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ENVIRONMENTAL DEGRADATION AND GLOBAL WARMING: ECOSOPHY FOR CLIMATE SECURITY.

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Abstract

Matters of environmental degradation and climate insecurity are quite worrisome; so much so that they impose regrettable devastation to humanity and the entire ecosystem. Consequently, this paper aims at addressing the devastations of environmental degradation and global warming while proffering prospects for climate security. This study applies expository and analytical methods of research. While exposing the devastations of environmental degradation and anthropogenic factors leading to global warming and climate change, it analyzes adequate prospect towards addressing the imposed devastations with the instrument of ecosophy. This paper studies Global warming as the unusual rapid increase in earth's average surface temperature resulting from greenhouse gases released by burning of fossil fuels. The impact of global warming include; climate change, spread of infectious diseases, extinction of large fraction of plants and animal species, disruption of energy supply and agriculture, heavy flooding, mechanical dysfunctionality, etc. On appraisal, it is obvious that beyond the natural cause to global warming, anthropogenic factors impact more devastations minding unfriendly and unfair management in relationship with the earth leading to environmental degradation, global warming and climate change. Such anthropogenic factors include; deforestation, soil pollution, overgrazing, overpopulation, poor waste disposal, heating up the ozone layer, increase of aerosols, ozone (O_3), release of greenhouse gases by burning fossil fuels such as; carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), water vapor, etc. In the attempt to assuage these damaging implications, ecosophers have developed robust dynamisms of prospects towards rescuing the globe from total destruction. This is anchored on human orientations towards proper waste management for both private and industrial sectors, regenerative farming to rebuild soil fertility, increases biodiversity, reduce erosion and improve water quality to the crops, improved soil structure, microbial activities, etc. These activities help create a balanced ecosystem and climate security.

Key words: Environmental degradation, climate change, global warming, etc.

Introduction

Environment can be said to mean the physical and social surroundings in which human beings, plants and animals live[1] or the natural states for land, air, water, objects, chemicals, living and non-living things, etc. It can be divided into physical, political, economic, religious, social and cultural environments. Here physical environment means the visible things that surround man in

his habitat and influence his life and activities. The physical environment refers to the house or those natural surroundings within which plants, animals and human live and thrive[2]. Some of the contents are man-made and others natural. The man-made part of the physical environment include houses, markets, dams, bridges, etc. Also, the natural environment include land forms, such as; uplands and lowlands, climate, vegetation, animal life and water bodies like streams, rivers, ponds, lakes and seas".[3]

Also, cultural environment refers to man's artificial creations out of the environment to enable man's meaningful response to physical environmental needs[4]. Omebe remarks that the cultural environment influences man's thinking, his general behavior, funeral rites and marriage ceremonies and practices[5]. Similarly, social environment accounts for man's interactions in the physical and cultural environment. Also, just as social environment refers to institutions that provide the surface of man's interactions with both other human persons and immediate environment[6], religious environment provides the surface of faith expression in God and spiritual interactions.

Environmental Degradation is simply a disturbance to the environment. It is the deterioration of the environment through depletion of resources such as air, water and soil which destroys the ecosystem, makes the environment unfriendly and causes the extinction of human or wild life[7]. It can be further referred as a compromise to the environment leading to reduction of biological diversity and general health of the environment. This condition can be natural by origin or accelerated by human activities which is referred as anthropogenic sources. No doubt, environmental degradation is one of the major threats facing earth as a planet.

Global warming refers to the unusual rapid increase in earth's average surface temperature as a result of greenhouse gases released especially through burning of fossil fuels[8]. Before the advent of industrial revolution, the earth climate change was merely as a result of natural causes which is not the case with industrial revolution and the sudden increase in temperature. Thus the more the world's consumption of fossil fuel increases, the greenhouse gases concentration will continue to rise and earth's average surface temperature could rise between 2 ^{o}C and 6 ^{o}C by the end of 21st century[9]. No doubt that the impact of global warming is beyond just increasing temperatures. It leads to adverse climate change where climate change implies a long-term shift in temperature and weather patterns. It goes as far as modifying rainfall patterns, amplifies coastal erosion, lead to melting of ice caps and glaciers, spread of some particular infectious diseases,

The evidence has become incontrovertible that climate-induced environmental change and degradation are no longer future threats to be feared but are instead already upon us. These factors determine developmental progress, undermine rights, erode social cohesion and relapse conflicts and unrest. This is a great concern for the UN such that at different countries, the Common Country Analysis (CCA) horizon employ multidisciplinary approaches to review the indicators and metrics to forecast the nature and severity of environmental changes[10]. This

review offers opportunity to understand climate change, trends and effects, etc. This helps to make policies to curb the impending effects of environmental degradation and climate change.

