

**CARL JORDAN'S CONSERVATION ETHICS AND ITS
IMPLICATIONS ON NIGERIA'S ECONOMIC DEVELOPMENT**

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FEBRUARY 2022

CERTIFICATION

I certify that this thesis was carried out by **AYEBAPREYE RAYMOND OJEOGWU** with the matriculation number **PG/ART1106630** in the Department of Philosophy, Faculty of Arts, University of Benin, Benin City, under my supervision.

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CHAPTER ONE

GENERAL INTRODUCTION

1.1 Background of the Study

The late 19th century introduced an important direction towards ethics which made the art of Philosophy more pragmatic than theoretical. For the foremost part, this sort of pragmatism was not stereotypical and stream-lined to human values and actions towards each other, but human values and actions towards the natural environment. This extension of ethics to nature, led to the tenets of environmental philosophy, which during the course of philosophical history, have had its place as an implication or consequence of a particular philosophical argument; for example, the Greek Philosophers such as Plato and Aristotle hinted on nature as a result of their philosophical doctrines. Plato saw nature as a photocopy of an *ideal*, that is, natural entities were seen as imitations of the *real* in the world of forms. Aristotle, who adopted a more realistic system of thought, opines that nature fulfills its design and become aesthetically valuable when it serves the purpose of man's utility for which it was created.

Environmental philosophy contains various aspects, which includes environmental ethics, environmental logic, environmental aesthetics (e.g. romanticism) among others. The issue concerning environmental conservation arises as a consequence of environmental ethics which outlines principles to resolve environmental problems that originate from man's interaction with nature, rather than existing as an independent ethical principle. Most environmental problems such as natural disasters, over-population leading

to over-exploitation of natural resources, animal extinction, deforestation, environmental pollution (caused mainly by scientific and technical activities), etc., are believed to be caused by man. Conservation is suggested by most environmentalist or environmental philosophers as a key factor in resolving and managing environmental problems provided if man can be more disciplined in his relationship with his natural surroundings.

While, most European and British thinkers were obsessed with scientific knowledge and the clarification of philosophical concepts in the early 20th century, American scholars were engrossed in pragmatism as a standard for philosophizing which established notable movement in both education and the natural environment respectively. For example, Dewey's *instrumentalism* became highly applicable in most academic fields and institutions, while the conservation movement became plausible for most naturalists and environmental scientists. The fore-runner of the conservation movement in the United States was Theodore Roosevelt, who was an outstanding figure in fronting conservation both in his life style and political career as the 26th president of the United States, alongside the naturalist John Muir. Roosevelt used his political position to conserve most of America's natural resources and heritage. His development of the Grand canyon and protection of natural and historic sites from exploitation laid a solid foundation for conservation policies, most of which were influential and adopted by environmentalists for strengthening their own ethical theses concerning the natural environment. Environmentalists such as John Passmore, Aldo Leopold, Muir and even Carl Jordan (the prominent figure of this study) were influenced by Roosevelt conservation activities. Jordan in the opening chapter of his work on conservation revered Roosevelt when detailing the history of conservation from antiquity down to the contemporary frontiers.

In Nigeria today, the serious problems which keep re-occurring are related to the regression of the economy. Not just because of a corrupt national system, but mainly because of the lack of self-sustenance and self-dependency in the nation's natural resources and natural heritage due to an inadequate regulated system for conservation policies. For instance, Nigeria which is one of the top countries in oil production, still has not being able to curb the problem of oil spillage and gas flaring which have led to major contaminations of water and pollution of both land and air. Perhaps, if conservation was taken seriously by the nation's governmental institutions and parastatals, some standard measures would have been employed to check the activities of these oil industries so as to protect the environment from degradation and devastation. This work presents some conditions that if practicalized can result to the growth of the nation's economy and GDP through the serious observation of conservative principles and methods.

For Jordan the issue of conservation prioritizes change, but also emphasizes the shift from the techniques of resources management and landscape preservation to policies that will promote conservation.¹ Jordan opines that, the conservationist employs certain technical skills relevant to his or her job, therefore a conservationists may get a job as a lawyers, engineer, forester, teacher, professor, park guard, etc. But for Jordan, conservation is not much of a technical skill in the same sense as engineering, medicine or agriculture, but conservation according to his definition “...is a *philosophy of managing the environment in a way that does not despoil, exhaust or extinguish*”.²

1.2 Statement of the Problem

Environmental conservation is often neglected and taken for granted in this contemporary age of civilization and technology. Although such negativity towards environmental conservation has always been existent from antiquity. Man has always had an anthropocentric relationship with nature which has resulted to a lot of defects and degradation.

The problem this study tries to identify and resolve is to hinder land, air and sea pollution, and instill disciplinary actions towards conservation among the political institutions in Nigeria, that could in turn be emulated by majority of the populace, so that economic factors which include the use of natural resources for producing goods and services can be enhanced. Carl Jordan in his work identifies the wasteful and over-exploitative habits found in man's relationship with nature, which if not properly checked, can have a negative impact on future generations or posterity.

1.3 Thesis Statement

Carl Jordan sought to resolve the limitations of two opposing schools of thought that dominated the American political and environmental orientation, which were: the *Liberals* and the *Conservatives*. The Conservatives sought the freedom of the free market, both in trading operations and in regulating environmental problems, that might have been a consequence of such operations, while The Liberals, criticizing the role of the Conservatives in dealing with environmental issues, supported the campaign of government intervention in approaching such problems. Jordan's solution was simply a

reconciliation of both philosophies, i.e, both respective philosophies can fill in the loopholes, where it is needed.

1.4 Purpose of the Study

The study simply provides practical solutions and insight towards solving economic regression. Simultaneously it provides more awareness concerning environmental conservation among political organizations and parastatals that manage the populace, non-governmental organizations whose aim is geared towards environmental maintenance and control, and finally economists and agricultural experts who are solely responsible for the analysis of revenue streams attached with income derived from trading activities, and the occupation of exploiting natural resources in order to yield profitable end-products respectively.

1.5 Significance of the Study

Showcasing the qualitative aspect of conservationism is important for environmental enthusiasts, because it contributes to how the identity of conservation can be conceived and how it can be applicable in formulating legislative policies that are suitable for effective conservation procedures, and proper ways of execution. Therefore, it helps in channeling a positive feature to the standard and structure of environmental ethics, especially the area dealing with bio-centrism and the ethical theory of utilitarianism respectively.

Perhaps most ideas on conservation are too ethically concentrated, therefore having only theoretical implications. For this reason, these ideas are being known just for the sake of knowing and adding to the knowledge about the natural environment rather than actualizing what needs to be done to address issues concerning environmental and economic problems. Ethics is known to be normative and it reflects a lifestyle using moral values as a standard for specific conduct, but when it becomes exaggerated without any practical backing, it becomes hypothetical, un-realistic and only valuable in quantity and not quality. A good example of such is some religious ethical principles which are mostly based on the rudiments of belief and faith, without any solid practical implication, but abundant in moral theories and values e.g. Christianity, Islam, Judaism etc. For instance the theological and meta-ethical principle known as the *divine command theory*, adopted by Christians and Judaists alike, proposes that an action being morally *good* or wrong, is strictly determined by God's commandments, and if a person is to be morally virtuous, he or she simply needs to follow God's commandments. This meta-ethical theory was historically propounded by the medieval and scholastic philosophers, such as st Augustine, the friar-Williams of Ockham, Dun Scotus, among others. However, some environmentalists, biologist and ecologists, obsessed over the relationship between the natural environment and human activities, are also guilty of such ethical principles explained above. For this reason Jordan's work on conservation becomes crucial in making the idea interesting and inviting by employing a bit of pragmatism to portray the plausibility of environmental conservation in academic institutions, political institutions, research institutions and finally economic organization. Ethical ideas or concept with pragmatic truths and backings, always increase quality of such ideas or concept, and in a

contemporary age like the 21st century, quality is highly valued compared to quantity because it can appropriately serve or achieve a purpose.

1.6 Methodology of the Study

This study employs the expository, critical, and prescriptive methods on Jordan's position concerning conservation procedures and problems that have been exhibited throughout man's historical relationship with nature. The study also, critically evaluates some pre-existing conservation policies and environmental organizations that have been effective in regulating environmental problems. Some of the challenges and lacunas in these policies and organizations will be explicated in accordance with Jordan's work.

Finally, the study employs a prescriptive approach which aligns itself with practical ethical conduct, on how conservation can be appropriately carried out by a society or nation in policy-making concerning the natural environment.

1.7 Scope of the Study

The scope of this study encompasses the review of some factors in environmental ethics and their key role in societal growth and strong economic independence. The study also gives enthusiasts a profound historical dialectics outlined by Carl F. Jordan, on how conservation have been perceived or implied from an ancient background to the post-industrial age of environmental activities and thoughts.

The study also covers a brief evaluation and analysis of pre-existing legalities and policies concerning the enactment of environmental laws in Nigeria, and the endeavors so far by the populace to understand these laws and keep to them. For further considerations

economic problems and facts over the years in Nigeria will play a key role in this study, including the review on how agricultural functions and activities have affected the growth rate of the former. The role of science and technology may not be elaborated in terms of its influence on environmental conservation, but can serve as an insight to how man has used such intellect in relating with nature cannot be totally ignored.

1.8 Literature Review

The issue of environmental conservation has continually prevailed among the philosophical thoughts and texts of the North-American, since the late 18th century. They have always appreciated philosophical pragmatism as seen in the works of Dewey and William James, and environmental philosophy has always suited such category of practical philosophy (dealing with man and nature) which is really held in high-esteem. The environmental philosopher John Muir who was an expert in mountain hikes and plants published articles about his experiences concerning the wonders of the wilderness. John Muir (although a preservationist) explained the forest reservations of the West and the setting up of national parks for the sake of preserving nature in his work titled “Our National Parks”. According to John Muir, in the opening chapter of his work, he explained why the wilderness remains a necessity, and went further to showcase that parks and reservations are useful, not only as fountaining of timber and irrigating rivers, but as fountains of life.³ In page 37 chapter 2, of Muir’s work, he also showcase the beautiful preservations of the *yellowstone* national park and continued in 76 chapter 3, with the *Yosemite* national park, which had wild gardens and reservation for animal and birds biodiversities respectively.

Gifford Pinchot who was Muir's friend and ally in numerous occasions, was notably among the first forest expert to propose the word "conservation" to describe Roosevelt's wilderness protection campaign, but John Passmore in his book on "man's Responsibility for Nature" created an important distinction between preservation and conservation, the former according to Passmore saves natural resources from damage, exhaustion and destruction while the latter saves natural resources for later consumption or later usage. This is why Jordan's work on "Conservation: Replacing Quantity with Quality as a Goal for Global Management" as the central theme of this study, emphasizes on the utilitarian strength that conservationism produces in improving the growth and development of any state, nation or empire economically and even politically. According to John Passmore:

To conserve is to save, and the word conservation is sometimes so used as to include every form of saving, the saving of species from extinction or of wilderness from land-developers as much as the saving of fossil fuels or metals for future use.⁴

Passmore believed that the conservationist has no other task but to make the world a better place, according to him:

The conservationist, so much will be apparent, has no doubt that civilization ought to continue; he fully accepts the general principle that it is man's task to make of the world a better place for men to live in.⁵

Another work of Carl F. Jordan to be considered in this study is his 2005 publication titled "Tropical Forest Ecology; The Basis for Conservation and Management" which was a research carried out on tropical forestry for finding strategies to alleviate pressure on the remaining forests, and ways to enhance and promote forest regeneration (sustainable foresting) and restore abandoned lands. Although from the review of this publication, Jordan's former publication (which was earlier reviewed) seems more

versatile and non-restrictive as opposed to the latter which is limited to the research on tropical forest and how they can be conserved to avoid narrowness of lands. However the text still proves useful, because Africa (of which Nigeria is a part of) is well-known for her gigantic landscape of tropical rain forests scattered in relative indigenous regions. Generally, the tropical rain forest in Africa is endowed with sufficient natural resources such as medicinal herbs, timber rubber, waxes, gum etc. According to the food and agricultural organization of the United Nations (F.A.O) Nigeria is among the nine (9) countries in West Africa to have a land mass of tropical forest, alongside Guinea-Bissau, Guinea, Ghana, Benin republic, Liberia, Sierra Leone, Ivory Coast and Togo.

Another literature that subjects the entire ecological system to conservation and ethical maintenance is Aldo Leopold's work on *The Land Ethic* which is alternatively known as *A Sand County Almanac*. In this text Leopold was concerned about the protection of the land and soil that have being degraded by mostly farmers who have over-exploited and mis-managed the environment causing a defect in the ecosystem. Leopold was not particular about conservationism, but the concept can be implied from his unrelenting attitude in formulating an ethical theory that can be adopted, for the health of the land. For Aldo Leopold health is the ability of the land to self-renew itself and conservation becomes an effort to understand and protect this capacity of self-renewal. According to Leopold, conservation is a state of harmony between man and land⁶, and his view of conservation has always been a slow progression to retain the ethical value of man and land relationship.

In conclusion a review of the Environmental Law Research Institute (E.L.R.I), which is a non-profit institution for the protection and maintenance of the environment and promotion of human health, provides a summary of the Nigerian legislation on the natural environment starting from the constitution of the federal republic of Nigeria of 1999, the National Environmental Standards and Regulations Enforcement Agency (NESREA), the Nigerian land use Act, Harmful Waste Act, the Endangered species Act, Niger-Delta Development Commission (NDDC) Act, and so much more... The aim of this review is to get familiar with these legislative acts and policies, know if there are lacunas in these policies that calls for reformation or improvement, using Jordan's thesis on conservation and how it can be properly applied to advance maintenance of natural resources, so as to increase the nation's GDP in order to sustain economic performance and dependency.

Endnotes

1. Carl Jordan, "*Conservation: Replacing Quantity with Quality as a Goal for Global Management*", (New-York: John Wiley and Sons, 1995), p2.
2. *Ibid*, p3.
3. John Muir, "*Our National Parks*", (Cambridge: The Riverside press, 1901),p1.
4. John Passmore, "*Man's Responsibility for Nature; Ecological Problems and Western Traditions*", (New York: Charles Scribner's Sons, 1974), p73.
5. *Ibid*, p74.
6. Aldo Leopold, "*A Sand County Almanac and Sketches Here and There*", (New-York; Oxford University Press, 1949), p.207.

