation Enforcement Act³⁷⁷
- m. Criminal Code Act³⁷⁸
- n. River basin development authority Act³⁷⁹
- o. The constitution (FRN)³⁸⁰
- p. Urban and Regional Planning Act³⁸¹
- q. National Environmental (Protection of Endangered Species in international Trade) Regulation 11

³⁶⁸ CAP A17, LFN 2004

³⁶⁹ CAP S.4, LFN 2004

³⁷⁰ CAP 110, LFN 2004

³⁷¹ CAP N65, LFN 2004

³⁷² CAP H3, LFN 2004.

³⁷³ CAP E11, LFN 2004

³⁷⁴ CAP 202, LFN 2004

³⁷⁵ CAP 268, FLN 2004

³⁷⁶ CAP C.12, FLN 2004

³⁷⁷ No. 25 of 2007

³⁷⁸ CAP C13, LFN 2004

³⁷⁹ CAP R9, LFN 2004

³⁸⁰ CAP C23, LFN 2004

³⁸¹ CAP N138, LFN 2004

In addition to the above list of domestic laws and legislation, Nigeria has joined international organizations (like the United Nations, African Union and ECOWAS) and subscribed to multilateral treaties and bound by customary international environmental law and other soft-laws or non-binding standards concerning preservation and management of animal diversity. The statutes include:

- a) African Convention on the Conservation of Nature and Natural Resources³⁸²,
- b) Convention on International Trade in Endangered Species of Fauna and Flora³⁸³,
- c) Convention on the Prevention of Marine Pollution³⁸⁴;
- d) UN Convention on the Law of the Sea, 1982³⁸⁵
- e) UN Convention on the Conservation of Biological Diversity³⁸⁶
- f) Convention on Wetland of International Importance Especially as Water Fowl Habitat (RAMSAR, 1971)³⁸⁷
- g) Declaration of the Rights of Animals UNESCO³⁸⁸
- h) 1979 Convention on the Conservation of Migratory Species of Wild Animals (Bonn convention)³⁸⁹, to mention a few.

4.8.3 An Appraisal of the National Laws on Conservation and Management of Animal Species

³⁸² Op.cit

³⁸³ Op.cit

³⁸⁴ 1972

³⁸⁵ Op.cit

³⁸⁶ Op.cit

³⁸⁷ RAMSAR, 1971

³⁸⁸ ART 14 1978.

³⁸⁹ Op.cit

4.8.3.1 Legal Regime on Hunting and Wildlife Trade

Hunting is perceived as a vocation in certain parts of Nigeria, especially in the rural communities where it might be a traditional family occupation³⁹⁰. The activity takes place both day and night throughout the year, anything larger than 2kg is considered fair game meal³⁹¹. Poaching, which is any form of illegal entry into a protected area also has become more common as people enter together fuel wood, fell trees, fish and hunt without permission. In a survey of African Grey parrots (*psittacus erithacus*) carried out at the Ikpan Forest block of Oban sector of Cross River National Park, it was established that trade and trafficking of these birds occur in this area, with an average catch of eight (8) parrots per day per man³⁹². This has drastically reduced the population of parrots in the area.

Unlike the statutory regime on plants conservation, which is dominated by state laws, the statutory regime on conservation of animals is dominated by federal statutes. Principal among such statutes as listed above are the Wild Animal Act and Endangered Species Control of International Trade Act (ESA). The later statute³⁹³, represents the domestication of the Convention on International Trade in Endangered Species of wild Flora and Fauna (CITES) to which as earlier mention Nigeria is signatory. It provides for conservation and management of Nigeria's wildlife and the

³⁹⁰ Edem, A. E. et. Al., (2008) 'A Survey of African Grey Parrots (*psittacus Erithacus*) Trade and Trafficking in Ekonganaku Area of Ikpan Forest Block, Nigeria'. *Ethiopian Journal of Governance Studies and Management* 1(2), 68-73.

³⁹¹ Ijeomah, H. M. (2012) 'Analysis of Poaching activities in Kainji Lake National Park of Nigeria' *Governmental and Natural Resources Research*, 3(1). <http://dx.doi.org/10.5539/envri.v3n1.p.51>

³⁹² Martins, G. H. 'Bushmeat in Nigeria as a natural resources with environmental implication'. *Environ. Conserv* (10) 125-132 <http://dx.doi.org/10.1017/503-7689280012212>

³⁹³ Ibid.

protection of endangered species, which are in danger of extinction as a result of over exploitation. The Act has two schedules, the first schedule of the Act enumerates animals like whales, chimpanzee, lion, reptiles, wildcats and dogs, eagles and parrots etc. as animal species threatened with extinction thus hunting and capturing is absolutely prohibited³⁹⁴. The Second Schedule enumerates animals as ostrich, hippo, monkeys etc. as animals though not threatened with extinction may become so threatened unless trade in them is regulated³⁹⁵.

However, classification of animals by the Act as being threatened with extinction or will become threatened does not reflect the factual situation of the country. For example, to classify all reptiles as being threatened with extinction and therefore deserve protection is to make law suffers from lack of evidence needed to support it. Hardly can reptiles such as snakes qualify for protection as animals threatened with extinction, regards being had to their present great number in the country and also lack of incentive to hunt such creatures for purposes of international trade which is the concern of the Act. Problem of over protection is raised here³⁹⁶. Section 5(1) of the Act prohibit trade in specimen listed in schedule I, the offence carries the fine of one thousand naira (N1000). Where the specimen falls within schedule II, a fine of N500 Naira is imposed or 6 month imprisonment, in addition, the court may order the forfeiture of the specimen in question and make such orders as it deems fit. In other words, were a person captures or trade in any animal like lion, leopard, gorilla listed in schedule I, he may be liable to a fine of just N1000

³⁹⁴ Section 1(1) Ibid.

³⁹⁵ Section 1(2) Ibid.

³⁹⁶ Usman, A. K. (2012) *Environmental Laws and Practice*. Abebe Press Limited Oyo, Ibadan, p. 182.

Naira. This is to say the least is most ridiculous. The penalty is not commensurate to the crime and this explains why a lot of trading and trafficking in these animals go unabated. A good example is the export of a gorilla and two drill monkeys to Philippines from Nigeria³⁹⁷. Another case that received general public attention in Nigeria was the shipment of four young gorillas, which were born in the University of Ibadan Zoological Garden to Paiping Zoo in Malaysia³⁹⁸. This incident revealed the inadequate coordination of the staff of the management authority to effectively combat illicit trade in endangered species and to conduct prompt investigations. Moreover, the current legislation on this has not been effective in Penciling. The trade especially within a population that considers these species a delicacy. This coupled with the fact that Nigeria borders are quite porous and most of these animals can get transported easily.

Some examples in complying and enforcing wildlife conservation laws in Nigeria.

Attorney General of Federation (AGF) v Diarra Fousseyni³⁹⁹.

The accused person (Malian National) was arrested on the 8th of May, 2013, during a routine examination of packages by officers of the Nigerian customs services (NSC), at the export unit of the Murtala Muhamamd Airport Ikeja Lagos, the package en-route to Liberia was discovered to contain 90 pieces of worked ivory.

³⁹⁷ See Guardian Newspaper of July 27, 1997 p. 2

³⁹⁸ Josephine, O. (2007) 'Enforcing Wildlife Protection and Biological Conservation in Nigeria'. *Journal of Environmental and Planning Law* Vol. 4 No. 3, p. 56.

³⁹⁹ Musa, I. (2015) *Overview of environmental laws regulation and multilateral environmental agreement in Nigeria*. Paper presented at the UNEP Global Training Programme on Environmental law and Policy. 5-13-Oct-2015, Nairobi, Kenya.

NSC subsequently handed both the suspect and the ivory to officers of NESREA in Lagos, criminal charges were instituted against the accused before the Federal High Court (FHC), who pleaded guilty to the charges and was sentenced to six month imprisonment with an option of fine in the sum of N100,000. The court further ruled that the ivory found on the convict be forfeited to the federal government.

Attorney General of Federation (AGF) v Kaba Abubakar⁴⁰⁰

The accused Guinea national was arrested on 28th June, 2013 at the Murtala Muhammad airport by NSC, for importing into Nigeria worked ivory. Criminal charges instituted against him before the federal high court (FHC) Lagos where he was sentenced to imprisonment with an option of fine.

AGF v Lianz Zule⁴⁰¹

The suspect (a Chinese national) on the 4th March, 2012, intercepted by National Drug Enforcement Agency (NDLEA), as she prepared to board Qatar Airways was discovered to have worked Ivory concealed in a teddy bear. NDLEA in the spirit of inter-agency cooperation transferred the suspect and the pieces of ivory to NSC, the case was thereafter transferred to NESREA, and the accused charged before the federal high court, Lagos and sentenced to six month imprisonment in each count with option of fine.

⁴⁰⁰ Ibid.

⁴⁰¹ UNEP – www.unep.org/delo/portal/119/country-presentation-Nigeria/pdf.dec.4.2015 25/12/15

Another statute listed above is the Wild Animal Act⁴⁰². The law has three schedules, listing the names of animals sought to be protected. The first contain list of animals whose hunting is prohibited unless a license is obtained. Animals in this category include Rhinoceros, giraffe, gorilla, chimpanzee etc. While the second category or schedule list out animals specially protected, these include cheetah, vulture, ostrich to mention a few as provided by the Act. The third schedule contains protected animals, which include antelopes, gazelle, amongst others. There is little or no difference in level of protection afforded the different categories of animals, license can be granted by the minister for the hunting of any animal in any schedule.

The different categories of animals that enjoy protection under the Wild Animal Act, are also entitled to protection of its eggs. Further the Act stipulates that ‘No person shall hunt a female prohibited animal, a female specially protected animal or female accompanied by its young ones. The section also prohibited any person from shooting a wild animal from an aircraft or vehicle propelled by mechanical means and prohibited also the use of an aircraft or any mechanical propelled vehicle in such a manner as to drive, stampeded or disturb any wild animal. The law aimed at preventing mass extinction of animals or terrifying disturbance of such animals, which can also lead to their extermination by the use of hi-tech-mechanism of eliminating animals.

⁴⁰² Op cit. P. 93

The Wild Animal Act⁴⁰³, stipulates a fine of N1,000 an imprisonment for a term not exceeding three years or both such fine and imprisonment for convicted offenders in respect of prohibited animals. It is worth noting that the penal regime is inadequate particularly as it relates to fine the problem of making the law cheaper to contravene than comply here again becomes an issue. The Act essentially aim at protecting animals from hunting, killing and capture for local trade or consumption as opposed to hunting, killing and capturing for international trade which is the concern of the Endangered Species Control of International Trade and Traffic Act. This means that an accused person can only be prosecuted under the Wild Animal Act if the hunting, capture and killing is for local trade or consumption and not if it is for international trade. If for International Trade, the relevant law is the Endangered Species (Control of International Trade and Traffic) Act.

The Act, prohibit the use of drugs, poisons, mechanically propelled vehicle for hunting, fire, fire arms capable of firing more than one round at each pull of the trigger, hunting or capturing at night or use of missiles containing detonations, however, hunting at night and the use of all these methods is a very common phenomena and it goes on unabated and uncontrolled. It is not uncommon to find people set fire to certain holes and burrows on the ground with the intention of driving out animals that may be trapped, it is suggested that most of these laws merely exist in statute books and a lot of people break these laws without knowing of its existence, there should however be avenue for enlightenment and enforcement of

⁴⁰³ *ibid*

all these laws. The local government has a greater role to play in this regard because it will be in a better position to monitor, control and punish those engaged for example in bush burning or hunting of the endangered animals.

National Environmental Regulation (Protection of Endangered Species in International Trade) 2011, this regulate the export, import, re-export of certain wildlife species. Regulation 6(1) provides that desiring to trade in specimen of any wildlife species listed in the schedule to the regulation shall be registered with the Federal Ministry of Environment, species in the regulation means, species threatened by extinction whose number are so few or are so quickly that the animals, plant or other organism may soon become extinct⁴⁰⁴.

By virtue of regulation 7(3), it is an offence for any person to have in his possession under his control, or to offer or expose for sale or display for public, any these endangered species. Any person found guilty of controversy this provision shall be guilty of an offence and shall on conviction be liable to a fine not exceeding 5million naira and to imprisonment for a term not exceeding three years or to both such fine and imprisonment. These provisions are akin to the Endangered Species Control of International trade Act CAP E.9, LFN 2004.

The Kainji Lake National Park Act⁴⁰⁵, also places restrictions on hunting in the park. The sanction for the breach is maximum fine of N1000 naira or 5years imprisonment and the minimum of five hundred Naira fine or minimum of three

⁴⁰⁴ See the miscelloneus provision in part V of the Regulation

⁴⁰⁵ Section 14 Kainji National Park Act op cit.

years imprisonment. The NESREA Act⁴⁰⁶ which mandates the agency to enforce compliance with the provision of international conventions is a welcomed development and it serves as a reminder to Nigerians obligation under the provision of Art 26 of Vienna Convention on the law of treaties⁴⁰⁷, arguably, section 7 of NESREA, can be said to derive validity and support of section 20 of the 1999 Nigerian Constitution⁴⁰⁸, by community reading of section 7 subsection (c) of NESREA Act, Art 26 of Vienna Convention of the Law of Treaties and section 20 of the Constitution makes Declaration of Right of Animals Act⁴⁰⁹ by UNESCO albeit, though not being domesticated as part of municipal law, is applicable and enforceable in Nigeria by the Nigerian courts. What is judicially settled in Nigeria today, is that treaties that have been ratified and domesticated by the enactment of an implementing legislation are justifiable in the municipal courts.

The 36 states in the country have considered autonomy in relation to how wildlife is used within state forest. Also, some states have introduced laws on the sustainable use of wildlife resources. An example can be seen in the Lagos State Wildlife Preservation Law, Cap. 193, Laws of Lagos State of Nigeria 1994. Another example is Wild Animals Laws of Katsina state⁴¹⁰, which categorized wild animals into three Schedules the prohibited animals were listed to include chimpanzee, gorilla, lion, rhino, vultures, cranes etc. The law prohibits hunting of animals in the mention Schedules including hunting of female animal accompanied with their

⁴⁰⁶ Op cit.

⁴⁰⁷ Art 26 Vienna Convention on Laws of Treaties.

⁴⁰⁸ Section 20 and 44(1)(f) of Constitution of Federal Republic of Nigeria 1999.

⁴⁰⁹ Art 14 of the Universal declaration on the Right of Animal 1978.

⁴¹⁰ Wild Animal Preservation Laws of Katsina State of Nigeria CAP 143, 1991.

young ones, taking of their eggs or egg shells. The Second Schedule consists of parrot, foxes, matured elephant etc. The law⁴¹¹, provides that anyone who contravenes the provisions of the law shall be guilty of an offence and liable on conviction to a fine not exceeding N1000 Naira or imprisonment for period not exceeding 3years or both fine and imprisonment. It was however observed that,⁴¹² majority of the hunters were not aware of the Endangered Species Act, wildlife activities are not conducted within the context of the laws, the non-compliance with the law by the hunters may be attributed to the use of illegal methods of hunting such as use poisons, bush burning and other prohibited hunting practices.

4.8.3 .2 Legal Regime on Conservation of Fishery Resources

Nigeria has territorial (marine) waters of 30 nautical miles and Exclusive Economic Zone (EEZ) of 200 nautical miles .Nigeria is also endowed with a large expanse of inland fresh and brackish water ecosystem. The concept of sustainable development was put on the international agenda by the World Commission on Environment and (WCED) in 1987.The UNCLOS and FAO Code of Conduct for Responsible Fishing makes the concept and principles more operational. Fishery is an important activity throughout the world. Nigeria in this context operates various laws and regulations which not only help to conserve and protect her marine and fresh water resources but also strive to ensure that these resources are sustain. Increased fishing activities worldwide recorded that fishes are being caught at a faster rate than can be naturally replaced thereby resulting in over fishing. Invariably

⁴¹¹ Section 53 Op cit.

⁴¹² Lawal, L.A et al (2013) Local Hunting Strategies in Kwara State, Nigeria: Challenge for wildlife conservation policy enforcement. *Albanian Journal of Agric Science*. 12 (4) 0.631

many fish species are being threatened with extinction despite the existence of these laws because, enforcing these laws in waterside areas where many inhabitants depend on fishing as their major source of livelihood is problematic and difficult. An appraisal of both Federal and State laws on this important area of biodiversity conservation would reveal the sufficiency or otherwise of these laws.

Aquatic conservation falls under animal conservation. The law for fishery conservation includes the Sea Fisheries Act⁴¹³ and Inland Fisheries Act⁴¹⁴ at the Federal level. Sea Fisheries Act established a license regime for fishing within the territorial waters of Nigeria. Section 1(1) of the Act provides that, subject to the provision of this section, no person shall operate or navigate any motor fishing boat within the territorial waters of Nigeria unless a license in respect of that vessel has been issued to the owner thereof. The objectives of the license regime established by the Act and the regulation made pursuant to it, is, first to limit the number of motorized fishing boats that will fish in the affected waters. Secondly, is to subject the person obtaining the license to certain conditions aimed at conserving some of the fishes.

The Sea Fisheries Act prescribed a penalty of one year imprisonment or a fine of N1,000 for each day the offence continues or both such fine and imprisonment. The Court may in addition to the penalties prescribed by the Act, order the forfeiture to the Government of the Federation any fishing boat, apparatus or catch employed in the commission of the offence. If the boat employed in the

⁴¹³ Sea Fishers Act, CAP (404) LFN 21004

⁴¹⁴ Inland Fishers Act, (CAP 110) 2004.

commission of the offence enjoys license, the license may be withdrawn or suspended for such time as the Act may deem fit. The above provision if enforced, it is submitted, will have the effect of bolstering the weak penal regime of the law discussed above.

Besides the Sea Fisheries Act, the Inland Fisheries Act⁴¹⁵ is yet another legal instrument seeking to conserve Nigeria's fishery resources. The part of the sea on which the regulation apply is mainly the continental shelf i.e an areas of the sea less the entire length of the territorial waters. The Act recognizes no license regime. Regulation I, provides that "No vessels (except canoes) shall fish within the first two nautical miles of the waters of the Nigerian continental shelf". The law further forbids trawling for shrimps with trawlers whose opening or holes are less than 76mm. The objective of this provision is to avoid mining the sea instead of fishing by the use of nets that do not allow any escape hatch for the smallest of fishes and periwinkles.

However, fisheries conservation legal regime in Nigeria appear to be lopsided, preoccupied with only sea fisheries to the exclusion of river fisheries, dam fisheries and lake fisheries which all needs conservation. This again raises the problem of inadequate provision, sad to say, whilst these legislation are important first steps toward conservation and management of aquatic biodiversity, neither of these laws require management plans to be drawn-up, they do not set standards to which fishery administration must adhere, there are very few state laws in these area.

⁴¹⁵ Ibid.

The few laws available do not address the practical problem raised in the area, typical of such problem include⁴¹⁶:

- Lack of adequate water transportation facilities for fisheries officials;
- Irregular supply of fuel for patrol vehicles;
- Understaffing;
- Inadequate supply of funds;
- Lack of surveillance could be a leeway for foreign fishing vessel to pouch our territorial waters with attendant consequences.

The Carp (control) law⁴¹⁷ of Lagos state is one of the few state laws. This law prohibits the introduction of Carp or Corp fry into any river stream or other running water without the issuance of a license by the fisheries control officer. It also prohibits the cultivation or rearing of carp or corp. fry in fish farm using natural or artificial lake. Persons denied license may appeal to the state commissioner within 30 days of such refusal. A fine of N100 fine or 6 month imprisonment is the stipulated penalty.

The wild animal preservation law of some states prohibits the use of poison for killing or taking any fish. Dynamites and explosives may only be used when a permit has been obtained⁴¹⁸.

⁴¹⁶ Egorge, et al., (1993) "The Role of the Federal Department of Fisheries". *Proceeding of the National Conference on Conservation of Aquatic Resources NARESCO*, p. 251.

⁴¹⁷ Carp. (Control) Law of Lagos State (1990).

⁴¹⁸ Section 16 Edo State Wild Animal Preservation Law 1986.

The Carp cultivation (control) Law of Katsina state⁴¹⁹, is another example. Section 3 provides that no person shall introduce carp into any river or stream while section 4(1) provides that no person shall without license from senior fisheries officer introduces carp into or cultivate carp in any lake or stream the sanction for breach of the section shall be a fine of fifty Naira or imprisonment for three months.

From the analysis above, it can be said that fisheries legal regime is weakened by the fact that it only criminalize the Act of navigation of territorial waters catching or destroying fishes without license. Thus once license is obtained, it is no longer an offense to use noxious chemicals to catch fish. This provision makes mockery of an otherwise genuine policy to protect and conserve fishes, as license can be granted even where the act involves a degradation of the environment so long as it rakes in revenue to the government. Furthermore the fishing communities mostly poor and illiterate fisher folk are located in remote and scattered areas on banks of lakes, reservoirs and rivers often inaccessible by vehicles, their illiteracy makes it difficult for them to appreciate the need for resource conservation. Non replacement of banned fishing gear as a result of the government failure to offer acceptable alternative nets to replace banned nets created problems in implementing bans on some gear.

At present, there is not a single legislation in Nigeria that comprehensively provides for biodiversity conservation and management. Most of the above appraised legislations are sector based. For instance the protection of wildlife Act deals with

⁴¹⁹ Carp Cultivation (Control) Law of Katsina State of Nigeria, 1991.

wildlife protection, fisheries Act deals mainly with conservation and management of fisheries resources. Some of these piecemeal laws, whether at federal or state levels were passed without specific consideration on the issues of biodiversity conservation and management. Most of these laws were passed years before biological diversity began to take centre stage and when awareness of the pertinence of preserving of the global ecosystem, especially amongst the developing countries like Nigeria, was still very low.

4.8.4 An Appraisal of the International Conventions Relevant to Animal Conservation and Management

Globally here has been a consensus on the sustainable use and management of the earth's renewable resources especially in connection with wild life of fauna species, which are on the brink of global extinction. This has led to the signing of the several international convention listed above to protect wildlife of fauna species to which Nigeria is a signatory.

The recognition by the Rio Earth Summit⁴²⁰ that biological diversity is the foundation upon which human civilization is built and that its conservation is a pre-requisite for sustainable development led to the signing of the convention on Biological Diversity (CBD) in June 1992. The parties to the convention have committed themselves, in general terms, to undertake national and international

⁴²⁰ Op cit.

measures aimed at achieving the explicit objectives of the convention. Nigeria signed the CBD in 1992 and ratified it in 1994⁴²¹.

CBD, Article 6, provides for the general measures for conservation and sustainable use and it enjoins each contracting party to develop national strategies, plans and programmes, for the conservation and sustainable use of biodiversity or adopt strategies to meet this purpose. Article 10, provides of the sustainable use of components of biological diversity. Parties are required to, as far as possible and as appropriate, integrate consideration of conservation and sustainable use of the resources in national decision making.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) was signed in 1973. This Convention, seeks to control trade and dealings in endangered species. Article IV & V provide for regulation of trade in specified species under the convention. Accordingly, parties that are signatories to the convention are enjoined to enforce its provisions. Therefore, Article VIII defines the enforcement proceedings of the convention. It provides that “parties shall take appropriate measures to enforce the provision of the present convention and prohibit trade in specimens in violation thereto”.

The Convention attempt to balance legitimate trade interest in renewable natural resources with the need to protect endangered species. The agreement contains series of reservation clauses which allowed a member states to opt out of

⁴²¹ A General Information Document on Bio safety Presented at the 41st National Forestry Development Committee (NFDC) in Nigeria, Niger State October (2003)

protecting any species covered by the treaty. As a result of this clauses, commercial exploitation continues to threaten endangered species. The problem is aggravated by the lucrative market for wildlife product⁴²². Other examples of international convention that deal with conservation of animal species habitats are the Ramsar Convention on wetland and convention on migratory species listed above.

4.8.5 Constraints on Conservation of Animal Species Diversity

The effectiveness and success of conserving animal species depends on many local factors of economic, social and political nature⁴²³. In Nigeria some of the factors that are obstructing the effective implementation of conservation policies include:

- i) Habitat loss resulting from land cleaning from extensive agricultural production (cash crops and livestock grazing);
- ii) Uncultivated logging and poor logging practices;
- iii) Indiscriminate bush burning;
- iv) Communal hunting;
- v) Poaching activities in protected areas;
- vi) Inadequate legislation;
- vii) Lack of protection staff;

⁴²² Dr. Amd. Wunschmann, Director of Munich's Hellabrunn Zoo, in Stephen Yale (1981), *Cornel International Law Journal*. has stated that "illegal trade in furs, trophies and protected animals now has higher profit margins than the drug traffic. Moreover, the wildlife smuggler has less chance of getting caught than a narcotics dealer, and fines and prison sentences are woefully inadequate.

⁴²³ Joppa, L. N. and Pimm, S. L. (2008) "On the Protection of Protected Areas". *Proceedings of the National Academy of Science (105) 18: 667-668*.

- viii) Poor enforcement of wildlife, biodiversity and conservation laws, policies and conventions;
- ix) Lack of adequate funding for wildlife, biodiversity and conservation;
- x) Increase illicit trade in endangered species.

