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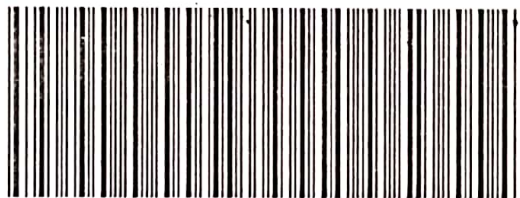
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CHAPTER 7

GLOBAL ENVIRONMENTAL ISSUES AND CLIMATE

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INTRODUCTION

Emerging environmental problems in the last decades have been accumulated to the old ones, bringing new challenges to international and national environmental protection institutions. An introduction to Global Environmental Issues presents a comprehensive and stimulating introduction to the key environmental issues presently threatening our global environment. Major global environmental issues and their interactions with climate are brought into focus in this chapter. The rapid growing population and economic development in the world at large is leading to a number of environmental issues because of the uncontrolled growth of urbanization and industrialization, expansion and massive intensification of agriculture, and the destruction of forests among others which have great impact on the climate. In fact, some of these issues that are urgent and challenging environmental problems in the last decades were identified in the last 50 years creating greater awareness for the urgent need to take positive action. Therefore, this chapter seeks to assess global environmental issues and its attendant impact on climate.

Global Environmental Issues and Climate

Environmental issues are defined as harmful effects to earth and its natural systems due to the actions of humans. According to Anand (2013), 'Global Environmental Issues' is a phrase that refers to the effect on the climate of human actions, in particular through firing of fossil fuels (coal, oil and gas) and large-scale deforestation, which cause emissions to the atmosphere of large amounts of 'greenhouse gases', of which the most important is carbon dioxide. Such gases take up infrared radiation emitted by the Earth's surface and act as blankets over the surface keeping it warmer than it would otherwise be. Connected with this warming are changes of climate. Climate can be defined as 'average weather' and is described in terms of the mean and variability of relevant characteristics such as temperature, precipitation and wind over a period of time ranging from months to thousands or millions of years. Climate reflects how weather behaves over the long-term, and as such needs to be distinguished from weather which is a particular meteorological condition that we experience daily, characterized by precipitation, temperature, wind, and so on (UNESCO/UNEP, 2011).

Emerging environmental problems in the last decades have been accumulated to the old ones, bringing new challenges to international and national environmental protection institutions. The history of the emerging environmental problems facing advanced societies in the period 1950s-1970s is very revealing. At the same time there are new economic, social and technological changes on a global scale due to globalization (Valavanidis, 2019). According to Khan (2013), as early as 1896, the Swedish scientist Svante Arrhenius had predicted that human activities would interfere with the way the sun interacts with the earth, resulting in global warming and climate change. His prediction has become true and climate change is now disrupting global environmental stability. The last few decades have seen many treaties, conventions, and protocols for the cause of global environmental protection.

Few examples of environmental issues of global significance are Ozone layer depletion, Global warming, Loss of bio-diversity and others. Environmental protection has become a national issue as well as international issue in recent years. Though scientists and environmentalists have recognized the magnitude and significance of environmental problems for decades, it is only recently that the media has turned to highlight issues like Minamata disease (Japan), Bhopal tragedy (India), greenhouse effect, deforestation, global warming and waste generation (Khali et al., 2011). Also, the Sub-Saharan African drought, Central American migration pressures, South American deforestation, Asian public health concerns, European decarbonization, United Nations (UN) climate talks, Australian bushfires, Canadian Federal Elections, United States (US) withdrawal from the Paris Climate Agreement and global youth-led climate social movements punctuated the 2019 media and climate change landscape. Climate impacts from the Amazon to the Zambezi River grabbed media attention in 2019 (Boykoff, 2020).