More worrisome is that the countries in the horn of Africa are among the most vulnerable to climate change impacts.[11] In most countries of Africa, climate instability has insecurity flashpoint and driver of poverty and displacement.[12] In Nigeria, climate change is a major factor to the annual herders-farmers clashes. Thus the Fulani herdsmen in search of pastures take their cattle to green vegetation at different seasons of the year, hence inducing a form of unrest with farmers whose farm lands are recklessly invaded. This situation leads to lose of lives and properties on annual basis in Nigeria and widens the yap in relationship between the Northern Nigeria/Fulani farmers and the other parts of Nigeria.

On the Menace of Environmental Degradation

As already stated, environmental degradation accounts for the compromise, abuses or disturbances to the environment leading to deterioration and depletion of resources such as air, water and soil which destroys the ecosystem, makes the environment unfriendly and causes the extinction of human or wild life[13]. This form of distortion to the serenity and order of the environment can have either natural origin or accelerated by anthropogenic (human) sources. Anthropogenic factors leading to environmental degradation are inestimable including; poverty, over exploitation of natural resources, Deforestation, soil pollution, overgrazing, overpopulation, inadequate waste management from domestic use and factories, etc

Poverty is a major cause of environmental degradation such that people living in poverty often experience hunger and food insecurity leading to over exploitation of natural resources. Typical examples to this claim include; poor people frequently harvest trees into charcoal sold for quick cash and cooking, burning wood for fuel or dumping waste into rivers and streams, etc. Poverty is accompanied with lack of access to education about environmental issues or required resources to invest in sustainable practices. These challenges impact heavy long-term implications to the environment such as; air and water pollution, soil erosion, biodiversity imbalance, etc.

Similarly, deforestation as a permanent destruction of forests in order to make the land available for other uses has become a leading cause to environmental degradation. This act reduces biodiversity, increases climate change and water cycle. Deforestation is a great challenge to climate change because carbon dioxide which is supposed to be absorbed by tress are released into the atmosphere, hence disrupting the normal climatic condition. Climate change leads to increase in the intensity and frequency of floods. Also, deforestation leads to erosion or large amounts of sediment deposit creating artificial change in landscape. It leaves the soil so bare that minor rain drops begin to dig the soil and create waterways.

In the same vain, a big factor to environmental degradation is erosion. Here erosion is the wearing away of land surface by the action of natural forces such as wind, water or ice especially in areas already prone to soil erosion due to topography and land use. Erosion can lead to loss of valuable topsoil which is very important to plant growth and food production. Erosion removes topsoil and reduces fertility of the soil. It increases salinity and decreases organic matter, hence making plants unable to absorb sufficient water and nutrients from the soil. Also, it causes compaction which reduces the amount of air and water retained in the soil. Factors leading to erosion include; deforestation, soil damage, poor waste management, poor drainage systems, poor urban planning and implementation, etc.

Industrialization and the quest to satisfy man's needs increase the quest for advancement in technology, construction and manufacturing[14]. Thus the heavy metals and chemical substances used in big factories and industries pose great threat to the environment especially when not well maintained or disposed. This compromising situation leads to environmental degradation and health hazard. It is noteworthy that industrial, commercial, automobile and domestic activities produce wastes of varying quantities and qualities, leading to different environmental pollution of land and water ways, undesirable levels of street dusts, smokes, air and noise pollutants. Also, inappropriate hospital equipment management and disposal creates leeway for environmental pollution when the sharp needles and other surgical materials are not well preserved or disposed after use, hence leading to environmental degradation.

