

# **Protecting the Environment from the Impact of Climate Change: Environmental Law and Policy to the Rescue**

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## **Abstract**

Climate change remains a topical and thorny issue of major concern across the globe. Alteration in the world climate system has impacted negatively on all aspects of human activities around the world. Global warming has progressively triggered immeasurable natural and human induced disasters ranging from incessant earthquakes, landslides, melting of the polar ice caps and flooding, amongst other extreme occurrences. Consequently, the necessity to find permanent solution to this seemingly obstreperous challenge has become imperative; otherwise more unquantifiable devastation will befall humans and will continue to be hard hit from the impact therefrom. Recourse has been had to laws and policies on climate change by fashioning out same to either moderate the frequency of human activities through mitigation or cushion the impacts of climate change through adaptation. But as a result of the fragility of climate change laws and policies, which leads to their unenforceability, recourse has also been made to environmental law and policy impliedly to augment or breathe life to the soul of climate change law and policies. Thus, climate laws and policies, which have been tailored to regulate climate change, have made little or no impact in mitigating climate change. On its part, environmental law and policy, have by implication, been resorted to for the regulation of climate change but unfortunately have not made any significant impact in mitigating climate change. This article critically examines the mitigating impact of climate change through environmental law and policy.

**Keywords:** Climate Change, Global Warming, Environmental Law and Policy.

## **Introduction**

In climate change, there is a long-term alteration in weather conditions

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marked by changes in winds, precipitation, temperature and other indicators. Climate change involves alteration in average weather conditions and changes in variability, which can lead to extreme occurrences.<sup>1</sup> Climatic conditions naturally vary on all time scales. But, its long-term status and average temperature are regulated by balancing incoming and outgoing energy, which ascertains the energy balance of the earth. Factors that lead to a sustained change to the amount of incoming energy or the amount of outgoing energy can trigger climate change.

Factors that are extraneous to the climate system are referred to as 'climate forcers'. This creates the impression that they force or push the climate on the path of a new long-term state; it could be warmer or cooler depending on what caused the change.<sup>2</sup> Different causes are operational on varying time scales, and not all of those causes that have led to changes in climate in the past are germane to present day climate change. For this purpose, factors that trigger climate change can be grouped into two classes - natural processes and anthropogenic activity. Besides natural causes of climate change, changes intrinsic to the climate system, like variations in the currents of ocean or atmospheric circulation, can also affect the climate for a short duration. The variability in this natural internal climate is submerged in the long-term forced climate change.<sup>3</sup>

The global climate system is warming uncontrollably as a result of human activities. Regrettably, human beings, who are the prime causative agents of climate change, also suffer from its devastating effects.<sup>4</sup> It is against this backdrop that this article seeks to critically examine the causes and consequences of this negative change of the climate system and explores

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<sup>1</sup> Service Canada, 'Causes of Climate Change' <<http://www.climatechange.gc.ca/default.asp?lang=en&n=E18C8F2D-1>> accessed 17 May 2023.

<sup>2</sup> E D A Aina and N O Adedipe, *The Making of the Nigeria Environmental Policy* (Ibadan University Press 1991) 22.

<sup>3</sup> A J Glasson, R Therivel and A Chadwick, *Introduction to Environmental Impact Assessment* (2nd edn London University Press 1999) 12.

<sup>4</sup> L S Anderson and C E Davies, 'The UN Convention on Biological Diversity: A follow-up on EEA member countries' (1996) <[http://www.google.com.ng/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CDoQFjAA&url=http%3A%2F%2Fwww.eea.europa.eu%2Fpublications%2F92-9167-0774%2Fat\\_download%2Ffile&ei=ng7VUaDLMsOM7QbrpICACA&usg=AFQjCNFNoO5mGgoQRJNzKDariAU9u2lCA&sig2=LJK02Q9EO4RUiT4zJyDRaA&bvm=bv.48705608,d.d2k&cad=rja](http://www.google.com.ng/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CDoQFjAA&url=http%3A%2F%2Fwww.eea.europa.eu%2Fpublications%2F92-9167-0774%2Fat_download%2Ffile&ei=ng7VUaDLMsOM7QbrpICACA&usg=AFQjCNFNoO5mGgoQRJNzKDariAU9u2lCA&sig2=LJK02Q9EO4RUiT4zJyDRaA&bvm=bv.48705608,d.d2k&cad=rja)> accessed 17 May 2023.