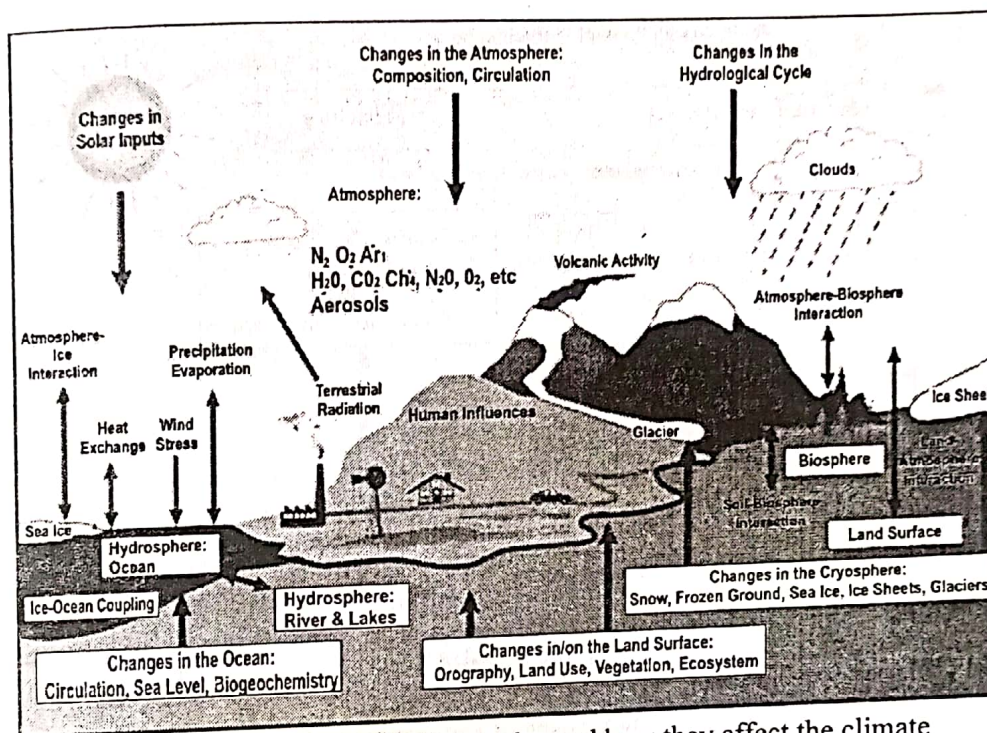


Figure 1: Interaction of the cycles and how they affect the climate
Source: Adopted from Le Treut (2007)

The effect that humanity is having on the environment is becoming ever-more important. Through our actions, we are destroying habitats and endangering the lives of future generations. The third decade of the 21st century has begun and the environmental challenges we have ahead of us, set out in the UN's 2030 Agenda for Sustainable Development, are many. This global plan of action adopted in 2015 puts forward specific measures to achieve *a world that is fairer, more prosperous and more respectful of the environment* within ten years. In this regard, the UN itself warns that we are running late, and the question now is whether we still have time to save the planet. With a population projection pointing to the need to feed and sustain the livelihoods of 9.8 billion people living in 2050, at this trend the earth may not be able to cater for this population (UNDESA, 2017).

Human lives are directly linked to the climate. Therefore, there is no gainsaying that human activities are changing the climate. There has been a continuous rise in global temperature in the last 130 years, which has huge consequences on a wide-range of climate related factors (Nwankwoala, 2015). Anthropogenic release of greenhouse gases Carbon dioxide (CO₂), Methane (CH₄), water vapour, Nitrous oxide (N₂O), Ozone (O₃), Chloroflucarbon (HFCs), Perfluorinated compounds (PFCs) and Sulfur hexafluoride (SF₆) reflects a portion of solar energy back to the earth, this increases the temperature, causes changes in ocean currents, seasonal weather patterns and ultimately changes the climate. Deforestation reduces the CO₂ sink and it further enhances the greenhouse effect there by degrading the environment (Figure 1).