CHAPTER TWO
CARL JORDAN'S HISTORICAL SURVEY OF ENVIRONMENTAL
CONSERVATION

2.1 Antiquity

Jordan explained two types of conservationists, which he categories as the *subduers* and the *Restorers*, with the latter having a conflicting theory of the former about the natural environment. He based this categorization on the book of Genesis-chapter 1 where the first creation story was told. He quoted Genesis chapter 1 vs 26, 27 and 28.

Genesis 1:26 *And God said, let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth.*¹

Genesis 1:27 *so God created man in his image, in the image of God created he him: male and female created he them.*²

Genesis 1:28 *and God blessed them, and God said unto them, Be fruitful and multiply, and replenish the earth, and subdue it and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.*³

These verses described God's orders for man to dominate other living creatures that were created by Him, and for man to replenish the earth. Over the course of time, some conservation have argued that the domination of man over other living creatures, gives him the position of power, which means every thing in nature is meant for man's utility. These category of conservationists belong to the subduers. In other case, some argue that man as

a dominator of things in nature and also a *replenisher* to the earth gives him the position of “stewardship, and a preserver” of the natural environment. The conservationist in this category, Jordan labeled them as the *restorers*. But throughout the course of history the anthropocentric thoughts of the *subduers* have always prevailed over the *biocentric* thoughts of the restorers. For Jordan Environmental history is a history of degradation of resources,⁴ because the ethics of the *subduers* have been both glorified and vilified for generations, which has led to the degradation of the environment.

2.1.1 Mesopotamia

Jordan explained the fall of great cities and principalities that existed even before Christianity was conceived. He talked about the great city-states of Sumer, which was located around Tigris and Euphrates river, but their environmental problems, led to the collapse of these city states. The city of Sumer for instance, had surplus of agricultural product which they maintained, even with the dry and hot climate that they experienced.

The city of Sumer was able to maintain their food supply due to adequate storage and irrigation procedures. But these irrigation projects led to the salinization of their soil, that is, having a salty composed soil. As a result of this salinization, most of their crops and products were damaged, their wheat produce fell from 50% to 15%.⁵ The decline of the city-states in Sumer was simultaneous to the decline of its agricultural sector, which means that the economic support (which agriculture provided) was lost and destroyed.

2.1.2 The Mediterranean

Jordan uses the Mediterranean Basin as an example of another region that suffered environmental degradation because of lack of conservative orientation and application. The Basin according to Jordan had a mixed evergreen and blossoming forest of pure oak, cedar and beech. But gradually the forest was cleared to provide land for agriculture, wood for cooking, a place to rear livestock such as: cattle and goats etc., until gradually the Basin (and region) was turned into, in Jordan's words a *scrubland*. Lebanon and Syria were the first areas to suffer the consequences of this deforestation of the region, contrary to this, Lebanon was famous throughout the ancient near east for their wealth in fine cedars.⁶ Jordan's aim here was to create an awareness of environmental problem that have taken place as a result of failures on the part of man to avoid environmental degradation by admonishing conservative standards.

2.1.3 The Greek Philosophers

He also cited an example using the ancient city of Greece. The origination of environmental and economic problems appeared around 650 B.C as the population of Greece grew and its cities expanded. The ancient Greece were however skilled in agricultural activities such as mining and terracing to preserve the soil,⁷ but their increasing population was overwhelming causing degradation, for instance, the hills of Attica became deforested after a couple of generation. According to Teresa Kwiatkowska and Alan Holland, in recent years, investigation archaeologists and geomorphologists working in Southern Greece has brought to light sufficient evidence of the destructive impact of human activities over the past 8,000 years.⁸Deforestation and at times dangerous

soil erosion triggered by escalating agricultural practices and increased human populations were already evident in pre-classical eras and continued through classical antiquity.⁹

Archaeologists and geoarchaeologists have lived connecting period of extensive human activity and to bring out deforestation, clearing of land for farming and other activities as the major cause for the phenomenon.¹⁰ Van Andel et al, after summarizing three case studies of Holocene erosion from Northeastern Peloponnese and Thessaly, concluded that soil erosion events were spatially and temporarily related to human interference and activities in the landscape.¹¹

According to Jordan, the man and nature relationship have been a concern for Ancient Greek philosophers. There arose two (2) attitudes concerning the issue of nature. The first thought that nature was the theater of the gods¹² and the gods used nature as their residence, communicating with humans through natural human forms and withdrew to nature when they left the human realm as seen in the archaic literary works of Homer. This particular philosophical school of thought or attitude was of the opinion that nature was a divine platform for the gods to interact with mortals, that is, the gods passed out judgment on man using nature. For instance, when men disobeyed what justice upholds, Zeus responded with a disastrous flood,¹³ but when a king rules wisely and cares for the welfare of his subjects, then the gods bless humankind with fruitfulness and fertility. In the *Odyssey* of Homer, this form of god and human interaction through nature was made vivid, when the cloud-compelling *Jove* in answer addressed the blue-eyed goddess *Minerva* saying:

My child, what word has escaped their lips? How could I forget divine Ulysses, who excels amongst mortals in understanding and has abundantly given sacrifice to the immortal gods, who possess the wide heaven? But earth-possessing Neptune is for ever immovably angry on account of the Cyclops, whose eye he blinded.¹⁴

The second philosophic attitude towards nature shows a more teleological interpretation of nature. It employs both anthropocentrism and utilitarianism towards living things. Aristotle for example explained that all things are created for a particular and required purpose and a particular end, and fulfillment of this end or purpose is what makes a natural entity beautiful (teleology giving rise to the aesthetics of nature). This indicates that plants and animals are designed for a specific purpose which makes them intrinsically beautiful, and this beauty is shown when they fulfill their service to man, which is the reason for their creation. This thought of Aristotle over the years have influence western thoughts on the role of natural things as a service to human needs in terms of domestication and food consumption. This kind of attitude according to Jordan, led Eugene Hargrove, a modern environmental ethicist, of the 20th century to state that:

Greek philosophy is the primary source of philosophical perspectives that have historically inhibited the development of appropriate environmental and preservationist attitudes.¹⁵

2.1.4 Rome

Jordan also talked about the archaic Roman empire as an example of a principality that suffered environmental degradation, due to overgraze and over intensive agricultural cultivation.¹⁶ In 300 B.C.E, the lands that is now known as contemporary Sicily and Italy was actually well-forested, but then the increase in timber and land demand, resulted to repaid clearing of these forests. As consequences of expansion, there was an intense

pressure on the environment. Many of the empire's provinces were transformed to granaries to feed the population of Rome.¹⁷

The Northern African provinces of the empire, declined through gradual process of over-exploitation of resources and consequent environmental degradation. The process even increased dangerously after the fall of the Roman Empire.

2.2 The Middle Ages

According to Jordan forest ownership and laws governing forest use in Europe started at the beginning stages of the middle ages, some wood-lands were royally owned, or owned by feudal lords, while some woodlands were owned in groups or in common. Feudalism contributed to the conversion of forest lands to agriculture, for the aim of increasing production, making enough capital, and paying tribute to feudal lords and the royal household. For the serfs' rural populace, agriculture was their only factor of livelihood.

But then again, similar to ancient Greece and even the Roman empire, the need for land privatization increased and like the city-states of Sumer, population grew in immense numbers, therefore leading to losses of forest lands, timber, fuel wood, and hunting grounds, which raised great concerns for the kings and lords. To solve this problem, the kings and lords decided to set aside game reserves for themselves, to ensure that deer's and boars increased in population which can be adequate for hunting.

Jordan, using the work of Falinski stated that one of these reserves, the Bialowieza park on the *Holish-Russian* border, is now one of UNESCO's major site, the Biosphere

reserves, and the site where the European forest bison was reintroduced to the wild from the zoos.¹⁸

2.3 The Industrial Age

It was at this point that man mastered the forces of nature, which according to Jordan have dominated them for so long. But it was the confluence of capitalism and science and technology that originated the industrial age.

2.3.1 The Romanticist

It was an artistic and philosophical school of thoughts that originated in the 17th century and flourished during the 1800s in Germany. According to Bronowski, “Friedrich Von schelling formulated a *NaturPhilosophie* that romanticized nature and inspired man to find a sense of personality in nature”.¹⁹ Youngs also stated that the Romanticism movement became famous in England and was adopted by poets and artists such as Coleridge, Shelley, and Byron.²⁰ According to Jordan, the Romanticism movement was a reaction against the industrial age, because of the negative effects of scientific and technological forces on the natural environment. The Romanticist opposed science and technology because they made the beauty of nature ugly.

The Romanticist did not only oppose Baconian science, they separated themselves from the capitalist (Vulgar Bourgeoisie) and the proletariat (working-class) because they exploited nature reducing it to mere commodity values (money).

For the Romanticists their labour was strictly artistic and intellectual. For Jordan, the Romantics were idealistic conservationists, because they saw the need to protect the purpose and meaning of nature.

2.3.2 The Naturalist Writers

Still on the focus of notable history concerning the effects of environmental conservation, Carl Jordan, outlined a certain number of scientists in this category who did not appeal to the *reductionists'* scientific approach in relating with nature. For Jordan scientists were concerned about colonial expenditures that existed during the 17th century and 18th century and how they actually contained elements of nature philosophy. Although these scientists focused significantly on the economic consequences of these elements as opposed to the aesthetic value of nature, and the latter was the obsession of the romanticists. Unlike the Baconian scientists and the reductionist attitude towards the natural environment these scientist saw that over exploitation alone would be economically disastrous if provision were not made for conservation of natural resource.²¹

The Europeans colonized and exploited tropical lands throughout the 17th and 18th centuries and after the European military forces gained these states invariably these scientist followed.²² These scientists were mostly medical surgeons, custodians of early colonial botanical gardens etc. and they were aware of the contributions of colonial over exploitation and environmental devastation.

2.3.3 Alexander Von Humboldt

Alexander Von Humboldt (1769-1859) in his accounts about his journey to South America in 1799 and around 1804, emphasized the need to conserve the continent's natural resource.²³ According to Jordan when the fishermen of Araya were concerned about the devastation of the once lucrative pearl fisheries, Alexander told the fishermen that it is because of their over-fishing of the oyster beds that have driven away the oysters. Also when the land-lord around Lake Victoria in Venezuela was worried about the shrinking of the lake, year after year,²⁴ Alexander Von Humboldt told them that the degradation or shrinking of the lake was of their own careless activities. These land-lords were responsible for divesting the mountains, and cutting down the trees that surrounded the lake, therefore causing an erosion that led to the shrinking of the lake.

Von Humboldt also warned the Padres of Caripe that their *mine of fat*, which involved the killing of thousands of Guarchaw birds, would lead to the near extinction of the birds.²⁵ Von Humboldt was also dismayed that thousands of the beautiful graves of quinine producing cinchoria trees,²⁶ were felled for their bark, without any attempt to reforest them and because of this the Spanish colony lost an important natural resource which dwindled their economic growth.

2.3.4 Charles Darwin

Charles Darwin (1809-1889) was the renowned proponent of the "Natural History and Geology of the Countries visited during the Voyage of HMS Beagle Round the

World” (1845), in which Darwin laid the foundation for his evolution theory which revolutionized biology. In the conclusion of Darwin's work he wrote:

When I say that the scenery of parts of Europe is probably superior to anything which we beheld, I accept, as a class by itself, that of the intertropical zones. The two classes cannot be compared; but I have already often enlarged on the grandeur of those regions. As the force of impressions generally depends on preconceived ideas. I may add, that mine were taken from the vivid descriptions in the personal narrative of Humboldt, which far exceed in merit anything else which I have read. Yet with these high-wrought ideas, my feelings were far from partaking a tinge of disappointment on my first and final landing on the shores of Brazil.

Among the scenes which are deeply imposed on my mind, none exceed in subliming the primeval forests under faced by the hand of man; whether those of Brazil, where the powers of life are predominant, or those of Tierra del Fuego, where Death and decay prevailed. Both are temples filled with the varied productions of the God of nature: -No one can stand in these solitudes unmoved, and not feel that there is more in man than the mere breath of his body.”²⁷

The above quote by Darwin, simply projects his admiration and thorough appreciation of the impressions conceived from his tour to the vast primeval forests of Brazil, which had luring reasons for man’s existence, and a yearn for an active interaction.

2.3.5 North American Naturalists

Henry David Thoreau (1817-1862) was a critic to the conquering and extinguishing of the North American wilderness. Thoreau was well known for his vivid description of nature at Walden, his views on conservation are expressed in his Ironic essay titled “Life Without Principle”.²⁸ In 1864 the Vermont scientist and congress man George Perkins Marsh (1801-1882) published his own work on conservation titled “Man and Nature”, it talked about an order which all things move according to natural law, which maintains a delicate and perfect balance.

According to Marsh, when men entered nature with all his ignorance and presumption, their followed a succession of *disturbed harmonies*²⁹ in the natural order, and the implication of this was destruction which also affected man. Marsh accepted the Genesis interpretation that man was met to be a steward to nature. Jordan also included John Muir (1839-1914) as a pioneer of conservation and founder of the sierra club. Muir called the attention of the public towards the environmental devastation and degradation caused by development in California.³⁰ John Muir wrote an article “God’s First Temples; How Shall we Preserve our Forests”³¹, where he (Muir) appealed to practical man” by stressing the results of forest destruction with floods and droughts, waste and also destruction due to sawmills, fire camp set by shepherds or stockmen who annually migrated the Sierra. Muir questioned the governmental institutions if they are able to solve these environmental problems.

2.3.6 The Conservation Movement: Theodore Roosevelt & Gifford Pinchot

Jordan stated the environmental impact made by Thoreau, Marsh, Muir among others... that were solitary voices of maintenance and managing the natural environment, but as the 19th century came to an end, there arose a movement with the focus of a practical method to utilize nature without destroying and exhausting it, which then brought about a social and political phenomenon known as the conservation movement.

Theodore Roosevelt (1858-1919) after becoming the 26th United State President in 1901 spelled out the conservation philosophy in his first state of the union message³² therefore, establishing the basis of a policy for conservation of natural resources in

America, which has now lasted over a 100 years. Roosevelt addressed issues of forest management, which he stated that:

The fundamental idea of forestry is the perpetuation of forest by use. Forest protection is not an end in itself: it is a means to increase and sustain the resources of our country and the industries which depend upon them. The preservation of our forests is an imperative business necessity. We have come to see clearly that whatever destroys the forest, except to make way for agriculture, threatens our well-being³³.

