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ENVIRONMENT AND SOCIETY

JACK, JACKSON T.C.B

Department of Sociology & Anthropology,
Federal University Otuoke, Bayelsa State, Nigeria.
Mobile: +2348037598165, Email: *jackjt@fuotuoke.edu.ng*,
ORCID:orcid.org/0000-0003-4326-8544

INTRODUCTION

Throughout history never at a time has our planet earth witnessed the magnitude of ecological crises as we are experiencing today. The carrying capacity of the earth has been overstretched as the waters, air, and land are been polluted on a daily basis. Scientists, scholars and even governments world over have come to realize that the global environment is fast changing as a result of global warming and climate change induced by man's industrial and domestic emission of Green House Gases. Related environmental crises such as floods, desertification, drought, biodiversity loss, irregular rainfall patterns, over grazing, pollution, and so on has impacted on the lives of hundreds of millions of people worldwide. Millions of livelihoods are been destroyed, cultures altered, communities displaced as climate change impacts devastates communities globally. The nature of climate change suggests that global environment is threatened and human society is even at a greater risk as man's own survival is threatened; this is so because environmental problems respect no national boundary, they might be local in cause but global in effect.

The contributions of man to this environmental quagmire cannot be overemphasized, ever since the advent of the industrial revolution in the 18th and 19th century Europe and the spread of industrialization across the world, the incidence of environmental degradation have skyrocketed. Hence for one to understand contemporary global environmental problems one needs to first of all understand the nature and operations of the modern industrial society. One may ask what concerns Sociology with the study of the environmental problems. Did the classical sociologists capture environmental issues in their theorizing? The answer to these questions are not far-fetched, if Sociology studies human society and human group interactions, and human society doesn't exist in vacuum, it operates within a confine space called the environment and both

entities influence and shape the existence of each other, then the environment is a subject for Sociological investigation. The sub discipline that studies this society – environment-relationship is called Environmental Sociology. According to Catton and Dunlap (1978 cited in King and McCarthy 2009: 9) environmental sociology ought to examine how humans alter their environments and also how they are affected by their environments. They developed a "new ecological paradigm," which represented an initial attempt to explore society-environment relations. This new ecological paradigm is a conscious effort to challenge the alleged anthropocentrism of classical sociology (i.e. de-emphasizing of environmental processes in early sociological theorizing) by including environmental forces as objective variables in social explanations (Gross and Heinrich, 2010:3) Anthony Giddens (2009: 159) supported this stand when he argued that the early Sociology's founders - Marx, Durkheim and Weber paid little attention to what we now call 'environmental issues' (page 159). On the contrary, Buttel (1986 cited in Hannigan 2006:8) posits that arguably the trinity of Marx, Durkheim and Weber had an implicit environmental dimension to their work, however this had never been brought to the fore, largely because their American translators and interpreters favoured social structural explanations over physical or environmental ones. However efforts have been made to show that the classical sociologists captured society-environment relationship in their theorizing and these include works of Catton 2002; West 1984; Bellamy Foster 1999; Dickens 2004; Dunlap et al. 2002; Murphy 1997; Wordu 2010 and so on. Accordingly, Giddens (ibid) posits that Sociology's role in the study and analyses of environmental issues can be summarized thus: First, sociology can provide an account of how patterns of human behavior create pressure on the natural environment; secondly, sociology can help us to understand how environmental problems are distributed. Thirdly, sociology can help us to evaluate policies and proposals aimed at providing solutions to environmental problems.

THE ENVIRONMENT

There is no generally accepted definition of the term environment among scholars and this is because the term environment means different things to different people (Sibiri 2009). For Enger and Smith (2004), the environment as anything that affects an organism during its life time. From this perspective, the environment encompasses man's network of relationships. Whatever man does, either in the social, economic, political, technological, cultural or religious context is

guided by the confines of his environment. Similarly, Cunningham and Cunningham (2004) stated that the environment means all circumstances and conditions that surround an organism or group of organism. They further extended their definition of the environment to mean the social and cultural conditions that affect an individual or community. According to Worika (cited in Okaba 2005) although the environment means different things to different people, it is defined as a physical surrounding, condition, circumstances etc. in which persons live. To him, the environment includes nature which is the physical part comprising all phenomena of the material world including plants, animals, landscape, etc. and the entire ecosystem, the biological community of interacting organism. Waripamo (cited in Jack 2014) opined that the environment is related more to the conditions that support the survival of human beings. For him, the environment means a bulk of elements which include water, air, land and all plants and man himself; other animals living therein and above all the interrelationship which exist among these or any of them. In all, whatever way one looks at the environment, it is the total conditions that surround an organism (biological or social) during its life which facilitates or hinders the growth and survival of that organism.

COMPONENTS OF THE ENVIRONMENT

Berstein, J. (1996) asserted that the environment is made up of two categories namely; living and non-living. He called the living component of the environment, "**biotic**" which includes plants, birds, mushrooms, insects, etc. The other nonliving component of the environment he referred to as "**abiotic**" includes things like water, soil, air temperature, wind and sunlight. He emphasized that environment is an interaction of the biotic and abiotic factors.

These biotic and abiotic components of the environment are further subdivided into four categories:

1. **Lithosphere (Land)**: The outer layers of the soils earth e.g. rocks, sediments and soils.
2. **Atmosphere (Air)**: The layer of gases that extend from the earth surface up to about 100 km to the outer bounding of our planet.
3. **Hydrosphere (Water)**: The layers of water that covers our planet oceans, lakes, rivers, streams, and ice sheet snow and water in the soil.

4. **Biosphere**: This is the tiniest layer, comprising organic matters i.e. plants and animals. This layer covers much of the land surface and extends into the atmosphere, and deep into the water bodies. Human beings are part of the biosphere and exist by interacting with the other three spheres.