Global Warming and the Bane of Climate Insecurity.

Global warming refers to the rapid increase in earth's average surface temperature as a result of greenhouse gases released especially through burning of fossil fuels[15]. This situation has been significantly influenced by the advent of industrial revolution leading to the increase in factories and the burning of fossil fuel. Nevertheless, it is noteworthy that global warming is not just about increase in temperature but the more devastating effects such as; climate change-temperature and weather patterns, change in rainfall patterns, amplifies erosion, lead to melting of ice caps and glaciers, spread of some particular infectious diseases, etc.

It is obvious that the surface temperature of the earth is maintained by a balance of various forms of solar and terrestrial radiations. Solar radiation is the short wavelength with high frequencies which is very close to the electromagnetic spectrum while terrestrial radiation refers to the long wavelengths of low frequencies around the infrared part of the spectrum. The amount of solar radiation absorbed by earth's surface is only a small fraction of the total solar radiation entering the atmosphere. Thus about 30% units of incoming solar radiation reflects back to space by either clouds, atmosphere or reflective regions of earth's surface while 70% units of solar radiation is absorbed by the atmosphere, clouds, earth surface, etc. The reflective capacity of the atmosphere, clouds, ice cover, or the reflective regions of the earth's surface can be referred as earth's planetary albedo. However, it is to be noted that changes in these earth's planetary albedo

leads to changes in the spatial extent and distribution of reflective formations, hence affecting the stated percentage ratio of 30:70 of reflected and absorbed solar radiations which maintains thermodynamic equilibrium.

Worthy of note is that the major factors leading to global warming and climate change come from double play of natural and human activities. The human activities leading to global warming and climate insecurity are referred as anthropogenic factors. The long term shift in temperatures and weather had a natural effect until the 19th century with the advent of industrial revolution. Thus with industrial revolution, human activities became the major drive of climate change and global warming following the burning of fossil fuels such as coal, oil, gas, etc which produce heat-trapping gases.

The gases released by fossil fuels can be referred as greenhouse gases which include; carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), water vapor, etc. These pollutants collect in the atmosphere and absorb sunlight and solar radiation that have bounced off the earth's surface. Rather than bouncing off the earth's surface, these pollutants trap the heat, hence causing the planet to get hotter. Most unfortunate is that these gases last for centuries in the atmosphere. No doubt that since the Industrial Revolution c.1800, the global annual temperature has increased by a little more than 1 degree Celsius which is equivalent to 2 degrees Fehrenheit with an average increase to 0.07 degrees Celsius per decade.

Greenhouse gases in the atmosphere are very essential to maintain the thermodynamic equilibrium. Nevertheless, it is important to distinguish between the natural or background greenhouse effect from the enhanced greenhouse effect which is associated to human activities, hence referred as anthropogenic. The natural greenhouse effect is associated with surface warming properties of natural constituents of earth's atmosphere especially water vapor, carbon dioxide and methane. Noteworthy is that the absence of these gases would reduce the temperature of the earth surface to be frozen and likely uninhabitable yet their increase causes another extreme harm of global warming. On the other side is the enhanced greenhouse effect which is associated with increased concentration of greenhouse gases caused by human activities such as burning of fossil fuels. Most unfortunate is that these higher concentrations have the potential to warm the atmosphere by several degrees.

One of the most potent greenhouse gases in earth's atmosphere is water vapor. The addition of water vapor in the atmosphere is not for the most part anthropogenic because warmer air is able to hold more moisture such that as the climate warms, air temperature rises and more evaporation from water sources and land occurs. The warmer the earth surface, the greater the evaporation rate of water from the surface[16]. The concentration of water vapor in the lower atmosphere is capable of absorbing longwave radiation and emitting it downward. However, water vapor stays in the atmosphere for a much shorter period of time and precipitates out in few days while other

greenhouse gasses such as methane or carbon dioxide could last much longer period of time, hence warming the earth's surface for a longer period of time.