Roosevelt's philosophies have been taught as the guiding principle of conservation in most environmental institutions in forestry, natural resource management and so on, since the 20th century. In as much as Roosevelt was closer to Muir, Roosevelt's movement did not create room for preservation (which advocates the locking up of natural resources just for the sake of protection) but as Roosevelt explains it – it is by using natural resources without destroying them. Gifford Pinchot (1865-1946) which was Roosevelt's first chief of the forest service,³⁴ played a major role in implementing the philosophy that the government had a responsibility to protect forests for their economic value". According to the constitutional rights foundation, Gifford Pinchot in 1907, proposed the word *conservation* to describe Roosevelt's wilderness protection campaign³⁵ The protection of forest for economic value was both for the sake of present generation and for the sake of posterity (future generation). The term *wise use* of the forest (which was coined from the definition of Roosevelt's conservation philosophy) was interpreted to mean so many things, but Pinchot's views were summed up in his definition of conservation as the "use of natural resources for the greatest good of the greatest number in the long run"³⁶ which implied the utilitarian structure that conservationism is built upon.

The view that natural resources can be sustained through *wise-use* was applied to the management of all natural resources not restricted to only forests or wildlife. According to Jordan this kind of notion or approach became theoretically satisfying as far as the resources were enough and sufficient to suffice all interest, for example; providing enough hunting game for hunting, enough fish for fishermen, enough trees for wood-loggers and so on. However, there were conflicts between the *wise-use* pioneers and frontiersmen, who felt that every American (Native American Indians included) had a right to exploit the national forest (which was then called forest reserves) at will. Policies that attempt to break this 'right', became known as *locking up the land* or *pinchotism*.³⁷

Pinchot's notion of making *wise use* of natural resources has faded out and no longer in use, because what is "wise" now solely rests on the perspective of the interest group that defines what is wise and useful.³⁸ Jordan stated that, many environmentalists believe that the wisest use of the last remaining old-growth forests around the pacific northwest could be free from violation and a secure preserve for rare and endangered species.³⁹ Another group was the politicians and their political group or parties, who proclaimed that the best use of forests is to continue logging them to keep the economy of towns dependent on the logging industry for its survival and progression. In 1992 the concept of *wise use* was utilized negatively and in form of a revolt by a coalition of groups that pushed to repeal environmental legislation that they saw was interfering with their right to exploit national parks and forests for private gain. They called themselves the *wise use* movement.

2.3.7 Franklin D. Roosevelt (1882-1945)

In the 1930 the economy of the United States was plunged into the *great depression*, and its natural resources and heritage were lacking and suffering from years of over exploitation. The election of Franklin Roosevelt as the U.S president in 1932 ushered in an important national change, in both its social and conservation policy. Franklin Roosevelt's administration initiated some number of projects that addressed social, economics and conservation problems. The most significant projects that were set up were the Tennessee Valley Authority (T.V.A) and the Civilian Conservation Corps (CCC) among others.

2.3.8 The TVA (Tennessee Valley Authority)

The idea of constructing a dam on the Tennessee River where it dips into northern Alabama around muscle shoals, originated in the 1900s.⁴⁰ However, there was a continuous bickering between private and public interests which made completion of the dam stagnant. But Roosevelt saw potentials in the Southern Appalachian region than just a mere dam. It was a region that has been in economic depression, due to excessive logging and has resulted to a bad degraded landscape. In 1933 Roosevelt addressed the congress, he stated that:

It is clear that the Muscle shoals development is but a small part of the potential usefulness of the entire Tennessee River. Such use, if envisioned in its entirety, transcends mere power development; it enters wide fields of flood control, soil erosion, afforestation, elimination from agricultural use of marginal lands, and distribution and diversification of

industry. In short, this power development of war days leads logically to natural planning for a complete river watershed involving many states and the future lives and welfare of millions. It touches and gives life to all forms of human concerns.

I therefore, suggest to the congress legislation to create a *Tennessee Valley Authority* a corporation clothed with the power of government that possessed of the flexibility and initiative of a private enterprise. It should be charged with broadest duty of planning for the proper use, conservation and development of the natural resources.

According to Jordan, the TVA initiated by Roosevelt was a significant achievement of the conservation movement, the nitrate plants at muscle shoals became the center of the world's research on fertilizers. Forest fires and soil erosion on the slopes of the river valleys were monitored, and flood damage was diminished. The production of farms and forest were increased, and navigation and recreation flourished.⁴²

2.3.9 THE CCC

The great repression, in the 1930s according to Jordan, created a lot of unemployment, and in order to solve this problem Roosevelt established the civilian conservation corps (CCC), which gave the youth an advantage to live away from the cities, earn a living, and do something important.⁴³ These young men planted trees, developed parks and recreation areas, restored silted water ways, provided flood control, controlled soil erosion, and preserved wild life and livestock.⁴⁴ According to Jordan the lodges, trails and cabins that was built enabled the public an opportunity to pay visits to the national parks in order to appreciate the wonders of nature.

In the beginning of World War II, many young men went into the armed forces, while others worked in factories and industries that specialize in the production of weapons to supply the warfare. The CCC faded, but the aim for which it was established was fulfilled for Jordan, the CCC created a long lasting generation impact. Its *work for welfare*⁴⁵ as Jordan puts it provided an economic progression and development which lasted a generation, and finally it created a positive mood that favoured the idea of conservation.

2.3.10 Aldo Leopold

In the mid-20th century, the reputation of the United States forest service was changing. Instead of the forest service to regulate the activities of logging and grazing on national forests, they decided to lick the boots of these loggers and ranchers they were supposed to regulate. This made the forest service an enemy to those who sought to protect the forest, because the forest services neglected their duties. Aldo Leopold, the North American forester and game manager was so dismayed by the negligence of the forest service to save the national forests from destruction, which led him to write an essay in 1949, that many have considered to be the first attempt in modern western literature to develop an ethical theory that deals with the relationship of humans to nature.⁴⁶ The 1949 publication by Leopold was titled *The Land Ethic*. In the Land Ethic (originally known as- *A Sand County Almanac*) Leopold considered three stages in the development of human ethics which are: (1) The relation between individuals (2) The relation between the individual and society (3) The individual's relationship to land and animals and the plants that grow on the land⁴⁷ (Ecocentrism).

2.3.11 Echo Park Dam

With the economic expansion and increased population which was the aftermath of the Second World War, pressures on feudal lands grew intensely. Private conservation organizations that had supported the concept of multiple use, now decided to adopt Aldo Leopold's thoughts. In the 1950s, each of these conservation organizations had pursued its own particular interest, for instance; the Audubon society in studying and preserving birds, the Sierra club in protecting the giant redwoods and sequoias, finally the wilderness society in protecting forests, rivers and shorelands.⁴⁸

The *Echo Park Plan* to dam the Colorado river, stimulated the private organizations into an organized and active political force that fought against the ruin of public property for the benefit of a privileged few.⁴⁹ The feudal government proposed a billion-dollar-dam-building program in eleven western states which would be exercised by the *Bureau of Reclamation*, and then called the *Colorado River Storage project*. David Brower of the *Sierra-club* further described this by saying:

“There would be construction roads in the canyons and above it, tunnels, the whole power installation and transmission lines. The rapid build-up of silt at the upper end of the reservoir to enable it to fulfill its function – a fluctuation that would play hob with fish and wildlife. The pinion pines, the Douglas firs, the maples and cottonwoods, the grasses and other flora that live on the banks, the green living things that shine in the sun against the rich colors of the cliffs these would also go. The river, its surge and its sound, the living sculptor of this place, would be silent forever, and all the fascination of its movement and the fund of riding it, quietly gliding through these cathedral corridors of stone-all done in for good.”⁵⁰

The conservation groups were however successful, and in 1955, April 11th President Eisenhower signed a bill to law that restricted the construction of a dam in any national park or monument. Although these conservation groups won the Echo Park battle, but the frontier ethics still remained important in the American psyche, which eventually led to the winning of exploitation rather than preservation and conservation, the latter being the most important.

2.3.12 Agriculture

It was a very important factor to the American economy in the 19th century. As the dawn of the industrial age arose in America, it became comprehensible to know that technology which has been successfully utilized in industrial yields or production, could also aid in enhancing agricultural activities and output. In 1862 an act to establish agricultural and mechanical arts colleges was passed, known as the land grant colleges' act. Agriculture which was practiced by the early American settlers had evolved in Europe, because of its brown forest soils. With care and with the standard European practices of crop rotation, the productivity of their soil was sustainable, and the techniques of farming was taught at the agricultural colleges of both the East and Midwest.⁵¹

In 1931, there was an exceptionally severe drought, and in 1933 high winds carried away a lot of unprotected and unpreserved soil. In the process, millions of acres of farms were devastated, as a result of this high winds which was named *The Dust Bowl*,⁵² because of the dense clouds that obscured the sky. Places affected were western Kansas, Oklahoma, some parts of Texas, New Mexico and Colorado. Ruined farmers and their families left to California for survival. Finally, the government sprung into action and in 1935 “the soil

conservation service was created to provide aid and technical assistance to farmers. The use of conservation techniques such as *Contour Plowing* and trees for wind breaks was initiated.⁵³

After the Second World War, the lessons of *The Dust Bowl* were forgotten, and instead of conservation techniques, emphasis was now laid on increasing production. The government started putting scientists to work to increase the productivity of natural resource ecosystems, such as farms, forests, range-lands,⁵⁴ and so on...According to Jordan, the scientists contributed little to the success of agricultural output, especially with the creation of insecticides for pests control, rich fertilizers to nourish the soil, etc.

2.4 The Post Industrial Age

2.4.1 Silent Spring

In 1960, it now became a problem, when the continued increase in productivity had created some damaging environmental side effects, that were hardly noticeable for many years. There were cases of pollution in streams, dead birds, and this damage increased and accumulated year after year. Rachel Carson's 1962 publication called *silent spring* drew the attention of the populace or public that as the population increased there were insufficient natural resources to aid the supply of the production of goods and services which were in constant demand for the sake of consumption. This then served as an eye-opener, and the populace became very much aware of the soil degradations caused by erosion and the poisoning of the terrestrial and aquatic ecosystem due to industrial

pollution and the loss of species that were the potentials of future food supplies and production.

Jordan identified Carson's book as a milestone in the subject-matter of conservation, and it gave a proper orientation to the populace that conservation problems were not limited to natural parks and forests. Problems such as air pollution, water pollution, improper disposal of waste, etc., were beginning to affect the health and lives of the people.

2.4.2 The Broadening View

In 1963 the U.S secretary of the interior, called steward Udall published a book titled *The Quick Crisis*,⁵⁵ the book described the poor environmental conditions, and Udall was forced to plea for a solid conservation ethic. According to Udall:

*We must develop a land conscience that will inspire those daily acts of stewardship which will make America a more pleasant and more productive land. If enough people care enough about their continent to join in the fight for a balanced conservation program, this generation can proudly put its signature on the land. But this signature will not be meaningful unless we develop a land ethic. Only an ever widening concept and higher ideal of conservation will enlist our finest impulses and move us to make the earth a better home both for ourselves and for those as yet unborn.*⁵⁶

The Microbiologist Rene Dubois in 1968 also wrote a book, *So Human an Animal*, to express his anger towards the degradation of the human environment, he said:

This book should have been written in anger. I should be expressing in the strongest possible terms my anguish as seeing so many human and natural values spoiled or destroyed in affluent societies, as well as my indignation at the failure of the scientific community to organize a systematic effort against the desecration of life and nature. Environmental ugliness and the rape of nature can be forgiven when they result from poverty, but not when they occur in the midst of plenty and indeed are produced by wealth. The neglect of human problems by the scientific establishment might be justified if it were due to lack of resources or of methods of approach, but cannot be forgiven in a

*society which can always find enough money to deal with the issues that concern selfish interests.*⁵⁷

Rene Dubois, in the conclusion of his book further gave a definition of conservation as.

*...Conservation therefore implies a creative interplay between man and animals, plants and other aspects of nature, as well as between man and his fellows. The total environment, including the remains of the past, acquires human significance only when harmoniously incorporated into the elements of man's life.*⁵⁸

The book that announced the environment in the public eye was Paul Ehrlich's work titled *The Population Bomb* in 1969.⁵⁹ Jordan posits that recently, Great British conservationists had a different emphasis than their American oppositions. The British scholars were less concerned about psychological or generic values of wilderness, but they were more concerned about the amenities of the cultivated British country side,⁶⁰ that were threatened by industrial activities and the Vulgarities of excess tourists. Like Ehrlich and Carson, Goldsmith was of the opinion that overpopulation was the root cause of environmental problem. *The Blueprint for Survival* which was compiled by 37 environment chemists, also comprising of; zoologists, medical scientists, microbiologists, botanists, together with an archaeologist and an economists; suggested an utopian society. The utopia was to consist of small village type settlements of 500 people forming part of larger communities of about half a million.⁶¹

Decentralization would improve a reduction in capital costs though community self-sufficiency and self-dependency in things like proper sewage disposal and water supplies, no new roads would be built in order to save money to subsidize public transport.⁶² As palatable as the Blue print sounded in building a utopia, it encountered some resistance and

problems, even though over 180 scientists embraced the idea. The problem was that these scientists were unable to actually subscribe to the idea, because and the environmental problem was more than a mere application of technical solution to pollution, resource depletion, deforestation etc.

2.4.3 The Limitation of Science: A New Understanding

For Jordan, the popular question of the 1960s was based on “*if we can send a man to the moon, why can't we solve the problems of crime, poverty, threat of war, or pertaining to the discussion here, the environment*”⁶³ until the 1960s it was believed that environmental problems were technical problems, and all science had to do was to control pollution rate, manage forest, etc. but it took so much to realize that this is not the case, because environmental problems were not technical but social.

Jordan talked about Barry Commoner's idea in his (Barry) work *The Closing Circle*, published in 1971, according to Commoner the American society was unable to deal with social problems because it believed that sciences which could deal with isolated technical problems, could solve the over lapping problems of society in general.⁶⁴ Commoner also pointed out that conservation and preservation had more to do with social problems than that of technical problems.