The environment hence is a system or community of biotic and abiotic components sustained by interactions of energy circles as seen in food chains and food webs.

ENVIRONMENT – SOCIETY RELATIONSHIP

The history of man and human society can be vividly described as been characterized by continues interaction between man and his environment. It is interesting to note that this interaction between man and the environment has been enduring over time and the nature of this interaction has been changing as the human society changes in its organization, structure and advancement in technology (Sibiri 2009). The human society does not exist in a vacuum but within a physical environment, hence the importance of this dyadic relationship is underscored in the sense that man's survival is entirely predicated on the environment's capacity to sustain his welfare needs (food, shelter and clothing). The sustainability of the environment on the other hand is also tied to man's prudent use of the physical environment and its numerous resources, which ensures and guarantees the true source of man's continued existence (Okaba 2005).

However as human population increases, with associated urbanization and technological advancement, man has not been prudent with the use of the environmental resources (food, water, energy, mineral resources, forests and wild life) over time, as he struggles to satisfy his basic and developmental needs he encroaches on the environment in effort to meet the increasing demands of a larger society. Hence, the relationship between man and his environment is measured and can be summarized by defining the functions of the environment. Thus, Schaefer and Lamn (1986) pointed out three basic functions of the environment which are basic prerequisite for human lives these include: (a) that the environment provides the resources essential for life (air, water and raw materials); (b) that the environment also serves as a waste repository, e.g. body waste, garbage and sewage; (c) it houses man and other living organism.

Therefore, as highlighted above, man's interaction with the environment is predicated on the environment's ability to provide these three basic functions to man and his society. Historically,

human population was small and life was simple. Human waste was purely biological i.e. biodegradable material, which serve as source of food for decomposers. The relationship between man and his environment was mutual and symbiotic as there exist an ecological systems balance and equilibrium. However, environmental pollution began as population increased, waste was produced in excess more than which the ecosystem can absorb. In order to better society man advanced technological inventions for natural resources exploitation, which subdued the ecosystem. Agriculture alter specie mixture, logging of wood for industries leads to deforestation, over grazing of arid and semi-arid land results in desertification, aquatic ecosystems are been polluted by agricultural chemical run offs and industrial waste leading to biodiversity loss and extinction becomes the consequence of the inability of species to adapt to changes in their environment. Rapid population growth has resulted in increased demands upon the earth's resources which have led to accelerated environmental degradation, and have precipitated potentially serious global climate change. The human impact on land has been enormous, as land–use has changed, natural vegetation is cleared for agricultural use settlements and urbanization increase, resources are created, minerals are extracted, and more land is developed for recreation purposes. Acute concern is now widely expressed over deforestation of boreal and tropical forests, the degradation of grass, lands and wetlands and desertification. Such destruction of natural ecosystems has led to a reduction in biodiversity, and impoverishment of soils, in attempts to counter the deleterious effects of land misuse in areas, exotic plants and animals are being carefully monitored & encouraged. Human impact on the soil has also caused some considerable damages, commonly because of poor agricultural practices, excessive water extraction, poor irrigation, and compaction by heavy vehicles and animals. The cumulative effects of these can be disastrous to countries whose economics are heavily dependent on agriculture. The amelioration of these poor practices and the improvement of soil quality require an understanding of the chemistry of the soil and nutrient supply cycles. The oceans and the seas cover more than two third of the earth's surface. It is believed that life almost certainly evolved from the seas and there is more species diversity in the sea than anywhere else on earth. Many of the food chains and food webs start with organizations inhabiting the seas and oceans. The ocean–atmosphere system regulates the global climate. It is a sensitive thermostat. The seas and the oceans are rich with food and mineral resources. However, over-exploitation and population

threaten this vast life. Humans think that the vastness of the sea makes it an ideal place for virtually every type of waste, including toxic chemicals and nuclear waste. The exploitation of Earth's resources inevitably produces waste, some of which may be hazardous or toxic. Until the past few decades, much of the waste has been disposed of without any real concern for the damage to ecosystems and frequently under the auspices of "not in my back yard".

Evidently, this society-environment interaction which is anthropocentric (human-centered) in nature has led to what is known as contemporary global environmental changes (Wordu 2010) and they are manifested in the following: depletion of ozone layer, global warming, and climate change. The concept climate change refers to any change in climate overtime as a result of either of both natural variability and anthropogenic factors. The UN Framework Convention on Climate Change (UNFCCC) (1992) in its Article 1, defines climate change as '' a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods'' (Onuoha 2008). These changes in global climate portend both environmental and social implications for human society. To buttress this point, Redclift and Woodgate (2010) asserts that 'the notion of the singularity of the environment has been reinforced in recent years as a result of the widespread attention given to global environmental change and global warming; these phenomena carry the ultimate expression of the biophysical environment as an underlying global biospheric and atmospheric system, the degradation of which will have consequences for all peoples on the earth'. The environmental impacts of climate change includes melting of the glaciers and rise in sea level which leads to perennial flooding; draught; loss of biodiversity; desertification; deforestation etc. In turn, the social consequences of these climate change related environmental problems includes that flooding and draught leads to displacement of human population, famine, hunger and migration, health epidemics, loss of economic livelihoods etc. Resource scarcity such as water and land scarcity leads to food insecurity and forced migration which has potential for resource conflict amongst groups. Loss of biodiversity has deleterious effect on cultural knowledge amongst local groups/societies etc.

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APPROACHES TO THE SOCIOLOGICAL STUDY OF ENVIRONMENTAL PROBLEMS

There are basically two approaches to the sociological study of environmental issues. Environmental sociologists according to King and McCarthy (2009:12-13) often draw a distinction between the "realists," who prefer not to question "the material truth of environmental problems", and the "constructionists," who emphasize the creation of meaning—including the meaning of "environment" and "environmental problems"— as a social process.