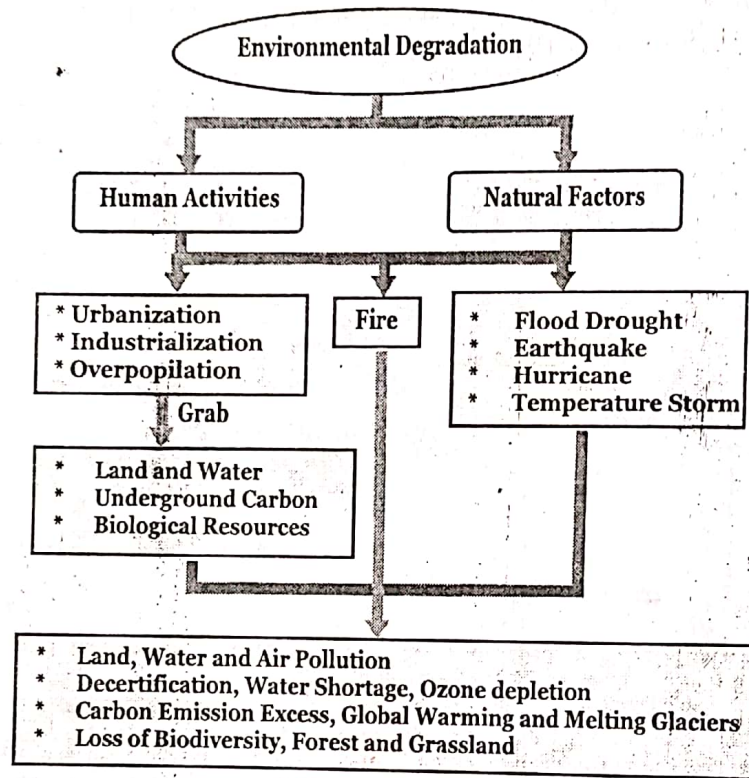


Figure 1: Different Causes of Environmental Issues

Source: Adopted from Maurya et al. (2020)

Royal Society and The US National Academy of Sciences 2020 update reported that human activities especially the burning of fossil fuels since the start of the Industrial Revolution have increased atmospheric CO₂ concentrations by more than 40%, with over half the increase occurring since 1970. Since 1900, the global average surface temperature has increased by about 1 °C (1.8 °F). This has been accompanied by warming of the ocean, a rise in sea level, a strong decline in Arctic sea ice, widespread increases in the frequency and intensity of heat waves, and many other associated climate effects. Much of this warming has occurred in the last five decades. Detailed analyses have shown that the warming during this period is mainly a result of the increased concentrations of CO₂ and other greenhouse gases. Continued emissions of these gases will cause further climate change, including

substantial increases in global average surface temperature and important changes in regional climate. Also, observations show that warming of the climate is unequivocal. The global warming of the past fifty years is due primarily to human-induced increases of greenhouse gas (GHG) emissions. These emissions come mainly from the burning of fossil fuels (coal, oil and gas), with additional contributions from the clearing of forests, agricultural practices, and other activities. The effects of human activities have also been identified in many other aspects of the climate system, including changes in ocean heat content, precipitation, atmospheric moisture and Arctic sea ice. (ILO 2018.). In view of the adverse effects of certain human activities, that cause earth warming and climate change, it is important that we begin to examine these environmental issues and make choices that will reduce these issues, and the best way out of this is to get ourselves and the younger generations educated through our education systems and other avenues of public enlightenment.

Impact of Global Environmental Issues on the Climate

According to Khan (2013), Anand (2013) and Simonis (1998), there are many environmental issues having great impact. However, most of them are assessed at are varying degrees. *They are:*

1. Climate Change:

Climate change refers to a long change in the average weather pattern over a specific region/and a significant period of time. It is also seen as a change in the statistical distribution of weather patterns when that change lasts for an extended period of time (i.e. decades to millions of years). The most general definition of climate change is a change in the statistical properties of the climate system when considered over long period of time Some of the most obvious signs of this include irregularities in weather, frequent storms, melting of glaciers, rising levels of sea etc. Going by the prevailing conditions, it is not difficult to anticipate that the planet is heading for a dramatic climate change. According to Anand (2013), the recent estimates are that atmospheric concentrations of the greenhouse gas carbon dioxide (CO₂) will double or triple pre-industrial levels by the end of this century. As a result, global surface temperature is expected to increase by 1.4 to 5.8 degrees Celsius from 1990 to 2100.

2. Global Warming:

Before the Industrial Revolution, human activities released very few gases into the atmosphere and all climate changes happened naturally. After the Industrial Revolution, through fossil fuel combustion, changing agricultural practices and deforestation, the natural composition of gases in the atmosphere is getting affected and climate and environment began to alter significantly (Khan,2013). The key greenhouse gases (GHG) causing global warming is carbon-dioxide. CFC's, even though they exist in very small quantities, are significant contributors to global warming. Carbon dioxide, one of the most prevalent greenhouse gases in the atmosphere, has two major anthropogenic (human-caused) sources: the combustion of fossil fuels and changes in land use.