Regarding the *New Understanding*, Jordan points out that, scientists and humanists, conservationists and liberals, human-centered and nature-centered conservationists are all starting to realize that environmental problems are not isolated technical problems, but are interconnected social and economic problems. While science and technology can provide

short-term solutions, long-term solutions to environmental problems can be sought through political effects. Increasing number of scientists from agronomists to ornithologists are beginning to understand that conservation of natural resources and biodiversity is a political, social and most definitely an economic problem. Technical solutions, according to Jordan, will work only when they are economically justifiable, politically feasible, culturally acceptable, and environmentally sustainable.⁶⁵

Endnotes

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CHAPTER THREE

JORDAN'S IDEAS ON THE POLICIES FOR CONSERVATION

3.1 Problems of the Commons

Jordan outlines some substantial issues and situations that decrease the standards and quality of conservation policies, as well as offering some pivotal solutions that could resolve such issues.

3.1.1 The Case for Government Intervention

According to Jordan the free market efficiently allocates resources and engages in the distributions of goods and services. But when economic regions or economic borders (which Jordan also refers to as economic frontiers) become overly populated, and the sinks of used-resources become full, the free markets begins to collapse in its service to humanity. The free market also falls because it does not recognize the life-supplying functions of nature, and assumes that nature's service is to naturally fix environmental problems inherently. When a free market collapses it is left for the government to intercede. Government's intervention is very necessary and in Jordan's view *desirable*,¹ because government can fulfill functions such as regulation of pollution, that cannot be accomplished or fulfilled by the unregulated free market.

But then again, Jordan posits that government intervention is often *undesirable*, because they are ignorant of the feedback mechanisms of the free market. Government

bureaucracies after sometime becomes self-serving and unresponsive in changing environmental problems and world conditions.² Jordan's is right to make such claims, because, generally speaking, a free market economy works with the law of supply and demand, rather than a central government, for the regulation of production and labour, but however, the government can establish some parameters such as minimum wages and anti-trust laws,³ etc. Adam Smith's theory of *The Invisible Hand* in the late 18th century, proposed that a free and unregulated market, is where anyone can become a producer or a consumer, thus, people's demand of different goods and the production of those goods should be equal. Smith also pushed the idea that the invisible hand or market force of demand and supply will accomplish a better level of production, consumption and distribution of goods for the welfare of the society.⁴ Although for Smith one of his greatest insights as a moral philosopher and economist was his anthropocentric view that, labour was the source of 'value' and not nature. Perhaps this was because of his childhood in a country that bustled with trade, rather than in the overwhelmingly agricultural setting of France.⁵

3.1.2 Political Philosophies

Jordan Opines that in democratic societies throughout the globe, political and economic preference can be divided into two (2) camps, which are known as the 'conservative' and 'the liberal'.⁶ For Jordan, this conservatives and liberals were a simple category for a lot of different political views, ranging from extreme left-wing Marxism to extreme right-wing fascism. In terms of goals and values, the conservatives always place higher priority on the 'economic objectives' of growth and efficiency than on social or

environmental objectives. While the liberals favour measures that, within the limits imposed by the Bourgeoisie economy, and more directly, pro-poor, pro-labor, pro-equality, pro-ministry and pro-environment.⁷

Conservatives (who regard private economy authority) look up to the free markets to solve social and environmental problems. For the conservatives they believe the private economy left to itself perform accurately. Government intervention aimed at bringing about better result and problem solutions is likely to make things worse. Conservatives minimize the seriousness of present problems and they argue that whatever environmental problems and social problems exist, it is best dealt with by allowing market forces to produce responses from private business.⁸ Therefore lower regulations and interference by the government are quite better.

Government programs are viewed as unnecessary and ineffective and counterproductive because of the tax drain they bear on private enterprises. These conservatives believe that government interventions decrease productivity and economic well-being of all citizens, hence reducing the welfare of the citizens. For the *liberals*, effective government intervention in the private economy is necessary for tackling major environmental problems and social problems. The liberals believe that private economic establishments and enterprises are unable to protect the environment against pollution and environmental health safety, and perhaps reducing class inequalities. The liberals believe in a well-designed and well-implemented governmental expenditure and regulatory programs to make beneficial contributions to deal with environmental and social problems.

According to Jordan these basic two contrasting philosophies are two contrasting version as to the causes, effects and remedies for environmental crises.⁹ However, it is desirable to support the *pros* of the liberals, because the conservatives are basically interested with how the private market works and how it can increase in productivity with the availability of its factors, with less concern about the causes these increased productivity can do to the natural environment even though they think that sufficient production can solve environmental problems. As a consequence of this the conservatives can be taken as the kind of party that only interacts with the natural environment in form of labour, similar to Marx's ideology about classic capitalism. For Marx, production always takes place as a social act; where people struggle against, and utilize nature not as individuals but as groups and societies, therefore the basic fact of human life is that food, clothing and shelter which are important for survival, relates people to the material world and the factors of production represents these relationship.¹⁰ The thoughts and behavior of everyone in a society are determined by their relations to the factors of production, and not only their relations with another.¹¹

3.1.3 Blending the Best of two Philosophies

Conserving material resources and reducing many environmental problems are management problems of the global or local commons, and thus they sometimes require government intervention, but not always. Jordan improved his point by giving examples of mineral resources; metal recycling and water supply. For Jordan:

When the cost of extracting metals from the earth becomes greater than the cost of collecting and recycling used products made of these metals, private investment will conserve the metals by pursuing an economically rewarding recycling program. Another example is that when the government is unable to provide a water supply pure enough for

*drinking standards (as often occurs in cities in the tropics), private suppliers of purified and bottled drinking water will offer a supply.*¹²

Jordan supply mixes up the ideology of the conservatives and liberals, in suggesting that private enterprise and non-governmental organizations play a key role in conserving and recycling mineral resources, but for publicly owned resources that cannot be recycled, or for pollution control in commonly owned sinks such as air and water, private markets becomes inadequate and governmental control becomes necessary.¹³ The role of private enterprises and NGOs in environmental policies and maintenance have being active since the late 20th century.

According to Richard Benedick, in his essay titled “Diplomacy for the Environment” said that in 1992 during the UNCED negotiations, hundreds of NGOs were active representing the interest of environmentalists, agriculture¹⁴, among others... The term *ecodevelopment* (which is an extreme left-wing vision) defines the “*attempt to restructure the relationship between society and nature by reorganizing human activities so as to be synergetic with ecosystem processes and functions.*”¹⁵ However, such philosophical system, such as: *ecodevelopment* can be difficult to attain in democratic societies, except, there is a radical revolution of change. According to Jordan such radical revolution would paralyze the economy, making the mentality of day-to-day survival dominate the concerns of the populace.¹⁶

Jordan, instead of searching for an *Ideal* policy strategy or philosophy, he opines that, it is better to focus on the freedom and power that any government in any state or nation can exercise in making radical change. No single policy can immediately alter the already established fundamental structure of an institution (governmental or non-

governmental). All factions of government work within the prevailing political and economic system, basic legalities, governmental, social and economic institutions remain largely unaltered, because change is gradual, and any attempts to produce change must be generated within the constraints set by the system.¹⁷ Jordan's aim was geared towards providing various interventions through which policy makers and planners can lead a democratic society towards an effective conservation of natural resources, so as to prevent environmental problems and pollutions, to further enhance economic growth. But, however, Jordan still maintains that a gradual transition of change rather than a radical revolution is better and preferable, because it allows a society to try if a conservation policy will be productive or not, so that if a policy fails, it is abandoned and another can be set up or originated. Jordan describes this method as a *feedback mechanism* - "*that keeps policy in the direction that is most beneficial to the society*".¹⁸

3.2 Policy Option

The policy options available to government are as follows:

3.2.1 Moral Persuasion/Information

For Jordan, the increasing exposure of conservation issues in public forums, press and especially the television has incurred a new attitude in the society today that has brought about a mentality of global awareness. He (Jordan) referred to the book "Earth in the Balance" written by Albert Gore, who was the 45th vice president of the United States, when Clinton was president (during the era of Jordan's conservation publication as well).

In the book, Gore made an emotional appeal for conservation. In Gore's work, he pleads that;

*The government should adopt a policy of purchasing environmentally appropriate substitutes wherever they are competitive-taking into account full life-cycle costs-with older, less responsible technology. For example, it should replace every light bulb (when it wears out) with one of the new long-life bulbs that consume only a fraction as much electricity to produce the same amount of light. The government should also be required to purchase recycled paper in amounts ending year represents a larger percentage of its total needs until virtually all the paper it uses is recycled.*¹⁹

According to Jordan, Gore in his concluding part of the book also said that:

*"For civilization as a whole, the faith that is so essential to restore the balance now missing in our relationship to the earth is the faith that we do have a future. We can believe in that future and work to achieve it and preserve it, or we can whirl blindly on, behaving as if one day there will be no children to inherit our legacy. The choice is ours: the earth is in the balance".*²⁰

Albert Gore's book do not only describes environmental problems but also creates solution to solve them. Gore, introduced his solution by describing what was termed the *Marshall Plan*. Marshall Plan was a strategy that aided the nations of Western Europe to rebuild after World War II, and also to destroy the spread of communism. The Marshall plan did not only serve the purpose of rebuilding but also the purpose of changing economic barriers such as trade laws that impeded the growth of free market.²¹ According to Jordan, Gore's call for a *Global Marshall Plan* to save the environment, had five strategic goals which are outlined as follows:

1. Stabilization of the world's population.
2. Rapid creation and development of environmentally appropriate technologies, mostly in, energy, transportation, agriculture, construction and finally in manufacturing.

3. A comprehensive and ubiquitous change in the economic “rules of the road” by which we measure the impact of our decisions on the environment.
4. The negotiation and approval of a new generation of international agreements that will encompass the regulatory frameworks, specific prohibitions, enforcement mechanism, penalties, incentives etc.
5. The establishment of a co-operative plan for educating the world’s citizen about our global environment, which entails, the establishment of comprehensive programme for researching and monitoring the changes that are taking place. The second option is through massive effort to widespread information about local, regional and strategic threats to the natural environment.²²

Jordan rightly states that, moral pervasion and information are especially important and better for children. Many schools should initiate programs to educate children about the importance of conservation measures such as recycling. Jordan then continued by soliciting for campaigns that focus on the national interests, which describes the gain and rewards for being good to the environment, and repulsiveness or rebuke for those who are careless and less discipline in their relationship with the environment. Examples of these campaigns are using less water during dry season (or summer), recycling, to save trees, plants, etc... such practices have had significant success in improving the environment and economy of many nations. Holidays according to Jordan, such as *Arbor day* or *Earth day*, are also effective in promoting the awareness of conservation.

The United Nation Conference on Environmental and Development (UNCED) held in Rio de Janerio on June 1992 was a global forum on which to solve environment problems and other grievances. According to the UNCED secretary general of the 1990s Maurice Strong, he said in the opening address of the UNCED, that;

The Earth summit is not an end in itself, but a new beginning. The measures you agree on here will be but first steps on a new pathway to our common future. Thus, the results of this conference will ultimately depend on the credibility and effectiveness of its follow-up...

The road beyond Rio will be a long and difficult one but it will also be a journey of renewed hope, of excitement, challenge and opportunity, leading as we move into the 21st century to the dawning of a new world in which the hopes and aspirations of all the world's children for a more secure and hospitable future can be fulfilled".²³

3.2.2 Regulations

For Jordan, direct regulations are customary ways to control environmental problems, government can enact limitation to the exports of some natural resources, for example: timber, rubber, leather, etc. or the limiting of hunting of endangered wildlife or usage of exotic plants. Government can control the use of pesticides on agricultural crops or cultivations, examples Jordan gave are: the clean Air Acts of 1965, 1970 and 1977, the Federal Water Pollution Control Act of 1972, the Wilderness Act of 1964, and the Endangered Species Act of 1973,²⁴ etc. All these regulations are undertaken by a government agency, that any project that needs to be implemented should be evaluated in order to project its environmental impact before it is started.

In terms of governmental regulations on the environment in Nigeria, the *Environmental Law Research Institute* (E.L.R.I) which is a non-profit organization for the protection of the environment and promotion of human health, outlines and summarizes,

twenty-eight (28) environmental regulations which were induced by the Nigerian legislation, for example: the *National Environmental Standards and Regulations Enforcement Agency Act* (NESREA), *Environmental Impact Assessment Act*, *the Land use Act*, *Oil Pipelines Act*, among others, which will be mentioned and discussed in subsequent chapters of this study.²⁵ For Jordan, these regulatory legislations and policies can be effective in achieving environmental goals, but they tend to impose relatively high costs on society because of unnecessarily expensive means of controlling pollution and environmental problems. Another problem with regulatory bodies and policies that Jordan identifies is that, they sometimes deal with environmental problems temporarily meaning that the solution is not always permanent.

In Nigeria, for instance, those regulation and regulatory policies identified earlier, suffer from effective enforcement. In an online essay publication titled “Rethinking Environmental Law Enforcement in Nigeria” by Hakeem Ijaiya and O.T. Joseph, the deficiencies and challenges of environmental law enforcement and regulations in Nigeria is simply due to the inadequacies of policy operatives in Nigeria to monitor and organize the relationship between environmental management and sustainable development. Because of this there is a poor enforcement of these environmental regulations and also a poor execution of environmental protection legislation. An ineffective enforcement strategy is one of the problems of environmental regulation in Nigeria, due to corrupt practices and bad governance, which has always being prevalent in the country.²⁶

3.2.3 Incentives

Jordan suggests that, a program of incentives can perhaps be more effective in inducing desirable conservation attitude than programs of regulations or enforced legislative policies. For example, promoting long-term land-stewardship through property rights is an incentive needed to improve land stewardship. Share-cropping and shifting cultivation are examples of agricultural practices that is degrading the environment owing to lack of land tenure.²⁷ But land tenure itself does not guarantee an improved land management. According to Jordan, in some countries, land reform programs have led to the distribution of large plantations and ranches to local farmers and peasants, who often lack the capability or the resources to maintain these lands in a sustainable and conservative way.

For Jordan, sustainable and conservative techniques especially in agriculture takes time and years to learn and develop, and most of these local peasants are sometimes too old, or too poor to afford to learn these techniques. Jordan classified incentives as *direct* or *Indirect*. “A direct incentive is one in which those who are depleting the resources are paid directly to protect these resources”.²⁸ For instance, governments can hire local shifting cultivators (who are depleting the agricultural environment) to act as tourist guides, or hire them to manage forest reserves. When the forest service in the United States were unresponsive, because of the diminishing of forests and the loss of recreational and scenic values, president Bill Clinton, in November 1993 replaced the chief of the forest service, in hopes of changing the result in a shift of forest service policy on the national forest reserves. On the other hand, “An Indirect incentive is a policy change that induces

conservation practices without cash transfer”.²⁹ A good example, Jordan gave was the case of a fishing community on the coast of Mexico that were overfishing its resources. When control of the fishing rights was put into the hands of the community, the case of overfishing was stopped.