Wildlife management and conservation of biodiversity is widely treated as government responsibility. As a result private sector participation is virtually absent. Some states government have no documented programmes for wildlife management and there is little or no infrastructure in place for wildlife management and conservation⁴²⁴ as a result wide spread poaching and encroachment has been reported in Kainji national park, Yankari game reserve and Old oyo national park. Closely related to these factors is the number of crude acts of professional and freelance hunters whose source of livelihood depends on the tracking down of these game species. The high demand for venison (bushmeat) by many citizens further increases number of hawkers, game operators of roadside & motor park restaurants resulting in reckless & indiscriminate slaughter of animal species with impunity⁴²⁵.

Increasing rate of poverty is a major challenge of wildlife conservation and management in Nigeria⁴²⁶. Many laws on wildlife conservation are difficult to enforce. The problem is aggravated by increasing food and fuel prices which force more people to depend on wildlife resources for survival and when they are forced

⁴²⁴ *Report of the 2nd Technical Review Meeting of State Directors of Forestry/Wildlife.* Yankari National Park Bauchi State, February (2003).

⁴²⁵ Oliver, O. O. & Francis, E. (2014). *Bioconservation and Commercial Bushmeat Hunting Challenges in African Park and Protected areas: A critical review and synthesis of the literature. Research on Human and Social sciences Vol. 4 No. 18*

⁴²⁶ Okorodudu, M. F., (1998) "*Laws of Environmental Protection Material Text*" Caltop Publication, Ibadan, Nigeria, p. 334-335.

with survival instincts and obeying the laws, personal consideration override legal responsibility.

Cultural factors have also continued to militate against effective conservation policy implementation. In many communities in Nigeria, land is seen as a sacred property passed from one generation to another. Great opposition normally follows attempts by government to convert what is regarded as personal or communal property to reserves. The conversion of vast and biologically rich forest lands into parks and protected areas has direct livelihood impact on the buffer zone communities of such park and protected areas. Uphold that over 50% of existing protected areas have been established on ancestral lands of indigenous people and local communities as a result, enduring conflict, instead of supportive roles often characterize relations among rural communities, policy makers and development agents⁴²⁷. Today, many national parks and reserves still harbor enclave villages; for instance, the Cross River and Gashaka Gumti National Parks⁴²⁸. On the other hand, all protected areas in the country are bounded by communities who continue to encroach on these areas through farming and other activities. Many Fulani cattle herders also regularly move around freely with their animals in some of these reserves⁴²⁹.

⁴²⁷ Moses, M. & Kevin, B. (2013). 'Factors affecting the success of conserving biodiversity in national park': A Review of a case studies from Africa. *International Journal of Biodiversity*. Vol. 20,. P. 230.
<http://dx.doi.org/10.115/2013/79801>

⁴²⁸ USAID/Nigeria, Nigeria Biodiversity and Tropical Forest Assessment: Maximizing Agricultural Revenue in Key Enterprises (Marketers). *Chemonica International Inc.* (2008) p. 29

⁴²⁹ Ibid.

Inadequate functioning of institution programs for example shortage of well-trained game guards. Maduna ,⁴³⁰ listed inadequate staffing, lack of equipments and poor remuneration of staff as some of the management problem experienced in the Kainji Lake National Park. It was reported⁴³¹ that nine elephants were believed to have been poached between May 2007 and January 2008 within the Yankari game reserve. Similarly, the wildlife conservation society noted that there are over 600 illegal farms within Afi wildlife sanctuary alone⁴³² hence many animal species are now seriously threatened for example the Nile crocodile (*crocodilus niloticis*) found in coastal waters is fast disappearing due to loss of habitat & hunting of crocodile for their meat, egg, hide and skin. Also, in southern Nigeria, the forest elephant, chimpanzee, leopard, yellow-backed duiker, the royal python, the Nigerian quonon (*cercopithecus erythrogaster*) are among the animals on the endangered list.

The study⁴³³ on the Kainji Lake National Park to analyze poaching activities in this area revealed that illegal entry into the park in various forms continue despite efforts by park managers to curb poaching. The hunter who are mostly from the local communities around the park have developed various techniques of avoiding or escaping the rangers 100 holes in existing game laws on the other hand had further encouraged over hunting.

⁴³⁰ Maduna, A. J., and Ondeko, S. A.(2009) 'Biodiversity Conservation Problems and their Implications on Ecotourism in Kainji Lake National Park'. *Nigeria Journal of Sustainable Development in Africa* (10) 4:59, p. 73.

⁴³¹ Ibid.

⁴³² World Conservation Society (WSC) 'Nigeria'. www.wsc.or>where.work.africa> 12/02/2010 6pm.

⁴³³ Op. cit.

The increasing trend and pattern of climate change has serious implication on wildlife conservation⁴³⁴. Many species are unlikely to survive climate change, for example the Tiger moth has declined by 44% in the last 30years which scientist believe is linked to climate change. The distribution of species (biogeography) is largely determined by climate. Climate change may simply shift this distribution, but for a number of reason animals may not be able to adjust.

Another factor that contributes to habitat loss and depletion of wildlife resources is incessant burning by hunters, game dealers and peasant farmers⁴³⁵. In Nigeria, the recurrent fire incidents result in death of animals & some escape into nearby environment causing loss of life and property, as the inhabitants wantonly kill these strayed or migrated animals on the basis of self defense.

Funds shortage also impedes wildlife protection, no separate budget for wildlife protection exist at national level. It does not exist at the state or local government level either, the lack of fund has made the forestry guards the poorly equipped, most under staffed, their equipment, communication capabilities and transport vehicles cannot match those of the transnational poachers, thus undermining their ability to enforce the wildlife protection law.

Inability of the institution to discharge its legal role can cause poor implementation and enforcement of environmental laws in Nigeria. It is ridiculous to have Agency arresting goats instead of human being for violating law. On the 9th of January, 2013,

⁴³⁴ <http://www.cause-of-loss-of-biodiversity.html> assessed 20/2/2011 2pm

⁴³⁵ Omiegbe, O., (1999) 'Bush Burning and its Effects in Africa': A case study of Nigeria. *Benin Journal of Environmental Education* Vol. 1, p. 10-20.

5 goats were arrested in Osun State by Police for violating environmental protection law by roaming around the residential area of Oshogbo instead of being caged by their owners⁴³⁶. For example the Wild Animal preservation laws are archaic, unenforced, unenforceable and inadequate. Further reliance on penal sanctions has, on the whole, proved to be an ineffective tool to ensure compliance with standard put in place. Why has the wildlife protection law, given its detailed stipulation in management protection and penalty mechanism failed to protect the country's wildlife? Mission confusion was the biggest problem with Wildlife Act, the law present a strange combination of too old objectives: protection and utilization. The law provides that the purpose of protecting wildlife species that are rare or near extinction is for protection and utilization of the resources. The main objective of the law is utilization and not ecological balance. That has made the law enforcement difficult and also undermine Nigerians ability to fulfill its CITES obligations in curbing global trade in endangered species. The Wild Life Law, cannot stand as it is today. The provisions of the law as they relate to penalties for contraventions are grossly inadequate. For instance, the ESA provision for offences is not adequate to address the seriousness of the offence committed.⁴³⁷ China had just amended its environmental protection laws which was enacted in 1989. Some of the problems include; low fines, lax investigation and delayed punishment of illegal activities among others⁴³⁸

⁴³⁶ Five Goats Arrested in Osun. The Sun Newspaper (Nig. 12 Jan. 2013) <http://www.sunnewsonline.com> accessed on 21 Jan. 2014

⁴³⁷ Section 5(1) a-b, (2)a, (3), (5) 1-e.

⁴³⁸ <http://www.china.cn/english/env/34152htm>>accessed on 14 may 2015

In addition, Nigeria is yet to fully implement CITES and the ability to do so has become increasingly doubtful. The ESA and other state enactments fell far short of what is required. The provisions of CITES that are yet to be given effect under Nigerian legislation included Article VIII (4), which provides that parties should make provision for a welfare centre to look after the welfare of living specimens, particularly those that have been confiscated. The federal government therefore needs to stop paying lip service to compliance with the provisions of these international conventions.

4.8.6 Conservation of Animal Species Diversity under Customary Laws

Conservationists over the world have recognized the effectiveness and efficacy of ancient conservation rules and practices. The Convention on Biodiversity⁴³⁹ to which Nigeria is a party underscores the need for nations to respect, preserve, maintain and promote the wider use of the knowledge, innovation and practices of local communities and as far as possible encourage traditional and cultural practices that are compatible with conservation and sustainable use of resources.

The effectiveness of traditional institutions in conservation and protection of biodiversity has been reported in some parts of Nigeria. Akindele⁴⁴⁰, noted that cultural taboos and their sanctions have helped to check abuse of natural resources, at least among the local people. It is also effective in some areas and has contributed to

⁴³⁹ Article 10©. Encourage parties to adopt customary use of biodiversity resources, in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements.

⁴⁴⁰ Akindele, S. O. (2011) *Forest Restoration Through Traditional Institution in Nigeria Challenges and Prospects Group* <http://www.efc.2010.org/paper/session.13/Akindele.s.13.pdf>. Retrieved August 27, 2pm

the conservation of biodiversity and wise use of resources in some parts of the country.

Before the advent of modern conservation methods in Nigeria some cultural beliefs had helped a lot in conservation of some wild plants and animal species. Not all animals were either killed or eaten by some tribes. For instance, it was forbidden for an Urhobo man or an Itsekiri man to kill or eat crocodile, monitor lizard or bush bucks. The Yorubas despised vulture bird. Tiv people of North-Central Nigeria do not kill green snake locally called “Kyarem”. According to them it was the “Kyarem” that helped their forefathers to cross a river on their way from Congo to Nigeria by lying across the river hence enabling the people to cross over as bridge. Based on this beliefs, the green snake was highly protected by the Tivs⁴⁴¹.

In the western part of Nigeria, hunting is a very common activity and when a large or strong animal is killed, the Oba or king is given part of it. In some communities, some animals are considered as ‘royal game’. A hunter who kills a Royal game will give certain portion of the animal to the king. The labeling of some animals as royal game has helped in the preservation of such animals. Hunters will therefore prefer to kill ordinary animals for their personal consumption or sale⁴⁴².

In the Eastern and Western states, some customs protects some animals either because they are worshipped by community or because they are perceived as a bad omen. This belief has afforded certain species of animals some degree of protection.

⁴⁴¹ Op Cit.

⁴⁴² Ajomo, M. A. and Adewale (1994) “*Environmental Law and Sustainable Development in Nigeria*”, Nigeria Institute of Advanced Legal Studies, Lagos, p. 161.

Example of these animals includes snakes. In the Bolo community in Okriko local government (the python) is a scared animal and must not be touched. In this area, any hunter that kills a python would have to sacrifice a goat. Among the Ejagham community of the Obon Hill sector of Cross River state⁴⁴³, there is a traditional law, which forbids women from eating certain animals such as the bush baby and civet cat. The belief is that if they do, they would have children with sex organs that look like that of the animal. In this area any hunter that kills python would also have to sacrifice a goat. It is also a taboo among the community forbidding their pregnant women from eating elephant meat in the believe that they would deliver a baby which looks like an elephant. Further, hunting of leopard is prohibited among this tribe because it is regarded as symbol of Mgbe the deity of the Ejagham tribe. The Mgbe shrine is located in the forest where hunting is strictly prohibited, Ofu Dibu, is a traditional law which forbids men from hunting on certain days and an one who breaks the rule is to pay a goat and some tubers of yam. It is the law that any hunter who kills a leopard by accident would have to abandon his hunting expedition for that day in addition to other service sanctions. The Ejagham people of Cross-River state have a rich cultural heritage that defines the behavior as well as guide the use of their natural resources⁴⁴⁴.

In Badagry, Egun people do not eat snakes and monitor lizards. In Ondo and Oyo state, the African giant rabbit (*cricetomy's* spp) is considered a sacred animal⁴⁴⁵.

⁴⁴³ Saka Jimoh et al., (2012) "The Role of Traditional Laws and Taboos in Wildlife Conservation in the Oban Hill Section of Cross River National Park (CRNP), *Nigeria Journal of Hum. Ecol.* 39(3), p. 209-219.

⁴⁴⁴ *Ibid*

⁴⁴⁵ *Op cit.*

Among the Ajar community in Badagry, which is predominantly hunting community, some hunting festivals are observed⁴⁴⁶. During this festival only certain types of animals are hunted. This has some conservative effects as these animals are not usually hunted until the hunting festival. The animals can therefore mature and reproduce for several months before the commencement of the hunting festival. During the festivals, the hunters avoid the killing of younger animals and kill the older and bigger ones. Also pregnant animals are not killed. This also has some conservatory effects as the young ones are allowed to mature before they are killed.

In the Iroko community, the chiefs particularly emphasized that during hunting season, bush burning is prohibited under the customary law⁴⁴⁷. A violation of this law will lead to the arrest of the offender who is taken to the village head who imposes a fine on him. This practice is rather commendable as bush burning is an acceptable customary practice during the hunting season in many communities. The heat from the fire makes the animals runs towards a particular direction or out of their holes. This rather makes hunting easier for hunters. However, it has negative effect on the environment. In the case of *Busari Adedigba Vs Abati*⁴⁴⁸. It where customary court held that although bush burning is an acceptable customary practice, the dependent was liable for damage to the plaintiff's property.

The sanctions imposed for the violation of the law could be grave but ranges from payment of fines to the immediate performance of the required sacrifices

⁴⁴⁶ Op.cit

⁴⁴⁷ Op cit

⁴⁴⁸ Ake "A" Native Court 50/1934 (Unreported).

through the representative of the animal gods under the customary law practice. In communities where private ownership of forest exists, hunting is carried out on private land. In such cases, the hunters obtain the permission of the owner of the land before he is allowed to hunt. This helps in preserving the species of animals in the private forests. Still in the western states, hunting is prohibited in certain forested areas; these areas were considered sacred thus the wildlife therein. A breach of customary law is usually enforced in native and customary courts⁴⁴⁹. There is no doubt that there are number of customary practices or laws from the above analyses which have assisted in the conservation of particular species of animals. But from discussion above customary laws on conservation of biodiversity suffer from poverty of sound underpinning philosophy such as andocentric or biocentrism.

Effort to integrate rural people into biodiversity conservation through community-based conservation programmes is an old tradition⁴⁵⁰. These efforts were largely based on economic incentives, with little or no attention given to the role of culture and tradition in building support for conservation. Although these strategies are useful in promoting conservation and local empowerment they are still fragile. The emphasis on economic incentives on conservation stems from the linking of conservation and development. Calculation of the monetary worth of wildlife, nature, and landscape through contingent valuation methods also contributes to the commercialization of conservation and relegation of cultural

⁴⁴⁹ For Detail Description on the operation of customary courts in Nigeria, See Kenyi, E. A. and Richardson Maxwell, Africa University Press (1960).

⁴⁵⁰ Ezenako Jasper and Abere S. A. (2012) Commonly Participation in Natural Resources Management in the Niger Delta, Nigeria, a case study of Bonny Island, River State, being a paper presented at *Int. Conference on Sustainable Development* Ebitimi Banigo Auditorium, University of Port Harcourt, p. 16-21.

values. It is the view of this research that though the use of this approach is useful in promoting conservation and local empowerment, but considered weak, this is because relying solely on economic incentives will create new relationship of complete economic dependency and unmet expectation from compensation. This creates additional economic burden to protected areas in Nigeria, because most of these protected areas do not realize sufficient revenue to offset the cost of communities.

4.8.6.1 Customary Laws on Fishery Conservation

Indigenous knowledge on aquatic resources has also been passed orally from generations to generations. This knowledge includes fish location, movement, marine manual sighting, early thaws, fish catches⁴⁵¹ etc. Consequently, conservation of aquatic resources through community cultural values cannot be over emphasized because the highest aquatic diversity is often located in traditional communities, simply because people naturally set their roots down in areas with greatest natural endowment. It therefore stands that promoting the restoration and maintenance of traditional knowledge and practice is a useful conservation that needs to be uphold. In the case of Sanusi Fabiyo, the Balogun of Ibara and Onipede the Baale of Ibara Vs Akintoye, Onikalu of Owu⁴⁵², the dispute was on amount of rent to be paid on fishing rights, defendant paid the sum of N10 as yearly rent for fishing right, the

⁴⁵¹ Obusohan, E. C., Fisheries Biodiversity. The Role of Traditional Taboos/Ritual Prohibition in Management and Conservation of Fish Resources of Ibiokumo in Ekpoma, Edo State, Nigeria. *Bio. Science Research Communication* 20:257-264.

⁴⁵² Ake "A" Native Court 70/1950 (Unreported).

plaintiff now seek to raise the rent. The Native court ordered that the defendant should pay an annual rent of N30 which should be raised after a decade.

The clans in the Obon sector of Cross River, have traditional laws against the use of poisonous herbs, chemicals, and explosives in the harvesting of fish in streams and rivers, when any one is caught, the offender will be made to pay a heavy fine to the community, among these communities there is a traditional conservation group known as Mfameyin conservation society which assist the community in the enforcement of these laws. In the Imede community which is basically a fishing community their fishing festivals have the advantage of ensuring that fishes mature before they are caught. It also reduces over fishing, and haphazard fishing based on the need of individuals. During the fishing festivals, explosives and dangerous materials must not be used to catch fish. The festival promotes the proper management of fish resources.

Finally, this segment of the chapter identified traditional laws and taboos which played some roles in wildlife conservation. However, dwindling powers of traditional authorities and cultural erosion due to modernization advent of sophisticated hunting equipment and widespread poverty limit the efficacy of the application of these traditional conservation measures⁴⁵³. Nevertheless, adoption of some aspects of these traditional laws may be valuable for wildlife conservation, because in a country like Nigeria, with its large rural population, customary environmental laws or practices on natural resources management can no longer be

⁴⁵³ Poverty as the main cause of non-compliance with norms and taboos.

ignored because in many of these communities cited above, environmental laws are ignored if they conflict with their customs. Further due to high level of illiteracy, degree of legal awareness is low, thus many of these communities are not aware of laws, environmental laws in particular, hence inability to inform and educate the rural community and to enforce the statutes laws have strengthened the voice of customary conservation laws in this regards.

In the northern parts of the country, where Muslims are in predominance, Islam has played a major role in upholding the principles of conservation of natural resources than customs and statutes, therefore brief analysis of conservatory teaching of Islam declared and practiced by early Muslims over 1400 years ago becomes necessary

4.8.7 Conservation of Animal Species under Islamic Law

Until recently, man's relationship with the rest of the terrestrial life was best summarized by Qur'anic dictates. In many Islamic views, humans are seen as the major factor disturbing the natural balance of the universe. Allah Subuhannahu Wata'ala (SWT) said:

“Evil has appeared on land and sea because of what the hands of people have earned (by oppression and evil deeds, that Allah may make them taste a part of that which they have done, in order that they may have return”.⁴⁵⁴

⁴⁵⁴ Interpretation of the meaning of Noble Qur'an 30:41 (MT. AL-Hilali and M.M Khan Trans)Darussalam Publishers.

Environmental pollution, deforestation, desertification, biodiversity loss etc which are tantamount to disruption of the natural balance, are major forms of human corruption and mischief on earth, all the resulting disasters on this earth are direct consequences of the act of human beings. This is a lesson from God as a warning showing us the result of our bad deeds reflected as the spread of diseases, famines, floods, earthquakes and many other physical, economic and psychological hazards to humanity. The solution is to repent and refer back to Allah's law on earth, to protect Allah's creatures and take care of the whole environment.⁴⁵⁵

It is allowed in Islam to kill animals for food and clothing and to protect against harm. However, our dominium over the animal must be exercised in a balanced way that shows respect for life. Animals are to be cared for and guarded, not exploited arbitrary. Protecting wildlife and its fragile environment on which we all depend ought to be the urgent tasks of any God-fearing being.

Allah said in Quran⁴⁵⁶

Do they not look at the camels, how they are created?
And they carry your loads to a land that you could not
reach except with great trouble to yourselves. Truly,
Allah is full of kindness, most merciful and (He has
created) horses, mules and donkey for you to ride, and
as an adornment. And He creates (other) things of
which you have no knowledge.

⁴⁵⁵ Izzi Dien (1999) *Islamic Ethics and the Environment* in Khalid, F and O'Brien, S. (Eds) *Islam and Ecology* pp-25-35 Undim: Cassel.

⁴⁵⁶ Op.cit Quran (16:7-8)

The wonderful designs of animals brings happiness, pleasure and delight to the hearts of men, the appealing Zebra's stripes, behavioral strategy of bees, killy-100 birds flight, are marvelous for life. Our conservation spirit must be moved by God's wisdom for their purposes, sadly greed often stymies sincere effort to conserve our natural resources. Muslims are forbidden from killing any living creature without a reason. This belief is supported by the fact the prophet (SAW) once said: if a human being kills a bird or any higher form of creature without good reason, Allah will ask him or her about it. Again Allah in the Quran said⁴⁵⁷

There is not a moving (living creature on earth, nor a bird that flies with its wings, but forms communities like you.

Islam views each of these natural communities as a living entity that deserves our respect, and any violation of this law of mutual respect will disturbs the perfect balance of the ecosystems that Allah has made interdependent. Respect for animals is also evident in the ruling that we must show mercy to all living creatures.

The Holy Prophet (PBUH) was also very affectionate towards animals and birds and prohibited beating animals without justification. The messenger of Allah (PBUH) said:

‘Whosoever killed a sparrow unjustly, it will complain before Allah saying O! Allah such and

⁴⁵⁷ Ibid Quran (6:38).

such person had killed me unjustly and he had not killed me for any benefit'.⁴⁵⁸

In another instance, our Prophet (PBUH) said:

'Leave the birds in their nests to live peacefully'.⁴⁵⁹

It was further reported that "Whenever we arrived at a stopping place with the prophet (PBUH), we would never start the prayers until we had removed the loads from the pack-animals, and left them free to rest"⁴⁶⁰.

Allah's messenger (PBUH) said:

A prostitute was forgiven by Allah because, passing by a panting dog near a well and seeing that the dog was about to die of thirst, she took-off her shoe, and tying it with her head-cover she drew out some water for it. So, Allah forgave her because of that.⁴⁶¹

Islamic rules of conservation of animal species diversity can be seen in the areas where Islam prohibits the eating of certain animal species, the prohibition and restrictions assist in conserving these animals.

Some of the land animals that are prohibited include domesticated donkeys, predatory animals that hunt with a canine tooth like lions, cheetahs, dogs, pigs, monkeys, foxes and squirrels. Similarly all birds that hunt by their talons are prohibited, like vultures, buzzards, storks, hoopoes, geckos, porcupines to mention a few. All water birds and sea animals except for frogs, snakes and alligators. Indeed

⁴⁵⁸ Op.cit Sunan-al Nasa'I Hadith No. 4446.

⁴⁵⁹ Op.cit Sunan Abu Dawud Hadith No. 283.

⁴⁶⁰ Ibid Abu Dawud Hadith No. 47.

⁴⁶¹ Op.cit Sahih Bukhari.

all the above prohibited animals falls within the class of animals threatened with extinction under Convention of International Trade on Endangered Species (CITES) and Wild Animal Act and other wild animals preservation laws at the state level already discussed. The above Islamic provisions in effect assist in the conservation of these animals in areas where Muslims are in predominant.

It should be clear from the above analysis that Islam emphasized the importance of conservation and management of biodiversity. Accordingly, Islam promotes emphatically all measures that lead to the realization of common good and make it a tangible reality. Sadly this sense of responsibility and respect for the environment seem to have diminished. Muslim ummah has neglected the share of caring in for and preserving the earth's natural resources and other living being that share this planet with us. In this light, it is imperative that we take into consideration that conservation of natural resources is moral and ethical imperative, environmental problems and biodiversity conservation cannot be solved through knowledge, technology and law alone. Enlighten self interest does not motivate people to do more than is convenient and profitable for themselves that moral conviction and ethical consciousness on both individual and social levels can motivate people to forgo some of the short-range profit of this life, and to make personal sacrifices for the common good, that we can perform the noble role of stewardship on earth for which God created us. It is hoped that Muslim individual and their leaders will make up for those centuries of inaction and once more take the lead to proactively work to restore the earth environmental balance, mine so through the use of religious weekly

seminars in mosque to increase awareness and elevate public concern on conservation issues.⁴⁶²

Conclusion

From the examination above, plants and wild animals species are in brink of extinction with threat from poaching, habitat destruction, pet trade, forest fire, tree felling, climate change and other forms of greed that often stymies sincere effort to maintain their sustainable yields . We have seen that Nigerian existing legal frame work on these species conservation create challenges to conserving the country's natural resources and protecting its biodiversity. The laws remain unsuccessful in pursuit of this goal due to implementation and enforcement problems, inadequate public participation, legislative prioritization of economic as opposed to ecological values. However, despite these challenges, Nigeria can improve her plants and animal conservation legislations by increasing public role in conservation efforts, in cooperating customary rules, enhancing liability and enforcement measures and proactive enlightenment on the existence of these laws. The notion of conservation and management of natural resources in Nigeria makes it undisputable from the discussion of customary and Islamic principles of conservation, that an interdisciplinary and holistic approach is needed in order to adequately address conservation of natural resources. The impact of co-existence of indigenious and religious consciousness at one hand and modern conservatory grievances on the other hand becomes necessary.