3. Forest and agricultural degradation of land:

Land pollution, owing to human activities, and due to loss of vegetation has left the surface of the planet unsuitable for human use. Land degradation can be attributed to the fact that we

have become too laid-back in terms preservation of the nature. Improper soil use, haphazard waste disposal, large-scale deforestation and other such human activities harmful for nature are on the rise, something which is invariably taking a toll on our natural surroundings. Land is both a source and a sink of greenhouse gases (GHGs) and plays a key role in the exchange of energy, water and aerosols between the land surface and atmosphere. Land ecosystems are vulnerable to ongoing climate change and weather and climate extremes, to different extent. Sustainable land management can contribute to reducing the negative impacts of multiple stressors, including climate change, on ecosystems and societies. IPPC (2019) reported that Agriculture, Forestry and Other Land Use activities accounted for around 13% of CO₂, 44% of methane (CH₄), and 82% of nitrous oxide (N₂O) emissions from human activities globally during 2007-2016, representing 23% (12.0 +/- 3.0 GtCO₂e yr⁻¹) of total net anthropogenic emissions of GHGs causing major change in climate.

4. Resource depletion (water, mineral, forest, sand, rocks etc.):

Our greed for more has left us empty handed in terms of natural resources in several parts of the world. Several human activities, including the likes of mining, agriculture, fishing etc., has resulted in drastic degradation of our natural resources. While mining and agriculture have triggered large-scale deforestation, over fishing has only resulted in the reduction of population of marine creatures inhabiting the planet. Sea level rise and extreme weather will affect the ability to fish. The viability of inland fisheries is also threatened by increased salinity and shrinking rivers and lakes (Ebele and Emodi, 2016). If the trends continue, we are bound to exhaust those natural resources on which we are dependent, and thus dig our own graves.

5. Loss of biodiversity:

Biodiversity refers to the variety of life on earth, and its biological diversity. The number of species of plants, animals, microorganisms and the enormous diversity of genes in these species, the different ecosystems on the planet, such as deserts, rainforests and coral reefs are all a part of a biologically diverse earth. Biodiversity actually boosts ecosystem productivity where each species, no matter how small, all have an important role to play and that it is in this combination that enables the ecosystem to possess the ability to prevent and recover from a variety of disasters (Khan, 2013). Human population growth is one of the main causes of biodiversity loss. Ecological communities of plant and animal species called "biomes" are shifting as the planet warms. Some species are able to adapt and move while others cannot, and these will disappear with their disappearing habitat (FAO, 2012). According to WWF (2020), we have lost 60% of all vertebrate wildlife populations since 1970. During that time, our population has more than doubled. A landmark 2019 UN assessment explicitly noted that human population growth is an indirect driver of biodiversity loss and stated: "*changes to the direct drivers of nature deterioration cannot be achieved without transformative change that simultaneously addresses the indirect drivers.*" To be truly effective in the long-term, conservation efforts must incorporate population solutions.

6. Deforestation: The deforestation of forest particularly tropical rainforests is a major global problem each year as millions of hectares are lost. Deforestation rates in some

countries continue to increase despite worldwide pressures. Rainforests are destroyed for wood products, and to make way for agricultural activities, mining and dams. According to Agaja (2019), the removal of vegetal cover increases reflection of incoming solar radiation which leads to excess energy in the atmosphere resulting to increase in temperature. Furthermore, plants absorb excess carbon in the atmosphere for photosynthesis which reduces carbon which is a greenhouse gas that results to global warming. Removal of plants increases the circulation of carbon in the atmosphere resulting to increase in greenhouse gases causing global warming.