avenues by which humanity, which is also the major causative agent, can cushion the consequences of climate change and adapt to it. Perceived urgent strategy designed in mitigating and regulating sources of greenhouse gas emissions quickly eroded appreciable progress on the formulation of adaptation strategies fashioned to respond to the adverse impacts of climate change on both humans and the environment. Recently, this ‘adaptation deficiency’ became of utmost importance and actively included in policy debate of climate change.<sup>5</sup> In the past, discussion on adaptation was a no go area but the climate change policy world has reluctantly accepted it as the reality of unsuccessful efforts to achieve universal mitigation policy. However, adaptation policy is not expected to play out for environmental law the way mitigation policy has done.<sup>6</sup>

### **The Concept of Climate Change**

The physical climate system consists of land surfaces, the earth’s atmosphere and oceans, in addition to the snow and ice that is a prominent feature in some parts of the world. There is a constant interaction between these components and with aspects of the earth’s biosphere to ascertain not only the daily weather, but also the long- term averages that is referred to as ‘climate’.<sup>7</sup>

The climate system is triggered by energy from the sun (sunlight). Some of this energy reflects back into space, but the land and ocean absorbs the rest and re-emitted as radiant heat. Some of this radiant heat becomes absorbed and re-emitted by the lower atmosphere in a process called the greenhouse effect. The average temperature of the earth is ascertained by the overall balance between the quantum of incoming energy from the sun and the quantum of radiant heat that finds its way to the atmosphere and is released to space.<sup>8</sup>

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<sup>5</sup> A Kiss and D Shelton, *Guide to International Environmental Law* (Leiden: Martinus Nijhoff 2007) 19.

<sup>6</sup> McKinsey & Company, ‘Environmental and Energy Sustainability: An Approach for India’ (2009) <[http://www.mckinsey.com/~media/mckinsey/dotcom/client\\_service/Sustainability/cost%2520curve5%2520PDFs/Environmental\\_Energy\\_Sustainability.ashx](http://www.mckinsey.com/~media/mckinsey/dotcom/client_service/Sustainability/cost%2520curve5%2520PDFs/Environmental_Energy_Sustainability.ashx)> accessed 17 May 2023.

<sup>7</sup> J F K Akinbami, ‘Renewable Energy Resources and Technologies in Nigeria: Present Situation, Future Prospects and Policy Framework: Mitigation and Adaptation Strategies for Global Change’ [2001] (6) *Journal of the Earth*, 155-181.

<sup>8</sup> O G Amokaye, ‘Environmental Pollution and Challenges of Environmental Governance in Nigeria’ [2012] (10) (1) *British Journal of Arts and Social Sciences*, 26-41.

An important feature of the climate system is that there is no uniformity on how the sun's energy is distributed but rather is usually intense at the equator and weakest at the poles. This non uniformity in energy distribution results in temperature variations, which the atmosphere and ocean act on by the transportation of heat from the warm tropics to the cold Polar Regions. This non-uniform heating and the resultant heat that is transported, result in ocean currents, atmospheric circulation, evaporation, and precipitation that is ultimately experienced as weather.<sup>9</sup>

Any disturbance in incoming and outgoing energy will alter the quantum of heat within the climate system and adversely impact on all the processes so described that move heat around the world. This is experienced as changing weather patterns, the effects of which can have a lasting implication since a lot of human activities have adapted to conditions that have lingered for long.<sup>10</sup>