Also, carbon dioxide (CO_2) is a very significant greenhouse gas and its sources include; outgassing from volcanoes, respiration by oxygen-using organisms or aerobic organism and decay of organic matters, etc. Significantly, human activities or anthropogenic sources are impacted by increase in atmospheric carbon dioxide level through combustion/burning of fossils fuels such as oil, coal, natural gas for use in transportation, heating, generation of electric power, burning of forests, etc. The absorption/reduction of carbon dioxide is controlled through a process called carbon sinks which include some sets of physical, biological or chemical processes. To a great extent, the process of carbon sinks is achieved through some terrestrial vegetation which by process of photosynthesis takes up carbon dioxide. Oceanic processes act as carbon sinks such as solubility pump which is the descent of surface seawater containing carbon dioxide and buried at water depths. Another oceanic process of carbon sinks includes the uptake of dissolved carbon dioxide by marine vegetation living in the upper ocean or other marine organism that use carbon dioxide to build their skeleton. This can be said to be the biological process of carbon sink where these organisms expire and fall to the ocean floor, hence the carbon dioxide they contain is eventually buried at depths.

Unfortunately, anthropogenic emissions or human activities leading to increase in carbon dioxide account for the annual release of about 7 gigatons or 7billion tons of carbon dioxide to the atmosphere which exceeds the offsetting capacity of natural sinks which is at most 3 gigatons per year. This leaves uncontrolled large amount of Carbon dioxide in the atmosphere, hence increases global warming and other dangers to human survival. In the current century, scientists have shown that the level of excess carbon dioxide accumulation over years has hit 419 ppm which represents about 37 percent above the natural background level before the beginning of industrial revolution.[17]

In the same vain, Methane (CH_4) is a very important greenhouse gas and more potent than carbon dioxide because it produces more radioactive per molecule. The presence of Methane in the atmosphere significantly affects earth's temperature and climate system[18]. Upon escaping into the atmosphere, like other greenhouse gasses, it acts as a blanket insulating the earth, absorbing energy and slowing the rate at which heat leaves the planet. Methane (CH_4) is said to exist in lower concentration than carbon dioxide in the atmosphere but with shorter residence time in the atmosphere than carbon dioxide. While the residence time for Methane (CH_4) is about ten years; that of carbon dioxide (CO_2) lasts for hundreds of years.

There are various natural sources through which Methane (CH_4) is released to the atmosphere. They include; Methane (CH_4) oxidizing bacteria that feed on organic materials especially those consumed by termites, volcanoes, seafloor in regions with rich organic sediment, etc. However, there are anthropogenic sources of Methane which account for approximately 70% of total

annual emission. These include; agricultural activities such as rice cultivation, livestock farming, burning of coal, natural gas, biomass or decomposition of organic matter in landfills, wastewater treatment, industrial processes, etc. Like carbon dioxide, methane (CH_4) is highly reduced in sinks by the atmosphere itself and in the soil where Methane is oxidized by bacteria, etc.

Besides the greenhouse gasses are other gasses such as; Aerosols, surface level ozone or tropospheric ozone, etc; which constitute nuance to atmospheric health leading to pollution and global warming. The surface level ozone (O_3) is a strong form of air pollution. The natural source of surface level ozone as distinguished from the anthropogenic (human created sources) include photochemical reactions involving the atmospheric pollutant carbon monoxide (CO), volatile organic compounds and Nitrous Oxide (N_2O). Thus carbon monoxide (CO), volatile organic compounds and Nitrous Oxide (N_2O) are referred as ozone precursors[19]. This is created by chemical reactions between nitrogen gases as a result of combustion and volatile organic compounds such as carbon monoxide[20]. Anthropogenic factors to ozone level formation include; motor vehicle exhaust, industrial emissions and chemical solvents, etc.

Aerosols are strong factors to climate insecurity. Aerosols refer to the suspension of fine solid or liquid particles in gas form such as smoke, fog, mist, sea salt, dust, volcanic ash, etc. Here volcanoes eject huge columns of ash and sulfur dioxide into the air. Aerosols are other forms of anthropogenic radioactive force on climate. They reflect and absorb a proportion of incoming solar radiation creating a negative radioactive force and warming the lower atmosphere. Very much unlike the greenhouse gasses such as CO2, CH4, aerosols do not last for decade –long residence times. Aerosols are flushed out of the atmosphere within days either by rains or snow. They have the ability to influence climate directly by absorbing or reflecting incoming solar radiation. Also, aerosols can produce indirect effect by modifying cloud formation and properties by providing surfaces upon which water vapor condense to form clouds, hence referred as condensation nuclei. Also, darker colored aerosols have capacity of hindering cloud formation by absorbing sunlight and heating up the surrounding air.