7. **Desertification:**

Removing ground cover and degrading fertile land initiates desertification. Water washes away nutrients, the land becomes inhospitable. The process is accelerated by expanding populations and the need to overuse fragile areas of land. IPPC (2019) reported that over the period 1961-2013, the annual area of drylands in drought has increased, on average by slightly more than 1% per year, with large inter-annual variability. In 2015, about 500 (380-620) million people lived within areas which experienced desertification between the 1980s and 2000s. The highest numbers of people affected are in South and East Asia, the Circum Sahara region including North Africa, and the Middle East including the Arabian peninsula

8. **Pollution (water, air, land, noise etc):**

The release of substances to a damaging level by human or natural happenings is called pollution. Pollutants are generally waste products or by-products. Pollutants include CO and CO₂ by combustion of fossil fuels, use of pesticides, motor vehicle exhaust emitted pollutants (oxides of nitrogen, sulphur, particulate, lead etc), petroleum spilled in oceans by carrier tankers, municipal and industrial effluents among others in industrial and agriculture sector. Gases present in the atmosphere are in definite quantity and ratio. The rapid progress in urbanization, industrialization, and vehicular growth contribute to release of undesirable substances that change the basic composition of the air. Pollution (plastic and runoff) and coastal ecosystem destruction are all exacerbated by population growth. The United Nations' 17 Sustainable Development Goals (SDGs) a for achieving a healthy planet by 2030 recorded that the combination of climate change and population growth is fueling a global water crisis. As our numbers grow, aquifers get overdrawn, pollution increases, and the capacity to safely dispose of wastewater is increasingly compromised. Currently, a staggering 2.2 billion people around the world do not have safe drinking water and 4.2 billion lack safe sanitation services.

9. **Public health, :** The vast amount of untested chemicals released into the air and found in our foods and household items endanger general public welfare. One study tested children for the presence of lead, methylmercury and polychlorinated biphenyls and found traces in over 89 percent of the subjects. As the future of society, kids need a safe and healthy start to life. According to Pinkerton et al., (2013), climate change may affect lung health by altering at least four major factors: ambient temperature, levels of particulate matter (PM), ambient allergens, and ozone. Climate change is also projected to increase the health risks due to heat waves and the frequency of wildfires.

10. **Overpopulation:**

As the population of world continues to soar at an alarming rate, the pressure on the resources of the planet is increasing. The problems associated with overpopulation range from food and water crisis to lack of space for natural burial. Incessant population growth will not just result in depletion of natural resources, but will also put more pressure on the economy. The Intergovernmental Panel on Climate Change's Fourth Assessment Report states that "gross domestic product per capita and population growth were the main drivers of the increase in global emissions during the last three decades of the 20th century."

11. **Generating Unsustainable Waste:**

As population increases, human activities increase, which eventually increases the amount of waste produced. This waste doesn't just include those harmful gases let out in the atmosphere or toxic waste released in water bodies, but also includes nuclear waste, e-waste, medical waste and even the waste from our homes. With limited area available on the planet, and most of it being inhabited by us, we are left with no space to dispose this type of waste. The rate at which this waste is produced is far more than the rate at which it is being treated, and these just results in piling up of waste, which eventually pollutes the environment.

12. **Ozone Layer Depletion:**

The ozone layer, in the stratosphere acts as an efficient filter for harmful solar Ultraviolet B (UV-B) rays. The ozone gas is made up of molecules each containing three atoms of oxygen; its chemical formula is O_3 . Ozone is produced and destroyed naturally in the atmosphere and until recently, this resulted in a well-balanced equilibrium. Ozone is highly reactive and easily broken down by man-made chlorine and bromine compounds. These compounds are found to be most responsible for most of ozone layer depletion. The ozone depletion process begins when CFCs (used in refrigerator and air conditioners) and other ozone-depleting substances (ODS) are emitted into the atmosphere. Winds efficiently mix and evenly distribute the ODS in the troposphere. These ODS compounds do not dissolve in rain, are extremely stable, and have a long-life span. After several years, they reach the stratosphere by diffusion. Strong UV light breaks apart the ODS molecules thereby destroying the ozone layer and penetration of ultra violet rays. Increased penetration of solar UV-B radiation is likely to have high impact on human health with potential risks of eye diseases, skin cancer and infectious diseases. Also, increased radiation is likely to change species composition thus altering the bio-diversity in different ecosystems. It could also affect the plant community indirectly resulting in changes in plant form, secondary Metabolism as well as may affect the distribution of phytoplankton, which form the foundation of aquatic food webs. It can also cause damage to early development stages of fish, shrimp, crab, amphibians and other animals, the most severe effects being decreased reproductive capacity and impaired larval development.