According to Jordan, there is a U.S policy on inheritance taxes which has been modified to encourage conservation through a device called *conservation easements*. Conservation easement restricts a property owner on the type and amount of development that may take place on his or her own property.³⁰ Conservation easement was established to preserve agricultural, historic, scenic, wilderness, and other types of landscapes or sites. It is mainly a restriction to land use regulations or legislative acts.

3.2.4 Disincentives

Theses are the opposite of incentives, and they have the advantage of being easily eliminated, once their respective conditions changes. Fines for individuals or industries that trades illegally on endangered species, or penalties for logging on protected areas are according to Jordan, examples of traditional disincentives. Tolls for driving cars in Urban and metropolitan areas is another disincentive that can reduce pollution and congestion.³¹

Taxes are normally viewed as disincentives, taxes on alcohol, cigarettes, and other things that are “bad” for people are normally increased than taxes on necessities such as vegetables, food, etc. that are ‘good’ for people. For Jordan, taxing the ‘bad’ more than the ‘good’ is a method used by the government to influence behaviour. Therefore, to discipline the populace and reduce their environmental destructiveness and over-exploitation taxes on

‘resource exploitation’ and ‘pollution’ could be increased, and perhaps, taxes on profit and income could be reduced.³² Taxes on ‘bad’ that can promote conservation was illustration by Jordan as follows:

1. Effluent or Emissions Charges (which are charges for putting polluting wastes into the air, water and soil).
 - i. On water effluents
 - ii. On toxic releases
 - iii. On vehicular emissions (cars, automobile)
 - iv. Solid waste collection and disposal charges.
2. Charges on environmentally damaging activities
 - i. Recreational user fees on public lands.
 - ii. Highway congestion tolls.
 - iii. Noise charges on airport landings.
 - iv. Impact fees on installation of septic systems, underground storage tanks, construction projects with environmental impacts.
3. Product Charges
 - i. Taxes based on the carbon content of fossil fuels.
 - ii. Gasoline taxes

- iii. Excise taxes on Ozone-depleting substances.
 - iv. Taxes on agricultural chemicals
 - v. Taxes on virgin materials
4. Deposit return charges which are product charges that are refunded when the product is returned to a designated collection point. These kind of charges are good when the policy objective is to discourage the use of a product and see to its proper disposal.
- i. On vehicles
 - ii. On lead acid and nickel cadmium batteries (basically chemicals)
 - iii. On vehicle tires
 - iv. On beverage containers
 - v. On lubricating oil.³³

3.2.5 Charges on Environmentally Damaging Activities

Here, charges on environmentally damaging operations have the advantage that, costs related with the operation, fall directly on those who cause the damage rather than on the general populace. This aspect according to Jordan should please both the conservatives and the liberals.³⁴ When fees are increased for things like highway tolls or usage of public parks or national parks, the public normally complain and protest against such act of increment, and sometimes the politicians or administrators normally respond to such

complains, instead of them to enlighten the public that such fees are actually saving them money through reduced taxes for upkeep and regulation, which can in turn make environmental conservation successful.

Impact fees on construction projects create an adjustment of the cost of environmental damage from the general populace to those who are guilty of the damage, and those who are gaining from it.

3.2.6 Product Charges

Product charges are not directed to environmental harmful activity itself but on a particular product used in that operation or activity. According to Jordan the product from the activity is easier to charge than the activity itself, even though they might be closely related. For example, the use of gasoline which is an environmentally harmful activity, because of the carbon dioxide that it releases (which contributes to the ‘green-house’ effect), leads to the taxation of carbon as a product, therefore imposing taxes on any carbon content; such as fossil fuels, is far easier than monitoring and placing taxation on CO₂ emissions directly.³⁵ Now, if a carbon taxation makes fossil fuels expensive, it will alter the use of capital, labor, energy and other economic factors and resources. Businesses and households will lower their tax payments by using fewer amounts of fossil fuels, and increase their use of capital, labor and non-fossil energy.³⁶

According to Jordan, taxes on virgin materials are another type of product charge. They are fees imposed on products at the time of being manufactured or at the point of importation. This is also based on the quantity of virgin materials that are built into the product. This act would encourage manufactures and producers to buy equipment's that can aid in recycling and that can collect and use recycled materials.

3.3 International Policy for Management of the Global Commons

The goal of international environmental policy is to protect the global commons through; treaties, financial agreement, international business investment, and international trade agreement.

3.3.1 Treaties

There are four global commons regulated by international treaties outlined by Jordan as follows: Antarctica, the oceans, the atmosphere, and tropical forests. Jordan included tropical forests because they exist within the boundaries of nation,³⁷ but it is not actually a 'global commons', but, the bio-diversity contained in tropical forests transcends national boundaries. Tropical forests according to Jordan, are the most significant manifestation of biodiversity which Jordan sees as an abstraction. However for the sake of this study it is important to focus on two global commons that are more relative and applicable to the nation's (Nigeria) interest, since it is a vital part of the subject-matter. The first to be considered will be the atmosphere, and lastly will be the tropical forest, which is a very significant resource in the West-African region, and some part of North-Africa.

3.3.1.1 The Atmosphere

It is found in every state, nation or country around the world, (the earth's covering) and for Jordan, the increasing use of refrigerators, air conditioners, and similar equipment have led to the increasing amounts of *chlorofluorocarbons* (CFCs)³⁸ which are chemical that have constantly been used in these appliances. Jordan explains that as the use of refrigerants grew, an increasing amount of it escaped into the atmosphere, and then moved on to the stratosphere, and as a result, these refrigerators serve as a catalyst that breaks down ozone in the high atmosphere. This stratospheric ozone layer plays a vital role with respect to life on earth.³⁹ The ozone layer helps to absorb the sun's ultra violet rays which touches the surfaces of the earth.

The Vienna convention and subsequent *Montreal protocol on substances that depletes the ozone layer* was adopted in 1987 and strengthened in 1990. They both set out strict timetables for phasing out substances and chemicals that contributed to ozone depletion. The Montreal protocol of the United States, who have had environmental success for over 30 years is currently signed by 197 countries (which according to Wikipedia are all United Nation members) and it has marked every September 16th as *world ozone day*, also marking the anniversary of the signing of the Montreal protocol, on substances that depletes the ozone layer.⁴⁰ Nigeria, operates as an *Articles 5* party under the Montreal protocol which however entitles the country to financial and technical aid from the *Multilateral Fund* (MLF) of the Montreal protocol.⁴¹ New scenarios of future *ODS* regulation in addition to the baseline scenario have been formulated, because parties to the Montreal protocol of ozone depletion have put in enough interest in increasing its dual

benefit to ozone and climate protection and conservation.⁴² During diplomatic meetings parties of the Montreal protocol have considered options to further mitigate ozone depletion which are: (i) collection and destruction of ODS (ozone depletion substances) in banks of old refrigeration and air-conditioning equipment (ii) formulation of the technical and economic feasibility, of further reducing overall ODS emissions, among others...⁴³

3.3.1.2 Tropical Forests

According to Jordan, the boom and bust export patterns in the tropical timber trade is often blamed on continual demand by developed countries, resulting to high import barriers and low international wood prices.⁴⁴ Although policies in most tropical countries suppress timber scarcity signals and must be revisited and changed if the trade of timber is to promote a profitable and fruitful economic growth. Major international mechanism that address tropical forest conservation are the Tropical Forestry Active Plan (TFAP) and the International Tropical Timber Organization (ITTO), created in the 1980s. But according to Jordan T.F.A.P and I.T.T.O is effective as they could be used in promoting conservation and sustainable use of tropical forests in tropical countries. Conservation of natural forests is given special attention to, because natural forests are still the primary resources which the timber market is based on. In the books titled “Tropical Forest Ecology” written by Florence Montagnini and Carl F. Jordan, Montagnini and Jordan stresses that modern natural forest management is often not sustainable, and therefore faces lots of criticism.⁴⁵ But however, the Sustainable Forest Management (SFM) serves as a management scheme of natural forests in such a way as to reduce the problems associated with timber extraction and over-exploitation. A more complete definition of SFM is given by Bruenig:

“...Management should aim at forest structures which keep the rainforest ecosystem as robust, elastic versatile, adaptable, resistant, resilient and tolerant as possible, canopy openings should be kept within the limits of natural gap formation; stand and soil damage should be minimized; felling cycles must be sufficiently long and tree marking so designed that a selection forestry canopy structure and a self regulating stand table are maintained without, or with very little, silvi-cultural manipulation; the basic principles is to mimic nature as closely as possible to make profitable use of the natural ecosystem dynamics and adaptability; and reduce costs and risks...”⁴⁶

3.3.1.3 UNCED

The United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, in June 3-14, 1992, was a significant environmental meeting to occur on a world-wide platform. Most of the important documents that were reviewed in the conference, and as reported by the New-York times on June 15, 1992, were:

- i. Biodiversity convention: Which is a legally binding treaty that requires inventories of plants and wildlife, and plans to protect endangered species.
- ii. Global warming convention: This binding treaty recommends curbing emissions of CO₂, methane, and other “greenhouse” gases responsible for warming the climate and enabling the sun’s heat to the earth, especially with its negative effects on the North-pole.
- iii. Declaration on environment and development: This was a non-binding statement of 27 principles for guiding environmental policy that lay emphasis on protecting the environment as part of economic development.
- iv. *Agenda 21*: This is a non-binding blue print for what governments and agencies should do to protect the environment, while allowing Third-world countries grow and develop themselves in the 21st century. In Nigeria (which is classified under the

Third world category) the *Federal Environmental Protection Agency* (FEPA) aided in the implementation of the national *Agenda 21*, and was part of the initial development of the vision 2010 strategy. Also in 1993, the Nigerian Federal Government established a National Advisory Committee on the implementation of Agenda 21, following the regional workshop on the implementation of *Agenda 21* in Africa held in Abuja.⁴⁷

- v. The final document was the statement of forest principles which was also a non-binding document that encourage countries to impact economic development on their forests and take the bold-step to minimize forest damage individually and with other countries.⁴⁸

3.3.2 Financial Agreements

In terms of financial agreement Jordan explained that they are a necessary tool for dealing with conserving the global commons, for example;

- i. The buying of reserves: Governments of developing countries (like Nigeria) do not have enough capital to adequately manage their nation's biological resources such as their tropical rainforests (e.g. found abundantly in the Niger-Delta region in Nigeria) and coral reefs, so therefore, to enable them manage this resources, they can finance the cost of conserving rainforests by creating more national parks and reserves, which can also be financed by aids from developed countries.
- ii. Trust funds: Another approach is to create global trust fund for global commons. According to Jordan, "International taxes and charges on pollution beyond national

frontiers (or borders) could serve to reduce effluents and form a base for financing the trust fund.⁴⁹

- iii. Global environment facility: Jordan advises here that, international investments must turn away from expenditures that make the political elite rich, while despoiling the natural environment, and focus more on rehabilitating the ability of nature to provide for all, that is, investment must shift from human made capital accumulation towards natural capital restoration.⁵⁰
- iv. International Aid: According to Jordan international aid from the United States, Europe and Japan to other tropical countries in recent years has had less success. Aid is intended to support disadvantaged societies or nations, but large aid organizations often must deal with the national government, especially concerning where interests are different from those at the local level.⁵¹

3.3.3 International Trade Agreement

This type of policy has long-term potential for global environmental conservation, but without adequate provisions, however, they could have a short-term devastating effect on the environment.⁵²

3.3.3.1 Free Trade versus Environmental Protection

According to Jordan, international agreements and treaties are generally based on the philosophy that global economic development can be enhanced by removing barriers to free trade. Countries usually impose trade barriers to protect some segments of its economy, e.g. the United States had trade barriers against the importation of certain classes

of cotton clothing, and even more recently, in 2019 according to the New-York times reportage in August 23rd, the present United State president Donald Trump placed an increase in trade tariff on Chinese goods and products imported, to the country by 30%. This act by Trump had led to some political *brouhaha* by the Chinese government, accusing the U.S.A of instigating a trade war. Often times the purpose of these trade barriers and exaggerated tariffs, is simply based on industrial competitions among countries, and not mainly because of environmental preservation and maintenance on the use of resources or to discourage products that can be deemed harmful to the environment if imported. For this reason, most environmentalists believe that free trade is a dire threat to the environment. Jordan quoted Goldsmith, when he said that:

*Then the entire world will effectively be transformed into a vast free trade zone, within which human, social and environmental imperatives will be ruthlessly and systematically sub-ordinated to the purely selfish, short-term financial interests of a few transnational corporations.*⁵³

According to Jordan, Goldsmith was of the view that development should be restricted, because if development continues in Third world countries, he said that the planet will be “rendered unfit for human habitation”.⁵⁴ Rather than stopping growth and development entirely, majority of environmental and conservation organizations have directed their work in making sure of the sustainability of development created by the free trade market, through environmental protection and maintenance.

3.3.3.2 CITES

The Convention on International Trade in Endangered Species (CITES) was adopted in 1973 by a diplomatic conference in Washington, D.C.⁵⁵ they are a principal

government level wildlife conservation authority all over the globe, with a total of 122 countries, and a secretariat that is housed under the roof of the U.N offices in Switzerland.

CITES, consider the tropical forest as an endangered species, but most importantly, they strive to regulate the Ivory trade market, in an effort to protect the African elephant. The system they initiated was that, any member-country was allowed to export as much ivory as they wanted as far as, they informed the secretariat in advance to know how much it has budgeted for such export, in order to be accurate in accountability. Eventually CITES finally voted to list the African elephant in 'appendix one', which gave the African elephant a world status as an endangered species, and as a result the Ivory trade market was prohibited. This action was carried out by the member nations of CITES after much pressure from international conservationist organization and environmentalists. Although some African countries such as: Zimbabwe, Botswana and South Africa, opposed the move.⁵⁶ The African elephant due to the listing, lost its market value and the locals no longer got economic incentive to conserve and maintain the herd.