Social Constructionism

Social constructionism emphasizes the process through which concepts and beliefs about the world are formed (and reformed) and through which meanings are attached to things and events (King and McCarthy 2009). This school of thought holds that the environment and environmental problems are socially constructed hence one needs to understand the social, political and cultural processes by which certain environmental conditions are defined as unacceptably risky, and therefore, contributory to the creation of a perceived 'state of crisis' (Hannigan 2006). This implies that all environmental problems are, in part, socially created or 'constructed' by groups of people. Nature never does 'speak for itself', but people do speak on its behalf. Therefore, social constructionists are interested in investigating how some environmental issues are seen to be more significant than others. In essence, Giddens (2009: 161) posits that constructionists ask a series of important questions about environmental problems. What is the *history of the problem* and how has it developed? *Who* is making the claim that it is a problem; do they have any vested interest and stand to benefit from doing so? *What do they say* about it and does the evidence support this? *How* do they say it? Do they use scientific, emotional, political or moral arguments and why do they do so? Who *opposes* the claim and on what grounds? Do opponents stand to lose if the claim is successful and could that, rather than the evidence, explain their opposition? Social constructionism hence makes a valuable contribution to environmental policymaking by asking important questions about who makes claims for the existence of environmental problems and who opposes them, thus allowing us to situate environmental issues within relevant social and political contexts (Hannigan, 2006).

However, social constructionism has been criticized for being 'agnostic' about the central problem at issue (Giddens, 2009; Redclift and Woodgate 2010). This implies that their posture does not recognize the truth value of environmental problems. For example, it is alleged that there is currently a unanimous scientific consensus that the Earth is heating up and that this global climate shift is primarily due to humanly produced greenhouse gas emissions which calls for urgent action; utilizing a constructionist approach of trying to identify who is making such claims and the politics behind such claims won't be helpful at all for environmental activists and those committed to solving environmental problems. In short, Giddens (ibid) concludes that constructionism tells us a lot about people and social interactions, but nothing about society-environment relations.

Environmental/Critical Realism

Environmental or Critical realism developed as an alternative approach which attempts to approach environmental issues in a scientific way (Giddens 2009). It involves bringing together evidences from across the social and natural sciences in order to understand better why environmental problems occur. Critical realism aims to get beneath the surface of the visible evidence to uncover the underlying causes of events and problems. Realists have criticized constructionists for trivializing environmental issues by relegating it to the relativity of subjective meaning and interpretation instead of relying on objective reality. For instance, the noted conservation biologist Michael Soulé has condemned social constructionism as an academic 'fad' whose rhetoric 'justifies further degradation of wild-lands for the sake of economic development' and whose relativism 'can be just as destructive to nature as bulldozers and chain-saws' (Soulé and Lease 1995: xv, cited in Hannigan 2006). In essence the realist view asserts that 'the physical destruction of the environment can be empirically measured and scientifically monitored, thus avoiding an extreme form of naïve constructionism' (Picou and Gill 2000). It is therefore argued that environmental realism is 'driven by the impulse of "saving the Earth", pointing to the ongoing environmental destruction and a future global catastrophe' (Lidskog 2001: 120).

SOCIOLOGICAL THEORIES OF ENVIRONMENTAL PROBLEMS

Environmental Sociologists has over the decades developed several theories and models to provide explanations for society-environment relationship and associated contemporary global environmental problems. Some of these theories are to be discussed below.

Human Ecological Theory- Competing Functions of the Environment

The competing functions of the environment theory developed by Catton and Dunlap (1993 cited in Hannigan, 2006) explain the ecological basis of environmental destruction. This model specifies three general functions that the environment serves for human beings: supply depot, living space and waste repository. This is in agreement with Schaefer and Lamn (1986) as discussed earlier in the chapter. Firstly, the environment as a living space is home for man and other organisms. As a supply depot the environment provides renewable and non-renewable (water, air, land, fossil fuels) resources essential for living. Resource shortages and scarcity is the outcome of resource overuse. The environment as sink for garbage, sewage, industrial pollution and by-products serves the waste repository function. Health problems from toxic wastes and ecosystem disruption are outcomes of stretching the environment's waste absorption capacity.

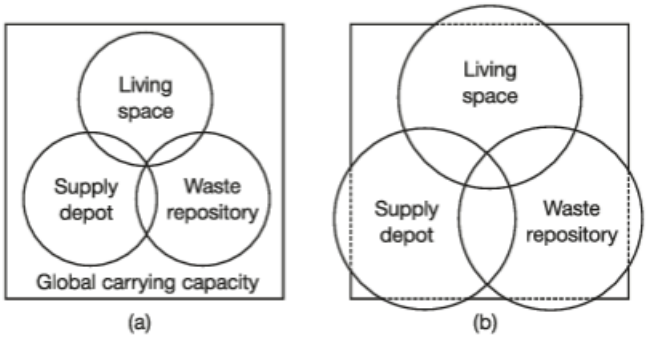

Figure 1: Competing functions of the environment: (a) circa 1900; (b) current situation
Source: Dunlap 1993 cited in Hannigan 2006: 19

Furthermore as shown in figure 1, each of these functions competes for space, often impinging upon the others. For example, placing oil facilities in rural communities of the Niger Delta and associated oil pollution makes those communities unsuitable as a living space and destroys the ability of the land to function as a supply depot for food. In addition, it incorporates a time

dimension: both the absolute size and the area of overlap of these functions are said to have increased since the year 1900 (Hannigan, 2006).