⁴⁶² Clements, R. Rahman, U. (2009) Islam, Turtle Conservation and Coastal Communities. *Conservation Biology* 23 (3): 516 – 517

CHAPTER FIVE

LEGAL FRAMEWORK ON THE CONSERVATION AND MANAGEMENT OF GENETIC DIVERSITY IN NIGERIA

5.1 Introduction

This section of the thesis explores the legal framework on conservation and management of genetic diversity, particularly the aspects touching on Access to Genetic Resources and Benefit sharing (AGRBS) and Bio safety in the face of surging growth in bio-prospecting. The need for this study arises because of the vast array of Genetic Resources (GR) Nigeria is endowed with, and the potentials for increases on active bio-prospecting, the wealth of the nation ought to be increasing. This can serve as an active tool or incentive for sustainable utilization of biodiversity resources in Nigeria.

It was found among others that extant legal framework in Nigeria pay little attention to the needs of indigenous or local people who are the key players in resource conservation by their proximity to natural resources, instead, too much emphasis is placed on state sovereignty over biodiversity resources without corresponding legal obligations to protect the economic interest of the local people.

Genetic Diversity Resources (GDR) refers to the heritable materials contained within and among plants and animals species of present and potential value⁴⁶³. The concept of Genetic Resources (GRs), refers to the heritable materials contained within and

⁴⁶³ Ogbu, J. U. et al, (2010) 'Conservation and Management of Generic Resources of Horticultural Crops in Nigeria': Issues and Biotechnology Strategies. *Journal of Horticultural and Forestry* Vol. 2 (9) Pp. 214-222

among plants and animal species of present and potential value⁴⁶⁴. Preserving biodiversity takes place at the molecular level in the conservation of genetic diversity efforts are being made to collect and preserve endangered organisms. Deoxyribonucleic Acid (DNA) that contains their genes, these collection or gene bank may consist of frozen samples of blood or tissue, or even live organism. Biologists, uses the gene bank to broaden the gene pool of specie.

Zoo aquarium and botanical gardens work together to carefully maintain the genetic diversity in captive population of endangered animal and plants. Captive animal are breed with wild population, or actually released in hopes that they will breed freely with members of the world population, this increasing its genetic diversity. These gene banks are also essential resources to replenish the genetic diversity of crops enabling plant breeders and biologist to strengthen them.

The objective of safeguarding genetic resources of both plants and animals, which are of current or potential use are to preserve them for their scientific, economical and educational uses by the present and future generation. The preservation of wide genetic diversity existing within the natural ecosystem offers maximal scope for selection to meet environmental demands. Genetic resources, may be of reproductive or vegetative propagate such as seeds, shoots, tissues, cells, pollen, DNA molecule etc., containing the fundamental units of heredity in addition to corresponding information and knowledge about their use that can be applied in crop, animal improvement programmes and other product developments.

⁴⁶⁴ Ogbu, J. U. et al., (2010) 'Conservation and Management of Genetic Resources of Horticultural Crops in Nigeria': Issues and Biotechnology Strategies, *Journal of Horticultural and Forestry* Vol. 2 (9) pp. 214.

However, despite the enormous importance of genetic diversity resources, the country is faced with increased threats to conservation of these reasons identified as follows habitat loss and modification, pollution, alien invasive species, replacement of traditional varieties with modern ones, patents rights for the protection of plants and animal varieties, climate change, genetic vulnerability, erosion, population growth and urbanization and enforcement problem to mention a few. It is the aim of this chapter to therefore, examine the present status of Genetic Diversity Resources (GDR) in Nigeria. The chapter also aimed at creating awareness on threats to (GDR) and the need for their effective conservation and sustainable utilization through the instrumentality of the law. It is against this backdrop therefore, the chapter is divided into four segments for ease of analysis. (i) Nature and scope of conservation of genetic diversity resource in Nigeria. (ii) Analysis of the Legal regime on conservation of (GDR). (iii) Constraints on conservation of (GDR). (iv) Conclusion.

The chapter's overarching goal is to improve the existing legal and policy framework so that the conservation of genetic resources diversity could be sustained over a long term, it is in this wise that the research work seeks to analyzed the trade-off between economic growth with regards to the activities of bio prospecting in Nigeria on the one hand and conservation and management of bio resources in the light of the legal Regime on Access to Genetic resource and Benefit Sharing and the recently enacted Bio safety Act 2015as pointed out above.

5.2 Nature and Scope of Genetic Resource Conservation

Plant and animal genetic resources is the pillar upon which world food security and agriculture depends especially with expanding global population. The concept refers to the notable materials contained within and among plant species of present and potential economic, scientific or societal value. Hamler and Teklu⁴⁶⁵ opined that genetic adaptation and the rate of evolutionary response of species to selective forces (changing environment, new pests and diseases and new climatic condition) depend on inherent levels of genetic diversity present at the time. The importance of genetic resources is reflected in any facet of human endeavors as it provides the gene pool from which resistant and improved varieties can be engineered. The use of genetic resources in the field of medicine and public health are probably the highest profile examples of their use, and the biggest influence in the concept of 'green gold'. The use of genetic resources as the raw material for medicines is probably as old as humanity itself and is as old as recorded human history with written records going back some 5,000 years⁴⁶⁶. Many of the pharmaceuticals that are household names, such as aspirin, quinine based anti malaria, are plant based⁴⁶⁷. For example Neem (*Azadirachite Indica*) products have valuable medicinal properties and traditional uses as medicine and diabetes food, leaves, fruits and oil of neem plant is used as medicine and diabetes food, leaves, fruits and oil of neem plant is used to cure many ailment like acne, scabies, eczema,

⁴⁶⁵ Hammer, K., Teklu, U. (2008) 'Plant Genetic Resources', Selected Issues from Genetic Erosion to Genetic Engineering. *J. Agricultural Development in the Topic Subtropics* 109: 15-50

⁴⁶⁶ Cragy, and Newmon, D. J. (2002) *Drugs from Nature: Past Achievement, Future Prospects*, In Iwu, M. (eds) *Ethnomedicine and Drug Discovery* 23, 24.

⁴⁶⁷ Iwu, M. (2002) *Ethnobotanical Approach to Pharmaceutical Drug Discovery* : Strength and Limitations at 309-314

and other fungal diseases. Some notable medicinal plants in Nigerian tropical forest includes African nutmeg (*mondora myristica*) guinea pepper (*xylopia ethiopocum*) lemur grass, garlic (*allium ashure*) ginger (*zingher officinde*), black pepper (*gingroneme latifolum*) their vasality in properties of traditional medicines for both young and aged through genetic manipulation are well known.

The aim of conservation is to collect and preserve adaptive gene complexes for present and future use. The main conservation strategies are ex-situ and in situ and each include a range of different techniques. In situ conservation⁴⁶⁸ implies the maintenance and regeneration of the ecosystem or species involved in their areas of origin or natural occurrences. In situ in addition to natural habitat in protected areas and natural reserves, also need to be carried out on farm in the areas where land uses and locally adopted farmers participate to conserve land uses and traditional farm varieties. Genetic resources may be conserved even in home gardens⁴⁶⁹ and on farm conservation.

⁴⁶⁸ Ladan, M. T.,(2006) *Biodiversity Resources Law and Policy for Sustainable Development in Nigeria* P. 7

⁴⁶⁹ Rathore, D. S. et al (2005) *Management of Genetic Resources of Horticultural Crops: Issues and Strategies*, in: B.S. Dhillon, R. K., Tyogi, (eds) *Plant Genetic Resources: Horticultural Crops*. Naross Publishing House, New Delhi, Pp. 1-8

Table 5.1: In-situ sites in Nigeria

Conservation Status	Total Number	Total Area (HA)	% of Total Area
Gazette Forest Reserve	445	9,651,800	10.3
Strict Nature Reserves	12	*	
Biosphere	1	560*	<0.01
Natural Regeneration Investigation Plots			
Permanent Sample Plots	>20	*	
Game Reserve/Sanctuaries	>200	*	
National Parks	32	1,195,578	1.28
Fish Parks	6	1,338,200	2.5
Proposed Game Reserve/National Parks	3	NA&	
Ramsar (Wetland) Sites			
Proposed Ramsar Sites	13	371,920	0.40
	3	47,200	0.05
	1	29,700	0.03

Source: Biological Diversity in Nigeria (2015)

The genetic material is also conserved ex-situ either in field, seed, in vitro and cyro bank. Crops that produce seed which is amenable to desiccation and can tolerate land temperature; germ plasm conservation is the most common approach. To plants that have recalcitrant seed, require field gene bank facility for the conservation. Germ plasm of commercial plants and ornamental trees in Nigeria are

mainly being maintained in field gene bank by the horticultural and related research institute. The botanical gardens, greenhouse, orchards, arboretum also have an important role in the ex-situ conservation of plants genetic resources⁴⁷⁰. Botanical garden fill an important gap in ex-situ conservation of species which otherwise have not received much attention from traditional seed and field gene banks.

Table 5.2: Status of National Ex-situ conservation facilitates ex-situ institutions/conservation facilities.

Institution	Number			Total No. of Species/specimens		Biodiversity value/role function
	Existing	Required	Plants	Animals	Microbes	
(i) Zoos/zoological gardens	>12	32	X	41	*	<ul style="list-style-type: none"> i. Conservation of genetic resources ii. Recreation iii. Breeding center for re-introduction purposes iv. Captive rearing (domestication)
(ii) Botanical Garden/Arboreta	>2	6	>200	>25	X	<ul style="list-style-type: none"> i. Conservation of genetic resources ii. For data collection on function and dynamic of natural forecast
(iii) Supply of seeds and other propagates	>12	20	X			<ul style="list-style-type: none"> i. Plant breeding/multiplication ii. Education and training

⁴⁷⁰ Brutting, C. et al. (2013) "Ex-situ cultivation affects genetic structure and diversity in arable plants". Plant Biology, Vol. 15 pp. 505-513.

						iii. Recreation/aesthetic values
(iv) Museums	-	20	X	X	X	i. Education and training ii. Recreation
(v) Aquaria	10	20	>200	-	X	i. Education and training ii. Recreation
(vi) Herbaria						i. Taxonomy ii. Education and training iii. Recreation iv. Provision of information on biology and distributed of particular species
(vii) Aviaries	12	12	X	X	X	i. Taxonomy ii. Education and training iii. Recreation iv. Provision of information of biology and distribution of particular species

Sources: Biological Diversity in Nigeria (2015).

Other biotechnological strategy of conserving genetic resources diversity includes in vitro conservation and cryopreservation techniques. These techniques made it possible to collect and conserve genetic resources, especially species that are difficult to conserve as seeds cryo-conservation (storage in extreme deep freeze situation) allows for extremely long storage of many species and is accomplished with liquid nitrogen 196⁰C. Nonetheless, it is really expensive to maintain and a

constant supply of liquid nitrogen has to be available at all times⁴⁷¹. DNA and pollen storage also contributes to ex-situ conservation. In vitro meristem culture technique offers the possibility of eliminating viruses and thus, exchange of various free germ plasm. The method offers up to medium term storage option, by avoiding risk of losses of germ plasm on field gene bank due to insects nematodes, disease attack and natural disaster. The cryopreservation refers to the non-lethal storage of biological tissues at culture-low temperature, usually that of liquid nitrogen which is 160⁰C. currently, it is the only options available for the long term conservation of germ plasm and recalcitrant species.

Conservation without use has little point, conversely, use without conservation means neglecting the genetic base needed by farmers and breeders alike to increase productivity in the future. Over the last few decades, awareness of the rich diversity of exotic or wild germ plasm has increased. This has led to a more intensive use of this germ plasm in breeding and thereby yields many plants and animals increased drastically⁴⁷². Consequently, a major objective of genetic management is to minimize in breeding and loss of genetic diversity.

It is in line with the above objective that Nigerian government has set up different institutions responsible for genetic conservation and these include:

⁴⁷¹ Ogwu, M. C. et al (2014) 'Challenges in Conserving and Utilizing Plant Genetic Resource '(PGR) *International Journal of Genetic and Molecular Biology* Vol. 6 (2) P. 20

⁴⁷² Ogbu, J. U. et al (2013) 'Conservation and management of genetic resources of horticultural crops in Nigeria': Issues and biotechnological strategies. *International Journal of Agriculture Research and Development*. Vol. 1(3) p .23.

1. Federal Ministry of Environment which has overall responsibility for environmental management and genetic resources conservation in general.
Others include:
2. Forestry Research Institute of Nigeria which improves genetic value of species of economic potentials, integrate the cultivation of wild plants and animals of economic importance into the farming system in different ecological zones.
3. National Institute for Freshwater Fisheries Research (NIFFR) New Bussa. Responsible for genetic improvement of freshwater fisheries and conservation.
4. National Agricultural Extension and Research Liaison Services (NAERLS), Zaria, responsible for public awareness on the conservation of crop gene banks on the fields and the use of environmentally friendly agricultural practices.
5. International Institute of Tropical Agriculture (IITA) Ibadan responsible for conservation of ex-situ seed gene bank and field gene bank for agricultural crops and multipurpose trees.
6. National Center for Genetic Resources and Biotechnology Ibadan for conservation of seed field gene bank in vitro for forest trees, fruit trees, vegetable and ornamentals.
7. Institute of Agricultural Research, Samaru Zaria – for conservation of gene bank for various food crops.

8. National Root Crops Research Institute, Umudike – conservation of five fields gene bank of farm for cassava, potato, sweet potato, ginger and cocoyam.
9. National Institute for Pharmaceutical Research and Development (NIPRD) for research and development of the active component of medicinal plants for industrial utilization and their conservation, documentation, training and evolution of herbal products and traditional medical practice.
10. The National Horticultural Research Institution (NIHORT), with its headquarters at Ibadan was established in 1975 with mandate of genetic improvement of tropical fruits, vegetable and ornamental plants. In short network of representative of biodiversity conservation types includes:
 - Strict Nature Reserve (SNR)
 - Game Reserve (GR)
 - National Parks (NP)
 - Botanical Gardens (BG)
 - Arboreta

5.3 Indirect Causes of Genetic Resource Loss

The work seeks to look at some of the direct causes of genetic resource loss in Nigeria, with the view to find out whether or not the laws put in place to prevent these losses has achieved its desired objectives. These direct causes include:

- a) Climate Change: Climate Change is having a significant negative impact on the environment and on genetic resources often leading to perturbation such as drought, flood and diseases, perturbation such as drought, flood, and diseases changes in rainfall and extreme weather events are likely to diminish crop yields in many areas. More so, rise in sea level, causing loss of coastal land and saline water intrusion, also leads to crop depletion this will impact on the distribution of genetic resources and most likely alter the physiognomy⁴⁷³.
- b) Replacement of Traditional Varieties with Modern Ones: In recent years, there has been a loss of traditional conservation practices and other customs. This has been mainly because of the expansion of the use of high yielding species and varieties in commercial agriculture, climatic factors, pests and diseases in appropriate agrarian policies and development activities and poverty, which increase the migration of indigenous youth (with their knowledge and experience and customs of traditional Andean agriculture). The simple most important reason for genetic erosion is the replacement of traditional varieties with modern, high yielding gene and the unknown ones⁴⁷⁴. Although gene banks play essential role in conserving and maintaining the varieties.⁴⁷⁵, however reported that widespread genetic erosion is taking place in some, perhaps even many gene banks, as a result of

⁴⁷³ Pisupati, B., (2003) Biodiversity and the Millennium Development Goals, *IUCN/UNDP* p. 8

⁴⁷⁴ Bhullar, N. K., (2002) Wheat Gene Bank Access as a source of New Alleles of the Powdery Middle Resistance Gene <http://www.biomedcontrol.com/14T1-2229> 10/06/14

⁴⁷⁵ FAO (1998) The State of the World's Plant Genetic Resources, Selected Issues for Food and Agriculture, *FAO Rome Italy*, p. 89

poor management, poor maintenance and scarce financial resources, as well as limited institution capacities. The use of only improved varieties of crops and the complete neglect of local varieties and the land races also lead to loss of genetic diversity. A major example is the use of improved Okra (*Abelmoscus esculentus*) in place of the native material of the Okro (*Acaillei*) that is popularly known to be sensitive to day light, local varieties including sword beans, canavalia ensiformis, African yam bean (*sphenostylis stenacarpa*) and lime beans/*phosceolus henatus* are now becoming extremely rare. Popular crops have also been induced and they have been replaced with commercially improved varieties, thereby causing the loss of important gene resources of e.g. hungry rice Acha' are no longer in popular cultivation.

- c) Disease: Genetic resources are now susceptible to different new diseases absent in the original population. Reduction in pool increases vulnerability. Control of fungal diseases by chemicals which is expensive and can have negative impacts on natural ecosystem where genetically based resistant offers difficulties in ecological sound control.
- d) Invasive Alien Species (IAS): or referred to as exotics or non indigenous species. IAS are species native to one region that have been introduced into an area outside their natural distribution, either by accident or on purpose, which have colonize or invaded their new home, threatening biological diversity, ecosystem and habitats and human well being. The threat posed to biodiversity by IAS, is considered second only to that of habitat loss (CBD,

2003)⁴⁷⁶. IAS may outcompete with native species, representing or excluding them and therefore, fundamentally change the ecosystem. Entire ecosystem may be placed at risk through knock-on effects.

- e) Genetic Vulnerability and Erosion: Genetic vulnerability result when a widely planted crop is uniformly susceptible to a pest, pathogen or environmental hazard as a result of its genetic constitution, with a potential for widespread crop losses. A significant example of the impact of genetic vulnerability is the outbreak of continued spread of the Ug 99 rice of wheat stem rust, to which the large majority of existing varieties is susceptible⁴⁷⁷. In view of the above analysis and the need to overcome the hurdles against conservation of genetic resources, below is an analysis of the legal framework on genetic resource conservation in the light of Access to Genetic resource and Benefit Sharing and Bio Safety legislation.

5.4 Conservation of Genetic Resources Diversity under Statutory Laws

The question of conserving genetic resources in a gene-rich developing country such as Nigeria and sharing of the benefits thereof has been a recurring problem despite numerous International Agreement e.g. CBD⁴⁷⁸ and Cartagena Protocol(CP)⁴⁷⁹ together with national legal regimes to overcome this challenge. Controversies over access to genetic resources genetic resources commonly relate to

⁴⁷⁶ CDB (2005) Invasive Alien Species, Convention on Biodiversity <http://www.biodiv.org./programmes/cross-cutting/aliens>

⁴⁷⁷ Preotrius, Z. A., (2009) Detection of Virulence to wheat stem rust resistance gene Sr31 in Puccinia Graminis f.sp. Tritici in Uganda Plants Diseases, 203-208

⁴⁷⁸ *ibid*

⁴⁷⁹ *ibid*

the concern over the ownership of control of and problem of bio-piracy, rights of the indigenous and local communities, mechanisms for sharing of benefits arising from exploitation and commercialization of genetic resources and associated intellectual property rights.

Biodiversity prospecting or bio-prospecting is the exploitation of biodiversity for commercially valuable genetic and chemical resources. The adoption of the United Nation Convention on Biodiversity, 1992, with the goal of sustainable use of bio resource component and fair and equitable sharing of the benefit arising out of its commercial use. The convention places emphasis on sovereignty of nations over their bio-resources and their share in the benefit that accrue from commercialized biodiversity products,⁴⁸⁰ their by regulating access to genetic resources and ensuring the benefit shearing among stake holders.

Critical question hinging on conservation are posed, some of these revolve around whether active exploitation of genetic resources can be done in a sustainable and beneficial way; can bio prospecting actually be a mechanism for conservation of genetic resources. The question of conservation of genetic resource in the face of surging growth in bio prospecting. The need for this analysis in this part of the thesis arises because given the vast array of genetic prospecting is endowed with and the potential for increase in active bio prospecting the wealth of the nation ought to be increasing. This can serve as an active tool or incentive for sustainable utilization of genetic resources.

⁴⁸⁰ Art 15 of CBD, thereby regulating access to genetic resources and ensuring the benefit sharing among stakeholders.

Bio-prospecting is the purposeful evaluation of genetic materials in search of valuable new products. It involves the application of cosmetics, flavoring, fragrance, industrial enzymes and other products from genetic materials.⁴⁸¹ The new development has given impetus to the pace of change which has in turn created greater demands for adequate supply of bio-resources.

From the above analysis therefore, it can be said that bio-prospecting puts untold pressure on genetic materials, though it also yield huge economic gains to the nation involved. The question then is can a balance be struck between these developmental concerns? That is, the concern on one had to conserve genetic material and the quest that there exploitation contribute to economic development. The quest for economic development remains the main cause of unsustainable utilization of bio resources resulting in a constant loss. What role can law play in balancing these growing concerns in order to ensure that the ability of the future generation to meet their needs is not jeopardized?

Fundamental elements requisite to ensure that bio-prospecting will result in conservation is by ensuring that people or institution that own or control the genetic materials derive adequate benefits from prospecting to the extent that they are willing to conserve rather than deplete the resources for other purposes. If economic gains derivable from bio prospecting are not shared among local community to serve as incentive for conservation, it will result in local people losing future access to their genetic resources.

⁴⁸¹ Moran Kaly (2013) "*Lesson from Bio-prospecting in India and Nigeria*" GSO issue: Commodity, available at <http://www.cultural/survival/org/our/publication/csqa/article/lesson/bio> accessed on 14 Nov. 2013.

Several existing laws in Nigeria have some bearing on Genetic Resources Conservation and access issues, while several authorities that preside over different aspects of the issues are under various laws, includes, Trade and Intellectual Property Components. It is in this wise that this part of the work would analyze some of the national laws regarding access to genetic resources and benefit sharing in the country.

1. Constitution⁴⁸²
2. National Parks Service A⁴⁸³
3. Sea Fisheries Act⁴⁸⁴
4. Land Use Act⁴⁸⁵
5. National Environment (Access to Genetic Resources and Benefit Sharing) Regulation⁴⁸⁶.

i) Constitutional Context and Issues:

The 1999 Constitution of the Federal Republic of Nigeria (FRN),⁴⁸⁷ does not include any specific provision with regards to Genetic Resources ownership or conservation, nor does it grant general right to a good and healthy environment. Nevertheless, by inference some of its provisions, envisage the need to protect the country's environment, including its diverse ecosystem and natural resources and utilization of same for benefit of Nigerian citizens,

⁴⁸² Constitution of the Federal Republic of Nigeria 1999(as amended)

⁴⁸³ CAP. 197 Laws of the Federal Republic of Nigeria(LFN).2004.

⁴⁸⁴ CAP.S.4 LFN 2004.

⁴⁸⁵ CAP.L.5 LFN.2004

⁴⁸⁶ S.1 NO.30, Vol.96 of 9-Oct,2009.

⁴⁸⁷ Constitution of the Federal Republic of Nigeria, 1999, as amended.

though the relevant provision are not, justifiable per se, it could be reasonably argued that, the provision that ensures the “right to acquire and own movable property anywhere in Nigeria” could be constructed to imply a right to own and control natural resources found on it, including Genetic Resources.⁴⁸⁸ This provision has not yet been tested or interpreted in this sense, by any court of law.

The determination of ownership and control of genetic resources is a foundation of national and sub-national law⁴⁸⁹ which, in the case of Nigeria, means the laws of the Federation and the component states. But while intellectual property rights – copyright, patent and other certain aspects of trade are under the exclusive jurisdiction of federal authority, land, forestry, wildlife are within state competencies. Based on these laws and provision, it could be argued that the to adopt legislation on and control access to biological resources resides primarily with state government, while protection of the associated intellectual property rights is within the exclusive legislative competence of federal government but not including case of local communities rights based on their knowledge, innovation and practices embodying traditional lifestyles which will be within the customary laws and practice of the state.

⁴⁸⁸ This does not include any right to the mineral resources found in or under the land. This is specifically vested in the Federal Government of Nigeria by the constitution and several other laws, especially those regarding solid and gas exploitation and mining.

⁴⁸⁹ Lyle Glowka (2004) *A Guide to Designing Legal Framework to Determine Access to Genetic Resources*.

- ii) National Parks Service Act.⁴⁹⁰ The Act sets a trend in the light of other efforts to formulate a more comprehensive national approach to access and related issues. The Act establishes an access regime for bio prospecting in any national park, the governing law explicitly vests ownership of wild animal and wild plant whether biological, geomorphologic or otherwise, existing or found in national park in the federal government. The laws cover not only the biological material but also the associated knowledge and envisage sharing of benefits with local communities within and around the park. The National Park service is responsible for administrating the provision of the Act, which includes issuing the permits for bio prospecting activities in any National Park and negotiating benefit sharing arrangement.
- iii. **The Land Use Act⁴⁹¹:** In Nigeria, there are two methods of land holding recognized under the law: customary land ownership and statutory. The customary land tenure system vest ownership of land in families and is portrayed as systematic and coherent management structures, biological resources, conservation practices were paramount attributes of customary land tenure system⁴⁹². However this system was constrained by the Land Use Act which vests management, control and ownership in the government of a state and local governments⁴⁹³. State control all biodiversity within its territory. Governance powers to allocate and acquires land in any cases remove the real sense of ownership of local people and reduce their

⁴⁹⁰ CAP. 197 LFN 2004.

⁴⁹¹ CAP L.5 LFN, 2004

⁴⁹² In many traditional societies there existed and still exist traditional forest where several species of plants and herbs are conserved and which cannot be deserted without penalty. These forest serve the medicinal needs of the people.