It is obvious that the unfriendly and unfair management in relationship with the earth is responsible for the anthropogenic factors leading to environmental degradation, global warming and climate change. This is most obvious when there are changes to near-surface air temperatures which influence the ecosystem and biodiversity of plants and animals. Thus it is scientifically proven that geographic ranges of animals and plant species have been established by adaptation to long-term seasonal climate patterns. Unfortunately, global warming alters this long-term patterns of plants and animals species in their habitats on timescales considerably shorter than those that arose in the past from natural climate variability, hence challenging the natural adaptive capacity of these species.

It is on record that large fraction of plants and animal species have very high tendencies of extinction with the average surface temperature rise. About 40% extinction rate is likely to lead

to major changes in the food webs within ecosystem and have a destructive impact on ecosystem function. Similarly, surface warming in temperate regions to a great extent is responsible for changes occurring in seasonal processes such as; greening of vegetation, leafing of trees, fruition of trees, migration pattern of fishes or birds, etc. Also, such changes are responsible for changes in precipitation patterns and drought frequencies which lead to frequent and uncontrollable disturbances by fire and pests. In the same vain, high latitudes zones, such changes lead to decreased sea ice and changes in ocean salinity causing reduction or redistribution in population of algae and plankton which imposes great threat to fishes and other organism that feed on algae and plankton.

In the same vain, human beings receive the devastating effect of the abuse of the environment and anthropogenic factors to global warming. Thus warmer temperature leads to the spread of infectious diseases. This is because the geographic ranges of carriers such as rodents, insects, virus, etc are often affected by climatic changes. Global warming could lead to substantial disruption in areas of energy supply, agriculture, heavy flooding, forest products, water supply, human health, etc, hence leading to heavy health and socio-economic implications. [21] Human use of machines and engines suffer lots of challenges as a result of extreme weather changes, hence leading to dysfunctionality and increase in hazards.

Ecosophy as Prospects for Environmental/Climate Security.

Matters of environmental degradation and climate insecurity are quite worrisome and imposes regrettable devastation to humanity and the entire ecosystem. Parker bemoans this situation in the following statistics:

> presently, 42 percent of land-based invertebrates, 34 percent of freshwater invertebrates, and 25 percent of marine invertebrates are at risk for extinction … As for the Earth itself, 10 out of 14 land habitats have seen a decrease in vegetation productivity. Forty percent of wetlands have been lost to agriculture and urban development since 1970 ... Deforestation has slowed, but continues. Genetic diversity is in decline, threatening food security, etc.[22]

Consequent upon this, the United Nations Conference on the Human Environment was organized in 1972 leading to the creation of the United Nations Environment Program (UNEP). This new body was charged with the responsibility of finding solutions to various environmental challenges such as pollution, deforestation, desertification and drought, the depletion of the Earth's ozone layer by human-produced chemicals and global warming

It was in the 70s that the two ecological philosophers Felix Guattari and Arne Naess introduced the concept of ecophilosophy as the philosophy of ecological balance[23]. It is based on analytical thinking and reasoned argumentation on assumptions/philosophies which guide our conduct towards the environment[24] in order to create and sustain a vibrant and healthy planet. This is anchored on the claims of Gandhiji that "the Earth has enough for every man's need but not enough for every man's greed",[25] hence a call for friendliness, kindness and fairness in earth management[26].

The concern of ecosophy is a duty call to environmental responsibility as a necessity towards environmental and climate security. This responsibility elicits the concern for environmental ethics anchored on ethical consideration for environmental preservation and security. This form of preservation is intentional towards the different dynamisms of environmental concern; the human person (anthropocentric), biological life centered (biocentric), environmental friendliness (ecocentric), animal liberation/right,[27] etc.