### **Climate Change and Global Warming**

Global warming in specific terms refers to any alteration in the global average surface temperature. Often times, global warming is misconstrued to imply that there will be uniformity on how the world warms. As a matter of fact, a rise in average global temperature will also stir a change in atmospheric circulation, leading to some areas of the world warming more than others. Regrettably, even though it, to a large extent, does not paint the real picture of what really happens, the term 'global warming' has been frequently used to describe climate change. Climate change transcends just warming. This explains why the term 'global warming' is an inexact description of the phenomenon.<sup>11</sup> However, one of the effects of global warming is changes in atmospheric conditions of a place leading to changes in climate of that place.<sup>12</sup>

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<sup>9</sup> O Awogbemi and C A Komolafe, 'Potential for Sustainable Renewable Energy Development in Nigeria' [2011] (12) (1) *The Pacific Journal of Science and Technology*, 161-169.

<sup>10</sup> *Ibid.*

<sup>11</sup> O Adedeji and Others, 'Global Climate Change,' [2014] (2) *Journal of Geo-science and Environment Protection*, 114-122.

<sup>12</sup> A Abracosa and E Ortolano, 'Environmental impact assessment in the Philippines: 1977-1985' [1987] (7) *Environmental Impact Assessment Review*, 293-310.

The debate of whether or not global warming is triggered by human activities is developing into a great scientific discourse of modern time. Assuming it holds true that global warming is indeed caused by human activities, what will agitate the mind is what the climate consequences will be and whether or not the situation is hapless.<sup>13</sup>

Policymakers met in Copenhagen putting those questions at the front burner. They had failed to reach a consensus on an international treaty to regulate greenhouse gas emissions in a bid to control global warming while maintaining current living standards.<sup>14</sup> A critical factor that appears to stagnate this is the upsurge of uncertainty in the science behind the debate.<sup>15</sup> Core climate scientists are of the view that man-made global warming cannot be wished away since it was happening. However, some global-warming antagonists maintain that the conclusion reached by the core climate scientists is riddled with so much guesswork.<sup>16</sup>

Good science lies at the heart of this back and forth argument – science that is still unfolding. Undoubtedly, the atmospheric carbon dioxide concentration of the earth has been on the rise since the late 1700s during the Industrial Revolution, with most of the increase witnessed as early as 1950. There is a consensus that the increase in carbon dioxide is mainly the result of emissions from burning of fossil fuels. There seems to be unanimity to the fact that the global average temperature has been on the increase since 1850, with most of the warming taking place in the 1970s.<sup>17</sup> At the heart of the global- warming debate is whether warming is the direct effect of rising anthropogenic carbon dioxide levels or whether it is merely natural climate variability.<sup>18</sup>

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<sup>13</sup> S K Ritter, 'Global Warming and Climate Change: Believers, deniers, and doubters view the scientific forecast from different angles' <<http://cen.acs.org/articles/87/i51/Global-Warming-Climate-Change.html>> accessed 17 May 2023.

<sup>14</sup> M A Ajomo, 'Law and Changing Policy in Nigeria's oil Industry' in J A Omotola and A A Adeogun (eds) *Law and Development (Lagos: Published for the Faculty of Law, University of Lagos by the University of Lagos Press, 2017)* 84-99.

<sup>15</sup> B Alo, 'Environmental impact analysis: policy formulation and implementation in Nigeria' in S Appiah-Opoku, *Environmental impact assessment in developing countries: The case of Ghana* (Environmental Impact Assessment Review 2004), 59-71.

<sup>16</sup> R W Kates and Others, 'What is Sustainable Development? Goals, Indicators, values and Practice' [2005] (47) (3) *Environment: Science and Policy for Sustainable Development*, 8-21.

<sup>17</sup> S K Ritter (n 13).