⁴⁹³ Section 1 of the Land Use Act.

commitment to invest fully in conservation effort. In the exercise of his powers, the governor of a state may designate and acquire any land for forestry and conservation purposes. The Act recognizes communal right to land subject to compulsory acquisition of such land for overriding public purposes.

Unfortunately, the Act does not appear to address the allocation of land from resource conservation perspectives. This has resulted to wanton exploitation and mismanagement of bio resources. Also the practical implementation of the Act has been characterized by official corruption leading to indiscriminate grant of permit to lumberjacks who often cut trees without adequate supervisions, resulting in loss of important genetic resource. Perhaps any future review of the Act can take into consideration the need for bio conservation issues to be addressed when approvals for land use are made.

iii) Patents and Design Act⁴⁹⁴. Intellectual property rights and AGR. The reason why industries make investments in research and development is the expectation of technological advantages in relation to other market competitors as a result of, higher profit. Intellectual property rights(IPR) provides protection for the results of investments in the development of new technology. IPR are thus means of promoting and rewarding innovations. However, belonging to private and public interests in protecting innovation in the essence of intellectual property.

499 CAP.22 LFN 2004.

The importance of bio materials for industrial purposes is expanding to allow effective utilization of natural species genes and to market the improved product. They will thus make intensive use of any IPR regime in force to recover their incentives. Many countries have been granted patent as domestically bred plants in developing countries and also on indigenous knowledge about their use.

However, applying IPRs to plant genetic material can result in contracting farmers in the use of patented seed varieties farmers face the threat of becoming dependent in commercial supplies for vital inputs such as seeds. This can at the same time reduce breeding alternative for local and indigenous farmers and communities. Strong IPR system can promote genetic erosion, which entails services implication for genetic post.

The formal innovation (IPR) concept is not applicable to indigenous knowledge where contribution are often made by entire communities and cannot be attributed to distinct groups or individuals. Concern in this respect is that of acquiring and depending IPR provisions within the convention regimes requires access to information, good legal advice and financial resources which are often beyond the capacities of local communities. Recognizing why the formal establishment of IPR also bears the risk that local communities will be forced to buy the products of these companies at high prices and have to pay royalties for using products which they had originally developed, improved used and protected themselves for centuries.

Cultural and intellectual contributions of TK to industrial inventions risks being erased and lost forever a cursory examination of the extent Nigeria's intellectual property regime reveals some difficulties with regard to AGR. The Patents and Design Act though allows for patent or invention if it is new, or if it constitute an improvement upon a patented invention. The Act however exempts from patent protection all products of nature and patent is denied for an invention obtained in respect of plants and animal varieties other than microbiological process and their products⁴⁹⁵.

- v) National Environment (Access to Genetic Resources and Benefit Sharing) Regulation⁴⁹⁶ is an important piece of legislation which is aimed at securing easy access to and sharing of benefit of Genetic Resources. The Regulation clearly outlines the legal and institutional regime for ABS in Nigeria and establishes the appropriate authority to grant access permit to prospectors. The Regulation turn the spirit of CBD, into national instrument, to this end the regulation prohibits transfer of Nigerian genetic resources outside Nigeria without approval. The regulation also provides for the levying of appropriate fees and royalties on such transfers and IPRS. Regulation formalizes prior informed consent mechanism in the context of access to genetic resources and imposes legal obligation on the access-granting authority communities

⁴⁹⁵ Cap. 22 LFN 2004.

⁴⁹⁶ National Environmental (Access to (Access to Genetic Resources and Benefit Sharing) Regulation SI No. 30, Vol. 96 of 9th October, 2009. Prior to this Regulation, although Nigeria has enacted several laws to promote the sustainable conservation and domestic management of natural resources, they do not address the problem of collection, trade in and ABS of genetic resources even though bio-trade and bio-prospecting activities for research and commercial purposes has been going on in Nigeria under a largely informal regime.

and permit-holders. A review of the regulation above will throw more light in the adequacy or otherwise of the legal mechanism toward regulating access to GR and benefit sharing and its extent to genetic conservation in Nigeria.

The thrust of this law, which is by far the most important and most relevant law impacting bio-prospecting in Nigeria, is to ensure the sustainable use of bio-resources. It prohibits any activity that may have any adverse impact on biodiversity. To ensure this objective, prospectors are required to carry out an environmental impact assessment (EIA) before engaging in any of their activities. It imposes restriction on the access and use of any threatened species in order to ensure its regeneration and sustainable management. In addition the NESREA, by this Regulation is to monitor the states and component of biological diversity in Nigeria and take necessary measures to prevent and control their depletions. See Regulation 1, 2, 3 and 4 penal section provided in section 23.

However, the agency which is entrusted with the implementation appears not fully able to grapple with the requirements of implementation a situation which has continued to affect access to genetic resources in a fair and equitable manner as envisage under the Nagoya protocol on access to genetic resources.

Powerful individuals and people who owned industries become vicious and formidable. An example is the interference of the Federal Government in the

function exclusive to NESREA the Federal Government in May, 2012, barred NESREA from sealing telecom mast⁴⁹⁷.

The competent authority to grant permit to bio-prospectors under this regulation is the National Environmental Standards and Regulation Enforcement Agency (NESREA)⁴⁹⁸ who also doubles as the National Focal Point (NFP) to Bio-safely Clearing House established under Cartagena Protocol and more recent under the newly enacted Bio safety Act.⁴⁹⁹ The exercise of the licensing authority is conditioned upon the identification and preparation of the national inventory of the status of the biological diversity of Nigeria including threatened, endangered, endemic and rare species.⁵⁰⁰

It is the requirement of the law that an applicant seeking access to GR in Nigeria must first apply in the prescribed form Material Transfer Agreement (MTA) and obtain an access permit from the Agency.⁵⁰¹ Such application must disclose vital material about the identity of the applicant and purpose for which permit is being sought.⁵⁰² The application must also disclose details of sponsors of the project, where the applicant is a body corporate, it must disclose additional information about

⁴⁹⁷ :Federal Government Bars NESREA from sealing Telecom Masts". This Day Live (Nigeria May, 2012) <http://www.thisdaylive.com/article/fg-bars-nesrea-from-sealing-telecomsmasts.116746/> accessed on 29th January, 2014

⁴⁹⁸ Prior to the establishment of NESREA, the authority responsible for the grant of permit was Federal Environmental Protection Agency (FEPA). The Agency was scrapped in 1999 by the Presidency and merged with the Federal Ministry of Environment.

⁴⁹⁹ *NESREA Act*, Section 7 As the National Focal Point with a specific mandate to communicate information on access and benefit sharing to Bio-safety Clearing House.

⁵⁰⁰ Regulation 3.

⁵⁰¹ Regulation 5.

⁵⁰² Regulation 5, Schedule 1.

the registration status of the company, object of the company and names of directors and contact persons.

Prior Informed Consent (PIC) is one basic requirement of an access permit by the Agency from interested person. PIC requirement ensures that the local communities or landowners who exercise physical control over the GR are duly consulted by the prospectors before an access permit can be granted,⁵⁰³ thereby eliminating possible conflicts that may likely arise when permit is granted to foreign prospectors by the government without prior local input or consultation.⁵⁰⁴ PIC submitted by an applicant must contain detailed information about the applicant legal entity, structure and financial budget for GR prospect. It must also include information about the type and quantity of GR to which access is sought, research duration, geographical location, purpose of collection and expected results. The PIC must also give detail information on where the gene prospector intends to locate the research and how the research is to be carried, monetary and non-monetary benefit-sharing arrangement and procedure.⁵⁰⁵ An application for access permit is predicated on a formal Material Transfer Agreement (MTA) between the local gene

⁵⁰³ Kuei, Y. N., (2009) 'Legal Aspects of Prior Informed Consent on Access to Genetic Resources': An Analysis of Global Lawmaking and Local Implementation Toward an Optimal Normative Construction 42 V and *J. of Transnational Law* 227.

⁵⁰⁴ Conflict resulting from lack of local support for GR prospecting may be in form of prevention of access to the GR in-situ through violence, kidnapping, murder and sabotage of the foreign prospector as witnessed in the oil prospecting sector in Nigeria. See Amokaye, O.G. "The Convention of Biological Diversity, Access to and Exploitation of Genetic Resources and the Land Tenure System in Nigeria" (1) *African Journal of International Law*, (1999), p.86.

⁵⁰⁵ Schedule 2 of the Regulation

providers, which may be public institution or local communities and foreign gene-users or prospectors.⁵⁰⁶

A request for the grant of an access permit must be advertised in at least two national newspapers before a permit can be issued by the Agency⁵⁰⁷. The advertisement must specify the name and other particulars of the applicant, location of genetic material and country of destination. The advertisement enables stakeholders to comment on the access request as well as raising reasonable objection to the access request. A permit may be denied if the Agency is satisfied that the activity to be carried out by such access to will not facilitate sustainable management and utilization of GR for the benefit of the people of Nigeria after a proper review of the application and decision to approve or reject a request. The Agency must consider the economic and environmental implication against the public interest benefits and come to the conclusion that the overall public resources outweigh the economic and environmental costs. Where the Agency has reasonable grounds for refusing to issue the access permit, it has to inform the applicant of the reasons for such refusal in writing.⁵⁰⁸

A permit under the Regulation⁵⁰⁹ may be granted unconditionally or conditionally. Condition attached to a permit may be used to achieve several environmental social and economic purposes. It can be used to either conserve certain GR in-situ and ex-situ or to protect the depletion of endangered plant and

⁵⁰⁶ Schedule 7 of the Regulation

⁵⁰⁷ Schedule 8 of the Regulation

⁵⁰⁸ Regulation 10(2) of the Regulation

⁵⁰⁹ Regulation 14(1) of the Regulation

animal species, or preservation of important national habitat or reinstatement of damage to the ecosystem as a result of genetic prospecting. Although the power of the Agency to impose and vary conditions is expressed in wide terms but it is clearly not an unlimited power, the conditions imposed must relate directly to local consideration and must not be unreasonably extraneous. The discretionary power to impose the condition must be reasonable. A permit holder may challenge unreasonable conditions imposed in the permit in the court, the appropriate court is at the Federal High Court.⁵¹⁰ Though Nigerian courts generally defer to the regulatory authorities discretion unless the Agency disregard what it ought to have taken into account.⁵¹¹

In a related town planning case of *Adebutu V Lagos City Council*,⁵¹² where the discretion of Town Planning Authority to impose conditions on a building permit was challenged by the plaintiff, the court held that a statutory power to impose condition, even though expressed in the widest terms, must be held to be subject to limitations:

- a) The conditions must be fairly within the ambit of the statutes;
- b) The conditions must not be unreasonable, ambiguous and uncertain in its application.

⁵¹⁰ Under the provision of Section 351(1) © of the 1999 Constitution of the Federal Republic of Nigeria, the jurisdiction to entertain disputes between any agencies of the Federal Government is vested in the Federal High Court only. See also *NEPA V Edeghero* (2002) 18 NWLR (pt. 798) p.79 at p.97.

⁵¹¹ *Governor of Oyo State V Folayan* (1995) 5 SCNJ 50 at 53.

⁵¹² *Adebutu Vs. Lagos City Council* (1966) ALL NLR (Reprint) 571, *Pyx Grannite Co. Ltd Vs. Ministry of Housing and Local Government* (1958) IOB 554 at p. 572 per Lord Denning.

A fundamental condition of an access to permit is the obligation on the holder to abide by the laws of the Federal Republic of Nigeria relating to traditional and community rights over ownership and custody of GR.⁵¹³ It also implied condition on the permit holder to furnish the Agency quarterly reports on the status of research, including all discoveries from research involving GR. A permit is valid for one year from the date of issuance.⁵¹⁴

Another important requirement under the regulation⁵¹⁵ and under the Environmental Impact Assessment Act (EIA) Act⁵¹⁶ is the obligation to prepare and submit EIA, which must be submitted along with application for access permit. The pre-permit EIA report must show the list of plants and animals present in core and buffer areas of the proposed access site and ecosystem. The status of identified species will be cross-checked according to International Union for Conservation of Nature (IUCN) list of threat categories viz, endemic, endangered, vulnerable and rear, in case of aquatic ecosystem the measurement of primary productivity must also be included in EIA, other important aspect of EIA of GR is extent of dependency of the local people on the bio-resources of the project site such as collection of firewood, medical plants etc, the report must show any environmental change that the GR prospecting may cause to the natural environment whether any such change

⁵¹³ Regulation 14(2).

⁵¹⁴ Regulation 13

⁵¹⁵ Regulation 1

⁵¹⁶ EIA Act, Cap E10, Laws of the Federation, (2004).

occurs within or outside Nigeria, and it includes any effect of such change on health and socio-economic conditions.⁵¹⁷

The Agency may suspend, cancel, or revoke any access permit issued where the holder is in contravention of any of the condition imposed on the access permit or those implied under the regulation.⁵¹⁸ The Agency shall publish such suspension, cancellation or revocation order in at least two newspapers with nationwide circulation.⁵¹⁹

A core requirement for grant of an access permit is the existence of benefit-sharing agreement between the access seeker and owners of the GR. The Access Regulation prescribes some terms which may guide an investor and access owner when negotiating benefit sharing agreement. The arrangements envisaged under the Regulation are in two folds.

- a) Involve the participation of Nigerian citizens and institutions in execution of the activities granted under the permit. This will involve the employment of technical and non-technical local staff in the genetic prospecting and commercialization activities that must be well-remunerated.⁵²⁰
- b) The second is the monetary and non-monetary benefit arising from the right of access and the use of GR and traditional knowledge in accordance with the MTA agreement. Such monetary benefits may accrue to the government or

⁵¹⁷ Section 64(1) EIA Decree

⁵¹⁸ Regulation 15(1)

⁵¹⁹ Regulation 15(3)

⁵²⁰ Schedule 3 to the Regulation.

community involved. Monetary benefits may include the payment of access fees royalties, licensees fees in case of commercialization, special fees payable to conservation and biodiversity trust fund, research funding, joint ownership of intellectual property rights and proceeds from access to traditional knowledge. Non monetary benefit may include sharing of research and development results, particularly biotechnological research activities, it also include access to scientific information relevant to conservation and sustainable use of biological diversity, contribution to local economy, engagement in health and food security, research relevant in the country use and joint ownership of relevant intellectual property rights.⁵²¹

The Regulation⁵²² provides that it is an offence to access GR in Nigeria without a valid permit from the Agency, further, the Regulation makes it an offence to engaged individually or in concert with another in any activity that may have an adverse impact on any ecosystem or lead to the introduction of any exotic species or unsustainable use of natural resources without an Environmental Impact Assessment.⁵²³ Any person convicted of an offence under the Regulation shall be liable to fine of not less than ₦1,000,000.00 but not exceeding ₦10,000,000.00 or to an imprisonment for a term not exceeding one year or to both such fine and imprisonment and an additional fine of ₦100,000.00 for every day the offence subsists.⁵²⁴ Where the offence is committed by a body corporate, upon conviction, it

⁵²¹ Schedule 3.

⁵²² Regulation 5(1) and 23(1)

⁵²³ Regulation I

⁵²⁴ Regulation 23(1)

shall be liable to a fine of not less than ₱10,000,000.00 but not exceeding ₱100,000,000.00 and an additional fine of ₱1,000,000.00 for every day the offence subsists.⁵²⁵

5.4.1 Challenges of Effective Enforcement of Access to Benefit sharing (Access to Genetic Resource and Benefit Sharing) Regulation

The extent legal regimes analyzed pay little attention to the needs of the indigenous or local people who are the key players in resource conservation by reason of their proximity to the natural resources. Instead, too much emphasis is placed on state sovereignty over bio resources, without corresponding legal obligation to protect the economic interest of the local people.

A critical appraisal of the ABS Regulation shows a marked departure from the desire of the access granting Agency to properly and effectively enforce disclosure requirements on GR discoveries as discussed above. It is doubtful whether the Agency has the requisite capacity to effectively monitor the activities of a permit holder who may decide to be dubious. The threshold issues here are: how would the Agency monitor the utilization of the GR as well as commercial benefits disclosed by the applicant after access has been granted particularly when further utilization and commercialization of the GR is done offshore? How would the benefits arising from the access to the GR be calculated and who does the calculation: the Agency or permit holder? Supposing also the gene-prospector is not the same user of the genetic resources but merely acted as a middle-man, who will

⁵²⁵ Regulation 23(2)

share the benefits of the GR with the provider; the permit holder or assignee of the benefit? If the benefit has been assigned, how would the permit holder monitor the benefits of the GR assigned to third party?

The Agency has insufficient personnel with no or limited experience in policing bio-pirates and low budgetary allocation to carry out its enormous statutory responsibilities. Further corruption and bad governance prevalent in the country also affect the enforcement of the laws in this area. Some owners and operators of facilities fight back NESREA using blackmail and intimidation. Some pose as the officers of the agencies to harass and threaten owners/operators of facilities with the aim of extorting money from them in exchange of lenient sanction or waiver of penalties.

A noticeable challenge also is the enforcement of the requirement of technology to gene-provides and Intellectual Property Rights (IPRs) of the commercial benefit of the GR provisions in the Regulation. In several environmental and economic treaties, the issue of technology transfer and the concomitant intellectual property has been a drawn battle between developing and developed countries⁵²⁶. Technology transfer as argued by the developed countries is not free and is hinged on appropriate pricing and intellectual property protection. It is, therefore, inconceivable that an access regulation can compel technology by fiat without adequately addressing the intellectual property component of technology transfer.

⁵²⁶ UNCTAD. Draft International Trade of Conduct on Transfer of Technology, UN Doc. TD/CODE/ToT/47/(1985)

A close examination of the Nigeria's intellectual property regime reveals some difficulties, for example Nigeria does not have any law that protect plant breeders right an important ipntellectual property protection devise to attract foreign plant breeders that may be interested in accessing Nigerian GR⁵²⁷. Secondly, the Patents and Designs Act⁵²⁸ though allows for the patent of a product or invention if its new inventive activity capable of industrial application, however, the Act exempts from patent protection all products of nature, also patent is denied for an invention obtained in respect of plant or animal varieties other than microbiological processes, the effect of this is that most bio-engineered plants and animals may not be patentable because the Act fails to clarify the terminologies plant and animal varieties and microbiological processes or define the stage at which a process will pass to constitute microbiological process warranting grant of patent for such invention, hence by this the patent office is left with discretion to determine the nature of plant varieties or genetically modified plants executed under the Patents and Designs Act..

A fundamental gap in the Regulation also is utility of benefit-sharing provision for the holders of traditional knowledge (TK) holders,⁵²⁹ when Nigerian law does not protect proprietary right to Traditional Knowledge(TK) and on Genetic Resource(GR). The inability of the community to have Intellectual Property Rights

⁵²⁷ Amokaye, O. G., (2012) 'Access to and Sharing of Benefit of Generic Resources under the Nigerian law'. *British Journal of Arts and Social Sciences*, Vol. 8 No. 11 p. 249.

⁵²⁸ Ibid.

⁵²⁹ Traditional Knowledge includes abroad range of knowledge that is having the common characteristic of not being protected under existing intellectual property framework. A wide range of cultural knowledge falls within its rubric, including biological and other materials for medical treatment and agricultural, production process, design, and literature, music, rituals and other techniques and arts.

(IPR) over their TK on GR has serious implication for benefit sharing in the Material Transfer Agreement (MTA) regime. Other challenges include the issue of the sharing formulae in the access regime and the competent persons entitle to negotiate MTA and grant of PIC to access seeker where the gene is located in a family or private land within a community. Further the Act failed to adequately take care of breach of conditions provided for in the regulation and the competent authority to monitor the breach of the benefits in cases where a permit holder fails to render account or under disclose the benefits

Another constraint that may militate against traditional people to actively negotiate MTA and derive full benefits of their traditional knowledge is their low level of literacy and level of awareness. The awareness of the traditional people on the importance of GR and TK and the need to protect them is still low. Many local communities are not aware that they should share benefits from use of genetic resources and associated traditional knowledge they own. The provisions of the regulation on benefit sharing are unheard of at the local level, thus, in practice the local accomplices of the gene-bio-prospectors continue to exploit the ignorance and illiteracy of the local community to extract undue advantage in their favor.

A part from the legal frame works above, the work has also listed other legal frameworks in the introduction of the chapter in connection with genetic resources such as:

5.4.2 Access to Genetic Resources and Benefit Sharing (ABS) Under Convention on Bio Diversity

- i) CBD aims to use the economic incentives created by the potential commercial value of GR towards conservation of these same resources. It also aims to create a framework for access to GR and equitable benefit sharing. These goals are reflected in the objectives of the convention on biodiversity as set out in Article 1:

The objective of this convention, to be pursued in accordance with its relevant provision are the conservation of biodiversity, the sustainable use of its components and the fair and equitable sharing of benefit arising out of the utilization of GR, including appropriate access to GR and by appropriate transfer of technologies taking into account all rights over those resources and to technologies and by appropriate funding.

Under Article 15, access to GR is to be on mutually agreed terms subject to Prior Informed Consent (PIC). Art. 15(7) also provides a framework for implementation of the third objective of the convention, namely fair and equitable sharing of benefit and technology transfer. The issue of Access and benefit Sharing (ABS) was one of the central themes of the CBD whose substantive provisions on ABS are contained in article 5 (access to genetic resource); article 16 paragraph 3 (access to and transfer of technology that makes use of the genetic resource are article 19, access to result and benefits from biotechnologies. These provisions address both

providers and users of genetic resources and also outline the basic goals and elements of an ABS regime under the convention.

Article 15 recognizes the sovereign rights of states over their natural resources and provides that the authority to determine access to genetic resources rests with the national government and is subject to national regulation.

There are a number of other provisions in the convention that are relevant to technology transfer – article 19 on biotechnology requires parties to establish legislative, administrative or policy measures to provide for the effective participation in biological research by contracting parties especially developing countries, which provide the genetic resources for such research and to take measures to promote and advance access in a fair and equitable basis by contracting parties, especially developing countries, to the result and benefits arising from biotechnologies based upon genetic resources provided.

Article 8(j) of the convention further elaborated upon the protection, preservation and maintenance of traditional genetic resource knowledge and the sharing of benefits arising from the use of such knowledge. The benefit sharing of the CBD regime is faulted on the ground that no provision exist obligating state to ensure that the indigenous people who have contributed so

much to the formation and preservation of biodiversity and whose territory mainly inhabits these resources also share in this benefits.⁵³⁰

- i) Bonn Guidelines⁵³¹: Were also referred to in the plan of implementation of the world summit on sustainable development (WSSD). It address protection and management of natural resources base on economic and social development. Paragraph 44, focuses on biodiversity and encourage the implementation of the guidelines within the framework of CBD bearing in mind the promotion of fair and equitable sharing of benefit arising out from utilization of GR.

Although compliance with the guidelines is voluntary, they provide the first widely accepted criteria for national licensing of Access to Genetic Resource (AGR) and sharing of benefits.

The guidelines are meant to assist parties, government and other stakeholders when establishing legislative, administrative or policy measures in access to genetic resources and sharing of benefit. The guidelines provides for mutually agreed terms requirement as a guiding parameters in contractual agreement benefit sharing arrangement. In recognition of the lacuna of the CBD above the Bonn Guidelines stipulate that benefit should be shared fairly and equitably with the indigenous and local community. However the measure fall out of these provision is that it is not binding on parties though

⁵³⁰ Op cit

⁵³¹ Secretariat of the CBD (2002). Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization. Montreal.

members are encouraged to develop their own legal framework taking the guidelines into consideration. As a result of the non-binding nature of Bonn Guidelines, the impact of its provision is yet to be seen.

- ii) United Nations Declaration on the Rights of Indigenous Peoples(UNDRIP)
The adoption of UNDRIP, serves to reinforce the fundamental right and protection of indigenous people that were already recognized by international law, but often denied by the states. This international legal instrument, recognized the link between indigenous people and local communities and associated right to GR. Article 31(1) provides that indigenous people have the right to maintain, control, protect and develop TK including the manifestation of their science, technologies including human and GR seeds, medicine, knowledge or properties of fauna and flora. The research work is of the view that domestication of the above International Conventions through national laws is an important step by Nigeria towards effective management of ABS regime on the rights of the indigenous people. Analysis of the legal framework on conservation and management of genetic species cannot be said to be complete without a glance at the newly enacted regulation on bio safety, with a view to determine the effectiveness of the law in protection and management of biodiversity resources in Nigeria.

5.5 An appraisal of the Legal framework on Bio Safety in Nigeria

Bio safety has been a matter of concern to the international community since the first genetically modified organism (GMO) field trial took place in the 1980s⁵³². There are concerns on chemical composition, nutritional parameters and digestibility of GMO feeds, quality of milk from cattle subjected to GM feeds, emergence of ‘super weeds’, gene escape and transgenic effect among other. The impact of biotechnology has been felt greatly in the agricultural sector, for there has been an increased quantity and improved quality of agricultural products. Several diseases and draught-tolerant cultivars of plants have been introduced⁵³³

Notwithstanding, the benefits and advantages of biotechnology its safety with regards to human and environmental health is surrounded in controversy and certain reservations and the fear expressed may be categorized into health, environment, and social concern⁵³⁴. In recognition of these fears and resentment, the CBD in Article 8(g), provides that parties should established means of regulating and controlling the use and release of GMOs. The Nation Bio safety Management Act 2015 was enacted to implement the provisions of Article 8(g) as well as the Cartagena Protocol on Bio-Safety (CPB) to CBD. The Act established the National Bio-Safety Management Agency – which is the National Focal Point, as well as the link between the Nigerian Government and the secretariat of the CBD.