3.4 National Policy as an Obstacle in International Policy

International policies can only achieve limited objectives, especially if national policies are the primary obstacle to environmental conservation. Weak forest policies and weak public forest administration are related, thereby, causing a loss of forest resources. Weak forest administrations are as a result of the inadequacies in enforcing suitable forest policies. From prior policies, according to Jordan, the result will be the difficulties in managing the pressures on the forests, and to meager generation of public revenues from

timber royalties and other forest charges, which can also lead to a defect in economy revenue and growth.

Jordan raised the question “why do such policies remain in place if they do not promote rational forest protection and management?”⁵⁷ Then he answered by outlining the lacunas found in most national policies:

1. First it is the failure and neglect to comprehend and appreciate the economic, social and humanitarian impacts of policies.
2. Secondly, the inadequacy of institutional structure, even though there is an understanding or comprehension of policies.
3. Corruption of political parastatals and institutions, whereby wealth and power are able to influence and bend forest policies for personal gains and profit, which is most common at the national level.⁵⁸

If the goal of international loans and aid is borrowed for development, let it be channeled towards achieving such purpose, to enhance a more sustainable environmental growth, which can lead to economic development.

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CHAPTER FOUR

JORDAN ON THE MANAGEMENT OF NATURAL RESOURCES

4.1 Sustainability

The objective of the conservation of natural resources is to manage resources sustainably. Jordan outlines six (6) aspects under the issue of sustainability, which are as follows: Ecological sustainability, economic sustainability, technological sustainability, holistic management, sustainable development, and finally, improving sustainability.

According to Jordan, there are many definitions of sustainability which have come from “Agronomy”. The provided the definition offered by the CIMMTT on sustainability, which states that: “sustainable agriculture involves the successful management of resources for agriculture to satisfy changing human needs, while maintaining or enhancing the quality of the environment and conserving natural resources.⁷ Definitions of sustainability always include: long-term maintenance of natural resources and agricultural productivity, minimal adverse environmental impacts, satisfaction of human needs for food and income, adequate economic profit for farmers, and provision. For social needs of farm families and communities. Therefore, the management for sustainability of natural resources, such as: forests, wildlife, etc. would also have similar definitions as the definitions above.

Jordan took the position that the world commission on Environment and Development offered a definition of sustainability that encompassed all resources (including the habitable environment) which states that: “sustainable development is development that meets the needs of the present without compromising the ability of future

generations to meet their own needs.”² Generally, Jordan posits that some authors define sustainability as a system, characterized or quality.

4.1.1 Ecological Sustainability

For Jordan, the word *sustainable* has no time horizon, it practically means going on forever, but because nothing goes on forever, it follows logically that nothing is absolutely sustainable. According to him, a forest with no human inhabitants or residence is ecologically sustainable, because it can maintain itself with only the availability of the sun and rain. The term “ecological sustainability” in its actual sense, means the exclusion of artificial nutrients or activities within the ecosystem. For instance, a forest can grow without farmer using fertilizers on its soil. As soon as human starts extracting resources from an ecosystem e.g. game or timber productivity output of the ecosystem becomes magnified than the input, and the system becomes no longer sustainable. Jordan concludes by saying that:

*No countries in the world can survive based on ecologically sustainable production system alone. To maintain modern civilizations and present-day populations, production systems must be modified and subsidized ecological sustainability is impossible for advanced societies.*³

4.1.2 Economic Sustainability

Jordan took the position that, a resource system that is not ecologically sustainable can be economically sustainable. Any production system that yields profit is a potentially sustainable system, and at least at an economical level. For example, farmers who made a profit last year and plant again this year are engaged in economically sustainable agriculture, at least in the short term within the present economic system.⁴ The problem Jordan identified with the economic definition of sustainability is that it does not specify

how far into the future such kind of sustainability will last or will continue. Some people might consider a decade or two decades to be long, meanwhile some may consider a century as longer than a decade, but in reality, the length of time for which a resource system is sustainable depend on many factors, which includes: consumer preference and political stability of the government, and most importantly the degree of which internal resources are utilized as opposed to external resources. By internal resources, Jordan talks about natural and organic matter, soil, etc... while external resources includes; artificial lights, large dams, centralized distributions, synthetic fertilizers, chemical herbicides and insecticides.

4.1.3 Technological Sustainability

Simply details a technologically sustainable system that is an artifact of academic research institutions, which for Jordan, are mentioned because of the great deal of publicity that they receive from the media and telecommunications networks. This sort of sustainability remains largely dependent on unlimited funds to stay active or productive, i.e. as long as there are enough funds to support production technology then production can remain active. Continuous production depends on a containing hi-tech analysis of the system and a continuing supply of fertilizers, pesticides, artificial lights (electricity) and so on... but when it requires large inputs of resources, this type of sustainability can counter the goals of conservation.⁵

4.1.4 Holistic Management

According to Jordan, the term ‘holistic management’ has been used as a goal towards which resource managers should strive.⁶ Holistic management is a reaction to the maximizing of gross economic income, which had led to an increased number of large

farms at the expense of small farms, increased use of large capital intensive machineries and finally on more intensive use of synthetic fertilizers and chemical pesticides. The result of all these mentioned above, have led to soil loss, environmental contamination and deterioration of social and cultural conditions. Jordan stated that, “The management of publicly owned forest systems for the almost exclusive purpose of timber harvest also has increased the cry for a more holistic philosophy”.⁷ In holistic management, a wider range of environmental and social goals are considered as well as conventional economics.⁸

4.1.5 Sustainable Development

For Jordan, it is impossible to achieve “sustainable fisheries” within an economic development system that is itself not sustainable.⁹ “Sustainable development” for Jordan is an Oxymoron because the term “Sustainable” has an ever-lasting meaning attached to its features or characteristics. While “development” is simply a process that has a beginning, adolescence, maturity and a senescence,¹⁰ which is similar to a man’s anatomic development (from childhood through adulthood). Therefore, Jordan posits that, development of an ecosystem is known as “succession”, whereas development of society is known as “progress”. As development proceeds and succession progresses, more organisms appear and competition for resources increases.¹¹ Human progress depends on what the last generation did to the environment, according to Jordan, they may facilitate, on they may inhibit future development or they may just maintain things they way it was originally.¹²

4.1.6 Improving Sustainability

For Jordan, despite the lack of agreement of what *sustainability is* among most scholars, their seem to be a general agreement of what *sustainability is not*.¹³ Sustainability

is not management that depletes the reproductive stock of a forest or a wildlife reserve, that in turn results in soil erosion, or pollution of air or water, that causes migration of displaced farmers to the cities, which then results to an increased urban congestion (overpopulation). Lack of a consensus of what sustainability means should not be an excuse to prevent one from taking action towards resolving environmental problems through conservation.

4.2 Twenty Great Ideas in Ecology and their Relevance to the Resource Management

Principle

Throughout the history of resource management their guidelines were empirical.¹⁴ Farmers, hunter and game managers, foresters, etc., managed their resources based on practical experiences, for examples, a farmer weighing his crops and the fertilizers he has applied, if in a long-run it increased his yield and profit, and was not too much trouble he might continue such practice, but if the case is vice-versa, he would try something else. Jordan appraised the fact that practical experience as well as common assumptions about the world is *common sensical* and resource managers base their recommendations on common sense, which sometimes turned out to be right and also turned out to be wrong. For instance, the killing of top predators such as: wolves and cougars, according to Jordan, was assumed to be the logical and “common sense” thing to do, not until the killing of these predators resulted in an uncontrolled deer herd that devastated its own resource base.

Jordan gave twenty (20) great ideas in ecology which he arranged into nine (9) categories; *A* to *I*, which supports the principle of resource managements. The original literature on which the ideas are based on was presented by Howard T. Odum (1992).

4.2.1 To develop a sustainable system, man must comprehend that we are part of the system (Idea 1)

1. “A parasite-host model for humans and the biosphere is a basis for turning from exploiting the earth to taking care of it.”¹⁵ According to Jordan in the biosphere, mankind’s role is similar to that of a parasite, and a good parasite does not destroy its host, but rather it coevolves to coexist with its host by not taking too much from it. Therefore, to ensure its own sustainability, it must be certain that the host is sustainable.

4.2.2 To develop a sustainable system, man must analyze the system in which man is embedded. To carryout this analysis, man need a common currency. Energy is a convenient “currency” which can be used to analyze a system, because energy flows through all ecosystems, and the way it is utilized and stored determines the characteristics of each ecosystem. (idea 2)

2. “An ecosystem is thermodynamically open, far from equilibrium system”.¹⁶ “Thermodynamically open” means that the ecosystem receives energy from the sun which is outside the system, and discharges heat back outside the system into the atmosphere. As climatic conditions changes, energy flow through the ecosystem also changes, which results to the changes in populations of species that can comprise the ecosystem.

4.2.3 Energy flow through natural ecosystem is not random but is controlled and self-regulated by internal feedback interactions between organisms and environment. (Idea 3-6).

3. “Feedback in an ecosystem is internal and has no fixed goal”.¹⁷ By “feedback”, Jordan explains that, it means an information sent from one part of a system to another for the aim of regulating the system, for example, the feedback system in rain-forests keeps enough nutrients mobile to keep the system functioning. The feedback system has no fixed goal, but operates within limits that are to viable by life.
4. “Indirect effects may be as important as direct interactions in a food web and may contribute to network mutualism”.¹⁸ For instance, piranhas, are carnivorous fishes found mostly in South America, which indirectly affect plant species in aquatic ecosystems by keeping nutrients in soluble forms. When piranhas eat herbivorous fishes, they egest in a soluble form the nutrients in those fishes, and then the nutrients can then be used by aquatic plants.
5. “Heterotrophs may control energy (and nutrient) flow in food webs”.¹⁹ Heterotrophs (organisms which requires an external supply of energy in form of food, because it cannot synthesize its own) switch from one food source to the other. When animal prey are in short-supply, they then switch to plant products. In the course of switching, they remove pressure from the annual population, giving them ample time to recover.
6. “In a hierarchical organization of eco-systems, sprees interactions that tend to be unstable, non equilibrium or even chaotic are constrained by the slower interactions that characterize large systems.”²⁰

For Jordan, this means that large complex systems like the ocean, forests or the atmosphere, tend to be more homeostatic than their lower level components. As a result, ecosystem can remain stable in terms of energy and nutrients flow, while the populations that perform these functions change drastically.²¹

4.2.4 Stability and sustainability of energy flow through ecosystems are enhanced by mutualistic functions. As ecosystems gets increased and complicated, organisms within a national community evolved toward cooperative functions. Evolution has selected many mutualistic species because of the increased efficiency of the functions they perform (ideas 7-12).

7. “Since the beginning of life on earth, organisms have not only adopted to physical conditions but have also modified the environment in ways that have proven to be beneficial to life in general.”²² Jordan explains that, this theory is known as the “Gaia” hypothesis, which was formulated by the scientist James Lovelock. In James Lovelock publication titled “GAIA: The practical science of planetary medicine”, he explained that the “Gaia” hypothesis followed naturally on the idea of life detection by atmospheric analysis.²³ Gaia was the name of the ancient Greek goddess of Earth, and according to Lovelock the Gaia hypothesis was first described in terms of life shaping the natural environment, rather than the other way round. Lovelock said in a quote in the beginning of the book that:

“Life, or the biosphere, regulates or maintains the climate and the atmospheric composition at an optimum for itself.”²⁴ what Lovelock simply means, is that life or the biosphere: which is the totality of living thing and their environment, is

responsible for regulating the atmospheric and climatic composition, and there is a holism between the evolution of life coupled with the evolution of their physical and chemical environment that constitute a single evolutionary process together.²⁵

8. “There are two kinds of natural selection, or two aspects of the struggle for existence: organism versus organism, which leads to competition, and organism versus environment, which leads to mutualism”.²⁶
9. “Evolution of mutualism increases when resources become scarce”.²⁷ Jordan puts this theory in a simple explanation, which is often the case with the utilization of natural resources, that is, when resources become too much, generalists species are often dominant, but as resources becomes decreases, it becomes necessary to utilize them more efficiently. Because of this scarcity, “specialist species” evolve for survival but their evolution for survival relies on other specialist species, which then leads to the evolution of mutualism.
10. “Ecosystem development or autogenic succession is a two-phase process”.²⁸ The early phase according to Jordan, is dominated by the generalists species who exploit a resource-rich environment, but as resources becomes scarce (as explained in number 9), the specialist (many of which are mutualisms) becomes dominant, and the structure of the ecosystem increase later in succession (development of the ecosystem). The same applies with the human development of a resource frontier. When resources becomes scaree, cooperation and mutualism help humans to utilize scaree resources more efficiently.

11. “Competition may lead to diversity rather than to extinction”.²⁹ The environment is never stable; one species may have the advantage, and another time, another species may have the advantage, therefore species will evolve to exploit their advantage, and competition becomes larger which will increase the pressure to differentiate.
12. “Natural selection may occur at more than one level”.³⁰ For Jordan, a more recent view as opposed to the classical view, is that selection also results in the survival of the best adapted ecosystem process.

4.2.5 In managed systems, the cooperative operations and national subsidies that lend stability and sustainability to natural systems are usually devastated. For this reasons, energy subsidies are normally required (ideas 13-15).

13. “An expenditure of energy is always required to produce or maintain an energy flow or a material cycle”.³¹ This can be better understood with the sun’s energy which keeps the food chains and nutrient cycles intact and functioning.

For instance, if there is an harvest of materials, there must be an energy subsidy to compensate for energy loss owing to the harvest that took place. The energy subsidy would then serve as fuel for the species that perform various functions which keeps the ecosystem stable and functioning.

14. “The source-sink concept: one area or population (the source) exports to another area or population (the sink)”.³² For example, a forest can be an energy subsidy for a field, some birds nest and reproduce in the forest but forage or feed in the field,

these birds are then hunted and removed from the field (the sink) and the population of birds in the forest can be seen as the source.

15. “Carrying capacity is a two-dimensional concept involving number of users and intensity of per-capita use”.³³ Jordan explains here, that the number of individual-species that can be supported by an ecosystem depends on the quality of resources that each individual of that species utilizes.

4.2.6 The stability and sustainability of a managed system can be increased by substituting external energy subsidies with co-operative functions of nature (idea 16).

16. “Input management is the only way to deal with non point pollution”.³⁴ According to Jordan, Howard Odum explains here, the problems such as; pollution in streams which results from runoff of fertilizers and pesticides from agricultural fields throughout the landscape.

4.2.7 The stability and sustainability of all systems can be encouraged by maintaining species and landscape diversity (ideas 17-18).