13. **Acid Rain:** The term acid rain refers to what scientists call acid deposition. It is caused by airborne acidic pollutants and has highly destructive results. The invisible gases that cause acid rain usually come from automobiles or coal-burning power plants. Acid rain

moves easily, affecting locations far beyond those that let out the pollution. As a result, this global pollution issue causes great debates between countries that fight over polluting each other's environments

14. Urban Sprawl/ Urbanization:

There are about 7.7 billion people living on Earth in 2019. At the same time these people will be increasingly drawn to life in cities (50% now). It is estimated that by 2050, roughly 68% of the population will live in urban areas. Urbanization increases energy consumption by raising the demand for housing, food, public utilities, land use, transportation, use of more electric appliances, etc. Most of the investigations of urbanization and its impact on environmental indicators showed that cities and high-density urban populations created major environmental problems ranging from substantial air and water pollution, increased consumption of fresh water resources, deforestation for housing needs, motorways, parking spaces, public amenities etc.

Urbanization played a significant role in increasing CO₂ emission in some countries (Valavanidis 2019). Urbanization is a trend that is associated with climate change, with cities contributing up to 80% of greenhouse emissions worldwide. In countries that are rapidly urbanizing, the growth of urban populations could accompany shifts in the labor force toward greater industrial activity, leading to increased greenhouse gas emissions (UNFPA, 2011) Although climate change can also occur from natural causes, human behavior has led to an increase in greenhouse emissions. While climate change is discussed frequently now, it has been occurring since the Industrial Revolution.

Climate change affects everyone and the ramifications are visible by the variation in temperatures and an increase of intense natural disasters. The negative impacts are likely to affect those who are already the most vulnerable. Climate change destabilizes the Earth's temperature equilibrium and has far-reaching effects on human beings and the environment. During the course of global warming, the energy balance and thus the temperature of the earth change, due to the increased concentration of greenhouse gases, which has a significant impact on humans and the environment.

The direct consequences of man-made climate change include:

- a) rising maximum temperatures
- b) rising minimum temperatures
- c) rising sea levels
- d) higher ocean temperatures
- e) an increase in heavy precipitation (heavy rain and hail)
- f) shrinking glaciers
- g) thawing permafrost

The indirect consequences of climate change, which directly affect us humans and our environment, include:

- a) an increase in hunger and water crises, especially in developing countries
- b) health risks through rising air temperatures and heatwaves

- c). economic implications of dealing with secondary damage related to climate change
- d). increasing spread of pests and pathogens
- e). loss of biodiversity due to limited adaptability and adaptability speed of flora and fauna
- f). ocean acidification due to increased HCO_3 concentrations in the water as a consequence of increased CO_2 concentrations

Mitigation and Adaptation to Global Environmental Issues

By realizing the repetitive occurrence of several environmental problems to global community and nation, several recommendations are outlined and suggested to prevent and mitigate these environmental issues. *These are:*

1. **Recycling:** Recycling can decrease the number of pollutants entering the atmosphere and has been linked to lessening global climate change. Decreasing the amount of raw materials an industry has to use to create new products slows the cutting down of trees and reduces gas emissions.
2. **Water Conservation:** Conserving water saves money and protects water reserves for future use. Water is necessary to the environment and makes the land habitable for all living creatures.
3. **Involve public participation:** The facility managers should be enrolled to have participation from the public as one of the mitigations plans for problem solutions. Public participation could be appeared in different stages depending on the project requirement and issues involved. In any development, the techniques and approach differ for each project. However, most of the problems appear to be of the similar scope and factors. The range of stakeholders involved in an Environmental Impact Assessment (EIA) typically includes the local people, the proponent, government agencies, NGO's and academics and all the affected people to the development projects. According to Department of Environment, public participation is essential in the preliminary assessment process, but only in ways that could be adjudged to be instrumental public participation. Hence, people must stop throwing rubbish in the river and residents must gather in periodic time to work together to keep rivers and environment in clean condition.
4. **Reduce Oil Dependence:** The world's dependence on oil causes serious harm to the environment. Electric cars replace vehicles with highly polluting internal combustion engines. Ethanol fuel, made from corn, reduces gasoline consumption.
5. **Improvement of Structures for Education/Awareness to promote action by all citizens, including children, the Government should improve environmental education, with emphasis placed on the global environmental issues and the role of forests. Furthermore, education on energy issues should be improved and offered at a variety of settings such as schools, local communities and at homes. The Government should have to develop facilities for environmental education where a broad range of generations, from children to adults, can learn about environmental problems, especially global environmental problems. In addition, the Government should also promote learning through experiencing nature, by promoting educational activities at National Youth Houses and National Children's Centers, and by constructing Visitor Centers and Multiple-use Forest Promotion Facilities. At the same time, urban parks should provide opportunities for residents to know**