⁵³² Ladan M. T.(2007) *Material and Cases on Public International Law*, ABU Press Limited, Zaria p. 488

⁵³³ Wiczorek. A. ‘Use of Biotechnology in Agriculture-Benefits and Risks’ *College of Tropical Agriculture and Human Resources(CTAHR)* May, 2003.revised.Bio-3 at [http:// www.cthr.edu/od/./pdf/accessed](http://www.cthr.edu/od/./pdf/accessed) on 17/7/2013.

⁵³⁴ Ibid

The aim of this part of the chapter therefore, is to capture the contemporary legal framework of CBD and its domestication in Nigeria with the enactment of the National Bio safety and Management Act of Nigeria, identifies some challenges in the laws that render the implementation less beneficial to the nation.

5.5.1 An Appraisal of the International Legal Framework on Bio Safety (Cartagena Protocol)

The Cartagena Protocol consists of forty articles and three annexes. The preamble explains the genesis of the agreement towards ensuring an adequate level of safety in the transfer, handling, and use of GMOs. In regulating the international movement of GMOs, the protocol seeks to prevent or mitigate risk by requiring that exporters obtain the importing country's prior agreement before the transgenic are introduced into the importer's environment. Some of the specific requirements of the CPB are:

- a) **Advance Informed Agreement Procedure (AIA)**⁵³⁵: Articles 7, 8, 9 and 10 define the scope and procedure of the AIA. According to these rules, the party of export or the exporter is obliged to notify in writing information to the importer the type of GMO intended for introduction into the environment of the party of import. The party of import also has to inform the other, whether it intends to proceed with protocol procedure, or according to its domestic regulating framework.
- b) **Risk Assessment and Risk Management**⁵³⁶: The procedure of the protocol regarding import of GMO shall be taken in accordance with risk assessment.

⁵³⁵ Sec. CPB Text Art. 7-10.

⁵³⁶ See Id.

The protocol describes how risk assessment should be carried out and provides for its parameters. Risk management measure to the extent necessary to prevent adverse effects of GMOs on biological diversity and human health.

- c) **Liability and Redress**⁵³⁷: The protocol commit parties to put in place process to elaborate rules and procedures on liability and redress for damage resulting from the trans- boundary movement of GMOs.
- d) **Administration of the Bio safety Protocol**: The governing body of the Protocol is the Committee of Parties (COP) to the Convention. Its function is to review the status of implementation of the protocol to promote its effective operation. At the national level, the Protocol required each party to designate at least one competent national authority to perform the administrative function.

The importance of ratifying and implementing the protocol are; first, the deliberate release of transgenic species may have the ability to proliferate across national border e.g. wheat grown in one country that has been genetically altered to resist pesticides could pass its pesticides resistance of genetic qualities on to wheat growing in another country, potentially disrupting the ecological cycles of the latter country's environment, therefore ratification and implementation of the protocol will serve greater protection from the potential dangers of the release of GMO across national boundaries.

Secondly, uniform standard established by the protocol can stop the exploitation of countries with less stringent regulations or countries without regulations. Presently, biotechnology companies, often choose to conduct field

⁵³⁷ Art. 27

testing and marketing in countries with little or no regulation of GMOs thus the protocol provides sound international regulation of GMOs, because of these merits ratification and implementation of the protocol becomes necessary more so for developing countries and Nigeria in particular.

5.5.2 An Appraisal of the National Legal Framework on Bio safety (National Bio Safety Management Act 2015)

Nigeria, accords high priority to the successful implementation of CPB and all United Nations (UN) resolution, the country's commitment is reflected in her effort to domesticate the protocol by signing the bio safety bill into law on 20th April, 2015 and the mainstreaming of bio safety into her national programmes with the aim of achieving global biodiversity conservation targets. Nigeria has equally been active in the Bio safety Clearing House (BCH) as means of information exchange on bio safety issues. The country has equally signed the Nagoya-Kuala Lumpur supplementary protocol on liability and redress to the CPB in 2012.

The immediate benefit Nigeria could derive from the institution of the legal regimes include: capacity for enhanced food security; environmental protection and conservation through production of stress tolerant planting materials for re-vegetation, re-afforestation, Soil bunching for erosion control as well as genetically enhanced organism for bioremediation of oil polluted sites. Further to that, the overall capacity of the country to regulate the adverse effect of GMO and related activities of the biotechnology companies. The Federal Government has established institutions and enacted different regulatory framework that encourage

biotechnology as well regulate their activities in Nigeria. A part from the principal law (National Bio Safety Management Act) other regulatory framework includes:

- i. National Agency for Food and Drug Administration and Control (NAFDAC);⁵³⁸
- ii. Agricultural (Control of Import) Act;
- iii. Standard Organization of Nigeria Act⁵³⁹;
- iv. Animal Disease (Control) Act⁵⁴⁰;
- v. National Crop Varieties Breed (Registration) Act⁵⁴¹;
- vii. Environmental Impact Assessment Act (EIA)⁵⁴²;
- viii. Science and Technology Complex Act (SHEDA)⁵⁴³;

1. National Bio safety Management Act, 2015. The main objective of the Act is to establish a science-based, holistic and integrated efficient, transparent particularly administrative and decision making system so that the country can benefit from modern biotechnology while avoiding or minimizing the possible environmental, health and socio-economic risks. The Act is in conformity with CPB, clearing activities it establishes the appropriate authority for monitoring trans- boundary movement of GMOs in Nigeria. The Act defines offences and

⁵³⁸ Cap. A13, LFN, 2004

⁵³⁹ Cap. S9, LFN, 2004

⁵⁴⁰ Cap. A17, LFN, 2004

⁵⁴¹ Cap. N27, LFN, 2004

⁵⁴² Cap, C12 LFN, 2004

⁵⁴³ Cap. S5, LFN, 2004

penalties for violation; it contains powers to authorize release of GMO and produce modern biotechnology activities; it confers the power to carry out risk assessment/management before the release, launching and use of GMO. It covers all GMOs/LMOs and product, thereof including food/feed processing. It also covers socio-economic consideration in risk assessments.

The competent authority charged with the responsibility for providing regulatory framework, institutional and administrative mechanism for safety measures in the application of modern biotechnology shall be the National Bio safety Management Agency⁵⁴⁴. The Agency is the central coordinating body for risk assessment and risk management, monitoring and enforcement measures which shall ensure the effective management of all components of the nation's bio safety which shall be the national authority on bio safety in Nigeria. The country also has made a significant stride by set up of the Nigerian Biotechnology Agency which undertakes research activities, that aid mass propagation and culture of improved varieties of crops like, cassava, banana, mushrooms and animals e.g. snails and fish farming.

Procedure for Application of Export and Import Permit

- i. The permit seeker who wishes to import, export, transit or carry out field trial or commercial release to GMO shall apply to the Director General of the agency not less than 270 days to the date of import, export, transit or commencement of such activity⁵⁴⁵.

⁵⁴⁴ Section 3 of the Act

⁵⁴⁵ Section 23

- ii. Application for permit shall include all information and data requirement specified by the agency guidelines and policy document, others include a risk assessment report indicating the potential risk, if any that the GMO may pose to human health, food safety, conservation of bio resources and the environment in general⁵⁴⁶.
- iii. The applicant must disclose the nature and identity of the GMO involved in the activity being proposed to be carried out.
- iv. Nature and purpose of the activities including storage, transportation, production, culture and processing activities.
- v. Management plan for remediation measures to be undertaken in event of any unintentional release into the environment of the GMO from contained laboratory.
- vi. Finally, the application must contain a declaration to the effect that the information provided is correct, accurate and complete. The Act prohibits the export, transit or commercialization of any GMO intended for direct use as food or feed or for processing without the approval of the agency⁵⁴⁷. Review of the food safety assessment for human consumption shall be certified by the national agency for food, drug administration and control. The agency shall consider the risk and benefit assessment analysis before granting or denying approval.

⁵⁴⁶ Ibid.

⁵⁴⁷ Ibid

The agency shall not disclose any confidential business information submitted to the agency under the Act⁵⁴⁸, the following information shall not be considered confidential: name and address of the applicant, description of the GMOs, summary of risk assessment of GMOs, plans for emergency and scientific data that specify potential risk to food or environment. An applicant may request that some information relating to GMO provided to the agency shall be held on confidential basis. Such information with respect to the relevant application is not to be accessible to any person.

Approval and Revocation of Application

The Agency shall notify the applicant and the bio safety house of their decision to grant application after taking into consideration all relevant comments, inputs, and public concerns⁵⁴⁹

Further the agency, may as well revoke or suspend⁵⁵⁰ the approval or permit or otherwise review its decision in the light of new information to the effect that the GMOs is capable of having adverse effect on human health, animal, plant or the environment.

Mandating Risk Assessment

Every applicant seeking approval under the Act shall prior to submission of the application, carry out a mandatory risk assessment of potential risk GMO may poses to human health and environment in Nigeria.

⁵⁴⁸ Section 27

⁵⁴⁹ Section 28

⁵⁵⁰ Section 29

Offences, Penalties and Enforcement

It is an offence under the Act to import, export, transit or otherwise carries out the activity of contained use or commercial release of any GMO without prior approval or permit of the Agency⁵⁵¹. Any person convicted of an offence under the Act shall be liable to a fine of not less than N2,500,000 or imprisonment for a term of not less than five (5) years or both such fine and imprisonment⁵⁵², if the offender is an individual. In case of a body corporate to a fine of not less than N5,000,000 and in addition, the directors or officers of the body corporate shall each be liable to a fine of not less than N2,500,000 or imprisonment for a term of not less than five years of both such fine and imprisonment⁵⁵³.

It shall be an offence for a person, institution or body corporate to supply false information in respect of any activity relating to GMO. The offender shall be liable to fine of not less than N2,500,000 or imprisonment for a term of not less than three years or both such fine and imprisonment⁵⁵⁴.

The Federal High Court (FHC), shall have jurisdiction to try offences under this Act. The court may in addition to the penalties provided above, order the forfeiture of any specimen GMO, asset or other material in connection with the commission of the offence⁵⁵⁵

From the analysis of the international and the national legal framework on bio safety above, the following facts came to the fore front:

⁵⁵¹ Section 35

⁵⁵² Section 35

⁵⁵³ Ibid.

⁵⁵⁴ Section 36

⁵⁵⁵ Section 40(1)

One critical challenge for the effective implementation of the protocol is how to ensure that all countries access and effectively use bio safety clearing-house (BCH). The BCH is not only essential to enable parties make available specific information but also to allow them to access relevant information to make informed and timely decision regarding import and export of GMOs, the efficiency of BCH shall remain a question.

The CPB in Article 23 recognizes that for public participation to be meaningful there must be access to information, public awareness and education. A number of challenges present themselves. For example, how are scientific issues to be presented to the public in a manner that is understandable to them? Or how should scientific uncertainty and scientific disagreements be communicated to the public?

Given these challenges, are developing countries going to benefit from modern biotechnology in their attempt to develop? They have no choice but stay safe. Therefore they have to put in place bio safety system firmly based on precautionary principle as is the case in Nigeria.

Though the enactment of the Act is a giant leap in the right direction as far as legal and institutional framework for bio safety is concern in Nigeria as far the discussion above, however, there are possible challenges likely also to be faced by the country in implementation of the recently enacted Act.

One basic challenge with regards to the capacity of the agency to properly and effectively enforce disclosure requirement in the application, monitoring problem may arise where the applicant fail to disclose or under-disclose the relevant information regarding GMOs. It is doubtful whether the agency has the requisite

capacity to effectively monitor the activities of the applicant who may decide to be dubious. The agency from its composition lack sufficient personnel to carry out its enormous statutory responsibilities, what emerges from the above discussion is that biotechnology is not easy to regulate because it is a dynamic field⁵⁵⁶.

Poverty is another challenge – Nigeria as developing country with very limited financial resources. The money the country can allocate for bio safety is bound to be inadequate. Even more worrying is the fact that should a risk materialize, combating it requires financial and technical capacity that the country do not have. It was discovered in Nigeria that many technology users have not been sensitized on the implementation of bio safety regulation. In a very recent study, it was noted that the Nigerian broadcast media had no specific programmes on nature conservation and the environment.

As a result of this, questions such as how ready are we to deepen our understanding of the experimental risks that come with synthetic biotechnology? How prepared are we to monitor bio safety standards and strictly enforce the provision of the Act? National commitment and sincerity of purpose is critical to actualize the beneficial aspects of safe and successful implementation of modern Bio Safety laws in Nigeria.

Conclusion

In conclusion, the chapter reviewed the international and national legal framework on conservation and management of genetic resource in the light several

⁵⁵⁶ Gate P.R. (1993). *Understanding Biotechnology Law, protection, Licensing and Intellectual property Policies*. Marcel Dekker Inc. New York.

laws as analyzed above, particularly Access to Genetic Resource and Benefit Sharing legislation and the newly enacted Bio Safety Management Act. From the above discussion it can be said that the National Bio safety Act has incorporated all the basic elements of the CPB regulatory regime such as: risk assessment and risk management; follow-up-action (monitoring, inspection and enforcement), public awareness and participation requirement. The laws examined above aimed to ensure that bio-engineered agricultural plants and animal product are safe for human and animal consumption, and the proceeds derived used in conservation and management of genetic diversity in Nigeria.

But the laws must ensure that it meets the country's legal obligation as a party to the CP, and its emphasis on the precautionary principles approach is respected. Bio Safety Policy needs to serve human, environment, cultural and socio economic well-being rather than trade interest and that should be at the heart of the Nigerian Bio Safety Management Act.

CHAPTER SIX

LEGAL FRAMEWORK FOR THE PROTECTION OF MARINE ECOSYSTEM FROM THE IMPACT OF OIL POLLUTION.

6.1 Introduction

The history of ecosystem preservation generally in Nigeria is traced back to 1940, when the flora and fauna preservation society in London sent its Secretary to assess conservation situation in Nigeria in late 1940s. The Secretary saw the need for active participation by Nigerians in the conservation programme and further suggested that all revenues accrued from hunting licenses and trophies should be used in the development of communities⁵⁵⁷. The country today has over forty conservation areas including six national parks. The National Park Service being the highest conservation agency in the country becomes the major fortress for conserving these endangered species, alongside collaborative efforts from non governmental agencies like NCF (Nigerian Conservation Foundation) and others⁵⁵⁸. The federal and state departments of forestry were established to control wildlife (flora and fauna) in the country. To realize the dreams of preserving the ecosystem in Nigeria, the National Wildlife Conservation Committee was created. Legislation and policies have been formulated to make the dream of preservation of the ecosystem come true, these includes:

- a) The Constitution of the Federal Republic of Nigeria 1999.⁵⁵⁹

⁵⁵⁷ Afolayin, T. A. (1980) 'A Synopsis of wildlife conservation in Nigeria'. *Environmental conservation* Vol. 7 103 pp. 207

⁵⁵⁸ Mobolaji A. et al (2015) 'Wild Fauna Conservation in Nigeria Environmental and Natural Resource Research, Published by *Canadian Center of Science and Education* Vol. 5 No 3, Page 98

⁵⁵⁹ The Constitution of the Federal Republic of Nigeria 1999

- b) National Environmental Standard and Regulation Enforcement Act.⁵⁶⁰
- c) Federal National Parks Act.⁵⁶¹
- d) Natural Resources Conservation Council Act.⁵⁶²
- e) Endangered Species Decree.⁵⁶³
- f) Exclusive Economic Zone Act.⁵⁶⁴
- g) Water Resources Acts and Laws.⁵⁶⁵
- h) Criminal Code Act.⁵⁶⁶
- i) Harmful Waste (Special Criminal Provision Act).⁵⁶⁷
- j) River Basin Development Authorities Act.⁵⁶⁸
- k) Oil in Navigable Waters Act.⁵⁶⁹
- l) Petroleum Act.⁵⁷⁰
- m) Sea Fisheries Act and Inland Fisheries Act.⁵⁷¹
- n) Land Use Act.⁵⁷²

At the global level also there exist different international conservation laws covering an entire range of activities, conceived for the protection and management of global ecosystem. This conservation law touches on marine pollution, soil

⁵⁶⁰ No. 25 of 2007

⁵⁶¹ *The Federal National Park Act*, CAP No. 65, LFN 2004.

⁵⁶² *Natural Resources Conservation Council Act* CAP 268 LFN 2004

⁵⁶³ *Endangered Species Act*, CAP E9, LFN 2004

⁵⁶⁴ *Exclusive Economic Zone Act*, CAP E11, LFN 2004

⁵⁶⁵ *Water Resources Act*, CAP W2, LFN 2004.

⁵⁶⁶ CAP. C.38 LFN 2004. The Act creates the offence of public nuisance which includes fouling of water and air.

⁵⁶⁷ *Harmful Waste (Special Criminal Provision) Act* CAP H1, LFN 2004.

⁵⁶⁸ *River Basins Development Authority Act*, CAP, R9, LFN 2004

⁵⁶⁹ *Oil in Navigable Waters Act*, CAP 06, LFN 2004.

⁵⁷⁰ *Petroleum Act*, CAP P10 LFN 2004.

⁵⁷¹ *Sea Fisheries Act & Inland Fisheries Act*, CAP S4, LFN 2004 & CAP 110, LFN 2004

⁵⁷² *Land Use Act* CAP 202, LFN 2004.

degradation, air, and land use conservation. The overriding conventions in this respect includes:

- a) Convention on Biodiversity (CBD),⁵⁷³
- b) United Nation Framework Convention on Climate Change⁵⁷⁴
- c) United Nation Convention on Law of the Sea (UNCLOS).⁵⁷⁵
- d) London International Convention on Prevention of Sea Pollution.⁵⁷⁶
- e) Convention on the Prevention of Marine Pollution by Dumping of Waste and other Matters.⁵⁷⁷
- f) Convention on Conservation of Antarctic Marine Living Resources (CCA

The aim of this chapter therefore, is to identify the legal instrument meant for the protection of marine ecosystem from the impact of oil pollution. The purpose of the analysis is to determine the extent to which these instruments have set the required standard envisaged in protection of marine ecosystem in Nigeria. Accordingly, to realize the above objective, the chapter is divided into four parts for easy analysis.

Nature and scope of marine ecosystem diversity in Nigeria, conservation and management of marine ecosystem under statutory laws ,conservation and management of marine ecosystem under customary and Islamic Laws, and conclusion.

⁵⁷³ Ratified by Nigeria on 29-8-1994.

⁵⁷⁴ Entered in force in 1992.

⁵⁷⁵ Ratified by Nigeria on 14-8-1986.

⁵⁷⁶ The convention entered into force in 1954 (London) with the objective of minimizing pollution of marine ecosystem by prohibiting the discharge of oil in aquatic zones.

⁵⁷⁷ Entered into force in 1972

6.2 Nature and Scope of Marine Ecosystem Diversity

A good understanding of ecosystem conservation in Nigeria is an essential prerequisite to the effective assessment of the ability of law and policy to conserve the system. Moreover to determine the most effective legal means for marine ecosystem conservation it is necessary to have a clear understanding of the meaning of key terminologies and relationship between terms.

The word ecosystem is a relative term that applies to a whole community of organisms and its environment as one unit. Ecosystem consists of the community of organism plus the associated physical environment. The different types of ecosystems are terrestrial ecosystem where soils are very important part of the relationship between climate and communities, and the marine ecosystem which include mangrove, swamps, flooded river valleys while the aquatic ecosystem include open seas, ponds, lakes and rivers.

The low land rain forest is where abundant rainfall regime favours the development of ecosystem type. The large remaining tracts rainforest are primarily found in Cross River, Edo, Delta and Ondo States. Freshwater swamps forests are dominated by species of raphia and canopy that is sometimes as high as 15 meters. Mangroves survives in marine and brackish habitats and provides a number of ecological services, including habitat and nursery grounds for productive range of fish that are harvested locally and in off shore fisheries.⁵⁷⁸

⁵⁷⁸ Ibid.

Nigeria freshwater ecosystem is endowed with a diversity of freshwater resources including seasonal, permanent rivers, lakes and wetland. Many of these water features provide important breeding and feeding habitats for a diversity of birds species⁵⁷⁹.

6.3 Protection of Marine Ecosystem from the Impact of oil Pollution

Oil pollution is the release of contaminants or pollutants associated with the extraction of crude oil into the environment. Oil pollution has unquestionably threatened the extinction of several flora and fauna and their habitats, negatively impacted on the culture and political structure of many indigenous groups, and has been a source of health hazard for human beings and marine habitat. While oil continue to play a dominant role in the economy of several societies, the social and environmental cost of oil pollution has been extensive.⁵⁸⁰

In spite of the splendorous wealth that Nigeria has generated from the production and sale of oil, one of the negative externalities from the oil industry is marine pollution occasioned by oil spillage and discharge of effluents. Oil spills have become a common phenomenon in Nigeria after the discovery of crude oil in the country, particularly between 1976 – 1990s, during which time a total of 4,647 spills leaked about 2,369,470 barrels of oil into the Niger Delta⁵⁸¹. Pollution is generally

⁵⁷⁹ Mohammed, A. Al-amin (2015) Place Biodiversity in Ecosystem Efficiency in Nigeria. *British Journal Earth Science Research* Vol.1 N-1. Pp 10 – 17

⁵⁸⁰ According to All African News Agency, Nigeria has recorded 3203 oil spills in the last four years in the Niger Delta region; All African news Agency 12, August 2010. <http://allafrican.com> retrieved on 05/02/11, Time: 4pm.

⁵⁸¹ Aoy R., and Abejida T.S. (2013) *An Assessment of Environmental problems Associated with Oil Pollution and Gas Flaring in Nigeria*. *Arabian Journal of Business and Management Review* Vol. 3 No. 3, p. 89

believed to be the necessary price for the development ushered in by the petroleum industry⁵⁸². It is an indispensable fact that every stage of the activity of the oil and gas industry – exploration, exploitation, refining, manufacturing, storage, transportation and use is fraught with environmental consequences which often transcend local and regional boundaries⁵⁸³.

World-wide marine pollution caused by oil industry is enormous, the tremendous economic benefits has also left in its trail a catalogue of complex mix environmental, political and socio-economic problems. As it is with many blessings of modern civilization there are benefits and adverse externalities from exploration and production of oil and gas. Thus, the appellation of “black gold” ascribed to oil is succinct. Black as it were connotes evil. The Nigeria economy has experienced this dual attributes of oil⁵⁸⁴. Oil and gas from its cradle to its grave, though very essential to the modern man, is indeed a highly hazardous substance and a carbon of troubles to the environment hence the need to take special care of marine environment⁵⁸⁵. Memorable cases of large scale pollution of marine and coastal environment by petroleum sector include the Torrey Canyon incident of (1967), Amoco Cadiz (1978), and Deep Water Horizon Oil Spill of (April, 2010) (also referred to as Bp Oil Spill or the Macando Blow Out), in the gulf of Mexico illustrates the impact of the oil spill on the marine environment. In Nigeria, the two outstanding cases of marine

⁵⁸² Festus Emiri et al (2009) *Law and Petroleum Industry in Nigeria Current Challenges*. Malthouse Press Limited Lagos, p. 223.

⁵⁸³ Dias, A. (1998) *The Oil and Gas Industry in the Tangled Web of Environmental Regulation: Spider or Fly* In Gao, Z. (Ed). *Environmental Regulation of Oil and Gas*, (Kluwer Law, London). p. 61

⁵⁸⁴ Aghalino S. O. and Eyinla, B. (2009) *Oil Exploration and Marine Protection: Evidence from the Niger Delta, Nigeria*. *Journal of Human Ecology*, 28(3): 177-182.

⁵⁸⁵ Soni, R. (1995) *Control of Marine Pollution in International Law*, Juta & Co. Ltd. p. 130

pollution are the Funiwa – 5 oil well blow out of 1980, Bonga oil spill of December 2011, which resulted in spillage into the marine environment of about 30,000 barrels of crude oil, affecting an area of about 120 nautical miles of Nigeria coastline caused damage to marine environment of Delta and Bayelsa States⁵⁸⁶. According to report of the United Nations (UN), many of environmental and social consequences of oil spillage in Nigeria are now irreversible⁵⁸⁷. These notorious cases draw attention of the public to the degree of risk to which marine environment are exposed to on account of oil exploitation – as well catalyzed ship owners, government, international agencies and oil companies into serious effort to prevent more disasters to marine ecosystem.

Marine pollution occur in Oceans, Lakes, Rivers, Seas, Stream and affect life directly through toxicity, killing most water plants and animals and causing reproduction failures in others. It has been classified into six forms in terms of some of harm and hazard. The six forms are land base pollution, pollution from seabed activities, pollution from activities in the area, pollution by dumping, pollution from or through the atmosphere and vessel services⁵⁸⁸, although pollution may occur on ocean floor as well as the subsoil thereof beyond the limit of national jurisdiction⁵⁸⁹, all these are significant activities contributing to oil or grease in marine ecosystem which could remain for years in the sediments of marine environment causing long

⁵⁸⁶ Emmanuel, O. et al. (2015) ‘Economic based Approach to Environmental Regulations as a Panacea to Effective Environmental Management in Nigeria’. *Journal of Law, Policy and Globalization* Vol. 42, p. 10

⁵⁸⁷ UNEP “Environmental Assessment of Ogoniland”. Available at <http://www.unep.org/nig/> accessed on 2nd June, 2012.