Political Economy Theory

Drawing on strands of both Marxist political economy and neo-Weberian sociology, Alan Schnaiberg in the book, *The Environment: From Surplus to Scarcity* (1980) outlines the nature and genesis of the contradictory relations between economic expansion and environmental disruption. This notion is built on Marx's theory of '*metabolic rift*' which describes how the logic of capitalist accumulation severs basic processes of natural reproduction leading to the deterioration of ecological sustainability (see Bellamy Foster's *Ecology of Destruction*, 2007). Schnaiberg sought to provide explanation of the relationship between capitalism, the state and the environment. Schnaiberg submits that modern capitalism with its mass production and mass consumerism culture produces what he calls a '*treadmill of production*'; and that this treadmill tends to result in environmental degradation (through 'withdrawals' [that is, scarcity of energy and materials] and 'additions'[that is, pollution]) (Redclift and Woodgate 2010: 38). This treadmill according to Hannigan (2006) refers to the inherent need of an economic system to continually yield a profit by creating consumer demand for new products, even where this means expanding the ecosystem to the point where it exceeds its physical limits to growth or its 'carrying capacity'. Modern capitalist growth which is characterized by mass production (resulting in large scale withdrawals of natural resources from the environment), must also be accompanied by large -scale consumption (resulting in addition of wastes/pollutants to the environment) which is achieved through large scale advertising and crave for status, fashion, fad and luxury goods . According to Giddens (2009), in modern industrial societies, consumption is linked to economic development; as living standards rise, people are able to afford more food, clothing, personal items, leisure tie, holidays, cars and so forth. They consume what they don't necessarily need and are hooked to what he termed the *'romantic ethic*' i.e. (pleasures of purchasing goods and not minding the use value); such culture of mass consumerism is disastrous. Hence, global industrialization, capitalism and consumerism threaten the environment at a large scale. Resource shortages for example are handled not by reducing consumption or adopting a more modest lifestyle but by opening up new areas to exploitation thereby ensuring the expansion and continuity of the withdrawal and addition circle hence ecological crises.

The tendency to economic growth according to Schnaiberg (1980) is due in part to the competitive character of capitalism, such that corporations and entrepreneurs must continually expand their operations and their profits lest they be swamped by other competitors. On the other hand there is also growth logic within the sphere of the state, as state agencies and officials prefer growth over stagnation in order to ensure tax revenues-the essential fiscal basis of the state (Redclift and Woodgate 2010).

Schnaiberg (ibid) hence detects a *dialectic tension* that arises in advanced industrial societies as a consequence of the conflict between the treadmill of production and demands for environmental protection which he termed *'societal–environmental dialectic'* (Hannigan 2009). This he describes as a clash between 'use values'; for example, the value of preserving biodiversity and pristine forests, and 'exchange values' which characterize the industrial use of natural resources. The state then is caught up in this dialectic contradiction and must increasingly balance its dual role as a facilitator of capital accumulation and economic growth and its role as environmental regulator and champion through engaging in a process of '*environmental managerialism*' (Redclift 1986 cited in Hannigan, ibid), in which they attempt to legislate a limited degree of protection sufficient to deflect criticism but not significant enough to derail the engine of growth. Modavi (1991: 270) thus asserts that the state reaffirms its commitment to strategies for promoting economic development by enacting environmental policies and procedures that are complex, ambiguous and open to exploitation by the forces of capital production and accumulation. The treadmill of production explanation according to Hannigan (2009: 22) has the advantage of locating present environmental problems in the inequities of humanly constructed political and economic systems rather than the abstract conflict of functions by human ecologists.

Risk Society Theory

German Sociologist, Ulrich Beck's risk society theory suggests there is a movement away from traditional social institutions and industrial society, and towards a new society which is individual, global and self-confrontational (reflexive). Beck defines risk society as "a systematic way of dealing with hazards and insecurities induced and introduced by modernization itself" (Beck 1992:21). Similarly, Michael Bell describes risk society as "a society in which the central political conflicts are not class struggles over the distribution of money and resources but instead

non-class-based struggles over the distribution of technological risk" (Bell 1998 cited in King and McCarty, 2009). The theory argues that the old institutions (economic, political, legal and technological) are no longer able to cope with the reflexive, modernised world, where the very technologies that formed the basis of social and economic progress now create massive threats. According to Hannigan (2009:23) Beck's thesis starts with the premise that Western nations have moved from an 'industrial' or 'class' society in which the central issue is how socially produced wealth can be distributed in a socially unequal way while at the same time minimising negative side effects (poverty, hunger) to the paradigm of a 'risk society' in which the risks and hazards produced as part of modernisation, notably pollution, must be prevented, minimised, dramatised or channelled. What this suggests is that as technological change progresses more and more rapidly, it produces new forms of risk, and we must constantly respond and adjust to the changes. According to Rees (2003 in Giddens 2009:196), scientific advancement can have unintended consequences, as nuclear holocaust, caused by terrorists or nations and terrorist use of biological weapons or laboratory errors that create new diseases. This implies that in the risk society the unknown and unintended consequences of technological and economic advancement come to be a dominant force in history and society and industrial societies are slowly dissolving as environmental problems build up (Beck 1992). In fact, Beck (1999) argue that we are, in effect moving into a 'world risk society' - a new type of society in which risk consciousness and risk avoidance are becoming the central focus – because environmental pollution does not respect national boundaries as a result of globalization. Buttressing this point, Giddens (ibid) posits that until quite recently, human societies were threatened by external risk - dangers such as drought, earthquakes, famines and storms that spring from the natural world and are unrelated to the actions of humans. Today, however, we are increasingly confronted with various types of *manufactured risk* - risks that are created by the impact of our own knowledge and technology on the natural world. These risks are a testament to the failure of social institutions, most notably science, to control new technologies. Such risks transcend both space and time, extending well beyond the geographic source, and temporally, beyond the present generation. Largely risks today are said by Beck to be largely invisible to lay people, identifiable only through sophisticated scientific instrumentation (Hannigan 2009).