Undoubtedly, anthropogenic factors have to a great extent widened the threat to environmental and climate security. Such anthropogenic factors leading to environmental degradation include; over exploitation of natural resources, Deforestation, soil pollution, overgrazing, overpopulation, poor waste disposal, etc. Similarly, there are anthropogenic factors leading to global warming, hence heating up the ozone layer and threatening climate security[28]. These human activities lead to increase of aerosols, ozone (O_3), release of greenhouse gases by burning fossil fuels such as; carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), water vapor, etc. It is obvious that the unfriendly and unfair management in relationship with the earth is responsible for the anthropogenic factors leading to environmental degradation, global warming and climate change, hence impacting potently to alter the ecosystems leaving devastating effects on the atmosphere, human and animal survival.

The above mentioned implications of global warming and climate change have called for more urgent need to ecosophy in order to secure healthy global friendliness and climate security. In the attempt to assuage these damaging implications, ecosophers have developed robust dynamisms of prospects towards rescuing the globe from total destruction. Thus ecosophers make an invitation to humanity to adjust our orientations towards anthropogenic factors leading to environmental degradation, global warming and climate change.

This form of attitudinal change ought to be comprehensive. Firstly, curriculum developers in schools and colleges need to impact right models and attitudes to environmental security through eco-science and eco-wisdom. Thus Uchendu appealed as following;

> it is necessary for man to recognize the importance of his environment. In a place like Nigeria, people have poor environmental behavior and this should not be allowed to continue. That is why environmental education should be treated with

> the seriousness it deserves. Everybody should be aware of the ugly effects of environmental abuse or degradation .....This should form an integral part of social studies education, but unfortunately the social studies curriculum lacks meaningful emphasis on environmental education. This is regrettable and therefore, efforts should be made to incorporate it in the curriculum as one of its focal points. Environmental issues are so crucial to the well-being of the society, that children should be acquainted with it right from Kindergarten so that they will be trained to appreciate them and develop favorable environmental behavior. [29]

This form of eco-wisdom would promote system thinking for the transformational change beginning with understanding of the relationship between environmental degradation/climate change and the interplay of insecurity. This understanding prompts integrated responses against the effects imposed by these threats of environmental degradation and climate change. Also, it addresses focus on women and gender differentiated impacts of environmental change and degradation to address vulnerabilities and equip policymakers with insights on inclusive polices.

One of the needed paths and orientation towards rescuing the globe from destruction is regenerative farming. Regenerative farming is an essential method of repairing the damages to the soil by rebuilding soil fertility, increase biodiversity and reduce use of synthetic fertilizers and pesticides. Generally it centers on restoring the health of the soil and reversing environmental damages. It works towards retaining water, reduce erosion and improve water quality to the crops. This is better achieved through the use of cover crops, crops rotation, etc. Thus regenerative farming ensures improved soil structure, organic matter, microbial activities such as beneficial insects, birds, and other wildlife. This activity helps create a balanced ecosystem which improve resistance to pest and diseases.

In the same vain, tree planting and green vegetation are effective means of preventing environmental degradation. On their part, trees absorb carbon dioxide and other pollutants into the air by the burning of fusil fuels and other modes of combustion, hence reduce air pollution. Trees go a long way towards providing habitats for wildlife, improves biodiversity, shades and shelter for wildlife, hence reducing evaporation, heat, erosion by stabilizing soil roots, water runoff, etc. In January 2024, the government of Anambra State made it mandatory that each household should plants trees in cities like Onitsha and the environs[30]. This is a welcome development that ought to be emulated by other states towards environment and climate security.

In this research, we are deriving a form of spirituality referred as environmental and climate Spirituality. Here spirituality means recognition of a feeling or belief and beyond sense perception of a connection to something or search for sacredness in life realities of us and around us. This connotes making sense of one's own inner dimensions and realities around oneself. Thus

environmental and climate spirituality here implies a clarion call for spiritual renewal and restoration of relationship with the creator's design in creation, the maintenance of order and balance in creation especially among wildlife, vegetation and the entire ecosystem. Thus this engineers a sense of responsibility and stewardship for environmental protection, policies and sustainable practices[31].