about the environment through educational activities. At schools, students should be given practical training for environmental protection and the creation of a better environment through workshops learn and teaching materials, in addition, textbooks should be printed on recycled paper

6. **Emphasize environmental protection programs as reactive solution:** Preliminary assessment is the stage of the environmental procedure that is normally initiated at the pre-feasibility study stage of the development of an activity. Facility managers must adopt environmental protection programs in order to achieve a sustainable development.
7. **Provision of Clean energy:** There are several different forms of clean and renewable energy. Solar, wind, and hydro energy are considered renewable energy sources. Nuclear energy, a non-renewable source of energy that contributes little to climate change, is an example of clean energy. To reduce pollution and our use of oil and fossil fuels, efforts have been made to find clean, renewable energy sources. Some include biofuel, hydropower, solar energy, and wind power.
8. **Wildlife conservation.** Wildlife, including plants, animals and habitats, plays a large part in balancing natural systems. A number of different organizations are involved in wildlife conservation around the world and express the importance of conservation and investing in biodiversity.
9. **Ecological restoration:** Not only does ecological restoration assist in the recovery of the environment, but it promotes a healthy relationship between humans and nature. By repairing the damage, we cause, we promote a healthier ecosystem and improve living conditions for humans, possibly with a profit.
10. **Research for advocacy and policy change:** Possibly one of the most important steps to achieving a healthy environment involves policy. But to gain government support, we need solid research and advocates to voice the facts.

In conclusion, Sivaramanan (2015) reported several mitigation methods as highlighted should be facilitated by several international, government and non-governmental organizations. Climate change issue should be handled by either adapting to the change or disaster risk reduction through proper environmental management. This can be done by reducing the flow of heat-trapping greenhouse gases into the atmosphere, either by reducing sources of these gases (for example, the burning of fossil fuels for electricity, heat or transport) or enhancing the "sinks" that accumulate and store these gases (such as the oceans, forests and soil). Some of the steps in this direction according to Ajibade and Eche (2018) are the use of indigenous knowledge where local communities and farmers can developed and adopt intricate systems of gathering, predicting, interpreting and decision-making in relation to climate change problems. Also, the use of scarce water resources more efficiently; adapting building codes to future climate conditions and extreme weather events; building flood defences and raising the levels of dykes; developing drought-tolerant crops; choosing tree species and forestry practices that are less vulnerable to storms and fires; and setting aside land corridors help species migrate among others can be used to reduce the impact of these global issues.