Ecological Modernization Theory

Ecological modernization theory, unlike the previous theories earlier highlighted (which perceives economic growth to be antagonistic with environmental well-being) provides some degree of optimism in the society and environment relationship. This theory deals with the practicability of attaining environmental improvements through transformation of production and consumption patterns with environmental friendly technologies (Barret and Fisher 2005). Ecological modernization according to Spaargaren and Mol (1992:334) mean an ecological switch of the industrialization process in a direction that takes into account the maintenance of the existing sustenance base. The model is based on the work of the German writer, Huber (1982; 1985 cited in Hannigan 2009) who analyses ecological modernization as a historical phase of modern society. In Huber's scheme, an industrial society develops in three phases: (1) the industrial breakthrough; (2) the construction of industrial society; and (3) the ecological switchover of the industrial system through the process of 'super-industrialization', made possible by a new technology: the invention and diffusion of microchip environment friendly technology. Barret and Fisher (2005:4) suggests that there are two major components of the theory: firstly, the theory explicitly describes environmental improvements as being economically feasible; indeed, entrepreneurial agents and economic/market dynamics are seen as playing leading roles in bringing about needed ecological changes. Secondly, in the context of the expectation for continued economic development, ecological modernization depicts the emergence of coalitions of political actors promoting the political feasibility of environmental protection. These two components are associated with the growing independence (or loosening of the restraints) of the ecological sphere from the political and economic spheres in state and industrial policy-making (Spaargaren and Mol 1992). In his analysis of the theory, Giddens (2009:195) argues that ecological modernization theorists' attests to the fact that modernization has brought economic prosperity but also environmental devastation hence business as usual is no longer possible. In salvaging the precarious situation it however rejects radical environmentalist solutions such as those advocated by the neo Marxists involving de-industrialization etc. They focus instead on technological innovation and the use of market mechanisms to bring about positive outcomes, transforming production methods and reducing pollution at its source. In fact they argue that a*n ecological form* of growth is theoretically

possible and that if consumers demand environmentally sound production methods and products, then market mechanisms will be forced to try and deliver them (Giddens 2009; Spaargaren and Mol 1992). An example of such ecological modernizing technology is the introduction of catalytic converters and emission controls on motor vehicles, which has been delivered within a short period of time and shows that advanced technologies can make a big difference to greenhouse gas emissions. Also the emphasis on recycling waste instead of dumping in landfills, e.g. papers, plastics etc. reduces wastes and help save trees. Accordingly, Mol and Sonnenfeld (2000 cited in Giddens 2009) posits that the ecological modernization theory emphasizes that five social and institutional structures need to be ecologically transformed:

1. *Science and technology* to work towards the invention and delivery of sustainable technologies
2. *Markets and economic agents:* to introduce incentives for environmentally benign outcomes.
3. *Nation-states:* to shape market conditions which allow this to happen
4. *Social movements:* to put pressure on business and the state to continue moving in an ecological direction.
5. *Ecological ideologies:* to assist in persuading more people to get involved in the ecological modernization of society.

Dryzek (1997 cited in Barret and Fisher 2005: 5) identifies five ecologically modernized societies—Germany, Japan, the Netherlands, Norway and Sweden; with Japan standing out in the environmental stakes in large part due to the energy-efficiency of its economy'.

In evaluating the ecological modernization theory, Hannigan (2009) concludes that ecological modernization thinkers are to be commended for attempting to stake out a reasoned position between 'catastrophic' environmentalists who preach that nothing less than de-industrialisation would suffice in saving the Earth from an ecological Armageddon and capital apologists who prefer a business-as-usual approach (Sutton 2004: 146 cited in Hannigan, ibid).

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ENVIRONMENTAL ETHICS AND WORLDVIEWS

Individuals and groups conceive various perceptions of the environment; as such develop diverse worldviews and attitudes towards the environment. There are three major environmental attitudes which inform the three major environmental ethics as discussed below: Each of these ethical positions has its own code of conduct against which ecological mortality may be measured.

Anthropocentrism – Development/Exploitationist Ethic

Anthropocentrism is a human centered attitude towards the environment. Environmental anthropocentrism is the view that all environmental responsibility is derived from human interests alone. Only human beings are morally significant organism and have a direct moral standing. The environment is crucial to human well-being and survival; hence man has an indirect duty towards the environment derived from human interest. This is a worldview or attitude which supports the exploitation of the environment for human development without caution. Adherents of this view argue that the environment is *self-sustaining* and thus human exploitation has no effect on the eco-balance.

Early colonialists are of this group, they developed a careless attitude about resources. This was due to the atmosphere of opportunity and rising expectations that accompanied the new availability of land. Nature was seen as an obstacle that society had to tame and overcome in order to make progress, as the popular ideas of nature 'in the raw' or nature 'red in tooth and claw' suggest. According to Giddens (2009: 157) for a minority of people, nature and society were seen as distinct, but nature was not seen as in need of taming. Bryan (1991) argued that for early colonizers, wilderness area and raw natural resources are uncontrolled by man, unproductive and valueless until human labour was mixed with them e.g. the transformation process of crude into fuel. To support their exploitative position they utilize religious rationalization `*God appointed man to dominate the earth*` (see Genesis 1: 28), hence man can't make benefit of vacant land but by habitation and culture.