It was in 2012 that the United Nations Environment Program (UNEP) which is an arm of United Nations (UN) in her "Guidance for Prevention and Managing Land and Natural Resources Conflict" recognized that environmental degradation and dwindling natural resources are contributing factors leading to conflict in fragile contexts, hence acting as a threat or risk multiplier. Consequent upon this, factoring in healthy environmental protection actions would lead to conflict mitigation or prevention and peace building; control resource competition as an opportunity for dialogue and collaboration towards recovery and strengthened community ties[32]. While making frantic efforts towards conflict prevention, mitigation, response and peace building; UNDP shows great importance of accelerating integrated approaches to climate actions and security risks[33].

Since United Nations Environment Program (UNEP) set out June 5 annually, as the World Environment Day or Eco-Day. This is an opportunity to encourage awareness and actions for environmental protection and sanitation. Good enough, most states in Nigeria have adopted last Saturdays of the month as sanitation day, there is need for adequate sensitization and implementation in this regard. The government agencies in charge of the environment ought to make friendly policies to protect the environment and waste management. These policies ought to be well implemented and enforced. These policies should be capable of controlling or discouraging inordinate combustion/burning of fossils fuels such as oil, coal, natural gas for use in transportation, heating, generation of electric power, burning of forests, deforestation, etc. These policies should incorporate private and public companies and their methods of waste disposal. Also, the government ought to create more carbon sinks to control the emission of carbon dioxide through terrestrial vegetation which by process of photosynthesis takes up carbon dioxide.

Conclusion

This paper shows environmental degradation and global warming as a result of both natural and anthropogenic (human activities) factors. It is obvious that the most disheartening devastation to the ecosystem is not caused by the natural factor but anthropogenic factors leading to environmental degradation and global warming. These anthropogenic factors include; burning of coal and fossil fuel which release greenhouse gases such as carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), water vapor, unethical management of industrial/private materials and wastes, etc. Unfortunately, global warming leads to the extinction of animals and plant species as it alters the long-term patterns in their habitats on timescales considerably shorter than natural

climate variability, hence challenging the natural adaptive capacity of these species. This variation in the climate temperature causes changes in food webs within the ecosystem such as; greening of vegetation, leafing and fruition of trees, migration pattern of fishes or birds, precipitation patterns and drought frequencies leading to frequent and uncontrollable disturbances by fire and pests, decreased sea ice and changes in ocean salinity causing reduction or redistribution in population of algae and plankton which imposes great threat to fishes and other organism that feed on algae and plankton, spread of infectious diseases as carrier rodents, insects, virus are always affected by climate change, machines and engines suffer lots of challenges as a result of extreme weather changes, etc. No doubt, like Mann claimed, environmental degradation and climate change lead to devastating health and socio-economic implications. [34]

Consequent upon the stated environmental and atmospheric devastations, this paper set to re-evaluate ecosophy for environmental and climate security. The concern of ecosophy is a clarion call to responsibility towards environmental and climate security; eliciting a great ethical consideration for environmental preservation and security. This responsibility would to a great extent downgrade anthropogenic factors that widen the threat to environmental and climate security. This responsibility calls for population rather depopulation of green areas; regenerative farming which restores soil health and reverses environmental damages, soil structure, organic matter, microbial activities such as beneficial insects, birds, and other wildlife; tree planting which provides habitats for wildlife, improves biodiversity, shades and shelter for wildlife, hence reducing evaporation, heat, erosion by stabilizing soil roots, water runoff; public and private companies/domestic environmental friendly practice and adequate waste disposal; influencing policies and curriculum development in schools and colleges to ensure adequate environmental education; implementation of policies on waste management by government agencies; observing World Environment Day as set by United Nations Environment Program (UNEP) and different states' sanitation days; etc.

From the foregoing, it is not doubtful that there is emergency need to environmental responsibility. Little wonder, Kofi Anan, insisted that environmental protection is a major key/pillar for sustainable development[35]. The earth is highly endangered by climate change that scientists recommend that we must limit global warming to 1.5 degrees Celsius by 2040 lest we face a future characterized by extreme droughts, wildfire, floods, tropical storms, etc. This would impose world economic crunch through displacement, hunger and social unrest, etc.

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