<sup>18</sup> *Ibid.*

According to the fourth Assessment Report titled 'Climate Change 2007' by Intergovernmental Panel on Climate Change (IPCC), a body established by the United Nations Environmental Programme and the World Meteorological Organisation, 'warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level'.<sup>19</sup>

### **Causes of Climate Change**

Climate change has become a thorny issue of discourse in recent times. It arises from the emission of greenhouse gases and this adversely affects the environment. It therefore raises questions on the causative factors – whether it is man-made or part of nature's cycle. While climate change opponents attribute climate change to natural causes, climate scientists believe that human activities primarily contribute to climate change.<sup>20</sup> The focus of the article will now shift to the causes.

#### **(a) Natural Causes**

Riebeek<sup>21</sup> contends that nature is also a contributory factor to climate change by the emission of carbon dioxide from volcanoes. As submitted by Wuebbles:

Volcanoes used to release CO<sub>2</sub> many millions years ago. Back then when dinosaurs existed, we had levels of CO<sub>2</sub> that is approximately similar to what we have now because of the CO<sub>2</sub> emitted by volcanoes. But, volcanoes release a small amount of CO<sub>2</sub> and they can't explain the increase of CO<sub>2</sub> that we had in the last century. Volcanoes do contribute to climate change by emitting CO<sub>2</sub>. However, the amount of CO<sub>2</sub> they emit is relatively small if we compare it to the amount of CO<sub>2</sub> that is being released by human activities.<sup>22</sup>

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<sup>19</sup> K Mwambazambi, 'A Glance on Environmental Protection in Africa: Theological Perspective' [2009] (2) (3) *Ethiopian Journal of Environmental Studies and Management*, 19-26.

<sup>20</sup> Climate Sight, 'Human fingerprints on climate change rule out natural cycles,' <<https://www.skepticalscience.com/global-warming-natural-cycle.htm>> accessed 17 May 2023.

<sup>21</sup> H Riebeek, *Global Warming: Global Cooling* (NASA 2010) 17.

<sup>22</sup> D Wuebbles, *Ecological Impacts of Climate Change* (The National Academies of Science 2009) 23.

According to the National Aeronautics and Space Administration (NASA), volcanoes averagely emit between 130 and 230 million tons carbon dioxide yearly. However, the burning of fossil fuels by humans caused to be released about 26 billion tons of carbon dioxide into the atmosphere yearly.<sup>23</sup>

Continental drift is one of these natural causes. The discovery of fossils of tropical plants (appearing as coal deposits) in Antarctica has provided the basis for the conclusion that this frozen land has in time past been located closer to the equator, where the climate was tropical, with swamps and lush vegetation in abundance.

The continents that exist today were formed millions of years back when landmass started drifting apart slowly. This drift equally impacted on the climate because it altered the physical qualities of the landmass, how they are positioned and the position of water bodies. The separation that affected the landmass altered the flow of ocean currents and winds, which in turn adversely impacted the climate. This drift of the continents continues even up till now.<sup>24</sup>

Aside continental drift, variation in the solar output is another natural cause of climate change. Many scientists believe that the radiation output of the sun only varied negligibly over many years. However, satellite measurements equipped with radiometers in 1980s and 1990s indicated that the sun's energy output may have varied even more than was earlier thought and showed a remarkable decrease in the total amount of solar energy reaching the earth. An extension of this trend over several decades could affect global climate.<sup>25</sup>

Volcanic eruption represents another natural cause of climate change. When there is a volcanic eruption, it emits large volumes of sulphur dioxide, water vapour, dust, and ash into the atmosphere, which has the capacity to influence climatic patterns for many years. Volcanic eruption affects people in diverse ways, and on different scales. Localised problems are sometimes experienced by the release of noxious gases when volcano

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<sup>23</sup> Riebeek (n 21).

<sup>24</sup> M Z A Khan, 'Climate Change: Cause & Effect' [2012] (2) (4) *Journal of Environment and Earth Science*, 49-61.