⁵⁸⁸ Man, M. (1987) *Land-Based Marine Pollution* 1st edition, Graham & Jrofman Limited, London, UK , p.

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⁵⁸⁹ Op cit p.3

term effect to marine biodiversity. The scope of the chapter is confined to pollution arising from exploration and exploitation of various minerals from offshore drilling and allied activities. The three forms of pollution resulting from off-shore drilling activities have been identified and distinguished as intentional pollution as a result of disposal into the sea industrial refuse from drilling, accidental pollution (involving blow-out, pipeline ruptures, tanker spillage etc), and operational pollution arising as a result of the normal operation of offshore installation⁵⁹⁰.

6.4 Impact of Oil Pollution on Marine Ecosystem

An important consequence of the world dependence on oil as the primary source of energy needed to drive economic development is accidental spills from offshore production facilities and from ships. Potential hazards that can affect both human and marine environment are oil well eruption (blow out) at the drilling site, grounding or collision of oil tankers at sea, rupture of pipelines and subsequent release of oil into the marine environment. Once oil is discharged into the sea, it becomes exposed to weathering which causes physical and chemical changes; this release can be lethal to marine life and the environment⁵⁹¹. Oil slicks can cause breakdown in seabird and mammal thermal insulation, inhibits mobility thus affecting ability to feed, bird including penguins, are normally the first prominent casualties during oil spill⁵⁹².

Oil in or on the water is extremely dangerous to wild life as it will cause severe damage to internal organs. Ingesting oil will greatly disrupt the reproductive

⁵⁹⁰ Vinogradev, V. et al (1998) *International Legal Regime for the Protection of the Marine Environment Against Operational Pollution of the Offshore Petroleum Activities In Goa*, Zhiquo, p. 93

⁵⁹¹ Idoniboye, B. F. (1985) *Effect of Oil Pollution on Aquatic Environment*, Seminar Proceedings, p. 311

⁵⁹² Hulsey, L. (2012) *Marine Pollution*. New Delhi: World Technologies, p. 12

process of the animal – Animals that survive oil spills may suffer a long term effect of breeding problems and result in deformation of offspring⁵⁹³. The effect of oil spill on mangrove and vegetation acidify the soil halt cellular respiration and starve roots of vital oxygen⁵⁹⁴. The loss of mangrove forest is not only degrading life of plant and animals but human as well because mangrove forest have been a measure source of wood for people living within the environment⁵⁹⁵ The harmful effects of oil spill on the environment are many: oil kills plants and animals in the estuarine zone; oil settles on beaches and kills organism that live there; it also settles on ocean floor and kills bottom-dwelling organism such as crabs. Oil poisons algae, *disrupts* major food chains and decreases the yield of edible crustaceans; oil endangers fish hatcheries in coastal waters and as well contaminates the flesh of commercially valuable fish⁵⁹⁶.

Oil spills in Nigeria have been a regular occurrence due to overdependence on use of fossil fuel and the negligence of the renewable energy alternatives in the energy mix of the country had resulted in the degradation of the marine environment which has caused significant tension between the people and the multinational oil companies. Oil spills has earlier been identified as major contributing factor to ecosystem degradation in the oil rich Niger delta region.⁵⁹⁷ The region has been

⁵⁹³ Oil Spill Response on Marine Mammals Retrieve at <http://www.marinemammals.org/what-we/dp/rescue/oil-spill-response-htm/> feb 1st 2012

⁵⁹⁴ Janice Limson: indigenous plant to the rescue Environmental remediation in Nigeria Oil region science in Africa Retrieved from [http://www.wikipedia/environment/issues in Niger delta/ May 10](http://www.wikipedia/environment/issues-in-Niger-delta/May-10), 2007

⁵⁹⁵ Oil and Nigeria – Planet.com Retrieved May 21, 2007

⁵⁹⁶ Op cit.p.7

⁵⁹⁷ See statement of research problem in chapter one

described as one of the worlds' most severely impacted ecosystem⁵⁹⁸ with its restoration likely to be the world biggest long term oil clean-up exercise ever undertaken.⁵⁹⁹ Since oil pollution has been identified to be one of the major threats to marine ecosystem, the control of oil pollution is therefore a prerequisite in the conservation and management of marine ecosystem. In this regard, law can be considered as an important means of controlling oil pollution of the marine environment and have been relied on by Nigeria in dealing with marine oil pollution.

In Nigeria the protection of marine ecosystem from oil pollution involve both international and domestic laws, as it is possible for pollution to extend beyond boundaries of states requiring the intervention of international law. In consonance with the above, this part of the chapter, examines the provision of selected international instruments to demonstrate the extent to which marine ecosystem protection has been incorporated in those instruments from the impact of oil pollution exemplified by national laws and policies on marine pollution in Nigeria.

6.5 An appraisal of the international legal framework on protection of marine ecosystem from impact of oil pollution

Recent years have seen an appreciable growth in the level of understanding of the danger facing the international environment, and the extensive range of environmental problem, is now subject to serious international concern. These problems include atmospheric pollution, marine pollution, global warming to

⁵⁹⁸ Imoobe, T.O. et al (2009) Ecological restriction of oil spill sites in the Niger Delta Nigeria. *Journal of sustainable development in Africa Vol.2 No.2 at p.55*

⁵⁹⁹ UNEP Ogoniland assessment reveals extent of environment contaminate and threat to human health, Available online at <http://www.Unep.org/news.central/default.asp> accessed on 01/12/2013

mention a few. All these problems have international dimensions. In view of the foregoing, it is apparent that environmental problems cannot be resolved by states acting individually, cooperation between states becomes necessary to solve these problems⁶⁰⁰.

The problem involved in these environmental crises and the various causes, which caused them were analyzed by the Secretary General of the United Nations in a Report of the problems of Human Environment. The Secretary General identified three basic causes as responsible for the deterioration of the environment⁶⁰¹ to include the depletion of marine resources as a result of oil pollution and dependence of mankind upon the sea as a source of protein among others⁶⁰².

After the Stockholm conference, a wide range of other conventions, protocols and agreements have been conducted with the major objective of protecting the marine ecosystem. Among the international legal framework are:

1. International Convention on Prevention of Sea Pollution by Oil (Oil Pollution)⁶⁰³
2. Convention on Prevention of Marine Pollution by Dumping of Waste and other Matters of 1972⁶⁰⁴.

⁶⁰⁰ Mitchell, R. B. (1994) *International Oil Pollution at Sea: Environmental Policy and Treaty Compliance*. p. 112.

⁶⁰¹ UN Secretary General Report on the *Problem of the Human Environment* dated 29th May, 1969 prepared as prelude to the summoning of the Stockholm Conference of 1972.

⁶⁰² In all, 21 Principles were adopted in the Stockholm Conference 1972 on Human Environment, all directed towards protection of human environment.

⁶⁰³ International Convention of the Prevention of pollution of sea by oil (oil pol), 1954. United Nation treaty Series, Vol. 327 p. 3

3. International Convention for the Prevention of Pollution from Ships (MARPOL)⁶⁰⁵

4. United Nation Convention of the Law of the Sea (UNCLOS)⁶⁰⁶.

Other international instruments include:⁶⁰⁷

It may be useful at this point, to examine briefly some of these international treaties and conventions vis-a-vis their relevance to marine ecosystem protection in Nigeria.

1. International Convention on Prevention of Sea Pollution by Oil (Oil Pollution)⁶⁰⁸: The convention was signed in 1954 in London, with the objective of minimizing pollution of marine ecosystem by prohibiting discharge of oil in aquatic zones. Art. III, of the convention prohibits all international discharges by tankers of oil or oily mixtures of more than sixty liters per mile traveled by ship. Article XIV requires that vessels keep oil record books to reflect compliance with specified requirement that ensure all discharge and vessels are carefully handled, and it also establish right of port states to inspect oil record books. Nigeria became signatory to the convention

⁶⁰⁴ This has been replaced by the 1996 Protocol called 1996 Protocol to the London Dumping Convention 36 ILM(1997) Enforce 24 March 2006.Amended 2006.

⁶⁰⁵ London 1973: Entered into force with the protocol of 1978; 2 October, 1983; ILM 546.(1978)

⁶⁰⁶ Signed on 10/12/82, entered into force 16/11/94, ratified by Nigeria on 14/8/1986.

⁶⁰⁷ Stockholm Declaration on the Human Environment, Stockholm Declaration of the United Nations on Human Environment Sweden June 1972; Convention for the prevention of marine pollution from Land-Based Sources 1957; Abidjan Convention for cooperation in Protection and Development of Marine and Coastal Environment of the West and Central Region, Abidjan 1981 – entered into force on 05/8/84.; Nairobi Convention for Protection and Management of Marine and Coastal Environment of African Region, Nairobi 1985; Helsinki Convention on Protection of the Marine Environment of the Baltic Sea area (Helsinki, 1992), in force 17 January 2000.

⁶⁰⁸ 1954, as amended in 1962 and 1969 IUCN(ID:TRE- 000135).

on 22nd of April, 1968 and this prompted the Nigerian government to domesticate the convention by enacting the Oil in Navigable Waters Act of 1968.

2. **Convention on Prevention of Marine Pollution by Dumping of Waste and other Matters of 1972.**⁶⁰⁹ The Convention is commonly called the London Convention or “LC 72” and also abbreviated as Marine Dumping Convention. Is an agreement to control pollution of the sea by dumping and to encourage regional agreements supplementary to the Convention. It covers the deliberate disposal at sea of wastes or other matters from vessels, aircraft and platforms. It entered into force in 1975. As of 2013, there were 87 parties to the convention.

The main objectives of the LC is to prevent indiscriminate disposal at sea of wastes that could be liable for creating hazards to human health, harming living resources and marine life, damaging amenities, or interfering with other legitimate uses of the sea. The convention extends its scope over “all marine waters other than the internal waters” of states and prohibits the dumping of hazardous materials.

Its implementation since it entered into force in 1975, the convention has provided a framework into control and provision of marine pollution within which the contracting parties have achieved continuous progress in keeping the ocean clean. Among its milestones are the 1993 ban on oceans disposal

⁶⁰⁹ Op cit.p.5

of low-level radioactive wastes and the resolution to end the dumping and incineration of industrial wastes.

The convention is implemented in the United States through Title I of the marine protection, research and sanctuaries Act (MPRSA) which direct that implementing regulation are to apply binding requirement of LC to the extent that this would not relax the(MPRSA). This convention has covered one of the most important environmental areas since the Stockholm conference was summoned. Nigeria was a signatory to this convention and has also ratified it while domesticating aspects of it into municipal legislation(Harmful Waste Special Criminal provision Act, Decree No.42 of 1988,cap.165LFN1990,cap.HI LFN 2004).

- 3. International convention for the prevention of pollution from ships, 1973.** Nigeria domesticated this convention by a (Ratification and Enforcement Act No 54, 2007). The incorporation of these treaties as part of Nigerian law were meant to achieve the objective of improving further the prevention and control of marine pollution from ships, particularly of tankers and to manage deliberate, negligent or accidental releases of oil and other harmful substances from ships into the sea and coastal environment.
- 4. United Nation Convention on the Law of the Sea⁶¹⁰:** The provision of UNCLOS on marine protection is of great importance worldwide. They are

⁶¹⁰ Diana, L. (1993) *Protection of marine Environment in International Law: Towards an Effective Regime of the Law of the Sea*. Queens Law Journal p. 625.

contained in Part XI and Part XII of the convention. The convention proclaims general obligation of states to protect the marine and coastal environment and its resources. Article 193 grants to the states the right to develop their national resources, under the consideration of their national environmental policy.

UNCLOS – numerous provisions address the conservation of the marine ecosystem and the protection of marine wildlife. Part XII of the UNCLOS is entitled “protection and preservation of the marine environment” and includes both general and specific obligations of the parties to prevent, reduce and control pollution. Also to what measure, each member nation should undertake to prevent, reduce and control pollution of the marine environment, Article 194(3) of the convention states that:

“These measures shall include, inter alia, those designated to minimize to the fullest possible extent: the release of toxic, harmful or noxious substance, especially those which are persistently, from land-based sources, from or through the atmosphere or by dumping; pollution from vessels, in particular, measures for preventing accidents and cleaning with emergencies, ensuring the safety of operations at sea, preventing intentional and unintentional discharge and regulating the design, construction, equipment, operation and manning of vessels”.

Part XIII, declares the general obligation of all states to protect and preserve the marine ecosystems. Article 193 is similar to principles 21 of the

Stockholm Declaration recognizing the sovereign right of states to explore the national resources pursuant to their environmental policies and in accordance with their ability to protect and preserve the marine ecosystems.

Further to that, the Convention also contained the enforcement procedure for the rules on marine prevention by the flag state, and coastal states over the vessels in its offshore terminals. Article 208 of the Convention regulates protection of marine environment from sea-bed activities under their jurisdiction, while Article 213-214 contained the enforcement rules for the mentioned provisions.

UNCLOS is without qualification the single most important and far reaching legal institution to address issues of marine conservation. The comprehensive nature of UNCLOS provides a framework to address future issues in the law of the sea and its provision can foster additional progress in their conservation if religiously and diligently observed by member nations, marine pollution and ozone layer depletion through emission of pollutants and toxics substances into the marine environment would be foregone woe.

Nigeria domesticated this treaty⁶¹¹ as part of Nigerian Law in order to achieve the objective of having full recognition and effect in the country and to improve further the prevention and control of marine pollution. This is largely to owing to Section 12(1) of the Nigeria 1999 Constitution, as

⁶¹¹ Signed on the 10/12/82, Entered into force 16/11/94 – Domesticated in Nigeria by Ratification and Enforcement Act No. 15, 2007

amended, which requires international treaties to be domesticated before acquiring the force of the law in Nigeria.

- 5. International Convention on Civil Liability for Oil Pollution Damage (CLC):** Is the international framework regulating oil spill liability⁶¹². The Civil Liability Convention was adopted to ensure that adequate compensation is available to persons who suffer oil pollution damages resulting from maritime casualties involving oil carrying ships. The convention places the liability for such damage on the owner of the ship from which the polluting oil expelled or was discharged subject to a number of specific exceptions, this liability is strict.

The convention requires ship owners by it to maintain insurance and other financial security in sums equivalent to the owner's total liability for one incident. While the 1992 protocol widened the scope of convention to cover pollution damage caused in the exclusive economic zone (EEZ) or equivalent area of a state party. It also allows expenses incurred for preventive measures to be recovered even when no spill of oil occurs, provided there was grave and imminent threat of pollution damage.

Under the 1992 protocol, ship owner cannot limit liability if it is proved that the pollution damage resulted from the ship owner's personal act or omission, committed with the intent to cause such damage, or recklessly and

⁶¹² It was adopted on the 29th of November 1969 and entered into force on 19th of June 1975. 1992 protocol which was adopted on the 27th of November 1992 and entered into force on 3 May 1996, amended by the Protocol 2000 in force Nov 2003.

with knowledge that such damage would probably result. The convention was domesticated in Nigeria by (Ratification and Enforcement)Act, 2006.

Similarly there are, regional conventions dealing with pollution of certain seas or waters by oil which could be found also in the following documents: Abidjan Convention⁶¹³, Nairobi Convention⁶¹⁴, Helsinki Convention⁶¹⁵. Most of the regional conventions include cooperative clause in their texts requiring the proper communication between concerned states and international organizations. They refer also to national states and international organization and the need to adopt corresponding measures.

Furthermore, general principles of international environmental law are also applicable to cases of marine pollution. Soft laws like precautionary principle and polluter pays principles could be applied. These principles for instance are reflected in convention in liability and compensation regime (CLC)⁶¹⁶.

Polluter Pays Principle

The polluter pay principle is an accepted principle in international law and it implies the general consensus that it is for the polluter to meet the cost of pollution control, prevention measures and compensation for damage done. This principle of international law was enshrined in domestic

⁶¹³ Op Cit p.10

⁶¹⁴ Op Cit. p 10

⁶¹⁵ Op Cit. p 10

⁶¹⁶ Sadeleer, D. N. (2002) *Environment Principles from political Slogans to Legal Rules* (Oxford United Kingdom: Oxford University Press. p. 10

legislation by section 21 of the defunct Federal Environmental Protection Agency Act which provides ... owner or operators of any vessel or onshore or discharged facility from which hazardous substance is discharged shall be liable for the cost of removal thereof.

Of more recent national legislation containing the element of polluter pay principle is NOSDRA which provides in section 6(2)(3) of the Act that – failure to clean up the impacted site and remediation shall attract a further fine of one million Naira (N1m). The section makes a polluter responsible for cleaning up of an impacted site. Other relevant laws and guidelines which embody provision of the polluter pay principle include environmental guidelines and standard for petroleum industry in Nigeria 2002.

6.6 An Appraisal of National Legal Framework on Protection of Marine Ecosystem from the Impact of Oil Pollution

As already noted, practical implementation and enforcement of global, regional and soft law provisions are and can only be given force and effect through local legislations and regulations.

Under this heading the chapter, will examine the principal statutes in Nigeria dealing with marine protection in the oil and gas sector with a view to reviewing their provisions and their modus operandi in environmental protection of the marine ecosystem.

1. **Oil in Navigable Waters Act (ONWA) 1968**⁶¹⁷

This legislation to protect its waters from oil pollution was to give effect to an international convention,⁶¹⁸ on prevention of sea pollution by oil. It has been described as the only law in Nigeria's statute by which an international convention on marine pollution prevention has been domesticated. The Act prohibits particular polluting activities and provides penalties including criminal sanctions.

Section 1 of the Act prohibits the discharge of oil or oil mixture from Nigerian ship into any part of the prohibited sea areas created by the international convention for the prevention of pollution of the sea by oil as amended in 1962, and outside the international waters of Nigeria and the seven seas. Under section 3, the master of a ship or occupier of land is guilty for the discharge of crude oil into Nigerian waters. The understanding one gets from section 1 and 3 is that the Act provides a double edge prohibition as it attempt to protect both national and international waters from oil pollution within the limits of the country's sovereign and legal jurisdiction, thereby fostering the international objectives of the sea through the discharge of the oil or oily mix as expressed in the international convention for the prevention of pollution of the sea by oil⁶¹⁹.

⁶¹⁷ (ONWA) CAP 06 Laws of the Federation of Nigeria (LFN), 2004.

⁶¹⁸ Nigeria acceded to the international convention on Prevention of Sea Pollution by Oil in 1968.

⁶¹⁹ Op Cit.p. 10

A number of flaws and pitfalls are found in this law. For instance the defenses make the sanctions almost impossible. These defenses include but are not limited to stating that the discharge was for the purpose of securing safety of any vessel or cargo of saving life⁶²⁰, act of third parties⁶²¹, no fault⁶²², exercise of statutory powers⁶²³, accidents. These numerous defenses curtail the attainment of the aim of the Act and make it possible for any alleged offender to seek solace under any of the defenses.

Again the legal regime governing marine protection under ONWA prescribes some sanction against violators. The amount prescribed as fine is low and in some cases ridiculous. For instance, the amount payable as fine for offences created under sections 7, 9 and 10 are N1000, N200 and N400 respectively and no amount is specified as fine in respect of offences under section 1, 3, and 5 of the Act⁶²⁴.

The penalties prescribed by the Act are too lenient to deter ship operators from violating its provisions and are far from ineffective enforcement, offenders find it cheaper to violate its provisions and pay the ridiculously low fines than avoid its violations thereby polluting the environment. Besides, the Act does not decisively deal with penalize

⁶²⁰ See Section 4(2) ONWA 1968

⁶²¹ Section 4(4) Ibid

⁶²² Section 4(3) Ibid

⁶²³ Section 4(6) Ibid

⁶²⁴ Section 6, Ibid.

accidental oil discharge from ships in addition to intentional discharge of oil into the sea which it deals with.

2. **Petroleum (Drilling and Production) Regulation Act**⁶²⁵

The Petroleum (Drilling and Production) Regulation is one of the Regulations made by the Minister of Petroleum Resources for the prevention of pollution of water courses and the atmosphere. Paragraph 25 of this Regulation provides for every oil mining license and lessee to adopt all practicable precaution including provision of up to date equipment to prevent the pollution of inland water rivers, water courses, the territorial waters of Nigeria or the high seas by oil, mud or other fluid or substance which might contaminate the water banks or shoreline or which might cause harm or destruction to fresh water or marine life. And where such pollution occurs, the license or leases must take appropriate step to control it⁶²⁶. This provision is to the effect that oil prospecting company should make use of modern and up to date equipment which will be subject to the approval of the head of petroleum inspectorate as a means of preventing oil pollution of the marine ecosystem.

The Regulation in paragraph 36 maintains that the licensee or lease must ensure that all wells and boreholes capable of producing petroleum are

⁶²⁵ CAP.P. 10 LFN 2004

⁶²⁶ Regulation 25, in the absence of clear mandate for clean-up of the environment, the court have interpreted the law to help aid environmental pollution as in *Shell Petroleum Co. Ltd v Farah* (1995) 3 NWLR (pt. 382) 148.

in good conditions. These provisions notwithstanding, is not unmindful that most equipment in use are obsolete and in bad condition making it impossible for effective application.

Regulation Act, has neither define modernity or good oil field practice nor set up any standard by which performance of the oil field will be judged.

3. **Petroleum Act 1969**⁶²⁷, Paragraph 35(a) and 36 of the ‘schedule to the Act, provides for adequate compensation” in event of oil and gas pollution. However, in practice Transnational Corporations (TNCS) hardly ever pay adequate compensation. Further, there are no provision under the Act for penalty against the license holder for any environmental damage and compulsory clean-up and restoration of the environment in case of acts resulting in adverse impact like oil pollution. Perhaps this opens a way for TNCS to pollute the environment, pay little or no damages while leaving the environment contaminated and useless. The Act thus failed to provide the necessary environmental guidelines for the control of these multinational corporations that are the operators of all the joint ventures with government. Statistics reveals that Shell, Chevron Nigeria, Mobil producing (Nig), Agip Oil, Elf Petroleum Nigeria, were the worst offenders of the oil and gas laws⁶²⁸. The following cases illustrate these facts: ***Shell Petroleum Development Company Nig. Ltd v Councilor F.B Farah***⁶²⁹. Where an oil well blow out polluting about 607 hectares of land, water and top soil was

⁶²⁷ Petroleum Act (LFN), 2004 as amended.p

⁶²⁸ Ojatorotu V. (2010) *Understanding the context of Oil Violation in the Niger Delta Check mating the Resurgence of Oil Violence in the Niger Delta of Nigeria, Johannesburg* pp. 6 – 11.

⁶²⁹ (1995) 3 NWLR (pt. 382) p. 148

highly contaminated but the SPDC abandoned the rehabilitation and offered only N44,000.00 (\$300) as compensation. The court awarded damages relying on common law principles of assessment of damages for tort as there are no guidelines provided under the Petroleum Act. The absence of guidelines in the assessment of damages is a major setback in the Act coupled with the fact that 'adequate compensation' is not defined.

*Amos v Shell B.P Dev. Co Nig. Ltd*⁶³⁰.

Plaintiff in the case claimed in representative and in special capacity that the defendants mining operation resulted in the flooding of the upstream and digging the downstream of the creek, which negatively affected economic and agricultural activities within the area. The trial judge ruled that drilling of the stream was a public nuisance and it is only the AG that has locus-standing to bring an action against the spillers. Also in:

*Shell Petroleum Dev. Comp. Nig v Chief Otoko and others*⁶³¹

The respondent who were plaintiffs at the Boni High court in Rivers State claimed the sum of N499,855.00 as compensation payable to the defendant on injuries affecting the dependant of the use of Andoni Rivers and Creeks as a result of the spillage of crude oil. The court rejected the claim on the ground that the representative suit lack common interest and

⁶³⁰ (1974) 4 E.C.S.L.R. 286 II

⁶³¹ (1990) 6 NWLR (pt 157) 693 as reported in Ladan M. T. *Law, Cases and Policies, Energy, Mineral Resources, Environment*, A.B.U Press, Zaria (2010)

common grievance. An aggrieved individual who is harmed by oil spill can maintain action in law court against the spiller to seek remedy, but to have standi to sue he must show sufficient interest which he shared in common with the general members of the public. Similar to the above is the case of *Center for Oil Pollution Watch v Nigeria National Petroleum Corporation*⁶³².

The pervading influence of the oil companies and the paternalistic attitude of the judges towards them have made the enforcement of marine pollution laws ineffective. The *Allar Irou v Shell BP's*⁶³³ case is always cited to illustrate the above assertion, where a Warri high Court judge refused to grant an injunction in favor of the plaintiff whose land had been polluted by the defendant on the regrettable reason that the action of the defendant were of vital restraint and would result in economic doom for the country. What the judge failed to realize is that economic development can be compatible with environmental conservation and protection.