Furthermore, exploitationists perceive no shortages of raw materials, since these resources are valuable only when they are added with human labour which is the true scarce resource. They

hardly recognize waste as a byproduct in transforming raw resources (Bryan 1991: 77). The attitudes and actions of the exploitationists are guided by the two-fold principles of theirs:

Axiom of Usefulness: - Which asserts that production of goods for human use is a good thing. It embodies the value of productivity for human use.

Axiom of Abundance: - This states that `*any natural resource, prior to its transformation by humans into a ``product`` can be replaced by a substitute resource, without significantly increasing cost of production*`. It formalizes the attitude that waste of raw resources involves no true waste at all (Bryan, op. cit). The two axioms create an attitude toward growth and development that can't support moral disapprobation of ``waste`` of raw products or the systems that produce such products.

Biocentrism – Preservation Ethic

Biocentrism is a life centered attitude towards biological diversity of the environment. The life centered theory posits that all forms of life have inherent right to exist. It considers nature and all forms of life special in itself. Nature has intrinsic value or inherent worth apart from human appropriation. Biocentrism hence advocates for the preservation of the environment and all life forms free from human intervention.

Environmental preservation, hence is the strict setting aside of natural resources to prevent damage caused by contact with humans or by certain human activities, such as logging, mining, hunting, and fishing, only to replace them with new human activities such as tourism and recreation. John Muir, who was the first president of the Sierra Club in 1892, was a chief proponent of the preservation movement. Muir saw his quest to preserve nature as a *moral one*, he advocates `*righteous management*`. He railed against human arrogance that judges nature only according to human values. Hear him:

``*How narrow we selfish, conceited creatures are in our sympathies! How blind to the rights of our fellow mortals! Though alligators, snakes etc., naturally repel us, they are not mysterious evils. They… are part of God's family, unfallen, undepraved and cared for with the*

same species of tenderness and love as is bestowed on angels in heaven or saints on earth`` (Bryan, 1991 : 7)

Muir rejected the Axiom of Abundance advanced by the exploitation and development school, but he reinterpreted the Axiom of Usefulness. He objected the usual argument that nature was valuable only because of its human uses. To him it is arrogant, egoistical and insensitive to the needs of other creatures (Byran, ibid: 79). He justifies the preservation of the beauties of nature because he thought experience of nature cures the alienation of modern industrial society; in essence communion with nature and its beauties would promote higher consciousness in man.

He further queried the Axiom of Usefulness because of its human centered attitude. He saw wild nature as spiritually instrumental as a means to inspire awe. For example, to him river valleys are holy places, hence modifying the axiom of usefulness i.e. nature can be preserved by recognizing *non material* and *non-consumptive* human values, such as *aesthetic*, *enjoyment* and *spiritual fulfillment.*

According to Brayn (ibid: 80), Muir rejected both the Axioms of Usefulness and Abundance because of the following:

i) It ignored human spirituality.
ii) It is based on an assumption of anthropocentrism i.e. It is human centered.

Finally, Muir put forward what he called `Axioms of Values` which includes:

i) Some not clearly articulated recognition of the usefulness of nature to human.
ii) A commitment to the ``*Spiritual Usefulness*`` of nature to human.
iii) A belief that nature, viewed in the large perspective was God (Bryan, ibid)..

Ecocentrism – Conservation Ethic

Ecocentrism is an environment centered attitude. It emphasizes an environmental or ecological balance. It maintains that the environment derives direct moral consideration and not one merely derived from human (atnthrropocentric) and animal/plants (biocentric) interest. Accordingly, the ecocentric claims of radical ecologists that nature must be placed ‘at the center of moral concern,

politics and scientific study' (Sutton 2004: 78 cited in Hannigan 2009). It is related to scientific conservationism but extends the rational consideration to the entire earth and for all time.

Conservationism hence emphasizes efficiency of resource use and sustainable development. It recognizes the desirability of decent living standards but it works towards a balance of resource use and resource availability. This ethic stresses a balance between total development and absolute preservation. It stresses that rapid and uncontrolled growth in population and economics is self-defeating in the long run. The goal of this ethic is "one people living together in one world indefinitely". The conservationist movement started in the second half of the 19th century in America. This movement was a reaction against the dominant attitude of exploitationism. They responded to immense destruction with disapprobation i.e. moral disgust (Bryan, 1991). Most conservationists see natural ecosystems and other species as resources and are concerned mainly with the `*wise use of resources*`. The major proponent is Gilfford Pinchot, who was the first official forester of the U.S.A. This group judges all questions according to the criterion of the *greatest good for the greatest number* in the long run. Unlike preservationists, conservationists allows for some degree of industrial development, albeit it within sustainable limits. Pinchot hence rejected the Axiom of Abundance but not the Axiom of Usefulness. Conservationists emphasize avoidance of waste in the present pursuit of economic development.

Pinchot defined resource conservation as `` *maximizing the material well-being of all the people*`` (Bryan, ibid: 78). Resource hence should be used wisely and for human purposes. In his words, `` *the first great fact about conservation is that it stands for development … Its first principle is the use of natural resources now existing on this continent for the benefit of the people who live here now*`` (Bryan, ibid :7).

SUSTAINABLE DEVELOPMENT

The divergent worldviews and attitudes of the exploitationists, conservationists and preservationists to a greater extent directs and influences their perceptions, opinions, actions and reactions to the environment and consequently this affects their positions towards environmental sustainability. Environmental sustainability i***s*** concerned with the effect which action taken in the present has upon the options available in the future. Hence developmental pursuit shouldn't

jeopardize or compromise the environment and resources for the next generation. Thus, how do environmental attitudes affect environmental sustainability? The exploitationist attitude for example certainly is antithetical to environmental sustainability. As such, destruction of the environment has always been the outcome of such lackadaisical attitude. The Conservationist and Preservationist attitudes ensure environmental sustainability. However, the Conservationists allows some level of industrial development that is sustainable the Preservationist fights for total preservation, hence such attitude certainly will hinder human development to some extent. In all, activism by the duo is done through lobbying, and inaction of laws and regulations for the preservation of natural resources.