<sup>25</sup> *Ibid.*

erupts. Fine ash from the explosion of Krakatoa in 1883, for example, moved through the help of gas and vapours to a height of 27 km. It was scattered all over the world and resulted in exotic sunsets and other climatic effects. Generally speaking, millions of tons of sulphur dioxide gas can get to the upper heights of the atmosphere from a serious eruption. The gases and particles of dust block the incoming rays of the sun partially which has an ultimate effect on heat budget. Sulphur dioxide mix with water to produce minute droplets of sulphuric acid which take the form of acid rain that is very toxic to ecosystem. These droplets are very tiny to the extent that many of them can survive for many years.<sup>26</sup>

Variation in the earth orbit and axis is yet another natural cause of climate change. The Earth's orbit appears elliptical, meaning that the distance between the earth and the sun varies over a one year period. This ultimately affects how solar energy is then distributed.<sup>27</sup> The implication is that there will be variation in the solar radiation reaching the earth by about 3.5% above or below the average 'solar constant'. Nearness to the equator equally affects the climatic condition of a place, because regions that are situated in the equator receive full incoming solar radiation throughout the year. A drift pole ward will signal a decrease in the solar energy.

The Earth's axis is usually assumed to be fixed. In reality, however, it is not constant: the axis witnesses movement at the rate of slightly above a half-degree every century. This gradual alteration in the direction of the earth's axis, called precession accounts for changes in the climate. The shift of the earth's axis from the normal to ecliptic varies, passing through a slow oscillation, with a period of about 40,000 years. Changes in the shifting pattern of the earth can influence the gravity of the seasons – more shift leads to warmer summers and colder winters; less tilt leads to cooler summers and milder winters.<sup>28</sup>

### **(b) Anthropogenic (Human) Causes**

In addition to the natural causes of climate change, scientists hold that human activities contribute greatly to climate change because humanity

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<sup>26</sup> Khan (n 24).

<sup>27</sup> *Ibid.*

<sup>28</sup> C Anyadiegwu, 'Overview of Environmental Impact Assessment of Oil & Gas projects in Nigeria' [2012] (1) *International Journal of Science & Technology*, 66.



depends on fossil fuels for energy needs.<sup>29</sup> Ndubuisi and Asia<sup>30</sup> submit that, 'a large amount of climate change happens widely because we are burning fossil fuels and that increases gases such as carbon dioxide, methane, and some other gases in the atmosphere.'<sup>31</sup>

According to Palmer and Robb,<sup>32</sup> the world is dependent on fossil fuels like oil, coal and natural gas for 80% of its energy needs. It, therefore, makes it extremely difficult to abandon fossil fuels for any other form of energy since the dependence on fossil fuel is very high. The emission of greenhouse gases has dramatically increased, mostly from the burning of fossil fuel for energy needs, agriculture, industries and transportation. Certain human activities cause climate change. They include: deforestation, industrial advancement, use of chemical fertilizers and burning of fossil fuels.

Plants give oxygen which is the most important thing for man's survival. They pass through a process of photosynthesis in which they give out oxygen and absorb carbon dioxide. Plants consume the air, sunlight and carbon dioxide to produce food and oxygen. The cutting of trees would mean that plants will no longer produce oxygen and carbon dioxide concentration will be on the increase. An increase in the quantum of carbon dioxide in the air is unhealthy for humans and it will equally disturb the water cycle and create a total imbalance of the ecosystem.<sup>33</sup>

Industrial advancement is another man-made cause of climate change. Uncountable industries and factories spring up in this modern world to satisfy the yearnings of human beings. These factories utilise huge amount of fuels like coal, petroleum for power and electricity in order to keep their machines going. When these fuels are burnt, a huge amount of carbon

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<sup>29</sup> D Anton and D Shelton, *Environmental Protection and Human Rights* (Cambridge: Cambridge University Press 2011) 9.