In protection of the environment there are few cases where the judges have boldly lent their heavy weight to this important task. Issues of jurisdiction and locus-standi in environmental litigation have contributed to this .For instance , the issue of jurisdiction was a problem and challenge for the Supreme court in the case of **Shell Petroleum Company Nigeria**

⁶³² Suit No. CA/L/413/2008

⁶³³ Unreported suit No. W/89/71/90. Available at <http://www.vatlek.org/entr.2012.14.4348>, on 10th June, 2013 p. 60

Limited V Isaiah⁶³⁴. Where there was an oil spillage that polluted the swamp of the respondent. At the time, it was only the Federal High Court (FHC) that had jurisdiction⁶³⁵ over oil spillage cases. The case was however within the exclusive jurisdiction of the FHC. The Supreme Court had to deliberate on the Court of Appeal's decision that the High court jurisdiction is right (Ladan 2007). These few cases point to the fact that the courts are efficient in the enforcement of environmental laws.

Justice Nwokorie C.V of the Federal High Court Benin City of Nigeria in **Jonah Gbemre v Shell PDC Ltd & Ors (2005)**⁶³⁶ granted leave to the appellant to institute in representative capacity proceeding for himself and other members to apply for an order enforcing or securing the enforcement of their fundamental right to life and human dignity as provided by section 33(1) and 34(1) of the 1999 constitution of Nigeria, and enforced by Article 4, 16 & 24 of the African Charter Human and People's right CAP A9 vol. J. LFN 2004. The court held that these constitutionally guaranteed rights inevitably include the rights to clean, poison and pollution free healthy environment. The court declared the action of the representative (Shell PDC & NNPC) as violation of the appellant's fundamental rights. The judge restrained the respondents from further act of gas flaring though made no award of damages, cost or compensation whatsoever. This land mark

⁶³⁴ (1997) 6 NWLRPt -508 -236.

⁶³⁵ See section 230 of the Constitution (Supreme and Modified) Decree No 107 of 1993

⁶³⁶ Suit No.FHC/CS/53/05.

judgment enforced the application of fundamental rights to environment for the first time in Nigeria, consistent with the trend of other jurisdiction⁶³⁷.

4. **Harmful Waste (Special Criminal Provision) Act**⁶³⁸, was the first comprehensive legislation against dumping of harmful wastes or any land or in territorial waters or contingents zones or exclusive economic zone of Nigeria or its inland water ways.⁶³⁹

The Act was enacted with the specific object of prohibiting the carrying, depositing and dumping of hazards wastes on any land, territorial waters and matters reaching thereto. This Act is essentially a penal legislation. The offences are constituted in doing any of the act or omission stated in the section 12 of the Act. The jurisdiction of the Act is far reaching as it sought to remove any immunity conferred by the Diplomatic Immunities and Privileges Act on any person for the purpose of criminal prosecution. It is however important to note that despite its far reaching jurisdiction, it focuses mainly on communal prosecution of damages and does not provide compensation to the victims of the damage.⁶⁴⁰

⁶³⁷ Ladan M.T. (2007) *Biodiversity, Environmental Litigation, Human Rights and Access to Environmental Justice*. A case study of Nigeria: Faith Publishers, Zaria Nigeria at p. 78

⁶³⁸ CAP. HI FLN 2004

⁶³⁹ Tayo, A. Y. (2009) “*Trafficking & Damages disposal of hazardous Wastes in Nigeria: Trafficking the root causes*” Nigerians in America, March 24, Available online at <http://www.nigeria.america.com/trafficking&dangarous.disposal> of hazardous waste in-Nigeria trafficking the root cases (last accessed No. 7, 2014).

⁶⁴⁰ Nwofo, C. (2000) “Legal framework for the Regulation of Waste in Nigeria”. *African Research Review* Vol. 4(2) April, pp. 491 – 501.

A part from the national laws briefly analyzed above, there are other relevant regulations enacted pursuant to NESREA geared towards marine protection⁶⁴¹, which include:

- i. National Environmental (Coastal and Marine Areas Protection Regulation), 2011. The regulation is applicable to all users of the coastal and marine areas of the country. The objective of the regulation include the preservation of natural ecological conditions of the estuarine system , the barrier island system and the beaches in order to conserve their natural productivity as well as it biological ,ecological and aesthetic values⁶⁴². The regulation provided that a mandatory EIA must be carried out in relation to any developmental activity in coastal and marine areas as well as the conduct of an environmental audit every three years on all the existing facilities⁶⁴³.

- ii. National Environmental (Wetlands, River Bank and Lake Shores Regulations), 2009 The Regulation provides for the conservation and sustainable use of the country's wetland and its resources as well as their protection as habitat for species of fauna and flora⁶⁴⁴. It also provides for the conduct of an EIA on activities which are likely to have an adverse

⁶⁴¹ For instance, at a count, NESREA has twenty four (24) Regulations as at 2011.

⁶⁴² Regulation 2(a) of the National Environmental (coastal and marine areas protection)Regulation,2011.

⁶⁴³ Ibid See Regulation3 (b)(1)and (2).

⁶⁴⁴ Regulation 2 (a)(b)(c) and (d) of the Regulation.

effect on wetlands⁶⁴⁵ In order to ensure sustainable use ,the regulation introduce the use of permit to regulate certain activities which are related to wetland use within the country –such activities includes commercial exploitation of wetland and fishing using the fishing gear and weir⁶⁴⁶

- iii. Environmental Guidelines and Standard for Petroleum Industry in Nigeria. (EGASPIN) 1991 revised and updated in 2002.

In order to ensure ecosystem restoration in the oil production region, the Department of Petroleum Resources (DPR) introduced the EGASPIN in 1992and it was reviewed in 2002. The guideline contains various regulation, which specifically provide for the restoration of site and ecosystem that are adversely impacted by oil. However, its provisions are not explicit and precise and have been described by Imoobe etal⁶⁴⁷ as ill-defined, ambiguous and vague. They do not contain specifications as to the nature, approach and extent to which restoration is to be carried out.

Some legal institutions exist in Nigeria to enforce the protection of marine environment. These institutions have the environmental laws, they are formed to supervise, enforce, implement and prosecute when necessary the defaulters. These institutions were/are charged with full degree of responsibilities to conserve Nigerian

⁶⁴⁵ See Regulation 3 (b)

⁶⁴⁶ Ibid See Regulation 8 and 9 (1) and (2).

⁶⁴⁷ Imoobe etal (2009) Ecological restoration of oil spill sites in the Niger delta Nigeria. *Journal of Sustainable Development in Africa* Vol.2 No.2 at p 56

marine environment, although some of their mandates conflict with each other's mandates, these institutions include:

- National Oil Spill Detection and Response Agency (NOSDRA)⁶⁴⁸.
- The Nigeria Maritime Administrative and Safety Agency (NIMASA)⁶⁴⁹
- National Environmental Standard, Regulation and Enforcement Agency (NESREA)⁶⁵⁰

Others include: The Nigerian National Petroleum Corporation⁶⁵¹; Nigerian Ports Authority⁶⁵²; Nigeria Security and Civil Defense Corps⁶⁵³.

However, it might be pertinent to point out that apart from the aforementioned agencies every agency of the state is obligated to improve the environment and safeguard the water, air and land, forest and wildlife of Nigeria⁶⁵⁴. Accordingly all organs of government are to conform, observe and apply the provision of the Fundamental Objectives and Directive Principle of State policy,⁶⁵⁵ which, includes the aforementioned environmental objectives. This is even more so because the right to a healthy (and unpolluted) environment is nowadays classified

⁶⁴⁸ CAP 157 LFN, 2006 (NOSDRA) is a parastatal of the Federal Ministry of Environment, under the supervision and Direction of the Minister Thereto.

⁶⁴⁹ CAP N 161 LFN, 2007(NIMASA)

⁶⁵⁰ *National Environmental Standards & Regulation Enforcement Agency (Establishment) Act, 2007* (NESREA).

⁶⁵¹ Hereinafter referred to NNPC, see section 5(1)(d) & (e) *Nigerian National Petroleum Corporation Act*, CAP N123, LFN, 2004.

⁶⁵² Hereinafter referred to as the NPA; see Section 7(i), *Nigerian Port Authority Act*, CAP N126 LFN, 2004.

⁶⁵³ Hereinafter referred to as NSCDC; see section 3(1)(f) of the *Nigerian Security & Civil Defence Corps Act*, CAP N146 LFN, 2004.

⁶⁵⁴ Section 20, CFRN 1999, Environmental Objectives, that is the constitution of the Federal Republic of Nigeria which is the supreme law of Nigeria and the basis for all legislation.

⁶⁵⁵ Section 13, CFRN, 1999.

by International law and Conventions as third generation human rights⁶⁵⁶ and environmental sustainability and sustainable development is the seventh goal of the Millennium Development Goals (MDGs).

Under this heading the thesis, will examine briefly some of the above mentioned agencies with a view to reviewing their provisions and their modus operandi in the promotion of marine environmental protection.

National Oil Spill Detection and Response Agency (Establishment) Act⁶⁵⁷ (NOSDRA)

This is a specified and principal legislation on environmental protection in the oil and gas sector in Nigeria. It established the NOSDRA Agency with responsibility for preparedness, detection and response to all oil spillage in Nigeria. it also established the industry, maintaining, evaluating, mediating and coordinating arm of NOSDRA known as the National Control and Response Centre (NCRC). Accordingly, the NOSDRA Act provides as its objectives the coordination and implementation of national oil spill contingency plan for Nigeria. The plan as may be formulated (or revised) from time to time, by the federal government include: safe, timely, effective and appropriate response to major or disastrous oil pollution, identification and high risk areas as well as providing areas for protection and clean-up. Section 6 of the Act specify the function of the agency as follows: ‘The agency

⁶⁵⁶ Ani, C.C. (2010) “The Rudiments of Human Rights and Environmental Sustainability and Sustainable Development. Vol. I *Nnamdi Ezikiwe University Journal* I.I.L.S p. 88 at 117-120.

⁶⁵⁷ NOSDRA Op. Cit.

shall be responsible for surveillance and ensure compliance with all existing environmental legislations and detection of oil spill in the petroleum sector ...”

The ministries and agencies which the agency shall co-opt and collaborates with in event of a major oil spill, apart from her parent ministry are: the Federal Ministry of Environment, the Nigerian Institute of Oceanography and Marine Research; Federal Ministries of Works; Health; Transport; Information, Water Resources; Agriculture and Rural Development.

However, the penalties provided in the Act are only against the oil spiller and from the language of the section, it appears that the oil spiller in view is the corporate or oil producing company or tanker owner and not an individual who for example perforates an oil pipeline to siphon petroleum products and eventually left it open thereby causing oil spillage and the Act only provides for one million Naira fine for failure to clean-up the impacted site.

Most of the laws which established the agencies stated above also cloths them with locus-standi to sue on breach of the provision. It is sad to note that the agencies hardly had such cases in which they have done so. There are cases of oil pollution which the DPR/or NOSDRA are yet to institute in the law court. This in fact is a lacuna. Environmental agencies need to take proactive action towards oil pollutions with a view of protecting the marine environment from the adverse effect of oil pollution.

Nigeria Maritime Administration and Safety Agency (NIMASA)⁶⁵⁸

The NIMASA Act established the NIMASA Agency. The objective of the Agency shall be to regulate and promote maritime safety, secondly maritime pollution and maritime labor. Thus, the agency shall inter alia, establish maritime training and safety standards; provide direction and ensure compliance with vessel security measures carry out air and coastal surveillance; control and prevent maritime pollution; inspect ships for the purpose of maritime safety; maritime security, maritime labor and prevention of pollution. The jurisdiction of NIMASA in maritime protection in oil and gas sectors stems from two points provided in the objectives of the agency above.

The agency may also make regulations with regard to pollution and such regulation may include directives as to safety measures for oil tankers and oil drilling in the maritime zone. The agency under the Act is equally granted power to investigate offences; arrest offenders, to make determination imposing charges in respect of a matter referred to in regulations or orders made in all federal legislation in maritime pollution, maritime labor, maritime safety and maritime security.

From the brief analysis above we can say that, there is duplication of functions and overlapping of authorities between NOSDRA and NIMASA. This unnecessary duplication and overlapping of functions between the two agencies led

⁶⁵⁸ NIMASA is the sole agency recognized both locally and internationally for marine pollution control and prevention, deriving its powers from both the enabling statute and the International Convention for the Prevention of Pollution of Sea by Oil 1954 as amended in 1962 and 1971 and the International Convention on Civil Liability for Oil Pollution Damage, 1962 as amended in 1992.

to the ugly situation between them, in December 2011, Bongo Oil Spill, report from NIMASA alleged that the spill was caused by Shell Petroleum Development Company (Shell) in which 30,000 barrels of crude oil were spilt causing damage to marine environment of Delta and Bayelsa States⁶⁵⁹, while the oil continued to cause havoc in the affected states, NOSDRA and NIMASA, the two agencies charged with the protection of marine environment continued to trade accusations and counter accusations as to which agency was right in its assertion as to what had happened and what had been done by the spiller (Shell). While NOSDRA had claimed that the spill had been contained by Shell and praised it for job well done, NIMASA on the other hand accused Shell of having behaved irresponsibly as its response to the spill was less than the acclaimed standard. In the above face-off between the two agencies rather than invoke the provision of the law and make Shell to pay compensation, till date nothing has been paid by way of compensation to the affected communities neither the rehabilitation of the affected marine environment and no action has been brought against Shell⁶⁶⁰.

The function of NOSDRA revolves only around issues of oil spill detection and response. In this respect one is tempted to question the rational in setting up NOSDRA alongside NIMASA, whose function ordinarily includes spill detection, control, prevention and compensation for environmental damage as envisaged under the international convention on civil liability damage to which NIMASA derives part of its powers.

⁶⁵⁹ David, O. (2015) NIMASA Shell's Face-Off over Bongo Oil Spillage Deepens, *Guardian Newspaper*, Wed 11- 01- 2012, <http://www.nig.guardiannews.com>, accessed 12th Jan , time:3 pm.

⁶⁶⁰ The only effort was the visit of the affected areas by the then President Goodluck Jonathan.

However, considering the provisions of the NOSDRA Act and the establishment of NOSDRA Agency and the fact that the NIMASA Act came after the NOSDRA Act, it is not clear whether all these functions are performed by NOSDRA or NIMASA given the doctrine of repeal by implication?

National Environmental Standard Regulation and Enforcement Agency (NESREA)⁶⁶¹

NESREA set up an agency which is charged with the responsibility of protecting and developing the Nigeria environment. The function and powers of NESREA are contained mainly in section 7 and 8 respectively. Thirteen specific functions are provided for under section 7 out of this number, the oil and gas industry is expressly excluded. Section 7(h) provides that the agency shall enforce through compliance, monitoring, the environmental regulation and standard on noise, air, land, seas, ocean and other water bodies other than in the oil and gas sector. It is clear from the provisions above oil and gas industry is excluded entirely from the provision of NESREA. Thus the oil and gas industry are no longer required to comply with regulations on the importation, exportation, produce, distribution, storage, sale, use handling and disposal of hazardous chemical and waste under section 7(g) of NESREA. It is difficult to justify why NESREA excludes the oil and gas industry from the function of the agency.

Critical analysis of the NESREA Act, demonstrate why the legal mechanism in place for protecting the marine environment failed. For example, it is difficult to

⁶⁶¹ Op. Cit.

understand why the oil and gas industry arguably the greatest environmental threat to Nigeria, is excluded from so many of the NESREA Acts provisions. Part 2 of the Act, including Section 7 and 8, detail the function and power of the Agency excludes NESREA. Thus the exclusion barred the Agency from enforcing hazardous waste registration in Oil and Gas sector. The Agency controls, monitor, license, research, surveys, study or audit the sector, while the Agency is technically allowed to enforce compliance with laws, guidelines, policies and standards on new matters it may not observe the oil and gas sector in any way to determine the level of compliance by stakeholders⁶⁶².

Nigeria's sole environmental agency is thereby inexplicably prevented from participating in the clean-up of any pollution caused by the oil and gas industry.

Finally, Section 30 prohibits agency officers from entering and searching all oil and gas facilities even with a warrant issued by a court⁶⁶³.

The effect of the above provision is that NESREA Agency has no legal basis or power to investigate and punish environmental defaults in Nigerian oil and gas sector. This has been a major barrier to victims of oil pollution in the Niger Delta who are faced with the brazen reality that NESREA may not provide any haven after all. They are therefore left with one major option, to go to court and seek redress with all the technical and procedural requirements of establishing jurisdiction and locus standing among other issues to ponder on.

⁶⁶² Ibid. Sec. 7

⁶⁶³ Section 30

It is therefore strange and unthinkable that a law which is enacted to set standards required for environmental protection will directly exclude such a critical industry which is a major player in environmental pollution and degradation from the scope of its operation.

Nigerian Ports Authority (NPA)⁶⁶⁴

By virtue of the provisions of the NPA Act, its function shall include inter-alia, to control pollution arising from oil and other substances from ships using the port limit or their approaches. It equally provided that during loading or discharging, any leakage of oil developing in the shore piping system shall be reported immediately to Chief Fire Officer.

It also provides that in event of any spillage of oil on the Wharf, immediate action shall be taken by the person on shore who is loading or discharging oil to recover the oil and to prevent its escape into the harbor waters. The penalty for contravening any of the regulations is provided under regulation No. 34 NPA Petroleum Wharf (Apapa) Bye laws. Accordingly therefore, the Nigerian Port Authority under the above provision is legitimately involved in protection of the marine environment in the petroleum sector.

Going by the various legal frame work analyzed, the following facts have came to the fore. One cannot but say that the provision of Nigerian statutes on

⁶⁶⁴ *Nigerian Port Authority Act*, CAP. N126 LFN 2004, NPA is a parastatal of the Federal Ministry of Transport and is under the supervision and direction of the Minister thereto.

marine protection against the impact of oil pollution are really copious, wide and highly encompassing in theory, but, with number of flaws and pitfalls which include:

1. The 1999 Constitution contains very few provisions enabling citizens to enforce their fundamental rights to a clean environment except that such right might not be justifiable. This has led to the nonchalant attitudes of most citizens towards the preservation and protection of the environment.⁶⁶⁵
2. Lack of application, effective monitoring of marine protection laws and regulations and enforcement challenges.
3. The defenses and exceptions allowed in most of the laws watered down the laws to the extent that every offender can conveniently escape liability and the fines payable by multinational corporations rather very small, this provision will go nowhere in checking environmental menace.
4. Fusion of institutional frame work-For example NESREA and NOSDRA all have functions that are either directly or indirectly related to the conservation and management of marine diversity. Worthy of attention also is the provision of NESREA Section7(c) which granted the agency power to enforce compliance with provision of International Agreements, protocols and Treaties on environment generally including that of oil and gas sector however, given the provision of other paragraphs of the same section 7(b) of the NESREA and the aforementioned provision of NOSDRA Act that granted NOSDRA special

⁶⁶⁵ Section 20 and 6 (6) (c) of the Constitution

jurisdiction over all environmental legislation in the petroleum sector raises doubt as to whether NESREA is indeed responsible for enforcement of these instruments with regards the oil sector in Nigeria.

5. Non-enforceability of International Treaties and Conventions. One problem confronting international protection of marine ecosystem is the fact that most of the treaties and conventions signed by member states are non-binding until ratified and domesticated into their municipal laws. Although, Article 27 of the UN Charter on Laws and Treaties provides that ‘Every treaty in force is binding upon the parties to it and must be performed by them in good faith’, the maxim being ‘Pacta Sunt Servanda’⁶⁶⁶. Nigeria and most other member states of the united Nations observe this provision more in breach.⁶⁶⁷, In fact, Section 12(1) of the Constitution of the Federal Republic of Nigeria,1999 makes it mandatory for international treaties to be domesticated into municipal laws before such treaties can be enforced in the country. Unfortunately, the Nigerian Constitution is the country’s ground norm, and its provisions are fundamental and incontrovertible by any other law. This obstacle constitutes fundamental impact to the enforcement of international treaties on the protection of marine ecosystem.
6. Over dependence on fossil fuel by the Nigerian government and the negligence of renewable energy alternatives in the energy mix of the country constitute an

⁶⁶⁶ “Treaties solemnly agreed to, must be observed”.

⁶⁶⁷ Promise A. K. (2011) *The Environmental Law and Management in Nigeria*. Hybrid Consult Lagos. P. 80

obstacle to marine protection in Nigeria.⁶⁶⁸In addition to that, the government has failed to strengthen the diversification of its economy from oil base economics. The diversification of the economy to other sectors will broaden the economic base of the country and reduce reliance on oil sector which will in turn reduce pollution of the marine ecosystem.

Renewable energy such as wind and solar energy are not given any legislative prominence in Nigeria. The provisions on renewable energy in Energy Commission Act of Nigeria are merely palliative. In fact, the energy commission Act is silent on procedure for harnessing renewable energy technologies (RETS).

From the above observations therefore, there are serious concerns that the present legal framework will not be able to meet the increasing challenges of oil spills and attendant pollution of marine environment for the practical reality thereto leaves much more to be desired.

6.7 Conservation of Marine Ecosystem under Customary Law

In the past, local people have developed everyday resources management practices that continue to exist in tropical Africa and Nigeria. In particular, one of such approach is the use of traditional method that have helped them to regulate interactions with the natural environment – the role of customary laws/belief on the conservation of the large elements of local ecosystem cannot be overemphasized. Traditional conservation ethics and laws are capable of protecting ecosystem

⁶⁶⁸ Kingston, K. (2011) 'The Dilemma of Mineral Depended Economy': The case of Foreign direct Investment and Pollution in Nigeria. *African Journal of Social Sciences* Vol. I. February p. 12.

diversity as long as the local communities have a stake in it.⁶⁶⁹ The major tenet of African traditional religious and beliefs system lies in the belief that the abode of the gods and goddesses is located on rock, streams, pond, trees, land or anywhere they so desire to live within the community. The taboos and belief have legal backing in the rules and institutions are showing enough to make people obey the religious and cultural regulations. The role of traditional belief in the protection of natural resources is reflected in a variety of practices including sacred groves, and sacred landscape. Social taboos exist in invariably all culture throughout the world and represent a class of informal institutions, where traditional, religiously governed, norms or taboo system define the human believes. These taboos remain the prime factor guiding their conduct towards the conservation of natural resources.⁶⁷⁰ Though the role played by these informal system of taboos in conservation of ecosystem has not been given its due importance.

This part of the chapter attempts to render forth the salient aspect of conservation of marine ecosystem borne out of the taboo system in practice surrounding the sacred rivers in some communities in Nigeria. At Okorobi village in Ethiope East local government area of Delta state, is the Obi pond popularly called ‘Obi Lake, it is the main source of water for drinking and domestic purposes in the community. It is believed that the Obi spirit inhabits the water body.⁶⁷¹ Harvesting

⁶⁶⁹ Johnson, M. (1992) *Capturing Traditional Environmental Knowledge*. Dome Cultural Institute & Int. Devt. Research Centre: Hay River, NWT & Ottawa, Ontario p. 190

⁶⁷⁰ Usman, A.K. (2012) *Environmental Protection Law and Practice*. Abase Press Ibadan Pg. 176.

⁶⁷¹ Rim Rukah, A. (2013) ‘Traditional beliefs and conservation of natural resources’: Evidence from selected communities in Delta State, Nigeria. *International Journal of Biodiversity and Conservation* Vol. 5(7) pp. 426-432.

of fish is strictly prohibited, but when the fish leave the lake to surrounding environment, harvesting can be done there. Felling of trees or fuel wood collection within 30 miles radius from the pond is strictly prohibited. This principle was meant to preserve the water shed and the surrounding vegetation. This consequently checks the amount of evaporation and allows some amount of tolerable water temperature for both micro and aquatic organism to continue their ecosystem services.

For the enrichment of the soil, continuous supply of water and healthy growth of the forest. The vegetation cover also helped to keep the water cool and fresh in drinking. Research abound for this law, spanning from the respect for the Obi god who protect the pond and the organism, helping purifying the pond and keeping the pond alive.

In Ase village in Ndokwa East local government area of Delta State, is also the customary law on marine conservation through 'Usede pond' conservation, which is a mysterious pond harvested for fish species by the entire Ase kingdom.⁶⁷² The Usede pond is a pond where nobody goes to fish alone within the period of ten years, if violated the punishment begins with blocked stomach and later death, no matter the sacrifice made. Harvesting only allowed during dry sea. The major virtue of this culture-based practice is that it encourages community participation in natural resources conservation. This institution has been used to protect the head waters of several river bodies, especially those that served as portable water sources for

⁶⁷² Ibid

communities. The above practice has prominence mostly in the south where the influence of culture is felt by all communities. The story may be different one in the part of Muslim world (Northern part of Nigeria in particular) where Muslims are predominant in number, in which Islamic laws on conservation of the environment is documented from the Quran and Sunnah source in this regards. The work takes a leave to also briefly analyze conservation of ecosystem diversity under Islamic law.

6.9 Conservation of Marine Ecosystem under Islamic Law

God has not created anything in the universe in vain, without wisdom, values and purpose. God says, we have not created the heaven and the earth and all that is beneath them carelessly. We have not created them but for truth.⁶⁷³ The relationship between man and the universe is a relationship of meditation, consideration and contemplation of the universe and what it contains. A relationship of sustainable utilization, development and employment for man's benefit and for their fulfillment of his interest.