A closer look at the origin of the concept of sustainable development reveals that in 1983, the United Nations' General Assembly established the World Commission on Environment and Development (WCED) made up of scientists from all walks of life under the Chairmanship of Cro Harlem Brundtland. The commission submitted its report commonly known as the Brundtland report in 1987 which was titled "*Our Common Future*". The report raised an alarm that the greedy pattern of development is responsible for causing massive environmental pollution and degradation of natural resources. The report concludes that the solution to this problem is the adoption of a new pattern of development called ''*Sustainable Development*''.

According to the World Commission on Environment, Sustainable Development can be defined as "*the development which provides for the needs of the present generation without compromising the ability of future generations to meet their own needs*" (Asthana and Asthana, 2012). The concept of sustainable development is in agreement with the wise-use of resources attitude propagated by the conservationists. This implies that development processes should in essence not only guarantee today's environmental security but future generations. It advocates for environmental friendly technologies that doesn't cause harm to the environment, in this regard environmental sustainability is synonymous with not just resource conservation but the principles of ecological modernization.

Sustainable Development Goals

On the 25th of September 2015, at the United Nations Sustainable Development Summit, world leaders adopted the 2030 Agenda for Sustainable Development, which includes a set of 17 Sustainable Development Goals (SDGs) to end poverty, fight inequality and injustice and tackle climate change by 2030.

The Sustainable Development Goals, otherwise known as the Global Goals, built on the Millennium Development Goals (MDGs), eight anti-poverty targets and environmental sustainability goals that the world committed to achieving by 2015. The MDGs adopted in 2000, aimed at an array of issues that included slashing poverty, hunger, disease, gender inequality, access to water, improved sanitation and environmental sustainability The new SDGs, and the broader sustainability agenda, go much further than the MDGs, addressing the root causes of poverty, environmental degradation and the universal need for development that works for all people (www.undp.org/content/undp/en/home/sdgoverview). The Sustainable Development Goals include: Goal 1: No Poverty; Goal 2: Zero Hunger; Goal 3: Good Health and Well-Being; Goal 4: Quality Education; Goal 5: Gender Equality; Goal 6: Clean Water and Sanitation; Goal 7: Affordable and Clean Energy; Goal 8: Decent Work and Economic Growth; Goal 9: Industry, Innovation and Infrastructure; Goal 10: Reduced Inequalities; Goal 11: Sustainable Cities and Communities; Goal 12: Responsible Consumption and Production; Goal 13: Climate Action; Goal 14: Life Below Water; Goal 15: Life on Land; Goal 16: Peace and Justice Strong Institutions; Goal 17: Partnerships for the Goals.

ENVIRONMENTALISM

Environmentalism is a concern for the planet as a whole. It is a broad philosophy and social movement centered on a concern for the conservation and improvement of the environment Environmentalism is associated with the colour GREEN. Environmentalism can be defined as a `*social movement which seeks to influence the political process by lobbying, activism, and education in order to protect natural resources and ecosystems*`. In recognition of humanity as a participant in ecosystems, the environmental movement is centered on ecology, health and human rights. An environmentalist likewise is `*a person who advocate the sustainable management of resources and stewardship (protection and restoration when necessary) of the*

natural environment through changes in public policy or individual behaviour`. Environmentalists and environmental organisations seek to give the natural world a stronger voice in human affairs through grass root activism and protests. Notable environmentalists include Al Gore, David Bellany, Bob Brown, Lester Brown, David Suzuki, Chico Mendes etc. Their activism takes the form of Public Education Programs, Advocacy, Legislation and Treaties. Environmental movements are either government run or private (NGO). Notable movements include: The Green Movement in Nigeria, European Environment Agency (EEA), Earth Liberation Front, Green Peace, Earth First, The Wilderness Society, Friends of The Earth, Eco world etc.

ENVIRONMENTAL POLICY AND DECISION MAKING

Politics and the environment can't be separated. In the U.S.A for instance the legislative, executive and judicial arms of government all impact environment policy. The increase in environmental regulation in the U.S.A over the past 30 years has caused concerns in some sectors of society. The late 1980s and early 1990s witnessed a new international concern about the environment both in developed and third world countries. Environmentalism is also seen as a growing factor in international relations. This concern is leading to international cooperation where only tension has existed before. While there exists no world political body that can enforce international environmental protection, the list of multilateral environmental organizations is growing. It remains too early to tell what the ultimate outcome will be, but progress is being made in protecting our common resources for future generations. Several international conventions and treaties like the world earth summit, Rio de Janeiro 1992, the Kyoto Protocol, Japan 1997, the most recent COP 21 United Nations Climate Change Conference in Paris etc., have been successful. In the final analysis however, we all as citizens of the earth has to adjust our life style to clean up our own small part of the world.