17. “The first signs of environmental stress usually occur at the population level affecting especially sensitive species”.³⁵ when the ecosystem is stressed, for example, by pollution or by degradation, the stress may not be obvious because it can affect diverse species differently. However, environmental stress can cause a decrease in species bio-diversities because some species are more sensitive and prone to danger than others.

18. “An expanded approach to biodiversity should include genetic and landscape diversity, not just species diversity”.³⁶ Here, Jordan supports Odum Vehemently, that preservation of species bio diversities is an important part of conservation. Although it is not enough, because genetic and landscape diversities must also be preserved.
19. “Transition costs are always associated with major changes in nature and in human affairs.”³⁷ Management systems that rely on naturally occurring ecosystem functions are more desirable and more sustainable in terms of future usage, than those systems that are highly dependent on subsidies.

4.2.8 Despite the cost, there is an urgent need to make the transition (idea 20).

20. “There is an urgent need to bridge the gaps between human-made and natural life support goods and services, and between non-sustainable short-term and sustainable long-term management.”³⁸ This is necessary to avoid pollution and resource degradation.

In conclusion, these twenty great ideas provided by Howard Odum, which Jordan explained extensively, analyze the ecological relationship between all living things and their natural environment. The introduction of James Lovelock’s “Gaia” hypothesis by Jordan can be categorized under the environmental ethical principle of “deep ecology”. Deep ecology which was first used by Arne Naess, rejects the idea that humans are separate from nature, not only humans, but metaphysically, everything is fundamentally

one and holistic.³⁹ According to Naess's article "*The Deep Ecological Movement: some philosophical aspects*", Naess affirms that:

*The well-being and flourishing of human and non-human life on earth have value in themselves (synonyms: intrinsic value, inherent worth). These values are independent of the usefulness of the nonhuman world for human purposes.*⁴⁰

Endnotes

1. Carl Jordan, “*Conservation: Replacing Quality with Quality as a Goal for Global Management*”, (New-York: John Wiley and Sons, 1995), p166.
2. *Ibid.*
3. *Ibid.*, p167.
4. *Ibid.*
5. *Ibid.*, p168
6. *Ibid.*
7. *Ibid.*
8. *Ibid.*
9. *Ibid.*
10. *Ibid.*
11. *Ibid.*
12. *Ibid.*, p100.
13. *Ibid.*
14. *Ibid.*, p214.

15. *Ibid.*, p216.
16. *Ibid.*
17. *Ibid.*
18. *Ibid.*
19. *Ibid.*
20. *Ibid.*, p217.
21. *Ibid.*, p217-218.
22. *Ibid.*, p218.
23. James Lovelock, “*GAIA: The Practical Science of Planetary Medicine*”, (New-York; Harmony Books, 2000), p24.
24. *Ibid.*, p25.
25. *Ibid.*
26. Jordan., *op.cit*, p219.
27. *Ibid.*, p219.
28. *Ibid.*
29. *Ibid.*, p220.
30. *Ibid.*

31. *Ibid.*
32. *Ibid.*, p221.
33. *Ibid.*
34. *Ibid.*
35. *Ibid.*
36. *Ibid.*
37. *Ibid.*, p222.
38. *Ibid.*
39. Andrew light and Holmes Rolston, “*Environmental Ethics: An Anthology*”, (Oxford: Blackwell Publishing Ltd, 2003), p30.
40. *Ibid.*

CHAPTER FIVE

5.0 Implications of Carl Jordan's Conservation Ideas on Nigeria's Economic Development

To institute some of the consequences arising from Jordan's thoughts, these important questions promulgate vital actions that could resolve both environmental and economic crisis in the country, such as: what are some of the significant environmental standards and regulations adopted to enhance conservation procedures in Nigeria? And to what extent are these standards and regulations effective and practically enforced? How can quality conservation procedures affect the nation's economy? Nigeria as a developing country has suffered economic recession for the last four years, which had led to the hike in prices of both consumable and inconsumable products of the free market. This economic regression not only increased the prices of goods and services, but has led the nation into serious public debt stock. According to the *premiumtimesng* on October 16th 2019, the federal government of Nigeria plan to borrow an additional sum of N1.92 trillion in 2020 which will take Nigeria's total public debt portfolio to about N27.62trillion, an additional sum of N15.5trillion borrowed since the first swearing-in of Buhari's administration four years ago. The Nation's Debt Management Office (DMO) also updated on its online platform that the country's debt portfolio rose to about N25.7trillion as of June 30th 2019, and with the latest plan to borrow another N1.92trillion in 2020, Nigeria's debt profile would have risen by over 128% in five years, from N12.12trillion on June 30th 2019¹. These increase in prices and national debts have degraded the nation's economy as the 111th freest in the 2019 index, thus, its overall score has decreased by 1.2points, with a

steep drop in fiscal health and lower scores on Judicial effectiveness and trade freedom. Nigerian is ranked 14th among 47 countries in the sub-Saharan African region, which is below the world average in economic performance². All these issues of stout economic progression has led to the increase in poverty and unemployment among citizens in the nation, and these issues are still retained in the system because of the neglect of good conservation practices that could enhance the maintenance and protection of natural resources that could help develop the nation's economy. For instance, Nigeria is internationally known as an oil producing state and ever since the discovery of the Oloibiri Oil field around the Niger-Delta region in 1956 by shell Darcy, the nation's federal government have totally shifted their attention to crude oil resources, because of high profitability output in exportation of oil barrels, and have neglected the presence of other natural resources within the country, that if properly conserved and maintained can serve as a good stream of revenue for the nation's economy. For this reason, most pre-existing environmental regulation and enforcement agencies in the country are not properly monitored or funded, and the obsession over crude-oil resources have not only led to the negligence of protecting and maintaining other natural resources, but have further led to environmental problems, such as: oil spillage in the Niger-Delta region, due to oil-drilling industries in most indigenous communities, and also gas-flaring etc.

Jordan's illustrations of environmental conservation, urges societies to indulge in conservation as a practical philosophy with the aim of escaping economic collapse. Most societies like Nigeria, have pre-existing environmental policies, ministries and organizations, drafted from their respective constitutional acts, or due to international influence, but like the question stated earlier how effective are these policies or

organization when it comes to enforcing conservation policies that the public can adhere to. To answer such question is to first and foremost review some of these pre-existing environmental policies and the significant environmental institutions and enforcement body that are in-charge of legislating environmental policies.

5.1 Some Major Environmental Policies and Organization in Nigeria

The need for environmental protection and enforcement laws and regulations in the nation was prior to the dumping of toxic waste in Koko village, in Delta State, in 1987. As a result of the Koko toxic waste saga, the Federal government promulgated the “Harmful waste” decree 42 of 1988, which brought about the establishment of FEPA (Federal Environmental Protection Agency) through decree 58 of 1988 and 59 (amended) of 1992³.

FEPA was in charge of the overall responsibility for environmental management. The functions of the agency outlined under PART 1, section 5, of the Federal Government Protection Agency Act, were as follows:

- a. To prepare a comprehensive national policy for the protection of the environment and conservation of natural resources, including procedure for Environmental Impact Assessment for all development projects;
- b. To prepare, in accordance with the national policy on the environment, periodic master plans for the development of environmental science and technology and advise the federal government on the financial requirements for the implementation of such plans;

- c. Advise- (i) The federal government on national environmental policies and priorities, the conservation of natural resources and sustainable development, and scientific and technological activities affecting the environment and natural resources: (ii) the president on the utilization of the one percent ecological fund for the protection of the environment.
- d. Promote co-operation in environmental science and conservation technology with similar bodies in other countries and with international bodies connected with the protection of the environment and the conservation of natural resources.
- e. Co-operate with federal and state ministries, local governments, statutory bodies and research agencies on matters and facilities relating to the protection of the environment and the conservation of natural resources; and
- f. Carry out such other activities as are necessary or expedient for the full discharge of the functions of the agency under this act⁴.

However in 1999, FEPA and other relevant departments in other ministries were merged to form the Federal Ministry of Environment, but without a decent law on enforcement issues. This situation created a loophole in the effective enforcement of environmental laws, standards and regulations in the nation. To cover up this loopholes, the NESREA (National Environmental Standards and Regulations Enforcement Agency) was then established in the line with section 20 of the 1999 constitution of the Federal Republic of Nigeria. The NESREA is a parastatal of the Federal Ministry of Environment, and by its establishment act in 2007, the FEPA Act became annulled. Similar to the FEPA

Act of 1992, the NESREA Act of 2007, was also charged with the responsibility for the protection and development of the environment, biodiversity conservation and sustainable development of Nigeria's natural resources in general.

According to the Environmental Law Research Institute (ELRI), the NESREA ACT 2007 provides some essential environmental policies in section 7, section 8 (1) (k) and section (27), each section is detailed as follows:

- Section 7 “provides authority to ensure compliance with environmental laws, local and international, on environmental sanitation and pollution prevention and control through monitoring and regulatory measures.”
- Section 8 (1) (k) “empowers the agency to make and review regulations on air and water quality, effluent limitations, control of harmful substances and other forms of environmental pollution and sanitation”.
- Section 27: “Prohibits, without lawful authority, the discharge of hazardous substances into the environment. This offence is punishable under this section, with a fine not exceeding, N1, 000,000(one million naira) and an imprisonment term of 5years. In the case of a company, there is an additional fine of N50, 000, for everyday the offence persists.”⁵

The NESREA, may be focused more on environmental sanitation, than on environmental conservation, nevertheless when there is a less polluted environment according to Jordan's view of conservation, then there is a suitable provision for maintaining and protecting natural resources and organic biodiversity's.

Another pre-existing environmental law and regulation that considers conservation in Nigeria is the Nigerian Urban and Regional Planning Act CAP N138, LFN 2004, which is aimed at monitoring purposeful planning of the nation to avoid over-crowding and poor environmental conditions. Section 39 (7), section 59, and section 72 of the Act, each states that;

- Section 39 (7) “establishes that an application for land development would be rejected if such development would harm the environment or constitute a nuisance to the community”.
- Section 59 “makes it an offence to disobey a stop-work order. The punishment under this section is a fine not exceeding N10,000 (Ten thousand naira) and in the case of a company, a fine not exceeding N50,000.
- Section 72 “provides for the preservation and planting of trees for environmental conservation”.⁶

However, some of these major environmental policies and regulatory institutions encounter recurring problems and challenges, which as led to the neglect of healthy conservation practices within the political and social structure of the country, therefore, having a negative effect on both the nation’s environment and economy.

5.1.1 Challenges to Environmental Policies and Regulations in Nigeria

Environmental policies and regulations in Nigeria make less impact within the minds of the populace and even the government. First of all, the failure of regulatory bodies to keep a national database on environmental analysis, the ambient ethics and

environmental standards established by the NESREA are simply precarious without any empirical base⁷.

Carl Jordan's ideas on conservation emphasized pragmatism on environmental ethical principles, especially within regulatory and legislative institutions which as a result, will lead to the increased adoption of these ethical principles by the governed. The total effect of poor and unreliable national data on environmental variables provides limited comprehension as to what policy options are available to reduce environmental problems, therefore environmental policies and regulations becomes impractical. Secondly, the lack of updated technical aid among staffs responsible for the enforcement of regulations and policies to solidify the institutional framework. The nature of *Bureaucracy* in the government also contributes to the lack of inefficiency and ineffectiveness among regulatory staffs, and this bureaucracy can be easily traced to the Federal Ministry of Environment (FME). As a consequence of these bureaucracies, environmental regulatory and enforcement staffs often suffer inadequate funding and insufficient autonomy and technical logistics to carryout certain active roles.

Thirdly, the constitution, despite its references to fundamental human rights and protection, it is almost silent on topics relating to environmental rights⁸, therefore most of the environmental regulatory and enforcement Acts are unstable and does not conform to individual fundamental rights. As a result of this, most citizens, foreigners and industries within the nation, pollute the environment and misuse resources and are hardly punished. The worse that can happen is that they are penalized with liberal charges, which have little or no effect on the industries or individuals (citizens or foreigners)⁹.

Finally, corruption. In Jordan's explanation of why national environmental policies remain a retardation to international environmental policies, Jordan stated clearly that, corruption within political parties, the ruling government and environmental institutions under political influence, often bend forest and resource policies for personal gain and profit, to enrich their various pockets. Even the borrowing of international loans to improve environmental policies and its enforcement tactics are often channeled to personal accounts of government officials and regulatory officials. Corruption have eaten deeply into the fabric of the Nigeria's system, and although the awareness of corrupt practices are often revealed, but those involved often get away with it, due to their various political positions or institutional ranks.

5.2 Ways to Improve Environmental Conservation Practices to Aid Economic Revitalization

John Passmore, explained conservation as the maintenance of resources for the sake of posterity (future generation), which according to Passmore raises a moral question of, if we ought to pay any attention to the needs of posterity¹⁰? However, Jordan's conservation survey conflicts with Passmore's understanding of conservation, in the sense that, it sheds off posterity, and focuses on conservation as a cure to environmental problems, which in turn can lead to economic progression, if any state or nation can adopt proper conservation practice. For Jordan, conservation is not merely for posterity sake, but "is a philosophy of managing the environment in such a way that it does not despoil, exhaust or extinguish"¹¹.

5.2.1 Resolving the Challenges of Environmental Policies and Regulations in Nigeria

A well-enforced and healthy environmental policy and healthy regulatory institution or agency can effectively lead to healthy conservation practices in the nation. Some of the lapses in environmental regulatory agencies controlled by the government can be resolved by non-governmental agencies, because NGOs have the ability to influence legislative policies and state-centric environmental regulations and Acts. Scientists international organizations, environmental non-governmental organizations (NGOS), and industry owners all influence the making and implementation of both international and domestic environmental policy¹². For instance, in the case of inadequate or updated technical aid for regulatory officials and staffs, and also the case of inadequate national database on environmental analysis mentioned earlier, scientists and technological NGOs can collaborate and volunteer in assisting governmental regulatory and enforcement institutions in solving such problems.

As far as the intrinsic nature of government bureaucracy does not stand as an obstacle to such collaborations. Government uses the approach of regulations to check the actions of its citizens, however, according to Jordan regulatory control is often inefficient because it does not adhere to the feedback mechanisms of the free market system. Private industries and enterprises or business do not enjoy being under the control of inflexible governmental regulations and policies, especially when the constitution is bound to promoting fundamental human right, therefore Jordan suggest that a feedback mechanism should be employed to make the system more efficient, i.e. decisions as to how to control environmental problems costs should be left to the individual companies or agencies¹³.