<sup>30</sup> A L Ndubuisi and I O Asia, 'Environmental Pollution in Oil Producing Areas of the Niger Delta Basin, Nigeria: Empirical Assessment of Trends and People's Perception' [2007] (1) (4) *Environmental Research Journal*, 18-26.

<sup>31</sup> *Ibid.*

<sup>32</sup> A Palmer and C Robb, *International Environmental Law in National Courts* (vol. 4 Cambridge University Press 2004) 454.

<sup>33</sup> D N Sadeleer, *Environmental principles: From Political Slogans to Legal Rules* (Oxford University Press 2005) 275-277.

dioxide is released to the atmosphere. The atmosphere then absorbs the toxic radiations from the sun, leading eventually to global warming. The smoke emanating from these factories mixes with air, making it toxic for breathing.<sup>34</sup>

The use of chemical fertilizers is also human-induced cause of climate change. When Human beings use artificial chemicals to grow crops, it could lead to global warming. These chemicals are very harmful to the earth as well as to humans. These fertilizers are composed of nitrogen oxide, which is even more toxic than carbon dioxide. Oxides from nitrogen depletes the ozone layer faster than any other greenhouse gas and thus permit the dangerous ultraviolet rays enter the atmosphere, warming up the earth and resulting in global warming.<sup>35</sup>

### **Climate Change Mitigation through Environmental Law and Policy**

Climate mitigation is any step adopted to completely end or reduce the long-term danger and hazards of climate change to human life and property.<sup>36</sup> The IPCC<sup>37</sup> defines mitigation as ‘an anthropogenic intervention to reduce the sources of greenhouse gases’. The process of climate change involves a complex interaction of environmental, institutional, climatic, economic, technological, political and social forces. It cannot be tackled or understood in isolation of wider societal goals like equity or sustainable development or other existing future sources of stress.

The United Nations Framework Convention on Climate Change (UNFCCC) outlined three conditions for the attainment of greenhouse gas stabilisation in the atmosphere:

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<sup>34</sup> Sadeleer (n 13).

<sup>35</sup> L A Feris, ‘Environmental Rights and Locus Standi’ in A R Paterson and L J Kotzé (eds) *Environmental Compliance and Enforcement in South Africa: Legal Perspectives* (Cape Town: JUTA) 129-151.

<sup>36</sup> Global Greenhouse Warming, ‘Climate Mitigation and Adaptation: Defining Climate Mitigation and Adaptation’, <<http://www.global-greenhouse-warming.com>> accessed 17 May 2023.

<sup>37</sup> Intergovernmental Panel on Climate Change, *Climate Change 2007: Impacts, Adaptation and Vulnerability* (Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change 2007) 51.

- (a) That it should take place within a time-frame sufficient to allow ecosystems to adapt naturally to climate change;
- (b) That food production is not threatened and;
- (c) That economic development should proceed in a sustainable manner

In order to end or reduce the dangers posed by climate change to human life and property, policy instruments and technology must both be adopted within the purview of sustainable development.

Climate change mitigation, therefore, comprises actions to confine the magnitude of long-term climate change.<sup>38</sup> Generally, climate change mitigation consists of reducing human (anthropogenic) emissions of greenhouse gases (GHGs).<sup>39</sup> Mitigation is also achievable by upping the capacity of carbon sinks through reforestation.<sup>40</sup>

Policies on mitigation can effectively bring to the barest minimum the risks posed by human-induced global warming.<sup>41</sup>

The IPCC's 2014 Assessment Report aptly summed it up, 'mitigation is a public good; climate change is a case of the tragedy of the commons.'<sup>42</sup> Enduring climate change mitigation is not achievable if individuals, institutions or countries act independently in furtherance of their selfish interests, suggesting the need for concerted effort. However, some adaptation actions appear like private good as benefits of actions may inure more directly to the individuals, institutions, or countries that carry them out, at least on a short term basis. That notwithstanding, financing such adaptive activities remain an issue, particularly as it relates poor individuals and countries.<sup>43</sup>

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<sup>38</sup> M T Ladan, *Biodiversity, Environmental Litigation and Access to Environmental Justice* (Zaria: Faith Printers 2007) 15.