All resources upon which life depends have been created by God as trust in our hands. Thus, the utilization of these resources is, in Islam, the right and privileges of all people and all species. Therefore men should not abuse, misuse or distort the natural resources as each generation is entitled to benefit from them but is not entitled to own them in an absolute sense. The right to utilize and harness natural resources in Islam necessarily involves an obligation on man's part to conserve them

⁶⁷³ Interpretation of the meaning of Noble Quran: *Surat ad-Dukhan* (44), ayah 38-39.(M.T. AL-Halali and MM.Khan Trans) Darussalam Publishers.

both quantitatively and qualitatively. It follows that man has no right to cause the degradation of the environment and distort its intrinsic suitability for human life and settlements. Nor has the right to exploit or use natural resources unwisely or expose them to destruction and defilement.

In Islam, man's abuse of any resources is forbidden and the best use of all resources, both living and lifeless is prescribed. With regards to marine conservation God says in the Quran:-

“We made from water everything for their existence and for the continuation of their lives”.⁶⁷⁴

God has said in the Quran:-

“verily in the rain that God sends down from Heaven thereby giving life to the earth after its death ...”⁶⁷⁵ And He said “It is He who send down water from the sky; and thereby we have brought forth the plants of every kind”. And you see the evil barren and lifeless, but when we pour down rain upon it, it stirs and smells and puts forth growth of every resplendent kind.⁶⁷⁶

God has called on man to appreciate the value of this essential source of life

“Have you not seen the water which you drink? Was it you who sent it down from the rain cloud or did we send it? Was it our will we could have made it better: why

⁶⁷⁴ Ibid. Quran: *Surat al-Anbiyah* (21) ayah 30.

⁶⁷⁵ Ibid. Quran: *Al-Baqara* (2) aya 164.

⁶⁷⁶ Ibid. Quran: *Al-Anam* (6) ayah 99.

then do you not give thanks?⁶⁷⁷ God has also shown mankind the habitat of many created beings which play vital roles in the perpetuation of life and the development of this world. God has said “It is He who made the Sea of service that you may eat thereof, the foods that is fresh and tender, and that you may bring forth from it ornament to wear, and see the ships therein the plough the waves, that you may seeks his bounty”.⁶⁷⁸

God also said “Lawful to you is the pursuit of water game and its use for food – a provision for you and for those who travel”.⁶⁷⁹ There is no doubt that conservation of this vital element is fundamental to the preservation and continuation of life in its various forms, plant, animal and human. It is obligatory under Islamic law and that whatever is indispensable to fulfill the imperative obligation of preserving life is itself obligatory. And action that obstructs or impairs the biological and social function of this element of marine resources whether by destroying it or by polluting it with any substances that would impair its function such action necessarily leads to ruin of life itself. And the juristic principle is “what leads to the prohibited is itself prohibited”.⁶⁸⁰

Owing to the importance of water as the basis of life, God has made its use the common right of all living being and all human being. All are entitled to use it without monopoly, usurpation, despoilment, wastage, or abuse. The Prophet upon him be blessing and peace, said, Muslim are to share in these three things: water,

⁶⁷⁷ Ibid. Quran: *Surat al-Waqi'ah* (56) aya 68-70.

⁶⁷⁸ Ibid. Quran: *Surat an-Nahl* (16) aya 14.

⁶⁷⁹ Ibid. Quran: *Surat al-Ma'ida* (5) aya 96.

⁶⁸⁰ Hadith Related by Abu Dawud and Ibn Majah.

pasture and fire. Extravagance in using water is forbidden, this applies to private use as well as public, and whether the water is scarce or abundant. It is related that the prophet upon him be blessing and peace, passed by his companion Sa'ad, who was washing for prayer and said, 'what is this wastage O Sa'ad?' "Is there wastage even in washing for prayer"? "Yes, even if you are by a flowing river".⁶⁸¹

The experience of Muslim jurists in the allocation of water right in arid lands has given rise to an outstanding example of sustainable use of scarce resources an example which is increasing relevance in a world where resources which were once abundance are becoming progressively more scarce. For to cause the degradation of this gift of God, upon which so many forms of life depends is to deny His tremendous favors. And because any act that leads to its destruction or degradation leads necessarily to the destruction and degradation of life on earth, such acts are categorically forbidden.

Responsibility of environmental protection and conservation in Islam has come under the jurisdiction of the office of hisbah, a governmental agency charged with establishment of goods and eradication of evils. The muhtabis, who headed this office, were required to be jurist familiar with Islamic rulings which pertained to his post. The muhtabis was responsible for water course, markets, road inspectors

⁶⁸¹ Hadith Related by Imam Ahmad in the *Musnad* and by Ibn Majah on the authority of Abdullah Ibn Amr

among his duties were supervision and enforcement of regulations and standard pertaining, hygiene, prevention of pollution etc.⁶⁸²

Finally, conservation of ecosystem is an imperative command by God. It is a matter of utmost importance to man, who is its subjects, its end and its means. The need to protect the natural environment with all its biological components from harmful activities of man has turned to front in Islam.

Conclusion

In conclusion, there is no denying the fact that marine pollution is a recurring phenomena in Nigeria. While it is arguable that there are many sources of marine pollution in the country. what is not in dispute is that oil is the major culprit. The chapter has shown that excessive marine pollution occasioned by oil spillage had deleterious effect on the ecosystem. From the foregoing it can be concluded that the existing legislation and regulation in Nigeria are grossly inadequate coupled with low financial incentives, trade-off between environmental and economic development, weakness in and lack of access to judiciary all militate against effective implementation of ecosystem conservation laws in the country. Finally, the chapter discussed conservation of marine resources both under customary and Islamic law with a view to bring out its beauty in an effort to combat marine ecosystem degradation.

⁶⁸² Abubakar, A. et al. (1994) Environmental Protection in Islam. *IUCN Commission on Environmental law paper* No. 2

CHAPTER SEVEN

SUMMARY AND CONCLUSION

This chapter provides a summary of the research in terms of the work done, recommendations and conclusion. It intends to provide a general overview of the work by analyzing the findings of the research work, drawing conclusion from the findings and proffer recommendations that will bring about fundamental changes that are required to reverse the trend of biodiversity loss and establish sound mechanisms for sustainable implementation of biodiversity conservation laws in Nigeria.

7.1 Summary

The research work consists of seven chapters the first chapter which is the introduction consists of the statement of the research problems, which revolved around the requirement for enacting new laws, enforcement problems, lack of awareness and public participation and other socio-economic factors militating against implementation of biodiversity conservation laws. Other contents of the chapter are the aims and objectives of the research, scope of the research, research methodology, justification, literature review and organizational layout of the research work. The second chapter focused on conceptual clarification of key terms such as Biodiversity, conservation of biodiversity ecosystem and its scope and Genetic resources .Chapter Three is devoted to discussion on the components of the thesis title , it examined the general policy on environment, national policy on biodiversity conservation, forestry policy Agenda 21,NESREA Act and the National

Bio safety and Management Act. Chapter four appraised the existing legal and regulatory regimes regarding conservation of plant and animal species in Nigeria. The chapter further identified the challenges in the implementation of both international and national plants and animal conservation laws. It also examined briefly the views of customary and Islamic laws on plants conservation, regards being heard to incorporating both Islamic and customary conservation practices with modern policies for sustainable conservation of biodiversity resources in Nigeria.

The fifth chapter presents the nature and scope of genetic resource diversity and its potential conservation value. The chapter further summarizes the different legal and institutional regimes adopted by Nigeria in the conservation of genetic resources. A portion of the chapter appraised Access to Genetic Resource and Benefit Sharing Regulations and the recently enacted Bio safety Act 2015, with a view to ascertained the effectiveness of these laws in the field of genetic resource conservation and outlined also some of the shortcomings of the regulations in Nigeria. The scope of chapter six was limited however, to analysis of marine ecosystem conservation regard being heard to the fact that chapter four discussed specie and terrestrial ecosystem conservation, so therefore the chapter only examined protection of marine ecosystem from the impacts of oil pollution, it highlights the challenges of enforcement of these laws and concluded the chapter with a brief analysis of the customary and Islamic laws on marine protection.

Lastly, chapter seven which is the seal of this thesis identified that there are many factors affecting the effectiveness of these laws and the superb functioning of

the agencies. Some of the general findings identified in this chapter includes: lack of a defined constitutional right to environmental protection, challenges of domestication of international conventions, high poverty level militates against enforcement of biodiversity laws; over dependence on fossil fuel by Nigeria among others, finally recommendations and conclusion.

In conclusion, this research has assessed the causes and consequences of biodiversity loss in Nigeria it revealed that Nigeria posses legal and institutional frame work for the conservation and sustainable use of bio-diversity, but the fundamental problem is the effectiveness in implementation and enforcement of these laws. The Thesis has been able to critically appraise the implementation of some of these instruments it has pointed at the weakness and strength of Nigeria's implementation mechanisms. The conclusion will answer the research questions that this study sought to answer and present findings concerning the implementation and enforcement of the legal framework on biodiversity Conservation and Management. From the analysis above the following findings are made.

7.2 Findings

Lack of effective monitoring of biodiversity conservation laws and regulations and enforcement challenges.

- (i) While acknowledging the role of Nigerian Constitution⁶⁸³ on environmental protection, being the supreme law of the land, it is empathetic that success of Nigeria's effort to sustainably use, control

⁶⁸³ Op cit.

and manage its environmental resources depends on developing a target oriented environmental legislative framework. The Nigerian constitution merely provides for non Justifiable environmental objectives, unlike equivalent provision under the South African constitution⁶⁸⁴, in which environmental rights are binding and legally enforceable by aggrieved parties.

(ii) The existing biodiversity legal framework is in fragmented form. The dispel nature of the laws such as the Land Use Act, NESREA Act, and its Regulations as well as Forestry laws of the various States aim at protecting separate components of biodiversity. Also the laws appear to have failed to produce the desired result because they are largely vestiges of colonial and government interest without addressing the conservation requirements of the local people.⁶⁸⁵ There are many institutions in the country that handles conservation and management of bio-diversity, the duties and function of these institution overlaps in many ways.

b) Challenges of domestication of international environmental laws in Nigeria. The country has fairly good records of participation in environmental law but, appear to demonstrate a particular lack of political and economic will to meet international standards and expectations mostly due to lack of

⁶⁸⁴ Op cit.

⁶⁸⁵ Abere. A.,and Taspar, E.,(2011)'Evaluation of Forest Resources Conservation Laws in Nigeria' 2 *Mediterranean Journal of Social Sciences* p.51

technological manpower which are highly driven and requiring skills in environmental treaties.

- c) High poverty level militates against enforcement of biodiversity laws. Many laws on wildlife conservation are difficult to enforce more because people depends on these resources for survival and when they are forced with survival instincts and obeying the laws, personal consideration override legal responsibility.
- d) Information short comings. Biodiversity regulations cannot be effective in the atmosphere of inadequate and unreliable data.
- e) Over-dependence on fossil fuel by Nigerian government and negligence of renewable energy alternatives in the energy mix of the country.
- f) Policy and legislations on conservation lack coordination and cooperation amongst enforcement institutions.
- g) Low financial allocation to conservation of bio-diversity resources. There is little or no evidence of increased government budgetary allocation to infrastructure and environmental related sectors in the country in recent years. Non achievement of sustainable environmental management in Nigeria is partly attributed to poor funding.
- h) Land and communities militates against effective implementation of conservation laws and policies.
- i) Weak and lack of access to judiciary.

- j) High level of illiteracy and underdevelopment. There is no understanding of the environment by the masses, when policies are being formulated, nor are there mass environmental education and awareness regarding sustainable conservation of biodiversity resources in the country.
- k) Extant legal regime on conservation of biodiversity resources in Nigeria, pay little attention to the needs of indigenous or local people who are key players in the resource conservation by reason of their proximity to the natural resources.

Bearing in mind the above findings, this research work makes the following recommendations for effective implementation of biodiversity conservation laws in order to achieve sustainability in the conservation of biodiversity resources Nigeria.

7.3 Recommendations

- a) **There is the need for securing effective and efficient monitoring and enforcement strategies.** Environmental monitoring instruments should be made available. These will enhance the collective analysis and distribution of relevant data to environmental impact assessment, policy analysis and environmental monitoring unit within state and local government.

Some of the monitoring strategies include:

1. **Rule of law** – The use of law as a tool for sustainable conservation of biodiversity resources cannot be overemphasized. Section 20 of the

1999 Constitution of the Federal Republic of Nigeria (FRN)⁶⁸⁶ which provides: The state shall protect and improved the environment and safe guards the water, air and land, forest and wild life of Nigeria. This section should be upgraded to the status of Fundamental right and be removed from chapter II of the constitution to chapter IV so as to make it justiciable. These will enable citizens to easily move the courts to compel government to respect, protect and fulfill the provision of this section. The Constitution of the Federal Republic of Nigeria 1999 needs to be amended to incorporate the right to environmental protection in Nigeria. There is need for sound legal framework which must not only be known in advance but must apply equally to all those issues addressed by them. Being a signatory to CBD, it is imperative for Nigeria to incorporate biodiversity conservation in the Constitution and put in place supportive policies and programmes.

2. Simplicity of procedures, transparency and accountability of the legal process add to the legitimacy of the rule of law and contribute to public confidence in the legal framework as a whole – the law should not dislocate existing positive culture, structure and economy of the people. There is need to revised to flawed bio-diversity conservation laws and policies as well as strengthen institutional capacity to ensure

⁶⁸⁶ Cap C23 LFN, 2004

that the legal instrument should only be idea on pieces of paper but tools for practical solutions to the problem of bio-diversity laws.

3. Efficient court system and administrative agencies that are staffed by trained personnel. Those that are transparent and accountable to the citizen and apply such regulation without arbitrariness or corruption – existence of an efficient and honest regulatory body for monitoring and surveillance will ensure the appropriate application of legal rules⁶⁸⁷.

Though the challenges of enforcement of environmental laws are universal. Several countries have attempted in their own ways to make and review laws to promote an effective enforcement of environmental laws⁶⁸⁸. Attaining sustainable development in Nigerian biodiversity conservation sector is tied inextricably to enforcement of standards, regulation, and control criteria in sustainable use biodiversity resources. In view of that therefore, it is recommended that Nigeria, should be prepared to effectively enforce the laws relating to biodiversity management and the laws needs to be extended and strengthened and enforcement made more vigorous. The current biodiversity conservation laws should be re-visited and

⁶⁸⁷ Benebo, N. S. (2008) *The Role of NESREA in Environmental Management, Protection and Enforcement*. Being a paper presented at MAN 2009 on Environmental Management – Ikeja .

⁶⁸⁸ For Instance, Chinese Legislators amended the country’ environmental protection laws on the 24th April, 2014; this amendment will apportioned greater powers to environmental authorities and harsher punishment for polluters <http://www.nytimes.com/china-legislators-toughten-environmental-law> accessed on 14th May, 2014

reviewed as they are too old. During the reviewing processes, public participation and consultation should be embraced, and all the necessary actors should be involved. Based on this full participation process all interest will be included and enforcement policy tool will be designed. A good start would be to make further and more imaginative use of powers enshrined under the NESREA Act.

b) Domestication of biodiversity conventions

The best way to initiate the process of domestication of biodiversity conventions in Nigeria is through constitutional provisions that commit the state to conserve biological resources. The constitution needs to be amended to establish principles of biodiversity conservation. Further to that Nigeria should adopt Regional and Sub-regional Conventions reflecting such global conventions as they may have participated in. This will enable Nigeria to deal with a more limited geographical level of biodiversity conservation problem in question. It is at this level that the problem has its greatest impact.

Application of the Principle of Incorporation by Reference. By this principle provision of international treaties on the environment shall automatically become part of the jurist' corpus of Nigeria's municipal law once solemnly signed by the sovereign representative and therefore enforceable notwithstanding the fact of non-adoption of such legislation by the National Assembly. Our jurisprudence will be enhanced by bringing

international treaties relating to protection of biodiversity resources within the precincts of the doctrine of incorporation by reference.

- i. Thus the position of customary international law can be expressly provided in the constitution for example the position that customary international law forms part of the common law of South Africa is well entrenched in their constitution. The constitutional law will widen the scope of resorts by lawyers in supporting clients' cases and can be used to defend individual and communities on environmental rights in Nigerian courts where those rights have not been addressed by any local legislation.
- ii. International treaties and agreements be translated by government into Nigerian languages to the level it will be comprehended by all actors involved will make it easier for implementation and enforcement of the laws.

c) Solution to poverty challenges in Nigeria.

It has been observed that conservation and management of biodiversity is conditional upon the alleviation of rural poverty⁶⁸⁹. Nigeria must be committed to work towards eradicating widespread poverty which invariably undermines people's ability to be partners with government and

⁶⁸⁹ World Bank (2003) *Poverty in the midst of plenty*. Washington D.C, USA

other bodies in biodiversity conservation tasks. As long as endemic poverty persists, people will be forced to go on using their environment in an unsustainable way. As an important principle guiding future action must be the struggle against abuse of the environment and struggle against poverty, thereby alleviating poverty in order to reduce poverty induced environmental degradations. The research called for a renewed awareness of the interdependency of human beings and their environment, and the need to conserve natural renewable resources will only be possible with the empowerment of ordinary people.

For the endemic poverty in Nigeria to be eradicated appreciably, an appropriate poverty eradication strategy by the Nigerian government should include implementing policies and strategies that promote adequate and development policies including income generation, increased local control of resources and providing all persons with the opportunity to earn a sustainable livelihood. The long term objective of enabling people to achieve sustainable livelihood should provide an integrating factor that allows policies to address issues on development, sustainable resource management, and poverty eradication simultaneously by way of sincere implementation of National Economic Empowerment and Development Strategy (NEEDS).

d) Information and compliance

Information and reliable data are key factors in formulating and implementing sustainable conservation laws. Biodiversity resources

regulations cannot be effective in an atmosphere of inadequate, unreliable and inconsistent data. Regulations can be effectively enforced only if citizens are made aware of the contents of the regulations and the risks of noncompliance, which depend on the probability of detection and the severity of the sanction to be imposed.

Commitment to educate and sensitize the wider public on essential issues relating to the environment and the essence of conserving bio diversity resources in Nigeria, environmental recovery will be possible if information is made freely available. Nigeria should in compliance with Article 13 of CBD, commission a public awareness programme in collaboration with Federal Ministry of Information (FMI), extension agencies in relevant ministries, for example broadcasting organization of Nigeria (BON), through appropriate mass media instrumentalism educate the general public on the issue.

Free public enlightenment and seminars on environmental issues should be conducted by government to get the public acquainted with environmental concepts and how they can get access to court for litigation.

e) Introduction of renewable energy alternatives into Nigeria's energy mix

The government should invest largely in renewable energy technologies which has less impact on the environment. The fossil fuel technology investment in this direction would help to shift attention from the

much dominated fossil fuel use in Nigeria, and ultimately add to the energy mix of the country.

Since the country already has renewable energy policies in place, it is imperative that these policies should be put into use so as to save biological resources from further deterioration from the impact of oil pollution. The need for the government to initiate policy aim at diversifying the economy is pertinent⁶⁹⁰. This is because the diversification of the economy will broaden the economic base of the country and effectively reduce reliance in the oil sector more importantly it will further enhance the enforcement capacity of the government towards oil giant companies.

f) Overhaul of the policy and cooperative federalism

An important step to achieve compliance and enforcement of the laws is to embrace the concept of cooperative federalism in the nation's environmental management as opposed to the present confrontation attitudes where federal, state and local government regards each other as competitors, and jostle for relevance.

The federal government must devise some schemes whereby state governments are given incentives to enforce and implement certain federal environmental policies and laws at the state level. Section 11 of the constitution provide for constitutional base for mutual cooperation between

⁶⁹⁰ Kingston, K. (2011) 'The Dilemma of Mineral Depended Economy': The case of foreign Direct investment and Pollution in Nigeria. *African Journal of Social Sciences*, Vol. 1 February, pg. 12

federal and state for effective and sustainable management of the nation's environmental problems.

The country must be committed to policy reforms through an environmental action plan which should be based on appropriate policy framework to deal with the most critical policy failures observed in the discussion of the work above. The policies need to be directed towards reducing negative environmental and social impacts by emphasizing on incentive mechanism. It is essential to have proactive and forward looking policies, anticipating economic, social and environmental changes to guide conservation of biodiversity resources in Nigeria.

g) The government should increase the budgetary allocation of Environmental institutions and their programmes.

Adequate funding will encourage especially building of human resources in environmental institution through training both at local and international level. To perform optimally, the capacity of the enforcement officers working in the regulating agencies needs to be enhanced through specialized training programmes. To this end, the technical and management skills required for guiding performance of the institution must be identified and projected through capacity-building, training on policy/law enforcement

within and outside the country. This will expose the agents of the institution into the latest knowledge on environmental governance and diplomacy.

- h) **A review of Land Use Act and introduction of some amendments at least to give the people right of ownership of their land. For insufficient tenure security has reduced participation and accountability of local communities towards biodiversity conservation.**

- It is further recommended that Nigeria should harmonize the principles concerning indigenous and religious conservation experience with the modern principles as pointed out in previous chapters of the work. Indigenous and local communities, on account of their long experience with biological resources, do have specialized knowledge about diverse species and about their conservation. As regards the security of local people, providing incentives and alternatives such as subsidies for agricultural practices that are eco-friendly; alternative income generating jobs can also be steps to reducing dependence on some of these bio resources as well as lowering the rate of illegal logging and other unsustainable use of the resources in the country.

- i) **Judiciary plays a crucial role in determining the parameters within which group may act to protect the environment. There is need for training of judges.**

The traditional role of locus-standing should give way to more liberal attitude that has the interest of the environment at heart. The thesis calls for judicial flexibility and a more proactive approach to legal reasoning by Nigerian court, in order to put environmental matters on the front burner of our national discourse, which involves widening locus-standi requirements, not including technicalities to stand in the way of substantive environmental issues and also preventing gold digging applications that stand on the path of serious environmental cases⁶⁹¹.

Article 24 of the African Charter on Human and Peoples Right should be interpreted in a way that would confer locus-standi on individuals and groups. It will also greatly enrich the protection of the environment if Nigerian courts could take a cue from other jurisdiction like the US (America) where on the proof of sufficient damage, a litigant is clothed with locus-standing before the court in a private citizen action in public nuisance instead of a rigid instance of the proof of special and particular damage over and above that suffered by others as is presently the case in Nigeria courts.

The provision for environmental courts under NESREA Act is commendable as it would go a long way in facilitating prompt and speedy disposal of environmental cases. However, there is need for NESREA to liaise with judicial authorities to ensure that constitutional provisions are adhered to in

⁶⁹¹ Rufus, A. (2013) Judicial Attitude to Environmental Litigation and Access to Legal Reasoning by Nigerian Courts, in Order to put Environmental Matters on the Front Burner of our National Discourse

the establishment of the courts otherwise such courts could be considered as unconstitutional.

Conferment of exclusive jurisdiction to Federal High Courts (FHC) in environmental matters is likely to exacerbate delay associated with justice delivery in Nigeria. Federal High Courts (FHC) are sometimes far away from litigants. It is recommended that in Nigeria, environmental jurisdiction be amended to extend original jurisdiction to States High Courts (SHC).

Alternative dispute resolution mechanism such as mediation and arbitration should be rigorously promoted as alternatives to litigation; these would help decongest the courts as well as ensuring speedy resolution of conflicts.

- j) The research work recommends the integration of environmental education into the curricular of primary and secondary schools to enable citizens inculcate environmental culture at an earlier stage of their lives. This will allow our children to appreciate the environment early enough and understand the basis for its protection. Further, the research work recommends supporting viable research and development efforts targeted at sustainable environmental management and natural resources conservation. For example the promotion of sustain afforestation and reforestation programs to correct the effect of environmental unfriendly agricultural practices such as land clearing, bush burning, inappropriate use of agrochemicals and fertilizers as pointed out in the research

work above. These initiative is targeted at increasing the forest cover from 6% in 2008 to 12% in 2015 and 18% in 2020⁶⁹²

- k) The rapid decline of Nigerian biodiversity and increasing need of natural resources to accommodate the growing population suggest that the current Nigerian philosophy of conservation of biodiversity is not achieving its mission and objectives as expected in Nigeria. The research suggests that the existing religious and traditional tools and channels for conservation should be seriously considered. Therefore there is an urgent need to synergize Islamic and customary concepts in conservation of biodiversity resources with the existing governance system. It is believed that if these concepts are genuinely practiced and amalgamated into the existing implementation and governance structure in conservation, the future of biodiversity in Nigeria will be bright. There should be a re-visitation of cultural and religious beliefs system that encouraged the conservation of biodiversity resources for sustainable development of Nigeria as a whole. Religious leaders (pastors, priests, Imam, chiefs etc) should preach and encourage conservation.

Nigeria needs a kind of hybrid model of environmental legal framework, which harmonizes both Traditional/Islamic and modern environmental management governance system as against the pluralized environmental regime. This, in the considered view of the writer, would redress apparent imbalances in the Nigeria environmental governance. Customary laws in local community relevant for

⁶⁹² Federal Republic of Nigeria Ministry of environment. Great Green Wall for the Sahara and Sahel Initiative National Strategic Action plan October 2012

safeguarding bio-diversity should be identified through research and integrated into biodiversity protection strategy.

To achieve effective and efficient biodiversity conservation and management and eventual environmental sustainability in Nigeria, it would be imperative to implement vigorously the above recommendations. These recommendations would undoubtedly cater for most of the constraints deterring effective implementation of laudable Nigeria biodiversity conservation laws.

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