Incentives are very crucial to having an efficient and effective enforcement regulation and policies to both enforcement staffs and to the free market. To the former, incentives to enforcement agents or staffs will increase the productivity of their labour towards assuring that environmental policies of conservation and environmental welfare are maintained by the citizens and by individual companies and enterprises, while to the latter, Jordan opines that, in many cases, economic incentive approaches towards the free market by the government will allow an increased level of environmental maintenance to be achieved at lower total cost than would be possible with conventional policy or regulation.

The foundation of the overall problems and challenges faced by environmental regulatory enforcement agencies remains the issue of corruption. If corruption can be effectively tackled, and allow to be tackled, solutions to environmental problems will be impacted easily, therefore breaking off the rust in the wheel of economic progression. The only route to solving the issue of corruption in Nigeria, is assuring that more disciplinary actions are put in place, especially in governmental institutions. The constitution of Nigeria allows immunity for individuals occupying top governmental offices on the Federal level, state level and even local level. These immunities often serve as a spore for corrupt practices, because these government officials utilizes their immune powers to authorize whatever they want and because these enforcement agencies are under their control these sort of attitude also influences them negatively.

5.2.2 Proper Conservation of Under-Utilized Solid Mineral Resources

Nigeria is recorded to have over 34 mineral resources, but so far the attention of the country have being in the exploration of oil resources, with less attention to others. Nigeria is said to be blessed with resources such as; tin, coal, iron ore, limestone, niobium, lead, zinc, gold, gas, etc.... and yet most of our regulatory enforcement Acts do not make policies concerning them simply because 95% of these mineral resources are untapped and neglected (in demand)¹⁴. Jordan provides an understanding that in the free market the law of demand and supply affects the utilization and exploitation of mineral resources. Globally, the demand for oil and gas resources is often higher than any other resources, and overtime oil producing and oil dependent countries have had an increasing percentage in GDP because of the capacity of their respective oil reserves./ This have led oil-dependent countries, like Nigeria, to focus more on oil extraction and exploitation to enrich the economy, than other mineral resource, therefore it is logical that more effort and funding will be put in place by the government to enforce regulations and policies that will conserve oil production, as oppose to the conservation of tin or coal.

It may seem that the under-utilization of other mineral resources, automatically means they are more conserved, but that is not the case. Under-utilized resources are more prone to abuse by the public, this is because less attention is paid to them by the government and regulatory institutions, and thus, the public have enough freedom to open unlicensed factories and mining companies to exploit these resources for their own personal profit without caring much for their conservation. Even if any environmental organization or NGO calls for the conservation of these under-utilized resources, the public

will pay a deaf-ear to such institution or NGO, because the government on its own part, haven't had the need to pay attention to those resources. It is therefore advisable that the Nigerian government and environmental regulatory enforcement agencies should create provision for the proper conservation of under-utilized mineral resources, as this can aid in developing and increasing the efficiency of the nation's economy in the future, when it will eventually prove useful to the economy.

5.2.3 The Immediate Need for Proper Oil Conservation

The excessive exploitation and extraction of crude oil resource will lead to its abasement, even though the government thinks they can conserve and maintain it using their regulations and policies. Since the discovery of crude oil resource in the late 1950s in the Niger-Delta region, it has become a monolith for the country's economy progression, and man in his inherent nature to develop himself and his society, often do so without any regard for certain consequences that might result from the actions he indulges in especially if those action seem highly profitable and beneficial. According to Thomas B. Colwell, Jr. in his work titled "*Some Implications of the Ecological Revolution for the Construction of Value*", he explained that;

Under the rubric of progress, he (man) is pursuing a fantastic delusion of endless growth, which, in his economies, his obsession with mass-urbanism, the proliferation of his populations, and in the horrendous examples of his technological pollution, is on the way to mining the world as a setting to human habitation"¹⁵.

The obsession over oil, have not only led to damaging environmental problems, but also led to the depletion of its reserves, how? According to the Punch newspaper June 2019, the nation's crude oil reserves dropped by 481 million barrels, compared to 36.922

billion barrels in 2018, according to an updated report by OPEC (Organization of Petroleum Exporting Countries). Also in August 18th 2019, the Punch Newspaper reported that the nation's crude oil production rose by 8% to 1.95million barrels per day¹⁷, which was the data analysis released by OPEC, as opposed to 2.53million barrels per day in 2011. Furthermore, the acting president Muhammadu Buhari spoke at a labour conference in 2017, that Nigeria will run out of its priced oil reserves in the next twenty-five (25) to thirty (30) years which means that the nation ought to shift its focus to natural gas production¹⁸. With all these facts stated, one can clearly see that the nation's obsession with oil revenue will eventually lead to a collapse in oil resources if it is still heavily relied on to enhance the nation's economy. Aside the fact that, Nigeria has a top global ranking in oil production in the world, and that revenue and income streams from oil production makes up 75% percent of the nation's budget the sovereign government should endeavor to shift attention to other of its solid mineral resources that are under-utilized. If these under-utilized resources are being explored, then the exploitation of oil will be reduced, hence, the nation will regain an increase in oil reserves, and oil conservation will become even more possible to achieve, because of the immense value placed on it. However exploring other under-utilized resources will drastically help in improving the country's economy if carried out wisely and without corrupt motives. The implications of the exploration of under-utilized resources, is that, if these resource gets more attention from the government, then the lesser they become prone to abuse and misuse by the public, therefore, environmental regulatory enforcement agencies and the legislatives parliament can set up proper conservation policies to maintain and protect them effectively.

5.2.4 The Need for More National Parks

Jordan explained the conservation movement of Theodore Roosevelt (26th American President) as an outstanding and prominent figure who conserved and protected most of America's natural resources and national heritage by establishing five (5) national Parks, which currently remains one of the major revenue streams for the country through tourism. With the foundation laid by Theodore Roosevelt, the United States now have over 61 national Parks for the protection of wildlife and the overall protection of nature. In Nigeria there are only 8 national Parks and game reserves distributed throughout the country, which is really poor, considering the fact that Nigeria is a region surrounded by the tropical rain forest, which inhabits thousands of animal and plant bio-diversities. National parks do not only serve as a good method of both preserving and conserving the national environment and its bio-diversities but it can also enhance tourist attraction in the country, which in turn can serve as a profitable source of revenue for the country's economy. Therefore, government institutions and parastatals should take into consideration, the establishment of more national parks to further preserve and maintain the nation's natural heritage, and further improve the philosophy of conservation among the public who pay visits to these parks to adore the wonders of nature periodically

5.2.5 Over Population

The 2004 adoption of the National Policy on Population for Sustainable Development (NPP), was to improve the quality of life and standard of living in Nigeria by reducing the national population growth rate to 2% or lower by 2015. However, the NPP faced some challenges and barriers to the implementation of its policy due to:

- a. **Social Barriers:** Culturally practices and norms, religious practices and beliefs.
- b. **Political Barriers:** Misinformation from politicians and community leaders, the frequent changes of government and poor harmonization across sectors in the country.
- c. **Economic Barriers:** Politicizing of population counts linked to distribution of Federal funds-created perverse and corrupt incentives to increase population numbers. The widespread of poverty, which limits access to education for children, and contributes to larger family sizes¹⁹

Perhaps, these challenges led to the NPP's failure in achieving its target, because in 2005, the population of Nigeria was over 138,865,016 people, with a growth rate of 2.58% and in 2015 it further increased to 181, 137, 448 people, and presently in 2019, Nigeria's population is estimated at 200, 963, 599 people according to the United Nations data, making the country number seven (7) on the list of over populated countries. Logically, an overpopulated society cannot begin to discipline itself towards conserving resources, when the population out-weighs the available resource. According to Britannica, in 1980, China which is the leading country in over-population adopted the "one-child policy" to reduce its ever-growing birth rate in each region of country. Although the policy was later abolished in 2015, due to the shrinking workforce and persistent gender imbalance, but still, the Chinese government maintained the child-birth limitation for each family in 2016 to two children per family instead of just one. According to Jordan, Paul R. Ehrlich's work titled "*the population bomb*", explained vividly the damages caused by over population, in both man's environment and the economy of his society. For Ehrlich, environmental and economics degradation can be easily followed to its source; which is too many cars, to

many factories, too many pesticides, too much carbon dioxide, too little water, inadequate sewage disposal and so on and so forth which can be easily traced to *too many people*,²⁰ and *too little food*²¹. In the closing chapters of his work, he proffers a solution to over population, of which he said that:

*Conscious regulation of human members must be achieved. Simultaneously we must greatly increase our food production. This agricultural programme should be carefully monitored to minimize deleterious effects on the environment and should include an effective programme of ecosystem restoration... an international policy research programme must be initiated to set optimum population environment goals for the world and to devise methods for reaching these goals*²².

Initially, the “one-child policy” adopted by the Chinese government, in the 1980s was intended to be globalized but for some unfavourable exceptions, which was not accommodating. However, the United Nation’s population policy allows for family planning and the battle against high levels of “adolescent fertility” which many government under the UN have expressed major concern, including Nigeria in 2005 and in 2013²³.

Adolescent fertility is another main contributor of over-population and increased birth rate, and it is mainly associated with low educational attainment and poverty. Early child bearing also increases the risk of maternal death, and children born to young mothers, have higher levels of mortality and morbidity²⁴.

In conclusion, the discipline of family planning in China, can also be enforced by the Nigerian government because according to the “world population policies” of 2013, Nigeria have given direct support to family planning and reproductive health in 1986, 1996, 2005 and 2013 and such arsenal of population control should be useful in reducing the nation’s immense population growth. In the case of adolescent fertility, the provision of

sufficient and standard education or vocational skills should be taken seriously by the Federal government, unless, such ignorance will continually lead to more increased teenage pregnancy and motherhood. The use of contraceptives and abortion has faced lots of criticism from cultural and religious ethical communities, because it is perceived by these communities as unnatural and it infringes on the fundamental human right to live. Whether these perceptions are true or not, are of fewer concerns to an overpopulated society such as Nigeria. The utmost important factor to look at is that, if the use of contraceptives and abortion by adult women to control unwanted child-birth proves useful in reducing the population growth of the country, then it might as well be legally adopted and accepted to achieve such purpose. In agreement with Ehrlich's view, government should aid in the appropriate funding of agricultural programmes, and the sector should be closely monitored and enlightened on contemporary methodologies that could enhance food production, accurate conservation of natural resources and raw-materials (agro-products) and finally that could aid in sustainable preventive measures and control of disasters such as; soil erosion and crop infestation by pests.

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CHAPTER SIX

6.1 Evaluation

Utility is understood as that which produces benefit, which promotes happiness and goodness. On the other hand right actions are actions that promote the greatest happiness for the greater number of persons,¹ these definitions are the basic tenets that form the foundations of utilitarianism. The issue of environmental conservation cannot be completed without its relationship with the ethical theory of utilitarianism, because the main purpose of maintaining and protecting nature and its resources is always considered for the greater good of future generations. However, the immediate transformations and greater good that proper conservation practices can lead to is an economic boost for any state or nation disciplined towards environmental maintenance. Furthermore, the question of if we owe moral obligations to future generations? Can be answered with the knotted relationship between conservation and utilitarianism. In as much as, environmental conservation is protecting the environment in such a way that it does not despoil, extinguish, or exhaust, according to Jordan, then, it passes a subtle message that affects future generation positively, in the sense that, conserving environmental resources in order to avoid devastation or degradation will continually lead to effective human survival both for the present and the future. Such philosophy, environmental conservation, will continue to promote happiness and goodness as far as it is practiced throughout the course of human existence.

Such questions, such as; if we owe moral obligations to future generations, should not even be considered as an issue or problem of debate. The right question should be how can we maintain the philosophy of environmental conservation, so it would not be

neglected by future generations? That is, it is not just enough to employ practical solutions in conserving nature and its resources, but it extends towards protecting and maintaining the ideas or philosophy of conservation itself, so that, resources if properly conserved in the present, will not be mis-used and wasted in the future, because of a *lost orientation*. For instance, to maintain the culture of conservation, Theodore Roosevelt laid the foundation of several national parks in the United States, which in future (after Roosevelt's), gave birth to the establishment of numerous national parks, which are still currently functioning, to preserve both wildlife and forest biodiversities. The example laid down by Roosevelt has planted a positive routine of conservation among his predecessors.

According to Airoboman, the major reasons for environmental concerns and conservation by extension, is to provide remedies to the damages done to nature and to avert further damages in future interactions.² But a country like Nigeria, can not really be bothered with maintaining the philosophy of environmental conservation yet, because it has not done enough work and practice to maintain and protect its current resources and environmental surroundings and furthermore, the nation still suffers a staggering economy.

For tis reason, issue of conserving the environment for posterity sake does not apply to the nation's ethical concerns, because such consideration and how to resolve them are carried out after proper conservation practices and efforts are being established efficiently and have yielded beneficial results to both the social and economic structure of the country. These beneficial results will then serve as prove and heritage for future generations to protect. But if presently, enough work and attention have not being given to environmental conservation in a country like Nigeria, how can we make a case for posterity? If Nigeria presently cannot maintain the philosophy of conservation properly,

what is the assurance that such philosophy will still exist in the future? Finally, if the philosophy of conservation is not maintained and practiced properly in Nigeria, are we guaranteed of a future? The philosophy of environmental conservation plays a key role in economic development if it goes beyond the *soapbox* and bureaucracies, and if it is allowed enough room for pragmatism.

6.2 Conclusion

Jordan gave a clear example of states, nations and empires throughout the course of history that have encountered environmental problems due to their anthropocentric motives towards nature. Such ethics as *anthropocentrism* haven't really gotten an applause among other environmental ethical principles, because it does not promote any efficient method for maintaining the environment. The disaster in the origination of such ethical principles (as anthropocentrism) is that, it still remains the lingering attitude that bonds man and nature. Man only considers conserving or protecting nature and its resources, if he can make use of them in the near future (weak sense of anthropocentrism). Unfortunately such attitude does not exhaust the philosophy of environmental conservation fully, because it still limits the protection of wildlife, forests and other resources from exploitation. Conservation practices should be devoid of a weak sense of anthropocentrism, if environmental conservation is to be performed optimally, and also conservation practices should be viewed merely as a solution to environmental and economic problems, and not just for the purpose of future exploitation.

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