REFERENCES

- Agaja, T. M. (2019). Deforestation and Micro-Climate of Ilorin and its Environs. *Analele Universității din Oradea. Seria Geografie*, 29(2), 77-85. <https://doi.org/10.30892/auog.292108-806>
- Ajibade, L.T and Eche, J.O (2017). Indigenous knowledge for Climate Change Adaptation in Nigeria. In: Mafongoya, P.L. and Ajayi, O.C. (editors), *Indigenous Knowledge Systems and Climate Change Management in Africa*. CTA, Wageningen, The Netherlands, 316pp.
- Anand, S.V. (2013) *Global Environmental Issues*. 2: 632 doi:10.4172/scientificreports.632
- Boykoff M., Katzung J. and Nacu-Schmidt A. (2020). A Review of Media Coverage of Climate Change and Global Warming in 2019, Media and Climate Change Observatory, Center for Science and Technology Policy Research, Cooperative Institute for Research in Environmental Sciences, University of Colorado Boulder [http://sciencepolicy.colorado.edu/icecaps/research/media_coverage/summaries/special_issue_2019.html]
- Ebele, N. E. and Emodi, N. V. (2016). Climate change and its impact in Nigerian economy. *Journal of Scientific Research & Reports*, 10(6), 1-13
<http://www.journaljsrr.com/index.php/JSRR/article/view/21917/40737>
- Eccleston, C. H. (2010). *Global Environmental Policy: Concepts, Principles, and Practice*. Chapter 7. ISBN 978-1439847664.
- FAO (2012) *Wildlife in a changing climate*. FAO Forestry Paper 176. Eds (Edgar Kaeslin, Ian Redmond, Nigel Dudley), FAO, Rome, pp. 108.
- ILO 2018. *The future of work in a changing natural environment: Climate change, degradation and sustainability*, ILO future of work research paper series, International Labour Office–Geneva: ILO, 2018
- Khalil, N., Husin, H.N., Mahat, N. and Nasir, N. (2011). Sustainable Environment: Issues and Solutions from the Perspective of Facility Managers. The 2nd International Building Control Conference 2011, *Procedia Engineering* 20 (2011) 458–465
- Khan, Z.A (2013) *Global Environmental Issues and its Remedies*. *International Journal of Sustainable Energy and Environment* 1, (8) 120-126, ISSN: 2327-0330 (Online) Available online at www.ijsee.com/120Research/article *
- Le Treut, H., R., Somerville, U. Cubasch, Y. Ding, C. Mauritzen, A. Mokssit, T. Peterson and Prather, M., (2007): Historical Overview of Climate Change. In: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
- Maurya, P.K., Ali, S.A., Ahmad, A., Zhou, Q., Da Silva Castro, J., Khane, E. and Ali, H. (2020). An introduction to environmental degradation: Causes, consequence and mitigation. In: *Environmental Degradation: Causes and Remediation Strategies*, Volume 1, Eds. Kumar, V., Singh, J. and Kumar, P., pp. 1-20, <https://doi.org/10.26832/aesa-2020-edcrs-01>
- Nwankwoala, H. N. L. (2015). Causes of Climate and Environmental Changes: The need for Environmental-Friendly Education Policy in Nigeria, *Journal of Education and Practice* www.iiste.org ISSN 2222-1735 (Paper) ISSN 2222-288X (Online) Vol.6, No.30, 224-235, 2015
- Pinkerton, K.E., Rom, W.N., Carlsten, C., Jaakkola, J.J.K., Bayram, H., Sigsgaard, T., Elci, M.A. and Costa, D.L. (2013) *Climate Change and Global Public Health*, *Turk Toraks Derg* 2013; 14:115-22
- Simonis, U. E. (1998). Global environmental problems - searching for adequate solutions, WZB Discussion Paper, No. FS II 98-405, Wissenschaftszentrum Berlin für Sozialforschung (WZB), Berlin
- Sivaramanan, S. (2015). Global Warming and Climate change causes, impacts and mitigation, *Researchgate Review*, 1-26 DOI: 10.13140/RG.2.1.4889.7128
- UN (2019). *The Sustainable Development Goals Report 2019* United Nations, New-York, pg 64 <https://unstats.un.org/sdgs>.
- UNESCO/UNEP (2011). *Climate Change Starter's Guidebook, An Issues Guide for Education Planners and Practitioners*, 1-72, ISBN 978-92-3-101001-9
- UNFPA (2011). *Population Dynamics and Climate Change*, United Nations Population Fund, New York <https://www.uncclearn.org/wp-content/uploads/library/unfpa30.pdf>
- Valavanidis, A. (2019). Current Environmental Issues and Emerging Global Challenges in the 21st Century for Environmental Protection and Sustainable Development, 1-53, WEBSITE: chem-tox-ecotox.org/ScientificReviews...12December2019SCIENTIFICREVIEWS
- WWF (2020) *Living Planet Report 2020 - Bending the curve of biodiversity loss*. Almond, R.E.A., Grooten M. and Petersen, T. (Eds). WWF, Gland, Switzerland.