<sup>39</sup> IPCC, 'Summary for policymakers,' Climate Change 2007: Working Group III: Mitigation of Climate Change, Table SPM.3, C. Mitigation in the short and medium term (until 2030), in IPCC AR4 WG3 2007 <[http://www.ipcc.ch/publications\\_data/ar4/wg3/en/spmssp.c.html](http://www.ipcc.ch/publications_data/ar4/wg3/en/spmssp.c.html)> accessed 17 May 2023.

<sup>40</sup> *Ibid.*

<sup>41</sup> K Lawal, 'Ecology and Culture: Reflections on Environmental Law and Policy in Sub-Saharan Africa' in S Simpson and O Fagbohun (eds.), *Environmental Law and Policy* (Law Centre, Faculty of Law, Lagos State University 1998) 24.

<sup>42</sup> IPCC Fifth Assessment Report, 2014.

<sup>43</sup> D McDonald, *Environmental Justice in South Africa*. Ohio University Press 2002), 32.

Mitigation examples include closing out fossil fuels by embracing low-carbon energy sources, like renewable and nuclear energy and the expansion of forests and other 'sinks' to eliminate huge amount of carbon dioxide from the atmosphere.<sup>44</sup> Energy efficiency also has a role to play, for example, through improving the insulation of buildings.<sup>45</sup>

### **United Nations Framework Convention on Climate Change 1992**

The solidarity principle can be seen in different angles throughout the international climate change framework, buttressing the fact that international cooperation is crucial to the success of any global climate change agreement. However, it is important to highlight a key feature of the climate change framework, owing to the manner in which the principle of solidarity can be seen operating in practical terms.<sup>46</sup>

The principle of 'common but differentiated responsibilities' (CBDR) is predicated on the need for states to cooperate in the spirit of global partnership so as to preserve and protect the ecosystem. In specific terms, the principle holds that 'in view of the different contributions to global environmental degradation, States have common but differentiated responsibilities'.

The implication is that industrialised states should accept the responsibility that is on their shoulder in pursuit of sustainable development and owing to the pressures their societies place on the global environment and of the technologies and financial resources they control.<sup>47</sup> The CBDR principle is a clear example of solidarity harmonising responsibilities for concerted action, in addition to recognizing existing differences within the global community and fast-tracking support and assistance measures.<sup>48</sup>

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<sup>44</sup> C I Obi, 'Political and Social Considerations in the Enforcement of Environmental Laws' in A O Ajomo and O Adewale (eds) *Environmental Law and Sustainable Development in Nigeria* (Lagos: NIALS 1994) 42.

<sup>45</sup> P O Sada and F O Odemerho, *Environmental Issues and Management in Nigerian Development* (Ibadan: Evans Publishers 1998) 12.

<sup>46</sup> A Williams, 'Solidarity, Justice and Climate Law,' [2016] (10) *Melbourne Journal of International Law*, 10-16.

<sup>47</sup> K Dunion, *Troublemakers: The Struggle for Environmental Justice in Scotland* (Edinburgh: Edinburgh University Press 2003) 21.

<sup>48</sup> C Dunn and S Kingham, 'Establishing links between air quality and health: searching for the impossible' [1996] (42) (6) *Social Sciences Studies of Medicine*, 831-841.