The Nigerian Experience

The role of legislation in inducing responsible attitudes and behaviours towards the environment cannot be overlooked. Legislation serves as an effective instrument for environmental protection, planning, pollution, prevention and control. The following provides a summary of Nigerian legislation on the environment: *Federal Environmental Protection Agency Act, CAP 131 LFN*

(1990); The Constitution of the Federal Republic of Nigeria (1999); National Environmental Standards & Regulations Enforcement Agency ACT (2007); Environmental Impact Assessment Act CAP E12, LFN (2004); The Land Use Act CAP 202, LFN (2004); *Harmful Waste (Special Criminal Provisions) Act (2004)*; *Hydrocarbon Oil Refineries Act, CAP H5, LFN (2004)*; *Associated Gas re-injection Act, CAP 20, LFN (2004)*; *The Endangered Species Act, CAP E9, LFN (2004)*; *Sea Fisheries Act, CAP S4, LFN (2004)*; *Inland Fisheries Act, Cap I10, Lfn (2004)*; *Exclusive Economic Zone Act, CAP E11, LFN (2004)*; *Oil Pipelines Act, CAP 07, LFN (2004); Petroleum Act, CAP P10, LFN (2004); Petroleum Products and Distribution (Management Board) Act, CAP P12, LFN (2004;)*; *Territorial Waters Act, CAP T5, LFN (2004); Nuclear Safety and Radiation Protection Act, CAP N142, LFN (2004)*; *Nigerian Mining Corporation Act, CAP N120, LFN (2004); Quarantine Act, CAP Q2, LFN (2004); River Basins Development Authority Act, CAP R9, LFN (2004); Pest Control of Production (special powers) Act, CAP P9, LFN (2004); Agricultural (Control of Importation) Act, CAP A93, LFN (2004); Animal Diseases (control) Act, CAP A17, LFN (2004); Bees (Import Control and Management) Act, CAP B6, LFN (2004); Civil Aviation Act, CAP C13, LFN (2004)*; *Factories Act, CAP F1, LFN (2004); Water Resources Act, CAP W2, LFN (2004) ; Hides and Skins Act, CAP H3, LFN (2004)*; *Federal National Park Act, CAP N65, LFN (2004)*; *Niger-Delta Development Commission (NDDC) Act, CAP N68, LFN (2004)*; *The Nigerian Urban and Regional Planning Act Cap N138, Lfn (2004); Federal Solid and Hazardous Waste Management Regulations (1991).*

The growing awareness and concern about the rate of biodiversity loss in the tropics generally has resulted to several biodiversity conservation strategies, such as the designation of protected areas (Parks & reserves,) listing and protection of species among other legislations and regulations. Some examples of such protected areas are the: Okwangwo Rainforest Reserve in Boki area of Cross River State; Oban Group Rainforest Reserve Cross River State; Stubbs Creek Rainforest Reserve of Akwa Ibom State, to mention but a few.

However, most of these protected areas contain either agricultural land or sources of livelihood to the local people. Thus formal protection does not guarantee protection of biodiversity. More so, not all biodiversity rich or sensitive areas are under any form of protection as in the case of the mangrove forest of the Niger Delta. In fact, most conservation efforts have ignored

traditional knowledge system and practices that reflect many generations of experience in the conservation of their natural resources, thereby exposing the protected areas to external influences (Poaching) as well as depriving the people access to their natural resources. The resultant effect of this is the failure of the conservation strategies and depletion of the forest resources. In the case of the mangrove forest, there is no known form of protection thus leading to rapid decimation of these resources and biodiversity in general.

CONCLUDING REMARKS

The attention of scientists, scholars, governments and international organizations has grown over the years concerning the rising environmental crises the world is faced with as evident in global warming and climate change with its attendant environmental consequences, water stress, energy crises etc. According to the United Nations Environment Programme world leaders have signed 500 agreements on environment and climate change in the past 50 years, including 61 atmospheres related; 155 biodiversity related; 179 related to chemicals, hazardous substance and waste; 46 land conventions and 196 water conventions (Vidal 2012). The most recent Cop 21 Paris Climate Conference held between 7th and 8th December in France is an effort in propagating a road map for a better environment for humanity.

These international agreements are most times politicized as the will to reduce greenhouse gas emission by the developed countries is not strong enough because this will imply reduction of the treadmill of production. For instance, some governments in developing countries argue that there is no parallel between the 'luxury emissions' produced by the developed world and their own 'survival emissions' in relation to global warming, as industrial countries currently account for only about one- fifth of the world's population, yet they are responsible for over 75 per cent of the emissions that serve to pollute the atmosphere and hasten global warming. In essence, they submit that pressurizing developing countries to reduce emission means stagnation of their own economic survival and growth. This has led to introduction of several principles such as polluter pays, climate finance, carbon trading etc. whatever the case is, governments should put their political and economic interests aside and focus their energy on saving our planet. Planet earth from the space view is like a ship sailing in space and if the ship sinks we all are doomed irrespective of national, racial, ethnic, political, religious affiliations and differences. The most

rational thing to do is for us to lighten our loads as the earth's carrying capacity is being overstretched. Captains of ships are always concerned with carefully paying attention to a marking on their vessels called the plimsol line. Whenever the water level rises above the plimsol line or submerges it, this suggests that the boat is too heavy and is at risk of sinking. In this situation rearranging items on board wouldn't help so much as it indicates that the carrying capacity of the ship has been surpassed and you often find them offloading goods into the sea instead. This analogy reveals that human activities can reach a scale that the earth's natural system can no longer support it. In 1992; more than 1600 scientists, including 102 Nobel Laureates, underscored this point by collectively signing a "warning to Humanity". Their warning stated in part that "*a new ethic is required, a new attitude towards discharging our responsibility for caring for ourselves and for the earth….this ethic must motivate a great movement, convincing reluctant leaders and reluctant governments and reluctant peoples themselves to effect the needed changes*" (Enger and Smith, 2006). In response to this, considering mechanisms of environmental improvement, Buttel (2003 cited in Hannigan 2009) proposes four potential channels: environmental activism/movements (he judges this to be the most fundamental and promising), state environmental regulation, ecological modernisation, and international environmental governance. More so, for such a new successful global effort to lighten humanity's load on the earth would need to directly address three major driving forces of environmental decline: the inequitable distribution of income, resource consumptive economic growth and rapid population growth. This will definitely redirect technology and trade to buy time for this great change to occur.

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