The United Nations Framework Convention on Climate Change (UNFCCC) stands for a concerted effort on how to tackle the global menace of climate change. Participating states, however, vary to a large extent on how they contribute to the problem and their capacity to respond. That notwithstanding, a global solution and total participation is non-negotiable if the problem is to be adequately tackled.<sup>49</sup>

### **Kyoto Protocol 2005**

The conference held at the Japanese city of Kyoto in 1997 appeared to be a success since it resulted in an agreement on a document that covers a very difficult subject traversing diverse interests. It represents appreciable progress toward a global consensus on greenhouse gases and by implication, the production and utilisation of energy. However, those at the negotiation table arrived at that achievement only by postponing to subsequent meetings and tackle some questions that the United States considers fundamental.

The United States did not achieve its demand at Kyoto that the largest of the developing countries undertake to certain kind of limitation on emissions. In Congress, there is a wide consensus, including both parties, against any agreement that exclude China, Mexico, and South Korea. There is a growing concern that the restriction on emissions in this country will simply provide an economic stimulus to companies to move industrial production, and the jobs it represents, to sites abroad where those expensive rules does not apply.<sup>50</sup>

The United States is insisting on global trading in emissions rights and on collective implementation. Trading in this context means that any country that is within its limit can sell emissions rights to another country, or to a firm in a country, that is above its limit. Concerted implementation entails that a company in, for instance, Nigeria, desirous of expanding

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<sup>49</sup> V Eady, 'Environmental Justice in State Policy Decisions' in J Ageyman, R D Bullard and B Evans (eds) *Just Sustainabilities; Development in an Unequal World* (London: Earthscan 2003) 10.

<sup>50</sup> C E Akporido, 'Environmental information needs of rural dwellers in oil production communities in Delta State, Nigeria' [2005] (3) (2) *International Journal of Environmental Issues*, 18-25.

and increasing its emissions, can earn the right to do so by investing in reducing emissions elsewhere in the world. However, for this to be a reality, all parties to the deal have to be under emission restriction. Otherwise there will be no yardstick to measure an increase or reduction in emission. The greatest way to cheaply reduce emissions is in the developing countries. That fuels the American interest in moving developing countries into the fray.<sup>51</sup>

In fashioning a template for trade emission rights, the United States experience is evidence that trading will fully utilise the efficiency of emissions reduction. The American legislation to tackle acid rain provided a market in sulphur oxide emissions rights, and this has led to bringing down those emissions at an amount way below what is expected. When this lesson is applied to global warming gases, it will turn out to be good economics.<sup>52</sup>

### **Conclusion**

The activities of man, particularly fossil fuels combustion and the large-scale transformation of land cover, adversely impact on ecosystems globally and alteration in temperature, precipitation, and water chemistry are changing the environment. These changes have equally affected environmental regulatory mechanisms, either making them appear ineffective or coercing them to adapt to attain their goals under changing conditions.

There has been an increase in global temperature over the last century. Climate scientists forecast that the earth should brace up for more increase as a result of the quantum of carbon dioxide that is already dotting the atmosphere. Rise in temperatures have been followed by diverse environmental changes like retreat of sea ice and glaciers, sea level rise, and changes in the intensity and frequency of storms and precipitation events. Rise in the concentration of carbon dioxide has not only altered the composition of the air humans breathe, but it is also adversely impacting the water chemistry. Oceans absorb carbon dioxide, which forms carbonic acid, causing acidification. Climate change frustrates the

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<sup>51</sup> F Daniel and M Peeters, *Climate Change Law* (Cheltenham: Edward Elgar Publishing Ltd, 2016) 28.

<sup>52</sup> T Kaime, *International Climate Change Law and Policy: Cultural Legitimacy in Adaption and Mitigation* (New York: Routledge, 2014) 16.

ambitious goals of the various environmental laws. Climate change has the ability of jeopardising the survival and recovery rates of endangered species and is likely to change hydrologic processes in a manner that is capable of undermining the goal of making available clean, safe water resources. Climate change can also worsen the quality of by increasing the propensity of unhealthy or ecologically-damaging conditions. Nevertheless, it still behoves on environmental law to protect the climate through adequate climate change mitigation laws.